Appendix B

Statement of Work

STATEMENT OF WORK

APPENDIX B

CONSENT DECREE FOR PARTIAL IMPLEMENTATION OF THE SECOND INTERIM REMEDY FOR THE NORTH HOLLYWOOD OPERABLE UNIT OF THE SAN FERNANDO VALLEY AREA 1 SUPERFUND SITE

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Purpose of SOW. This SOW sets forth the procedures and requirements for implementing the Work.

1.2 Structure of the SOW

- Section 2 (Community Involvement) sets forth EPA's and Settling Work Defendant's responsibilities for community involvement.
- Section 3 (Coordination and Supervision) contains the provisions for selecting the Supervising Contractor and Project Coordinators.
- Section 4 (Remedial Design) sets forth the process for developing the Remedial Design, which includes the submission of specified primary deliverables.
- Section 5 (Remedial Action) sets forth requirements regarding the completion of the Remedial Action, including primary deliverables related to construction, maintenance, monitoring, and completion of the Remedial Action.
- Section 6 (Reporting) sets forth Settling Work Defendant's reporting obligations.
- Section 7 (Deliverables) describes the contents of the supporting deliverables and the general requirements regarding Settling Work Defendant's submission of, and EPA's review of, approval of, comment on, and/or modification of, the deliverables.
- Section 8 (Schedules) sets forth the schedule for submitting the primary deliverables, specifies the supporting deliverables that must accompany each primary deliverable, and sets forth the schedule of milestones regarding the completion of the Remedial Action.
- Section 9 (State Participation) addresses State participation.
- Section 10 (References) provides a list of references, including URLs.

1.3 Scope of Work

(a) **Background**: EPA identified the NHOU Targeted Contamination in the 2009 NHOU FFS and 2009 ROD. The RAOs for the NHOU2IR include containment of contaminated groundwater in the NHOU that exceeds MCLs and notification levels "to the maximum extent practicable" and protection of certain LADWP wellfields from migration of the more highly contaminated areas of the plume. Movement of groundwater in the Basin, due to both natural gradient and the influence of LADWP pumping for drinking water production, makes complete containment of all NHOU Targeted Contamination difficult.

As part of the Remedial Design process, and in consultation with LADWP, Settling Work Defendant and Lockheed Martin conducted a "Capture Zone Analysis" in 2015 to analyze the ability of the NHOU2IR to hydraulically contain the NHOU Targeted Contamination. The Capture Zone Analysis illustrated the area of groundwater that could be hydraulically contained by pumping NHOU extraction wells (See Figure 6). Settling Work Defendant updated the Capture Zone Analysis in 2022 to analyze the extent to which the Central NHOU Expanded Well Network would hydraulically contain the NHOU Targeted Contamination (See Figure 7). The updated 2022 Capture Zone Analysis demonstrated that the Central NHOU Expanded Well Network could hydraulically contain substantially all of the Central NHOU Targeted Contamination as well as additional contamination outside the Central NHOU Area ("Designed Capture Area of the Expanded Central NHOU Well Network").

Settling Defendant again updated the Capture Zone Analysis in 2024, which showed that the extent of capture achieved by the Central NHOU Expanded Well Network varied depending on the volume of water pumped at LADWP's RT Wells and NHW Wells; when LADWP pumped higher volumes from the RT Wells and NHW Wells, the Central NHOU Expanded Well Network captured less of the Central NHOU Targeted Contamination in the northern and western portions of the Central NHOU Area (*see* Figure 8). The 2024 Capture Zone Analysis also showed that NHOU Targeted Contamination in the Central NHOU Area that was not captured by the Central NHOU Expanded Well Network would ultimately be captured by the RT Wells and NHW Wells (*see* Figure 9). Because LADWP has installed treatment for VOCs at the RT Wells and NHW Wells, Central NHOU Targeted Contamination escaping capture by the Central NHOU Expanded Well Network will not only be captured by LADWP wells, but will also be treated to reduce VOC concentrations below the applicable Performance Standards for treated effluent.

(b) Recognizing that:

- LADWP pumping at the RT Wells and NHW Wells is expected to limit the Central NHOU Expanded Well Network's ability to contain all Central NHOU Targeted Contamination,
- Some Central NHOU Targeted Contamination is expected to be captured by LADWP's RT Wells and NHW Wells,
- Pursuant to the Decree, Settling Work Defendant is implementing the NHOU2IR only in the Central NHOU Area, and
- NHOU Targeted Contamination that is not addressed pursuant to the Decree (e.g., NHOU Targeted Contamination in the vicinity of

the Eastern NHOU Wells or the NHW Wells) is or will be addressed by other enforcement instruments,

the Decree requires Settling Work Defendant to implement portions of the NHOU2IR, i.e., the portions of the NHOU2IR that address the Central NHOU Targeted Contamination, in a manner that achieves the objectives set forth below:

(1) Design and construct the Central NHOU Extraction and Treatment System or "CNETS;"

(2) Ensure that the CNETS is operated and maintained (in conjunction with work performed by other parties implementing the NHOU2IR), to achieve the RAOs selected in the 2009 ROD;

(3) Prevent exposure to contaminated groundwater, above acceptable risk levels, by treating the groundwater extracted by the Expanded Central NHOU Well Network to reduce concentrations of COCs below the Performance Standards for treated effluent;

(4) Ensure the CNETS is operated consistent with the approved O&M Plan in order to contain, to the maximum extent practicable, the Central NHOU Targeted Contamination that is within the Central NHOU Area as of the Effective Date. Monitor Central NHOU Targeted Contamination that is not contained by the Expanded Central NHOU Well Network due to the volume of water being pumped at LADWP's RT Wells and NHW Wells to determine whether the Central NHOU Targeted Contamination that is not contained by the Expanded Central NHOU Well Network is being contained by the RT

Wells and the NHW Wells, as contemplated in the Remedial Design;

(5) Ensure that the CNETS horizontally and vertically contains the more highly contaminated areas of the Central NHOU Targeted Contamination within the Central NHOU Area, consistent with the O&M Plan, in order to prevent further degradation of the water quality at the RT Wells and NHW Wells;

(6) Ensure that the CNETS horizontally and vertically contains the more highly contaminated areas of the Central NHOU Targeted Contamination within the Central NHOU Area, consistent with the O&M Plan, in order to inhibit migration from the more highly contaminated areas and depths of the Central NHOU Area to the less contaminated areas and depths of the aquifer including the Erwin and Whitnall well fields; and

(7) Remove COC contaminant mass from groundwater in the Central NHOU Area.

In order to evaluate whether the objectives set forth above are being met, Settling Work Defendant will conduct monitoring and reporting consistent with this SOW. This monitoring and reporting will include, among other things, data collection and analysis to (a) evaluate and document whether Central NHOU Targeted Contamination is contained by either the Central NHOU Expanded Well Network, the RT Wells, or the NHW Wells; (b) document fate and transport of COCs inside the Central NHOU Monitoring Area; and (c) document that the CNETS is operated and maintained as required in the O&M Plan.

1.4 Settling Work Defendant shall finance, develop, and implement the NHOU2IR in the Central NHOU Area and monitor the effectiveness of the NHOU2IR in the Central NHOU Monitoring Area, all in accordance with

the SOW, any modified SOW and all EPA-approved, conditionally approved, or modified deliverables as required by the SOW or modified SOW. Settling Work Defendant's obligations with respect to monitoring the effectiveness of the NHOU2IR in the Central NHOU Monitoring Area are set forth in the EPA-approved Quality Assurance Project Plan.

1.5 Pursuant to the Honeywell/LADWP Settlement Agreement, LADWP, not Settling Work Defendant, will operate the CNETS and perform maintenance tasks as defined in the Honeywell/LADWP Settlement Agreement. Despite LADWP's role operating and maintaining the CNETS, Settling Work Defendant is, pursuant to the Decree, the sole party responsible for financing, developing, and implementing the NHOU2IR in the Central NHOU Area and monitoring the effectiveness of the NHOU2IR in the Central NHOU Monitoring Area.

1.6 It is anticipated that certain Work will start before the Effective Date of the Decree and will be ongoing on the Effective Date of the Decree. Ongoing Work is anticipated to include: (1) operation and maintenance ("O&M") as well as monitoring of the treatment system designed and constructed as part of Phase 1, (2) Site-wide monitoring, and (3) construction of Phase 2 conveyance infrastructure. Such Work shall be subject to the Decree and this SOW following the Effective Date, but may continue under previously approved deliverables, until and unless EPA requests updates, including:

(a) Remedial Design Quality Assurance Project Plan (AMEC Environment & Infrastructure, 2012c);

(b) Prefinal (90%) Design Phase 1B Treatment System (Wood, 2019a);

(c) Revised Construction QA/QC Plan (Wood, 2020b);

(d) Revised Transportation and Offsite Disposal Plan (Wood, 2020c);

(e) Site-Wide Monitoring Plan (WSP, 2022a);

(f) Final (100%) Design Phase 2B Conveyance (Carollo, 2022); and

(g) Phase 1B O&M Plan (WSP, 2023a).

1.7 Settling Work Defendant submitted certain deliverables required by the Decree under previous enforcement instruments, including but not limited to the 2009 RI AOC, 2011 RD AOC, 2017 Honeywell UAO, 2019 Amended Honeywell UAO, that remain in draft form and have not been approved by EPA as of the Effective Date of the Decree. Settling Work Defendant is not required pursuant to the Decree to resubmit the deliverables identified below, but it shall revise and finalize them consistent with the requirements of this SOW:

(a) WSP, 2022b. Intermediate (60%) Design Phase 3 Treatment System;

(b) WSP, 2023a. Phase 1B Operations, Monitoring, and Maintenance Plan;

(c) WSP, 2023b. Phase 1B Uniform Federal Policy Quality Assurance Project Plan;

(d) WSP, 2023c. Phase 1B Site-Wide Monitoring Plan;

(e) WSP, 2023d. Groundwater Monitoring Sampling and Analysis Plan;

(f) WSP, 2023e. Groundwater Treatment System Sampling and Analysis Plan; and

(g) WSP, 2023f. Modeling Quality Assurance Project Plan.

1.8 Implementation of the NHOU2IR shall be considered complete only when all RAOs identified in the 2009 ROD are met throughout the NHOU. EPA expects that all RAOs will be met when all actions selected in the NHOU2IR are fully implemented pursuant to the Decree and pursuant to additional settlements and/or orders with other PRPs.

1.9 **Definitions**. The terms capitalized in this SOW that are defined in CERCLA, in regulations promulgated under CERCLA, or in the Decree, have the meanings assigned to them in CERCLA, in such regulations, or in the Decree, except that the term “Paragraph” or “¶” means a paragraph of

the SOW, and the term "Section" means a section of the SOW, unless otherwise stated. Terms capitalized in the SOW and not otherwise defined in CERCLA, in regulations promulgated under CERCLA, or in the Decree, shall have the meanings assigned to them in this SOW. In the event of a conflict between the language of the Decree and this SOW, the Decree shall prevail. Additional definitions in this SOW include:

(a) "Central NHOU Construction" shall mean construction of the CNETS and the performance of all activities necessary for the system to function properly and as designed (i.e., meet the Performance Standards) until EPA notifies Settling Work Defendant that Central NHOU Construction is complete pursuant to Paragraph 5.6(d)(8).

(b) "Completion Conditions" shall mean the conditions, as set forth in Paragraph 5.9(a), that are required to be met in order to demonstrate that Settling Work Defendant has completed the Remedial Action as required by the Decree.

(c) "In Compliance" shall mean when the CNETS is being operated according to the O&M Plan and Performance Standards are being met.

(d) "Minimum Average Annual Pumping Rates" or "MAAPR" shall mean the pumping rates, established per well pursuant to this SOW, for the Central NHOU Expanded Well Network. The MAAPR is the minimum average pumping rate, in gallons per minute, of a well over the span of a year, established for the purpose of achieving and/or maintaining containment. The initial MAAPR shall be based on a capture zone analysis, pursuant to an approved Containment Evaluation Plan, Paragraph 7.7(d)(10)(ii), conducted as part of the Remedial Design, and adjusted annually as necessary during O&M based on updated capture zone analysis.

(e) "Phase 1" shall mean all work associated with the construction of the partial treatment system as submitted in the Phase 1 design (¶ 1.6(b)), including the installation of three replacement extraction wells. This design includes infrastructure related to the NHOU Treatment Plant, with the capacity to handle a portion of the water extracted by the Central NHOU Expanded Well Network.

(f) "Phase 2" shall mean all work associated with installation of certain wells in the Central NHOU Area and certain conveyance lines from the Central NHOU Expanded Well Network to the NHOU Treatment Plant and from the NHOU Treatment Plant to the "North Hollywood Sump" as submitted in the Phase 2 design (¶ 1.6(f)).

(g) "Phased Construction" shall mean construction of Phase 1 and Phase 2 and the performance of all activities necessary for the phases to function properly and as designed until EPA notifies Settling Work Defendant that Phase 1 construction is complete pursuant to Paragraph 5.6(b)(5) and Phase 2 construction is complete pursuant to Paragraph 5.6(b)(8).

(h) "Remedial Action Construction" shall mean the construction of the Remedial Action, which includes both Phased Construction and Central NHOU Construction.

2. COMMUNITY INVOLVEMENT

2.1 As requested by EPA, Settling Work Defendant shall conduct community involvement activities under EPA's oversight as provided for in, and in accordance with, this Section. Such activities must include designation of a Community Involvement Coordinator ("CI Coordinator").

2.2 Community Involvement Responsibilities

(a) EPA has the lead responsibility for developing and implementing community involvement activities at the Area 1 Site. Previously, EPA

developed a Community Involvement Plan ("CIP") for the Site. In accordance with 40 C.F.R. § 300.435(c), EPA shall review the existing CIP and determine whether it should be revised to describe further public involvement activities during the Work that are not already addressed or provided for in the existing CIP, including, if applicable, any Technical Assistance Grant ("TAG"), any use of the Technical Assistance Services for Communities ("TASC") contract, and/or any Technical Assistance Plan ("TAP").

(b) **Settling Work Defendant's CI Coordinator**. As requested by EPA, Settling Work Defendant shall, within 15 days, designate and notify EPA of Settling Work Defendant's CI Coordinator ("Settling Work Defendant's CI Coordinator"). Settling Work Defendant may hire a contractor for this purpose. Settling Work Defendant's notice must include the name, title, and qualifications of the Settling Work Defendant's CI Coordinator. Settling Work Defendant's CI Coordinator shall coordinate his/her activities with EPA's CI Coordinator, provide support regarding EPA's community involvement activities, and, as requested by EPA's CI Coordinator, provide draft responses to the public's inquiries including requests for information or data about the NHOU. The Settling Work Defendant has the responsibility to ensure that when Settling Work Defendant's CI Coordinator communicates with the public, it protects any "Personally Identifiable Information" ("PII") (*e.g.*, sample results from residential properties) in accordance with "EPA Policy 2151.0: Privacy Policy." The Settling Work Defendant's CI Coordinator has the responsibility to coordinate all community involvement conducted by Entities Performing Work related to construction or O&M of the CNETS with EPA's CI Coordinator and EPA's Project Coordinator.

Notifications by the Settling Work Defendant to the community related to an exceedance of Performance Standards at the effluent of the Central NHOU Extraction and Treatment System must be approved by EPA.

(c) As requested by EPA, Settling Work Defendant shall participate in community involvement activities, including participation in: (1) public meetings that may be held or sponsored by EPA to explain activities at or relating to the NHOU (with interpreters present for community members with limited English proficiency); and (2) other activities EPA decides are necessary to protect and address the concerns of impacted communities. Settling Work Defendant's support of EPA's community involvement activities may include providing online access to initial submissions and updates of deliverables to: (1) any "Community Advisory Groups," (2) any TAG recipients and their advisors, and (3) other entities to provide them with a reasonable opportunity for review and comment. EPA may describe in its CIP Settling Work Defendant's responsibilities for community involvement activities. All community involvement activities conducted by Settling Work Defendant at EPA's request are subject to EPA's oversight. Upon EPA's request, Settling Work Defendant shall establish, as early as is feasible, a community information repository at or near the NHOU, as provided in the CIP, to house one copy of the administrative record.

(d) **Information for the Community**. As requested by EPA, Settling Work Defendant shall develop and provide to EPA information about the design and implementation of the remedy including: (1) any validated data from monitoring the impacts to communities as provided in the Community Impacts Mitigation Plan under

Paragraph 7.7(e); (2) results from unvalidated sampling as provided under Paragraph 7.7(d); (3) a copy of the Community Impacts Mitigation Plan required under Paragraph 7.7(e); (4) schedules prepared under Section 8; (5) dates that Settling Work Defendant completed each task listed in the schedules; and (6) digital photographs of the Work being performed, together with descriptions of the Work depicted in each photograph, the purpose of the Work, the equipment being used, and the location of the Work. The EPA Project Coordinator may use this information for communication to the public via EPA's website, social media, or local and mass media. The information provided to EPA should be suitable for sharing with the public and the education levels of the community as indicated in "EJ Screen." Translations should be in the dominant language(s) of community members with limited English proficiency.

2.3 Settling Work Defendant's Responsibilities for Technical Assistance

(a) EPA may arrange for a qualified community group to receive the services of a technical advisor(s) who can: (1) help group members understand Site cleanup issues (specifically, to interpret and comment on Site-related documents developed under this SOW); and (2) share this information with others in the community. The technical advisor(s) will be independent from the Settling Work Defendant.

(b) At EPA's request, Settling Work Defendant's CI Coordinator shall cooperate with EPA in soliciting interest from community groups regarding a TAP at the Site. If more than one community group expresses an interest in a TAP, Settling Work Defendant's CI Coordinator shall cooperate with EPA in encouraging the groups to submit a single, joint application for technical assistance.

3. COORDINATION AND SUPERVISION

3.1 Project Coordinators

(a) Settling Work Defendant's "Project Coordinator" must have sufficient technical expertise and contractual authority to coordinate the Work. Settling Work Defendant's Project Coordinator may not be an attorney representing any Settling Defendant in this matter and may not act as the "Supervising Contractor." Settling Work Defendant's Project Coordinator may assign other representatives, including other contractors, to assist in coordinating the Work.

(b) EPA shall designate and notify the Settling Work Defendant of EPA's Project Coordinator[s] and "Alternate Project Coordinator[s]." EPA may designate other representatives, which may include its employees, contractors, and/or consultants, to oversee the Work. EPA's Project Coordinator/Alternate Project Coordinator will have the same authority as a remedial project manager and/or an on-scene coordinator, as described in the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"). This includes the authority to halt the Work and/or to conduct or direct any necessary response action when it is determined that conditions at the Site constitute an emergency or may present an immediate threat to public health or welfare or the environment due to a release or threatened release of Waste Material.

(c) DTSC shall designate and notify EPA and the Settling Work Defendant of its Project Coordinator[s] and Alternate Project Coordinator[s]. DTSC may designate other representatives, including its employees, contractors and/or consultants to oversee the Work. For any meetings and inspections in which EPA's Project Coordinator participates, DTSC's Project Coordinator also may participate.

Settling Work Defendant shall notify DTSC reasonably in advance of any such meetings or inspections.

(d) Settling Work Defendant's Project Coordinator shall communicate with EPA's Project Coordinator at least monthly.

(e) The Honeywell/LADWP Settlement Agreement requires LADWP to designate a "Project Coordinator" "who shall endeavor to ensure clear and responsive communication between the [parties to the Honeywell/LADWP Settlement Agreement] and the effective exchange of information and shall serve as the primary point of contact for any issues arising under the [Honeywell/LADWP Settlement Agreement]" (the "LADWP Operations Coordinator"). Settling Work Defendant shall identify, and notify EPA, within 10 days after the Effective Date, of the name, title, contact information, and qualifications of the LADWP Operations Coordinator. Settling Work Defendant shall notify EPA within 10 days of the Settling Work Defendant being notified of any change in the LADWP Operations Coordinator and provide EPA with the name, title, contact information, and qualifications of the LADWP Operations Coordinator.

3.2 Supervising Contractor. Settling Work Defendant's proposed Supervising Contractor must have sufficient technical expertise and contractual authority to supervise the Work and a quality assurance system that complies with the most recent version of *Quality Systems for Environmental Data and Technology Programs -- Requirements with Guidance for Use* (American National Standard), ANSI/ASQC E4 (Feb. 2014).

3.3 Procedures for Disapproval/Notice to Proceed

(a) Settling Work Defendant shall designate, and notify EPA, within 10 days after the Effective Date, of the name[s], title[s], contact

information, and qualifications of the Settling Work Defendant's proposed Project Coordinator and Supervising Contractor, whose qualifications shall be subject to EPA's review for verification based on objective assessment criteria (*e.g.*, experience, capacity, technical expertise) and do not have a conflict of interest with respect to the project.

(b) EPA shall issue notices of disapproval and/or authorizations to proceed regarding any Settling Work Defendant-proposed Project Coordinator and Supervising Contractor, as applicable. If EPA issues a notice of disapproval, Settling Work Defendant shall, within 30 days, submit to EPA a list of supplemental proposed Project Coordinators and/or Supervising Contractors, as applicable, including a description of the qualifications of each. Settling Work Defendant may select any coordinator/contractor covered by an authorization to proceed and shall, within 21 days, notify EPA of Settling Work Defendant' selection.

(c) EPA may disapprove the proposed Project Coordinator, the Supervising Contractor, or both, based on objective assessment criteria (*e.g.*, experience, capacity, technical expertise), if they have a conflict of interest regarding the project, or any combination of these factors.

(d) Settling Work Defendant may change its Project Coordinator and/or Supervising Contractor, or both, by following the procedures of Paragraphs 3.3(a) and 3.3(b).

4. REMEDIAL DESIGN

4.1 Remedial Design Remedial Action Work Plan ("RDRAWP"). Settling Work Defendant shall submit an RDRAWP for EPA approval. The RDRAWP will cover plans for implementing all activities necessary for

completion of Remedial Design and Remedial Action. The RDRAWP must include:

(a) A description of the overall management strategy for performing the Remedial Design and Remedial Action, including a description of the phasing of design and construction;

(b) Plans for implementing the Remedial Design including:

(1) Design criteria and basis of design, as described in the Remedial Design/Remedial Action Handbook, EPA 540/R-95/059 (June 1995). The basis of design must include a description of design elements and specifications that will be incorporated into the CNETS design including elements and specifications from Phase 1 and Phase 2 that are planned to be incorporated into the final design; and

(2) Updating the supporting numerical groundwater flow model as part of the basis of design to demonstrate planned compliance with the requirements of the SOW.

(c) Plans for continuing the Work ongoing at the Effective Date including, a description of the status of the Phased Construction and any required shakedown or O&M activities from the Phased Construction that are ongoing as of the Effective Date;

(d) Plans for implementing the Remedial Action including, a description of plans for constructing the CNETS;

(e) A schedule for the Work, including any proposed revisions to the Remedial Design or Remedial Action Schedules that are set forth in Section 8 (Schedules), a schedule for shakedown and O&M activities for any Work commenced prior to the Effective Date, and a proposed schedule for Central NHOU Construction, including CQAP/CQCP activities;

(f) A description of the proposed general approach to contracting, construction, operation, maintenance, and monitoring of the Remedial Action as necessary to implement the Work;

(g) A description of the responsibility and authority of all organizations and key personnel involved with the development of the Remedial Design and Remedial Action including construction, permitting, and ownership of all property associated with the Work (land, wells, the NHOU Treatment Plant, and other infrastructure);

(h) Descriptions of any areas requiring clarification and/or anticipated problems (*e.g.*, data gaps);

(i) Descriptions of any applicable permitting requirements and other regulatory requirements, as well as plans and a schedule for satisfying permitting requirements, including obtaining permits for off-site activity and for satisfying substantive requirements of permits for on-site activity;

(j) Descriptions of proprietary controls and access agreements in place in connection with the Work, such as property acquisition, property leases, and/or easements, and, if any additional access or proprietary controls are required to conduct the Work, including monitoring, description of plans for obtaining access such as property acquisition, property leases, easements, and/or additional proprietary controls including;

(1) Locations of recorded real property interests (*e.g.*, easements, liens) and resource interests in the property that may affect Institutional Controls (*e.g.*, surface, mineral, and water rights) including accurate mapping and geographic information system ("GIS") coordinates of such interests.

(k) A description of how the Work will be implemented in a manner that minimizes environmental impacts in accordance with EPA's *Principles for Greener Cleanups* (Aug. 2009);

(l) A description of monitoring and control measures to protect human health and the environment, such as air monitoring, and measures to reduce and manage traffic, noise, odors, and dust, during the Work in accordance with the Community Involvement Handbook pp. 53-66 (text box on p. 55) to minimize community impacts; and

(m) An appendix with the most current version of the supporting deliverables listed in Paragraph 7.7 and a schedule for any updates, if necessary, of such deliverables.

4.2 **Pre-final Remedial Design**. Settling Work Defendant shall submit the "Pre-final (95%) Remedial Design" for the CNETS for EPA's comment and/or approval. The Pre-final (95%) Remedial Design must incorporate the Phase 1 and Phase 2 design documents that Settling Work Defendant previously submitted to EPA (¶ 10.4(i) and ¶ 10.4(o), respectively), and be a continuation and expansion of the "Intermediate (60%) Design Phase 3 Treatment System" (¶ 10.4(p)). The Pre-final (95%) Remedial Design must constitute a single design submittal for the entire CNETS that includes all phases of the Remedial Design and incorporates the components of the Remedial Design that Settling Work Defendant previously submitted to EPA. The Pre-final (95%) Remedial Design must address EPA's comments on previous design submittals. The Pre-final (95%) Remedial Design will serve as the approved "Final (100%) Remedial Design" if EPA approves the Pre-final (95%) Remedial Design without comments. The Pre-final (95%) Remedial Design must include:

(a) A complete set of construction drawings and specifications that are: (1) certified by a registered professional engineer; (2) suitable for

procurement; and (3) follow the Construction Specifications Institute's MasterFormat 2020;

(b) A technical memorandum showing the hydraulic containment area (with respect to the NHOU Targeted Contamination) that is anticipated to result from implementing the Pre-final Remedial Design and proposed MAAPR;

(c) Anticipated elements and components required to obtain permits for the CNETS;

(d) A survey and engineering drawings showing existing features at the Lankershim Yard and well sites pertinent to the CNETS, such as the location of wells, valves, valve boxes and other components requiring maintenance, property borders, easements, and other applicable conditions;

(e) The CQAP/CQCP as described in Paragraph 7.7 (Supporting Deliverables);

(f) A specification for photographic documentation of the Remedial Action; and

(g) Updates of other Supporting Deliverables, as necessary or as planned in the RDRAWP.

At the time Settling Work Defendant submits the Pre-final (95%) Remedial Design, it shall submit copies of the draft Startup and Shakedown Plan as described in Paragraph 7.7 (Supporting Deliverables) and the draft O&M Plan as described in Paragraph 5.7.

4.3 **Final Remedial Design**. Settling Work Defendant shall submit the Final (100%) Remedial Design for EPA approval. The Final (100%) Remedial Design must address EPA's comments on the Pre-final (95%) Remedial Design and must include final versions of all Pre-final (95%) Remedial Design deliverables.

5. REMEDIAL ACTION

5.1 RDRAWP Update. Settling Work Defendant shall submit an RDRAWP update with the Final (100%) Remedial Design. The RDRAWP update shall include updated planning for all steps Settling Work Defendant will take following EPA's approval of the Final (100%) Remedial Design, until O&M begins, including submission and approval of the O&M Plan. The RDRAWP update will include:

(a) a construction schedule,

(b) schedule for the selection of a construction contractor,

(c) Updated descriptions of any applicable permitting requirements and other regulatory requirements, as well as plans and a schedule for satisfying permitting requirements, including obtaining permits for off-site activity and for satisfying substantive requirements of permits for on-site activity;

(1) During the startup and shakedown periods, it is anticipated that treated water will either be (1) discharged to a storm drain (pursuant to a Los Angeles Regional Water Quality Control Board-issued National Pollutant Discharge Elimination System permit) and/or (2) discharged to a sanitary sewer (pursuant to a Los Angeles Department of Sanitation-issued industrial wastewater permit) and/or (3) delivered to LADWP for disinfection and corrosion control and/or other treatment (pursuant to LADWP's amended drinking water permit).

(d) schedule for updates to the SWMP, Containment Evaluation Plan, and O&M Plan, as necessary or planned in the RDRAWP; and,

(e) schedule for updates of other support deliverables, as necessary.

5.2 Permits

(a) As provided in CERCLA § 121(e), and Section 300.400(e) of the NCP, no permit is required for any portion of the Work conducted entirely on-site *(i.e.*, within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work). Where any portion of the Work that is not on-site requires a federal or state permit or approval, Settling Work Defendant shall submit, or, with respect to drinking water permits, support, timely and complete applications and take all other actions necessary to obtain all such permits or approvals.

(b) Settling Work Defendant may seek relief under the provisions of Section XIII (Force Majeure) of the Decree for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit or approval referenced in Paragraph 5.2(a) and required for the Work, provided that it has submitted timely and complete applications and taken all other actions necessary to obtain all such permits or approvals.

(c) The Parties recognize that LADWP will need either a new or amended domestic water supply permit and/or other approvals from the California State Water Resources Control Board, Division of Drinking Water ("DDW") prior to accepting water from the CNETS, and that LADWP, not Settling Work Defendant, will take such necessary actions to obtain such permits and/or other approvals ("Drinking Water Permits"). Settling Work Defendant may seek relief under the provisions of Section XIII (Force Majeure) of the Decree for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, Drinking Water Permits, provided that Settling Work Defendant has supported the submittal of timely and

complete applications and taken other actions, such as meeting with EPA, to continue progress towards LADWP's obtaining of the Drinking Water Permits.

(d) Nothing in the Decree or this SOW constitutes a permit issued under any federal or state statute or regulation.

5.3 Emergency Response and Reporting

(a) **Emergency Action**. If any event occurs during performance of the Work that causes or threatens to cause a release of Waste Material on, at, or from the Site and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Settling Work Defendant shall: (1) immediately take all appropriate action to prevent, abate, or minimize such release or threat of release; (2) immediately notify the authorized EPA officer (as specified in Paragraph 5.3(c)) orally; and (3) take such actions in consultation with the authorized EPA officer and in accordance with all applicable provisions of the HASP, the ERP, and any other deliverable approved by EPA under the SOW.

(b) **Release Reporting**. Upon the occurrence of any event during performance of the Work that Settling Work Defendant is required to report under CERCLA § 103 or Section 304 of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), Settling Work Defendant shall immediately notify the authorized EPA officer orally.

(c) The "authorized EPA officer" for purposes of immediate oral notifications and consultations under Paragraph 5.3(a) and Paragraph 5.3(b) is the EPA Project Coordinator, the EPA Alternate Project Coordinator (if the EPA Project Coordinator is unavailable), or the EPA Emergency Response Unit, Region IX (if neither the EPA

Project Coordinator nor EPA Alternate Project Coordinator are available).

(d) For any event covered by Paragraph 5.3(a) and Paragraph 5.3(b), Settling Work Defendant shall: (1) within 14 days after the onset of such event, submit a report to EPA describing the actions or events that occurred and the measures taken, and to be taken, in response thereto; and (2) within 30 days after the conclusion of such event, submit a report to EPA describing all actions taken in response to such event.

(e) The reporting requirements under Paragraph 5.3 are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

5.4 Off-Site Shipments

(a) Settling Work Defendant may ship hazardous substances, pollutants, and contaminants from the Site to an off-Site facility only if it complies with CERCLA § 121(d)(3), and 40 C.F.R. § 300.440. Settling Work Defendant will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Settling Work Defendant obtains a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b). It is the generator's responsibility to determine if their wastes are defined as hazardous and therefore subject to regulation under RCRA Subtitle C. Once a generator makes a waste determination, the generator is responsible for ensuring that the waste is appropriately characterized, managed, transported, treated (if required), and disposed of consistent with state and federal hazardous waste requirements, 40 C.F.R. § 300.440 (the Off-Site Rule), and the TODP prepared pursuant to Paragraph 7.7(h).

(b) Settling Work Defendant may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, it provides notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This notice requirement will not apply to any off-Site shipments when the total quantity of all such shipments does not exceed 10 cubic yards. The notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Settling Work Defendant also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Settling Work Defendant shall provide the notice after the award of any contract involving waste management and before the Waste Material is shipped.

(c) Settling Work Defendant may ship Investigation Derived Waste ("IDW") from the Area 1 Site to an off-Site facility only if it complies with CERCLA § 121(d)(3), 40 C.F.R. § 300.440, *EPA's Guide to Management of Investigation Derived Waste*, OSWER 9345.3-03FS (Jan. 1992), and any IDW-specific requirements contained in the Record of Decision. Wastes shipped off-Site to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 CFR § 261.4(e) shipped off-Site for treatability studies, are not subject to 40 C.F.R. § 300.440.

5.5 Proprietary Controls. Settling Work Defendant shall, with respect to any Affected Property that is not owned by a Settling Defendant, use best efforts

to secure from such owner cooperation in executing and recording, in accordance with the procedures of this Paragraph 5.5, Proprietary Controls that: (i) grant a right of access to conduct any activity regarding the Decree, including those activities listed in Paragraph 66(b) of the Decree (Property Requirements); and (ii) grant the right to enforce the land, water, or other resource use restrictions set forth in Paragraph 66(c) of the Decree (Property Requirements).

Any Settling Owner Defendant shall, with respect to its Affected Property, execute and record, in accordance with the procedures of this Paragraph 5.5, (Proprietary Controls) that: (i) grant a right of access to conduct any activity regarding the Decree, including those activities listed in Paragraph 66(b) of the Decree; and (ii) grant the right to enforce the land, water, or other resource use restrictions set forth in Paragraph 66(c) of the Decree (Property Restrictions).

(a) **Grantees**. The Proprietary Controls must be granted to one or more of the following persons and their representatives, as determined by EPA: the United States, DTSC, Settling Work Defendant, and other appropriate grantees. Proprietary Controls in the nature of a Uniform Environmental Covenants Act ("UECA") document granted to persons other than the United States must include a designation that EPA (and/or DTSC as appropriate) is a "third-party beneficiary" expressly granted the right of access and the right to enforce the covenants allowing EPA and/or DTSC to maintain the right to enforce the Proprietary Controls without acquiring an interest in real property.

(b) **Initial Title Evidence**. For its Affected Property, if any, each Settling Owner Defendant shall, within 45 days after the Effective Date:

(1) **Record Title Evidence**. Submit to EPA a title insurance commitment or other title evidence acceptable to EPA that:

(i) names the proposed insured or the party in whose favor the title evidence runs, or the party who will hold the real estate interest, or if that party is uncertain, names the United States, DTSC, the Settling Work Defendant, or "To Be Determined;" (ii) covers the Affected Property, that is to be encumbered; (iii) demonstrates that the person or entity that will execute and record the Proprietary Controls is the owner of such Affected Property; (iv) identifies all record matters that affect title to the Affected Property, including all prior liens, claims, rights (such as easements), mortgages, and other encumbrances (collectively, "Prior Encumbrances"); and (v) includes complete, legible copies of such Prior Encumbrances; and

(2) **Non-Record Title Evidence**. Submit to EPA a report of the results of an investigation, including a physical inspection of the Affected Property, which identifies non-record matters that could affect the title, such as unrecorded leases or encroachments.

(c) **Release or Subordination of Prior Liens, Claims, and Encumbrances**

(1) If any Prior Encumbrance may defeat or adversely affect the rights to be granted by the Proprietary Controls in a manner that could interfere with the remedy or result in unacceptable exposure to Waste Material, Settling Owner Defendant shall consult with EPA regarding the release, subordination, modification, or relocation of such Prior Encumbrance.

(d) **Update to Title Evidence and Recording of Proprietary Controls**

(1) Settling Work Defendant and/or Settling Owner Defendants shall submit to EPA all draft Proprietary Controls and draft

instruments addressing Prior Encumbrances, if any, to EPA for review and approval within 180 days after the Effective Date.

(2) Upon EPA's approval of the proposed Proprietary Controls, Settling Work Defendant and/or Settling Owner Defendants shall, within 15 days, update the original title insurance commitment (or other evidence of title acceptable to EPA) under Paragraph 5.5(b) (Initial Title Evidence). If the updated title examination indicates that no liens, claims, rights, or encumbrances have been recorded since the effective date of the original commitment (or other title evidence), Settling Work Defendant and/or Settling Owner Defendants shall secure the immediate recordation of the Proprietary Controls in the appropriate land records. Otherwise, Settling Work Defendant and/or Settling Owner Defendants shall consult with EPA, in accordance with Paragraph 5.5(c)(1) regarding any newly-discovered liens, claims, rights, and encumbrances, prior to recording the Proprietary Controls.

(3) If Settling Owner Defendant(s) submitted a title insurance commitment under Paragraph 5.5(b)(1) (Record Title Evidence), then upon the recording of the Proprietary Controls and instruments addressing Prior Encumbrances, if any, Settling Owner Defendants shall obtain a title insurance policy that: (i) is consistent with the original title insurance commitment; (ii) is for $100,000 or other amount approved by EPA; (iii) is issued to the United States, Settling Owner Defendants, or other person approved by EPA; and (iv) is issued on a current American Land Title Association ("ALTA") form or other form approved by EPA.

(4) Settling Work Defendant and/or Settling Owner Defendants shall, within 30 days after recording the Proprietary Controls and instruments addressing Prior Encumbrances, if any, or such other deadline approved by EPA, provide to the United States and to all grantees of the Proprietary Controls: (i) certified copies of the recorded Proprietary Controls and instruments addressing Prior Encumbrances, if any, showing the clerk's recording stamps; and (ii) the title insurance policy(ies) or other approved form of updated title evidence dated as of the date of recording of the Proprietary Controls and instruments.

(e) Settling Work Defendant shall monitor, maintain, enforce, and annually report on all Proprietary Controls required under the Decree. The annual report should describe activities conducted to implement, maintain, monitor, and enforce the Proprietary Controls and other Institutional Controls, as applicable. Settling Work Defendant shall generate the report in accordance with *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites*, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012), and *Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites*, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012). Settling Work Defendant also shall consider the establishment of effective long-term stewardship procedures including those described in EPA Memorandum: *Advanced Monitoring Technologies and Approaches to Support Long-Term Stewardship* (July 20, 2018). The information required in this Paragraph shall be transmitted as part of the Progress Reports and CNMP Annual Reports and include the following information:

(1) Locations of recorded real property interests (*e.g.*, easements, liens) and resource interests in the property that may affect Institutional Controls (*e.g.*, surface, mineral, and water rights) including accurate mapping and GIS coordinates of such interests; and

(2) Legal descriptions and survey maps that are prepared according to current ALTA survey guidelines and certified by a licensed surveyor.

(f) A Settling Owner Defendant shall not Transfer its Affected Property unless it has executed and recorded all Proprietary Controls and all instruments addressing Prior Encumbrances required by EPA regarding such Affected Property in accordance with this Paragraph.

5.6 Remedial Action Construction

(a) **Meetings and Inspections**

(1) **Preconstruction Conference**. Prior to shutting down the treatment system designed and constructed as part of Phase 1 and beginning Central NHOU Construction, Settling Work Defendant shall hold a preconstruction conference with EPA, the Supervising Contractor, LADWP Operations Coordinator, and others as directed or approved by EPA and as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995). Settling Work Defendant shall prepare minutes of the conference and shall distribute the minutes to all coordinators listed in Section 3 (Coordination and Supervision).

(2) **Periodic Communications**. During the Remedial Action Construction, Settling Work Defendant shall communicate regularly with EPA, and others as directed or determined by EPA, to discuss construction issues. Settling Work Defendant

shall distribute an agenda and list of attendees to all Project Coordinators prior to each meeting or telephone call. Settling Work Defendant shall prepare minutes of the meetings or calls and shall distribute the minutes to all coordinators listed in Section 3 (Coordination and Supervision).

(i) Settling Work Defendant shall submit Monthly Progress Reports, as outlined in Section 6 (Reporting) to EPA with LADWP, DTSC, and the Los Angeles Regional Water Quality Control Board copied;

(ii) Settling Work Defendants shall describe changes to the Remedial Design in the Monthly Progress Reports; and

(iii) **Construction Meetings:** Settling Work Defendant shall organize quarterly meetings with the coordinators listed in Section 3 (Coordination and Supervision) to review construction progress, to be held in February, May, August, and November until EPA determines that Central NHOU Construction is complete pursuant to Paragraph 5.6(d)(8) or as otherwise approved by EPA.

(3) Inspections

(i) EPA or its representative shall conduct periodic inspections of the Work. At EPA's request, the Supervising Contractor or other designee shall accompany EPA or its representative during inspections.

(ii) Settling Work Defendant shall provide appropriate personal protective equipment needed for EPA personnel and any oversight officials to perform their oversight duties. At a minimum this shall include two hard hats and two reflective vests.

(iii) Upon notification by EPA of any deficiencies in the Remedial Action Construction, Settling Work Defendant shall take all necessary steps to correct the deficiencies and/or bring the Remedial Action Construction into compliance with the approved Final (100%) Remedial Design, any approved design changes, and the approved RDRAWP. If applicable, Settling Work Defendant shall comply with any schedule provided by EPA in its notice of deficiency.

(b) **Phased Construction**

Settling Work Defendant shall construct Phase 1 and Phase 2 in accordance with their respective approved designs.

(1) **Inspection of Phase 1 and Phase 2 Construction**. Settling Work Defendant shall schedule an inspection to review the construction and operation of Phase 1 and Phase 2, and to review whether the constructed components are functioning properly and as designed for the respective phase. The inspection must be attended by Settling Work Defendant and EPA and/or their representatives. A reinspection must be conducted if requested by EPA.

(2) **Phase 1 System Shakedown Period**. There shall be a shakedown period of up to one year for EPA to review whether Phase 1 is functioning properly and performing as designed ("Phase 1 Shakedown Period"). Settling Work Defendant shall provide such information as EPA requests for such review. If the Phase 1 System Shakedown has not been completed as of the Effective Date, Settling Work Defendant shall follow the Phase 1B O&M Plan (¶ 1.6(g)), submitted and approved by

EPA, and any failures of tests required by these documents, as well as subsequent corrective actions, shall be reported to EPA in the next Monthly Progress Report (¶ 6.1). Settling Work Defendant shall provide EPA with the summary of all testing and quality assurance/quality control ("QA/QC") conducted as well as the results and corrective actions in the Phase 1 Construction Completion Report.

(3) **Phase 1 Construction Completion Report**. Within 90 days following completion of the Phase 1 Shakedown Period, Settling Work Defendant shall submit a "Phase 1 Construction Completion Report" requesting EPA's determination that Phase 1 construction has been completed. The Phase 1 Construction Completion Report must: (1) include statements by a registered professional engineer and by Settling Work Defendant's Project Coordinator that the construction of Phase 1 is complete and that it is functioning properly and as designed; (2) include a demonstration, and supporting documentation, that construction of Phase 1 is complete and that it is functioning properly and as designed; (3) include as-built drawings signed and stamped by a registered professional engineer; (4) be prepared consistent with a Remedial Action Report and in accordance with Chapter 2 (Remedial Action Completion) of EPA's *Close Out Procedures for NPL Sites* guidance (May 2011), as supplemented by *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017); (5) contain monitoring data for Phase 1 and the Basin collected pursuant to the SWMP during the Phase 1 Shakedown Period; (6) include a

final O&M Plan for Phase 1; and (7) be certified in accordance with Paragraph 7.5 (Certification).

(4) If EPA determines that Phase 1 construction is not complete or that Phase 1 is not functioning properly and as designed, EPA shall so notify Settling Work Defendant. EPA's notice must include a description of, and schedule for, the activities that Settling Work Defendant must perform to complete Phase 1 construction. EPA's notice may include a schedule for completion of such activities or may require Settling Work Defendant to submit a proposed schedule for EPA approval. Settling Work Defendant shall perform all activities described in the EPA notice in accordance with the schedule.

(5) If EPA determines, based on the initial or any subsequent Phase 1 Construction Completion Report, that Phase 1 construction is complete and is functioning properly and as designed, EPA shall so notify Settling Work Defendant.

(6) **Phase 2 Construction Completion Report**. Within 90 days following the completion of construction, including final QA/QC testing, Settling Work Defendant shall submit a "Phase 2 Construction Completion Report" requesting EPA's determination that Phase 2 construction has been completed. The Phase 2 Construction Completion Report must: (1) include statements by a registered professional engineer and by Settling Work Defendant's Project Coordinator that the construction of the components, per approved design, is complete and that Phase 2 is functioning properly and as designed; (2) include a demonstration, and supporting documentation, that construction of Phase 2 is complete and that it is functioning properly and as

designed; (3) include as-built drawings signed and stamped by a registered professional engineer; (4) be prepared consistent with a Remedial Action Report and in accordance with Chapter 2 (Remedial Action Completion) of EPA's *Close Out Procedures for NPL Sites* guidance (May 2011), as supplemented by *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017); (5) include a final O&M Plan/Manual for Phase 2B and (6) be certified in accordance with Paragraph 7.5 (Certification).

(7) If EPA determines that Phase 2 construction is not complete, EPA shall so notify Settling Work Defendant. EPA's notice must include a description of, and schedule for, the activities that Settling Work Defendant must perform to complete Phase 2 construction. EPA's notice may include a schedule for completion of such activities or may require Settling Work Defendant to submit a proposed schedule for EPA approval. Settling Work Defendant shall perform all activities described in the EPA notice in accordance with the schedule.

(8) If EPA determines, based on the initial or any subsequent Phase 2 Construction Completion Report, that Phase 2 construction is complete and is functioning properly and as designed, EPA shall so notify Settling Work Defendant.

(c) **Phase 1 Operation and Maintenance**

Following notification from EPA that Phase 1 construction is complete and is functioning properly and as designed, Phase 1 shall be operated and maintained consistent with the Phase 1B O&M Plan (¶ 1.6(g)) until CNETS construction requires shutdown of Phase 1.

(d) **CNETS Construction**

Settling Work Defendant shall construct the CNETS in accordance with the approved Final (100%) Remedial Design.

(1) **Design Changes**. Design changes that occur during construction will be tracked and included in the monthly progress reports. Material changes, including changes to any treatment technology, and changes that impact pumping rates, must be submitted to and approved by EPA.

(2) **Quality Assurance and Quality Control:** Construction quality assurance and quality control activities will be conducted pursuant to the EPA-approved CQAP/CQCP. EPA shall be notified 30 days prior to the anticipated initiation of quality assurance and quality control testing and provided with an updated schedule for activities associated with the CQAP/CQCP. Continued updates to the CQAP/CQCP schedule will be provided as part of the monthly progress reports.

(3) **Inspection of Constructed Remedy**. Settling Work Defendant shall schedule an inspection to review the construction and operation of the CNETS and to review whether the system is functioning properly and as designed. The inspection must be attended by Settling Work Defendant and EPA and/or their representatives. A reinspection must be conducted if requested by EPA.

(4) **System Startup**: Once construction is complete, Settling Work Defendant will follow the EPA-approved Startup and Shakedown Plan (¶ 7.7(g)) to initiate and test all components of the CNETS. Any component failures and subsequent corrective action(s) shall be reported to EPA as part of the next Monthly

Progress Report (¶ 6.1). The summary of all testing and QA/QC conducted, the results, and corrective actions taken shall be provided in the Central NHOU Construction Completion Report. EPA shall be notified 30 days prior to the anticipated initiation of System Startup and provided with an updated schedule for activities associated with the Startup and Shakedown Plan.

(5) **Shakedown Period**. There shall be a shakedown period of up to one year (the "CNETS Shakedown Period") for EPA to review whether the Remedial Action is functioning properly and meeting Performance Standards, as designed. Operating parameters, such as extraction rates, will be optimized through the design and CNETS startup and shakedown activities. Settling Work Defendant shall follow the EPA-approved Startup and Shakedown Plan (¶ 7.7(g)). Adjustments made to components of the CNETS during this time will be documented in updates to the draft O&M Plan, as necessary, and in the Central NHOU Construction Completion Report. Settling Work Defendant shall provide such information as EPA requests for such review. A summary of all work completed during the CNETS Shakedown Period will be included in the Central NHOU Construction Completion Report. The Shakedown Period shall conclude with an inspection, pursuant to Paragraph 5.6(d)(3).

(6) **Central NHOU Construction Completion Report**. Within 90 days following the CNETS Shakedown Period, Settling Work Defendant shall submit a "Central NHOU Construction Completion Report" requesting EPA's determination that

Central NHOU Construction has been completed and is operating in a manner that is expected to achieve Performance Standards. The Central NHOU Construction Completion Report must: (1) include statements by a registered professional engineer and by Settling Work Defendant's Project Coordinator that the construction of the CNETS is complete and that it is functioning properly and meeting Performance Standards, as designed; (2) include a demonstration, and supporting documentation, that Central NHOU Construction is complete and that the CNETS is functioning properly and meeting Performance Standards, as designed; (3) include as-built drawings signed and stamped by a registered professional engineer; (4) be prepared consistent with a Remedial Action Report and in accordance with Chapter 2 (Remedial Action Completion) of EPA's *Close Out Procedures for NPL Sites* guidance (May 2011), as supplemented by *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017); (5) include monitoring information evaluating achievement of Performance Standards; (6) include an updated O&M Plan with proposed MAAPR per extraction well (*see* ¶ 5.7(a)(2)); and (7) be certified in accordance with Paragraph 7.5 (Certification).

(7) If EPA determines that Central NHOU Construction is not complete or is not functioning properly and as designed, EPA shall so notify Settling Work Defendant. EPA's notice must include a description of, and schedule for, the activities that Settling Work Defendant must perform to complete Central NHOU Construction. EPA's notice may include a schedule for

completion of such activities or may require Settling Work Defendant to submit a proposed schedule for EPA approval. Settling Work Defendant shall perform all activities described in the EPA notice in accordance with the schedule.

(8) If EPA determines, based on the initial or any subsequent Central NHOU Construction Completion Report, that Central NHOU Construction is complete, EPA shall so notify Settling Work Defendant.

5.7 Operations and Maintenance ("O&M")

Following EPA's notification that Central NHOU Construction is complete, Settling Work Defendant is responsible for ensuring that the CNETS is operated and maintained pursuant to the O&M Plan and this Paragraph (¶ 5.7).

(a) **O&M Plan**. The O&M Plan must be submitted to EPA for approval. The O&M Plan describes the requirements for inspecting, operating, and maintaining the CNETS. Settling Work Defendant shall develop the O&M Plan in accordance with *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017) and the O&M Manual. The O&M Plan must include the following additional requirements:

(1) Identify the objectives of the Remedial Action, as set forth in Paragraph 1.3 (Scope of Work), and describe how O&M activities will achieve these objectives;

(2) The MAAPR for each of the extraction wells;

(3) An explanation of how the individual wells that comprise the Central NHOU Expanded Well Network will operate in conjunction with one another to meet the objectives of the Remedial Action. Variability in extraction rates among the

wells in the Central NHOU Expanded Well Network is permissible as long as the MAAPR is maintained for each well and hydraulic containment of the Central NHOU Targeted Contamination, demonstrated through Containment Evaluation TMs in the CNMP Annual Reports, is maintained;

(4) A description of the records and reports that will be generated during O&M, such as daily operating logs, SCADA data, laboratory records, records of operating costs, reports regarding emergencies, personnel and maintenance records, CNMP Annual Reports as described in Paragraph 6.2 (Central NHOU Monitoring and Progress Report), and other reports to EPA and DTSC;

(5) A description of how Settling Work Defendant will monitor O&M of the CNETS, including accessing, reviewing, and reporting to EPA on information regarding CNETS operations, including SCADA data, control system/HMI data, and parts and equipment availability;

(6) A description of the corrective action in case of CNETS failure, including: (i) alternative procedures to prevent the release or threatened release of contaminated water or waste materials which may endanger public health and the environment or may cause a failure to achieve the Performance Standards for the CNETS effluent; (ii) analysis of vulnerability and additional resource requirements should a failure occur; (iii) notification and reporting requirements should O&M systems fail or be in danger of imminent failure; and (iv) community notification requirements;

(7) A description of the corrective action, if known, to be implemented in the event that Performance Standards are not achieved; and, as applicable, a schedule for implementing these corrective actions;

(8) A description of all permits acquired, maintained or to be acquired related to the O&M of the CNETS and any activities that need to be done to maintain those permits;

(9) Identification and description of the party, if not the Settling Work Defendant, who will be physically operating the CNETS and document that the O&M Plan and subsequent updates, have been provided to that party; and

(10) List the current LADWP Operations Coordinator.

Updates to the O&M Plan: Updates are anticipated to be completed annually, and based on data provided in CNMP Annual Reports, unless otherwise specified by EPA. Material updates to the O&M Plan shall be submitted to EPA for approval before such updates can take effect. Non-material changes will be documented in the CNMP Annual Report and a revised O&M Plan submitted with the CNMP Annual Report, as appropriate.

(b) **Meetings and Inspections**.

(1) **Periodic Communications**. During the O&M portion of the Remedial Action, which includes operations, maintenance, and monitoring, Settling Work Defendant shall communicate regularly with EPA, and others as directed or determined by EPA, to discuss O&M issues. Settling Work Defendant shall distribute an agenda and list of attendees to all Project Coordinators prior to each meeting or telephone call. Settling Work Defendant shall prepare minutes of the meetings or calls

and shall distribute the minutes to all Project Coordinators. Periodic communication shall include the following:

(i) CNMP Annual Reports, as outlined in Section 6 (Reporting), shall be submitted annually to EPA with LADWP, DTSC, and the Los Angeles Regional Water Quality Control Board copied;

(ii) EPA shall be informed of O&M changes. O&M changes shall be detailed in an attachment to the CNMP Annual Report;

(iii) EPA shall be informed of any unplanned shut down of the CNETS or any individual well or treatment system component within 24 hours of Settling Work Defendant becoming aware of any such shut down;

(iv) EPA shall be informed of any exceedance of the Performance Standards in the CNETS effluent within 24 hours of Settling Work Defendant becoming aware of such exceedance;

(v) Quarterly meetings to review O&M shall be held in February, May, August, and November, unless otherwise directed by EPA.

(vi) EPA shall be informed of any actual or pending communication to the public made by LADWP related to exceedances of the Performance Standards in the CNETS effluent as soon as reasonably practicable, but in no case later than 24 hours of Settling Work Defendant becoming aware of such actual or pending communication.

(2) Inspections

(i) EPA or its representative shall conduct periodic inspections of the Work. At EPA's request, the Supervising Contractor or other designee shall accompany EPA or its representative during inspections. In recognition that the NHOU Treatment Plant will be operated by LADWP, as reasonable and feasible, EPA agrees to provide advance notice to Settling Work Defendant of inspections of the NHOU Treatment Plant so that Settling Work Defendant may inform LADWP of any such inspections.

(ii) Settling Work Defendant shall provide appropriate personal protective equipment needed for EPA personnel and any oversight officials to perform their oversight duties. At a minimum this shall include two hard hats and two reflective vests.

(iii) Upon notification by EPA of any deficiencies in the O&M, Settling Work Defendant shall take all necessary steps to correct the deficiencies and/or bring the O&M into compliance with the approved Final Remedial Design, the O&M Manual and the approved O&M Plan. If applicable, Settling Work Defendant shall comply with any schedule provided by EPA in its notice of deficiency.

(c) **CNETS Evaluation Report.** Following Central NHOU Construction Completion, Settling Work Defendant may submit reports to evaluate the Central NHOU Extraction and Treatment System for optimizations, adjustments to improve performance, adjustments to reduce waste generation or other adjustments to improve the function of the system. The report must: (1) include certifications by a

registered professional engineer and by Settling Work Defendant's Project Coordinator that the proposed changes to the Central NHOU Extraction and Treatment System, or its operation, will improve performance; (2) be prepared in accordance with EPA guidance (3) contain monitoring data and verification modeling, pursuant to Paragraph 7.7(d), demonstrating that the CNETS will be or will continue to be In Compliance; and (4) be certified in accordance with Paragraph 7.5 (Certification). These reports may include:

(1) **CNETS Evaluation Report on Treatment:** Once sufficient empirical data are available to demonstrate that a particular treatment train at the CNETS can be bypassed without endangering public health or violating the Performance Standards, CNETS treatment trains associated with specific NHOU COCs may be by-passed consistent with DDW permit requirements (provided DDW allows LADWP to serve such water without such treatment train) and EPA approval of a "Treatment Optimization Evaluation Report." Sufficient empirical monitoring data will include at least one year of monthly water quality data measured at the sample port upstream of the particular treatment train indicating that the NHOU COC concentrations have not exceeded the associated Performance Standards.

(i) Once any treatment technology has been by-passed, any increase in production from any well in the Central NHOU Expanded Well Network will trigger a re-evaluation of the Treatment Optimization Evaluation Report to confirm that treatment train can still be by-passed (consistent with DDW permit requirements).

(2) **CNETS Evaluation Report on Wells:** Operation of individual wells that constitute the Central NHOU Expanded Well Network may be terminated based on EPA approval of a "CNETS Evaluation Report on Wells." Settling Work Defendant shall demonstrate to EPA's satisfaction that the Central NHOU Targeted Contamination is and will continue to be laterally and vertically contained and will not pose an unacceptable risk to human health when the individual well's operation has been adjusted. The following conditions must be present to consider optimizing the operation of an extraction well:

(i) The NHOU COC concentrations measured at the extraction well, when operated at its MAAPR, are below the Performance Standards and have been below Performance Standards for 12 months; and

(ii) Verification modeling, consistent with the modeling QAPP and associated Containment Evaluation Plan and considering anticipated changes in groundwater flow conditions, demonstrates that NHOU COCs present in the groundwater within the hydraulic containment area specific to the well in question would not exceed Performance Standards for NHOU COCs at a production well sample port of the Rinaldi-Toluca, North Hollywood-West Branch, Erwin, and Whitnall production well fields.

(3) In the event that EPA approves the shutdown of a well in the Central NHOU Expanded Well Network, Settling Work Defendant will update the SWMP (¶ 7.7(d)) to provide for

continued groundwater monitoring throughout the area impacted by shut down of the well, i.e., the area no longer hydraulically contained by the well. This monitoring shall include assessment of potential rebound. The monitoring must be conducted with sufficient frequency, duration, and data density to assess whether the Central NHOU Targeted Contamination remains stable or if hydraulic containment needs to be reestablished in order to contain the contamination consistent with the objectives in Paragraph 1.3 (Scope of Work). Settling Work Defendant shall implement revised monitoring, pursuant to the updated SWMP, following the shutdown of the well**,** for at least one year. Settling Work Defendant shall submit the data to EPA pursuant to Paragraph 7.7, and include the monitoring data and evaluations in the CNMP Annual Report prepared pursuant to Paragraph 6.2. If EPA determines hydraulic containment needs to be reestablished, Settling Work Defendant shall implement the steps necessary to achieve such containment.

(4) If a Treatment Optimization Evaluation Report and/or CNETS Evaluation Report on Wells results in EPA's approval of any adjustments to the CNETS (e.g., by-passing treatment or termination of well operation), a revised O&M Plan, including updated MAAPR values, as needed, will be submitted for approval to EPA within 30 days of the approval. After the approval of the revised O&M Plan, the adjustments to the CNETS can be made.

(5) In the event that EPA approves termination of the operation of one or more wells in the Central NHOU Expanded Well

Network, such wells shall not be operated until well termination monitoring, including rebound monitoring, is completed, as required in the EPA-approved SWMP. Such well(s) may subsequently be operated, including for purposes of water production during and after the operation of the CNETS (and water from such wells may be treated at the CNETS), provided monitoring, including monitoring conducted pursuant to subparagraph (c)(3), above, confirms that use of such well(s) will not interfere with the NHOU2IR's ability to achieve Performance Standards. Any well(s) whose operation has been terminated pursuant to this Section shall not be considered part of the Work unless, prior to EPA's Certification of Work Completion, EPA determines that such well(s) must be returned to operation in order to achieve Performance Standards.

5.8 Supplemental Action for Containment

If, based on a Containment Evaluation TM or other appropriate analysis, EPA determines that the Central NHOU Targeted Contamination is not being effectively contained by the Central NHOU Expanded Well Network, in conjunction with other groundwater extraction by the RT Wells and/or the NHW Wells, EPA will provide notice to Settling Work Defendant, in which event Settling Work Defendant will propose amendments to the O&M Plan, for EPA review and approval, to improve hydraulic containment of Central NHOU Targeted Contamination by the Central NHOU Expanded Well Network. Settling Defendant acknowledges that actions taken to improve containment may include installation of up to two additional extraction wells.

5.9 Remedial Action Completion

The Remedial Action is "Complete" for purposes of this Paragraph 5.9 when Settling Work Defendant has met the requirements of Paragraphs 1.3 and 5.9(d) and EPA has certified that the Central NHOU Remedial Action is Complete pursuant to Paragraph 5.9(d). Upon EPA certification that the Central NHOU Remedial Action is Complete, Settling Work Defendant shall be deemed to have implemented its required portions of the NHOU2IR pursuant to the Decree and achieved the objectives, as set forth in Paragraph 1.3 (Scope of Work) of this SOW ("Remedial Action Completion").

(a) **Completion Conditions:** The goal of the CNETS is to achieve the objectives of the Remedial Action, as set forth in Paragraph 1.3 (Scope of Work). Conditions expected to demonstrate completion of the Remedial Action are:

(1) Groundwater at each Central NHOU Expanded Well Network wellhead, when the respective well is operated at its MAAPR, contains NHOU COC concentrations below the applicable Performance Standards for the CNETS effluent in twenty four consecutive monthly samples; and

(2) The evaluation for Remedial Action Completion set forth in this Paragraph 5.9 demonstrates that for the past two years, the system has been In Compliance and the Containment Evaluation TM, pursuant to Paragraph 7.7, demonstrates that, based on recent monitoring data and several reasonably anticipated future use scenarios, COCs in the groundwater within the Central NHOU Area will not exceed federal or state MCL or NL at any Central NHOU Expanded Well Network wellhead or at the boundary of the Central NHOU Area.

The Settling Work Defendant shall submit for EPA's approval a final Containment Evaluation TM, pursuant to Paragraph 7.7, demonstrating that the Completion Conditions have been met.

(b) **Central NHOU Remedial Action Report**: Following the achievement of the objectives set in Paragraph 1.3, pursuant to Paragraph 5.9(a), and EPA approval of the Containment Evaluation TM submitted pursuant to 5.9(a), Settling Work Defendant shall submit a Central NHOU Remedial Action Report in order to verify and document that the Settling Work Defendant has fully implemented its required portion of the NHOU2IR pursuant to the Decree and request EPA's approval and Certification of Remedial Action Completion. The Remedial Action Report must: (1) include certifications by a registered professional engineer and by Settling Work Defendant's Project Coordinator that the Completion Conditions, Paragraph 5.9(a), have been achieved; (2) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA's Close Out Procedures for NPL Sites guidance (May 2011), as supplemented by Guidance for Management of Superfund Remedies in Post Construction, OLEM 9200.3-105 (Feb. 2017); (3) include monitoring data and modeling to demonstrate that containment and treatment objectives in Paragraph 1.3 have been achieved; (4) an explanation of how the objectives in Paragraph 1.3 have been met; and (5) be certified in accordance with Paragraph 7.5 (Certification). Settling Work Defendant shall schedule, if applicable, an inspection for the purpose of obtaining EPA's Certification of Remedial Action Completion.

(c) If EPA concludes, based on the initial or any subsequent Central NHOU Remedial Action Report or Central NHOU Monitoring and

Progress Report requesting certification of Remedial Action Completion that Completion Conditions have not been met, EPA shall so notify Settling Work Defendant. EPA's notice must include a description of any deficiencies. EPA's notice may include a schedule for addressing such deficiencies or may require Settling Work Defendant to submit a schedule for EPA approval. Settling Work Defendant shall perform all activities described in the notice in accordance with the schedule.

(d) If EPA concludes, based on the initial or any subsequent Central NHOU Remedial Action Report, that the Remedial Action is Complete, EPA shall so certify to Settling Work Defendant. This certification will constitute the Certification of Remedial Action Completion for purposes of the Decree. Certification of Remedial Action Completion will not affect Settling Work Defendant's remaining obligations under the Decree including Post-Remedial Action Monitoring required by Paragraph 5.10.

5.10 Post-Remedial Action Monitoring. After the Certification of Remedial Action Completion, Settling Work Defendant shall implement a five-year program of Post-Remedial Action Monitoring to (i) confirm that the Completion Conditions in Paragraph 5.9 remain met, and (ii) inform EPA's selection of a final remedy for the NHOU. Such results shall be reported annually in a Post-Verification Monitoring Report, as specified in Paragraph 6.3, below.

(a) If, based on the results of the monitoring specified in this Paragraph 5.10, EPA reasonably determines that Completion Conditions are no longer being met, EPA will provide notice to Settling Work Defendant, in which event Settling Work Defendant will propose a plan to re-achieve (the "Completion Condition Re-Achievement

Plan") such conditions for EPA's review and approval. Upon approval, Settling Work Defendant shall implement such Completion Condition Re-Achievement Plan.

(b) Notwithstanding the foregoing, the Parties acknowledge that, during this five-year monitoring period, in the event groundwater at each Central NHOU Expanded Well Network wellhead contains NHOU COC concentrations below the applicable federal or state MCL or NL, the Performance Standards for the CNETS effluent established by the Decree will not apply.

5.11 Certification of Work Completion

(a) **Work Completion Inspection**. After the completion of Post-Remedial Action Monitoring required by Paragraph 5.10, Settling Work Defendant shall schedule an inspection for the purpose of obtaining EPA's "Certification of Work Completion." The inspection must be attended by Settling Work Defendant and EPA and/or their representatives. The Settling Work Defendant shall invite the LADWP Operations Coordinator and all attendees shall be given one month notice prior to the inspection date.

(b) **Work Completion Report**. Following the inspection, Settling Work Defendant shall submit a report to EPA requesting EPA's Certification of Work Completion. The report must: (1) include certifications by a registered professional engineer and by Settling Work Defendant's Project Coordinator that the Work, including all O&M activities, is complete; and (2) be certified in accordance with Paragraph 7.5 (Certification).

(c) If EPA concludes that the Work is not complete, EPA shall so notify Settling Work Defendant. EPA's notice must include a description of the activities that Settling Work Defendant must perform to complete

the Work. EPA's notice must include specifications and a schedule for such activities or must require Settling Work Defendant to submit specifications and a schedule for EPA approval. Settling Work Defendant shall perform all activities described in the notice or in the EPA-approved specifications and schedule.

(d) If EPA concludes, based on the initial or any subsequent report requesting Certification of Work Completion, that the Work is complete, EPA shall so certify in writing to Settling Work Defendant. Issuance of the Certification of Work Completion does not affect the following continuing obligations: (1) activities under the PRSP; (2) obligations under Section VII of the Decree (Property Requirements) and Section XIX of the Decree (Records); and (3) reimbursement of EPA's Future Response Costs under Section XI of the Decree (Payments for Response Costs).

6. REPORTING

6.1 Progress Reports. Commencing with the month following the Effective Date of the Decree and until EPA determines that Central NHOU Construction is complete pursuant to Paragraph 5.6(d)(8), Settling Work Defendant shall submit progress reports to EPA on a monthly basis, or as otherwise requested by EPA ("Monthly Progress Reports"). The Monthly Progress Reports must cover all activities that took place during the prior reporting period, including:

(a) The actions that have been taken toward achieving compliance with the Decree;

(b) A summary of all results of sampling, tests, and all other data received or generated by Settling Work Defendant including results of all activities required pursuant to the CQAP/CQCP and/or Startup and

Shakedown Plan, and confirmation that all data has been submitted to EPA pursuant to Paragraph 7.7;

(c) A summary of CNETS operations during the reporting month that includes: (1) an analysis of data related to O&M, e.g., SCADA data and system control/HMI data; (2) describes any operational shutdowns; and (3) explains any operational problems encountered and their resolution.

(d) A description of all deliverables that Settling Work Defendant submitted to EPA;

(e) A description of all activities relating to Central NHOU Construction that are scheduled for the next six weeks including all activities required pursuant to the CQAP/CQCP;

(f) An updated schedule of construction activities, together with information regarding percentage of completion, delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays;

(g) A description of any modifications to the work plans or other schedules that Settling Work Defendant has proposed or that have been approved by EPA;

(h) A copy of the commissioning plan and commissioning report submitted by LADWP for the drinking water permit, when available;

(i) A description of all activities undertaken in support of the CIP during the reporting period and those to be undertaken in the next six weeks; and

(j) Access to a submittal register containing a running list of design change submittals, the date of the submittal, rationale for the change, and the status (approved/pending/rejected).

6.2 Central NHOU Monitoring and Progress Reports. Following EPA's determination that Central NHOU Construction is complete pursuant to Paragraph 5.6(d)(8), and until EPA issues the Certification of Work Completion, Settling Work Defendant shall submit reports to EPA on an annual basis ("CNMP Annual Report"). The CNMP Annual Report will report on activities from October 1st through September 30th and will be due on February 28th each year. The CNMP Annual Report must: (1) include certifications by a registered professional engineer and by Settling Work Defendant's Project Coordinator as to whether the Remedial Action is In Compliance; (2) be prepared in accordance with EPA's *Recommended Contents of a Groundwater Monitoring Report (September 2016)*, *O&M Report Template for Ground Water Remedies (April 2005)*, and the approved SWMP (¶ 7.7(d)); and (3) be certified in accordance with Paragraph 7.5 (Certification). The CNMP Annual Report should describe the Performance Standards, cover all activities that took place during the prior reporting period, and include:

(a) The actions that have been taken toward achieving compliance with the Decree;

(b) Reporting on whether the objectives set forth in Paragraph 1.3 (Scope of Work) have been met;

(c) Contain monitoring data and numerical model simulation results to demonstrate whether the Performance Standards have been achieved;

(d) A summary of all results of sampling, tests, and all other data received or generated by Settling Work Defendant, including: (1) CNETS performance sampling and (2) groundwater monitoring and sampling, collected pursuant to the O&M Plan and SWMP. This summary shall include information for the wells such as their depth, zone, monitoring

frequency, last sample date, and information on whether or not the well can be sampled;

(e) Confirmation that the data has been submitted to the EPA database pursuant to Paragraph 7.7;

(f) Evaluation of groundwater elevation and analytical data collected pursuant to the approved UFP-QAPP and attached SWMP and/or the Containment Evaluation Plan (7.7), using multiple lines of evidence consistent with EPA's *Guidance for Monitoring at Hazardous Waste Sites (2004)*. Data shall include data collected from wells identified in the SWMP and data collected regarding contamination outside of the Central NHOU Area that has the potential to impact the Central NHOU Area. The evaluation shall utilize the most recent monitoring results. The evaluation shall be presented as a Containment Evaluation TM and include the following components:

(1) Updated plume maps, per groundwater zone consistent with the SWMP;

(2) Potentiometric surface maps, per groundwater zone consistent with the SWMP;

(3) Triangulated Irregular Network (TIN) Maps per groundwater zone consistent with the SWMP;

(4) Trend analysis and other statistical evaluations to assess for temporal and spatial trends in NHOU COC concentrations; and

(5) Tables comparing all sampling data collected at the effluent to Performance Standards;

(g) A confirmation that the wells have been operated such that the average pumping rate per well for the prior year is at or above the MAAPR as defined in the approved O&M Plan;

(h) **Recommended MAAPR for the upcoming year**. If, based on the Containment Evaluation TM that accompanies the CNMP Annual Report, it is determined that containment was not achieved during the prior year, Settling Work Defendant shall recommend updates to the MAAPR, for incorporation into the O&M Plan and EPA approval. Updates should be proposed, that are expected to support containment achievement, as demonstrated by updated modeling in the Containment Evaluation TM;

(i) A list of all deliverables that Settling Work Defendant submitted to EPA in the reporting year;

(j) A description of activities relating to O&M that have been conducted in the reporting year including average pumping rates per well per month, as well as downtime and maintenance events for wells and key components of the CNETS;

(k) A description of activities relating to O&M that are required, anticipated, and/or scheduled for the next year;

(l) A summary of CNETS operations during the reporting year that includes: (1) an analysis of data related to O&M, e.g., SCADA data and system control/HMI data; (2) describes any operational shutdowns; (3) explains any operational problems encountered and their resolution.

(m) An updated O&M schedule, including a description of delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays;

(n) A list of all plans required pursuant to this SOW, and confirmation that applicable plans, including the O&M Plan, in use at any given time in the reporting year have been reviewed with due consideration

to project changes, requirement changes, and updated guidance/reference documents, etc., updated as appropriate, and a description of such updates;

(o) A description of any modifications to the O&M Plan, work plans, or other schedules that Settling Work Defendant has proposed or that have been approved by EPA;

(p) A description of activities undertaken in support of the CIP during the reporting year and those to be undertaken in the next year;

(q) An inventory of spare parts used and on-hand for O&M and a certification that the Settling Work Defendant has implemented all activities under the Operational Support Plan (see Exhibit 1 to this SOW; Attachment A to Exhibit 1 to be reviewed annually by Settling Work Defendant and updated as necessary); and,

(r) List the current LADWP Operations Coordinator.

6.3 Post-Verification Monitoring Reports. Following receipt of EPA's Certificate of Remedial Action Completion, Settling Work Defendant shall submit reports to EPA on an annual basis ("Post-Verification Monitoring Report") for no more than five (5) years. Post-Verification Monitoring Reports will describe activities from October 1st through September 30th and will be due on February 28th each year. Post-Verification Monitoring Reports must: (1) include certifications by a registered professional engineer and by Settling Work Defendant's Project Coordinator as to whether the Completion Conditions remain met, based on monitoring data and numerical model simulation results; (2) be prepared in accordance with EPA's *Recommended Contents of a Groundwater Monitoring Report (September 2016), O&M Report Template for Ground Water Remedies (April 2005),* and the approved SWMP (¶ 7.7(d)); and (3) be certified in accordance with Paragraph 7.5 (Certification). The Post-Verification Monitoring Report

should describe the Performance Standards and cover all activities that took place during the prior reporting period, including:

(a) A summary of all results of sampling, tests, and all other data received or generated by Settling Work Defendant, including groundwater monitoring and sampling collected pursuant to the SWMP (including samples collected from extraction wells), and confirmation that the data has been submitted to the EPA database pursuant to Paragraph 7.7. This summary shall include information for the wells such as their depth, zone, monitoring frequency, last sample date, and information on whether or not the well can be sampled;

(b) Evaluation of groundwater elevation and analytical data collected pursuant to the approved UFP-QAPP and attached SWMP (¶ 7.7), using multiple lines of evidence consistent with EPA's *Guidance for Monitoring at Hazardous Waste Sites (2004)*. Data shall include data collected within the Central NHOU Area, data collected regarding contamination outside of the Central NHOU Area that has the potential to impact the Central NHOU Area, and data collected from wells identified in the SWMP. The evaluation shall utilize the most recent monitoring results and include the following components:

(1) Updated plume maps, per groundwater zone consistent with the SWMP;

(2) Potentiometric surface maps, per groundwater zone consistent with the SWMP;

(3) Trend analysis and other statistical evaluations to assess for temporal and spatial trends in NHOU COC concentrations; and

(4) Tables comparing all sampling data collected to Performance Standards;

(c) A list of all deliverables that Settling Work Defendant submitted to EPA in the reporting year;

(d) A list of all plans required pursuant to this SOW, and confirmation that applicable plans in use at any given time in the reporting year have been reviewed with due consideration to project changes, requirement changes, and updated guidance/reference documents, etc., updated as appropriate, and a description of such updates; and

(e) A description of activities undertaken in support of the CIP during the reporting year and those to be undertaken in the next year.

6.4 **Notice of Progress Report Schedule Changes**. If the schedule for any activity described in the Progress Reports, including activities required to be described under Paragraph 6.1(e), changes, Settling Work Defendant shall notify EPA of such change prior to performance of the activity.

7. DELIVERABLES

7.1 **Applicability**. Settling Work Defendant shall submit deliverables for EPA comment and approval as specified in the SOW. If neither is specified, the deliverable does not require EPA's approval or comment. Paragraphs 7.2 (In Writing) through 7.4 (Technical Specifications) apply to all deliverables. Paragraph 7.5 (Certification) applies to any deliverable that is required to be certified. Paragraph 7.6 (Approval of Deliverables) applies to any deliverable that is required to be submitted for EPA approval. Where appropriate, Settling Work Defendant and EPA will attempt to coordinate review of deliverables with other state and local agencies such as DDW and LADWP.

7.2 **In Writing**. As provided in ¶ 134 of the Decree, all deliverables under this SOW must be in writing unless otherwise specified.

7.3 **General Requirements for Deliverables**. All deliverables must be submitted by the deadlines in Paragraph 8.2 (Remedial Design Schedule) or

Paragraph 8.3 (Remedial Action Schedule**)**, as applicable. Settling Work Defendant shall submit all deliverables to EPA in electronic form. Technical specifications for sampling and monitoring data and spatial data are addressed in Paragraph 7.4. All other deliverables shall be submitted to EPA in the electronic form specified by the EPA Project Coordinator. For any deliverable, including maps, drawings, or other exhibits, larger than 8.5" by 11", Settling Work Defendant shall, upon request, also provide EPA with paper copies of such exhibits, within seven days.

7.4 Technical Specifications

(a) Sampling and monitoring data should be submitted in standard regional Electronic Data Deliverable ("EDD") format. US EPA Region 9 EquIS Data Processor ("EDP") format will be used, unless otherwise directed by EPA. Other delivery methods may be allowed if electronic direct submission presents a significant burden or as technology changes.

(b) Spatial data, including spatially-referenced data and geospatial data, should be submitted: (1) in the ESRI File Geodatabase and the Region IX EDP ("EquIS") format; and (2) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 ("NAD83") or World Geodetic System 1984 ("WGS84") as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee ("FGDC") Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA

Metadata Editor ("EME"), complies with these FGDC and EPA metadata requirements and is available at https://edg.epa.gov/EME/.

(c) Each file must include an attribute name for each site unit or sub-unit submitted. Consult https://www.epa.gov/geospatial/geospatial-policies-and-standards for any further available guidance on attribute identification and naming.

(d) Spatial data submitted by Settling Work Defendant does not, and is not intended to, define the boundaries of the Site.

7.5 Certification. All deliverables that require compliance with this paragraph must be signed by the Settling Work Defendant's Project Coordinator, or other responsible official of Settling Work Defendant, and must contain the following statement:

> I certify under penalty of perjury that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

7.6 Approval of Deliverables

(a) **Initial Submissions**

(1) After review of any deliverable that is required to be submitted for EPA approval under the Decree or the SOW, EPA shall:

(i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing.

(2) EPA also may modify the initial submission to cure deficiencies in the submission if: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work; or (ii) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

(b) **Resubmissions**. Upon receipt of a notice of disapproval under Paragraph 7.6(a) (Initial Submissions), or if required by a notice of approval upon specified conditions under Paragraph 7.6(a), Settling Work Defendant shall, within 15 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval. After review of the resubmitted deliverable, EPA may: (1) approve, in whole or in part, the resubmission; (2) approve the resubmission upon specified conditions; (3) modify the resubmission; (4) disapprove, in whole or in part, the resubmission, requiring Settling Work Defendant to correct the deficiencies; or (5) any combination of the foregoing.

(c) **Implementation**. Upon approval, approval upon conditions, or modification by EPA under Paragraph 7.6(a) (Initial Submissions) or Paragraph 7.6(b) (Resubmissions), of any deliverable, or any portion thereof: (1) such deliverable, or portion thereof, will be incorporated into and enforceable under the Decree; and (2) Settling Work

Defendant shall take any action required by such deliverable, or portion thereof. The implementation of any non-deficient portion of a deliverable submitted or resubmitted under Paragraph 7.6(a) or Paragraph 7.6(b) does not relieve Settling Work Defendant of any liability for stipulated penalties under Section XV (Stipulated Penalties) of the Decree.

(d) If: (1) an initially submitted deliverable contains a material defect and the conditions are met for modifying the deliverable under Paragraph 7.6(a)(2); or (2) a resubmitted deliverable contains a material defect; then the material defect constitutes a lack of compliance for purposes of this Paragraph.

7.7 Supporting Deliverables. Settling Work Defendant shall submit each of the following "Supporting Deliverables" for EPA approval, except as specifically provided. Settling Work Defendant shall develop the Supporting Deliverables in accordance with all applicable regulations, guidances, and policies (see Paragraph 10 (References)). Settling Work Defendant shall update each of these Supporting Deliverables as necessary or appropriate during the course of the Work, and/or as requested by EPA.

(a) **Environmental Data**. Any data collected pursuant to or supporting the Work shall be provided to EPA quarterly. Any data used to support a submittal or deliverable associated with the Work, including analytical data, shapefiles, modeling input files, and other types of relevant data, shall be provided to EPA, in the relevant format, with the submission. Data shall be submitted to EPA as provided in Paragraph 7.4 (Technical Specifications).

(b) **Health and Safety Plan ("HASP")**. The HASP describes all activities to be performed to protect on-site personnel and area residents from physical, chemical, and all other hazards posed by the

Work. Settling Work Defendant shall develop the HASP in accordance with EPA's *Emergency Responder Health and Safety Manual* and Occupational Safety and Health Administration requirements under 29 C.F.R. §§ 1910 and 1926. The HASP should cover all Work and should be, as appropriate, updated to cover activities during the construction and updated to cover activities after construction completion. EPA does not approve the HASP but will review it to ensure that all necessary elements are included and that the plan provides for the protection of human health and the environment.

(c) **Emergency Response Plan ("ERP")**. The ERP must describe procedures to be used in the event of an accident or emergency associated with the Work and/or at the CNETS (for example, power outages, water impoundment failure, treatment plant failure, slope failure, spills, etc.). The ERP must include:

(1) Name of the person or entity responsible for responding in the event of an emergency incident;

(2) Plan and date(s) for meeting(s) with the local community, including local, State, and federal agencies involved in the cleanup, as well as local emergency squads and hospitals;

(3) Spill Prevention, Control, and Countermeasures Plan (if applicable), consistent with the regulations under 40 C.F.R. part 112, describing measures to prevent, and contingency plans for, spills and discharges;

(4) Notification activities in accordance with Paragraph 5.3(b) (Release Reporting) in the event of a release of hazardous substances requiring reporting under CERCLA § 103 or EPCRA § 304; and

(5) A description of all necessary actions to ensure compliance with Paragraph 5.3 of the SOW in the event of an occurrence during the performance of the Work that causes or threatens a release of Waste Material from the Site that constitutes an emergency or may present an immediate threat to public health or welfare or the environment.

(d) **Uniform Federal Policy-Quality Assurance Project Plan ("UFP-QAPP")**. A UFP-QAPP shall be written for each stage, phase, or portion of the Work, as outlined in the RDRAWP, including groundwater monitoring, treatment system performance monitoring, containment monitoring, and modeling, and shall be written to address all data needs associated with the Work. The UFP-QAPP(s) will address all sample collection activities and must be written so that a field sampling team unfamiliar with the project would be able to gather the samples and field information required. The UFP-QAPP(s) must include a detailed explanation of Settling Work Defendant's quality assurance, quality control, and chain of custody procedures for all treatability, design, compliance, and monitoring. Settling Work Defendant shall collect, produce, and evaluate all environmental information at the Site in accordance with EPA-approved UFP-QAPP(s). Settling Work Defendant shall develop the UFP-QAPP(s) in accordance with Uniform Federal Policy for Quality Assurance Project Plans, UFP-QAPP-Manual (EPA-505-B-04-900A, March 2005) and all applicable guidance for the relevant portion of the Work as referenced in other parts of this SOW. The UFP-QAPP(s) shall include the following:

(1) Description of the monitoring well network;

(2) Description of the environmental media to be monitored;

(3) Description of the data collection parameters, including existing and proposed monitoring devices and locations, schedule and frequency of monitoring, analytical parameters to be monitored, and analytical methods employed;

(4) Description of data collected by other parties that will be utilized by Settling Work Defendant for evaluations required by the Decree and how that data will be received, validated, interpreted, and reported;

(5) Description of how performance data will be analyzed, interpreted, and reported;

(6) Description of verification sampling procedures;

(7) Description of deliverables that will be generated in connection with monitoring, including sampling schedules, laboratory records, data uploads to EPA's San Fernando Valley database, monitoring reports, and other reports to EPA and state agencies;

(8) Description of proposed additional monitoring and data collection actions (such as increases in frequency of monitoring, and/or installation of additional monitoring devices in the affected areas) in the event that results from monitoring devices indicate changed conditions (such as higher than expected concentrations of the NHOU COCs or groundwater contaminant plume movement); and

(9) A plan to immediately provide to EPA any unvalidated sampling data obtained by Settling Work Defendant from the CNETS effluent that exceeds the Performance Standards by three times and to expedite the collection of confirmation samples, and their analysis and validation.

(10) The UFP-QAPP shall also include a Site-Wide Monitoring Plan ("SWMP") and a Containment Evaluation Plan as attachments.

(i) **Site-Wide Monitoring Plan (SWMP)**. The SWMP shall be developed consistent with EPA guidance and explain each of the objectives for the sampling and data collection. The objectives include, but are not limited to: (1) establishing a baseline regarding the extent of contamination in affected media in the Central NHOU Area; (2) tracking the movement (i.e., fate and transport), through short- and long-term monitoring, and changes in contaminant concentrations throughout NHOU, before and during implementation of the Work; (3) evaluating hydraulic containment of Central NHOU Targeted Contamination using monitoring data; (4) determining whether Performance Standards are being met; (5) determining the need for additional response actions, including NHOU monitoring, or the need for expedited sampling and analysis; and (6) collecting data to support and inform EPA's development of a final remedy for the NHOU. The SWMP shall include planned adjustments to the sampling frequency including re-sampling in the case of sample quality control failures, increased frequency of sampling for monitoring wells with increasing trends or rapid increases in concentrations, and a sampling plan for the 6-months following an exceedance at the effluent of the treatment system.

(ii) **Containment Evaluation Plan**. The Containment Evaluation Plan shall describe the approach for

demonstrating containment using multiple lines of evidence, including modeling and data analysis, to evaluate the extent to which the CNETS is containing the Central NHOU Targeted Contamination. The modeling shall include a three-dimensional, transient, numerical model utilizing analytical data from groundwater monitoring wells evaluated in conjunction with groundwater elevation data. The model shall be developed and calibrated to include planned interpretation of the data to factor in potential sources of contamination, groundwater conditions, layer sizes, and grids. For predictive modeling, several future scenarios as well as the method for incorporating future changes in planned or anticipated groundwater use and recharge shall be included. The Containment Evaluation Plan and model will be consistent with EPA's *A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems* (January 2008). The Containment Evaluation Plan shall describe the evaluation frequency and the method for reporting the results to EPA for approval. Results of the Containment Evaluation Plan will be included in a technical memorandum (the "Containment Evaluation TM") The Containment Evaluation Plan shall be paired with a SWMP and attached to the relevant UFP-QAPP.

(e) **Community Impacts Mitigation Plan ("CIMP")**. The CIMP describes all activities to be performed: (1) to reduce and manage the impacts from remedy implementation (*e.g.*, air emissions, traffic,

noise, odor, temporary or permanent relocation) to residential areas, schools, playgrounds, healthcare facilities, or recreational or impacted public areas ("Community Areas") from and during remedy implementation, (2) to conduct monitoring in Community Areas of impacts from remedy implementation, (3) to expeditiously communicate validated remedy implementation monitoring data, (4) to make adjustments during remedy implementation in order to further reduce and manage impacts from remedy implementation to affected Community Areas, (5) to expeditiously restore community resources damaged during remediation such as roads and culverts, and (6) to mitigate the economic effects that the Work will have on the community by structuring remediation contracts to allow more local business participation. The CIMP should contain information about impacts to Community Areas that is sufficient to assist EPA's Project Coordinator in performing the evaluations recommended under the *Superfund Community Involvement Handbook*, OLEM 9230.0-51 (March 2020), pp. 53-56.

(f) **Construction Quality Assurance Plan ("CQAP") and Construction Quality Control Plan ("CQCP")**. The purpose of the CQAP is to describe planned and systemic activities that provide confidence that the Remedial Action Construction will satisfy all plans, specifications, and related requirements, including quality objectives. The purpose of the CQCP is to describe the activities to verify that Remedial Action Construction has satisfied all plans, specifications, and related requirements, including quality objectives. The Settling Work Defendant shall develop the CQAP/CQCP in accordance with EPA's *Guidance on Quality Assurance for*

Environmental Technology, Design, Construction and Operation (January 2005). The CQAP/CQCP must:

(1) Identify, and describe the responsibilities of, the organizations and personnel implementing the CQAP/CQCP;

(2) Describe the requirements for the CNETS, including (1) Performance Standards and (2) permit requirements;

(3) Describe the activities to be performed: (i) to provide confidence that the requirements for the CNETS will be met; and (ii) to determine whether those requirements have been met;

(4) Describe verification activities, such as inspections, sampling, testing, monitoring, and production controls, under the CQAP/CQCP;

(5) Describe industry standards and technical specifications used in implementing the CQAP/CQCP;

(6) Describe procedures for tracking construction deficiencies from identification through corrective action;

(7) Describe procedures for documenting all CQAP/CQCP activities; and

(8) Describe procedures for retention of documents and for final storage of documents.

(g) **Startup and Shakedown Plan**. The "Startup and Shakedown Plan" shall outline procedures for the startup of the CNETS, component by component, including testing. This plan shall provide for functional testing including procedures to ensure the CNETS is functioning as designed. This plan shall cover CNETS startup and up to one year of shakedown, including permit acquisition. The Startup and Shakedown Plan will include:

(1) An installation checklist including sub-system checkout;

(2) An outline of the functional testing program from the successful completion of CQA/CQC testing to online testing;

(3) Performance tests and an acceptance and testing checklist, including communication/control systems and alarms;

(4) Planning and scheduling work to meet the requirements to receive all permits necessary for long-term operations;

(5) Planning for plant operator turn-over;

(6) Plans for evaluating the operation of the CNETS to inform the final O&M Plan; and

(7) Schedule for submission of the final O&M Plan, incorporating any changes to CNETS operations necessary to achieve the objectives in Paragraph 1.3.

(h) **Transportation and Off-Site Disposal Plan ("TODP")**. The TODP describes plans to ensure compliance with Paragraph 5.4 (Off-Site Shipments). The TODP must include:

(1) Proposed times and routes for off-site shipment of Waste Material;

(2) Identification of communities, including underserved communities referred to in Executive Order 14008, § 222(b) (Feb. 1, 2021), affected by shipment of Waste Material;

(3) Description of plans to minimize impacts (*e.g.*, noise, traffic, dust, odors) on affected communities; and

(4) Procedures for getting all necessary approvals for off-Site shipments pursuant to Paragraph 5.4 (Off-Site Shipments).

(i) **O&M Manual**. The O&M Manual serves as a guide to the purpose and function of the equipment and systems that make up the remedy. Settling Work Defendant shall develop the O&M Manual in

accordance with *Guidance for Management of Superfund Remedies in Post Construction*, OLEM 9200.3-105 (Feb. 2017).

8. SCHEDULES

8.1 Applicability and Revisions. All deliverables and tasks required under this SOW must be submitted or completed by the deadlines or within the time durations listed in the Remedial Design and Remedial Action schedules set forth below. Settling Work Defendant may submit proposed revised Remedial Design or Remedial Action schedules for EPA approval. Upon EPA's approval, the revised Remedial Design and/or Remedial Action schedules supersede the Remedial Design and Remedial Action schedules set forth below, and any previously-approved Remedial Design and/or Remedial Action schedules.

8.2 Remedial Design Schedule

	Description of Deliverable, Task	¶ Ref.	Deadline
1	Designate Settling Work Defendant's CI Coordinator	2.2	15 days after EPA request
2	Designate Settling Work Defendant's Project Coordinator and Supervising Contractor	3.3	10 days after the Effective Date
3	Identify LADWP Operations Coordinator	3.1	10 days after the Effective Date
4	RDRAWP	4.1	30 days after EPA's authorization to proceed regarding Settling Work Defendant's Project Coordinator and Supervising Contractor (¶ 3.3).
5	Pre-final (95%) Remedial Design	4.2	60 days after EPA comments on the RDRAWP
6	Final (100%) Remedial Design	4.3	60 days after EPA comments on Pre-final (95%) Remedial Design, if EPA comments received
7	Monthly Progress Reports	6.1	30 days after the Effective Date and monthly thereafter until the Central NHOU Construction Completion Report is approved

8.3 Remedial Action Schedule

	Description of Deliverable / Task	¶ Ref.	Deadline
1	Update of the RDRAWP	5.1	Concurrent with the Final (100%) Remedial Design
2	Pre-Construction Conference	5.6(a)(1)	14 days after approval of the updated RDRAWP
3	CNETS CQAP/CQCP	7.7(f)	Concurrent with update of the RDRAWP and at least 30 days prior to Start of Construction

	Description of Deliverable / Task	¶ Ref.	Deadline
4	Start of Construction	5.6	30 days after approval of the updated RDRAWP
5	Schedule an inspection of Phase 1 and Phase 2 Construction	5.6(b)(1)	Within 10 days after completion of construction of the respective Phase
6	Phase 1B Construction Completion Report	5.6(b)(3)	90 days following completion of the Phase 1B Shakedown Period
7	Phase 2B Construction Completion Report	5.6(b)(6)	90 days following the completion of Phase 2 construction
8	Supporting deliverables required for operation of Phase 1 and Phase 2 (O&M Plan, HASP, ERP, UFP-QAPP (including SWMP), CIMP, CQAP/CQCP, Startup and Shakedown Plan, TODP)	5.7(a); 7.7	As applicable, with the update of the RDRAWP
9	CNETS Startup and Shakedown Plan	7.7(g)	Draft submitted with RDRAWP update. Final draft submitted at least 30 days prior to start of the system/system components
10	Schedule an inspection of CNETS construction	5.6(d)(3)	Within 10 days after completion of construction of the CNETS
11	Central NHOU Construction Completion Reports	5.6(d)(6)	90 days following the completion of the CNETS Shakedown Period
12	CNETS Evaluation Report	5.7(c)	As requested

	Description of Deliverable / Task	¶ Ref.	Deadline
11	Supporting deliverables required for operation of CNETS (O&M Plan, HASP, ERP, UFP-QAPP (including SWMP), CIMP, TODP)	5.7(a); 7.7	Draft, submitted as part of final design. Final draft submitted 30 days prior to the commencement of CNETS operation
12	Monthly Progress Reports	6.1	30 days after the Effective Date and monthly thereafter until the Central NHOU Construction Completion Report is approved
13	CNMP Annual Reports	6.2	February 20th after the Central NHOU Construction Completion Report is approved and annually thereafter
14	Request for Certification of Remedial Action Completion	5.9(b)	Following Central NHOU Remedial Action Report and inspection, if applicable
15	Central NHOU Remedial Action Report	5.9(b)	Following the achievement of the objectives set in Paragraph 1.3, pursuant to Paragraph 5.9(a), and EPA approval of the Containment Evaluation TM submitted pursuant to Paragraph 5.9(a)
16	Completion Condition Re-Achievement Plan	5.10	As necessary
17	Schedule inspection for Certification of Work Completion	5.11(a)	Following the completion of Post-Remedial Action Monitoring
18	Request for Certification of Work Completion	5.11(b)	Following inspection for Certification of Work Completion, if applicable

9. STATE PARTICIPATION

9.1 **Copies**. Settling Work Defendant shall, at any time it sends a deliverable to EPA, send a copy of such deliverable to DTSC. EPA shall, at any time it sends a notice, authorization, approval, disapproval, or certification to Settling Work Defendant, send a copy of such document to DTSC.

9.2 **Review and Comment**. DTSC will have a reasonable opportunity for review and comment prior to:

(a) Any EPA notice to proceed under Paragraph 3.3 (Procedures for Disapproval/Notice to Proceed);

(b) Any EPA approval or disapproval under Paragraph 7.6 (Approval of Deliverables) of any deliverables that are required to be submitted for EPA approval; and

(c) Any approval or disapproval of construction under Paragraph 5.6 (Remedial Action Construction), any disapproval of, or Certification of Remedial Action Completion under Paragraph 5.9 (Remedial Action Completion), and any disapproval of, or Certification of Work Completion under Paragraph 5.11 (Certification of Work Completion).

10. REFERENCES

10.1 The following regulations and guidance documents, among others, apply to the Work. Any item for which a specific URL is not provided below is available on one of the three EPA web pages listed in Paragraph 10.2:

(a) A Compendium of Superfund Field Operations Methods, OSWER 9355.0-14, EPA/540/P-87/001a (Aug. 1987).

(b) CERCLA Compliance with Other Laws Manual, Part I: Interim Final, OSWER 9234.1-01, EPA/540/G-89/006 (Aug. 1988).

(c) Guidance for Conducting Remedial Investigations and Feasibility Studies, OSWER 9355.3-01, EPA/540/G-89/004 (Oct. 1988).

(d) CERCLA Compliance with Other Laws Manual, Part II, OSWER 9234.1-02, EPA/540/G-89/009 (Aug. 1989).

(e) Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, OSWER 9355.5-01, EPA/540/G90/001 (Apr.1990).

(f) Guidance on Expediting Remedial Design and Remedial Actions, OSWER 9355.5-02, EPA/540/G-90/006 (Aug. 1990).

(g) Guide to Management of Investigation-Derived Wastes, OSWER 9345.3-03FS (Jan. 1992).

(h) Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, OSWER 9355.7-03 (Feb. 1992).

(i) Guidance for Conducting Treatability Studies under CERCLA, OSWER 9380.3-10, EPA/540/R-92/071A (Nov. 1992).

(j) Methods for Monitoring Pump-and-Treat Performance, EPA/600/R-94/123 (June 1994).

(k) National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, 40 C.F.R. part 300 (Oct. 1994).

(l) Guidance for Scoping the Remedial Design, OSWER 9355.0-43, EPA/540/R-95/025 (Mar. 1995).

(m) Remedial Design/Remedial Action Handbook, OSWER 9355.0-04B, EPA/540/R-95/059 (June 1995).

(n) EPA Guidance for Data Quality Assessment, Practical Methods for Data Analysis, QA/G-9, EPA/600/R-96/084 (July 2000).

(o) O&M Report Template for Ground Water Remedies (with Emphasis on Pump and Treat System), OSWER 9283.1-22FS (April 2005)

(p) Recommended Annual O&M/Remedy Evaluation Checklist, OSWER 9355.0-87 (2008)

(q) Comprehensive Five-year Review Guidance, OSWER 9355.7-03B-P, EPA/540R01-007 (June 2001).

(r) Guidance for Quality Assurance Project Plans, EPA QA/G-5, EPA Office of Environmental Information (Dec. 2002) https://www.epa.gov/quality/guidance-quality-assurance-project-plans-epa-qag-5.

(s) Institutional Controls: Third-Party Beneficiary Rights in Proprietary Controls, OECA (Apr. 2004).

(t) Uniform Federal Policy for Implementing Environmental Quality Systems, Evaluating, Assessing, and Documenting Data Collection/Use and Technology Programs. Final, Version 2. EPA-505-F-03-001. March 2005.

(u) Uniform Federal Policy for Quality Assurance Project Plans, Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs. Part 1: UFP-QAPP Manual. Final, Version 1. EPA-505-B-04-900A. March 2005.

(v) Workbook for Uniform Federal Policy for Quality Assurance Project Plans, Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs. Part 2A: UFP-QAPP Workbook. Final, Version 1. EPA-505-B-04-900C. March 2005.

(w) Uniform Federal Policy for Quality Assurance Project Plans, Part 2B, Quality Assurance/Quality Control Compendium: Minimum QA/QC Activities. Final, Version 1. EPA-505-B-04-900B. March 2005.

(x) EPA's Emergency Responder Health and Safety Manual, OSWER 9285.3-12 (July 2005 and updates), https://www.epaosc.org/_HealthSafetyManual/manual-index.htm.

(y) EPA National Geospatial Data Policy, CIO Policy Transmittal 05-002 (Aug. 2005), https://www.epa.gov/geospatial/epa-national-geospatial-data-policy.

(z) EPA Guidance on Systematic Planning Using the Data Quality Objectives Process, QA/G-4, EPA/240/B-06/001 (Feb. 2006).

(aa) EPA Requirements for Quality Management Plans, QA/R-2, EPA/240/B-01/002 (Mar. 2001, reissued May 2006).

(bb) USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, ILM05.4 (Dec. 2006).

(cc) USEPA Contract Laboratory Program Statement of Work for Organic Analysis, SOM01.2 (amended Apr. 2007).

(dd) A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems, EPA 600/R-08/003 (January 2008).

(ee) EPA National Geospatial Data Policy, CIO Policy Transmittal 05-002 (Aug. 2008), https://www.epa.gov/geospatial/geospatial-policies-and-standards and https://www.epa.gov/geospatial/epa-national-geospatial-data-policy.

(ff) Principles for Greener Cleanups (Aug. 2009), https://www.epa.gov/greenercleanups/epa-principles-greener-cleanups.

(gg) Providing Communities with Opportunities for Independent Technical Assistance in Superfund Settlements, Interim (Sep. 2009).

(hh) USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration), ISM01.2 (Jan. 2010).

(ii) Close Out Procedures for National Priorities List Sites, OSWER 9320.2-22 (May 2011).

(jj) Groundwater Road Map: Recommended Process for Restoring Contaminated Groundwater at Superfund Sites, OSWER 9283.1-34 (July 2011).

(kk) Recommended Evaluation of Institutional Controls: Supplement to the "Comprehensive Five-Year Review Guidance," OSWER 9355.7-18 (Sep. 2011).

(ll) Plan EJ 2014: Legal Tools, EPA Office of General Counsel (Dec. 2011), https://www.epa.gov/environmentaljustice/plan-ej-2014-legal-tools.

(mm) Uniform Federal Policy for Quality Assurance Project Plans, Optimized UFP-QAPP Worksheets. EPA 2106-G-05. March 2012.

(nn) Updated Superfund Response and Settlement Approach for Sites Using the Superfund Alternative Approach, OSWER 9200.2-125 (Sep. 2012)

(oo) Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012), https://semspub.epa.gov/work/HQ/175446.pdf.

(pp) Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012), https://semspub.epa.gov/work/HQ/175449.pdf.

(qq) Broader Application of Remedial Design and Remedial Action Pilot Project Lessons Learned, OSWER 9200.2-129 (Feb. 2013).

(rr) Groundwater Remedy Completion Strategy: Moving Forward with the End in Mind, OSWER 9200.2-144 (May 2014).

(ss) Quality Management Systems for Environmental Information and Technology Programs -- Requirements with Guidance for Use,

ASQ/ANSI E-4 (February 2014), available at https://webstore.ansi.org/.

(tt) Superfund Community Involvement Handbook, SEMS 100000070 (January 2016), https://www.epa.gov/superfund/community-involvement-tools-and-resources.

(uu) Guidance for Management of Superfund Remedies in Post Construction, OLEM 9200.3-105 (Feb. 2017), https://www.epa.gov/superfund/superfund-post-construction-completion.

(vv) Advanced Monitoring Technologies and Approaches to Support Long-Term Stewardship (July 20, 2018), https://www.epa.gov/enforcement/use-advanced-monitoring-technologies-and-approaches-support-long-term-stewardship.

(ww) Construction Specifications Institute's MasterFormat (2020 edition), available from the Construction Specifications Institute.

(xx) Superfund Community Involvement Handbook, OLEM 9230.0-51 (March 2020). More information on Superfund community involvement is available on the Agency's Superfund Community Involvement Tools and Resources web page at https://www.epa.gov/superfund/superfund-community-involvement-tools-and-resources.

(yy) EPA directive CIO 2105.1 (Environmental Information Quality Policy, 2021), https://www.epa.gov/sites/production/files/2021-04/documents/environmental_information_quality_policy.pdf.

10.2 A more complete list may be found on the following EPA web pages:

(a) Laws, Policy, and Guidance at https://www.epa.gov/superfund/superfund-policy-guidance-and-laws;

(b) Search Superfund Documents at https://www.epa.gov/superfund/search-superfund-documents; and

(c) Test Methods Collections at: https://www.epa.gov/measurements/collection-methods.

10.3 For any regulation or guidance referenced in the Decree or SOW, the reference will be read to include any subsequent modification, amendment, or replacement of such regulation or guidance. Such modifications, amendments, or replacements apply to the Work only after Settling Work Defendant receive notification from EPA of the modification, amendment, or replacement.

10.4 As summarized in the Decree, the Remedial Action is underway by the Settling Work Defendant with EPA oversight. The most significant Remedial Action documents previously submitted by the Settling Work Defendant under prior enforcement mechanisms and/or agreements are listed below.

(a) Final Remedial Design Work Plan (MACTEC, 2011).

(b) Final Data Gap Analysis (AMEC Environment & Infrastructure, 2012a).

(c) Building Conditions Assessment (AMEC Environment & Infrastructure, 2012b).

(d) Remedial Design Quality Assurance Project Plan (AMEC Environment & Infrastructure, 2012c).

(e) Sampling and Analysis Plan (AMEC Environment & Infrastructure, 2012d).

(f) Final Groundwater Modeling Memorandum (AMEC Foster Wheeler Environment & Infrastructure, 2015).

(g) Final Treatment Options Memorandum (AMEC Foster Wheeler Environment & Infrastructure, 2016).

(h) Phase 1A Completion Report (Wood, 2018).

(i) Prefinal (90%) Design Phase 1B Treatment System (Wood, 2019a).

(j) Final Remedial Action Work Plan (Wood, 2019b).

(k) Phase 2A Completion Report (Wood, 2020a).

(l) Revised Construction QA/QC Plan (Wood, 2020b).

(m) Revised Transportation and Offsite Disposal Plan (Wood, 2020c).

(n) Site-Wide Monitoring Plan (WSP, 2022a).

(o) Final (100%) Design Phase 2B Conveyance (Carollo, 2022).

(p) Draft Intermediate (60%) Design Phase 3 Treatment System (WSP, 2022b).

(q) Draft Phase 1B Operations, Monitoring, and Maintenance Plan (WSP, 2023a).

(r) Draft Phase 1B Uniform Federal Policy Quality Assurance Project Plan. (WSP, 2023b).

(s) Phase 1B Site-Wide Monitoring Plan (WSP, 2023c).

(t) Groundwater Monitoring Sampling and Analysis Plan. (WSP, 2023d).

(u) Groundwater Treatment System Sampling and Analysis Plan (WSP, 2023e.).

(v) Modeling Quality Assurance Project Plan (WSP, 2023f).

STATEMENT OF WORK – EXHIBIT 1

OPERATIONAL SUPPORT PLAN

I. Purpose

This "Operational Support Plan" provides a framework to help minimize service interruptions during the Los Angeles Department of Water and Power's ("LADWP") operation of the CNETS. More specifically, this Operational Support Plan sets forth the framework for managing (i) the supply of equipment and materials and (ii) the procurement of routine maintenance services that are anticipated to be needed to support the effective operation of the CNETS. This Operational Support Plan also establishes the framework for continuing communication between the Settling Work Defendant and LADWP regarding operation and maintenance of the CNETS.

Settling Work Defendant will update the parts and equipment counts identified in the "Tier I," "Tier II" and "Tier III" tables (with items added or removed) following the development and approval of the applicable O&M Plan by EPA. At such time, Settling Work Defendant will, following consultation with LADWP, develop a final "Plan Equipment/Materials List." The Plan Equipment/Materials List may, as appropriate, be incorporated into the O&M Plan.

II. Settling Work Defendant Responsibility to Provide Certain Equipment/Materials and Routine Maintenance Services for the CNETS

Equipment/materials and routine maintenance services associated with the CNETS shall be separated into three tiers. Each tier is described as follows.

A. *Tier I: Equipment/Materials with Long Lead Times*

1. Tier I equipment/materials include items that have long procurement lead times (due to price, fabrication availability, sourcing, etc.) for either LADWP or Settling Work Defendant. Examples of anticipated Tier I equipment/materials include AOP unit components, ion exchange unit components, LPGAC components, submersible pump components, "general" system components, power related regulators and conditioners, and communication equipment. A representative list of anticipated Tier I items is included in Attachment A ("Attachment A") to this Operational Support Plan.

   Once LADWP begins operating the CNETS, Settling Work Defendant shall be responsible for ensuring that an inventory of those Tier I items identified on the final Plan Equipment/Materials List are available onsite at the Lankershim Yard (including ordering, delivering and restocking) or available for "just in time" delivery through established procurement contracts. As used herein, "just in time" means that the item can be delivered to the site within five business days from a request for the item. The total number of items to be maintained in inventory onsite will be

confirmed when the design of the CNETS has been finalized and reflected in the final Plan Equipment/Materials List.

2. Settling Work Defendant shall be responsible for ensuring that the onsite inventory is maintained consistent with the final Plan Equipment/Materials List. Replacement of Tier I items during operation will be consistent with (i) standard practices of a public drinking water system operated by a public utility of similar nature, scope and complexity as LADWP and (ii) the O&M Plan.

B. Tier II: Equipment/Materials that Have a Long Lead Time for LADWP, but that Settling Work Defendant May be Able to Obtain More Quickly

1. Tier II equipment/materials include items necessary to maintain CNETS operation that could have lead times longer than 30 calendar days for LADWP, but that Settling Work Defendant may, following a procurement process, have the capability of obtaining more quickly.

2. During the time LADWP is operating the CNETS, it is anticipated that LADWP will be responsible for procuring the Tier II items on the final Plan Equipment/Materials List. A representative list of anticipated Tier II items is included in Attachment A. If LADWP determines that it will not be able to obtain within 30 calendar days a particular Tier II item on the final Plan Equipment/Materials List necessary to maintain CNETS operations, and Settling Work Defendant can procure the item more quickly than LADWP, Settling Work Defendant will purchase that item on LADWP's behalf.

C. Tier III: Readily Available Equipment/Materials And Routine Services

1. Tier III consists of: 1) equipment/materials readily available to LADWP and, 2) routine maintenance services available through in-place/on-going LADWP contracts.

2. It is anticipated that LADWP will be responsible for procuring items that can be obtained through a purchase process that LADWP can complete within 30 calendar days. If the purchasing process for a particular Tier III item will take longer than 30 calendar days, and the timely purchase of that item is required to prevent or end a CNETS shutdown, and Settling Work Defendant can procure the item more quickly than LADWP, Settling Work Defendant shall procure the item and provide it to LADWP.

3. It is anticipated that LADWP will be responsible for procuring (maintaining and utilizing contracts, etc.) Tier III services. A representative list of anticipated Tier III services is included in Attachment A.

4. If the purchasing process for a particular Tier III service will take longer than 30 calendar days, despite making reasonable efforts to acquire or renew the service, and the timely purchase of that service is required to prevent or end a CNETS shutdown, it is anticipated that LADWP will request that Settling Work Defendant acquire the service as soon as practicable. In such an instance, Settling Work Defendant shall procure the service for LADWP. If it is determined that Settling Work Defendant cannot procure more quickly than LADWP, it is anticipated that LADWP will retain responsibility for its procurement.

III. Installation of Equipment and Oversight of Services

During the time that LADWP is operating the CNETS, it is anticipated that LADWP will install procured items and complete/oversee the required maintenance services (regardless of Tier). If due to extenuating circumstances, LADWP is not able to, in a reasonably timely manner, install procured items or complete/oversee the required maintenance service, Settling Work Defendant will perform those services.

IV. Management of Waste Generated by Treatment Operations

Settling Work Defendant will manage the handling, management, transportation, and disposal of hazardous and/or low-level radioactive waste generated by the WBA exchange resin treatment component of the NHOU Treatment Plant.

V. CNETS Communications

A. To support the O&M of the CNETS, Settling Work Defendant will have monitoring access to a control system through a secure network via a high-speed internet connection. This will provide Settling Work Defendant access to the human machine interface ("HMI") screens for remote monitoring of the individual well pumps and Lankershim Yard groundwater treatment system components. Settling Work Defendant will also have access to the process and alarm data logged on the SCADA server. Settling Work Defendant will make such system information available to EPA as appropriate.

B. Settling Work Defendant and LADWP will meet periodically to discuss any issues identified in or arising out of such information. These communications shall occur as necessary or appropriate, but at a minimum, quarterly, and Settling Work Defendant shall provide EPA with a report of the communications and material decisions related to CNETS operation on a semi-annual basis.

Operational Support Plan – Attachment A

Representative Equipment / Materials / Services

By Tier

SOW OPERATIONAL SUPPORT PLAN – ATTACHMENT A
(REPRESENTATIVE EQUIPMENT/MATERIALS/SERVICES BY TIER)

Tier I Items

Equipment with Long Lead Times
AOP unit components • Lamps – approximately % • Ballast –___ballast per two lamps • Sleeves – ___
Ion Exchange unit components • Metering pump – ___ • Spare set of bag filters –___set of 2 bags
LPGAC components • Pump – ___

Submersible pump components (wells)

- Pump and motor – ___
- Cable – ___
- VFD (if using VFD) – ___
- Check valve – ___
- Air/vacuum valve – ___
- Flow meter – ___

General system

- Inlet automated control valve – ___
- Chlorine Injector cabinet – ___

Communications

- PLC – ___
- UPS – ___

Tier II Items

Items that Have a Long Lead Time for LADWP, but that the Settling Work Defendant May Be Able to Obtain More Quickly
Special-order parts (e.g., large valve components, etc.) • Conveyance line gate valve(s) • Control panels/motor starters
AOP – Sensors and wiper seals
Gauges – Temperature, pressure, flow
Valves – Check, globe, etc.
Transmitters
Electrical systems (e.g., surge protection, ups, breakers)
Pumps and motors – Manufacturer's replacement parts kits
Equipment that cannot be provided by LADWP within 30 days • Submersible pump and motor • Large quantity of AOP lamps, ballast and sleeves

Tier III Items

Routine Maintenance Services
Bag filters (change-out schedule based on performance monitoring and manufacturers' recommendation)
Fresh carbon (change-out schedule based on performance monitoring and manufacturers' recommendation)
Acid and hydrogen peroxide (supply schedule based on performance monitoring and manufacturers' recommendation)

STATEMENT OF WORK – EXHIBIT 2

Performance Standards to Evaluate Effluent Water Quality

The Performance Standards that will be used to evaluate water quality collected from the CNETS effluent sample port are as follows:

Table 1

NHOU COCs	Standard (µg/L)[a]
TCE	5
PCE	5
1,1,-DCA	5
1,2-DCA	0.5
1,1-DCE	6
cis-1,2-DCE	6
1,1,2-TCA	5
Carbon tetrachloride	0.5
Methylene chloride	5
Total chromium	50
Hexavalent chromium	10
Perchlorate	6
TCP	0.005
1,4-dioxane	1
NDMA	0.01

a . It is acknowledged that the DDW permitting process may require lower concentrations of the NHOU COCs in the treated effluent. If such lower concentrations are if fact adopted by DDW, Settling Work Defendant shall notify EPA of the change in permit conditions and EPA will update this Table 1 consistent with DDW requirements.

Appendix C

List of Settling Defendants

Appendix C

List of Settling Defendants

I. Settling Cash Defendants
   - A. HD Development of Maryland, Inc.
   - B. Kaiser Foundation Health Plan, Inc.
   - C. PSA Institutional Partners, L.P.

II. Settling Owner Defendants
   - A. To be added when EPA makes a determination, at any time, that any real property owned by a Settling Defendant is Affected Property, consistent with Paragraph 66.a of this Decree.

III. Settling Work Defendants
   - A. Honeywell International Inc.

Appendix D

Honeywell/LADWP License Agreement

DO NOT RECORD

LICENSE AGREEMENT BETWEEN

THE LOS ANGELES DEPARTMENT OF WATER AND POWER

AND

HONEYWELL INTERNATIONAL INC.

LICENSE AGREEMENT

THE CITY OF LOS ANGELES, acting by and through its DEPARTMENT OF WATER AND POWER (hereinafter referred to as the "LADWP"), for and in consideration of (i) the commitments made in that certain agreement entitled "SETTLEMENT AGREEMENT BETWEEN THE LOS ANGELES DEPARTMENT OF WATER AND POWER AND HONEYWELL INTERNATIONAL INC." (the "NHOU SETTLEMENT AGREEMENT") and (ii) the keeping and performance of the terms and conditions in this License Agreement (the "License"), gives permission to HONEYWELL INTERNATIONAL INC. and its sub-licensees (jointly, severally, and collectively referred to herein as "Licensee"), to enter upon certain real property that is owned by the CITY and/or under the control and jurisdiction of LADWP (the "Licensed Areas") for the purpose of facilitating the construction, operation, and maintenance of groundwater treatment facilities and their associated wells, conveyance, and other necessary infrastructure for the benefit of LADWP, as contemplated by the NHOU SETTLEMENT AGREEMENT and referenced in PARAGRAPH 38 of this License (the "Activities"). Licensee and LADWP (collectively referred to herein as the "Parties" and individually as a "Party") acknowledge that the Activities will implement a portion of the "SECOND INTERIM REMEDY" for the North Hollywood Operable Unit of the San Fernando Valley Area 1 Superfund Site and are required by and subject to the United States Environmental Protection Agency's ("EPA") regulatory authority pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). Terms in all capitalized letters not otherwise defined herein shall have the meaning assigned in the NHOU SETTLEMENT AGREEMENT, which is attached hereto as Attachment A.

The Licensed Areas are shown on Figures LA-1, LA-2, and LA-3 and described as follows:

(a) That real property owned by LADWP, located at 11845 Vose Street, Los Angeles, California (Assessor Parcel Number ("APN") 2321004900), and which is commonly referred to as the "Lankershim Yard" (the "Yard"), as illustrated on Figures LA-1 and LA-2, incorporated herein by this reference.

(b) That real property owned by LADWP located in Los Angeles, California (APN 2321003902), and which is also referred to as "Parcel C" or the "Triangular Lot", as illustrated on Figure LA-1. Collectively, the Yard, Parcel C, and the Triangular Lot are referred to herein this License as the "YARD."

(c) That real property owned by LADWP, located in Los Angeles, California, associated with the following APNs, as illustrated on Figure LA-1:

(i) APN 2320008904 (NHE-2, PZ-NHE-2D, and PZ-NHE-2S): northwest of the intersection between Dehougne Street and Troost Avenue;

(ii) APN 2320006907 (NHE-3 and NHE-3R): northwest of the intersection between Vanowen Street and Beck Avenue;

(iii) APN 2320017901 (NHE-4, NHE-4R, PZ-NHE-4D, PZ-NHE-4S, NH-C03-380, NH-C03-580, and NH-C03-680): south of Vanowen Street, east of Camellia Street;

(iv) APN 2320020900 (NHE-5 and NHE-5R): southwest of the intersection between Archwood Street and Tujunga Avenue;

(v) APN 2336010901 (NHE-6): southeast of the intersection between Kittridge Street and Tujunga Avenue;

(vi) APN 2321003902 (GW-18A, GW-18B, and GW-18C): southwest of the intersection of Lankershim Boulevard and the Metrolink Ventura County Line and Amtrak Pacific Surfline Rail Corridor;

(vii) APN 2321004900 (NHE-1): inactive NHOU extraction well on the YARD and APN 2321004901;

(viii) APN 2414029900 (PZ-NHE-7S and PZ-NHE-7D): at the intersection of Cleon Avenue and Kitteridge Street;

(ix) APN 2317010900 (4919D): within "power transmission corridor," north of Runnymede Street;

(x) APN 2336021904 (NH-VPB-08): within power transmission corridor, east of Debby Street (access from Vineland Avenue); and,

(xi) Certain other wells owned by LADWP that are located in public rights of way, including: 3811E (sidewalk on Troost Avenue) and 4918A (Strathern Street right of way).

(d) LADWP-owned real property associated with the following APNs to the extent needed to access the existing LADWP-owned water distribution conveyance lines from the CCC production wells to the CCC treatment plant at the YARD and from the treatment plant at the YARD to the SUMP: APNs 2321004900, 2321007901, 2320001902, 2320008904, 2320009902, 2320010900, 2320006907, 2320016903, 2320017901, 2320017900, 2320018902, 2320020900, 2319008900, and 2336010901, as illustrated on Figures LA-1 and LA-3.

(e) That LADWP-owned real property (APN 2321020900), which is associated with the LADWP-owned "North Hollywood Sump" or "SUMP", to the extent needed to complete the installation of the discharge conveyance, as described in the SCOPE OF WORK, which is set forth in EXHIBIT 3 of the NHOU SETTLEMENT AGREEMENT.

(f) On the above-referenced real property, Licensee shall not have access to LADWP infrastructure and fixtures other than existing conveyance lines to convey water from the CCC wells to the YARD and from the YARD to the SUMP, as applicable, and the wells identified in (a) through (e), above.

LADWP finds that, at this time: (i) the Licensed Areas, other than their present use, are not presently needed for other LADWP departmental purposes; (ii) the grant of the License will not interfere with LADWP departmental purposes; and (iii) the grant of the License is necessary for Licensee and the LADWP to facilitate the NHOU SETTLEMENT AGREEMENT.

THE FOREGOING PERMISSION is given upon and subject to the following terms and conditions:

1. The right and permission of Licensee is subordinate to the prior and paramount right of LADWP to use said Licensed Areas for the public purposes to which they now are and may be, at the option of LADWP, devoted. Licensee undertakes and agrees to use said Licensed Areas solely in the exercise of this License and solely for the purposes set forth herein and in the NHOU SETTLEMENT AGREEMENT, and will at all times exercise the permission herein given in such manner consistent with this License and the NHOU SETTLEMENT AGREEMENT.

LADWP shall provide Licensee with all information that is known or readily accessible to LADWP and not otherwise privileged or protected, which may be reasonable and/or necessary for completion of the Activities. Information provided by LADWP is solely determined by LADWP, including the location of all utility lines and subterranean structures within the property lines of the Site; *provided*, *however*, that Licensee may request information Licensee considers to be reasonable and/or necessary for completion of the Activities, and that provision of such information shall not be unreasonably withheld by LADWP. However, LADWP maintains the right to require Licensee to agree to certain reasonable conditions to keep certain information confidential for reasons of security, including, if necessary, the execution of a confidentiality agreement. LADWP makes no representation, warranty, or guarantee regarding the accuracy and completeness of the information provided pursuant to this PARAGRAPH 1, and Licensee assumes full responsibility for investigating the completeness and accuracy of such information.

Licensee hereby acknowledges title in the CITY, a municipal corporation, and LADWP in said real property, and agrees never to assail or resist the same, and further agrees that Licensee's right to use and occupancy of said Licensed Areas arises solely from the permission given herein.

2. Term.

A. This License shall commence following execution by both Parties and shall remain in force for a term of fifty (50) years or until the Activities have been completed consistent with the obligations set forth in the NHOU SETTLEMENT AGREEMENT, whichever occurs first. Licensee hereby acknowledges LADWP's

ability to execute this License and enter into this transaction is subject to approval by the Board of Water and Power Commissioners of the Department of Water and Power of the CITY and subsequent action and review by the CITY COUNCIL pursuant to the CHARTER. Licensee further acknowledges that it cannot rely upon the representations of anyone acting on behalf of, or claiming to act on behalf of, LADWP or as LADWP's agent relating to the probability of the License being approved and that this transaction may or may not be consummated.

B. In the event the Activities have not been completed consistent with the NHOU SETTLEMENT AGREEMENT within one hundred eighty (180) DAYS of the expiration of the License, the Parties shall meet and confer to discuss whether good cause exists to enter into a new license.

C. In the event that the NHOU SETTLEMENT AGREEMENT becomes null and void due to the failure of the condition subsequent pursuant to SECTION 28 of the NHOU SETTLEMENT AGREEMENT, this License shall terminate a reasonable time following the failure of such condition (in order to allow Licensee time to meet its wind-up obligations hereunder) or the then-applicable termination date, whichever is sooner.

3. Licensee shall remove all construction-derived waste, investigation-derived waste, and drilling wastes within ninety (90) DAYS after the wastes are placed in containers, and Licensee will act diligently in removing the waste as quickly as possible and, in any event, before the expiration of this License and in accordance with applicable law.

4. Response to Introduction of Contamination.

A. To the extent any discharge, release, or spillage of material, which is or becomes defined as any CONTAMINATION, is caused by Licensee, or if CONTAMINATION is introduced by the Licensee onto the Licensed Areas during the term of this License as a result of the use of the Licensed Areas by Licensee pursuant to this License, Licensee shall be responsible for all cleanup, remediation and/or removal and all associated costs and expenses, including but not limited to

any fines, penalties, judgments, litigation costs, and attorneys' fees incurred in connection with such CONTAMINATION to the extent required by any and all applicable local, state, and federal laws, regulations, rules, and permits ("Licensee-induced Response Costs").

B. The contractual obligation for Licensee-induced Response Costs in this PARAGRAPH 4 shall have the following duration:

i. For Licensee-induced Response Costs that are caused by Licensee prior to the end of CCC transition period pursuant to SECTION 5.3.4 of the NHOU SETTLEMENT AGREEMENT ("CCC Transition Period"), the obligations set forth under this PARAGRAPH 4.B.i shall not apply to claims made against Licensee by LADWP more than five (5) years after the termination of the CCC Transition Period.

ii. For Licensee-induced Response Costs that are caused by Licensee associated with the design, construction or operation of the PRIMARY SSC TREATMENT SYSTEM until the end of the SSC transition period pursuant to SECTION 11.3.4 of the NHOU SETTLEMENT AGREEMENT ("SSC Transition Period"), the obligations set forth in this PARAGRAPH 4 shall not apply to claims made against Licensee by LADWP more than five (5) years after the termination of the SSC Transition Period.

iii. For Licensee-induced Response Costs that are caused by Licensee other than those addressed in PARAGRAPHS 4.B.i and 4.B.ii, the obligations set forth in this PARAGRAPH 4.B.iii shall not apply to claims made against Licensee by LADWP more than five (5) years after the discharge, release, spillage or introduction of material, which is or becomes defined as any CONTAMINATION. This obligation shall survive the termination of this License.

C. Notwithstanding PARAGRAPHS 4.B.i, 4.B.ii, and 4.B.iii, no time limit shall apply to the obligations set forth in this PARAGRAPH 4 for claims made by LADWP

against Licensee arising from or related to the off-site disposal or transshipment of any materials by the Licensee or Licensee's agents. This obligation shall survive the expiration or termination of this License.

D. The Parties do not intend for this PARAGRAPH 4 to impose any additional obligation for PRE-EXISTING ENVIRONMENTAL CONDITIONS, beyond those expressly set forth in the NHOU SETTLEMENT AGREEMENT.

E. The obligations set forth in this PARAGRAPH 4 shall be in addition to any other rights or remedies that LADWP has under law, the NHOU SETTLEMENT AGREEMENT, and this License. The Parties agree that the expiration of any contractual obligations set forth in this PARAGRAPH 4 do not alter the allocation or apportionment of Licensee-induced Response Costs that would otherwise exist in the absence of such contractual obligation.

5. The Licensee shall, at no cost to LADWP, provide electronic copies of any and all tests, studies, reports, or data that are in any way obtained by Licensee or its agents and contractors or derived from the Activities to LADWP, to the attention of: Director of Water Quality, 111 N. Hope Street, Room 1213, Los Angeles, CA 90051-0100. At a minimum, such data shall be provided in a format identical to that provided to EPA, the Los Angeles Regional Water Quality Control Board, or other relevant regulatory agency and provided within the time frame established in the NHOU SETTLEMENT AGREEMENT. At the request of LADWP, Licensee shall, at no cost to LADWP, provide two (2) hard copies of such tests, studies, reports, or data.

6. Nothing contained in this License shall be construed as consent by LADWP to any holding over by Licensee. LADWP expressly reserves the right to require Licensee to surrender possession of the Licensed Areas to LADWP as provided in this License upon the expiration or other termination of this License. In all other respects, the use of the Licensed Areas shall be governed by the provisions of this License.

7. Notices. Except as otherwise expressly provided in this License, all notices pursuant to this License shall be in writing and shall be sent or delivered to the following:

To LADWP:

Director of Water Quality
Department of Water and Power
111 N. Hope Street, Room 1213
Los Angeles, CA 90012

With copies to:

Michelle Lyman, Esq.
Deputy City Attorney
Los Angeles City Attorney, Department of Water and Power
221 N. Figueroa, 10th Floor
Los Angeles, CA 90012

and

Thomas A. Bloomfield, Esq.
Kaplan Kirsch & Rockwell LLP
1675 Broadway, Suite 2300
Denver, CO 80202

To Licensee:

Benny Dehghi, Director, Major Projects
Honeywell International Inc.
2525 W. 190th Street, MS 23/35-1-A
Torrance, CA 90504-6099

With copies to:

Gene A. Lucero, Esq.
1462 Claridge Drive
Beverly Hills, CA 90210

and

John C. Heintz, Esq.
Latham & Watkins LLP
355 S. Grand Ave., Suite 100
Los Angeles, CA 90071

Any notice or demand required shall be given (i) personally, (ii) by certified or registered mail, postage prepaid or return receipt requested, or (iii) by reliable messenger or overnight courier to the addresses of the respective Parties set forth above. Any notice served personally shall be deemed delivered on the date of delivery, and any notice served by certified or registered mail or

by reliable messenger or overnight courier shall be deemed delivered on the date of receipt as shown on the addressee's registry or certification of receipt or on the date receipt is refused as shown on the records or manifest of the U.S. Postal Service or such courier, or five (5) business days after deposit in the United States Mail. LADWP and/or Licensee may from time-to-time designate any other address or addressee or additional addresses for this purpose by written notice to the other Party.

8. Upon the expiration or other termination of this License, unless otherwise provided for in a new license entered following the meet and confer contemplated in PARAGRAPH 2.B of this License, Licensee shall surrender the Licensed Areas in a neat and clean condition, meaning that, pursuant to this PARAGRAPH 8, Licensee will make reasonable efforts to remove any equipment, vehicles, trailers, containers, signs, litter, and/or debris, if any, brought on to the Licensed Areas by Licensee during the term of this License; *provided*, *however*, certain equipment and fixtures can remain to become the property of LADWP, at the election of LADWP. Unless otherwise agreed by LADWP and Licensee, Licensee shall complete restoration of the Licensed Areas to their original condition or better prior to the expiration or other termination of this License. Restoration of the Licensed Areas shall include, but not be limited to, removal of all of the Licensee's equipment, signs, litter, and debris. Licensee shall remove or, in the case of wells and conveyance infrastructure, appropriately and consistent with applicable laws, abandon in place all improvements unless otherwise agreed to in writing by mutual agreement of the Parties. Any and all improvements agreed to remain shall become the property of LADWP unless otherwise provided by mutual agreement of the Parties. This obligation shall survive the expiration or other termination of this License. Licensee shall contact LADWP and make arrangements for a field inspection of the Licensed Areas prior to the expiration or other termination of this License and surrender of the Licensed Areas by Licensee. If LADWP reasonably and in good faith determines that restoration has not been completed pursuant to this PARAGRAPH 8 upon expiration or other termination of this License, LADWP may, following notice and an opportunity to meet and confer, restore said Licensed Areas entirely at the risk and expense of Licensee. LADWP will bill Licensee for the full cost of said restoration and the Licensee shall promptly pay LADWP for the restoration costs.

9. All Activities performed pursuant to the terms of this License shall be done in accordance with the terms and conditions specified in the NHOU SETTLEMENT AGREEMENT and applicable ordinances, statutes, permits, and regulations governing such instances, and the provisions of such NHOU SETTLEMENT AGREEMENT and applicable ordinances, statutes, permits, and regulations are, by reference, made a part hereof as though incorporated verbatim herein.

10. Defense and Indemnity.

A. Licensee has inspected the Licensed Areas, knows the condition thereof, and, except as otherwise provided in the NHOU SETTLEMENT AGREEMENT, on behalf of itself and its successors, assigns, and sub-licensees, undertakes and agrees to indemnify, defend, and hold LADWP, the CITY, and its successors and assigns, directors, officers, commissioners, boards, employees, parents, subsidiaries, affiliates, contractors, and agents (individually and collectively "Indemnitees") harmless, and at the option of the LADWP, defend by counsel satisfactory to the LADWP, for any claims made against Indemnitees and all liens and claims of liens, suits, causes of action, claims, administrative proceedings, charges, damages, demands, judgments, civil fines, penalties, or losses that are incurred by or asserted against the Indemnitees, for:

i. death, bodily injury or personal injury to any person, including but not limited to Licensee's agents (including but not limited to Licensee's officers, invitees, employees, contractors, sub-licensees of any tier, sub-contractors of any tier, and customers, collectively, "Licensee's Agents"), or persons who enter onto the Licensed Areas;

ii. damage to or destruction or loss of use of any property of either Party hereto, or third persons in any manner arising by reason of, Licensee's presence on the License Areas and the Activities performed pursuant to this License; or

iii. in addition to, and without limiting, PARAGRAPH 4 hereof, environmental investigations, monitoring, containment, abatement, removal, repair,

cleanup, restoration, remediation, penalties and fines arising from the violation of any local, regional, state or federal law, or regulation, disbursements, and other environmental response costs relating directly or indirectly to the release or spill of any CONTAMINATION onto the License Areas by Licensee or Licensee's Agents.

Together or individually, the acts and/or omissions resulting in a claim pursuant to PARAGRAPHS 10.A.i - 10.A.iii above shall be referred to as "Claim Events" or a "Claim Event."

B. Licensee's indemnity and defense obligation pursuant to this provision shall not extend to that portion of any claim(s) that arises from the gross negligence or willful misconduct of Indemnitees.

C. Termination or continuation of defense and indemnity obligation:

i. For Claim Events completed prior to the end of the CCC Transition Period, the defense and indemnity obligations set forth in this PARAGRAPH 10 shall not apply to claims made against Indemnitees more than five (5) years after the termination of the CCC Transition Period.

ii. For Claim Events associated with the construction or operation of the PRIMARY SSC TREATMENT SYSTEM until the end of the SSC Transition Period, the defense and indemnity obligations set forth in this PARAGRAPH 10 shall not apply to claims made against Indemnitees more than five (5) years after the termination of the SSC Transition Period.

iii. For Claim Events other than those addressed in PARAGRAPHS 10.C.i and 10.C.ii, the defense and indemnity obligations set forth in this PARAGRAPH 10 shall not apply to claims made against Indemnitees more than five (5) years after the Claim Event(s). This obligation shall survive the expiration or other termination of this License.

iv. Notwithstanding PARAGRAPHS 10.C.i - 10.C.iii, no time limit shall apply to the defense and indemnity obligation for claims arising from or related to the off-site disposal or transshipment of any materials by the Licensee, by Licensee's Agents, or by LADWP. This obligation shall survive the expiration or other termination of this License.

D. Notwithstanding this PARAGRAPH 10, Licensee shall have no defense or indemnity obligations for claims arising from PRE-EXISTING ENVIRONMENTAL CONDITIONS, except to the extent that Licensee exacerbates PRE-EXISTING ENVIRONMENTAL CONDITIONS.

E. The obligations set forth in this PARAGRAPH 10 shall be in addition to any other rights and remedies that the Parties have under the law, the NHOU SETTLEMENT AGREEMENT, and this License. The Parties agree that the expiration of any indemnity and defense obligation under this PARAGRAPH 10 does not alter the allocation or apportionment of liability or costs that would otherwise exist in the absence of such contractual indemnity and obligation.

11. Except as otherwise expressly provided in the NHOU SETTLEMENT AGREEMENT, Licensee shall pay for all materials placed upon, joined, or affixed to said Licensed Areas by or at the request or direction of Licensee, and shall pay in full all persons who perform labor upon said Licensed Areas at the request or direction of Licensee, and shall not cause or permit any liens of any kind or nature to be levied against said Licensed Areas for any work done or materials furnished thereon at the request or direction of Licensee. Licensee shall provide LADWP notice in writing of any liens levied against the Licensed Areas. Licensee shall have fifteen (15) DAYS to cause the removal of any such liens, and if such liens are not removed, LADWP may pay any amount owed and cause their removal. LADWP may bill the Licensee for the amount paid out by LADWP in removing such liens. Licensee shall have thirty (30) DAYS to repay the funds expended by LADWP necessary to remove such lien. Failure to comply with the requirements of this PARAGRAPH 11 shall be considered a default, and LADWP shall have the right but not the obligation to terminate this License. The exercise by LADWP of its right to

terminate under this PARAGRAPH 11 shall not be construed as a waiver of any of its rights to any other remedy or lawful action to recover funds paid by LADWP.

12. This License and permission herein given is personal to Licensee, including sub-licensees it designates, which may include, among others, a legal entity or entities established to facilitate and/or undertake the Activities, and is not otherwise assignable, and any attempt to do so shall be void and shall confer no right on any third party.

13. Licensee acknowledges that Licensee is not entitled to relocation assistance or any other benefits under the Uniform Relocation Assistance Act or any other provisions of law upon the expiration or other termination of this License.

14. Licensee hereby acknowledges that this License is a license only and does not constitute a lease of, invitation or obligation to lease, or any present or future interest in real property.

15. While not anticipated, Licensee, by executing this License and accepting the benefits hereof, understands that a property right pursuant to applicable ordinances and codes under tax law (known as "possessory interest") may be created and may be subject to property taxation. Licensee will be responsible for payment of any property taxes associated with the Licensed Areas' APNs, if applicable. Licensee herewith acknowledges that it is Licensee's responsibility to comply with all applicable tax requirements.

16. Licensee is hereby notified that this License is non-exclusive. Licensee acknowledges the Activities on the Licensed Areas pursuant to this License must occur alongside other uses of the Licensed Areas, such as existing use by LADWP and the CITY for conveyance, power, and water disinfection and uses by other subtenants and licensees. However, LADWP agrees that Licensee's Activities taken pursuant to this License shall take precedence over those of all other subtenants and licensees, and that, upon notice to LADWP and in accordance with the provisions herein, including but not limited to PARAGRAPHS 37 – 40, this License provides exclusive use of discrete portions of the Licensed Areas during such periods of time exclusive use is necessary for Licensee to accomplish the Activities. In the event disagreements arise regarding whether Licensee's non-exclusive access to discrete portions of the Licensed Areas is necessary

to accomplish the Activities, either Party may invoke the dispute resolution provisions in SECTION 36 of the NHOU SETTLEMENT AGREEMENT. Following the termination of the CCC Transition Period and, if necessary, the SSC Transition Period, Licensee's access pursuant to this License shall be limited to that access necessary to comply with the NHOU SETTLEMENT AGREEMENT. Notwithstanding the foregoing:

A. Tenant Removal for CCC. As reasonably required for the CCC TREATMENT SYSTEM, LADWP shall determine how and where to remove existing tenants, including licensees, presently using the YARD and other LADWP-owned property reasonably necessary for the construction of the CCC TREATMENT SYSTEM, following receipt of written notice from Licensee. LADWP shall remove such tenants and/or licensees no later than one hundred and twenty (120) DAYS after receipt of such notice from Licensee. If judicial proceedings are necessary to remove tenants, access will be provided following such proceedings.

B. Tenant Removal for SSC. As reasonably required for the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM, LADWP shall determine how and where to remove the tenants, including licensees, using the YARD and other LADWP-owned property necessary for the construction of such SSC TREATMENT SYSTEM, following receipt of written notice from Licensee. LADWP shall remove such tenants and/or licensees no later than one hundred and eighty (180) DAYS after receipt of such notice from Licensee. If judicial proceedings are necessary to remove tenants, access will be provided following such proceedings.

17. Training. Licensee shall be responsible for the training of Licensee's personnel in compliance with all applicable laws, including but not limited to work under and adjacent to energized high-voltage transmission lines and training with regards to the operation of equipment and the handling and disposal of CONTAMINATION.

18. Insurance. Licensee shall obtain and keep in force during the term of this License the insurance coverage outlined below and specified in greater detail in the "Contract Insurance Requirements – Department of Water and Power," attached hereto as Attachment B and

incorporated herein by this reference. On an annual basis, Licensee shall provide LADWP with evidence of insurance from insurers that have procured a Certificate of Authority from the State Department of Insurance pursuant to the California Insurance Code or in a form acceptable to LADWP. Licensee acknowledges that it has been provided with insurance endorsement forms for use in showing evidence of the required coverage. Instructions for completing, executing and submitting evidence of insurance are attached thereto. LADWP may from time-to-time reasonably require Licensee to secure and maintain additional insurance coverage not specified in Attachment B, and/or increase the coverage amount required therein. Licensee may from time-to-time reasonably request that LADWP reduce or adjust the coverage amount required therein. LADWP will not unreasonably withhold approval of such requests. In the event disagreements arise regarding a request by Licensee for adjustment of the insurance coverage amount required, either Party may invoke the dispute resolution provisions in SECTION 36 of the NHOU SETTLEMENT AGREEMENT.

19. Compensation Review and Adjustment. The Licensee compensation for this License shall be the consideration of the NHOU SETTLEMENT AGREEMENT. The Parties recognize that the NHOU SETTLEMENT AGREEMENT provides ongoing consideration to LADWP in the form of 8,500 AFY of water and that the infrastructure Licensee is installing pursuant to this License will be operated by LADWP for LADWP's benefit. The CHARTER requires licenses like the License to include a procedure to adjust compensation periodically. Such compensation shall be subject to adjustment as set forth in this PARAGRAPH 19.

Beginning on the fifth (5th) anniversary of the effective date of this License, and on each fifth (5th) anniversary of the effective date thereafter, LADWP shall review the compensation to determine whether adjustments shall be made. Six (6) months prior to each fifth (5th) year anniversary of the effective date. LADWP and Licensee shall meet and confer to review the compensation and determine whether any adjustments shall be made. Such compensation shall be mutually agreed upon between LADWP and Licensee within thirty (30) DAYS, and shall be authorized on behalf of LADWP by the General Manager or designee. No compensation change shall be made absent mutual agreement of the Parties and a dispute over such change shall not be subject to the dispute resolution provisions in SECTION 36 of the NHOU SETTLEMENT AGREEMENT. If for any reason said compensation shall not be finally determined until after the

beginning of any period for which the rent is to be adjusted, Licensee shall continue to pay at the former rate as a credit against the amount of the new compensation when fixed; *provided, however*, that the amount fixed as new compensation shall accrue from the beginning of said period, and proper adjustment shall be made for any payments made by Licensee at the former rates in the interim.

20. Equal Benefits Ordinance. This License is subject to Section 10.8.2.1, Article 1, Chapter 1, Division 10 of the Los Angeles Administrative Code related to equal benefits to employees ("Equal Employment Benefits Provisions"). To the extent required by law, Licensee agrees to comply with the provisions of Section 10.8.2.1. By way of specification but not limitation, pursuant to Section 10.8.2.1.c and 10.8.2.1.f of the Los Angeles Administrative Code, the failure of Licensee to comply with the Equal Employment Benefits Provisions of this License may be deemed to be a material breach of this License. No such finding shall be made or penalties assessed except upon a full and fair hearing after notice and an opportunity to be heard have been given to Licensee. Upon a finding duly made that Licensee has failed to comply with the Equal Employment Benefits Provisions of this License, this License may be forthwith terminated.

21. Equal Employment Practices Provisions. Licensee agrees and obligates itself in the performance of this License not to discriminate against any employee or applicant for employment because of the employee's or applicant's race, religion, national origin, ancestry, sex, sexual orientation, age, physical handicap, marital status, domestic partner status, or medical condition. This License is a contract with or on behalf of the CITY for which the consideration is one thousand dollars ($1,000.00) or more. Accordingly, during the performance of this License, Licensee further agrees to comply with Section 10.8.3 of the Los Angeles Administrative Code ("Equal Employment Practices"). By way of specification but not limitation, pursuant to Sections 10.8.3E and 10.8.3F of the Los Angeles Administrative Code, the failure of Licensee to comply with the Equal Employment Practices provisions of this License may be deemed to be a material breach of this License. No such finding shall be made or penalties assessed except upon a full and fair hearing after notice and an opportunity to be heard have been given to Licensee. Upon a finding duly made that Licensee has failed to comply with the Equal Employment Practices provisions of this License, the License may be terminated forthwith.

22. Slavery Disclosure Ordinance. To the extent required by law, Licensee shall comply with the applicable provisions of the Slavery Disclosure Ordinance ("SDO") (Section 10.41, *et seq.*, of the Los Angeles Administrative Code). Unless otherwise exempt in accordance with the provisions of the SDO, Licensee certifies that it has complied with the applicable provisions of the SDO. Under the provisions of Section 10.41.2(b) of the Los Angeles Administrative Code, LADWP has the authority, under appropriate circumstances, to terminate this License and otherwise pursue legal remedies that may be available to LADWP if LADWP determines that Licensee failed to fully and accurately complete the SDO affidavit or otherwise violated any provision of the SDO.

23. Child Support Assignment Orders Ordinance. To the extent required by law, Licensee shall comply with Section 10.10, Article 1, Chapter 1, Division 10 of the Los Angeles Administrative Code related to Child Support Assignment Orders. Said ordinance is incorporated by reference as though fully set forth herein. Failure to comply with this ordinance shall constitute a default of the License subjecting the License to termination where such failure shall continue for more than ninety (90) DAYS after notice of such failure to Licensee by LADWP or the CITY.

24. Campaign Contributions. To the extent required by law, the Licensee, sub-licensees, and their principals (if any) are obligated to fully comply with CHARTER Section 470(c)(12) and related ordinances, regarding limitations on campaign contributions and fundraising for certain elected CITY officials or candidates for elected CITY office if the License is valued at $100,000 or more and requires approval of a CITY elected official. Additionally, the Licensee is required to provide and update certain information to the CITY as specified by law. Any Licensee subject to CHARTER Section 470(c)(12), shall include the following notice in any contract with a subcontractor or sublicensee expected to pay at least $100,000 in rent under this License:

> Notice Regarding Los Angeles Campaign Contribution and Fundraising Restrictions
>
> As provided in Charter Section 470(c)(12) and related ordinances, you are a sublicensee on LADWP License Agreement _____. Pursuant to City Charter Section 470(c)(12), sublicensee and its principals are prohibited from making campaign contributions and fundraising for certain elected City officials or candidates for elected City office for 12 months after the LADWP License is signed. Sublicensee is required to provide to

> Licensee names and addresses of the sublicensee's principals and contact information and shall update that information if it changes during the 12-month time period. Sublicensee's information included must be provided to Licensee within five business days. Failure to comply may result in termination of the License or any other available legal remedies including fines. Information about the restrictions may be found at the City Ethics Commission's website at http://ethics.lacity.org or by calling (213) 978-1960.

Licensee, sublicensees, and their principals shall comply with these requirements and limitations. Violation of this provision shall entitle LADWP or the CITY to terminate this License and pursue any and all legal remedies that may be available.

25. Tax Registration. This PARAGRAPH 25 is applicable where Licensee is engaged in business within the CITY and Licensee is required to obtain a Tax Registration Certificate ("TRC") pursuant to one or more of the following articles (collectively "Tax Ordinances") of Chapter II of the Los Angeles Municipal Code: Article 1 (Business Tax Ordinance) [Section 21.00, *et seq.*], Article 1.3 (Commercial Tenant's Occupancy Tax) [Section 21.3.1, *et seq.*], Article 1.7 (Transient Occupancy Tax) [Section 21.7.1, *et seq.*], Article 1.11 (Payroll Expense Tax) [Section 21.11.1, *et seq.*], or Article 1.15 (Parking Occupancy Tax) [Section 21.15.1, *et seq.*]. Prior to the execution of this License or the effective date of any extension of the term or renewal of this License, Licensee shall provide to LADWP proof satisfactory to LADWP's Real Estate Section that Licensee has the required TRCs and that Licensee is not then currently delinquent in any tax payment required under the Tax Ordinances. LADWP may terminate this License if LADWP determines that Licensee failed to have the required TRCs or was delinquent in any tax payments required under the Tax Ordinances at the time of entering into, extending the term of, or renewing this License. LADWP may also terminate this License at any time during the term of this License if Licensee fails to maintain required TRCs or becomes delinquent in tax payments required under the Tax Ordinances and Licensee fails to cure such deficiencies within the thirty (30) day period.

26. Tax Registration Certificate. To the extent required by law, the Licensee shall obtain and keep in full force and effect during the term of the License all Business Tax Registration Certificates required by the CITY Business Tax Ordinance, Article 1, Chapter II, Section 21.00 of the Los Angeles Municipal Code. For additional information regarding applicability of the CITY Business Tax Registration, contact the Office of Finance at (844) 663-4411.

27. Living Wage Ordinance. To the extent required by law, Licensee shall comply with the applicable provisions of the Living Wage Ordinance ("LWO"); Section 10.37 *et seq*. of the Los Angeles Administrative Code as amended. The Ordinance requires that, unless specific exemptions apply, all employers (as defined) under contracts primarily for the furnishing of services to or for the CITY and that involve an expenditure or receipt in excess of $25,000 and a contract term of at least three months; Licensee or certain recipients of CITY financial assistance, generally, shall provide the following:

A. Payment of a minimum initial wage rate to employees as defined in the LWO.

B. Provision of compensated days off annually for sick leave, vacation, or personal necessity at the employee's request, and additional days annually of uncompensated time off for sick leave as prescribed in the LWO.

Under the provisions of Section 10.37.6(c) of the Los Angeles Administrative Code, the CITY shall have the authority, under appropriate circumstances, to terminate this contract and otherwise pursue legal remedies that may be available if the CITY determines that the subject Licensee or financial assistance recipient violated the provisions of the referenced Code Sections. For additional information, please contact the Office of the CITY Administrative Officer at (213) 473-7500.

28. Prevailing Wage. To the extent required by applicable law, Licensee shall pay or cause to be paid to all workers employed in connection with the work on the Licensed Areas not less than the prevailing rates of wages, as provided in the statutes applicable to CITY public work contracts, including, without limitation, by Sections 1770–1780 of the California Labor Code.

A. If federal funds were at any time used in the acquisition of this land or will be used in connection with the work on the Licensed Areas, to the extent required by applicable law, Licensee shall, or cause its general contractor and all subcontractors to, comply with the requirements of the Davis-Bacon Act (40 U.S.C. § 276 *et seq*.). The Davis-Bacon Act requires the payment of wages to all laborers and mechanics at a rate not less than the minimum wage specified by the Secretary of Labor in periodic wage rate determinations as described in the Federal Labor Standards

Provisions (HUD-4010). In the event both STATE prevailing wages and Davis-Bacon Act wages will be required, all work shall be paid at the higher of the two wages.

B. If prevailing wages are required to be paid by applicable law, prior to the commencement of work or construction, and as soon as practicable in accordance with the applicable schedule of performance, Licensee shall contact LADWP to schedule a preconstruction orientation meeting with Licensee and the subcontractor to explain such matters as the specific rates of wages to be paid to workers in connection with the work on the Licensed Areas, preconstruction conference requirements, record keeping, and reporting requirements necessary for the evaluation of Licensee's compliance with this PARAGRAPH 28.

C. If prevailing wages are required to be paid by applicable law, Licensee shall monitor and enforce all applicable prevailing wage requirements imposed on its contractors and subcontractors, including withholding payments to those contractors or subcontractors who violate these requirements. In the event that Licensee fails to monitor or enforce these requirements against any contractor or subcontractor, Licensee shall be liable for the full amount of any underpayment of wages, plus costs and attorneys' fees, as if Licensee was the actual employer, and the CITY or the STATE Department of Industrial Relations may withhold monies owed to Licensee, may impose penalties on Licensee as permitted by law, may take action directly against the contractor or subcontractor as permitted by law, and/or may declare Licensee in default of the License and thereafter pursue any of the remedies available at law or in equity.

D. Licensee agrees to include, or cause to be included, the above provisions in all bid specifications for work covered under this License.

E. Notwithstanding any other provisions in this License, Licensee shall indemnify, hold harmless, and defend (with counsel reasonably acceptable to LADWP) LADWP against any claim for damages, compensation, fines, penalties, or other amounts arising out of the failure or alleged failure of any person or entity

(including LADWP, its contractors, and subcontractors) to pay prevailing wages as determined pursuant to California Labor Code Sections 1720 *et seq*. and implementing regulations of the Department of Industrial Relations or comply with the other applicable provisions of California Labor Code Sections 1720 *et seq*. and implementing regulations of the Department of Industrial Relations in connection with construction of the improvements or any other work undertaken or in connection with the Licensed Areas ("Prevailing Wage Claims"). This indemnity, hold-harmless, and defense obligation shall only apply to claims initiated (either to an administrative agency or in court) within three (3) years of the completion of the CCC Transition Period; *except*, *however*, for those claims arising from Activities associated with the construction or operation of the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM, the indemnity, hold-harmless, and defense obligation shall only apply to claims initiated (either to an administrative agency or in court) within three (3) years of the completion of the SSC Transition Period. Notwithstanding the three (3)-year limitations in the prior sentence, the indemnity and hold harmless, and defense obligation for Prevailing Wage Claims shall apply to Prevailing Wage Claims arising from or related to any other Activities undertaken by Licensee or Licensee Agents in connection with the Licensed Areas, *provided* the claim is brought within (3) years of the completion of such activity.

F. The obligations set forth in this PARAGRAPH 28 shall be in addition to any other rights and remedies that the Parties have under the law, the NHOU SETTLEMENT AGREEMENT, and this License.

29. Ordinance and Los Angeles Administrative Code. The obligation to comply with any Ordinances or Codes which have been incorporated into this License by reference, shall extend to any amendments which may be made to those Ordinances and Codes during the term of this License.

30. Licensee shall not use the Licensed Areas to satisfy any zoning demands, zoning variances, open space or parking requirements, or any other governmentally imposed conditions

for building plans and permits, except as provided for in the NHOU SETTLEMENT AGREEMENT.

31. Except if caused by the gross negligence, willful misconduct, or as otherwise provided for in the NHOU SETTLEMENT AGREEMENT, LADWP shall not be liable for any damage to vehicles or improvements resulting from LADWP's operation and maintenance and from any construction or reconstruction of LADWP's facilities or transmission line right-of-way.

32. During any period that Licensee is conducting construction activities at the Licensed Areas (including the CCC SYSTEM construction through the PHASE 1 or PHASE 3 STARTUP AND SHAKEDOWN PERIODS, the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM construction through the respective STARTUP AND SHAKEDOWN PERIOD, and any other construction by Licensee pursuant to the NHOU SETTLEMENT AGREEMENT), Licensee shall use reasonable measures to minimize disturbances to neighboring businesses or nearby residences and shall assume the responsibility of resolving any complaints or disputes from adjacent property owners or the public arising out of Licensee's use of the Licensed Areas. Any inquiries or complaints brought to the attention of LADWP shall be directed to the Licensee's representative identified in SECTION 24 of the NHOU SETTLEMENT AGREEMENT. For other Activities carried out by Licensee, Licensee shall take reasonable measures to minimize disturbances to neighboring businesses or nearby residences and shall assume the responsibility of resolving any complaints or disputes from adjacent property owners or the public arising out of Licensee's use of the Licensed Areas. Any inquiries or complaints brought to the attention of LADWP shall be directed to the Licensee's representative identified in SECTION 24 of the NHOU SETTLEMENT AGREEMENT.

33. During any period that Licensee is conducting construction activities at the Licensed Areas (including the CCC SYSTEM construction through the PHASE 1 or PHASE 3 START-UP AND SHAKEDOWN PERIODS, the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM construction through the respective STARTUP AND SHAKEDOWN PERIOD, and any other construction by Licensee pursuant to the NHOU SETTLEMENT AGREEMENT), Licensee must post and maintain onsite the required signage,

which includes, but is not limited to, the following information, at a designated location approved by LADWP:

A. Licensee's 24-hour contact name;

B. Licensee's 24-hour phone number; and

C. Licensee's License number.

34. Licensee shall access the Licensed Areas by conforming to LADWP security and operational procedures and, until the completion of the respective STARTUP and SHAKEDOWN PERIODS, shall take reasonable precautions to prevent unauthorized ingress and egress to the License Areas.

35. Licensee agrees that this License will not be recorded.

36. During and for the five (5) years following any period that Licensee is conducting construction or operational activities at the Licensed Areas (including the CCC SYSTEM construction) through the CCC Transition Period, the SSC Transition Period, and any other construction or operation period by Licensee per the NHOU SETTLEMENT AGREEMENT, respectively, and without limiting the obligations set forth in PARAGRAPHS 4 and 10 herein, the Licensee shall, unless otherwise provided in the NHOU SETTLEMENT AGREEMENT, be responsible, to the extent caused by and introduced onto the Licensed Areas as a result of the use of the Licensed Areas by Licensee pursuant to this License, for all cleanup costs and expenses, including but not limited to any fines, penalties, judgments, litigation costs, and attorneys' fees incurred as a result of any and all discharge, leakage, spillage, and emission of CONTAMINATION onto the License Areas. Said cleanup shall be accomplished to the satisfaction of LADWP and any governmental body having jurisdiction thereover.

37. Licensee shall manage any transportation, storage, and/or disposal of CONTAMINATION according to any and all applicable local, state, and federal laws, regulations, rules, and permits.

38. A summary of the work anticipated to be undertaken pursuant to this License is described in the SCOPE OF WORK, EXHIBIT 3 to the NHOU SETTLEMENT AGREEMENT, which is hereby incorporated by reference. The Parties recognize that this work may change or be modified in response to, among other things, the regulatory approval processes under CERCLA.

39. LADWP's Water Operation Division ("WOD") Requirements. Licensee shall comply with LADWP's WOD requirements as follows:

A. Licensee shall purchase and install a lock into the daisy chain to gain access for the License duration, as appropriate. A duplicate key shall be provided to LADWP. The lock shall be removed upon expiration or other termination of License.

B. Licensee shall not block access to any existing equipment so as to prevent access by WOD staff.

C. Licensee shall specify the construction materials stockpile and laydown area in the design drawings. Licensee shall restrict construction material stockpiles and laydown to the specified area during construction and clear upon completion.

D. Any lighting to be used shall not impact neighboring properties to the Licensed Areas.

E. Information of the project duration and contact information shall be provided to the neighbors in the vicinity of Licensed Areas through signage or other means.

F. Licensee shall provide temporary fencing for the duration of construction, pursuant to this License, as appropriate. Any changes to the fencing or equipment shall be restored by Licensee to the original fence layout at the expiration or other termination of the License.

G. Once construction of the new extraction wells is complete, Licensee shall install a permanent perimeter fence, of a design approved by LADWP, around the newly installed extraction wells, located no less than fifty (50) feet from each pylon, unless

approved in writing by LADWP. The location and orientation of fencing around each well will be determined with input from LADWP.

H. Licensee shall have in place the appropriate equipment and plans to prevent spillage of any hazardous materials onto LADWP property or the public street and sidewalks according to local jurisdiction, state, and federal standards.

I. Licensee shall install appropriate fencing around the treatment systems.

J. Licensee shall ensure that any contractor that performs any work on the wells shall possess an active State of California C-57 license.

K. Licensee shall notify WOD Transmissions Operations Sr. Water Utility Supervisor at (213) 367-8184 at least four (4) business days before removal of any well pump and motor, so that the unit can be electrically locked and tagged out.

L. Licensee shall notify the WOD Property Management Group at (213) 367-1057 at least four (4) business days before performing any maintenance, clearing, redeveloping, or rehabilitation of a well, or any major repair or reconstruction of the CCC SYSTEM, the PRIMARY SSC TREATMENT SYSTEM, or SECONDARY SSC TREATMENT SYSTEM.

M. Any activities associated with the clearing, redeveloping, or rehabilitation of a well shall need prior approval by WOD before start of work.

N. Licensee shall be responsible for repairing any damages caused by Licensee activity pursuant to this License.

40. LADWP's Right-of-Way and Power Transmission System ("ROWPT") Requirements. A portion of the Activities will occur near three (3) electrical transmission lines, including the Rinaldi-Toluca lines (230 kv), Valley-Hollywood lines (230 kv), and Adelanto-Toluca lines (500 kv), which are located along the west, central, and eastern portions of the ROWPT transmission lines right-of-way. Where the Activities are located within or in the vicinity

of the Power Transmission and/or Distribution Line right-of-way, Licensee shall comply with ROWPT requirements, as follows:

A. Activities conducted in ROWPT transmission lines right-of-way shall adhere to the following criteria:

i. Energized transmission lines can produce electrical effects, including but not limited to induced voltages and currents in persons and objects. Licensee hereby acknowledges a duty to conduct Activities in such manner that will not expose persons to injury or property to damage from such effects.

ii. Licensee shall ensure that the Activities, at all times, are in compliance with General Order No. 95 (Rules for Overhead Electric Line Construction, California Public Utilities Commission) and State of California Code of Regulations, Title 8, Industrial Relations, Chapter 4, Division Industrial Safety, Subchapter 5, Electrical Safety Orders.

iii. The extraction well sites shall be at least fifty (50) feet from transmission line towers, unless otherwise permitted in writing by LADWP.

iv. Except as otherwise permitted in writing by LADWP, the drilling rig tower location at each extraction well site shall be located a minimum of ten (10) feet horizontally from the conductor drip lines. Licensee shall be responsible for maintaining safe CalOSHA working clearances when working near and around energized wires.

B. Notwithstanding any other notices given by Licensee required herein, Licensee shall notify LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5031 or (818) 771-5076, no earlier than fourteen (14) DAYS and no later than two (2) DAYS prior to the start of any grading, paving, construction work, drilling, well construction, testing, or monitoring activities. All

activities shall be coordinated with LADWP's Transmission Construction and Maintenance Business Group.

C. Prior to initiating the Activities associated with this License, Licensee shall ensure clearance that meets the State of California, Public Utilities Commission, General Order No. 95, Conductor Clearances. A power outage will not be necessary for work to proceed, unless it is determined that the conductor clearances during the equipment staging phases are not adequately met. If, however, while working below or near an active power line, equipment that has a higher reach than fourteen (14) feet is deemed necessary by Licensee, the Power System Transmission Engineer shall determine whether permitted operations shall require a power outage of the transmission line, which will have to be coordinated. Licensee shall acknowledge that if an outage is scheduled, it will have to assume the risk that it may have to be cancelled and rescheduled due to Power System operational obligations. If such a planned power outage is required by Licensee pursuant to this PARAGRAPH 40.C, all expenses associated with such power outage shall be borne by Licensee.

D. Except otherwise permitted in writing by ROWPT, rigs with cranes shall be located a minimum of fifteen (15) feet from the conductor drip lines. Licensee shall be responsible for maintaining CalOSHA safe working clearances when working near and around energized wires.

E. All manhole covers, paving, driveways, bridges, crossings, and substructures located within the right-of-way shall be designed to withstand the American Association of State Highway and Transportation Officials' vehicular loading H20-44 (M18) or HL-93 design standards.

F. No grading, including soil storage, shall be conducted within LADWP's transmission line right-of-way without prior written approval by LADWP, which shall not be unreasonably withheld or delayed if required to complete the Activities.

G. No structures shall be constructed within LADWP's transmission line right-of-way without prior written approval by LADWP, which shall not be unreasonably withheld or delayed if required to complete the Activities.

H. Licensee shall maintain the permanent, unobstructed roadway (patrol road), which shall be accessible at all times by LADWP maintenance personnel. Licensee shall ensure that the roadway remains open and unobstructed, excluded from any watering, and kept as dry as possible at all times. Notwithstanding the foregoing, Licensee's obligations under this PARAGRAPH 40.H shall not apply during those periods of time the Activities require temporary obstruction of the roadway.

I. Licensee is hereby notified that facilities of other licensees or easement holders of LADWP may exist on the Licensed Areas. Licensee shall take reasonable precautions and actions to avoid infringement, interference, or damage to all installations or rights. Notwithstanding the foregoing, LADWP agrees that Licensee's Activities taken pursuant to this License shall take precedence over all other licensees or easement holders of LADWP, and that LADWP will provide exclusive use of the Licensed Areas during such periods of time Licensee reasonably determines that such exclusive use is necessary for Licensee to accomplish the Activities. Such exclusive use does not preclude existing use by LADWP for conveyance of water or transmission of power and other utilities.

J. Condition Nos. 1–7, 9, 11A, 12–16, 20, 21, 22C, 23A, 24, 25, and 31A of the Standard Conditions for Construction, attached hereto as Attachment C and incorporated herein by this reference, shall apply. If any excavations are required, utility agencies within the excavation sites shall be notified of impending work. Licensee shall be responsible, financially and otherwise, for coordinating relocation of utilities, if any, within the project boundaries. Before commencing any excavations, Licensee shall contact Underground Service Alert of Southern California (a.k.a. DigAlert).

41. Other Requirements.

A. Licensee shall comply with the following measures to mitigate potential noise impacts:

i. Except as otherwise provided by the Los Angeles Police Department ("LAPD"), Licensee shall limit work hours to comply with LAPD construction noise restrictions, posted on lapdonline.org, to minimize impact to residents in the vicinity of the Licensed Areas.

ii. Where necessary to comply with applicable ordinances, noisy equipment shall be subject to appropriate noise reduction measures.

iii. Unless otherwise approved, for construction activities with the potential to impact noise- or vibration-sensitive land uses, construction activities shall not occur between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, 6:00 p.m. and 8:00 a.m. on Saturday, or on Sundays or national holidays.

iv. Pumps and associated equipment (e.g., portable generators) shall be shielded from sensitive uses using local temporary noise barriers or enclosures, or shall otherwise be designed or configured so as to minimize noise at nearby noise-sensitive receivers.

v. Staging of construction equipment shall not occur within twenty (20) feet of any noise- or vibration-sensitive land uses.

vi. All noise-producing equipment and vehicles using internal combustion engines shall be equipped with mufflers; air-inlet silencers where appropriate; and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.

vii. All mobile or fixed noise-producing equipment used on the project facilities that are regulated for noise output by a local, state, or federal agency shall comply with such regulation while in the course of project activity.

viii. Idling equipment shall be kept to a minimum and moved as far as practicable from noise-sensitive land uses.

ix. Electrically-powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.

x. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

xi. The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

xii. Notification at Sensitive Receptors

a) Effective communication with local residents shall be maintained during construction, including keeping them informed of the schedule, duration, and progress of the construction to minimize public complaints regarding noise and vibration levels.

B. Licensee shall utilize appropriate best management practices to minimize the generation of dust during construction.

C. In the event that archaeological resources (sites, features, or artifacts) are discovered during construction activities for the proposed project, all construction work occurring within one hundred (100) feet of the find shall immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find and determine whether or not additional study is warranted. Construction activities may continue on other parts of the construction site while evaluation and treatment at the

discovery site take place. Depending on the significance of the find, the archaeologist may simply record the find and allow work to continue. If the discovery proves significant, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. Work in the area may resume once evaluation and treatment of the resource is completed or the resource is recovered and removed from the site.

D. In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are discovered, the County Coroner shall be immediately notified of the discovery. No further excavation or disturbance of the project site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two (2) working days of notification of the discovery, the appropriate treatment and disposition of the human remains. Construction activities may continue on other parts of the construction site while evaluation and treatment at the discovery site take place. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the Native American Heritage Commission ("NAHC") in Sacramento within twenty-four (24) hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete their inspection within forty-eight (48) hours of being granted access to the site. The designated Native American representative would then determine, in consultation with LADWP, the disposition of the human remains. Work at the discovery site may resume after consultation with the most likely descendant and treatment of the remains and any associated resources has been concluded.

E. In the event that cultural resources are inadvertently discovered, all construction work occurring within one hundred (100) feet of the find shall immediately stop. Construction activities may continue on other parts of the construction site while evaluation and treatment at the discovery site take place. If LADWP determines that the resources may potentially be tribal cultural resources (as defined by Public

Resources Code Section 21074), it shall notify any Native American tribes that have informed LADWP that they are traditionally and culturally affiliated with the geographic area of the proposed project. LADWP would provide any affected tribe a reasonable period of time to conduct a site visit and make the treatment and disposition of any discovered tribal cultural resources as well as recommendations regarding monitoring of future ground disturbance activities. Construction in the area of the discovery may resume once evaluation and treatment of the resource is completed and/or the resource is recovered and removed from the site.

42. This License shall be interpreted, governed by, and construed under the laws of the State of California or the laws of the United States, as applicable, as if executed and to be performed wholly in the State of California.

43. To the extent there is a conflict between the terms of this License and the terms of the NHOU SETTLEMENT AGREEMENT, the terms of the NHOU SETTLEMENT AGREEMENT shall apply and control.

44. Except as otherwise expressly provided in this License, the Parties to this License do not intend to create rights in or grant remedies to any third party as a beneficiary of this License or of any duty, covenant, obligation, or undertaking established under this License.

45. Any waiver at any time by either Party of its rights with respect to a default under this License, or with respect to any other matter arising in connection with this License, shall not be deemed a waiver with respect to any subsequent default or other matter arising in connection therewith. Any delay in assessing or enforcing any right shall not be deemed to be a waiver of such right; *provided*, *that*, unless otherwise specified in the NHOU SETTLEMENT AGREEMENT, all applicable statutory periods of limitation shall apply.

46. Licensee and LADWP and their respective legal counsel have participated fully in the review and preparation of this License. Any rule of construction to the effect that ambiguities are to be resolved against the drafting Party shall not apply in interpreting this License. The language in this License shall be interpreted as to its fair meaning and not strictly for or against either Party.

47. This License may be executed at different times in one or more counterparts, each of which shall be regarded as an original and all of which, taken together, shall constitute the same License.

48. Each Party to this License shall bear its own attorney's fees and costs in the event of a dispute as to this License.

49. While on the Licensed Areas, Licensee shall comply with all of LADWP's posted safety rules and requirements without exception.

The signatories below represent that they have been appropriately authorized to enter into this License on behalf of the Party for which they sign. This License is hereby executed as of _____ and effective as of _____.

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES BY
BOARD OF WATER AND POWER COMMISSIONERS

By: _____
MARTIN L. ADAMS
General Manager and Chief Engineer

Date: 3/23/2020

And: _____
SUSAN A. RODRIGUEZ
Secretary

AUTHORIZED BY RES. 020 130
JAN 28 2020

APPROVED:

By: _____
RICHARD F. HARASICK
Senior Assistant General Manager –
Water System

APPROVED AS TO FORM AND LEGALITY
MICHAEL N. FEUER, CITY ATTORNEY

DEC 03 2019

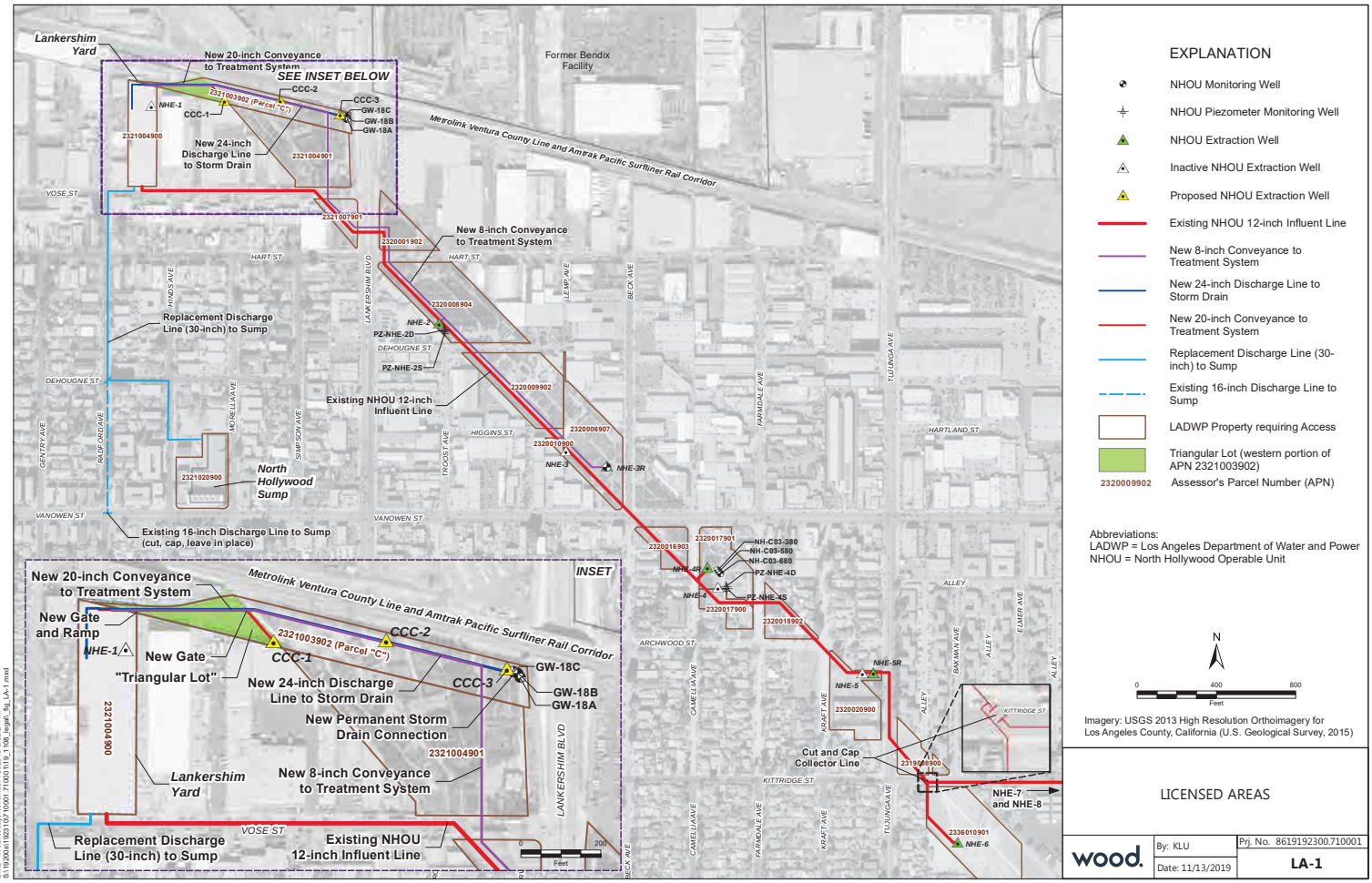
BY _____
MICHELLE LYMAN
DEPUTY CITY ATTORNEY

HONEYWELL INTERNATIONAL INC.

By:_____

BENNY DEHGHI
Director, Major Projects
LICENSEE

LICENSE AGREEMENT – FIGURE 1


Lankershim Yard
New 20-inch Conveyance to Treatment System
SEE INSET BELOW
Former Bendix Facility
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
New 24-inch Discharge Line to Storm Drain
New 8-inch Conveyance to Treatment System
Replacement Discharge Line (30-inch) to Sump
Existing NHOU 12-inch Influent Line
North Hollywood Sump
Existing 16-inch Discharge Line to Sump (cut, cap, leave in place)
INSET
New Gate and Ramp
New Gate
"Triangular Lot"
New Permanent Storm Drain Connection
Cut and Cap Collector Line
NHE-7 and NHE-8
EXPLANATION
NHOU Monitoring Well
NHOU Piezometer Monitoring Well
NHOU Extraction Well
Inactive NHOU Extraction Well
Proposed NHOU Extraction Well
Existing NHOU 12-inch Influent Line
New 8-inch Conveyance to Treatment System
New 24-inch Discharge Line to Storm Drain
New 20-inch Conveyance to Treatment System
Replacement Discharge Line (30-inch) to Sump
Existing 16-inch Discharge Line to Sump
LADWP Property requiring Access
Triangular Lot (western portion of APN 2321003902)
2320009902 Assessor's Parcel Number (APN)
Abbreviations:
LADWP = Los Angeles Department of Water and Power
NHOU = North Hollywood Operable Unit
Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)
LICENSED AREAS
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8619192300.710001
LA-1

LICENSE AGREEMENT – FIGURE 2

Explanation

Approximate Site Boundary

Access Area

2321004900 Assessor's Parcel Number (APN)

LANKERSHIM YARD LICENSED AREA

wood.

By: KLU

Date: 11/13/2019

Prj. No. 8619192300.710001

LA-2

Wednesday, November 13, 2019 8:48:41 AM
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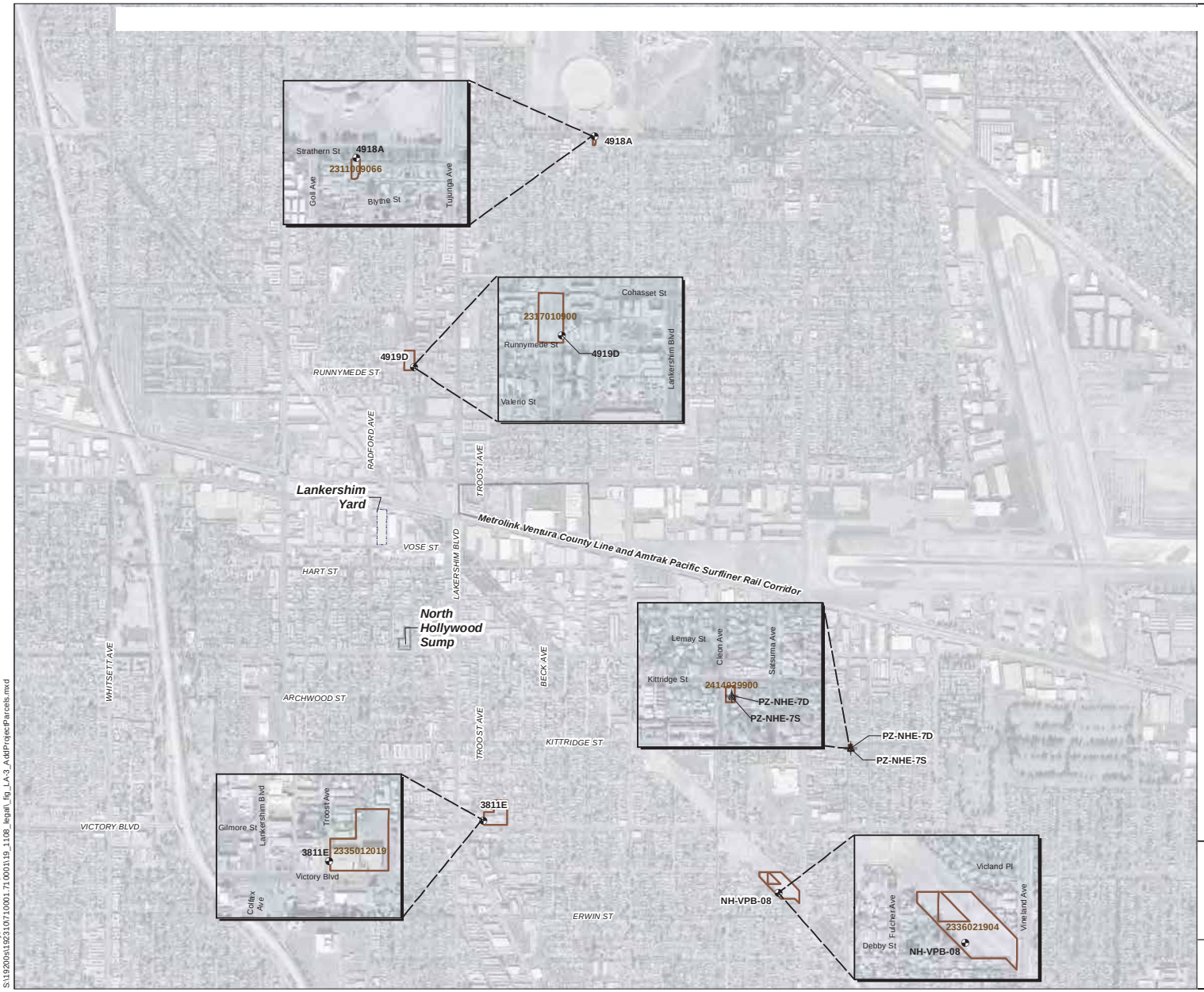
LICENSE AGREEMENT – FIGURE 3



EXPLANATION

- NHOU Monitoring Well
- NHOU Piezometer Monitoring Well
- LADWP Property requiring Access
- 2320009902 Assessor's Parcel Number (APN)

Abbreviation:
LADWP = Los Angeles Department of Water and Power

N

0 1,500
Feet

Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)

ADDITIONAL LICENSED AREAS

wood.

By: KLU	Prj. No. 8619192300.710001
Date: 11/25/2019	LA-3

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LICENSE AGREEMENT – ATTACHMENT A

NHOU SETTLEMENT AGREEMENT

SETTLEMENT AGREEMENT BETWEEN

THE LOS ANGELES DEPARTMENT OF WATER AND POWER

AND

HONEYWELL INTERNATIONAL INC.

**SETTLEMENT AGREEMENT BETWEEN
THE LOS ANGELES DEPARTMENT OF WATER AND POWER
AND HONEYWELL INTERNATIONAL INC.**

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF EXHIBITS

RECITALS

A. WHEREAS, this AGREEMENT establishes a unique and historic long-term public-private partnership between the Los Angeles Department of Water and Power ("LADWP") and Honeywell International Inc. ("HONEYWELL") that will operate to enhance and expedite remediation of contamination and support restoration of beneficial uses of groundwater within the North Hollywood Operable Unit ("NHOU"), which is located in the San Fernando Valley Groundwater Basin ("SFV GROUNDWATER BASIN"), by implementing, among other things, the "Cooperative Containment Concept" ("CCC"), which will pump, treat and provide 8,500 acre-feet per year ("AFY") of treated groundwater with an end use as public drinking water in lieu of expensive imported water. The CCC will operate until the United States Environmental Protection Agency ("EPA") determines the remedial action objectives of the NHOU Second Interim Remedy ("SECOND INTERIM REMEDY" or "NHOU 2IR") have been met. If certain conditions are met, an additional 6,500 AFY of treated groundwater will be provided to LADWP with an end use as public drinking water in lieu of expensive imported water;

B. WHEREAS, under *City of Los Angeles v. City of San Fernando* (1975) 14 Cal.3d 199, the City of Los Angeles ("CITY") has the right to, among other things, all groundwater in the SFV GROUNDWATER BASIN derived either from precipitation within the Upper Los Angeles River Area, or from water it has imported from outside the Upper Los Angeles River Area and either spread or delivered within the Area, insofar as the CITY uses such water to satisfy its municipal needs and reasonable beneficial uses;

C. WHEREAS, industrial and other facilities located in and around the NHOU historically handled, treated, transported, and disposed of waste that resulted in releases of hazardous substances that over time percolated through subsurface soils and contributed to contamination of the SFV GROUNDWATER BASIN, which has severely compromised the ability of the CITY to depend on these water rights as a long-term source of supply;

D. WHEREAS, beginning in the 1940s, HONEYWELL's predecessors operated facilities at a site in North Hollywood, Los Angeles (the "FORMER BENDIX SITE"), which state and federal agencies allege to be a source of contamination to groundwater in the SFV GROUNDWATER BASIN;

E. WHEREAS, LADWP has been working with state and federal agencies to identify and hold responsible parties liable to remediate the SFV GROUNDWATER BASIN so that all beneficial uses can be fully restored;

F. WHEREAS, this AGREEMENT addresses remediation of the "central" portion of NHOU, which is under the jurisdiction of EPA located within the SFV GROUNDWATER BASIN;

G. WHEREAS, activities and conditions with respect to the NHOU are within the jurisdiction of several federal and state regulatory agencies. EPA is the lead federal agency for current and planned future groundwater remediation activities at the NHOU; EPA conducts response activities at the NHOU under the authority granted by the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). The Regional Water Quality Control Board for the Los Angeles Region ("RWQCB") has been heavily involved with the investigation and remediation of source properties within the NHOU, including, among others, the FORMER BENDIX SITE;

H. WHEREAS, on September 23, 1987, EPA issued a record of decision selecting the NHOU First Interim Remedy ("FIRST INTERIM REMEDY") that called for an extraction and treatment system which was intended to treat the primary chemicals of concern identified at that time, trichloroethylene ("TCE") and perchloroethylene or tetrachloroethylene ("PCE"). That system was anticipated to provide up to 3,226 AFY (approximately 2,000 gallons per minute) of treated groundwater to LADWP;

I. WHEREAS, while EPA was undertaking efforts to recover costs and secure response actions from responsible parties, LADWP moved forward to construct and operate the extraction and treatment system through a cooperative agreement with and funding from EPA;

J. WHEREAS, following the construction and startup of the extraction and treatment system by LADWP, EPA began negotiations with potentially responsible parties ("PRPs"), including HONEYWELL, who EPA alleged caused or contributed to, or whose predecessors caused or contributed to, groundwater contamination within the NHOU;

K. WHEREAS, in 1996 and 1997, EPA reached two separate settlements with PRPs in which the settling parties, including HONEYWELL, agreed to pay EPA's past costs and a sum certain to help fund operation of the groundwater extraction and treatment system;

L. WHEREAS, in 2008, when funds collected pursuant to the 1996 and 1997 settlements neared exhaustion, EPA proposed and HONEYWELL, along with a number of other PRPs, and without admitting liability for further funding, entered a "Settlement Agreement for Recovery of Response Costs" to secure further funding to continue operating the existing system until the SECOND INTERIM REMEDY is constructed and operational. In 2013 and 2015, and again without admitting liability for further funding, HONEYWELL signed amendments to the Settlement Agreement for Recovery of Response Costs to secure further funding to continue operating the existing system;

M. WHEREAS, the FIRST INTERIM REMEDY was intended to limit volatile organic compound ("VOC") contaminant migration (primarily PCE and TCE) and remove contamination from groundwater in the NHOU; however, emerging contaminants, including hexavalent chromium ("CrVI") and 1,4-dioxane, were detected and these chemicals impacted or threatened to impact a number of NHOU extraction wells, and could not be treated by the original treatment system. In addition, EPA determined that changing groundwater conditions in the aquifer and the discovery of contamination in new areas of the aquifer beneath the NHOU required a modification of the remedy;

N. WHEREAS, on September 30, 2009, EPA issued the RECORD OF DECISION ("ROD"), which selected the SECOND INTERIM REMEDY for the NHOU. The ROD set forth EPA's determination that changed conditions necessitated selection and implementation of the SECOND INTERIM REMEDY;

O. WHEREAS, the ROD deemed potable use the preferred end use for water treated via the SECOND INTERIM REMEDY and envisioned a groundwater remediation system that would provide approximately 4,900 AFY (approximately 3,050 gallons per minute) of treated groundwater from the NHOU to LADWP;

P. WHEREAS, on July 1, 2010, EPA sent the special notice letter to 21 EPA-identified PRPs, including HONEYWELL, associated with 10 source properties in the NHOU, indicating that they were liable under CERCLA to implement or fund the SECOND INTERIM REMEDY in accordance with the ROD for the NHOU;

Q. WHEREAS, on January 10, 2014, EPA released an amendment to the ROD authorizing reinjection of treated water into the SFV GROUNDWATER BASIN as an alternative remedy to supplying treated groundwater to LADWP in the event that LADWP and the NHOU PRPs were unable to reach an agreement that is acceptable to EPA regarding terms for delivery and acceptance of the treated water;

R. WHEREAS, on October 26, 2017, EPA issued a Unilateral Administrative Order for Remedial Action to HONEYWELL directing HONEYWELL to construct certain replacement wells in the vicinity of certain current NHOU extraction wells and develop a treatment system capable of removing VOCs, 1,4-dioxane, and CrVI from the extracted groundwater;

S. WHEREAS, on February 22, 2018, based on additional groundwater data and other factors, EPA issued an Explanation of Significant Differences (the "ESD") to the ROD that concludes that increased groundwater extraction would be more effective in attaining the NHOU 2IR Remedial Action Objectives ("NHOU 2IR RAOs") and protecting production wells in LADWP's RT WELL FIELD and North Hollywood West Branch Well Fields. The portion of the SECOND INTERIM REMEDY to be implemented by HONEYWELL pursuant to this AGREEMENT is referred to herein as the Cooperative Containment Concept ("CCC");

T. WHEREAS, on July 8, 2019, EPA amended the 2017 Unilateral Administrative Order for Remedial Action to direct HONEYWELL to install three new extraction wells in the NHOU;

U. WHEREAS the CCC portion of the SECOND INTERIM REMEDY is expected, among other things, to capture and contain certain contaminants that might otherwise impact certain LADWP groundwater production wells downgradient of the North Hollywood East Branch Well Field ("NHEB WELL FIELD"), and this AGREEMENT provides that in the event that certain contaminants exceeding maximum contaminant levels for drinking water ("MCLs") and/or

drinking water notification levels ("NLs") are encountered and identified in the downgradient WH4-5 WELLS following the sustained operation of the CCC, the PARTIES contemplate that HONEYWELL will treat the water from WH4-5 WELLS, re-drilled by LADWP, consistent with SECTION 11; this contingent treatment of contaminated groundwater (at an amount of 6,500 AFY) from such wells is referred to as the SECOND STAGE CONCEPT, or "SSC," and is outside the scope of the ROD and not subject to EPA oversight;

V. WHEREAS, LADWP and HONEYWELL have negotiated this AGREEMENT, which, among other things, provides for (i) how the CCC SYSTEM will be designed and implemented in a manner consistent with the ROD, as amended and clarified, under the direction of EPA, (ii) how the SSC SYSTEM will be designed and implemented, and (iii) how the PARTIES, either individually or jointly, will allocate responsibilities for both the CCC and SSC SYSTEMS in this AGREEMENT;

W. WHEREAS, LADWP and HONEYWELL expect that HONEYWELL, or a separate legal entity formed in whole or in part by HONEYWELL, will construct, and LADWP will operate, with support from HONEYWELL or a separate legal entity formed in whole or in part by HONEYWELL, the facilities that will comprise the CCC and SSC SYSTEMS; but in all instances subject to the requirement of SECTION 31 that provides HONEYWELL shall remain directly liable and responsible to LADWP for all obligations to LADWP hereunder;

X. WHEREAS, LADWP anticipates that the water it will receive from the CCC and SSC SYSTEMS will play a critical role in LADWP's plans to ensure that groundwater in the SFV GROUNDWATER BASIN is remediated to its beneficial use as a drinking water supply so that LADWP may serve such groundwater to the public and reduce purchases of imported water;

Y. WHEREAS, LADWP and HONEYWELL understand and anticipate that, due to the concentration of hazardous substances in the NHOU and other factors, the California State Water Resources Control Board's Division of Drinking Water ("DDW") will evaluate the CCC and SSC SYSTEMS consistent with DDW Policy Guidance for Direct Domestic Use of Extremely Impaired Sources, California Department of Public Health Policy Memorandum 97-005 ("DDW 97-005"), prior to permitting LADWP to accept the water from the CCC and SSC SYSTEMS for further treatment and eventual distribution for domestic use;

Z. WHEREAS, LADWP and HONEYWELL recognize, under CERCLA, implementation of remedial actions "onsite" are not required to comply with state environmental laws unless such laws are defined as Applicable or Relevant and Appropriate Requirements ("ARAR") in a ROD. LADWP and HONEYWELL further recognize that case law interpreting CERCLA confirms that state and local agencies are also not obligated to comply with non-ARAR state laws in connection with remediation projects. Furthermore, it is the PARTIES' view that EPA's anticipated review of the CCC SYSTEM under CERCLA is functionally equivalent to the environmental reviews typically conducted under CEQA (which is not a ROD-listed ARAR);

AA. WHEREAS, LADWP and HONEYWELL expect that PRPs in the NHOU, including at a minimum HONEYWELL, and EPA will enter into a consent decree to implement the SECOND INTERIM REMEDY that will govern, in part, CCC SYSTEM operations; and

BB. WHEREAS, FURTHER, to achieve resolution of outstanding technical and legal issues concerning the CCC and SSC SYSTEMS, to fully and finally resolve their differences regarding the PARTIES' CLAIMS, as set forth herein, to toll and stand down with respect to certain claims arising outside the NHOU, and in the spirit of entering into a private-public partnership to facilitate the implementation of the CCC and the SSC, the PARTIES wish to enter into this AGREEMENT on the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, and for good and valuable consideration, the PARTIES agree as follows:

1. DEFINITIONS

Where the context so indicates or requires, each defined term stated in the singular includes the plural, and each defined term stated in the plural includes the singular. Unless otherwise stated, terms in this AGREEMENT indicated with ALLCAPS shall have the definitions stated in the subparagraphs below. The definitions in this AGREEMENT shall apply only to this AGREEMENT and EXHIBITS to this AGREEMENT, where so indicated, and shall not apply to any other agreement, nor shall they be used as evidence, except with respect to this AGREEMENT, of the meaning of any term. As used in this AGREEMENT, the following terms have the following meanings set forth below.

1.1 **AFY** means acre-feet per year, in reference to a volume of water.

1.2 **AGREEMENT or NHOU SETTLEMENT AGREEMENT** means this settlement agreement and all attachments, exhibits, and figures hereto.

1.3 **ANNUAL BUDGET** means the budget defined in SECTION 8.

1.4 **ANTICIPATED PENALTY PAYMENT** means reasonably anticipated CCC PENALTIES AND/OR COSTS arising from a TRIGGERING EVENT.

1.5 **AOP** means advanced oxidation processes.

1.6 **APN** means assessor's parcel number.

1.7 **BENDIX PLUME** means the extent of groundwater impacted by releases from the FORMER BENDIX SITE.

1.8 **CALENDAR YEAR** means the period of a year beginning January 1 and ending December 31.

1.9 **CAPITAL TRUST** means the trust account established in SECTION 16.

1.10 **CAPITAL TRUSTEE** means the trustee appointed pursuant to SECTION 16.

1.11 **CCC or the COOPERATIVE CONTAINMENT CONCEPT** means the groundwater remediation and water supply project involving the design, permitting, construction, and operation of the CCC SYSTEM, consisting of three project phases defined herein, and as more fully described in the SCOPE OF WORK.

1.12 **CCC 97-005 MONITORING PLAN** means the final water quality monitoring and surveillance plan approved by DDW for the CCC SYSTEM in connection with DDW 97-005.

1.13 **CCC MONITORING PLAN** means a groundwater, influent, and effluent monitoring plan for the CCC SYSTEM, to be completed and approved by EPA as may be required, that will describe existing and proposed monitoring wells, the frequency of sampling,

groundwater elevations, and analytical parameters necessary for monitoring: (i) to evaluate the location and movement of groundwater contamination with respect to the NHOU; and (ii) the quality of influent and effluent entering and leaving the PHASE 1 and PHASE 3 TREATMENT SYSTEMS.

1.14 **CCC PENALTIES AND/OR COSTS** means costs associated with an LADWP FAILURE that causes: (i) payment of fees or stipulated or civil penalties pursuant to an ORDER; (ii) additional response costs to comply with an ORDER; or (iii) other such damages or losses as a result of, or arising out of, an LADWP FAILURE. Unless otherwise stated, CCC PENALTIES AND/OR COSTS shall not include attorneys' fees or defense costs.

1.15 **CCC PHASE 1 or PHASE 1 TREATMENT SYSTEM** means the installation and testing of three replacement extraction wells (NHE-3R, NHE-4R, and NHE-5R), as shown on FIGURE 1, and the development of a groundwater treatment system that will be designed, permitted, constructed, and commissioned to reduce and/or remove ROD Contaminants of Concern ("COCs"). The PHASE 1 TREATMENT SYSTEM will be designed to operate at a flow rate of 1,500 AFY (based on the ROLLING ANNUAL AVERAGE) with the purpose of performing treatment system pilot testing prior to establishing the full-scale groundwater treatment system. Groundwater to be treated is anticipated to come from extraction wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6. Raw groundwater will be delivered to the PHASE 1 TREATMENT SYSTEM via an existing twelve (12)-inch diameter conveyance line. Treated water from the PHASE 1 TREATMENT SYSTEM will be discharged (after being disinfected by the CHLORINATION SYSTEM) to the SUMP via an existing sixteen (16)-inch discharge line. The PHASE 1 TREATMENT SYSTEM will be constructed at the YARD.

1.16 **CCC PHASE 2 or PHASE 2** means the installation of new extraction wells and conveyance lines to provide higher flow rates in support of the PHASE 3 TREATMENT SYSTEM operations. Three extraction wells are anticipated to be installed on LADWP property (CCC-1, CCC-2, and CCC-3), as shown on FIGURE 1. Anticipated conveyance includes: (i) piping that will extend from the PHASE 2 extraction wells to the YARD,

(ii) piping that will extend from extraction wells NHE-2 and NHE-3R to the YARD, and (iii) the replacement of the existing sixteen (16)-inch diameter discharge line from the YARD to the North Hollywood West Branch Well Fields trunk line near the SUMP with a thirty (30)-inch diameter discharge line from the YARD to the SUMP that will support at least 15,000 AFY of treated water from both the PHASE 3 TREATMENT SYSTEM and the potential flow from the SSC SYSTEM.

1.17 **CCC PHASE 3 or PHASE 3 TREATMENT SYSTEM** means the expansion of the PHASE 1 TREATMENT SYSTEM with additional equipment to support an increased flow rate of 8,500 AFY (based on the ROLLING ANNUAL AVERAGE). Groundwater to be treated is anticipated to originate from the wells active during CCC PHASE 1, as well as three new extraction wells anticipated to be installed during CCC PHASE 2. Raw groundwater will be delivered to the PHASE 3 TREATMENT SYSTEM through one of three influent conveyance lines. Treated water from the PHASE 3 TREATMENT SYSTEM will be discharged (after being disinfected by the CHLORINATION SYSTEM) to the SUMP via the thirty (30)-inch discharge line installed during PHASE 2.

1.18 **CCC SYSTEM** means the extraction wells (including but not limited to pumps, motors, drop pipe, casing and associated electrical, instrumentation, Supervisory Control and Data Acquisition, or "SCADA," and controls), above-grade and sub-grade conveyance lines from the wells to the treatment plant, the associated treatment plant, and the associated equipment and appurtenances necessary for plant operation, waste management systems, and purchased and leased land housing the plant and its equipment and appurtenances (collectively shown on FIGURE 2), up to the identified "CCC Effluent Monitoring Point" as shown on FIGURE 2.

1.19 **CCC SYSTEM OPERATIONAL SUPPORT PLAN** means the plan described in EXHIBIT 2.

1.20 **CEQA** means the California Environmental Quality Act, California Public Resources Code §§ 21000, *et seq*., and its implementing regulations, as such may be amended from time-to-time.

1.21 **CERCLA** means the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675, and its implementing regulations, as such may be amended from time-to-time.

1.22 **CHARTER** means the Charter of the CITY.

1.23 **CHLORINATION SYSTEM** means the LADWP-owned chlorination unit located on the YARD that will be utilized by LADWP to disinfect treated water received from, among other locations, the CCC SYSTEM and, potentially, the SSC SYSTEM.

1.24 **CITY** means the City of Los Angeles, California.

1.25 **CITY COUNCIL** means the City Council of the CITY.

1.26 **CLAIMS** means claims for soil or groundwater CONTAMINATION arising out of or attributable to the activities of, or the ownership or operation of property by, the respective PARTIES that they have or could have in the future against one another with respect to liability under CERCLA, California's Hazardous Substance Account Act, other comparable federal or state environmental laws, or other federal or state statutes or laws, including common law claims and claims for damages or harm for past or future lost water production or other impairment of water rights in the SFV GROUNDWATER BASIN.

1.27 **CONTAMINATION** means any pollutant, contaminant, hazardous waste or hazardous substance under any federal, state, or local laws, regulations, rules, statutes, ordinances, codes, decrees, requirements, or permits of any governmental authority regulating, or imposing liability or standards of conduct concerning any hazardous substance, as now or may at any later time be in effect, including, without limitation, CERCLA [42 U.S.C. §§ 9601 *et seq.*]; the Resource Conservation and Recovery Act [42 U.S.C. §§ 6901 *et seq.*]; the Clean Water Act, also known as the Federal Water Pollution Control Act [33 U.S.C. §§ 1251 *et seq.*]; the Toxic Substances Control Act [15 U.S.C. §§ 2601 *et seq.*]; the Hazardous Materials Transportation Act [49 U.S.C. §§ 5101 *et seq.*]; the Federal Insecticide, Fungicide, Rodenticide Act [7 U.S.C. §§ 136 *et seq.*]; the Clean Air Act [42 U.S.C. §§ 7401 *et seq.*]; the Safe Drinking Water Act [42 U.S.C. §§ 300f *et seq.*]; the Solid Waste Disposal Act [42 U.S.C. §§ 6901 *et seq.*]; the Surface Mining Control and

Reclamation Act [30 U.S.C. §§ 1201 *et seq.*]; the Emergency Planning and Community Right to Know Act [42 U.S.C. §§ 11001 *et seq.*]; the Occupational Safety and Health Act [29 U.S.C. §§ 651 *et seq.*]; the California Underground Storage of Hazardous Substances Act [Cal. Health & Safety Code §§ 25280 *et seq.*]; the California Hazardous Substances Account Act [Cal. Health & Safety Code §§ 25300 *et seq.*]; the California Hazardous Waste Control Act [Cal. Health & Safety Code §§ 25100 *et seq.*]; the California Safe Drinking Water and Toxic Enforcement Act [Cal. Health & Safety Code §§ 25249.5 *et seq.*]; and the Porter-Cologne Water Quality Control Act [Cal. Water Code §§ 13000 *et seq.*], together with any amendments of or regulations promulgated under the statutes cited above and any other federal, state, or local law, statute, ordinance, or regulation now in effect or later enacted that pertains to hazardous substances on, including ambient air, soil, soil vapor, groundwater, surface water, or land use.

1.28 **CPRA** means the California Public Records Act, Government Code § 6250, *et seq*., as such may be amended from time-to-time.

1.29 **CrVI** means hexavalent chromium.

1.30 **DAY** means a calendar day.

1.31 **DDW** means the California State Water Resources Control Board's Division of Drinking Water (formerly the California Department of Public Health) and its successor departments, agencies, or instrumentalities.

1.32 **DDW 97-005** means the DDW Policy Guidance for Direct Domestic Use of Extremely Impaired Sources, California Department of Public Health Policy Memorandum 97-005 (originally dated November 5, 1997), as such may be amended from time-to-time.

1.33 **DTSC** means the California Department of Toxic Substances Control, the Toxic Substances Control Account, and their successor departments, agencies, or instrumentalities.

1.34 **EFFECTIVE DATE** means the date upon which this AGREEMENT is countersigned and executed between the PARTIES and the condition precedent set forth in SECTION 29 has

been met, and notwithstanding that the condition subsequent set forth in SECTION 28 may not occur until sometime following execution of this AGREEMENT.

1.35 **EPA** means the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

1.36 **EPA REQUIREMENTS** means any requirements contained in an ORDER and/or letter and/or directive published or issued by EPA.

1.37 **ERWIN WELL FIELD** means the LADWP-owned Erwin Branch Well Field, including wells and associated conveyance, as shown on FIGURE 3.

1.38 **ESD** means an "Explanation of Significant Differences," as that term applies pursuant to CERCLA.

1.39 **FIRST INTERIM REMEDY** means the interim remedy selected by EPA for the NHOU in EPA's September 23, 1987 ROD.

1.40 **FORCE MAJEURE** means circumstances beyond the reasonable control of LADWP or HONEYWELL and without the fault and negligence of either LADWP or HONEYWELL including but not be limited to, acts of God or of the public enemy; insurrection; acts of the federal government or any unit of state or local government in either sovereign or contractual capacity; sabotage; vandalism; and earthquakes, fires, floods, hurricanes, storms, high water, extended droughts, volcanic eruptions, epidemics, quarantine restrictions, strikes, freight embargos, or delays in transportation, to the extent that they are not caused by the PARTIES' willful or negligent acts or omissions, and to the extent that they are beyond either LADWP's or HONEYWELL's reasonable control and that prevents or delays performance of an obligation under this AGREEMENT.

1.41 **FORMER BENDIX SITE** means the site of facilities formerly owned or operated by HONEYWELL's predecessors, including the Bendix Corporation, the Allied Corporation, and the Signal Companies, Inc., located on APN 2320-001-030, APN 2320-001-036, APN 2320-001-041, and APN 2320-001-042 in Los Angeles (North Hollywood), California.

1.42 **GPM** means gallons per minute.

1.43 **HONEYWELL** means Honeywell International Inc., a Delaware corporation, and successor-in-interest to AlliedSignal Inc.

1.44 **INCREMENTAL MONITORING COSTS** means additional monitoring costs incurred as the result of requirements imposed by DDW on LADWP for either the CCC SYSTEM or SSC SYSTEM that go beyond what monitoring EPA has required pursuant to an ORDER.

1.45 **INDEMNITY MEDIATOR** means the mediator identified in SECTION 27.

1.46 **INDEMNITY TRUST** means the trust fund or escrow account established in connection with SECTION 27.

1.47 **LADWP** means the Los Angeles Department of Water and Power, a proprietary department of the CITY.

1.48 **LADWP COSTS** means all costs incurred by LADWP not inconsistent with standard practices of a public drinking water system operated by a public utility of similar nature, scope and complexity as LADWP. Such costs shall include labor charges, indirect costs and expenses, accounting, supplies, equipment, infrastructure, structures, utilities and other third-party costs. LADWP labor shall be calculated on actual hours worked multiplied by the hourly rates. The hourly rates include labor base rate, labor distribution rate for labor burden, and add-on rate for particular job classification. The hourly rates are subject to change every fiscal year. LADWP indirect costs will include "Administrative and General," "Retirement and Death Benefits," "Health Care Costs," "Supervision and Engineering Expense," "Shops," "Tools," and "Material Handling," and other such costs, as published annually by LADWP in its Accounting Bulletin, consistent with U.S. generally accepted accounting principles and the applicable Governmental Accounting Standard Board. Reimbursement of LADWP COSTS by HONEYWELL are subject to the provisions of this AGREEMENT.

1.49 **LADWP FAILURE** means an event in which LADWP operates, or directs the operation of, the CCC SYSTEM in a manner that is both (i) inconsistent with the requirements of this AGREEMENT and (ii) causes HONEYWELL to be out of compliance with EPA REQUIREMENTS contained in an ORDER concerning the CCC SYSTEM, including noncompliance caused by LADWP failing or refusing to accept the water produced by the CCC SYSTEM. The term LADWP FAILURE excludes any failure caused directly or indirectly by HONEYWELL or by a failure of HONEYWELL to meet a material obligation of this AGREEMENT.

1.50 **LADWP INDEMNITY DISPUTE LETTER** means a written letter by LADWP to HONEYWELL objecting to a demand for payment of CCC PENALTIES AND/OR COSTS or an ANTICIPATED PENALTY PAYMENT, which shall specify therein a short description LADWP's reasons for objecting to the HONEYWELL payment demand.

1.51 **LADWP RESIDENT ENGINEER** means the person identified by LADWP with authority to observe the implementation of the construction of the CCC SYSTEM and SSC SYSTEMS on behalf of LADWP.

1.52 **LADWP SSC WORK** means the re-drilling of the WH4-5 WELLS at or adjacent to their current location, and construction of all necessary infrastructure to transport treated water to the YARD, and any conveyance bypass for untreated water, if any, to convey water from WH4-5 WELLS to the SUMP; *except, however*, LADWP SSC WORK shall not include the installation of conveyance piping from the YARD to the SUMP.

1.53 **LICENSE AGREEMENT** means that certain license agreement by and among HONEYWELL and LADWP, the form of which is attached hereto as EXHIBIT 4, that gives HONEYWELL and its sub-licensees permission to enter upon certain real property that is owned by the CITY and/or under the control and jurisdiction of LADWP for the purpose of facilitating the construction, operation, and maintenance of groundwater treatment facilities and their associated wells, conveyance, and other necessary infrastructure for the benefit of LADWP, as contemplated in this AGREEMENT.

1.54 **LIMITATIONS** means any statutes of limitation, any statutes of repose, and any other statute, law, rule, or principle of equity with similar effect.

1.55 **LPGAC** means liquid phase granular activated carbon.

1.56 **MCL** means maximum contaminant levels for drinking water as established by EPA or the STATE.

1.57 **NATIONAL CONTINGENCY PLAN or NCP** means the National Oil and Hazardous Substances Pollution Contingency Plan, sometimes referred to as the NCP, promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, as such may be amended from time-to-time.

1.58 **NEW CONTAMINANTS** means contaminants not presently identified as ROD COCs.

1.59 **NHEB WELL FIELD** means the LADWP-owned North Hollywood East Branch Well Field, including wells and associated conveyance, as shown on FIGURE 3.

1.60 **NHOU** means the North Hollywood Operable Unit of the San Fernando Valley Area 1 Superfund Site.

1.61 **NHOU 2IR CENTRAL PORTION CD** means a fully effective consent decree, by and among, at a minimum, EPA and HONEYWELL, providing for the implementation of a groundwater extraction and treatment system in substantially similar form to the CCC as a component of the NHOU 2IR.

1.62 **NHOU 2IR RAOs** means NHOU Second Interim Remedy Remedial Action Objectives set by EPA, as set forth in the ROD.

1.63 **NHOU CO** means the legal entity, if any, established by HONEYWELL to facilitate and/or undertake groundwater remediation in the NHOU.

1.64 **NL** means drinking water notification levels as established by the STATE.

1.65 **O&M** means operation and maintenance, repairs, replacement, and capital improvements.

1.66 **O&M COSTS** means all costs, including but not limited to LADWP COSTS, incurred by LADWP to operate and maintain the CCC SYSTEM and, if it is necessary, the SSC SYSTEM pursuant to this AGREEMENT, including but not limited to the labor, materials, equipment, supplies, consumables, management, oversight, utilities and electrical costs (including costs to pump water to the surface, transport water to the treatment system, and to operate the system), training, monitoring, recordkeeping, consulting (health and safety or otherwise), permit compliance and fees, insurance, security, testing, waste and off-spec water management, responding to spills or releases from the CCC SYSTEM or SSC SYSTEM, repairing and replacing components and system elements, designing and installing system upgrades, repairs, replacement, major repairs and capital improvements and related infrastructure, accounting and any and all other costs associated with operation and maintenance of the CCC SYSTEM and, if it is necessary, the SSC SYSTEM, consistent with the then-current requirements of any ORDER (if applicable) and DDW permit and any other applicable requirement. Such costs also include fifty percent (50%) of the cost to maintain and repair the thirty (30)-inch conveyance line from the YARD to the SUMP that will be installed during PHASE 2, once HONEYWELL constructs and installs that conveyance, with the other fifty percent (50%) of the cost to maintain and repair the thirty (30)-inch conveyance being borne by LADWP. Notwithstanding the language above, O&M COSTS shall not include costs that are expressly placed on LADWP in this AGREEMENT.

1.67 **O&M TRUST ACCOUNT** means the trust account established in SECTION 17.

1.68 **O&M TRUSTEE** means the trustee appointed pursuant to SECTION 17.1.1.

1.69 **ON THE GROUND EXPENSES** means all costs, including but not limited to LADWP COSTS, incurred by LADWP during and in connection with the PHASE 1 and PHASE 3 STARTUP AND SHAKEDOWN PERIODS, the PHASE 1 and PHASE 3 WARRANTY PERIODS, the SSC STARTUP AND SHAKEDOWN PERIOD, and the SSC WARRANTY PERIOD, including but not limited to costs for training, observation, security, reporting, and oversight, and sample collection and analysis.

1.70 **ORDER** means a fully effective consent decree, unilateral administrative order, administrative order on consent, or similar agreement with, or directive from, EPA, entered with or issued to HONEYWELL, addressing releases of hazardous substances in groundwater in the "central" area of the NHOU.

1.71 **PARTY or PARTIES** means the signatories to this AGREEMENT, including, specifically, LADWP and HONEYWELL.

1.72 **PCE** means tetrachloroethylene or perchloroethylene.

1.73 **PERSON** means an individual, a partnership, a corporation, an association, a limited liability company, a limited liability partnership, a syndicate, a joint stock company, a trust, a joint venture, an unincorporated organization, or other entity, including any governmental entity, and including any successor, by merger, assignment, assumption, change of control, or otherwise of any of the foregoing.

1.74 **PHASE 1 STARTUP AND SHAKEDOWN PERIOD** means the period of time during which HONEYWELL (or its designated contractor approved by LADWP) will undertake the necessary actions (including but not limited to prove-out of individual equipment operation and continuous operation at rated load ranges, mechanical (contractual) acceptance testing, permit requirement acceptance testing, communications testing and verification, operator training, and issuance of what is commonly referred to as a "Certificate of Completion") to verify that the PHASE 1 TREATMENT SYSTEM is constructed in conformance and operating consistent with the design. The PHASE 1 STARTUP AND SHAKEDOWN PERIOD shall include the period of time from the completion of the PHASE 1 TREATMENT SYSTEM construction until such time DDW issues a new or amended WATER SUPPLY PERMIT to LADWP allowing LADWP to accept treated water from the PHASE 1 TREATMENT SYSTEM for further treatment and eventual distribution as drinking water.

1.75 **PHASE 1 WARRANTY PERIOD** means the anticipated twenty-four (24) months of the PHASE 1 TREATMENT SYSTEM operation following the PHASE 1 STARTUP AND SHAKEDOWN PERIOD.

1.76 **PHASE 3 STARTUP AND SHAKEDOWN PERIOD** means the period of time during which HONEYWELL (or its designated contractor approved by LADWP) will undertake the necessary actions (including but not limited to prove-out of individual equipment operation and continuous operation at rated load ranges, mechanical (contractual) acceptance testing, permit requirement acceptance testing, communications testing and verification, operator training, and issuance of what is commonly referred to as a "Certificate of Completion") to verify that the PHASE 3 TREATMENT SYSTEM is constructed in conformance and operating consistent with the design. The PHASE 3 STARTUP AND SHAKEDOWN PERIOD shall include the period of time from the completion of the PHASE 3 TREATMENT SYSTEM construction until such time DDW issues a new or amended WATER SUPPLY PERMIT to LADWP allowing LADWP to accept treated water from the plant for further treatment and eventual distribution as drinking water.

1.77 **PHASE 3 TOLLING INCIDENT** means operational upset of the PHASE 3 TREATMENT SYSTEM or other incident that causes the PHASE 3 TREATMENT SYSTEM to produce less than seventy percent (70%) of its design capacity during the PHASE 3 WARRANTY PERIOD.

1.78 **PHASE 3 WARRANTY PERIOD** means the anticipated twenty-four (24) months of the PHASE 3 TREATMENT SYSTEM operation following the PHASE 3 STARTUP AND SHAKEDOWN PERIOD.

1.79 **PRE-EXISTING ENVIRONMENTAL CONDITIONS** means the presence of soil or groundwater CONTAMINATION prior to the EFFECTIVE DATE from sources caused or contributed to by LADWP activities at the YARD. By way of clarification, such conditions expressly exclude the migration of CONTAMINATION into, onto, or beneath the YARD from off-site, not caused or contributed to by LADWP.

1.80 **PRIMARY SSC TREATMENT PLANT** means a water treatment plant or other treatment system capable of treating groundwater for PCE and/or TCE at a rate of 6,500 AFY, based on the ROLLING ANNUAL AVERAGE, that is built in the event the contingencies set forth in SECTION 14.1 are met.

1.81 **PROJECT COORDINATOR** means the individual(s) identified by each PARTY in SECTION 24.

1.82 **PRP** means a potentially responsible party, as such term is defined by CERCLA.

1.83 **RECORD OF DECISION OR ROD** means the EPA-approved, September 30, 2009 Interim Action Record of Decision (as amended or modified by the January 10, 2014 Amendment to the Interim Action Record of Decision and the February 22, 2018 ESD, and as may be amended or modified or clarified further from time-to-time, including through an amendment, ESD, or EPA five-year review process) for the NHOU, a copy of which is included as EXHIBIT 5 to this AGREEMENT.

1.84 **RESERVED CLAIMS** means any CLAIMS that either PARTY may have against the other that may arise out of or result from any releases of CONTAMINATION or other activities in the SFV GROUNDWATER BASIN, other than those CLAIMS settled and released under SECTION 26.

1.85 **ROD COC** means a contaminant of concern as set forth in Table 2 of the January 10, 2014 amendment to the ROD, as reproduced in EXHIBIT 5.

1.86 **ROLLING ANNUAL AVERAGE** means an average quantity of water treated and delivered to LADWP's water distribution system over the (5) five years, as calculated consistent with SECTION 19.

1.87 **RT WELL FIELD** means the LADWP-owned Rinaldi-Toluca Branch Well Field, including wells and associated conveyance, as shown on FIGURE 3.

1.88 **RT-INDUCED INCREMENTAL RESPONSE COSTS** means costs incurred by HONEYWELL or the NHOU CO implementing additional response actions directed by EPA or other authority having jurisdiction to address ROD COCs, if such response actions are the result of LADWP pumping at the RT WELL FIELD.

1.89 **RWQCB** means the Los Angeles Regional Water Quality Control Board and its successor departments, agencies, or instrumentalities.

1.90 **SCADA** means Supervisory Control and Data Acquisition.

1.91 **SCOPE OF WORK** means the document titled "SCOPE OF WORK" included as EXHIBIT 3 to this AGREEMENT, which the PARTIES may agree to amend, as necessary.

1.92 **SECOND INTERIM REMEDY or NHOU 2IR** means the interim remedy selected by EPA for the NHOU in the ROD.

1.93 **SECONDARY SSC TREATMENT PLANT** means a water treatment plant or other treatment system capable of treating groundwater for select contaminants besides PCE and/or TCE (as defined in SECTION 14.2) at a rate of 6,500 AFY (equivalent to an instantaneous average rate of approximately 4,477 GPM, assuming ten percent (10%) downtime), based on the ROLLING ANNUAL AVERAGE, that is built in the event the contingencies set forth in SECTION 14.2 are met.

1.94 **SECONDARY SSC TREATMENT PLANT CONDITIONS** means those conditions identified in SECTION 14.2, the satisfaction of which the PARTIES' obligations in respect to the SECONDARY SSC TREATMENT PLANT depend.

1.95 **SECTION** means a portion of this AGREEMENT identified by an Arabic numeral.

1.96 **SFV GROUNDWATER BASIN** means the San Fernando groundwater basin (California Department of Water Resources Basin No. 4-12), which includes the underlying San Fernando Valley Area 1 Superfund Site, as shown on FIGURE 3.

1.97 **SSC or SECOND STAGE CONCEPT** means the alternative water treatment and supply project triggered under certain conditions as set forth herein, and which includes building and operating the SSC SYSTEM, as more fully described in the SCOPE OF WORK included as EXHIBIT 3 to this AGREEMENT.

1.98 **SSC 97-005 MONITORING PLAN** means the final water quality monitoring and surveillance plan approved by DDW for the SSC SYSTEM in connection with DDW 97-005.

1.99 **SSC CO** means the legal entity, if any, established by HONEYWELL to facilitate and/or design, construct, and operate the SSC SYSTEM.

1.100 **SSC MONITORING COSTS** means such monitoring costs incurred as the result of requirements imposed by DDW that are beyond the requirements of the CCC MONITORING PLAN.

1.101 **SSC STARTUP AND SHAKEDOWN PERIOD** means the period of time during which the SSC SYSTEM operator will undertake the necessary actions (including but not limited to prove-out of individual equipment operation and continuous operation at rated load ranges, mechanical (contractual) acceptance testing, permit requirement acceptance testing, communications testing and verification, operator training, and issuance of what is commonly referred to as a "Certificate of Completion") to verify that the SSC SYSTEM is constructed in conformance and operating consistent with the design. The SSC STARTUP AND SHAKEDOWN PERIOD shall include the period of time from the completion of the PRIMARY SSC TREATMENT PLANT and/or SECONDARY SSC TREATMENT PLANT construction until such time DDW issues a new or amended WATER SUPPLY PERMIT to LADWP allowing LADWP to accept treated water from the SSC SYSTEM for further treatment and eventual distribution as drinking water.

1.102 **SSC SYSTEM or SSC TREATMENT SYSTEM** means the extraction wells (including but not limited to pumps, motors, drop pipe, and associated electrical, instrumentation, SCADA, and controls), the above-grade and sub-grade conveyance lines from the wells to the treatment plant, the associated PRIMARY SSC TREATMENT PLANT or SECONDARY SSC TREATMENT PLANT, each capable of treatment at a rate of 6,500 AFY water (equivalent to an instantaneous average rate of approximately 4,477 GPM, assuming ten percent (10%) downtime), based on the ROLLING ANNUAL AVERAGE, and the associated equipment and appurtenances necessary for plant operation, waste management systems, and purchased and leased land housing the treatment system and its equipment and appurtenances, up to the terminal flange of the replacement discharge line at the YARD. The definition of the SSC SYSTEM does not include WH4-5 WELLS (and associated conveyance).

1.103 **SSC SYSTEM ALTERNATIVES** means alternatives to the construction of the SSC SYSTEM, such as HONEYWELL's financial contribution to operation and maintenance costs at an existing LADWP treatment facility.

1.104 **SSC WARRANTY PERIOD** means the twenty-four (24) months of the PRIMARY SSC TREATMENT PLANT and/or SECONDARY SSC TREATMENT PLANT operation following the SSC STARTUP AND SHAKEDOWN PERIOD.

1.105 **STATE** means the State of California and any and all agents thereof.

1.106 **STEERING COMMITTEE** means the committee established in SECTION 25.

1.107 **SUMP** means LADWP's "North Hollywood Sump," as more particularly shown on FIGURE 1.

1.108 **SWRCB** means the California State Water Resources Control Board and its successor departments, agencies, or instrumentalities.

1.109 **TANGIBLE TRIGGER** means, following commencement of pumping at LADWP's RT WELL FIELD, detection of CrVI at the specific existing designated TRIGGER WELLS, as shown on EXHIBIT 6, located between the CCC SYSTEM and the RT WELL FIELD over three sequential (no more frequent than quarterly) monitoring periods at or above ten (10) µg/L in any well sampling point or one detection at or above one hundred (100) µg/L in any well, in conjunction with groundwater elevation data indicating that past or ongoing migration (in response to historical or current pumping from the RT WELL FIELD) from what the PARTIES refer to as the "BENDIX PLUME" is responsible for the measured CrVI concentrations in the TRIGGER WELLS. The PARTIES may, in the sole discretion of each, agree in writing to different or additional trigger levels or chemicals, in response to new information or changed conditions.

1.110 **TCE** means trichloroethylene.

1.111 **TRIGGERING EVENT** means an event where LADWP's operation of or failure to operate the CCC SYSTEM would trigger grounds for a stipulated penalty or other penalty to be asserted against HONEYWELL by EPA under an ORDER, whether or not EPA

actually issues a stipulated penalty. A list of categories of such events includes and is limited to: LADWP intentionally shutting down the CCC SYSTEM outside of normal O&M to a degree that is likely to trigger a penalty under the ORDER, and where such shutdown is not consistent with the obligations of LADWP under this AGREEMENT, or intentionally failing to maintain and/or repair or failing to allow HONEYWELL to repair the CCC SYSTEM in a reasonably timely manner.

1.112 **TRIGGER WELLS** means the specific wells shown on EXHIBIT 6 that the PARTIES agree should be used for purposes of the TANGIBLE TRIGGER. Additional or replacement TRIGGER WELLS may be established by express agreement of both PARTIES, in their sole discretion.

1.113 **VOCs** means volatile organic compounds.

1.114 **WATER SUPPLY PERMIT** means a new or amended permit issued by DDW to LADWP authorizing it to receive water from extraction wells for the CCC SYSTEM and/or the SSC SYSTEM through treatment at the CCC SYSTEM and/or the SSC SYSTEM, respectively.

1.115 **WATER SUPPLY PERMIT REQUIREMENTS** means any and all requirements of the WATER SUPPLY PERMIT. These provisions include, but are not limited to, meeting requirements at the final compliance point for LADWP's broader water distribution system prior to delivery of water to the public as potable water, that would enable LADWP to serve water without the need to notify customers about NLs or other similar requirements.

1.116 **WBA** means weak base anion exchange.

1.117 **WBA SYSTEM** means the components of the WBA treatment unit that removes CrVI as water passes through.

1.118 **WH4-5 WELLS** means those LADWP-owned wells named WH-4 and WH-5, as shown on FIGURE 3.

1.119 **WHITNALL WELL FIELD** means the LADWP-owned Whitnall Branch Well Field, including wells and associated conveyance, as shown on FIGURE 3.

1.120 **YARD** means collectively the real property owned by LADWP, located at 11845 Vose Street, and commonly referred to as the "Lankershim Yard," and certain other LADWP-owned property, as more particularly shown in FIGURE 4 to this AGREEMENT.

2. CCC DESIGN

2.1 HONEYWELL'S RESPONSIBILITIES

2.1.1 **CCC System Design**. HONEYWELL shall design the CCC SYSTEM in three phases to meet the requirements of the NHOU 2IR RAOs and consistent with the ROD and NCP. The CCC SYSTEM shall be capable of producing the 8,500 AFY ROLLING ANNUAL AVERAGE following the construction of the PHASE 3 TREATMENT SYSTEM (as discussed in SECTION 4), plus a design buffer/safety factor as set forth below. Other than the flange or similar connection at the SUMP and the CHLORINATION SYSTEM per SECTION 4.2 below, HONEYWELL shall be responsible for the design of all of the infrastructure necessary for the CCC SYSTEM.

2.1.2 **CCC System Components**. A description of the proposed CCC SYSTEM components for each of the three contemplated construction phases (discussed in SECTION 4 below) is included in the SCOPE OF WORK attached as EXHIBIT 3.

2.1.3 **Design Considerations and Coordination with LADWP**. HONEYWELL shall, among other things, design the CCC SYSTEM with due consideration for EPA requirements, DDW requirements, LADWP standards and specifications, and HONEYWELL procurement procedures. HONEYWELL shall provide LADWP the opportunity to review and comment on the CCC SYSTEM design documents that are submitted to EPA. HONEYWELL acknowledges that LADWP will be operating the CCC SYSTEM and that there is value in designing systems consistent with LADWP standards and other LADWP systems, where appropriate and where costs are not excessive. HONEYWELL shall accommodate LADWP requests related to the CCC SYSTEM design, except in those instances where HONEYWELL shows that the costs are excessive and such deviations are

unnecessary or not proper (e.g. not appropriate for the intended purpose/use of the CCC SYSTEM). Disagreements arising out of this SECTION 2.1.3 are subject to the dispute resolution provisions in SECTION 36.

2.1.4 **Design Buffer/Safety Factor**. HONEYWELL shall design the CCC SYSTEM to produce at a rate of 8,500 AFY (equivalent to an instantaneous average rate of approximately 25.86 acre-feet per day, assuming ten percent (10%) downtime) plus a five percent (5%) to twenty percent (20%) buffer/safety factor for additional groundwater treatment capacity in excess of the planned 8,500 AFY ROLLING ANNUAL AVERAGE.

2.1.5 **As-Built Drawings**. HONEYWELL shall provide as-built drawings to LADWP once the construction is complete for CCC PHASE 1 and CCC PHASE 3 and for any updates to the design as installed over time. These drawings shall include, but not be limited to, electrical and other drawings acceptable to LADWP.

2.2 LADWP'S RESPONSIBILITIES

2.2.1 **Separate Infrastructure Design**. LADWP shall design the flange or similar connection at or adjacent to the SUMP necessary to accept water from the CCC SYSTEM after remediation for use as potable water. LADWP shall also design, as necessary, to modify or replace the existing CHLORINATION SYSTEM, for disinfection of water treated by the CCC SYSTEM during CCC PHASE 3, or, if necessary, CCC PHASE 1. LADWP shall provide HONEYWELL the opportunity to review and comment on design documents associated with the infrastructure contemplated in this SECTION 2.2.1. LADWP shall accept timely input as to the design from HONEYWELL and any required governmental authority.

2.2.2 **Review of CCC System Design Documents and Acknowledgement**. LADWP shall have the right to review and provide comments on major CCC SYSTEM design documents and all documents that are submitted to EPA or otherwise requested by LADWP. LADWP shall endeavor to review and provide comments on all CCC SYSTEM design documents within sixty (60) DAYS of receipt. If

LADWP provides notice to HONEYWELL that additional review time is required, such additional time shall be provided unless HONEYWELL demonstrates that such additional review time will generate delays that will unreasonably interfere with HONEYWELL's obligations to EPA or otherwise materially prejudice HONEYWELL. In providing such review and comment, LADWP acknowledges that given the unique nature of the CCC SYSTEM being designed by HONEYWELL under EPA's authority, there will be deviations from LADWP standards and differences between the CCC SYSTEM and other LADWP production facilities.

2.3 JOINT RESPONSIBILITIES

2.3.1 **Coordination Regarding Applicable Laws**. The PARTIES, in consultation with any identified necessary other entity, either private or governmental, shall ensure that, for its portion of the design, the CCC SYSTEM is consistent with all federal, state, and local laws, rules, and regulations such that they may obtain all necessary and applicable permits of all types whether federal, state, or local.

3. CCC PERMITTING & APPROVALS

3.1 HONEYWELL'S RESPONSIBILITIES

3.1.1 **EPA Approvals and Submissions**. HONEYWELL shall be responsible for obtaining any required EPA approvals and presenting any and all submissions to EPA, including submission of any and all documentation or reports that EPA may require in reference to the design, construction, testing, operation, and maintenance of the CCC SYSTEM as may become necessary.

3.1.2 **Construction Permits**. HONEYWELL or the NHOU CO shall be responsible for obtaining all required permits for construction and testing of the CCC SYSTEM, other than obtaining DDW permits and, if applicable, obtaining other permits related solely to the provision of drinking water to the public. HONEYWELL's responsibility pursuant to this SECTION 3.1 shall include obtaining permits, if

necessary, to discharge water to the sewer and/or storm drain during the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD.

3.2 LADWP'S RESPONSIBILITIES

3.2.1 **Drinking Water Permits and Approvals**. LADWP shall apply for, and obtain, any and all permits, permit amendments, or other such documents or approvals required by DDW, or any other governmental agency with jurisdiction, necessary to deliver treated water produced by the CCC SYSTEM for use in LADWP's domestic drinking water supply.

3.2.2 **City Coordination**. Given the benefits of the CCC to LADWP, LADWP shall advocate and use reasonable efforts to work with the CITY to, as appropriate, waive all past, current, and future fees the CITY would charge a non-CITY entity for permitting, reviewing applications, environmental assessments, and plans for CCC SYSTEM construction and associated wells and conveyance pipeline. LADWP shall also work with the CITY to, as appropriate, assist HONEYWELL in its efforts to obtain expeditious processing of any HONEYWELL applications, requests for plan approvals, environmental assessments, and other permissions or determinations that may be required before installation and operation of the CCC SYSTEM. Such approvals and permits may include, but are not limited to, the Bureau of Street Services Street-Use Permit, Bureau of Engineering Permit, Department of Transportation Traffic Control Plans, and Temporary No Parking Permit. LADWP has explained to HONEYWELL that its ability to secure such waiver or expedited permitting is at most limited, and it makes no warranty with respect to its ability to achieve such outcomes.

3.2.3 **CEQA**. Pursuant to, among other grounds, CERCLA section 121(e), 42 U.S.C. section 9621(e), CEQA does not apply to the CCC; however, in the event that environmental review under CEQA is determined to be required to construct and/or operate the CCC SYSTEM, LADWP shall prepare all necessary documentation and

proceed with environmental review as required by CEQA, either as the lead agency or actively in support of another lead agency.

3.3 JOINT RESPONSIBILITIES

3.3.1 **Coordination on Necessary Approvals**. HONEYWELL and LADWP shall coordinate, exchange information, and work collaboratively so that (i) the necessary environmental review can be undertaken and (ii) permits and approvals can be obtained for the CCC SYSTEM, whether federal, state, or local.

4. CCC CONSTRUCTION

4.1 HONEYWELL'S RESPONSIBILITIES

4.1.1 **Construction Obligation**. HONEYWELL or the NHOU CO shall construct the CCC SYSTEM, including demolition and removal of the FIRST INTERIM REMEDY (excluding actions to be performed by LADWP as described in SECTION 4.2), construction of a new treatment plant situated at the YARD, rehabilitation of certain existing wells, rehabilitation/repair of existing conveyance infrastructure, and development of new conveyance infrastructure, and installation of new extraction wells. Additional detail regarding HONEYWELL's construction obligations is included in EXHIBIT 3 to this AGREEMENT. Other than the flange or similar connection at the SUMP and CHLORINATION SYSTEM per SECTION 4.2.2, below, and the FIRST INTERIM REMEDY demolition activities described in SECTION 4.2.1, HONEYWELL shall be responsible for the construction of all of the infrastructure necessary for the CCC SYSTEM.

4.1.2 **CCC Phase 1 Construction**. During CCC PHASE 1 construction, HONEYWELL shall replace and deepen Wells NHE-3, NHE-4 and NHE-5 with NHE-3R, NHE-4R and NHE-5R, and connect those new wells to conveyance piping in anticipation of extracting water from these wells and sending extracted water to the YARD for treatment to make available an anticipated 1,500 AFY to LADWP, with a buffer/safety factor of five percent (5%) to twenty percent (20%). Additional detail

regarding HONEYWELL's construction obligations during CCC PHASE 1 are included in EXHIBIT 3 to this AGREEMENT.

4.1.3 **CCC Phases 2 and 3 Construction**. During PHASE 2 and CCC PHASE 3 construction, HONEYWELL shall complete build-out of the CCC SYSTEM, including installation of new extraction wells, conveyance piping, treated water effluent piping, and the construction of the expanded treatment plant. Specifically, regarding the treated water effluent piping, HONEYWELL shall replace the effluent line from the YARD to the SUMP with a new thirty (30)-inch conveyance to accommodate flows from both the CCC SYSTEM and the SSC SYSTEM. HONEYWELL shall also install a new discharge line from the PHASE 1 and PHASE 3 TREATMENT SYSTEMS to the storm drain to accommodate flows during the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD. If HONEYWELL is unable to install a permanent storm drain connection, HONEYWELL shall be responsible for implementing an alternative approach (e.g., a temporary storm drain connection) to manage process water during the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD. HONEYWELL further intends to establish a new sanitary sewer lateral at the YARD for the CCC SYSTEM. Additional details regarding HONEYWELL's construction obligations during PHASE 2 and CCC PHASE 3 are included in EXHIBIT 3 to this AGREEMENT.

4.2 LADWP'S RESPONSIBILITIES

4.2.1 **First Interim Remedy Demolition**. Within sixty (60) DAYS of the execution of this AGREEMENT, as part of the demolition of the FIRST INTERIM REMEDY, LADWP shall remove the granular activated carbon contained in the vapor-phase granular activated carbon unit tanks and chemicals associated with the anti-scaling unit, both of which were associated with the FIRST INTERIM REMEDY.

4.2.2 **Separate Infrastructure Construction**. LADWP shall construct the flange or similar connection at the SUMP as necessary to accept water from the CCC

SYSTEM. LADWP shall also undertake, if necessary, the modification, expansion, or replacement of the CHLORINATION SYSTEM and associated infrastructure (i.e., if the existing sanitary sewer lateral does not have sufficient capacity for the disinfection system) at the YARD, for disinfection of water treated by the CCC SYSTEM and for discharge of combined flows from the disinfection system.

4.2.3 **Availability of LADWP Property**. Pursuant to the LICENSE AGREEMENT, LADWP shall make available to HONEYWELL the YARD and other real property identified in FIGURE 4 and FIGURE 5 for the construction of the CCC SYSTEM.

4.2.4 **Pre-Existing Environmental Conditions at the YARD**. Except as provided in SECTION 6.1.2, LADWP shall be responsible for PRE-EXISTING ENVIRONMENTAL CONDITIONS on or about the YARD encountered during the construction of the CCC SYSTEM. In the event PRE-EXISTING ENVIRONMENTAL CONDITIONS are encountered during construction of the CCC SYSTEM, and if such conditions affect the construction of the CCC SYSTEM, LADWP shall use reasonable efforts to address and remedy the PRE-EXISTING ENVIRONMENTAL CONDITIONS in a time frame to avoid adversely impacting HONEYWELL's construction schedule. If, following consultation with HONEYWELL, LADWP determines that it cannot timely address such PRE-EXISTING ENVIRONMENTAL CONDITIONS, LADWP may request that HONEYWELL or the NHOU CO identify and engage a contractor to undertake the remediation at LADWP's expense. In such a situation, the PARTIES agree to arrange an appropriate mechanism for LADWP involvement in decision making with regard to such work and an appropriate mechanism for the funding.

4.3 JOINT RESPONSIBILITIES

4.3.1 **Coordination Regarding Applicable Laws**. HONEYWELL and LADWP, in consultation with any identified necessary other entity, either private or governmental, shall construct the portion of the CCC SYSTEM for which it is responsible in a manner consistent with all federal, state, and local laws, rules and

regulations and in a manner such that they may obtain all necessary and applicable permits of all types whether federal, state, or local.

4.3.2 **Coordination During Construction**.

(a) During periods when HONEYWELL or the NHOU CO is engaged in construction activities, HONEYWELL and LADWP shall coordinate construction activities and staging in a manner that minimizes interference with construction and other activities of each other.

(b) The PARTIES shall comply with the "Site Specific Health & Safety Plan" submitted to EPA by HONEYWELL during the construction of the CCC SYSTEM, provided such plan is reviewed and approved by LADWP, which approval shall not be unreasonably withheld or delayed.

(c) During periods when HONEYWELL or the NHOU CO is engaged in construction activities, LADWP shall have the right but not the obligation to observe all construction activities, but shall not have the right to stop work or otherwise direct work by HONEYWELL or the NHOU CO or its contractors, except as set forth herein for safety concerns. HONEYWELL agrees to keep the LADWP RESIDENT ENGINEER informed of planned construction activities and issues, and agrees to allow the LADWP RESIDENT ENGINEER to observe planned coordination meetings, including tailgate and similar meetings. If the LADWP RESIDENT ENGINEER observes conditions, work, or planned work that it believes is unsafe, not in conformance with specifications, or otherwise of concern to LADWP, the LADWP RESIDENT ENGINEER may raise the concern with HONEYWELL, the NHOU CO, or the contractor foreman or supervisor. If the concern is not resolved by the field personnel, the matter may be elevated to the project management level, which shall include the LADWP project manager (as identified from time-to-time) and the HONEYWELL or NHOU CO project manager (as identified from time-to-time). The project managers agree to discuss the concern either in person or over the

telephone in an effort to resolve the concern. If the concern is not resolved at the project manager level, the matter may be elevated to the executive level, where representatives of the STEERING COMMITTEE shall meet to discuss the matter in an effort to resolve the issue. Notwithstanding the above, LADWP, through the LADWP RESIDENT ENGINEER, shall have the right but not the obligation to immediately stop work in situations that it concludes could result in injury or materially deviate from applicable LADWP safety procedures. In all instances, HONEYWELL or the NHOU CO (and not LADWP) remains fully responsible for identifying and responding to safety hazards during its construction and active operation periods.

5. CCC OPERATION

5.1 HONEYWELL'S RESPONSIBILITIES

5.1.1 **CCC Phase 1 Startup and Shakedown**. Prior to acceptance of treated water from the PHASE 1 TREATMENT SYSTEM, HONEYWELL or the NHOU CO shall engage a contractor acceptable to LADWP with expertise in the operation of water treatment plants to operate the PHASE 1 TREATMENT SYSTEM through completion of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD.

5.1.2 **CCC Phase 1 Warranty Period**. Following completion of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from the PHASE 1 TREATMENT SYSTEM for use in its potable water distribution system until the termination of the PHASE 1 WARRANTY PERIOD, HONEYWELL or the NHOU CO shall engage a contractor, acceptable to LADWP, with expertise in the operation of water treatment plants to operate and maintain the PHASE 1 TREATMENT SYSTEM under LADWP's authority. Such O&M responsibilities shall include influent and effluent monitoring as required by EPA.

5.1.3 **Post-CCC Phase 1 Warranty Period**. Following transition of operational responsibility to LADWP following the PHASE 1 WARRANTY PERIOD (unless LADWP declines to operate the PHASE 1 TREATMENT SYSTEM pursuant to its rights under SECTION 5.2.2), HONEYWELL or the NHOU CO shall arrange for operational and maintenance support and waste disposal services consistent with the CCC SYSTEM OPERATIONAL SUPPORT PLAN attached hereto as EXHIBIT 2. HONEYWELL or the NHOU CO shall also conduct EPA-required groundwater monitoring.

5.1.4 **CCC Phase 3 Startup and Shakedown**. Prior to acceptance of treated water from the PHASE 3 TREATMENT SYSTEM, HONEYWELL or the NHOU CO shall engage a contractor acceptable to LADWP with expertise in the operation of water treatment plants to operate the PHASE 3 TREATMENT SYSTEM through completion of the PHASE 3 STARTUP AND SHAKEDOWN PERIOD.

5.1.5 **CCC Phase 3 Warranty Period**. Following completion of the PHASE 3 STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from the PHASE 3 TREATMENT SYSTEM for use in its potable water distribution system until the termination of the PHASE 3 WARRANTY PERIOD, HONEYWELL or the NHOU CO shall engage a contractor acceptable to LADWP with expertise in the operation of water treatment systems to operate the PHASE 3 TREATMENT SYSTEM under LADWP's authority. Such O&M responsibilities shall include influent and effluent monitoring as required by EPA.

5.1.6 **Post-CCC Phase 3 Warranty Period**. Following transition of operational responsibility to LADWP following the PHASE 3 WARRANTY PERIOD, HONEYWELL or the NHOU CO shall arrange for operational and maintenance support and waste handling, management, and disposal services as set forth in the CCC SYSTEM OPERATIONAL SUPPORT PLAN attached hereto as EXHIBIT 2. HONEYWELL or the NHOU CO shall also conduct EPA-required groundwater monitoring.

5.1.7 **LADWP Approval of Operator**. During the period that HONEYWELL or the NHOU CO is responsible for providing a contractor for the operation of the PHASE 1 TREATMENT SYSTEM or PHASE 3 TREATMENT SYSTEM or the O&M of the WBA SYSTEM during or following such period, under LADWP's authority, LADWP shall have the right to approve the contractor (and any replacement) that may operate the PHASE 1 or PHASE 3 TREATMENT SYSTEMS or WBA SYSTEM, which approval shall not be unreasonably withheld or delayed. LADWP shall also have the right to remove such contractor (and any replacement) for cause. Unless otherwise agreed by the PARTIES or in an emergency, LADWP shall endeavor to provide HONEYWELL a minimum of sixty (60) DAYS' notice prior to exercising its removal right under this SECTION 5.1.7. HONEYWELL agrees to provide reasonable information requested by LADWP to assist LADWP in its review of the proposed contactor (or its replacement). Prior to its procurement of the contractor or replacement, HONEYWELL agrees to obtain from LADWP a list of requirements for the contractor, such as operator certification requirements, which LADWP may reasonably require. As part of its review of a contractor pursuant to this SECTION 5.1.7, and oversight of same, LADWP shall have the right but not the obligation to review, and as applicable approve, (i) the plans of the contractor as may be required by the WATER SUPPLY PERMIT or reasonably required by LADWP, (ii) the ability of the contractor to comply with such plans, and (iii) the contract terms related to same. Such plans shall include the Operations Maintenance and Monitoring Plan as required by DDW, an Emergency Response Plan, Standard Operating Procedures for chemical delivery, isolation of equipment, lockout tagout procedures, plant startup and shutdown, reactor maintenance, and emergency operating activities (responding to and managing emergency alarm conditions and upset conditions in a timely and appropriate and safe manner, consistent with LADWP practices and the WATER SUPPLY PERMIT), notifications for off-spec water incidents, and reporting for DDW.

5.1.8 **Operation and Maintenance of WBA**. HONEYWELL shall be responsible for O&M of the WBA SYSTEM related to the resin, including (i) any maintenance on or repairs requiring internal access to the resin vessel, (ii) internal vessel inspections and repairs (when resin is exchanged or otherwise), (iii) any resin changeouts, (iv) responding to spills or releases at the WBA SYSTEM and notifying LADWP and appropriate regulatory authorities of releases consistent with the applicable response plan and law (only during the PHASE 1 and PHASE 3 WARRANTY PERIODS), and (v) any other work that creates a risk of exposure to the resin or activities that require special equipment to manage risks for exposure to radioactive materials.

5.1.9 **Management and Disposal of Certain Waste**. HONEYWELL or the NHOU CO shall be responsible for the handling, management, transportation, and disposal of hazardous and/or low-level radioactive waste generated by the WBA SYSTEM or other low-level radioactive waste that requires management due to the operation of the PHASE 1 and PHASE 3 TREATMENT SYSTEMS. This responsibility includes, but is not limited to, managing such materials onsite, arranging and performing onsite treatment if applicable, and manifesting and arranging for disposal off-site, using its own generator number, recordkeeping and otherwise complying with all applicable state and federal environmental laws. LADWP shall be responsible for managing other hazardous wastes generated during normal operations of the PHASE 1 and PHASE 3 TREATMENT SYSTEMS onsite; *provided, however*, HONEYWELL or the NHOU CO shall be responsible for off-site treatment and/or disposal of such hazardous wastes.

5.1.10 **Manifesting of Generated Waste**. HONEYWELL or the NHOU CO, and not LADWP, shall be identified as the sole generator of any and all hazardous waste and low-level radioactive waste generated by the O&M of the PHASE 1 and PHASE 3 TREATMENT SYSTEMS. HONEYWELL shall be responsible for selecting the location for disposal, which location shall meet all requirements of local, state, and federal law. LADWP shall have the right but not obligation to review and approve such disposal location, which approval shall not be

unreasonably withheld or delayed. Such review and approval right shall not apply to locations selected by HONEYWELL and approved by EPA for such disposal.

5.2 LADWP'S RESPONSIBILITIES

5.2.1 **CCC Phase 1 Warranty Period**. Following completion of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from the PHASE 1 TREATMENT SYSTEMS for use in its potable water distribution system until the termination of the PHASE 1 WARRANTY PERIOD, LADWP shall oversee and direct the contractor engaged by HONEYWELL or the NHOU CO to operate and maintain the PHASE 1 TREATMENT SYSTEM.

5.2.2 **Post-CCC Phase 1 Warranty Period**. Following the PHASE 1 WARRANTY PERIOD, LADWP shall operate and maintain the PHASE 1 TREATMENT SYSTEM; *except, however*, LADWP may instead direct the contractor engaged by HONEYWELL or the NHOU CO to continue operating and maintaining the PHASE 1 TREATMENT SYSTEM under LADWP oversight until such time that LADWP, in its discretion, desires to transition to operate the PHASE 1 TREATMENT SYSTEM. LADWP shall operate and maintain the PHASE 1 TREATMENT SYSTEM consistent with the requirements of any ORDER and DDW permit and applicable operations and monitoring plans. LADWP shall not be obligated to operate the PHASE 1 TREATMENT SYSTEM in a manner that exceeds 1,500 AFY ROLLING ANNUAL AVERAGE, nor shall LADWP be obligated to operate the PHASE 1 TREATMENT SYSTEM or accept treated water from that system if (i) the water quality from the CCC SYSTEM prevents LADWP from meeting the WATER SUPPLY PERMIT REQUIREMENTS, or (ii) some or all of the LADWP distribution system is shut down for repairs or to meet WATER SUPPLY PERMIT REQUIREMENTS and such shutdown prevents LADWP from accepting water from the CCC into the distribution system, or (iii) other FORCE MAJEURE events occur. In the event LADWP is not able, within a reasonable period of time, to resume acceptance of water for a reason specified in (i), (ii), or

(iii), the PARTIES shall promptly convene a special meeting of the STEERING COMMITTEE, and the PARTIES shall invite EPA to such special meeting, which purpose is to discuss the issue and seek to identify a path forward for LADWP to resume acceptance of the water. In such an instance, either PARTY may request such a special meeting.

(a) If the special meeting is due to the reason specified in (i), prior to the meeting LADWP shall prepare a list of options for putting LADWP in a position to be able to resume acceptance of the water, which shall include, if applicable, an analysis of, among other options, the feasibility of reducing pumping at other well fields in order to meet the WATER SUPPLY PERMIT REQUIREMENTS for the CCC SYSTEM. In such an instance, either PARTY may also invite DDW to the special meeting.

5.2.3 **CCC Phase 3 Warranty Period**. Following completion of the PHASE 3 STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from the PHASE 3 TREATMENT SYSTEM for use in its potable water distribution system until the termination of the PHASE 3 WARRANTY PERIOD, LADWP shall oversee and direct the contractor engaged by HONEYWELL or the NHOU CO to operate and maintain the PHASE 3 TREATMENT SYSTEM.

5.2.4 **Post-CCC Phase 3 Warranty Period**. Following the PHASE 3 WARRANTY PERIOD, LADWP shall operate and maintain the PHASE 3 TREATMENT SYSTEM. Such O&M responsibilities shall include influent and effluent monitoring as required by EPA and/or DDW. LADWP shall operate and maintain the PHASE 3 TREATMENT SYSTEM consistent with the requirements of any ORDER and DDW permit and applicable operations and monitoring plans. LADWP shall not be obligated to operate the PHASE 3 TREATMENT SYSTEM in a manner that exceeds 8,500 AFY ROLLING ANNUAL AVERAGE, nor shall LADWP be obligated to operate the PHASE 1 TREATMENT SYSTEM or accept treated water from that system if (i) the water quality from the CCC SYSTEM

prevents LADWP from meeting the WATER SUPPLY PERMIT REQUIREMENTS, or (ii) some or all of the LADWP distribution system is shut down for repairs or to meet WATER SUPPLY PERMIT REQUIREMENTS and such shutdown prevents LADWP from accepting water from the CCC into the distribution system, or (iii) other FORCE MAJEURE events occur. In the event LADWP is not able, within a reasonable period of time, to resume acceptance of water for a reason specified in (i), (ii), or (iii), the PARTIES shall promptly convene a special meeting of the STEERING COMMITTEE, and the PARTIES shall invite EPA to such special meeting, which purpose is to discuss the issue preventing acceptance of the water and discuss and identify a path forward for resumed acceptance. In such an instance, either PARTY may request such a special meeting.

(a) If the special meeting is due to the reason specified in (i), prior to the meeting LADWP shall prepare a list of options for putting LADWP in a position to be able to resume acceptance of the water, which shall include, if applicable, an analysis of, among other options, the feasibility of reducing pumping at other well fields in order to meet the WATER SUPPLY PERMIT REQUIREMENTS for the CCC SYSTEM. In such an instance, either PARTY may also invite DDW to the special meeting.

5.2.5 **Use of Sanitary Sewer**. Nothing in this AGREEMENT ever obligates LADWP to discharge treated or partially treated groundwater to a sanitary sewer, but LADWP may, in its sole discretion, use the sanitary sewer to discharge groundwater, provided such discharge is consistent with applicable permit and other requirements. The exercise of discretion of whether to use the sanitary sewer shall never be considered an LADWP FAILURE. Provided, further, LADWP agrees that water may be discharged during the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD and for treatment plant backwash and other such routine maintenance activities similar to other LADWP treatment facilities where LADWP discharges water to the sanitary sewer, and in connection with a restart following an extended

shut-down period, reconstruction, or other major repair, provided such discharge is consistent with applicable permit and other requirements.

5.2.6 **Use of Storm Drain**. Nothing in this AGREEMENT ever obligates LADWP to discharge treated or partially treated groundwater to a storm drain, but LADWP may, in its sole discretion, use the storm drain to discharge groundwater, provided such discharge is consistent with applicable permits and other requirements. The exercise of discretion of whether to use the storm drain shall never be considered an LADWP FAILURE. Provided, further, LADWP agrees that water may be discharged to the storm drain for testing during the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD and in connection with a non-routine restart, reconstruction, or other major repair, where directed by DDW or where otherwise warranted to comply with DDW testing requirements, provided such discharge is consistent with applicable permit and other requirements.

5.2.7 **Operation and Maintenance of WBA**. LADWP shall be responsible for O&M of the WBA SYSTEM, other than O&M to be performed by HONEYWELL as stated in SECTION 5.1.8, including (i) routine external inspections, operations and repairs that do not involve the risk of contact with the resin (e.g., adjusting/repairing flow valves) and (ii) following the PHASE 1 and PHASE 3 WARRANTY PERIODS, responding to spills or releases at the WBA SYSTEM, and notifying appropriate authorities and HONEYWELL of such spills or releases consistent with the applicable response plan and law. LADWP shall have access to a monitoring point outside of the fenced area for the WBA SYSTEM to allow LADWP to collect routine monitoring samples, as necessary.

5.3 JOINT RESPONSIBILITIES

5.3.1 **Coordination Regarding Applicable Laws**. The PARTIES, in consultation with any identified necessary other entity, either private or governmental, shall operate and maintain the CCC SYSTEM in a manner consistent with all federal, state, and local laws, rules, and regulations and in a manner such that all necessary and

applicable permits of all types whether federal, state, or local are obtained and maintained.

5.3.2 **Cooperation to Meet EPA and DDW Requirements**. The PARTIES shall cooperate with any reasonable request from each other to meet the HONEYWELL obligations to EPA under an ORDER and LADWP obligations to DDW. This shall include reasonable requests to access records, real property, equipment, reports, testing results, and any other information needed to comply with such obligations.

5.3.3 **Efficient Operation**. Over the course of this AGREEMENT, the PARTIES shall make reasonable efforts to identify and implement CCC SYSTEM efficiencies and operational synergies over time, consistent with the other terms of this AGREEMENT, and LADWP's other regulatory and legal obligations, and with the understanding that the CCC SYSTEM is treating water that contains hazardous substances to be served for domestic use and where certain production rates will need to be achieved to meet the NHOU 2IR RAOs.

5.3.4 **Transition Period during the Phase 1 Warranty Period**. The provisions of this SECTION 5.3.4 shall only apply if (i) operation of the PHASE 1 TREATMENT SYSTEM has not been discontinued to facilitate the construction of the PHASE 3 TREATMENT SYSTEM and (ii) LADWP elects to have its own operators operate the PHASE 1 TREATMENT SYSTEM in a period following eighteen (18) months following the completion of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD.

(a) **Observation**. For a period of two (2) months beginning eighteen (18) months following the completion of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD, the contractor engaged by HONEYWELL or the NHOU CO shall operate and maintain the PHASE 1 TREATMENT SYSTEM, and LADWP shall observe the O&M. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(b) **Joint Operation**. For a two (2)-month period beginning immediately after the two (2)-month period described in SECTION 5.3.4(a) above, the contractor engaged by HONEYWELL or the NHOU CO and LADWP shall jointly operate and maintain the PHASE 1 TREATMENT SYSTEM. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(c) **Final Transition**. For a two (2)-month period beginning immediately after the two (2)-month period described in SECTION 5.3.4(b) above, the contractor engaged by HONEYWELL or the NHOU CO shall remain present and provide all backup support necessary for LADWP to operate and maintain the PHASE 1 TREATMENT SYSTEM during this two (2)-month period. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(d) **Turnover**. Following the two (2)-month period described in SECTION 5.3.4(c) above, LADWP shall provide HONEYWELL or the NHOU CO with a letter identifying any issues associated with the design of the PHASE 1 TREATMENT SYSTEM to be resolved prior to LADWP taking over day-to-day operations and operating the PHASE 1 TREATMENT SYSTEM at 1,500 AFY on a ROLLING ANNUAL AVERAGE, or confirming that LADWP's operators are prepared to take over day-to-day operations. If LADWP does not confirm that LADWP's operators are prepared to take over day-to-day operations, HONEYWELL shall either address the issues raised by LADWP in the letter or inform LADWP why it believes such issues do not need to be addressed. This process shall be repeated until the issues identified by LADWP are resolved. The time period for the final transition may also be extended by mutual agreement of the PARTIES. Within forty-five (45) DAYS following the final transition to LADWP taking over day-to-day operations, LADWP

shall provide HONEYWELL written confirmation, in a mutually agreeable form, that the PHASE 1 TREATMENT SYSTEM is continuing to operate consistent with the design. In the event LADWP in good faith believes that the PHASE 1 TREATMENT SYSTEM is not operating consistent with the design after forty-five (45) DAYS, it shall inform HONEYWELL of that determination, and the PARTIES shall meet and confer in good faith until the issues identified by LADWP are resolved. Disputes over whether or not the PHASE 1 TREATMENT SYSTEM has been designed properly and is operating consistent with the design shall be handled consistent with SECTION 36. Notwithstanding the above, if at any time LADWP identifies design changes that are needed at the PHASE 1 TREATMENT SYSTEM to meet the requirements of this AGREEMENT, due to latent defects or otherwise, HONEYWELL shall be responsible for addressing such changes. Notwithstanding the foregoing, HONEYWELL shall not be responsible for design changes that HONEYWELL demonstrates are necessitated by LADWP willful misconduct, LADWP gross negligence, or a pattern and practice of LADWP failing to meet material operational requirements. The PARTIES may meet and confer to resolve disputes over such design changes, consistent with SECTION 36.

5.3.5 **Transition Period during the Phase 3 Warranty Period**.

(a) **Observation**. For a period of two (2) months beginning eighteen (18) months following the completion of the PHASE 3 STARTUP AND SHAKEDOWN PERIOD, the contractor engaged by HONEYWELL or the NHOU CO shall operate and maintain the PHASE 3 TREATMENT SYSTEM, and LADWP shall observe the O&M. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(b) **Joint Operation**. For a two (2)-month period beginning immediately after the two (2)-month period described in SECTION 5.3.5(a) above, the contractor engaged by HONEYWELL or the NHOU CO and LADWP shall jointly operate and maintain the PHASE 3 TREATMENT SYSTEM. During this time, HONEYWELL (through its approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(c) **Final Transition**. For a two (2) month period beginning immediately after the two (2) month period described in SECTION 5.3.5(b) above, the contractor engaged by HONEYWELL or the NHOU CO shall remain present and provide all backup support necessary for LADWP to operate and maintain the PHASE 3 TREATMENT SYSTEM during this two (2)-month period. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(d) **Turnover**. Following the two (2)-month period described in SECTION 5.3.5(c) above, LADWP shall provide HONEYWELL or the NHOU CO with a letter identifying any issues associated with the design of PHASE 3 TREATMENT SYSTEM to be resolved prior to LADWP taking over day-to-day operations and operating the PHASE 3 TREATMENT SYSTEM at 8,500 AFY (25.86 AF/day assuming ten percent (10%) downtime), on a ROLLING ANNUAL AVERAGE, plus the required buffer/safety factor or confirming that LADWP's operators are prepared to take over day-to-day operations. If LADWP does not confirm that LADWP's operators are prepared to take over day-to-day operations, HONEYWELL shall either address the issues raised by LADWP in the letter or inform LADWP why it believes such issues do not need to be addressed. This process shall be repeated until the issues identified by LADWP are resolved. The time period for the final transition may also be extended by mutual agreement of the PARTIES. Within forty-five (45)

DAYS following the final transition to LADWP taking over day-to-day operations, LADWP shall provide HONEYWELL written confirmation, in a mutually agreeable form, that the PHASE 3 TREATMENT SYSTEM is continuing to operate consistent with the design. In the event LADWP in good faith believes that the PHASE 3 TREATMENT SYSTEM is not operating consistent with the design after forty-five (45) DAYS, it shall inform HONEYWELL of that determination, and the PARTIES shall meet and confer in good faith until the issues identified by LADWP are resolved. Disputes over whether or not the PHASE 3 TREATMENT SYSTEM has been designed properly and is operating consistent with the design shall be handled consistent with SECTION 36. Notwithstanding the above, if at any time LADWP identifies design changes that are needed at the PHASE 3 TREATMENT SYSTEM to meet the requirements of this AGREEMENT, due to latent defects or otherwise, HONEYWELL shall be responsible for addressing such changes. Notwithstanding the foregoing, HONEYWELL shall not be responsible for design changes that HONEYWELL demonstrates are necessitated by LADWP willful misconduct, LADWP gross negligence, or a pattern and or practice of LADWP failing to meet material operational requirements. The PARTIES may meet and confer to resolve disputes over such design changes, consistent with SECTION 36.

5.3.6 **Observation of Repairs**. During the PHASE 1 WARRANTY PERIOD and PHASE 3 WARRANTY PERIOD, HONEYWELL shall reasonably notify LADWP prior to conducting major or unique repairs to provide LADWP the opportunity to observe the major or unique repairs as an element of the LADWP training and as an ON THE GROUND EXPENSE.

5.3.7 **Retention of Records**. The PARTIES shall maintain all records required to be maintained related to the CCC SYSTEM, including without limitation all log books, records, data, reports, and all other information relating to environmental testing, quality assurance, water quality before transmission to a public water supply pipeline, and compliance with EPA requirements. The PARTIES shall

preserve and maintain such records and documents until ten (10) years after EPA provides notice that all the work required by HONEYWELL under the SECOND INTERIM REMEDY has been completed. At the conclusion of the retention period, the PARTIES shall notify each other at least ninety (90) DAYS prior to the destruction of any such records, and upon request of a PARTY, shall deliver all requested records to the requesting PARTY; *except, however*, LADWP can meet its obligations under this SECTION 5.3.7 by providing HONEYWELL with copies of any records required to be maintained pursuant to this SECTION 5.3.7.

6. CCC FUNDING

6.1 HONEYWELL'S RESPONSIBILITIES

6.1.1 **CCC Design Funding**. HONEYWELL shall fund the design of the CCC SYSTEM and shall bear its own costs during planning, permitting, and design of the CCC SYSTEM.

6.1.2 **CCC Construction Funding**. HONEYWELL shall fund the construction and necessary testing of the CCC SYSTEM in three phases, as detailed herein. As part of this obligation, and notwithstanding whether such soil constitutes a PRE-EXISTING ENVIRONMENTAL CONDITION, HONEYWELL shall be responsible for costs associated with the management and disposal of soil associated with site preparation, grading, and construction. For soil managed by HONEYWELL per this SECTION 6 that constitutes PRE-EXISTING ENVIRONMENTAL CONDITION, LADWP shall have the right but not obligation to review and approve such disposal location, which approval shall not be unreasonably withheld or delayed. Such review and approval right shall not apply to locations selected by HONEYWELL and approved by EPA for such disposal.

6.1.3 **CCC Funding of O&M by HONEYWELL**. HONEYWELL shall fund its own costs and expenses of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD, the costs and expenses

associated with the PHASE 1 WARRANTY PERIOD, and the PHASE 3 WARRANTY PERIOD, and its own costs and expenses of the CCC SYSTEM OPERATIONAL SUPPORT PLAN, as set forth herein.

6.1.4 **LADWP O&M Funding**. HONEYWELL shall pay LADWP for its O&M COSTS associated with the CCC SYSTEM as set forth in SECTION 17.

6.1.5 **LADWP On the Ground Expenses**. HONEYWELL shall pay LADWP for its ON THE GROUND EXPENSES as set forth in SECTION 17.

6.1.6 **Monitoring Costs**. Except as otherwise provided in SECTION 6.2, HONEYWELL shall fund monitoring costs associated with the CCC SYSTEM.

6.1.7 **Revised Treatment Standards and/or New Contaminant Compliance Costs**. HONEYWELL shall pay the share of costs associated with meeting revised treatment standards for ROD COCs and/or meeting NEW CONTAMINANT treatment standards as specifically allotted to HONEYWELL pursuant to EXHIBIT 1 to this AGREEMENT.

6.2 LADWP'S RESPONSIBILITIES

6.2.1 **LADWP Costs During Planning and Design**. LADWP shall bear its own costs during the design and planning of the CCC SYSTEM.

6.2.2 **Pre-Existing Environmental Conditions**. Except as provided in SECTION 6.1.2, LADWP shall be responsible for costs associated with PRE-EXISTING ENVIRONMENTAL CONDITIONS.

6.2.3 **Construction Funding**. Costs to LADWP relating to CCC SYSTEM construction shall be limited to activities identified in SECTION 4.2.

6.2.4 **Drinking Water Permits and Approvals Costs**. LADWP shall bear its own costs associated with its obligation to obtain drinking water permits and approvals under SECTION 3.2.

6.2.5 **Revised Treatment Standards and/or New Contaminant Compliance Costs**. LADWP shall pay the share of costs associated with meeting revised treatment standards for ROD COCs and/or meeting NEW CONTAMINANT treatment standards as specifically allotted to LADWP pursuant to EXHIBIT 1 to this AGREEMENT.

6.3 JOINT RESPONSIBILITIES

6.3.1 **Environmental Review Costs**. Pursuant to, among other grounds, CERCLA section 121(e), 42 U.S.C. section 9621(e), CEQA does not apply to the CCC; however, in the event environmental review under CEQA is determined to be required for the CCC SYSTEM, HONEYWELL shall provide LADWP with up to one hundred and fifty thousand dollars ($150,000) in in-kind services to support the development of any required CEQA documentation for the CCC SYSTEM.

6.3.2 **Incremental Monitoring Costs**. The PARTIES recognize that DDW may require additional monitoring (in the form of sampling frequency, expanded sampling parameters and constituents, and new sampling locations, etc.) above and beyond what is included in the CCC MONITORING PLAN, and it is the PARTIES' intent to share such costs as follows:

(a) **EPA Monitoring Costs**. HONEYWELL shall fund the CCC SYSTEM monitoring costs required by EPA pursuant to an ORDER.

(b) **Incremental Monitoring Costs**.

(i) For the first five (5) years of sampling pursuant to the CCC 97-005 MONITORING PLAN (including sampling completed per the CCC 97-005 MONITORING PLAN but prior to its formal approval as part of the WATER SUPPLY PERMIT), HONEYWELL shall provide LADWP up to five hundred thousand dollars ($500,000) for INCREMENTAL MONITORING COSTS. LADWP shall be responsible for the next five hundred thousand dollars ($500,000) in

INCREMENTAL MONITORING COSTS. In the event INCREMENTAL MONITORING COSTS exceed one million dollars ($1,000,000) in the first five (5) years of sampling pursuant to the CCC 97-005 MONITORING PLAN, HONEYWELL and LADWP shall share in such costs equally.

(ii) For the second five (5) years after the period in 6.3.2(b)(i) ends, HONEYWELL shall provide LADWP up to three hundred fifty thousand dollars ($350,000) for INCREMENTAL MONITORING COSTS. LADWP shall be responsible for the next three hundred fifty thousand dollars ($350,000) in INCREMENTAL MONITORING COSTS. In the event INCREMENTAL MONITORING COSTS exceed seven hundred thousand dollars ($700,000) in the second five (5) years, HONEYWELL and LADWP shall share in such costs equally.

(iii) For subsequent five (5)-year periods after the period in 6.3.2(b)(ii) ends, until the NHOU 2IR RAOs are met, HONEYWELL shall provide LADWP with up to an additional two hundred fifty thousand dollars ($250,000) for INCREMENTAL MONITORING COSTS. LADWP shall be responsible for the next two hundred fifty thousand dollars ($250,000) in INCREMENTAL MONITORING COSTS. In the event INCREMENTAL MONITORING COSTS exceed five hundred thousand dollars ($500,000), HONEYWELL and LADWP shall share in such costs equally.

7. CCC OWNERSHIP

HONEYWELL or the NHOU CO shall own those portions of the CCC SYSTEM that HONEYWELL or the NHOU CO installs or installed, including but not limited to the newly installed wells, conveyance, and treatment infrastructure. LADWP shall own those portions of the CCC SYSTEM that LADWP installs or installed, including but not limited to existing wells and conveyance lines; *provided, however*, that LADWP shall own the

thirty (30)-inch conveyance line that HONEYWELL will install from the YARD to the SUMP. Disposition of the CCC SYSTEM components following the achievement of the NHOU 2IR RAOs shall be handled in accordance with the LICENSE AGREEMENT, the form of which is attached hereto as EXHIBIT 4.

8. SSC DESIGN

8.1 HONEYWELL'S RESPONSIBILITIES

8.1.1 **SSC System Design**. HONEYWELL shall design the SSC SYSTEM.

(a) **Capacity**. The SSC SYSTEM shall be capable of producing the 6,500 AFY (equivalent to an instantaneous average rate of approximately 4,477 GPM, assuming ten percent (10%) downtime), ROLLING ANNUAL AVERAGE (as discussed in SECTION 19), plus a design buffer/safety factor as set forth below.

(b) **Sixty Percent (60%) Design**. HONEYWELL shall complete the sixty percent (60%) design document for the PRIMARY SSC TREATMENT PLANT component of the SSC SYSTEM prior to the commencement of installation of any equipment specifically necessary for CCC PHASE 3.

(c) **Primary Design Completion**. In the event HONEYWELL receives the written notice from LADWP pursuant to SECTION 14.1.2, HONEYWELL shall complete the design of the PRIMARY SSC TREATMENT PLANT.

(d) **Secondary SSC Treatment Plant Design Completion**. In the event HONEYWELL receives the written notice from LADWP pursuant to SECTION 14.2.2, HONEYWELL shall design the SECONDARY SSC TREATMENT PLANT.

8.1.2 **SSC System Components**. A description of the proposed SSC SYSTEM components, including the PRIMARY SSC TREATMENT PLANT, is included in EXHIBIT 3.

8.1.3 **Design Considerations and Coordination with LADWP**. HONEYWELL shall, among other things, design the SSC SYSTEM with due consideration for DDW requirements, LADWP standards and specifications, and HONEYWELL procurement procedures. HONEYWELL shall provide LADWP the opportunity to review and comment on SSC SYSTEM design documents. HONEYWELL acknowledges that LADWP will be operating the SSC SYSTEM and that there is value in designing systems consistent with LADWP standards and other systems, where appropriate and where costs are not excessive. HONEYWELL shall accommodate LADWP requests related to the SSC SYSTEM design except in those instances where HONEYWELL shows that the costs are excessive and such deviations are unnecessary or not proper. Disagreements arising out of this term are subject to the dispute resolution provisions in SECTION 36.

8.1.4 **Design Buffer/Safety Factor**. HONEYWELL shall design the SSC SYSTEM with a capacity of approximately 4,477 GPM (assuming ten percent (10%) downtime), plus a five percent (5%) to twenty percent (20%) buffer/safety factor for additional groundwater treatment capacity in excess of the planned 6,500 AFY ROLLING ANNUAL AVERAGE.

8.1.5 **As-Built Drawings**. HONEYWELL shall provide as-built drawings to LADWP once the construction is complete and for any updates to the design as installed over time. These drawings shall include, but not be limited to, electrical and other drawings acceptable to LADWP.

8.2 LADWP'S RESPONSIBILITIES

8.2.1 **Separate Infrastructure Design**. LADWP shall design the re-drilled WH4-5 WELLS and all necessary infrastructure to transport water from the WH4-5 WELLS to the YARD or an adjacent LADWP-owned parcel, and from the YARD or an adjacent LADWP-owned parcel to the SUMP, as shown in FIGURE 4. LADWP shall also design, as necessary, required modifications to the CHLORINATION SYSTEM. LADWP shall provide HONEYWELL the opportunity to review and comment on design documents associated with the

infrastructure contemplated in this SECTION 8.2.1. As part of the design for the re-drilled WH4-5 WELLS, LADWP shall evaluate whether deepening the wells is appropriate. LADWP shall accept timely input as to the design from HONEYWELL and any required governmental authority.

8.2.2 **Alternative Location Infrastructure Design**. Should LADWP select an alternative location procured by LADWP for construction of the SSC SYSTEM, other than the YARD or the property immediately adjacent to the YARD, as shown in FIGURE 4, LADWP shall be responsible for designing any associated additional conveyance to the YARD. LADWP shall provide HONEYWELL the opportunity to review and comment on design documents associated with the infrastructure contemplated in this SECTION 8.2.2. LADWP shall accept timely input as to the design from HONEYWELL and any required governmental authority.

8.2.3 **Review of SSC System Design Documents and Acknowledgement**. LADWP shall have the right to review and provide comments on major SSC SYSTEM design documents, including but not limited to the thirty percent (30%) (if prepared), sixty percent (60%) design, and ninety percent (90%) design, and other documents as reasonably requested by LADWP. If LADWP provides notice to HONEYWELL that additional review time is required, such additional time shall be provided unless HONEYWELL demonstrates that such additional review time will generate delays that will materially prejudice HONEYWELL. In providing such review and comment, LADWP acknowledges that there could be deviations from LADWP standards and differences between the SSC SYSTEM and other LADWP production facilities.

8.3 JOINT RESPONSIBILITIES

8.3.1 **Coordination Regarding Applicable Laws**. The PARTIES, in consultation with any identified necessary other entity, either private or governmental, shall ensure that, for its portion of the design, the SSC SYSTEM is consistent with all federal, state, and local laws, rules, and regulations and such that they may obtain all necessary and applicable permits of all types whether federal, state, or local.

9. SSC PERMITTING & APPROVALS

9.1 HONEYWELL'S RESPONSIBILITIES

9.1.1 **Construction Permits**. HONEYWELL shall be responsible for obtaining all required permits for construction of the SSC SYSTEM, other than permits associated with WH4-5 WELLS and with DDW permits, and, if applicable, other permits related solely to the provision of drinking water to the public. HONEYWELL's responsibility pursuant to this SECTION 9.1.1 shall include obtaining permits, if necessary, to discharge water to the sewer and/or storm drain during the SSC STARTUP AND SHAKEDOWN.

9.2 LADWP'S RESPONSIBILITIES

9.2.1 **Construction Permits**. LADWP shall be responsible for obtaining all required permits for the construction identified in SECTION 10.2.

9.2.2 **Drinking Water Permits and Approvals**. LADWP shall apply for, and obtain, any and all permits, permit amendments, or other such documents or approvals required by DDW or any other governmental agency with jurisdiction, necessary to deliver treated water produced by the SSC SYSTEM for use in LADWP's domestic drinking water supply.

9.2.3 **City Coordination**. Given the benefits of the SSC to LADWP, LADWP shall advocate and use reasonable efforts, as appropriate, to work with the CITY to waive all past, current, and future fees the CITY would charge a non-CITY entity for permitting, reviewing applications, environmental assessments, and plans for SSC SYSTEM construction and associated wells and conveyance pipeline. LADWP shall also work with the CITY, as appropriate, to assist HONEYWELL in its efforts to obtain expeditious processing of any HONEYWELL applications, requests for plan approvals, environmental assessments, and other permissions or determinations that may be required before installation and operation of the SSC SYSTEM. Such approvals and permits may include, but are not limited to, the

Bureau of Street Services Street-Use Permit, Bureau of Engineering Permit, Department of Transportation Traffic Control Plans, and Temporary No Parking Permit. LADWP has explained to HONEYWELL that its ability to secure such waiver or expedited permitting is at most limited, and it makes no warranty with respect to its ability to achieve such outcomes.

9.2.4 **CEQA**. In the event that environmental review under CEQA is determined to be required to construct or operate the SSC SYSTEM, LADWP shall prepare all necessary documentation and proceed with environmental review as required by CEQA, either as the lead agency or actively in support of another lead agency, providing such support as the other lead agency reasonably requires.

9.3 JOINT RESPONSIBILITIES

9.3.1 **Coordination on Necessary Approvals**. HONEYWELL and LADWP shall coordinate and work collaboratively such that the necessary approvals can be obtained for the SSC SYSTEM whether federal, state, or local.

10. SSC CONSTRUCTION

10.1 HONEYWELL'S RESPONSIBILITIES

10.1.1 **Primary SSC Treatment Plant**. In the event HONEYWELL receives written notice from LADWP pursuant to SECTION 14.1.2, HONEYWELL shall construct the PRIMARY SSC TREATMENT PLANT, including construction of a new treatment facility situated at the YARD, the immediately adjacent parcel shown on FIGURE 4, or at an alternative location procured by LADWP. Additional detail regarding HONEYWELL's construction obligations is included in EXHIBIT 3 to this AGREEMENT. As part of this obligation, notwithstanding whether such soil constitutes a PRE-EXISTING ENVIRONMENTAL CONDITION, HONEYWELL shall be responsible for costs associated with the management and disposal of soil associated with grading and construction.

10.1.2 **Secondary SSC Treatment Plant**. In the event HONEYWELL receives written notice from LADWP pursuant to SECTION 14.2.2, HONEYWELL shall construct the SECONDARY SSC TREATMENT PLANT at the YARD, the immediately adjacent parcel shown on FIGURE 4, or an alternative location procured by LADWP. Additional details regarding HONEYWELL's construction obligations are included in EXHIBIT 3 to this AGREEMENT.

10.1.3 **SSC Construction Timing**. Following written notice from LADWP that LADWP has (i) approved HONEYWELL's SSC SYSTEM design, (ii) submitted an application to DDW for incorporation of the SSC SYSTEM into LADWP's WATER SUPPLY PERMIT, and (iii) has commenced construction of the conveyance line described in SECTION 10.2, HONEYWELL shall complete the construction within a period of eighteen (18) months, unless delays are caused by conditions beyond its control, including actions of LADWP, DDW, or other governmental entity.

10.2 LADWP'S RESPONSIBILITIES

10.2.1 **WH4-5 Wells and Separate Infrastructure Construction**. LADWP shall construct the re-drilled WH4-5 WELLS and all necessary infrastructure to transport water from the WH4-5 WELLS to the YARD or an adjacent LADWP-owned parcel, and from the YARD or an adjacent LADWP-owned parcel to the SUMP, as shown in FIGURE 4. LADWP shall also construct, as necessary, required modifications to the CHLORINATION SYSTEM.

10.2.2 **Alternative Location Infrastructure Construction**. Should LADWP select an alternative location procured by LADWP for construction of the PRIMARY SSC TREATMENT PLANT or SECONDARY SSC TREATMENT PLANT other than the YARD or property immediately adjacent to the YARD, as shown in FIGURE 4, LADWP shall construct any associated additional conveyance to the YARD. LADWP shall modify or replace the existing disinfection system for disinfection of water treated by the SSC SYSTEM.

10.2.3 **Availability of LADWP Property**. Pursuant to the LICENSE AGREEMENT, LADWP shall make available the YARD and other real property identified in FIGURE 4 and FIGURE 5 for the construction of the SSC SYSTEM.

10.3 JOINT RESPONSIBILITIES.

10.3.1 **Coordination Regarding Applicable Laws**. HONEYWELL and LADWP, in consultation with any identified necessary other entity, either private or governmental, shall construct the portion of the SSC SYSTEM for which it is responsible in a manner consistent with all federal, state, and local laws, rules, and regulations and in a manner such that they may obtain all necessary and applicable permits of all types whether federal, state, or local.

10.3.2 **Coordination During Construction.**

(a) During periods when HONEYWELL is engaged in construction activities, HONEYWELL and LADWP shall coordinate construction activities and staging in a manner that minimizes interference with construction and other activities of each other.

(b) The PARTIES shall comply with the "Site Specific Health & Safety Plan" prepared by HONEYWELL during the construction of the SSC SYSTEM, provided such plan is reviewed and approved by LADWP, which approval shall not be unreasonably withheld or delayed.

(c) During periods when HONEYWELL is engaged in construction activities, LADWP shall have the right but not the obligation to observe all construction activities, but shall not have the right to stop work or otherwise direct work by HONEYWELL or its contractors, except as set forth herein for safety concerns. HONEYWELL agrees to keep the LADWP RESIDENT ENGINEER informed of planned construction activities and issues, and agrees to allow the LADWP RESIDENT ENGINEER to observe planned coordination meetings, including tailgate and similar

meetings. If the LADWP RESIDENT ENGINEER observes conditions, work or planned work that it believes is unsafe, not in conformance with specifications or otherwise of concern to LADWP, the LADWP RESIDENT ENGINEER may raise the concern with the HONEYWELL foreman or supervisor. If the concern is not resolved by the field personnel, the matter may be elevated to the project management level, which shall include the LADWP project manager (as identified from time-to-time) and the HONEYWELL project manager (as identified from time-to-time). The project managers may agree to discuss the concern either in person or over the telephone in an effort to resolve the concern. If the concern is not resolved at the project manager level, the matter may be elevated to the executive level, where representatives of the STEERING COMMITTEE shall meet to discuss the matter in an effort to resolve the issue. Notwithstanding the above, LADWP, through the LADWP RESIDENT ENGINEER, shall have the right but not the obligation to immediately stop work in situations that it concludes could result in injury or materially deviate from applicable LADWP safety procedures. In all instances, HONEYWELL (and not LADWP) remains fully responsible for identifying and responding to safety hazards during its construction and active operation periods.

11. SSC OPERATION

11.1 HONEYWELL'S RESPONSIBILITIES

11.1.1 **SSC Startup and Shakedown**. Prior to acceptance of treated water from the SSC SYSTEM, HONEYWELL or the SSC CO shall engage a contractor acceptable to LADWP with expertise in the operation of water treatment plants to operate the SSC SYSTEM through completion of the SSC STARTUP AND SHAKEDOWN PERIOD.

11.1.2 **SSC Warranty Period**. Following completion of the SSC STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from

the PRIMARY SSC TREATMENT PLANT or SECONDARY SSC TREATMENT PLANT for use in its potable water distribution system until the termination of the SSC WARRANTY PERIOD, HONEYWELL or the SSC CO shall engage a contractor, acceptable to LADWP, with expertise in the operation of water treatment systems to operate and maintain the SSC SYSTEM under LADWP direction and consistent with the WATER SUPPLY PERMIT.

11.1.3 **Management and Disposal of Certain Waste**. HONEYWELL or the SSC CO shall be responsible for the handling, management, transportation, and disposal of hazardous and/or low-level radioactive waste generated by a WBA SYSTEM, if utilized, and other low-level radioactive waste that requires management due to the operation of the SSC TREATMENT SYSTEM. This responsibility includes, but is not limited to, managing such materials onsite, arranging and performing onsite treatment if applicable, and manifesting and arranging for disposal off-site, using its own generator number, recordkeeping, and otherwise complying with all applicable state and federal environmental laws. LADWP shall be responsible for managing other hazardous wastes generated during normal operations of the SSC SYSTEM onsite; *provided, however*, HONEYWELL or the SSC CO shall be responsible for off-site treatment and/or disposal of such hazardous wastes.

11.1.4 **Manifesting of Generated Waste**. HONEYWELL or the SSC CO, and not LADWP, shall be identified as the sole generator of any and all hazardous waste and low-level radioactive waste generated by the SSC SYSTEM. HONEYWELL shall be responsible for selecting the location for disposal, which location shall meet all requirements of local, state, and federal law. LADWP shall have the right but not the obligation to review and approve such disposal location, which approval shall not be unreasonably withheld or delayed. Such review and approval right shall not apply to locations selected by HONEYWELL and approved by EPA for such disposal.

11.1.5 **LADWP Approval of Operator**. During the period that HONEYWELL or SSC CO is responsible for providing a contractor for the operation of the SSC SYSTEM

or the operation of a WBA SYSTEM (if utilized) under LADWP's authority, LADWP shall have the right to approve the contractor (and any replacement) that may operate the SSC SYSTEM or a WBA SYSTEM, which approval shall not be unreasonably withheld or delayed. LADWP shall also have the right to remove such contractor (and any replacement) for cause. Unless otherwise agreed by the PARTIES or in an emergency, LADWP shall endeavor to provide HONEYWELL a minimum of sixty (60) DAYS' notice prior to exercising its removal right under this SECTION 11.1.5. HONEYWELL agrees to provide information requested by LADWP to assist LADWP in its review of the proposed contactor (or its replacement). Prior to its procurement of the contractor or replacement, HONEYWELL agrees to obtain from LADWP a list of requirements for the contractor, such as operator certification requirements, which LADWP may reasonably require. As part of its review of a contractor pursuant to this SECTION 11.1.5, and oversight of same, LADWP shall have the right but not the obligation to review, and as applicable approve, (i) the plans of the contractor as may be required by the WATER SUPPLY PERMIT or reasonably required by LADWP, (ii) the ability of the contractor to comply with such plans, and (iii) the contract terms related to same. Such plans shall include the Operations Maintenance and Monitoring Plan as required by DDW, an Emergency Response Plan, Standard Operating Procedures for chemical delivery, isolation of equipment, lockout and tagout procedures, plant startup and shutdown, reactor maintenance, and emergency operating activities (responding to and managing emergency alarm conditions and upset conditions in a timely, appropriate, and safe manner, consistent with LADWP practices and the WATER SUPPLY PERMIT), notifications for off-spec water incidents, and reporting for DDW.

11.1.6 **Operation and Maintenance of WBA**. If WBA or other system that involves a risk of exposure to radioactive materials is required to treat CrVI, HONEYWELL shall be responsible for O&M of the WBA SYSTEM resin, including (i) any maintenance on or repairs requiring internal access to the resin vessel, (ii) internal vessel inspections and repairs (when resin is exchanged or otherwise), (iii) any resin

changeouts, (iv) responding to spills or releases at the WBA SYSTEM during the SSC WARRANTY PERIOD, (v) notifying LADWP and appropriate regulatory authorities of releases consistent with the applicable response plan and law (only during the SSC WARRANTY PERIOD), and (vi) any other work that creates a risk of exposure to the resin or activities that require special equipment to manage risks for exposure to radioactive materials.

11.2 LADWP'S RESPONSIBILITIES

11.2.1 **SSC Warranty Period**. Following completion of the SSC STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from the SSC SYSTEM for use in its potable water distribution system until the termination of the SSC WARRANTY PERIOD, LADWP shall oversee and direct the contractor engaged by HONEYWELL or the SSC CO to operate and maintain the SSC SYSTEM.

11.2.2 **Post-SSC Warranty Period**. Following the SSC WARRANTY PERIOD, LADWP shall operate and maintain the SSC SYSTEM.

11.2.3 **Use of Sanitary Sewer**. Nothing in this AGREEMENT ever obligates LADWP to discharge treated or partially treated groundwater to a sanitary sewer, but LADWP may, in its sole discretion, use the sanitary sewer to discharge groundwater, provided such discharge is consistent with applicable permit and other requirements. Provided, further, LADWP agrees that water may be discharged during the SSC SHAKEDOWN PERIOD and for treatment plant backwash, and other routine maintenance activities similar to other LADWP treatment facilities where LADWP discharges water to the sanitary sewer, and in connection with a restart following an extended shutdown period, reconstruction, or other major repair, provided such discharge is consistent with applicable permit and other requirements.

11.2.4 **Use of Storm Drain**. Nothing in this AGREEMENT ever obligates LADWP to discharge treated or partially treated groundwater to a storm drain, but LADWP

may, in its sole, discretion use the storm drain to discharge groundwater, provided such discharge is consistent with applicable permits and other requirements. The exercise of discretion of whether to use the storm drain shall never be considered an LADWP FAILURE. Provided, further, LADWP agrees that water may be discharged to the storm drain for testing during the SSC STARTUP AND SHAKEDOWN PERIOD and in connection with a non-routine restart, reconstruction, or other major repair, where directed by DDW or where otherwise warranted to comply with DDW testing requirements, provided such discharge is consistent with applicable permit and other requirements.

11.2.5 **Operation and Maintenance of WBA**. If WBA or other system that involves a risk of exposure to radioactive materials is required to treat CrVI, LADWP shall be responsible for O&M, other than O&M to be performed by HONEYWELL as stated in SECTION 11.1.6, including (i) routine external inspections, operations and repairs that do not involve contact with the resin (e.g., adjusting flow valves), and (ii) following the SSC WARRANTY PERIOD, notifying HONEYWELL and appropriate regulatory authorities of releases consistent with the applicable response plan and law. LADWP shall have access to a monitoring point outside of the fenced area for the WBA SYSTEM to allow LADWP to collect routine monitoring samples, as necessary.

11.3 JOINT RESPONSIBILITIES

11.3.1 **Coordination Regarding Applicable Laws**. The PARTIES, in consultation with any identified necessary other entity, either private or governmental, shall operate and maintain the SSC SYSTEM in a manner consistent with all federal, state, and local laws, rules, and regulations and in a manner such that all necessary and applicable permits of all types whether federal, state, or local are obtained and maintained.

11.3.2 **Cooperation to Meet DDW Requirements**. The PARTIES shall cooperate with any reasonable request from each other to meet the LADWP obligations to DDW. This shall include reasonable requests to access records, real property, equipment,

reports, testing results, and any other information needed to comply with such obligations.

11.3.3 **Efficient Operation**. Over the course of this AGREEMENT, the PARTIES shall make reasonable efforts to identify SSC SYSTEM efficiencies and operational synergies over time, consistent with the other terms of this AGREEMENT, with the understanding that the SSC SYSTEM is treating water that contains hazardous substances to be served for domestic use.

11.3.4 **Transition Period During SSC Warranty Period**.

(a) **Observation**. For a period of two (2) months beginning eighteen (18) months following the completion of the SSC STARTUP AND SHAKEDOWN PERIOD, the contractor engaged by HONEYWELL or the NHOU CO shall operate and maintain the PRIMARY SSC TREATMENT PLAN, and LADWP shall observe the O&M. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(b) **Joint Operation**. For a two (2)-month period beginning immediately after the two (2)-month period described in SECTION 11.3.4(a) above, the contractor engaged by HONEYWELL or the SSC CO and LADWP shall jointly operate and maintain the SSC SYSTEM. During this time, HONEYWELL or the SSC CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(c) **Final Transition**. For a two (2)-month period beginning immediately after the two (2)-month period described in SECTION 11.3.4(b) above, the contractor engaged by HONEYWELL or the SSC CO shall remain present and provide all backup support necessary for LADWP to operate and maintain the SSC SYSTEM during this two (2)-month period. During this

time, HONEYWELL or the SSC CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(d) **Turnover**. Following the two (2)-month period described in SECTION 11.3.4(c) above, LADWP shall provide HONEYWELL or the SSC CO with a letter identifying issues associated with the design of the PRIMARY SSC TREATMENT PLANT to be resolved prior to LADWP taking over day-to-day operations and operating the PRIMARY SSC TREATMENT PLANT at 6,500 AFY (equivalent to an instantaneous average rate of approximately 4,477 GPM (assuming ten percent (10%) downtime), on a ROLLING ANNUAL AVERAGE, plus the required buffer/safety factor or confirming that LADWP's operators are prepared to take over day-to-day operations. If LADWP does not confirm that LADWP's operators are prepared to take over day-to-day operations, HONEYWELL shall either address the issues raised by LADWP in the letter or inform LADWP why it believes such issues do not need to be addressed. This process shall be repeated until the issues identified by LADWP are resolved. The time period for the final transition may also be extended by mutual agreement of the PARTIES. Within forty-five (45) DAYS following the final transition to LADWP taking over day-to-day operations, LADWP shall provide HONEYWELL written confirmation, in a mutually agreeable form, that the PRIMARY SSC TREATMENT PLANT is continuing to operate consistent with the design. In the event LADWP in good faith believes that the PRIMARY SSC TREATMENT PLANT is not operating consistent with the design after forty-five (45) DAYS, it shall inform HONEYWELL of that determination, and the PARTIES shall meet and confer in good faith until the issues identified by LADWP are resolved. Disputes over whether or not the PRIMARY SSC TREATMENT PLANT has been designed properly and is operating consistent with the design shall be handled consistent with SECTION 36.

Notwithstanding the above, if at any time LADWP identifies design changes that are needed at the PRIMARY SSC TREATMENT PLANT to meet the requirements of this AGREEMENT, due to latent defects, or otherwise, HONEYWELL shall be responsible for addressing such changes. Notwithstanding the foregoing, HONEYWELL shall not be responsible for design changes that HONEYWELL demonstrates are necessitated by LADWP willful misconduct, LADWP gross negligence, or a pattern and practice of LADWP failing to meet material operational requirements. The PARTIES may meet and confer to resolve disputes over such design changes, consistent with SECTION 36.

11.3.5 **Observation of Repairs**. During the SSC WARRANTY PERIOD, HONEYWELL shall reasonably notify LADWP prior to conducting major or unique repairs to provide LADWP the opportunity to observe the major or unique repairs as an element of LADWP training, and as an ON THE GROUND EXPENSE.

11.3.6 **Operation of Secondary SSC Treatment Plant**.

(a) In the event HONEYWELL constructs the SECONDARY SSC TREATMENT PLANT pursuant to SECTION 10.1.2, the PARTIES shall coordinate operation of such SECONDARY SSC TREATMENT PLANT consistent with the principals established in this SECTION 11; *except, however,* if the PARTIES determine that operation of the SECONDARY SSC TREATMENT PLANT can be more effectively accomplished by LADWP during the anticipated startup and shakedown and warranty periods, the PARTIES can agree to such arrangement.

12. SSC FUNDING

12.1 HONEYWELL'S RESPONSIBILITIES

12.1.1 **SSC Design Funding**. HONEYWELL shall fund the design of the SSC SYSTEM and shall bear its own costs during planning and design of the SSC SYSTEM.

12.1.2 **SSC Construction Funding**. HONEYWELL shall fund the construction and testing of the SSC SYSTEM, as outlined in the SCOPE OF WORK.

12.1.3 **SSC O&M Funding**. HONEYWELL shall fund O&M COSTS associated with the SSC SYSTEM as set forth in this SECTION 12 (excluding the electrical costs of lifting the water from the aquifer to the conveyance infrastructure). Such O&M COSTS shall also include costs associated with maintaining the SSC SYSTEM in operating condition while the plant is not in operation, as a result of testing pursuant to SECTION 14.3.3.

12.1.4 **SSC On the Ground Expenses**. HONEYWELL shall pay LADWP for its ON THE GROUND EXPENSES as set forth in SECTION 17. In the event LADWP is operating the SSC SYSTEM during the SSC STARTUP AND SHAKEDOWN PERIOD and WARRANTY PERIOD, following agreement by the PARTIES pursuant to SECTION 11.3.6, HONEYWELL shall pay O&M COSTS incurred by LADWP during such period.

12.1.5 **Revised Treatment Standards and/or New Contaminant Compliance Costs**. HONEYWELL shall pay the share of costs associated with meeting revised treatment standards for existing ROD COCs and/or meeting NEW CONTAMINANT treatment standards as specifically allotted to HONEYWELL pursuant to EXHIBIT 1 to this AGREEMENT.

12.1.6 **Groundwater Sampling**. HONEYWELL shall conduct all groundwater sampling events necessary to determine whether any of the conditions triggering construction or restart of the SSC SYSTEM outlined in SECTIONS 14.2 and 14.3 have been

satisfied, excluding sampling of WH4-5 WELLS, which sampling shall be completed by LADWP.

12.2 LADWP'S RESPONSIBILITIES

12.2.1 **LADWP Costs During Planning and Design**. LADWP shall bear its own costs during the design and planning of the SSC SYSTEM.

12.2.2 **Construction Funding**. LADWP's construction costs shall be limited to activities identified in SECTION 10.2.

12.2.3 **Drinking Water Permits and Approvals Costs**. LADWP shall bear its own costs associated with its obligation to obtain drinking water permits and approvals under SECTION 9.2.

12.2.4 **Revised Treatment Standards and/or New Contaminant Compliance Costs**. LADWP shall pay the share of costs associated with meeting revised treatment standards for ROD COCs and/or meeting NEW CONTAMINANT treatment standards as specifically allotted to LADWP pursuant to EXHIBIT 1 to this AGREEMENT.

12.2.5 **Sampling of WH-4 and WH-5**. LADWP shall be responsible for sampling WH4-5 WELLS. LADWP may utilize sampling procedures intended to ensure samples are representative of operational conditions.

12.3 JOINT RESPONSIBILITIES

12.3.1 **Environmental Review Costs**. In the event environmental review under CEQA is determined to be required for the SSC SYSTEM, HONEYWELL shall provide LADWP with up to thirty thousand dollars ($30,000) in in-kind services to support the development of any required CEQA documentation for the SSC SYSTEM.

12.3.2 **DDW Monitoring Costs**. For the first five (5) years of sampling pursuant to the SSC 97-005 MONITORING PLAN (including sampling completed per the SSC 97-005 MONITORING PLAN but prior to its formal approval as part of the

WATER SUPPLY PERMIT), HONEYWELL shall provide LADWP up to two hundred fifty thousand dollars ($250,000) for SSC SYSTEM MONITORING COSTS. LADWP shall be responsible for the next two hundred fifty thousand dollars ($250,000) in SSC MONITORING COSTS. In the event SSC MONITORING COSTS exceed five hundred thousand dollars ($500,000) in the first five (5) years of sampling pursuant to the SSC 97-005 MONITORING PLAN, HONEYWELL and LADWP shall share in such costs equally. For subsequent five (5)-year periods after the first five (5) years of SSC SYSTEM operation, HONEYWELL shall provide LADWP with up to two hundred fifty thousand dollars ($250,000) for SSC MONITORING COSTS. LADWP shall be responsible for the next two hundred fifty thousand dollars ($250,000) in SSC MONITORING COSTS. In the event SSC MONITORING COSTS exceed five hundred thousand dollars ($500,000) in subsequent five (5)-year periods following the first five (5) years of SSC SYSTEM operations, HONEYWELL and LADWP shall share in such costs equally.

13. SSC OWNERSHIP

13.1 SSC SYSTEM OWNERSHIP. HONEYWELL or the SSC CO shall own those portions of the SSC SYSTEM that HONEYWELL or the SSC CO installs or installed. LADWP shall own those portions of the SSC SYSTEM that LADWP installs or installed.

14. SSC CONTINGENCIES

14.1 CONDITIONS TRIGGERING OBLIGATIONS FOR THE SSC SYSTEM (PRIMARY SSC TREATMENT PLANT)

14.1.1 **Contingency for SSC System**. All obligations and requirements under SECTIONS 8 through 13 concerning the design, permitting, construction, operation, funding, and ownership of the SSC SYSTEM, aside from HONEYWELL's obligation to complete sixty percent (60%) of the PRIMARY SSC TREATMENT PLANT component of the SSC SYSTEM design under

SECTION 8.1.1(b), shall be contingent upon the successful and sustained operation of the CCC SYSTEM in accordance with this SECTION 14.1.

14.1.2 **Successful and Sustained Operation of the CCC System and Construction of the Primary SSC Treatment Plant**. The CCC SYSTEM shall be considered successful and sustained in operation, and no obligations to complete design, permitting, construction, operation, financing, or ownership of the SSC SYSTEM shall be effective, unless, after the first three (3) years of the CCC SYSTEM operation following the completion of the CCC STARTUP AND SHAKEDOWN and until such time as the NHOU 2IR RAOs are met, LADWP establishes that concentrations of TCE and/or PCE in the combined groundwater extracted from the re-drilled WH4-5 WELLS:

(a) exceed the current MCL of five (5) µg/L for six (6) consecutive groundwater monitoring events at the sampling location designated "SSC Influent Monitoring Point" in FIGURE 2; or

(b) exceed ten times (10X) the current MCL of five (5) µg/L for two (2) consecutive groundwater monitoring events at the sampling location designated "SSC Influent Monitoring Point" in FIGURE 2; or

(c) cause water to be out of compliance at the River Supply Conduit (PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW) under normal operating conditions.

In the event LADWP establishes one of the conditions in SECTIONS 14.1.2 (a)-(c), then LADWP may provide HONEYWELL with written notification that it desires HONEYWELL complete the design and construct the PRIMARY SSC TREATMENT PLANT.

14.1.3 **Concentration Testing**. For purposes of this SECTION 14, the constituent concentration shall be measured at the "SSC Influent Monitoring Point" in

FIGURE 2. The minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between each sampling event.

14.1.4 **Limitation of Obligations During Three-Year Startup Period**.

(a) In the event that prior to three (3) years of the CCC SYSTEM operation following the completion of the CCC STARTUP AND SHAKEDOWN, EPA or the STATE adopts a new, lower MCL for TCE and/or PCE and, based on the criteria specified in SECTION 14.3.1 and EXHIBIT 1, the construction triggering event in SECTION 14.1.2 is deemed to occur due to the lowered MCL, then LADWP may, in its discretion, request that HONEYWELL initiate the PRIMARY SSC TREATMENT PLANT construction. If LADWP requests the initiation of construction pursuant to this SECTION 14.1.4(a), HONEYWELL and LADWP shall share equally in the costs of constructing and operating the SSC SYSTEM. In the event of this occurrence only, HONEYWELL's obligations for funding the construction and operation of the SSC SYSTEM shall be capped at the cost associated with funding the construction and operation of a system capable of treating PCE/TCE to the current MCL of five (5) µg/L for thirty (30) years or until the NHOU 2IR RAOs are met.

(b) In the event that there is a PHASE 3 TOLLING INCIDENT, HONEYWELL may provide notice of the PHASE 3 TOLLING INCIDENT to LADWP. In the event of a PHASE 3 TOLLING INCIDENT, the three (3) years of contemplated operation of the CCC SYSTEM before the SSC SYSTEM construction triggering event shall be tolled for the duration of the PHASE 3 TOLLING INCIDENT. A PHASE 3 TOLLING INCIDENT shall end automatically once the PHASE 3 TOLLING INCIDENT is remedied and the CCC SYSTEM resumes full operations.

14.1.5 **No Prior Election of SSC SYSTEM ALTERNATIVES**. The PARTIES retain the option to implement one or more SSC SYSTEM ALTERNATIVES. No

obligations with respect to the SSC SYSTEM under this AGREEMENT shall be enforceable if the PARTIES elect to implement such SSC SYSTEM ALTERNATIVES in lieu of performance of the SSC.

14.2 CONDITIONS TRIGGERING OBLIGATIONS FOR THE ADDITIONAL SSC SYSTEM COMPONENTS (SECONDARY SSC TREATMENT PLANT)

14.2.1 All obligations and requirements under SECTIONS 8 through 13 concerning the design, permitting, construction, operation, funding, or ownership of the SECONDARY SSC TREATMENT PLANT shall be contingent upon satisfaction of the terms of this SECTION 14.2.

14.2.2 After the first three years of the operation of the PHASE 3 TREATMENT SYSTEM following the completion of the PHASE 3 STARTUP AND SHAKEDOWN PERIOD, and until such time as the NHOU 2IR RAOs have been met, LADWP must:

(a) establish that the combined groundwater extracted from the re-drilled WH4-5 WELLS has concentrations of (i) CrVI above the assumed MCL of ten (10) µg/L for six (6) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2 or (ii) 1,4-dioxane above the current NL of one (1) µg/L for six (6) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2, *and*

(b) establish that the concentrations CrVI or 1,4-dioxane in excess of the MCL or NL are present in all of wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6 concurrently (indicating a migration from the FORMER BENDIX SITE), *and*

(c) provide HONEYWELL with written notification that it desires HONEYWELL to design and construct the SECONDARY SSC TREATMENT PLANT.

14.2.3 **Concentration Testing**. For purposes of this SECTION 14.2, the constituent concentration shall be measured at the "SSC Influent Monitoring Point" as shown in FIGURE 2. For purposes of this SECTION 14.2, the minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between samples.

14.2.4 **Tolling Incident**. For purposes of this SECTION 14.2, in the event of a PHASE 3 TOLLING INCIDENT of which HONEYWELL provides notice to LADWP, the three (3)-year period of contemplated operation of the CCC SYSTEM shall be tolled for the duration of the PHASE 3 TOLLING INCIDENT. The PHASE 3 TOLLING INCIDENT shall end automatically once the PHASE 3 TOLLING INCIDENT is remedied and the CCC SYSTEM resumes full operations.

14.3 OTHER CONTINGENCIES

14.3.1 **Changed MCLs or NLs and Emerging Contaminants**. It is possible that in the future currently established MCLs or NLs may change and/or that NEW CONTAMINANTS that are not ROD COCs may require treatment at the SSC treatment plant due to changes in the law, rules, or regulations promulgated by EPA or the STATE. If the lower MCL and/or NL or presence of a NEW CONTAMINANT prevents LADWP from delivering drinking water consistent with its DDW permit, HONEYWELL shall accept responsibility for the treatment to the new MCLs or NLs and NEW CONTAMINANTS at the SSC consistent with EXHIBIT 1 of this AGREEMENT. Notwithstanding other provisions of this AGREEMENT, in the event of a new or lower MCL or NL, the trigger for the initiation of treatment and suspension and termination of treatment shall be based on the new or lower MCL or NL, as applicable, consistent with EXHIBIT 1.

14.3.2 **Duration of SSC System Funding Obligation**. HONEYWELL shall fund the O&M COSTS of the SSC SYSTEM until the PCE and/or TCE concentration in the combined flow from the re-drilled WH4-5 WELLS has been measured below the MCL of five (5) µg/L for three (3) consecutive groundwater monitoring events (or an alternative number of events if specified by DDW) taken from the sampling

location at the SSC Influent Monitoring Point shown in FIGURE 2. The minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between samples.

14.3.3 **Recommencement of SSC System Funding Obligation**. Only after receipt of written notice from LADWP, HONEYWELL shall recommence funding the O&M COSTS of the SSC SYSTEM if LADWP demonstrates that the PCE and/or TCE concentrations in the combined water from the re-drilled WH4-5 WELLS:

(a) exceed the current MCL of five (5) µg/L for three (3) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2; or

(b) exceed ten times (10X) the current MCL of five (5) µg/L for two (2) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2; or

(c) cause water to be out of compliance at the River Supply Conduit (PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW) under normal operating conditions.

For purposes of this SECTION 14.3.3, the minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between sampling events.

14.3.4 **Secondary SSC Treatment Plant Expenses**. HONEYWELL shall fund the operations and maintenance of the SECONDARY SSC TREATMENT PLANT.

(a) **Duration of Secondary SSC Treatment Plant Funding Obligation**. HONEYWELL shall fund the operations and maintenance of the SECONDARY SSC TREATMENT PLANT until the concentration in the combined flow from the re-drilled WH4-5 WELLS of CrVI has been measured below the assumed MCL of ten (10) µg/L and the concentration of 1,4-dioxane has been measured below the current NL of one (1) µg/L, each for three (3) consecutive groundwater monitoring events (or an

alternative number of events if specified by DDW) taken from the sampling location at the SSC Influent Monitoring Point shown in FIGURE 2. The minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between samples.

(b) **Recommencement of Secondary SSC Treatment Plant Funding Obligation**. HONEYWELL shall recommence funding of the SECONDARY SSC TREATMENT PLANT after receipt of written notice from LADWP and only if LADWP's sampling demonstrates that the CrVI or 1,4-dioxane concentrations in the combined water from the re-drilled WH4-5 WELLS:

(i) exceed the assumed MCL of ten (10) µg/L for CrVI or the current NL of one (1) µg/L for 1,4-dioxane for three (3) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2; *or*

(ii) exceed ten times (10X) the assumed MCL of ten (10) µg/L for CrVI or the current NL of one (1) µg/L for 1,4-dioxane for two (2) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2; *or*

(iii) cause water to be out of compliance at the River Supply Conduit (PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW) under normal operating conditions; *and, in addition to satisfaction of subparagraphs (i), (ii), or (iii),*

(iv) establishes that the concentrations in excess of the MCL or NL are present in all of wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6 concurrently, indicating a migration from the FORMER BENDIX SITE.

For purposes of this SECTION 14.3.4, the minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between sampling events.

14.3.5 **Lifting Costs**. HONEYWELL shall not be obligated to reimburse LADWP for lifting costs associated with conveying the groundwater from the re-drilled WH4-5 WELLS ground surface to either the SSC SYSTEM or the SECONDARY SSC TREATMENT PLANT.

14.3.6 **Electrical Costs**. While either the SSC SYSTEM or the SECONDARY SSC TREATMENT PLANT is in operation, HONEYWELL shall reimburse LADWP for the electrical costs associated with conveying the groundwater from the re-drilled WH4-5 WELLS ground surface to either plant.

15. MAJOR REPAIRS/RECONSTRUCTION

15.1 **Major Repairs/Reconstruction**. If major repairs or reconstruction of the CCC SYSTEM and/or the SSC SYSTEM are required, due to a FORCE MAJEURE, latent design defect, or otherwise, the design, permitting and construction, and funding responsibilities for such major repairs or reconstruction shall follow the approach outlined in the AGREEMENT for the initial design, permitting and construction, and funding of the CCC SYSTEM and/or the SSC SYSTEM. Notwithstanding the foregoing, HONEYWELL shall not be responsible for the design, permitting and construction, and funding of needed major repairs or reconstruction that HONEYWELL demonstrates are necessitated by LADWP willful misconduct, LADWP gross negligence, or a pattern and practice of LADWP failing to meet material operational requirements. Disputes arising out of this SECTION 15 shall be handled consistent with SECTION 36.

16. DESIGN AND CONSTRUCTION FUNDING FOR THE CCC SYSTEM

HONEYWELL shall have the right, but not obligation, to form a trust account for the benefit of LADWP to facilitate construction of the CCC SYSTEM.

17. PAYMENT OF LADWP OPERATION AND MAINTENANCE COSTS AND ON THE GROUND EXPENSES

17.1 FORMATION AND USE OF O&M TRUST ACCOUNT

Within one hundred eighty (180) DAYS after the execution of this AGREEMENT, HONEYWELL shall legally form an interest-bearing trust account for the benefit of LADWP to cover O&M COSTS and ON THE GROUND EXPENSES (the "O&M TRUST ACCOUNT").

17.1.1 **Trustee**. The PARTIES shall jointly appoint a trustee (the "O&M TRUSTEE") to administer the O&M TRUST ACCOUNT in accordance with this AGREEMENT and any other documents and/or agreements developed and/or executed, with the written consent of LADWP (which consent shall not be unreasonably withheld or delayed), to facilitate the payment of O&M COSTS and ON THE GROUND EXPENSES incurred by LADWP pursuant to this AGREEMENT.

17.1.2 **Contributions**. HONEYWELL, NHOU CO, or SSC CO may make contributions to be accepted by the O&M TRUST ACCOUNT on an annual or more frequent basis in accordance with the terms of this AGREEMENT and/or any other documents and/or agreements establishing the O&M TRUST ACCOUNT, which agreements shall be subject to the written approval of LADWP, whose approval shall not be unreasonably withheld or delayed. If additional funds are needed to pay LADWP ON THE GROUND EXPENSES or O&M COSTS in excess of the ANNUAL BUDGET, HONEYWELL shall make additional contributions to the O&M TRUST ACCOUNT, in accordance with this SECTION 17.

17.1.3 **Disbursements**. The O&M TRUSTEE shall disburse funds from the O&M TRUST ACCOUNT solely to pay (i) LADWP ON THE GROUND EXPENSES and O&M COSTS consistent with the terms of this AGREEMENT. The failure of LADWP to receive payments to which it is entitled under this AGREEMENT shall be a material breach of this AGREEMENT; (ii) costs HONEYWELL or the NHOU CO incur procuring materials or services pursuant to SECTIONS II.C.3 and 5 of

the CCC SYSTEM OPERATIONAL SUPPORT PLAN (EXHIBIT 2), that are included in the ANNUAL BUDGET. If HONEYWELL or the NHOU CO seeks reimbursement for such expenses, the review and approval procedures in SECTION 18.2.6 shall apply, with the roles of HONEYWELL/NHOU CO and LADWP being reversed for such costs; and (iii) costs associated with administration of the O&M TRUST ACCOUNT.

17.1.4 **Cost Payment**. The O&M TRUSTEE shall pay from the O&M TRUST ACCOUNT all ON THE GROUND EXPENSES and O&M COSTS due and payable under this AGREEMENT; *provided*, *however*, that HONEYWELL shall ensure sufficient liquidity of the O&M TRUST ACCOUNT to cover the amounts budgeted under ANNUAL BUDGETS (plus a ten percent (10%) overrun contingency) as detailed in SECTION 18.2 and to fund any additional amounts owed to LADWP for O&M COSTS or ON THE GROUND EXPENSES.

18. COVERED COSTS

18.1 The O&M TRUST ACCOUNT shall be used to pay ON THE GROUND EXPENSES and O&M COSTS as such costs become due and payable in accordance with the terms of this AGREEMENT and the costs associated with the administration of the O&M TRUST ACCOUNT.

18.2 BUDGET AND COORDINATION FOR O&M COSTS AND ON THE GROUND EXPENSES

18.2.1 **Annual Budget**. By February 1 of each CALENDAR YEAR, LADWP shall provide HONEYWELL with a proposed annual budget for the next budget year (the "ANNUAL BUDGET") for O&M COSTS and ON THE GROUND EXPENSES, as applicable. Each ANNUAL BUDGET prepared pursuant to this AGREEMENT shall include budgeting for each category of anticipated O&M COSTS and ON THE GROUND EXPENSES in substantially similar form as EXHIBIT 9 to this AGREEMENT. The PARTIES shall review and update the

form of ANNUAL BUDGET in advance of the completion of the PHASE 3 WARRANTY PERIOD, and as necessary and appropriate over time.

18.2.2 **Right to Review**. HONEYWELL shall have thirty (30) DAYS to review and comment in writing on the ANNUAL BUDGET prepared pursuant to this AGREEMENT, and may request additional time if required, provided that such request for additional time shall not relieve HONEYWELL of its obligation to ensure sufficient liquidity of the O&M TRUST ACCOUNT to cover ongoing O&M COSTS and ON THE GROUND EXPENSES.

18.2.3 **Assignment of Right to Review**. HONEYWELL, at its discretion, may assign this review right to the NHOU CO and/or the SSC CO.

18.2.4 **Conference at Quarterly Meetings and Funding**. The PARTIES shall meet and confer in good faith to reach concurrence on the ANNUAL BUDGET. At a minimum, the PARTIES shall discuss the proposed ANNUAL BUDGET at a quarterly meeting held pursuant to SECTION 25.3. The PARTIES shall discuss ways that LADWP can exercise due diligence and reasonable efforts to achieve efficiencies and synergies over time, given, among other things, other similar LADWP operations at nearby LADWP treatment plants. In the event that the proposed budget exceeds the ANNUAL BUDGET for the current budget year by more than twenty-five percent (25%), the PARTIES shall also discuss the reasons for the increase, any cash flow constraints on HONEYWELL, and seek to reach concurrence on possible phasing or other changes to the proposal budget. LADWP shall consider the comments of HONEYWELL in good faith, but shall have final say on setting the ANNUAL BUDGET in good faith.

18.2.5 **Annual Payment**. Following such finalization and no later than June 30 of each year, HONEYWELL shall deposit, or cause the NHOU CO or SSC CO to deposit, sufficient funds into the O&M TRUST ACCOUNT to fund the ANNUAL BUDGET and maintain ten percent (10%) overrun contingency; *provided, however*, that contributions may be made in phases if provided for in the ANNUAL BUDGET.

18.2.6 **Quarterly Audits and Disputes**. Following each quarter, LADWP shall provide a cost accounting package to HONEYWELL for O&M COSTS and ON THE GROUND EXPENSES. Such package may include amounts incurred in the prior quarter, as well as unbilled amounts from prior quarters, if applicable. HONEYWELL (or the NHOU CO or SSC CO if such right is delegated by HONEYWELL) shall have the right to conduct a reasonable review or audit of LADWP's records of expenditures for the O&M COSTS and ON THE GROUND EXPENSES, including invoices and support documentation reasonably required for or related to such expenditures. Costs and expenditures not disputed by HONEYWELL within sixty (60) DAYS of submittal (or such longer period as agreed to by LADWP) shall be deemed approved and payable. In the event that HONEYWELL reasonably determines that particular costs claimed by LADWP are inconsistent with standard practices of a public drinking water system operated by a public utility of similar nature, scope, and complexity as LADWP and the CCC SYSTEM or SSC SYSTEM, as applicable, or with the relevant ANNUAL BUDGET, and disputes such costs in accordance with the dispute resolution process set forth in SECTION 36, HONEYWELL shall have the right to direct the O&M TRUSTEE to withhold such amounts until the dispute over such amount is resolved; *provided, however*, costs incurred that do not exceed the non-disputed portion of the ANNUAL BUDGET by category with contingency (labor, supplies/consumables/contracts, capital improvements, other) are presumed to be consistent with this standard and shall be paid by the O&M TRUSTEE pursuant to SECTION 17.1.4. The dispute of particular costs does not affect the payment of amounts not in dispute. If the cost dispute is formally resolved by the selected mediator in favor of LADWP with a finding that the withholding of funds was not in good faith, LADWP shall be entitled to payment of interest at a rate of six percent (6%) per year for amounts withheld, such amount to be paid to LADWP by a combination of the interest earned by the O&M Trust on the disputed amounts and such additional interest that HONEYWELL shall have to pay to reach the amount due.

18.2.7 **Annual Budget Disputes**. To the extent that the finalized ANNUAL BUDGET exceeds the current year ANNUAL BUDGET by twenty-five percent (25%) or more, HONEYWELL may (i) object to certain costs included in the ANNUAL BUDGET finalized by LADWP in SECTION 18.2.4 and dispute such costs in accordance with the dispute resolution process set forth in SECTION 36 and (ii) HONEYWELL shall have the right to withhold some or all the disputed amount from the annual payment required by SECTION 18.2.5 pending resolution of the dispute, provided that the resulting annual payment (whether paid in a lump sum or phases, if provided by the ANNUAL BUDGET) shall ensure sufficient liquidity of the O&M TRUST ACCOUNT to cover ongoing O&M COSTS and ON THE GROUND EXPENSES. If the cost dispute is formally resolved by the selected mediator in favor of LADWP with a finding that the withholding of funds was not in good faith, HONEYWELL shall pay LADWP interest at a rate of six percent (6%) per year for amounts withheld. Costs incurred consistent with the non-disputed portion of the ANNUAL BUDGET shall be paid by the O&M TRUSTEE pursuant to SECTION 17.1.4.

18.2.8 **Quarterly Payments**. Prior to the start of each quarter (July 1, October 1, January 1, and April 1), the O&M TRUST ACCOUNT shall pay LADWP an amount equal to the ANNUAL BUDGET for that quarter, adjusted by (i) the amount by which the LADWP cost package provided in the prior quarter is less than or greater than the budgeted value for that quarter (true up), (ii) the withholding of amounts, if any, disputed by HONEYWELL pursuant to SECTION 18.2.6 for that submission, and (iii) amounts owed to LADWP, if any, following the resolution of amounts previously disputed by HONEYWELL that have not yet been paid to LADWP. LADWP shall invoice the O&M TRUST ACCOUNT for these amounts, either quarterly (or on a less frequent basis if agreed by the PARTIES).

19. CALCULATION OF CCC AND SSC SYSTEM ROLLING ANNUAL AVERAGE

For purposes of this AGREEMENT, the ROLLING ANNUAL AVERAGE shall be calculated on annual basis consistent with EXHIBIT 10.

20. GROUNDWATER MANAGEMENT

20.1 COORDINATION REGARDING LADWP'S RINALDI-TOLUCA WELL FIELD PUMPING PLANS

HONEYWELL and LADWP shall meet quarterly (or more or less frequently as agreed) regarding LADWP's ongoing and future pumping and spreading plans. If it has any, HONEYWELL can communicate its concerns, and LADWP agrees to use reasonable best efforts (within its discretion) to minimize the impacts of its pumping on the NHOU 2IR RAOs; reasonable best efforts could include, but are not limited to, adjusting the timing, amount, and location of its pumping activities. LADWP has no absolute duty to adjust the timing, amount, and location of its pumping, unless the TANGIBLE TRIGGER is met.

20.2 LADWP ACTIONS FOLLOWING A TANGIBLE TRIGGER

If the TANGIBLE TRIGGER is met, LADWP commits to HONEYWELL to reduce pumping at its RT WELL FIELD until such time as increasing or restoring the pumping rate poses no unreasonable risk that hazardous substances emanating from the FORMER BENDIX SITE will be captured by the wells pumping in the RT WELL FIELD. The PARTIES intend that if the TANGIBLE TRIGGER is met, an approach would apply involving the reduction in pumping, or ceasing to pump a well, followed by monitoring and then making further adjustments in pumping (up or down) based on those monitoring results and other data and analysis.

20.3 COORDINATION REGARDING HONEYWELL'S BENDIX SOURCE CONTROL

Following HONEYWELL's implementation of the SECOND INTERIM REMEDY consistent with an ORDER, the PARTIES agree to enhanced coordination surrounding HONEYWELL's onsite source control program at the FORMER BENDIX SITE as follows:

20.3.1 HONEYWELL agrees to use reasonable best efforts for source control at the FORMER BENDIX SITE;

20.3.2 HONEYWELL agrees to consult with LADWP prior to requesting any material changes requiring RWQCB approval to the onsite source control program, including a meet and confer for any proposed major changes;

20.3.3 If LADWP identifies onsite activities at the FORMER BENDIX SITE that it believes could address a potential risk to the RT WELL FIELD, LADWP may request at the quarterly meeting described above that HONEYWELL consider undertaking such onsite activities. HONEYWELL agrees to consider such recommendations in good faith. LADWP agrees that it shall discuss its request for such onsite activities with HONEYWELL, or, if invoked, participate in the expedited technical mediation contemplated in SECTION 20.3.5, prior to submitting comments to the RWQCB regarding such a request;

20.3.4 Notwithstanding SECTIONS 20.3.1 to 20.3.3 above, as between HONEYWELL and LADWP, RWQCB shall remain the final arbiter of any obligations of HONEYWELL with respect to its source control obligations at the FORMER BENDIX SITE; and

20.3.5 If, following the consultation contemplated in SECTION 20.3.3, the PARTIES are not able to reach consensus, either LADWP or HONEYWELL may submit the matter for an expedited, nonbinding technical mediation before a mutually acceptable third party to assist in reaching a resolution acceptable to both PARTIES. If the PARTIES are not able to reach a resolution following such mediation, LADWP may submit its comments to the RWQCB regarding its request.

20.4 COORDINATION REGARDING ADDITIONAL RESPONSE ACTIONS

If, following HONEYWELL's implementation of the SECOND INTERIM REMEDY consistent with EPA orders (and/or decrees), the TANGIBLE TRIGGER is met, the following shall apply:

20.4.1 If LADWP does not reduce pumping consistent with its commitment in SECTION 20.2 within a reasonable time after a meet and confer regarding

appropriate reduced RT WELL FIELD pumping rates after notice that there is a TANGIBLE TRIGGER *and* HONEYWELL has met its obligations under the agreement *and*:

20.4.2 EPA orders or otherwise directs HONEYWELL to implement additional response actions as a result of such RT WELL FIELD pumping to address ROD COCs that cause HONEYWELL to incur RT-INDUCED INCREMENTAL RESPONSE COSTS, *then*:

(a) HONEYWELL pays the first two million dollars ($2,000,000) and LADWP pays the next three and a half million dollars ($3,500,000) of RT-INDUCED INCREMENTAL RESPONSE COSTS.

(b) If there are additional RT-INDUCED INCREMENTAL RESPONSE COSTS necessary beyond the five and a half million dollars ($5,500,000) specified in SECTION 20.4.2(a), HONEYWELL pays the first one and a half million dollars ($1,500,000) and LADWP pays the next two million dollars ($2,000,000) of RT-INDUCED INCREMENTAL RESPONSE COSTS.

(c) In the event RT-INDUCED INCREMENTAL RESPONSE COSTS exceed nine million dollars ($9,000,000), HONEYWELL reserves the right to bring an action against LADWP for such additional damages above nine million dollars ($9,000,000) incurred as a result of LADWP's failure to reduce pumping consistent with SECTION 20.2 within a reasonable time after the meet and confer. In such lawsuit, HONEYWELL shall be required to prove that such costs are the result of LADWP over-pumping at the RT WELL FIELD after the TANGIBLE TRIGGER has been met in violation of the AGREEMENT. In such a lawsuit, LADWP reserves the right to all defenses and counterclaims for HONEYWELL's failure to adhere to the commitments made pursuant to this AGREEMENT, including but not limited to the obligation to implement the CCC SYSTEM in a timely or

proper manner. Prior to initiating any such lawsuit, HONEYWELL agrees to meet and confer with LADWP in an effort to resolve the dispute.

(d) The PARTIES agree to collaborate so as to inform and/or challenge the assertions made by EPA that could potentially give rise to RT-INDUCED INCREMENTAL RESPONSE COSTS, within the discretion of each PARTY.

(e) Cost-sharing and the potential cost allocation lawsuit do not arise in the context of:

(i) FORCE MAJEURE events;

(ii) changes in water levels in the SFV GROUNDWATER BASIN; and

(iii) a new EPA NHOU remedy.

Disagreements arising out of this SECTION 20 are subject to the dispute resolution provisions in SECTION 36.

21. LANKERSHIM YARD ONE-TIME PAYMENT

Within forty-five (45) DAYS of the execution of the AGREEMENT, HONEYWELL shall deposit two and a half million dollars ($2,500,000) in an escrow account that shall be available to LADWP immediately following the EFFECTIVE DATE in consideration for LADWP making the YARD available for the purposes identified in this AGREEMENT. In the event of release to LADWP following the EFFECTIVE DATE, LADWP shall be entitled to all accrued interest on funds placed in the escrow account.

22. HONEYWELL RIGHT OF ACCESS

LADWP shall provide access to LADWP-owned or LADWP-controlled property, facility, right-of-way, or other LADWP interest in land required or necessary for the design, construction, and O&M work contemplated under this AGREEMENT, as provided in the LICENSE AGREEMENT, the form of which is attached hereto as EXHIBIT 4. In the

event the achievement of the NHOU 2IR RAOs has not been completed within one hundred eighty (180) DAYS of the expiration of the LICENSE AGREEMENT, the PARTIES shall meet and confer to discuss whether good cause exists to enter into a new license agreement. Nothing in this AGREEMENT precludes the PARTIES from entering into a new license by mutual consent at an earlier date. Provided, further, the PARTIES recognize that any new license agreement may require approval by the CITY COUNCIL pursuant to the CHARTER.

22.1 LICENSE AGREEMENT MODIFICATION

In the event modifications or amendments are necessary to the LICENSE AGREEMENT to facilitate HONEYWELL's construction and/or O&M of the CCC SYSTEM and/or the SSC SYSTEM, LADWP shall take reasonable efforts to process and/or seek such modifications or amendments within a reasonable period following receipt of the request.

23. WATER RIGHTS

23.1 FACILITATION OF GROUNDWATER EXTRACTION IN THE ADJUDICATED BASIN

The SFV GROUNDWATER BASIN has been adjudicated such that total groundwater extractions by parties to the judgment holding water rights are limited by court order. During such time HONEYWELL operates the CCC SYSTEM and/or the SSC SYSTEM, LADWP agrees, at no cost to HONEYWELL, to take such action, including but not limited to filing necessary applications with the Upper Los Angeles River Watermaster necessary to permit the pumping and extraction of LADWP's rights to pump groundwater for treatment at the CCC SYSTEM and SSC SYSTEM treatment facilities and eventual delivery to LADWP.

24. PROJECT COORDINATOR

Each PARTY shall designate a project coordinator (the "PROJECT COORDINATOR"), who shall endeavor to ensure clear and responsive communication between the PARTIES and the effective exchange of information and shall serve as the primary point of contact

for any issues arising under this AGREEMENT. The PROJECT COORDINATOR shall be of sufficient seniority to make decisions on behalf of the PARTY or identify and make available those persons who can make such decisions. Each PARTY may, in its sole discretion, change its PROJECT COORDINATOR by providing written notice to the other PARTY of such change.

HONEYWELL identifies the following person as its PROJECT COORDINATOR:

Benny Dehghi
Honeywell International Inc.
2525 West 190th Street
M/S 23-21-80
Torrance, CA 90504-6099
benny.dehghi@honeywell.com
Office: (310) 512-2296

LADWP identifies the following person as its PROJECT COORDINATOR:

Dave Christensen
Manager of Project and Construction Management Group
Water Engineering and Technical Services Division
Los Angeles Department of Water and Power
111 N. Hope St., Room 1315
Los Angeles, CA 90012
Dave.Christensen@LADWP.com
Office: (213) 367-3080

25. PROJECT MANAGEMENT AND ESTABLISHMENT OF STEERING COMMITTEE

25.1 PURPOSE

25.1.1 The PARTIES shall establish a committee (the "STEERING COMMITTEE") which shall be in place during the life of this AGREEMENT, or until such time as the PARTIES mutually agree in writing that such STEERING COMMITTEE is no longer necessary.

25.1.2 The STEERING COMMITTEE shall have oversight of all activities relating to the AGREEMENT (including, without limitation, respective design, permitting,

construction, operation and maintenance, and financing obligations for the CCC SYSTEM and SSC SYSTEM, groundwater management coordination, compliance with EPA, DDW, and other regulatory agency requirements, and such other tasks necessary to accomplish the purposes of this AGREEMENT).

25.1.3 The STEERING COMMITTEE may make any material decisions necessary to facilitate the purposes of this AGREEMENT.

25.2 COMPOSITION OF THE STEERING COMMITTEE

The STEERING COMMITTEE shall be composed of up to two (2) representatives of each PARTY. Each PARTY may also appoint legal and technical consultants to support the respective PARTY's selected representatives.

25.3 CONVENING MEETINGS OF STEERING COMMITTEE

25.3.1 The STEERING COMMITTEE shall meet as often as is necessary or appropriate to carry out the activities contemplated by this AGREEMENT, which meetings may be held by telephone, videoconference, or otherwise, as agreed between the PARTIES. At a minimum, however, the STEERING COMMITTEE shall meet in person at least quarterly, unless otherwise agreed by the PARTIES.

25.3.2 Any STEERING COMMITTEE member may invite outside entities (for example, representatives from EPA, DDW, the NHOU CO or SSC CO, etc.) to participate in STEERING COMMITTEE meetings, as appropriate. At least thirty (30) DAYS prior to extending such invitation, the STEERING COMMITTEE member shall inform the other STEERING COMMITTEE members of the intent to extend such invitation.

25.3.3 Decisions of the STEERING COMMITTEE shall require consent of both PARTIES.

25.4 STEERING COMMITTEE COSTS

Each PARTY shall bear its own costs to fund its participation in the STEERING COMMITTEE.

26. SETTLEMENT & RELEASE OF CLAIMS

26.1 HONEYWELL RELEASES

26.1.1 **Release of Claims Against LADWP**. HONEYWELL settles, covenants not to sue, and releases LADWP from any and all CLAIMS it may have for releases of CONTAMINATION, regardless of where such releases occurred, that may have caused or contributed to CONTAMINATION of LADWP's NHEB WELL FIELD, the WHITNALL WELL FIELD, and the ERWIN WELL FIELD.

26.2 LADWP RELEASES

26.2.1 **Release of SFV Groundwater Basin Claims**. LADWP settles, covenants not to sue, and releases HONEYWELL from any and all CLAIMS it may have for releases of CONTAMINATION from the FORMER BENDIX SITE, regardless of where such CONTAMINATION may have migrated, that may have caused or contributed to CONTAMINATION of any of LADWP's wells in the SFV GROUNDWATER BASIN.

26.2.2 **Release of Well Field Contamination Claims**. LADWP settles, covenants not to sue, and releases HONEYWELL from any and all CLAIMS it may have for releases of CONTAMINATION, regardless of where such releases occurred, that may have caused or contributed to CONTAMINATION of LADWP's NHEB WELL FIELD, the WHITNALL WELL FIELD, and the ERWIN WELL FIELD.

26.3 RESERVED CLAIMS

26.3.1 **Mutual Covenants on Reserved Claims**.

(a) **Honeywell's Covenant**. Subject to the foregoing provisions of this SECTION 26, HONEYWELL covenants and agrees not to sue or take administrative action against LADWP on any RESERVED CLAIMS for a period of fifteen (15) years from the EFFECTIVE DATE.

(b) **LADWP's Covenant**. Subject to the foregoing provisions of this SECTION 26, LADWP covenants and agrees not to sue or take administrative action against HONEYWELL on any RESERVED CLAIMS for a period of fifteen (15) years from the EFFECTIVE DATE.

26.3.2 **Tolling of Reserved Claims**. To effectuate the covenants set forth in this SECTION 26.3, the PARTIES agree to toll the running of any LIMITATIONS applicable to their RESERVED CLAIMS for such period(s) of time that any action must be brought within sixteen (16) years of the EFFECTIVE DATE. (By example, the PARTIES' intent of this SECTION 26.3.2 contemplates that a four (4)-year statute of limitation that would accrue after the EFFECTIVE DATE would begin to run twelve (12) years after the EFFECTIVE DATE, and a two (2)-year statute of limitation would begin to run fourteen (14) years after the EFFECTIVE DATE, thereby both terminating sixteen (16) years after the EFFECTIVE DATE.) The PARTIES further agree that during the fifteen (15) years from the EFFECTIVE DATE, the PARTIES shall successively renew not later than every four (4) years, the terms of this SECTION 26.3.2, as set forth in EXHIBIT 7, without either PARTY conceding that such renewal is necessary to effectuate the tolling contemplated herein. However, no action may be brought on any RESERVED CLAIMS after sixteen (16) years. In consideration of the mutual releases provided above and in recognition of the cooperative effort of the PARTIES, the PARTIES further agree that they shall waive and shall not plead, assert, or otherwise raise any LIMITATIONS or any defense of laches, estoppel, waiver, or any other equitable

defense based upon the passage of time applicable to their RESERVED CLAIMS until, and no sooner than after, sixteen (16) years from the EFFECTIVE DATE.

26.3.3 **Exceptions to Tolling**. Notwithstanding any other provision of this AGREEMENT, either PARTY may raise a RESERVED CLAIM prior to the termination of the tolling period under the following limited circumstances and no others:

(a) If a non-PARTY raises a claim in litigation that implicates a RESERVED CLAIM of either or both PARTIES, insofar as such PARTY reasonably determines that its RESERVED CLAIM is germane to the subject matter of the third-party ligation, this AGREEMENT shall not prevent either PARTY from raising such RESERVED CLAIM against the other by way of a defense, counterclaim, or third-party claim in response to the third-party litigation.

(b) This AGREEMENT shall not prevent either PARTY from asserting a RESERVED CLAIM in litigation against or between any insurance company, obligor, surety, indemnitor or other similar person based upon or arising from that PARTY's claims for insurance, indemnification or other similar recovery.

(c) Nothing in this AGREEMENT shall be deemed an implied admission of fact, law or liability, or an implied waiver of any CLAIM.

26.3.4 **Honeywell Representations and Warranties With Respect to Reserved Claims**. HONEYWELL represents and warrants that to the best of HONEYWELL's knowledge, following a good faith investigation by HONEYWELL into such matters, HONEYWELL (i) has made LADWP aware of material information available to it related to the RESERVED CLAIMS and (ii) such good faith investigation does not indicate that operations from facilities of HONEYWELL or its predecessor resulted in any release or threatened release of CONTAMINATION that provide a basis for RESERVED CLAIMS. This good faith investigation

included a review of known files related to HONEYWELL and its predecessors' operations in the San Fernando Valley. Any representation or warranty in this SECTION 26.3.4 that is qualified to the "knowledge of HONEYWELL" or "HONEYWELL's knowledge" or with any similar knowledge qualification is limited to the information personally known, or which should have been known after reasonable inquiry, by the individual listed in EXHIBIT 8, following such an investigation. In any dispute under this SECTION 26.3.4, HONEYWELL shall have the burden to establish that it either (i) disclosed to LADWP material information available to HONEYWELL about the RESERVED CLAIMS or (ii) as of the EFFECTIVE DATE, such information was not within HONEYWELL's knowledge.

26.4 **Tolling of Released Claims**. The PARTIES agree to toll any LIMITATIONS applicable to CLAIMS released in this SECTION 26, from the EFFECTIVE DATE until (i) the time that the conditions subsequent in SECTION 28 are met or waived or (ii) one hundred eighty (180) DAYS from the termination of this AGREEMENT due to the failure of those conditions being met or waived, whichever is later.

27. INDEMNITY

27.1 HONEYWELL'S CCC INDEMNITIES

27.1.1 **CCC SYSTEM Failure**. HONEYWELL shall indemnify and hold harmless LADWP for any failure of the CCC SYSTEM to produce the quantity and quality of water required under this AGREEMENT if such failure results from a failure of design, construction, maintenance, or operations by any consultant or other entity engaged by HONEYWELL to perform any part of the design, construction, maintenance, and operations of the CCC SYSTEM.

27.1.2 **No Indemnification for LADWP Failure**. HONEYWELL shall not be responsible to indemnify and hold harmless LADWP for any failure of the CCC SYSTEM to produce the quantity and quality of water required under this

AGREEMENT if such failure is directly or indirectly caused by LADWP or a failure of LADWP to meet a material obligation under this AGREEMENT.

27.1.3 The indemnity and hold harmless obligations contained in this SECTION 27 supplement and are in addition to any indemnity and defense obligation contained in the LICENSE AGREEMENT, which are hereby incorporated by reference.

27.2 LADWP's CCC INDEMNITIES

27.2.1 **LADWP Failure**. LADWP shall indemnify and hold harmless HONEYWELL for any and all payment of fees, penalties, or fines assessed against HONEYWELL, or additional response costs, damages, or costs of noncompliance that HONEYWELL may incur, resulting from an LADWP FAILURE. For such an LADWP FAILURE, LADWP shall indemnify HONEYWELL as follows:

(a) **CCC Penalties and/or Costs Demand**. In the event HONEYWELL is required to pay CCC PENALTIES AND/OR COSTS, HONEYWELL, in its sole discretion, may demand that LADWP pay or reimburse on receipt of such demand any CCC PENALTIES AND/OR COSTS incurred by HONEYWELL. LADWP shall pay the demanded amount to HONEYWELL within sixty (60) DAYS, unless LADWP in good faith disputes that such CCC PENALTIES AND/OR COSTS arise out of an LADWP FAILURE. In such event, LADWP shall place the disputed demand amount in the INDEMNITY TRUST.

(b) **Anticipated Penalty Payment Demand**. In the event LADWP's operation or failure to operate the CCC SYSTEM causes a TRIGGERING EVENT, and HONEYWELL, in its sole discretion, believes in good faith that the TRIGGERING EVENT results from an LADWP FAILURE and could result in CCC PENALTIES AND/OR COSTS, HONEYWELL may demand that LADWP place funds in the INDEMNITY TRUST in an amount sufficient to cover the ANTICIPATED PENALTY PAYMENT.

LADWP shall place the ANTICIPATED PENALTY PAYMENT in the INDEMNITY TRUST within sixty (60) DAYS of receipt of the demand.

(c) **Release of Indemnity Trust Funds**. In the event HONEYWELL in fact incurs CCC PENALTIES AND/OR COSTS as a result of the TRIGGERING EVENT, funds sufficient to cover the CCC PENALTIES AND/OR COSTS shall release to HONEYWELL from the INDEMNITY TRUST. Any remaining funds from the ANTICIPATED PENALTY PAYMENT shall release to LADWP upon confirmation from EPA that it will not seek penalties (or will not seek further penalties), and HONEYWELL confirms in writing to LADWP that HONEYWELL has incurred no additional response costs as a result of the TRIGGERING EVENT.

(d) **Expedited Dispute Resolution**. In the event LADWP in good faith disputes HONEYWELL-demanded CCC PENALTIES AND/OR COSTS or that a HONEYWELL-identified TRIGGERING EVENT arose out of an LADWP FAILURE, LADWP shall lodge its objection through an expedited dispute resolution process as follows:

(i) LADWP shall, within seven (7) DAYS of receipt of HONEYWELL's payment demand, invoke this expedited dispute resolution by transmitting to HONEYWELL an LADWP INDEMNITY DISPUTE LETTER;

(ii) the PARTIES shall meet and confer in full confidence with the INDEMNITY MEDIATOR, whether in person or by telephone, within thirty (30) DAYS after transmittal by LADWP of the LADWP INDEMNITY DISPUTE LETTER, at which time the PARTIES may elect to resolve their dispute; and

(iii) in the event the dispute has not yet been resolved, the INDEMNITY MEDIATOR shall issue a written decision within forty-five (45)

DAYS of transmittal of the LADWP INDEMNITY DISPUTE LETTER, which shall guide the PARTIES in reaching resolution of the dispute.

(e) **Collaboration to Challenge EPA Penalties**. The PARTIES shall collaborate so as to inform and/or challenge the assertions made by EPA that give rise to CCC PENALTIES AND/OR COSTS and/or a TRIGGERING EVENT. In the event LADWP requests in writing HONEYWELL to defend itself against EPA pursuant to this SECTION 27.2(e), LADWP shall pay for HONEYWELL's costs (including legal and technical consultant costs) incurred in such defense, notwithstanding SECTION 27.4.2.

(f) **Indemnity Trust Balance and Funding**. Within six (6) months following the EFFECTIVE DATE, LADWP shall deposit five hundred thousand dollars ($500,000) into the INDEMNITY TRUST that shall be available to HONEYWELL for CCC PENALTIES AND/OR COSTS. Within one (1) year following the EFFECTIVE DATE, LADWP shall deposit one million dollars ($1,000,000) into the INDEMNITY TRUST that shall be available to HONEYWELL for CCC PENALTIES AND/OR COSTS. LADWP shall be entitled to all accrued interest on funds placed in the INDEMNITY TRUST. At all times one (1) year or beyond the EFFECTIVE DATE, LADWP shall ensure that a minimum balance of one million dollars ($1,000,000) is maintained in the INDEMNITY TRUST.

(g) **No Indemnification for Honeywell Failure**. LADWP shall not be responsible to indemnify and hold harmless HONEYWELL if such failure is directly or indirectly caused by HONEYWELL or by a failure of HONEYWELL to meet a material obligation of this AGREEMENT.

27.2.2 Notwithstanding any other language in this SECTION 27.2, this AGREEMENT does not impose an obligation on LADWP to indemnify or hold HONEYWELL harmless from third-party claims for personal injury or property damage.

27.3 HONEYWELL'S SSC INDEMNITIES

27.3.1 **SSC System Failure**. HONEYWELL shall indemnify and hold harmless LADWP for any failure of the SSC SYSTEM to produce the quantity and quality of water required under this AGREEMENT if such failure results from a failure of design, construction, maintenance, or operations by any consultant or other entity engaged by HONEYWELL to perform any part of the design, construction, maintenance, or operations of the SSC SYSTEM.

27.3.2 **No Indemnification for LADWP Failure**. HONEYWELL shall not be responsible to indemnify and hold harmless LADWP for any failure of the SSC SYSTEM to produce the quantity and quality of water required under this AGREEMENT if such failure is caused directly or indirectly by LADWP or a failure of LADWP to meet a material obligation of this AGREEMENT.

27.4 OTHER INDEMNITIES AND DUTY TO DEFEND

27.4.1 **Equitable or Implied Contractual Indemnity**. Notwithstanding any other provision of law, the PARTIES agree to mutually waive any equitable or implied contractual indemnity.

27.4.2 **Duty to Defend**. Notwithstanding any other provision of law, the PARTIES agree to mutually waive the duty to defend, whether implied or otherwise, with respect to any and all indemnities provided in this AGREEMENT, except as expressly stated in the LICENSE AGREEMENT.

27.4.3 **Insurers, Obligors, Sureties, and Indemnitors**. The settlements, covenants not to sue, and releases contemplated in this AGREEMENT shall not apply to CLAIMS and liabilities of a PARTY against or between any PERSONS based upon or arising from that PARTY's CLAIMS for insurance, indemnification, or other recovery.

28. AGREEMENT CONDITION SUBSEQUENT

28.1.1 **Condition Subsequent and Available Waiver**. This AGREEMENT enters into force on the EFFECTIVE DATE but is subject to the condition subsequent that a court of competent jurisdiction enters a NHOU 2IR CENTRAL PORTION CD on or before April 1, 2025. If a court with competent jurisdiction does not enter the NHOU 2IR CENTRAL PORTION CD on or before April 1, 2025, then the AGREEMENT shall be null and void unless (i) EPA or other regulatory agency issues an administrative order on consent or other ORDER to HONEYWELL to construct and implement the CCC SYSTEM, (ii) HONEYWELL agrees in writing to extend the court of competent jurisdiction's timeline for entering the NHOU 2IR CENTRAL PORTION CD, or (iii) both HONEYWELL and LADWP elect in writing to waive this condition subsequent, by providing written notice to the other of such waiver. If this condition subsequent is not met, extended, or waived, the PARTIES shall meet and confer to determine the appropriate ways to promptly wind down the activities and operations provided for herein and to terminate the LICENSE AGREEMENT.

28.1.2 **Survival**. The respective rights and obligations of the PARTIES set forth in SECTIONS 21, 26.3.2, 26.3.3, 26.4, 28.1.1 and 31 shall survive even in the event the failure of the condition subsequent renders the AGREEMENT null and void.

29. AGREEMENT CONDITION PRECEDENT

29.1.1 **Condition Precedent To The Effective Date**. Establishment of the EFFECTIVE DATE requires the prior satisfaction of the following condition (unless mutually waived in writing by the PARTIES): CITY COUNCIL approval of the LICENSE AGREEMENT in accordance with Sections 606 and 607 of the CHARTER and mutual execution by the PARTIES of the same.

29.1.2 **Expeditious Efforts**. Following execution of this AGREEMENT, LADWP shall expeditiously seek CITY COUNCIL approval of LICENSE AGREEMENT.

LADWP shall inform HONEYWELL in writing upon receipt of CITY COUNCIL approval.

30. THIRD-PARTY FINANCIAL CONTRIBUTION

Nothing in this AGREEMENT shall bar or limit LADWP or HONEYWELL from seeking from entities or individuals other than the PARTIES, contribution, cost recovery, reimbursement, participation, damages, or other financial redress.

31. HONEYWELL RESPONSIBILITY FOR NHOU CO AND SSC CO

31.1.1 **NHOU CO**. HONEYWELL shall be directly liable and responsible to LADWP for any and all obligations of the NHOU CO, and LADWP need not seek performance from the NHOU CO prior to seeking performance from HONEYWELL.

31.1.2 **SSC CO**. HONEYWELL shall be directly liable and responsible to LADWP for any and all obligations of the SSC CO, and LADWP need not seek performance from the SSC CO prior to seeking performance from HONEYWELL.

32. FORCE MAJEURE

In the event that performance on the part of either LADWP or HONEYWELL shall be delayed or suspended as a result of a FORCE MAJEURE, neither LADWP or HONEYWELL shall incur any liability to the other PARTY as a result of such delay or suspension, subject to the obligations to take reasonable steps to minimize the duration and extent of such event, as set forth herein, including SECTION 15 and otherwise. Disagreements arising out of this SECTION 32 are subject to the dispute resolution provisions in SECTION 36.

33. REPRESENTATIONS

Except for excusable delays as described in the FORCE MAJEURE provision, if either LADWP or HONEYWELL fails to perform, in whole or in part, any promise, covenant, or statement set forth herein, or should any representation made by it be untrue, the

aggrieved PARTY may avail itself of all rights and remedies, at law or equity, in the courts of law.

34. WAIVER

A waiver of a default of any part, term, or provision of this AGREEMENT shall not be construed as a waiver of any succeeding default or as a waiver of the part, term, or provision itself. Either LADWP's or HONEYWELL's performance after the other PARTY's default shall not be construed as a waiver of that default.

35. INSURANCE

HONEYWELL shall maintain insurance consistent with the insurance requirements set forth in the LICENSE AGREEMENT, which requirements are hereby incorporated by reference.

36. DISPUTES

36.1 INFORMAL RESOLUTION

It is the intent of the PARTIES that any dispute be resolved informally and promptly through good-faith negotiation. The PARTIES therefore agree that should any dispute or controversy arise under this AGREEMENT, the following steps toward resolution shall immediately be taken:

36.1.1 **Correspondence**. Either PARTY may initiate negotiation proceedings by writing a certified or registered letter to the other PARTY setting forth the particulars of the dispute, the term(s) of the AGREEMENT that are involved, and a suggested resolution of the problem. The recipient of the letter must respond within twenty (20) DAYS, or longer period as agreed by the PARTIES, with an explanation and response to the proposed solution.

36.1.2 **Meetings**. If correspondence does not resolve the dispute, then the PARTIES' respective PROJECT COORDINATORS shall meet on at least one occasion and attempt to resolve the matter. In the event this meeting does not result in resolution,

the PARTIES shall submit the matter to the STEERING COMMITTEE for discussion at the next quarterly meeting, or sooner, if the nature of the dispute warrants expedited resolution. The STEERING COMMITTEE shall confer in a bona fide attempt to resolve the matter. Should this step not produce resolution, then the PARTIES agree to mediation as provided herein.

36.2 MEDIATION

36.2.1 **Referral to Mediator**. In the event that the controversy is not resolved by informal negotiation within thirty (30) DAYS after consideration by the STEERING COMMITTEE as provided in SECTION 25 (or any mutually agreed extension of time), the case shall be referred for mediation—that is, an informal, non-binding conference or conferences between the PARTIES and the mediator jointly, then in separate caucuses wherein the mediator will seek to guide the PARTIES to a resolution of the case.

36.2.2 **Selection of Mediator**. Within ninety (90) DAYS of the EFFECTIVE DATE, the PARTIES shall engage a mediator. The PARTIES are free to select any mutually acceptable mediator. If the PARTIES cannot agree or have no particular choice of mediator, the PARTIES may request that an organization that provides mediator services, such as, but not limited to, JAMS, assign one to the case, then a list and resumes of available mediators numbering one more than there are PARTIES shall be sent to the PARTIES, each of whom shall strike one name, leaving the remaining name as the mediator. If more than one remains, the designated mediator shall be selected by an organization that provides mediator services from the remaining names.

36.2.3 **Declaration of Impasse**. The mediation process shall continue until the case is resolved or until such time as the mediator makes a finding that there is no possibility of resolution, or the PARTIES mutually agree that the meditation will not be able to resolve the dispute.

36.3 COURT PROCEEDINGS

If the PARTIES cannot agree on mediation or if such mediation is otherwise unsuccessful, either PARTY may submit the dispute or claim to a court of competent jurisdiction for resolution.

37. GOVERNING LAW

The governing law of this AGREEMENT shall be the law of the STATE, without regard to conflict of laws provisions.

38. ADDITIONAL DOCUMENTATION

The PARTIES shall cooperate and agree to create and complete additional documentation as may be necessary to carry out the various terms and conditions in this AGREEMENT.

39. SUCCESSORS & ASSIGNS

The agreements, undertakings, acts, and other things made, done, or to be done by each of the PARTIES under the terms of this AGREEMENT shall run to and be binding upon that PARTY and its respective successors and assigns.

40. NO THIRD-PARTY BENEFICIARIES

This agreement is for the benefit of the PARTIES. With the exception of successors, no other persons or entities shall be bound by, or deemed to be beneficiaries of, this AGREEMENT.

41. ENTIRE AGREEMENT

This AGREEMENT is an integrated agreement. All agreements, covenants, representations and warranties, express and implied, oral and written, of the PARTIES concerning the subject matter of this AGREEMENT are contained herein. No other agreements, covenants, representations, or warranties, express or implied, oral or written, have been made by or relied upon by the PARTIES concerning the subject matter of this AGREEMENT, other than as expressly set forth in this AGREEMENT. This

AGREEMENT prevails over all prior or contemporaneous communications, conversations, negotiations, possible and alleged agreements, representations, covenants, and warranties concerning the subject matter of this AGREEMENT.

42. INFORMED NEGOTIATIONS

This AGREEMENT is the product of informed negotiations between the PARTIES and their representatives, including counsel, which shall not be construed against either PARTY. Each PARTY hereto expressly assumes the risk of any mistake of fact or law, or that the true facts or the law might be other or different from facts or law now known or believed to exist, or that the law may hereafter change, or that the PARTY or its rights may be affected by or over the passage of time or other changes in circumstances. It is the express intention of each of the PARTIES to settle, adjust, and compromise any and all disputes within the scope of the respective releases provided in this AGREEMENT, finally and forever, and without regard to which PARTY may have been correct in its understanding of past, present, or future events or the law relative thereto. Each PARTY acknowledges that it has been advised by counsel of its own choosing that it has made a complete and independent investigation of the facts and law pertaining to the matters released herein, and that it has not relied and does not rely on any promise, representation, or warranty made by or on behalf of any other PERSON concerning such matters except as may be expressly set forth herein.

43. INTERPRETATION

43.1 NEUTRAL INTERPRETATION

In the event of an ambiguity in or a dispute regarding this AGREEMENT or its interpretation, the AGREEMENT shall be interpreted as if each PARTY jointly and fully participated in its drafting, the rule of *contra proferentem* shall not apply.

43.2 HEADINGS

All SECTION headings contained herein are only for convenience and ease of reference of the PARTIES. They do not constitute, and shall not be construed to constitute, a part of

this AGREEMENT, and shall not be considered in the construction or interpretation of any provision of this AGREEMENT or the PARTIES' contracting intent.

43.3 MEANING OF "INCLUDING BUT NOT LIMITED TO". As used in this AGREEMENT, the phrase "including but not limited to" is meant to signal the PARTIES' intent that the listed item(s) should not be construed as limiting under the principle of *ejusdem generis* or otherwise.

44. FURTHER DOCUMENTS

Each PARTY shall execute and deliver all further instruments, documents, and papers, and shall perform any and all acts necessary and reasonably requested by the other PARTY, to give full force and effect to all the terms and provisions of this AGREEMENT.

45. MODIFICATION

This AGREEMENT can only be modified by a writing signed by both PARTIES, and this provision cannot be orally waived.

46. SEVERABILITY

If any non-material provision or any non-material portion of any provision of this AGREEMENT is declared null, void, or unenforceable by any court or tribunal having jurisdiction, then such provision or such portion of a provision shall be considered separate and apart from the remainder of this AGREEMENT, which shall remain in full force and effect.

47. NO ASSIGNMENT

Neither LADWP nor HONEYWELL may assign any of its rights or obligations to any other PERSON without the prior written approval of the other, which approval shall not be unreasonably withheld or delayed.

48. NOTICES

All notices contemplated under this AGREEMENT shall be delivered in person, or sent by overnight carrier, or sent via electronic mail and mailed by certified mail, postage prepaid.

Notices to LADWP shall be addressed to:

Martin L. Adams
General Manager and Chief Engineer
Los Angeles Department of Water and Power
111 S. Hope St.
Los Angeles, CA 90012

With copies to:

Richard F. Harasick
Senior Assistant General Manager
Water System
Los Angeles Department of Water and Power
111 S. Hope St.
Los Angeles, CA 90012

Michelle Lyman, *Esq*.
Deputy City Attorney
Los Angeles City Attorney, Department of Water and Power
221 N. Figueroa, 10th Floor
Los Angeles, CA 90012

Thomas A. Bloomfield, *Esq*.
Kaplan Kirsch & Rockwell LLP
1675 Broadway, Suite 2300
Denver, CO 80202

Notices to HONEYWELL shall be addressed to:

Benny Dehghi
Honeywell International Inc.
2525 West 190th Street
M/S 23-21-80
Torrance, CA 90504-6099

With copies to:

Gene A. Lucero, *Esq*.
1462 Claridge Drive
Beverly Hills, CA 90210

and

John C. Heintz, *Esq*.
Latham & Watkins LLP
355 S. Grand Ave., Suite 100
Los Angeles, CA 90071

49. AUTHORITY TO SIGN

Each PERSON signing this AGREEMENT possesses the authority to enter into this AGREEMENT on behalf of the signing PARTY.

DEPARTMENT OF WATER AND POWER OF
THE CITY OF LOS ANGELES

APPROVED:

By: _____ Date: 12/17/19

MARTIN L. ADAMS
General Manager and Chief Engineer

HONEYWELL INTERNATIONAL, INC.

APPROVED:

By: John J. Morris For Date: 12/20/19

D. EVAN VAN HOOK
Corporate V.P., Health, Safety, Environment, Product Stewardship & Sustainability

APPROVED AS TO FORM AND LEGALITY
MICHAEL N. FEUER, CITY ATTORNEY

NOV 26 2019

BY _____
MICHELLE LYMAN
DEPUTY CITY ATTORNEY

FIGURE 1

PROJECT SITE PLAN

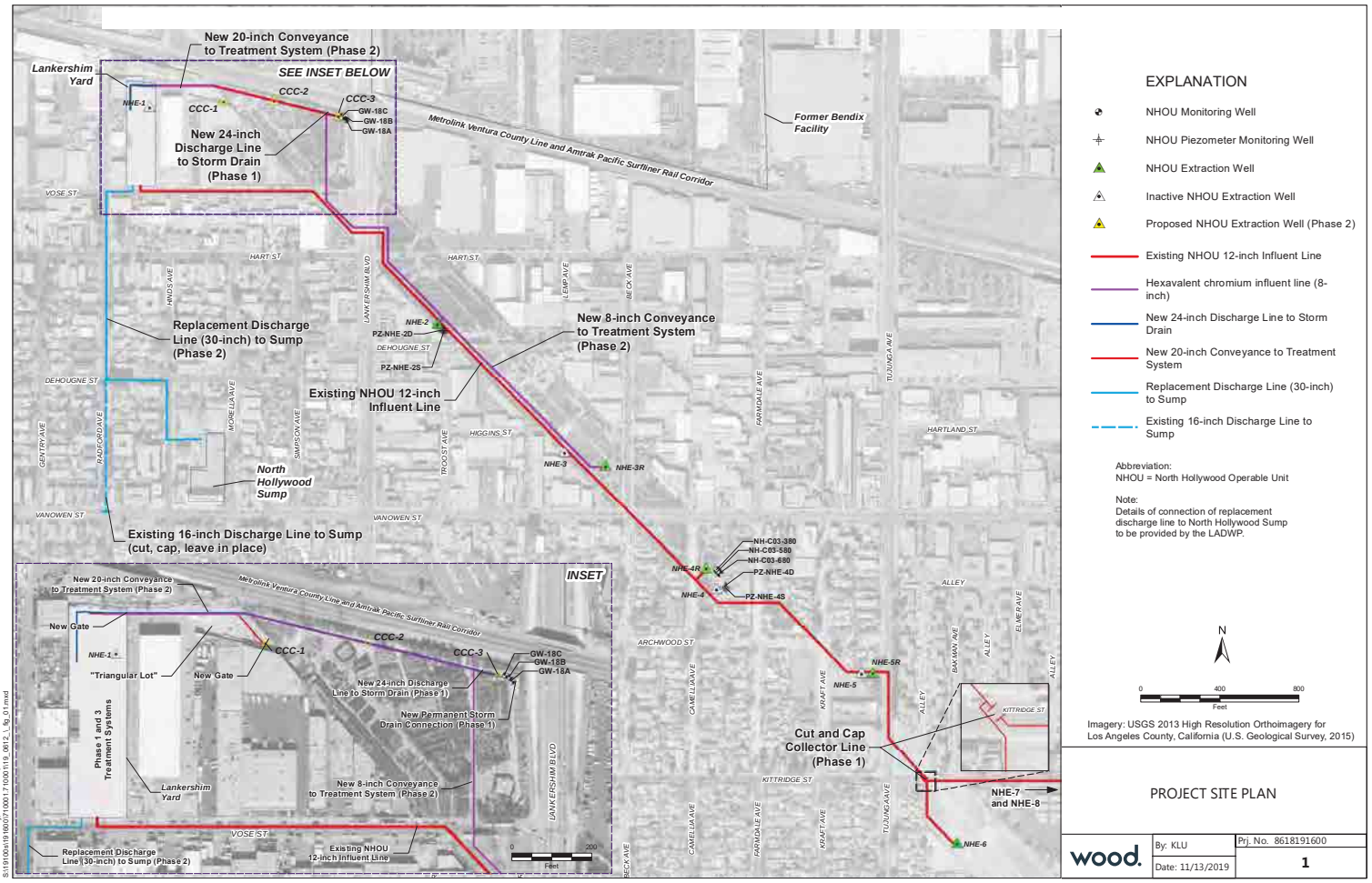
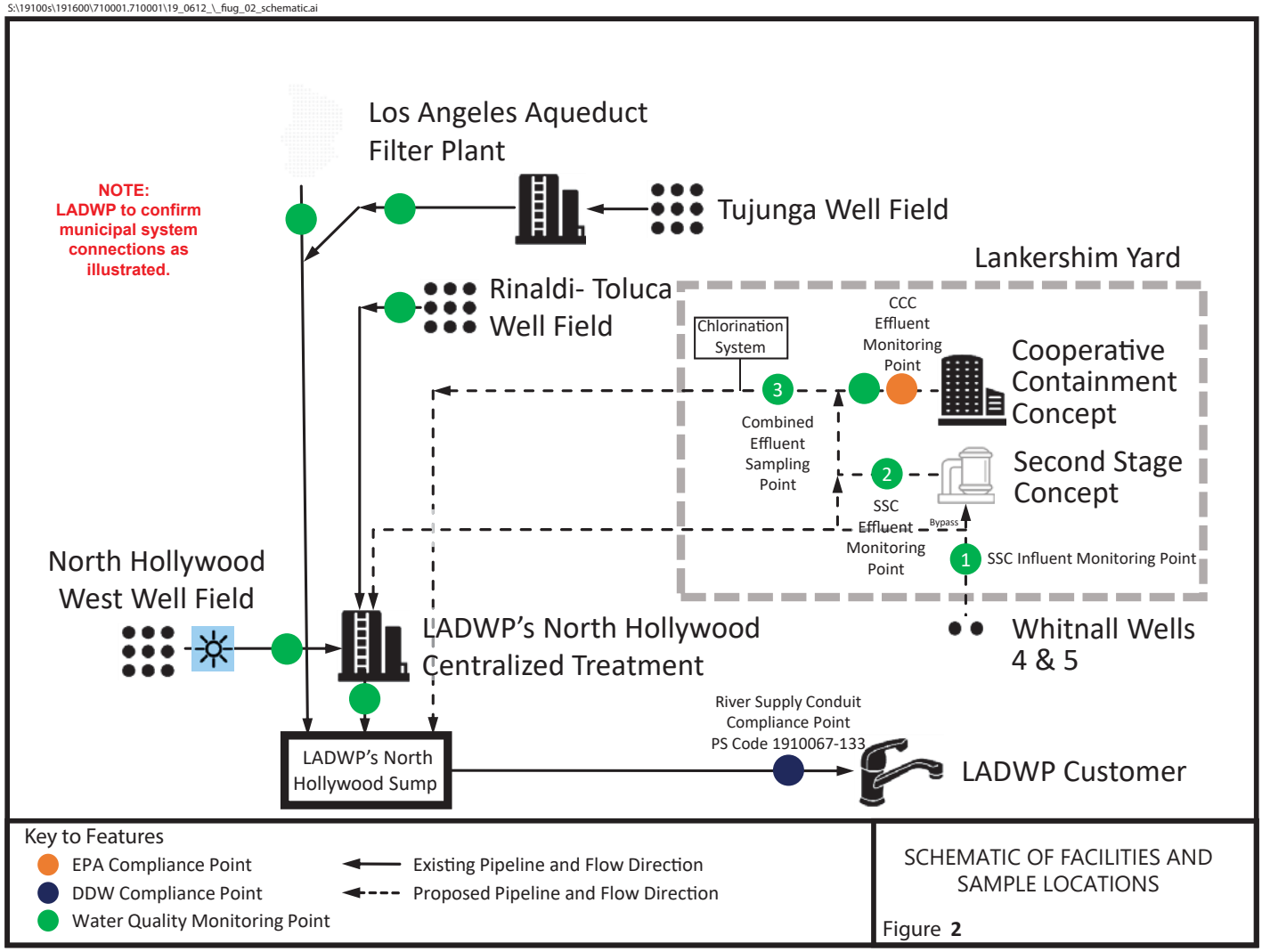

New 20-inch Conveyance to Treatment System (Phase 2)
Lankershim Yard
SEE INSET BELOW
NHE-1
CCC-1
CCC-2
CCC-3
GW-18C
GW-18B
GW-18A
New 24-inch Discharge Line to Storm Drain (Phase 1)
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
Former Bendix Facility
VOSE ST
HART ST
HINDS AVE
LANKERSHIM BLVD
LEMP AVE
BECK AVE
Replacement Discharge Line (30-inch) to Sump (Phase 2)
NHE-2
PZ-NHE-2D
PZ-NHE-2S
DEHOUGNE ST
New 8-inch Conveyance to Treatment System (Phase 2)
Existing NHOU 12-inch Influent Line
MORELIA AVE
SIMPSON AVE
TROOST AVE
HIGGINS ST
FARMDALE AVE
TUJUNGA AVE
HARTLAND ST
GENTRY AVE
RADFORD AVE
NHE-3
NHE-3R
North Hollywood Sump
VANOWEN ST
Existing 16-inch Discharge Line to Sump (cut, cap, leave in place)
NH-C03-380
NH-C03-580
NH-C03-680
PZ-NHE-4D
NHE-4R
NHE-4
PZ-NHE-4S
ALLEY
ARCHWOOD ST
CAMELIA AVE
KRAFT AVE
NHE-5R
NHE-5
BAKMAN AVE
ELMER AVE
KITTRIDGE ST
Cut and Cap Collector Line (Phase 1)
NHE-7 and NHE-8
NHE-6
INSET
New Gate
"Triangular Lot"
New Permanent Storm Drain Connection (Phase 1)
Phase 1 and 3 Treatment Systems
Lankershim Yard
New 8-inch Conveyance to Treatment System (Phase 2)
Replacement Discharge Line (30-inch) to Sump (Phase 2)
Existing NHOU 12-inch Influent Line
Feet
EXPLANATION
NHOU Monitoring Well
NHOU Piezometer Monitoring Well
NHOU Extraction Well
Inactive NHOU Extraction Well
Proposed NHOU Extraction Well (Phase 2)
Existing NHOU 12-inch Influent Line
Hexavalent chromium influent line (8-inch)
New 24-inch Discharge Line to Storm Drain
New 20-inch Conveyance to Treatment System
Replacement Discharge Line (30-inch) to Sump
Existing 16-inch Discharge Line to Sump
Abbreviation:
NHOU = North Hollywood Operable Unit
Note:
Details of connection of replacement discharge line to North Hollywood Sump to be provided by the LADWP.
N
Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)
PROJECT SITE PLAN
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8618191600
1

FIGURE 2

SCHEMATIC OF FACILITIES AND SAMPLE LOCATIONS

S:\19100s\191600\710001.710001\19_0612__fiug_02_schematic.ai



SCHEMATIC OF FACILITIES AND SAMPLE LOCATIONS

Figure **2**

FIGURE 3

SAN FERNANDO VALLEY GROUNDWATER BASIN WELL FIELDS

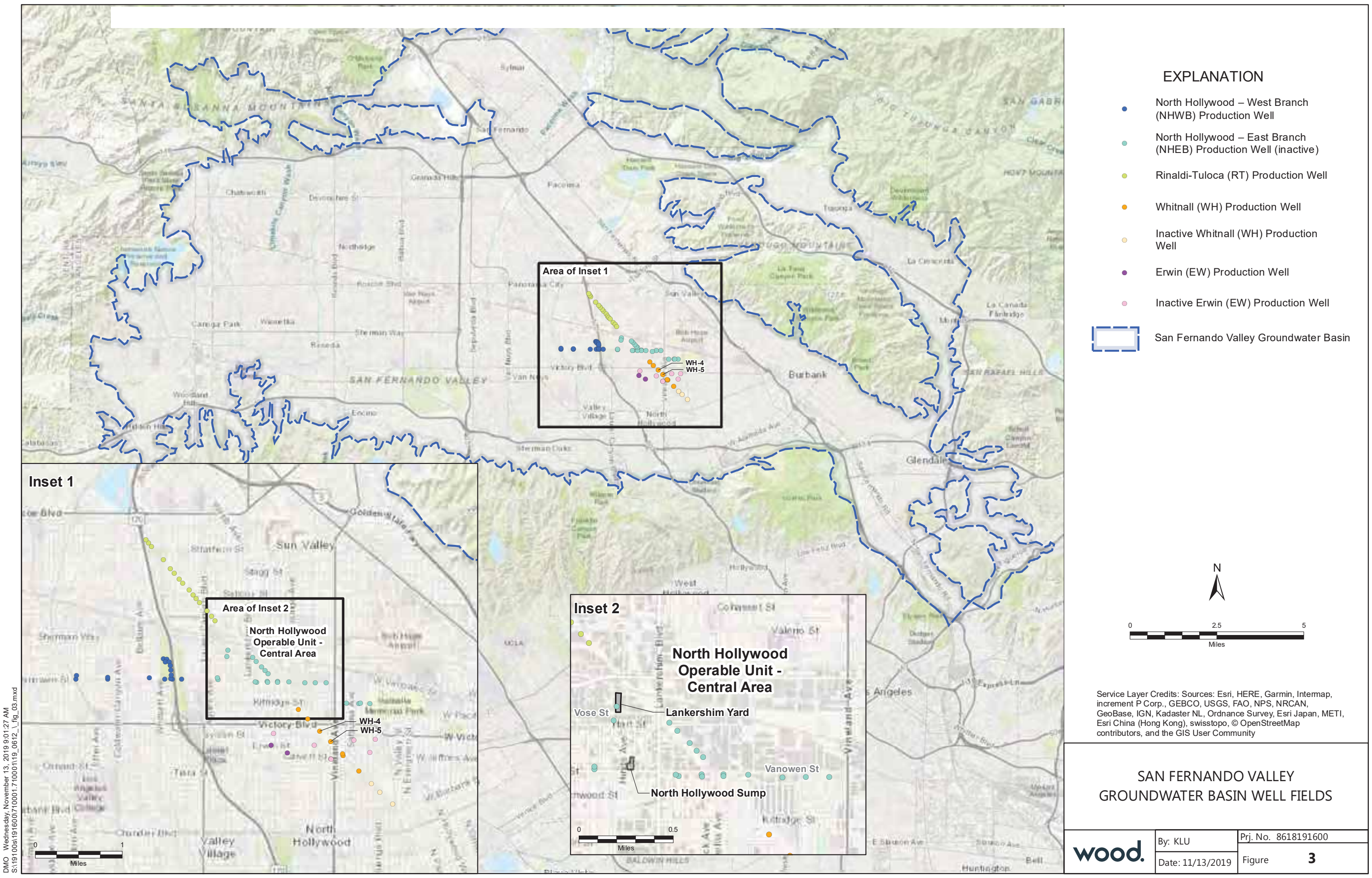

EXPLANATION
North Hollywood – West Branch (NHWB) Production Well
North Hollywood – East Branch (NHEB) Production Well (inactive)
Rinaldi-Tuloca (RT) Production Well
Whitnall (WH) Production Well
Inactive Whitnall (WH) Production Well
Erwin (EW) Production Well
Inactive Erwin (EW) Production Well
San Fernando Valley Groundwater Basin
Area of Inset 1
WH-4
WH-5
Burbank
Glendale
Inset 1
Area of Inset 2
North Hollywood Operable Unit - Central Area
Victory Blvd
Sun Valley
North Hollywood
Valley Village
Inset 2
North Hollywood Operable Unit - Central Area
Lankershim Yard
North Hollywood Sump
Vose St
Vanowen St
Kittridge St
Valerio St
Miles
0
0.5
1
2.5
5
N
Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community
SAN FERNANDO VALLEY GROUNDWATER BASIN WELL FIELDS
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8618191600
Figure 3
DMO Wednesday, November 13, 2019 9:01:27 AM
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FIGURE 4

PROJECT PARCELS

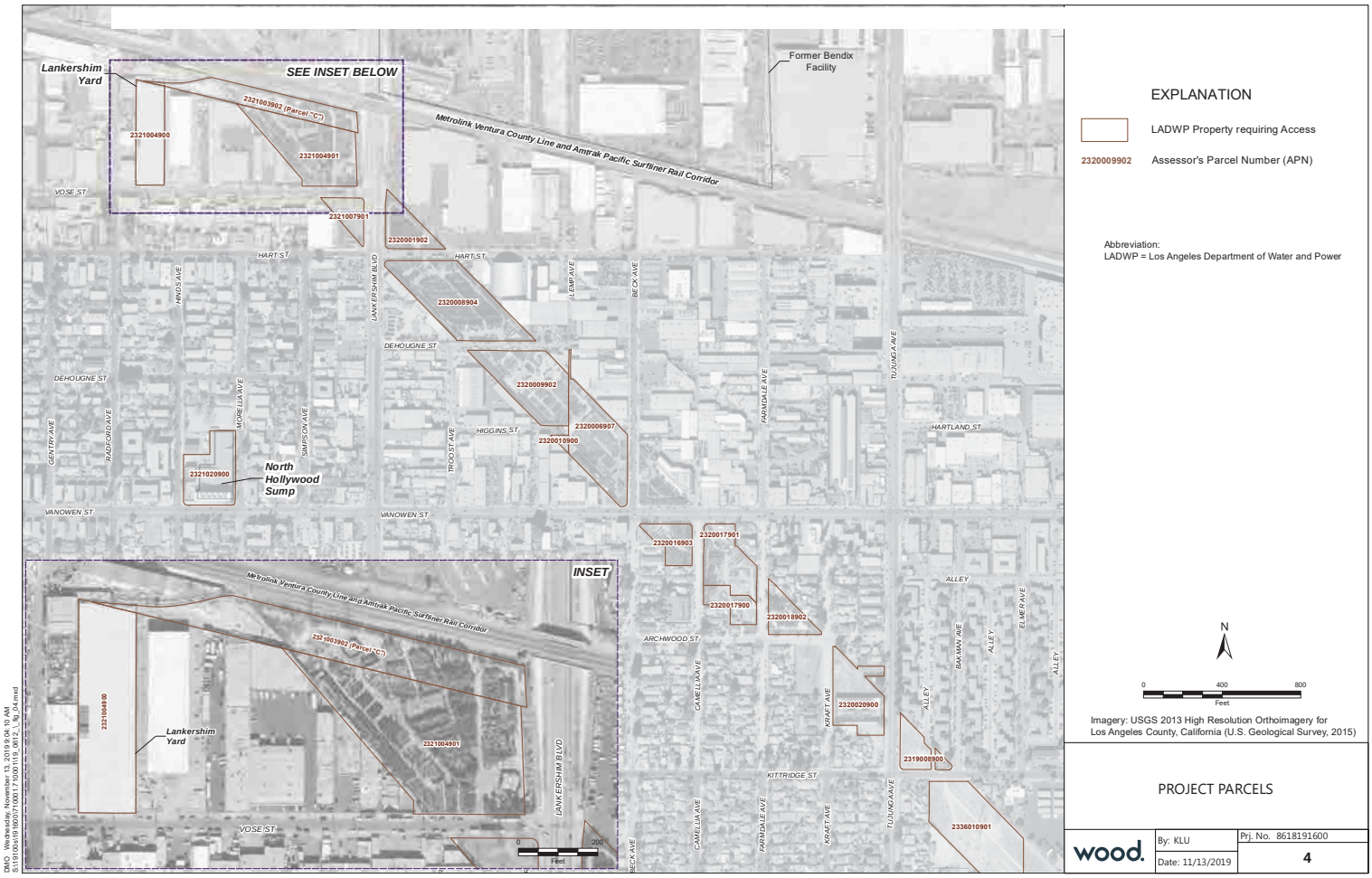
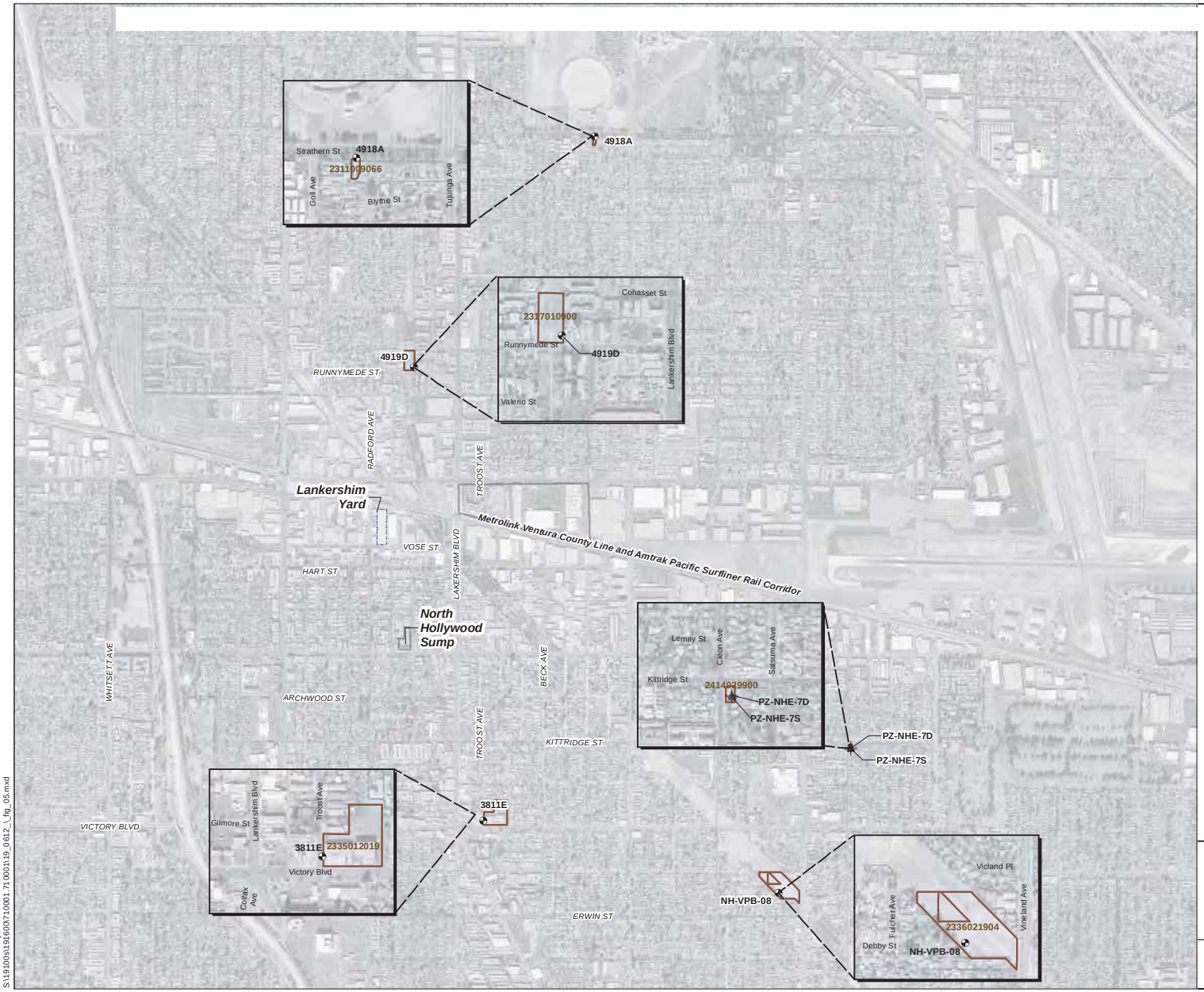

Lankershim Yard
SEE INSET BELOW
2321003902 (Parcel "C")
2321004900
2321004901
2321007901
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
Former Bendix Facility
VOSE ST
HART ST
HINDS AVE
LANKERSHIM BLVD
LEMP AVE
BECK AVE
2320001902
2320008904
DEHOUGNE ST
2320009902
2320006907
2320010900
HIGGINS ST
TROOST AVE
FARMDALE AVE
TUJUNGA AVE
HARTLAND ST
GENTRY AVE
RADFORD AVE
MOREUA AVE
SIMPSON AVE
2321020900
North Hollywood Sump
VANOWEN ST
2320016903
2320017901
2320017900
2320018902
ALLEY
ELMER AVE
BAKMAN AVE
ARCHWOOD ST
CAMELIA AVE
KRAFT AVE
2320020900
2319008900
KITTRIDGE ST
2336010901
INSET
2321004903
0
200
Feet
EXPLANATION
LADWP Property requiring Access
2320009902 Assessor's Parcel Number (APN)
Abbreviation:
LADWP = Los Angeles Department of Water and Power
N
0
400
800
Feet
Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)
PROJECT PARCELS
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8618191600
4

FIGURE 5

ADDITIONAL PROJECT PARCELS



EXPLANATION

- NHOU Monitoring Well
- NHOU Piezometer Monitoring Well
- LADWP Property requiring Access
- 2320009902 Assessor's Parcel Number (APN)

Abbreviation:
LADWP = Los Angeles Department of Water and Power

N

0 1,500
Feet

Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)

ADDITIONAL PROJECT PARCELS

wood.

By: KLU	Prj. No. 8618191600
Date: 11/25/2019	5

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EXHIBIT 1

NEW AND/OR REVISED MCLS/ NLS AND NEW CONTAMINANTS

It is possible that in the future, currently established MCLs or NLs may change and that NEW CONTAMINANTS not presently considered ROD COCs may require treatment at either or both the CCC and SSC due to changes in the law, rules, or regulations promulgated by EPA or the STATE. HONEYWELL shall accept responsibility for the treatment of the new MCLs or NLs and NEW CONTAMINANTS consistent with this EXHIBIT 1.

CCC and SSC Treatment Effluent Goals

System		CCC		SSC	
Category	Contaminant	Current Regulation	Future Regulation	Current Regulation	Future Regulation
Category 1	TCE	ROD[1]	ROD[2]	5 µg/L[3]	Note 3
	PCE	ROD[1]	ROD[2]	5 µg/L[3]	Note 3
Category 2	CrVI	ROD[1]	ROD[2]	10 µg/L[4]	Note 4
	1,4-dioxane	ROD[1]	ROD[2]	(1 µg/L or MCL)[4]	Note 4
Category 3	Perchlorate	ROD[1]	ROD[2]	6 µg/L[5]	Note 6
	NEW CONTAMINANTS (NL or MCL)	ROD[1]	ROD[2]	Not applicable	Note 7
	Other ROD COCs	ROD[1]	ROD[2]	Not applicable	Not applicable

Notes:

1. **Baseline CCC Treatment Standards**. Absent the emergence of NEW CONTAMINANTS or revised MCLs or NLs for a ROD COC required to be treated under this AGREEMENT, the required treatment level and timing shall remain as required by EPA in the ROD.

2. **CCC New Contaminants and/or Revised Treatment Standards**. In the event EPA or the STATE lowers the MCL or NL for a ROD COC, or adopts an MCL or NL for a NEW CONTAMINANT, and if the STATE has a more stringent implementation schedule to meet the lowered MCL or NL and/or treatment for the NEW CONTAMINANT than is required under the ROD, then LADWP may, in its discretion, request that HONEYWELL initiate treatment for the lowered MCL/NL and/or NEW CONTAMINANT at the CCC SYSTEM. In the event LADWP makes such a request, LADWP and HONEYWELL shall share equally in (i) the capital costs to construct additional treatment facilities, (ii) the cost to operate and maintain the CCC SYSTEM to treat the water to the new levels and/or for the NEW CONTAMINANT, and (iii) other necessary costs until EPA amends the ROD to require the CCC SYSTEM to treat the lowered levels and/or the NEW CONTAMINANTS.

3. **SSC Revised Treatment Standard for TCE and/or PCE**. If LADWP exercises its right under this AGREEMENT to request that HONEYWELL initiate treatment to meet a lowered MCL for TCE and/or PCE, LADWP and HONEYWELL shall address the lowered MCL in the following manner:

   a. LADWP shall develop, propose, and utilize a blending plan to achieve the treatment goals at the DDW compliance point (River Supply Conduit Compliance Point PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW). LADWP shall lead the effort to develop the blending plan and shall seek approval from DDW.

   b. If a blending plan is not sufficient or not acceptable to DDW, LADWP shall develop a treatment plan for the water system tributary to the SUMP. This treatment plan shall identify treatment technologies, treatment flows, treatment level, and timing of each phase of the treatment plan. The treatment level required at the SSC SYSTEM shall be collaboratively developed between LADWP and HONEYWELL, and the amount of treatment shall be proportional to the flow and the contaminant load on the water system. In addition, the timing of the implementation of the new SSC SYSTEM level shall be consistent with LADWP's last phase of its treatment plan.

c. LADWP and HONEYWELL shall share equally in (i) the capital costs to construct additional treatment facilities required in the treatment plan; (ii) the cost to operate and maintain the SSC SYSTEM to treat the water to meet DDW requirements, and (iii) other necessary costs. Note, however, HONEYWELL's funding of operations and maintenance of the SSC SYSTEM to treat for TCE/PCE is based on the current MCL of five (5) µg/L for a period of thirty (30) years or until NHOU 2IR RAOs are met. The discounted cash flow calculation for treating to the five (5) µg/L level must be equivalent to the discounted cash flow calculation for the lower MCL.

4. **SSC Revised Treatment Standard for CrVI and/or 1,4-Dioxane**. If LADWP exercises its right under this AGREEMENT to request that HONEYWELL initiate treatment to meet a lowered MCL for CrVI or a lowered NL for 1,4-dioxane, LADWP and HONEYWELL shall address the lowered MCL and/or NL in the following manner:

a. LADWP shall develop, propose, and utilize a blending plan to achieve the treatment goals at the DDW compliance point (River Supply Conduit Compliance Point PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW). LADWP shall lead the effort to develop the blending plan and shall seek approval from DDW.

b. If a blending plan is not sufficient, or not acceptable to DDW, LADWP shall develop a treatment plan for the water system tributary to the SUMP. This treatment plan shall identify treatment technologies, treatment flows, treatment level, and timing of each phase of the treatment plan. The treatment level required at the SSC SYSTEM shall be collaboratively developed between LADWP and HONEYWELL, and the amount of treatment shall be proportional to the flow and the contaminant load on the water system. In addition, the timing of the implementation of the new SSC SYSTEM level shall be consistent with LADWP's last phase of its treatment plan.

c. LADWP and HONEYWELL shall share equally in (i) the capital costs to construct additional treatment facilities required in the treatment plan, (ii) the cost to operate and maintain the SSC SYSTEM to treat the water to meet DDW requirements, and

(iii) other necessary costs. Note, however, HONEYWELL's funding of operations and maintenance of the SSC SYSTEM to treat for CrVI is based on the assumed MCL of ten (10) µg/L for a period of thirty (30) years. Note further that HONEYWELL's funding of operations and maintenance of the SSC SYSTEM to treat for 1,4-dioxane is based on the current NL of one (1) µg/L for a period of thirty (30) years or until NHOU 2IR RAOs are met. The discounted cash flow calculation for treating to the current MCL (for CrVI) or NL (for 1,4-dioxane) must be equivalent to the discounted cash flow calculation for the lower MCL (for CrVI) and/or NL (for 1,4-dioxane).

d. If a 1,4-dioxane MCL is promulgated at higher than one (1) µg/L, HONEYWELL shall fund operations and maintenance to meet the new MCL.

5. **SSC Perchlorate Treatment Conditions**. HONEYWELL shall provide treatment for perchlorate at the SSC SYSTEM under the following conditions:

a. RWQCB requires HONEYWELL, via a Cleanup and Abatement Order, to remediate the FORMER BENDIX SITE for perchlorate; and

b. The perchlorate concentration measured concurrently in each of wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6 (indicative of migration from the FORMER BENDIX SITE) is above the current MCL of six (6) µg/L; and

c. The perchlorate concentration is at or above the current MCL of six (6) µg/L in the combined influent from the re-drilled WH4-5 WELLS for six (6) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2.

If all three (3) conditions are met, HONEYWELL shall construct and fund the O&M of the SSC SYSTEM to treat perchlorate to at or below the current MCL of six (6) µg/L at the "SSC Effluent Monitoring Point" or the "Combined Effluent Sampling Point" (see FIGURE 2) as determined through discussion during the permitting process with DDW. For purposes of this Section 5, the minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between samples.

6. **SSC Revised Treatment Conditions for Perchlorate**. In the event EPA or the STATE lowers the MCL for perchlorate (and the conditions specified in EXHIBIT 1, Section 5 are otherwise met), LADWP may, in its discretion, request that HONEYWELL initiate treatment to meet the lowered MCL. If LADWP makes such a request, LADWP and HONEYWELL shall address the lowered MCL in the following manner:

   a. LADWP shall develop, propose, and utilize a blending plan to achieve the treatment goals at the DDW compliance point (River Supply Conduit Compliance Point PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW). LADWP shall lead the effort to develop the blending plan and shall seek approval from DDW.

   b. If a blending plan is not sufficient, or not acceptable to DDW, LADWP shall develop a treatment plan for the water system tributary to the SUMP. This treatment plan shall identify treatment technologies, treatment flows, treatment level, and timing of each phase of the treatment plan. The treatment level required at the SSC SYSTEM shall be collaboratively developed between LADWP and HONEYWELL, and the amount of treatment shall be proportional to the flow and the contaminant load on the water system. In addition, the timing of the implementation of the new SSC treatment level shall be consistent with LADWP's last phase of its treatment plan.

   c. LADWP and HONEYWELL shall share equally in (i) the capital costs to construct additional treatment facilities required in the treatment plan, (ii) the cost to operate and maintain the SSC SYSTEM to treat the water to meet DDW requirements, and (iii) other necessary costs. Note, however, HONEYWELL's funding of operations and maintenance of the SSC SYSTEM to treat for perchlorate is based on the current MCL of six (6) µg/L for a period of thirty (30) years or until the NHOU 2IR RAOs are met. The discounted cash flow calculation for treating to the current MCL must be equivalent to the discounted cash flow calculation for the lower MCL.

7. **SSC New Contaminant Treatment Conditions**. HONEYWELL shall provide treatment for NEW CONTAMINANTS at the SSC SYSTEM under the following conditions:

a. EPA or the STATE establishes, for the first time, an MCL or NL for the NEW CONTAMINANT; and

b. the RWQCB requires HONEYWELL to remediate the FORMER BENDIX SITE for the identified NEW CONTAMINANT; and

c. the NEW CONTAMINANT is measured concurrently in each of Wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6 (indicative of migration from the FORMER BENDIX SITE) at levels exceeding the established MCL and/or NL; and

d. the combined influent from the WH4-5 WELLS exceeds the new MCL and/or NL for the identified NEW CONTAMINANT for six (6) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in the SCOPE OF WORK.

If all four conditions are met, LADWP may, at its discretion, request that HONEYWELL initiate treatment to meet the NEW CONTAMINANT MCL or NL at the "SSC Effluent Monitoring Point" or the "Combined Effluent Sampling Point" as determined through discussion during the permitting process with DDW.

For purposes of EXHIBIT 1, Section 7, the minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between samples. If LADWP makes such a request, LADWP and HONEYWELL shall address the NEW CONTAMINANT in the following manner:

i. LADWP shall develop, propose, and utilize a blending plan to achieve the treatment goals at the DDW compliance point (River Supply Conduit Compliance Point PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW).

LADWP shall lead the effort to develop the blending plan and shall seek approval from DDW.

ii. If a blending plan is not sufficient, or not acceptable to DDW, LADWP shall develop a treatment plan for the water system tributary to the SUMP. This treatment plan shall identify treatment technologies, treatment flows, treatment level, and timing of each phase of the treatment plan. The treatment level required at the SSC SYSTEM shall be collaboratively developed between LADWP and HONEYWELL, and the amount of treatment shall be proportional to the flow and the contaminant load on the water system. In addition, the timing of the implementation of the new SSC SYSTEM level shall be consistent with LADWP's last phase of its treatment plan.

iii. LADWP and HONEYWELL shall share equally in (a) the capital costs to construct additional treatment facilities required in the treatment plan and (b) the cost to operate and maintain the SSC SYSTEM to treat the water to meet the DDW requirements, and (c) other necessary costs.

EXHIBIT 2

CCC SYSTEM OPERATIONAL SUPPORT PLAN

I. Purpose.

This CCC SYSTEM OPERATIONAL SUPPORT PLAN ("PLAN") provides a framework to help minimize service interruptions during LADWP's operation of the CCC SYSTEM and to provide for HONEYWELL's (or the NHOU CO performing for HONEYWELL) responsibilities with regard to hazardous and low-level radioactive waste (if generated) and O&M of the WBA SYSTEM for the CCC SYSTEM. More specifically, this PLAN sets forth a proposed framework for managing (i) the supply of equipment and materials; (ii) the procurement of routine maintenance services that are anticipated to be needed to support the effective operation of the CCC SYSTEM; (iii) certain hazardous and low-level radioactive waste (if generated) associated with the PHASE 1 and PHASE 3 TREATMENT SYSTEM operations; and (iv) O&M of the WBA SYSTEM for the CCC SYSTEM.

This PLAN assigns certain responsibilities to HONEYWELL or the NHOU CO. HONEYWELL, however, shall be jointly and severally liable for the performance of such obligations set forth in this PLAN.

Terms in all caps not otherwise defined in this EXHIBIT 2 shall have the meaning defined in the AGREEMENT.

In the event of any conflict between this PLAN and the AGREEMENT, the terms of the AGREEMENT shall apply.

The PARTIES contemplate that the parts and equipment counts identified in the "TIER I", "TIER II" and "TIER III" tables shall be updated (with items added or removed) following the development and approval of applicable CCC SYSTEM operations and monitoring plans by EPA and DDW. At such time, the PARTIES shall develop a final "PLAN EQUIPMENT/MATERIALS LIST." The PLAN EQUIPMENT/MATERIALS LIST may, as appropriate, be incorporated into applicable CCC SYSTEM operations and monitoring plans. During the time LADWP is operating the system, LADWP, in consultation with

HONEYWELL, may revise the PLAN EQUIPMENT/MATERIALS LIST based on experience gained during the O&M of the CCC SYSTEM. Nothing in this PLAN shall limit the ability of LADWP to secure additional spare parts as it deems necessary and appropriate for purposes of minimizing service interruptions and reliable operation of the CCC SYSTEM.

II. Hybrid Approach for Providing Equipment/Materials and Routine Maintenance Services for the CCC SYSTEM.

Equipment/materials and routine maintenance services associated with the CCC SYSTEM shall be separated into three tiers. Each tier is described as follows.

A. Tier I: Equipment/Materials with Long Lead Times.

1. TIER I equipment/materials include items that have long procurement lead times (due to price, fabrication availability, sourcing, etc.) for either LADWP or HONEYWELL/NHOU CO. Examples of anticipated TIER I equipment/materials include AOP unit components, ion exchange unit components, LPGAC components, submersible pump components, "general" system components, power related regulators and conditioners, and communication equipment.

2. Once LADWP begins operating the CCC SYSTEM, HONEYWELL/NHOU CO shall be responsible for ensuring that an inventory of those TIER I items identified on the final PLAN EQUIPMENT/MATERIALS LIST are available onsite at the YARD (including ordering, delivering and restocking) or available for "just in time" delivery through established procurement contracts. As used herein, "just in time" means that the item can be delivered to the site within five business days from a request for the item. The total number of items to be maintained in inventory onsite will be confirmed when the design of the CCC SYSTEM has been finalized and reflected in the final PLAN EQUIPMENT/MATERIALS LIST. LADWP shall be responsible for recording when a TIER I item has been used and notifying

HONEYWELL/NHOU CO of such use, and for maintaining security systems associated with the TIER I inventory stored on LADWP-owned property, but HONEYWELL/NHOU CO shall be responsible for replacing or repairing inventory damaged or stolen and for the filing of insurance claims for such damaged or stolen inventory, if applicable.

3. HONEYWELL/NHOU CO shall be responsible for ensuring that the onsite inventory is maintained consistent with the final PLAN EQUIPMENT/MATERIALS LIST. The PARTIES intend that the replacement of TIER I items during operation shall be consistent with (i) standard practices of a public drinking water system operated by a public utility of similar nature, scope and complexity as LADWP and the CCC SYSTEM; and (ii) applicable CCC SYSTEM operations and monitoring plans.

B. Tier II: Equipment/Materials that Have a Long Lead Time for LADWP, but that HONEYWELL/NHOU CO May be Able to Obtain More Quickly.

1. TIER II equipment/materials include items necessary to maintain CCC SYSTEM operation that could have lead times longer than thirty (30) DAYS for LADWP, but that HONEYWELL/NHOU CO may, following a procurement process, have the capability of obtaining more quickly.

2. During the time LADWP is operating the CCC SYSTEM, LADWP shall be responsible for procuring the TIER II items on the final PLAN EQUIPMENT/MATERIALS LIST. A representative list of anticipated TIER II items is included in PLAN Attachment A ("ATTACHMENT A"). If LADWP determines that it will not be able to obtain within thirty (30) DAYS a particular TIER II item on the final PLAN EQUIPMENT/MATERIALS LIST necessary to maintain CCC SYSTEM operations, LADWP shall request that HONEYWELL/NHOU CO purchase that item on LADWP's behalf. In such an instance, HONEYWELL/NHOU CO shall procure the item and provide it to LADWP. If LADWP and

HONEYWELL mutually agree that HONEYWELL/NHOU CO cannot procure the item more quickly than LADWP, LADWP shall retain responsibility for its procurement.

C. Tier III: Readily Available Equipment/Materials And Routine Services

1. TIER III consists of: 1) equipment/materials readily available to LADWP and, 2) routine maintenance services available through in-place/on-going LADWP contracts.

2. LADWP shall be responsible for procuring items that can be obtained through a purchase process that LADWP can complete within thirty (30) DAYS. If the purchasing process for a particular TIER III item will take longer than thirty (30) DAYS, despite LADWP making reasonable efforts to acquire the item, and the timely purchase of that item is required to prevent or end a CCC SYSTEM shutdown, LADWP shall request that HONEYWELL/NHOU CO acquire the item as soon as practicable. In such an instance, HONEYWELL/NHOU CO shall procure the item and provide it to LADWP. If LADWP and HONEYWELL mutually agree that HONEYWELL/NHOU CO cannot procure the item more quickly than LADWP, LADWP shall retain responsibility for its procurement.

3. LADWP shall be responsible for procuring (maintaining and utilizing contracts, etc.) TIER III services. A representative list of anticipated TIER III services is included in ATTACHMENT A.

4. If the purchasing process for a particular Tier III service will take longer than thirty (30) DAYS, despite making reasonable efforts to acquire or renew the service, and the timely purchase of that service is required to prevent or end a CCC SYSTEM shutdown, LADWP shall request that HONEYWELL/NHOU CO acquire the service as soon as practicable. In such an instance, HONEYWELL/NHOU CO shall procure the service for LADWP. If LADWP and HONEYWELL mutually agree that

HONEYWELL/NHOU CO cannot procure more quickly than LADWP, LADWP shall retain responsibility for its procurement.

5. If such materials or services covered by this SECTION and procured by HONEYWELL/NHOU CO were included in an ANNUAL BUDGET, costs associated with such procurement shall be payable or reimbursable through the O&M TRUST ACCOUNT.

III. Installation of Equipment and Oversight of Services.

During the time that LADWP is operating the CCC SYSTEM, LADWP shall be responsible for installing procured items and completing/overseeing the required maintenance services (regardless of TIER). Notwithstanding the prior sentence, if due to extenuating circumstances, LADWP is not able to, in a reasonably timely manner, install procured items or complete/oversee the required maintenance service, LADWP may request that HONEYWELL/NHOU CO perform those services. In such an instance, HONEYWELL/NHOU CO shall perform those services, at its cost. If such services were included in an ANNUAL BUDGET, costs associated with such procurement shall be payable or reimbursable through the O&M TRUST ACCOUNT.

IV. Management of Waste Generated by Treatment Operations.

HONEYWELL or the NHOU CO shall be responsible for the handling, management, transportation, and disposal of hazardous and/or low-level radioactive waste generated by the weak-base anion exchange resin treatment component of CCC SYSTEM. This responsibility includes, but is not limited to, managing such materials onsite, arranging and performing onsite treatment if applicable, and manifesting and arranging for disposal off-site, using its own generator number, recordkeeping and otherwise complying with all applicable state and federal environmental laws.

HONEYWELL or the NHOU CO, and not LADWP, shall be identified as the generator of such waste.

V. Operation and Maintenance of WBA.

HONEYWELL shall be responsible for O&M of the WBA SYSTEM resin, including (i) any maintenance on or repairs requiring internal access to the resin vessel, (ii) internal vessel inspections and repairs (when resin is exchanged or otherwise), (iii) any resin changeouts, (iv) responding to spills or releases from the WBA SYSTEM and notifying LADWP and appropriate authorities of releases consistent with the applicable response plan and law (only during the PHASE 1 and PHASE 3 WARRANTY PERIODS), and (v) any other work that creates a risk of exposure to the resin or activities that require special equipment to manage risks for exposure to radioactive materials. Following the PHASE 1 and PHASE 3 WARRANTY PERIODS, LADWP shall be responsible for O&M, other than O&M to be performed by HONEYWELL as stated in the SCOPE OF WORK, including (i) routine external inspections, operations and repairs that do not involve contact with the resin (e.g., adjusting flow valves), and (ii) notifying appropriate authorities and HONEYWELL of spills or releases at the WBA SYSTEM consistent with the applicable response plan and law and responding to such spills and releases consistent with the applicable response plan and law.

CCC SYSTEM OPERATIONAL SUPPORT PLAN – ATTACHMENT A
(REPRESENTATIVE EQUIPMENT/MATERIALS/SERVICES BY TIER)

TIER I Items

Equipment with Long Lead Times
AOP unit components • Lamps – approximately __% • Ballast – __ ballast per two lamps • Sleeves – __
Ion Exchange unit components • Metering pump – __ • Spare set of bag filters – __ set of 2 bags
LPGAC components • Pump – __
Submersible pump components (wells) • Pump and motor – __ • Cable – __ • VFD (if using VFD) – __ • Check valve – __ • Air/vacuum valve – __ • Flow meter – __

General system • Inlet automated control valve – __ • Chlorine Injector cabinet – __
Communications • PLC – __ • UPS – __

TIER II Items

Items that Have a Long Lead Time for LADWP, but that the NHOU CO May Be Able to Obtain More Quickly
Special-order parts (e.g., large valve components, etc.) • Conveyance line gate valve(s) • Control panels/motor starters
AOP – Sensors and wiper seals
Gauges – Temperature, pressure, flow
Valves – Check, globe, etc.
Transmitters
Electrical systems (e.g., surge protection, ups, breakers)
Pumps and motors – Manufacturer's replacement parts kits
Equipment that cannot be provided by LADWP within 30 days • Submersible pump and motor • Large quantity of AOP lamps, ballast and sleeves

TIER III Items

Routine Maintenance Services
Bag filters (change-out schedule based on performance monitoring and manufacturers' recommendation)

Fresh carbon (change-out schedule based on performance monitoring and manufacturers' recommendation)
Acid and caustic (supply schedule based on performance monitoring and manufacturers' recommendation)

EXHIBIT 3

SCOPE OF WORK

I. Background and Introduction to Scope of Work

This SCOPE OF WORK to the NHOU SETTLEMENT AGREEMENT contains a summary of the work anticipated to be undertaken by HONEYWELL and LADWP pursuant to the NHOU SETTLEMENT AGREEMENT.

The PARTIES recognize that this work may change or be modified in response to, among other things, the regulatory approval processes under CERCLA and DDW permitting (including DDW 97-005). A tentative, non-binding schedule is attached to this SCOPE OF WORK as SOW Attachment A.

Disputes regarding this SCOPE OF WORK shall be resolved pursuant to SECTION 36 of the NHOU SETTLEMENT AGREEMENT.

Terms in ALL CAPS shall have the meaning as set forth in the NHOU SETTLEMENT AGREEMENT.

II. CCC System Construction and Operation.

A. CCC Site Preparation and CCC Treatment System Components

1. As necessary, HONEYWELL shall excavate soil at the YARD to prepare for installation of concrete pads and subsurface treatment system piping (FIGURE SOW-1). This work shall include, as necessary, grubbing, stripping, stockpiling, grading, and backfilling. Soil excavation is anticipated to primarily occur in the eastern portion of the YARD, north and south of the existing warehouse, as well as beneath the warehouse (pending confirmation of warehouse foundation conditions).

2. HONEYWELL shall construct the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM, as those terms are defined in the

NHOU SETTLEMENT AGREEMENT. The PHASE 1 TREATMENT SYSTEM shall have a capacity of approximately 1,775 AFY (1,100 GPM) with raw water delivered from extraction wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6 (FIGURE SOW-2a). The PHASE 3 TREATMENT SYSTEM shall have a capacity of approximately 10,645 AFY (6,600 GPM, excluding the WBA unit) with raw water delivered from wells associated with the PHASE 1 TREATMENT SYSTEM and additional extraction wells CCC-1, CCC-2, and CCC-3 (FIGURE SOW-2b). The PARTIES anticipate that these systems shall include the following primary components:

a. A filtration system to remove particulate matter prior to water entering the treatment system;

b. A WBA unit to remove hexavalent chromium;

c. Chemical supply tanks (sulfuric acid and hydrogen peroxide) and a spill containment unit;

d. Two AOP units (anticipated to be installed within the existing warehouse), with associated above-ground and below-ground piping to remove 1,4-dioxane and other chemicals;

e. Twelve LPGAC tanks, a backwash supply tank, a monitoring port, and associated above-ground and below-ground piping. The PHASE 3 TREATMENT SYSTEM shall be capable of remaining in operation at capacity during servicing of an LPGAC tank;

f. A backwash holding tank with associated above-ground and below-ground piping;

g. A control system (including the use of a programmable logic controller, a human machine interface, and SCADA server) that shall provide the secure capability for data logging and to monitor and control individual well pumps and YARD groundwater

treatment system components. The control system shall also allow for remote off-site communications to the treatment plant by operators. During CCC PHASE 1 operations, HONEYWELL (or its designated contractor) shall have remote monitoring and control capability via a high-speed internet connection. System information shall then be passed to LADWP via cloud transfer, which shall keep LADWP's computer systems separate from the internet. During CCC PHASE 3, the treatment plant control system shall be connected directly to the secure LADWP network for remote monitoring and control of operations by LADWP at its off-site central operator's facility (which is manned continuously). After CCC PHASE 3 is complete, system information (but not control) shall be available to HONEYWELL via cloud transfer, thereby maintaining the security of the LADWP systems;

h. Pad-mounted switch gear and transformer with capacity to supply power to both the PHASE 3 TREATMENT SYSTEM and the CHLORINATION SYSTEM (including the anticipated expansion). HONEYWELL shall install the equipment pads, electrical conduit bank, and local switch gear, and shall reimburse LADWP for the installation of the industrial station (high voltage switchgear and transformer) components;

i. Associated electrical and plumbing systems and power conditioning units for each extraction well and other key systems; and

j. Site security systems, including fencing, key card entry, and other systems.

3. In preparation for constructing the PHASE 1 TREATMENT SYSTEM, HONEYWELL shall undertake the following additional activities:

a. Perform an Environmental Site Assessment of the YARD and APN 2321003902;

b. Undertake a pre-renovation hazardous materials survey of the YARD warehouse;

c. Place a construction trailer and associated infrastructure on the YARD;

d. Install a dry well system (anticipated to be installed in the southeast corner of the YARD to comply with stormwater requirements);

e. Remove two trees on the YARD, immediately east of the entrance gate from Vose Street;

f. Demolish the existing air stripper and associated treatment components and remove from the YARD, except for the portion to be removed by LADWP per the NHOU SETTLEMENT AGREEMENT;

g. As necessary, HONEYWELL shall modify/refurbish the YARD warehouse (including subsurface piping). Access to the warehouse may include necessary investigation to confirm foundation conditions (e.g., excavations or borings), and to upgrade the warehouse, as necessary. LADWP provides this warehouse in an as is condition, without any warranty for fitness or otherwise, and HONEYWELL is responsible for ensuring its suitability for any particular use;

h. HONEYWELL shall establish vehicular access from the YARD to the western portion of APN 2321003902 that lies outside of the power transmission corridor (commonly referred to as the

"Triangular Lot") by, for example, modification of the existing fence and installation of a gate, to install conveyance associated with the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM;

i. Remove a portion of the rail spur (including rails and cross ties) that extends from the YARD onto APN 2321003902;

j. Modify the YARD to enable accommodation of delivery trucks with trailers up to 40 feet long, anticipated to be required for operations, maintenance, and monitoring associated with the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM. The anticipated truck route is illustrated on FIGURE SOW-3; and

k. Install a new sewer lateral from the YARD, to be used for routine backwash of the WBA and LPGAC tanks and discharge to the sanitary sewer, pursuant to applicable City and County permits, including but not limited to a City of Los Angeles Bureau of Sanitation permit. This new sewer lateral shall have sufficient capacity for the PHASE 3 TREATMENT SYSTEM and shall be separate from the existing sewer lateral for LADWP (which LADWP will continue to use for LADWP's existing and planned expanded chlorination system).

B. Installation of Extraction Wells and Conveyance Lines

1. Drilling and Well Installation

HONEYWELL shall install three new extraction wells as follows:

a. HONEYWELL shall advance the boreholes at the proposed locations to no more than 550 feet below ground surface. Anticipated well locations are illustrated on FIGURE SOW-2b; final locations are subject to input from LADWP and approval by EPA,

and shall be illustrated in a work plan. Details therein shall include, but not be limited to, the proposed construction footprint at each well location, ingress and egress routes, and distances from power system towers.

b. HONEYWELL shall complete each borehole with an extraction well (to be named "CCC-1," "CCC-2," and "CCC-3"), with up to three discrete screen intervals. HONEYWELL shall install at each well a permanent steel conductor casing that shall extend to 50 feet below grade.

c. The proposed locations for CCC-2 and CCC-3 include high-voltage power lines within the Rinaldi-Toluca, Valley-Hollywood, or Adelanto-Toluca electrical transmission line rights-of-way. Although the wells are anticipated to be installed outside of the overhead transmission drip-lines, HONEYWELL shall complete drilling operations pursuant to electrical safety and other requirements contained in the LICENSE AGREEMENT.

d. HONEYWELL shall develop each extraction well to remove drilling fluids and fine-grained material from the screen intervals. In the event of high turbidity, HONEYWELL shall dispose of development water off-site at an appropriate facility.

e. HONEYWELL intends to utilize NHE-1, NHE-3, NHE-4, and NHE-5 as monitoring wells, unless and until such wells become dry. Wellheads shall be modified to include lockable caps to restrict access. Once such wells are no longer being used as monitoring wells, HONEYWELL shall destroy those wells, consistent with all applicable rules and regulations.

f. If due to changes in water levels or other factors, the replacement and deepening of NHE-2 is determined by EPA to be necessary to adequately contain the BENDIX PLUME to meet the NHOU 2IR RAOs, HONEYWELL and LADWP shall meet and confer to discuss the merits of such replacement or deepening at the next meeting of the STEERING COMMITTEE. The PARTIES further agree that they shall invite EPA to participate in the STEERING COMMITTEE meeting when such replacement or deepening is discussed. If following such meeting EPA directs HONEYWELL to replace or deepen NHE-2, HONEYWELL shall install such replacement and related infrastructure, consistent with all applicable rules and regulations.

2. Wellhead Installation

a. HONEYWELL shall install concrete pads around existing and proposed extraction wells and associated equipment, to comply with applicable State standards (DWR Bulletins 74-81 and 74-90), LADWP standards, DDW requirements, and local ordinances. Equipment that HONEYWELL shall install at each well includes, without limitation, a power conditioning unit, control panel, and a variable-frequency drive (in associated cabinets).

b. HONEYWELL shall install pumps, control panels, and other associated equipment (e.g., meters, valves, sampling port, etc.) in or at the wellhead of existing and proposed extraction wells. Electrical power shall be provided via either a power-drop or below-grade conduits from the existing electrical infrastructure. HONEYWELL shall physically connect each extraction well to an existing or proposed conveyance pipeline to deliver raw groundwater to the PHASE 1 TREATMENT SYSTEM and the PHASE 3 TREATMENT SYSTEM at the YARD.

c. HONEYWELL shall install fiber optic and/or wireless equipment (e.g., repeater station(s), antennae, tower(s), etc.) to enable communications between the wells and the PHASE 1 TREATMENT SYSTEM and the PHASE 3 TREATMENT SYSTEM.

3. Conveyance Installation

a. HONEYWELL shall modify the existing 12-inch conveyance line (the NHOU collector line) to allow for the physical connection of wellheads at NHE-3R, NHE-4R, and NHE-5R. HONEYWELL shall cut and cap the connection from NHE-3, NHE-4, and NHE-5, and cap east of NHE-6 to physically separate the line from wells NHE-7 and NHE-8 (FIGURE SOW-2a). HONEYWELL shall air gap NHE-3, NHE-4 and NHE-5 at the wellhead. The conveyance line for the PHASE 1 TREATMENT SYSTEM shall terminate at NHE-6, and a blow off assembly shall be installed on the collector line east of the NHE-6 connection. A new connection on the YARD to this conveyance shall be established for the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM.

b. HONEYWELL intends to install a below-grade discharge line (anticipated 24-inch diameter) that shall extend from the YARD, through APN 2321003902, to the storm drain along Lankershim Boulevard (i.e., the Colfax Ave-Lankershim Boulevard Storm Drain, Station 101-111). Among other site work, connection to the storm drain may also require limited excavation on APN 2321004901 to permanently install an access way or other conveyance connection to the storm drain. Extension of the conveyance line from the YARD through APN 2321003902 is anticipated to require, among other site work, excavation and the installation of gates within the fences separating this parcel from

APN 2321004900 and within the fence between the Triangular Lot and the power transmission corridor. The discharge line is meant to only be used during commissioning of the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM, subject to an NPDES permit. After the PHASE 3 TREATMENT SYSTEM has been put into service, the discharge permit may be terminated by LADWP.

c. HONEYWELL shall replace the existing 16-inch discharge line from the YARD to the North Hollywood West Branch Connector Line, prior to initiating PHASE 3 TREATMENT SYSTEM operations, to accommodate flows from the PHASE 3 TREATMENT SYSTEM, with a 30-inch discharge line that shall extend from the YARD to the SUMP. HONEYWELL shall install all connections to put the 30-inch discharge line into service, including connection to an LADWP-provided inlet connection point at the SUMP (or a connection along the existing 60-inch pipeline at the discretion of LADWP between the YARD and the SUMP), and complete all associated site work as necessary. HONEYWELL shall disinfect the 30-inch pipeline, in coordination with LADWP, prior to putting it into service. The replacement discharge line is anticipated to traverse Vose Street, Radford Avenue, Dehougne Street, and Hinds Avenue to directly discharge into the SUMP (as shown on FIGURE SOW-2b). HONEYWELL may either (i) physically remove the existing 16-inch discharge line from the YARD to the intersection of Radford Avenue and Dehougne Street and cap and leave in place the remaining portion of piping from this intersection to Vanowen Street, provided HONEYWELL fills that pipe with low strength material to avoid the collapsing of the pipe, or (ii) cap and leave in place the existing 16-inch discharge line in its entirety, provided HONEYWELL fills that pipe with low strength material to avoid the collapsing of the pipe.

d. HONEYWELL shall install a new eight (8)-inch conveyance line below-grade from NHE-3R to NHE-2 to the YARD to deliver raw groundwater specifically to the WBA unit of the PHASE 3 TREATMENT SYSTEM. HONEYWELL shall install this piping in trenches and/or via jack-and-bore, and complete all site work as necessary. A portion of this conveyance line may be installed in the same trench as described in PARAGRAPHS II.B.3.b and II.B.3.e of this SCOPE OF WORK.

e. HONEYWELL shall install a new conveyance line (anticipated to range from 8-inch to up to 20-inch diameter) from CCC-3 to CCC-2 to CCC-1 to the YARD within APN 2321003902, and complete associated site work. This line may be installed in the same trench as described in PARAGRAPHS II.B.3.b and II.B.3.d of this SCOPE OF WORK.

f. LADWP shall design and construct a thirty (30)-inch flanged inlet to the SUMP to serve as a future connection point for HONEYWELL. Location of the inlet shall be determined by LADWP design manager. LADWP shall complete this connection before the PHASE 3 TREATMENT SYSTEM becomes operational.

g. In the event WBA treatment is needed for wells other than NHE-3R and NHE-2, HONEYWELL shall develop and install infrastructure to enable such treatment, as required to comply with permits or other requirements from DDW and/or an ORDER.

C. Other CCC Components and Elements

1. HONEYWELL shall install other components and elements of the CCC SYSTEM, if not otherwise specified above or in the NHOU SETTLMENT AGREEMENT.

D. CCC Startup, Shakedown, Testing, Monitoring and O&M

1. HONEYWELL shall complete startup, shakedown, testing and initial O&M of the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM, as set forth in the NHOU SETTLMENT AGREEMENT.

2. LADWP shall complete O&M of the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM with support from HONEYWELL, as set forth in the NHOU SETTLMENT AGREEMENT.

3. LADWP and HONEYWELL shall perform testing and monitoring per the NHOU SETTLMENT AGREEMENT and related plans.

III. Primary SSC Treatment Plan Construction and Operation

A. Re-drilling of Whitnall Wells 4 and 5 and Installation of Conveyance Line

1. If LADWP plans to move forward with the SSC, LADWP shall drill two new wells to replace WH4-5 WELLS and install a conveyance line from those wells to the YARD, as set forth in the AGREEMENT.

B. Construction of Primary SSC Treatment System

1. In the event LADWP provides notice to HONEYWELL pursuant to SECTION 14.1.2 of the NHOU SETTLEMENT AGREEMENT:

a. HONEYWELL shall complete site preparation, such as excavation of soil on APN 2321003902, or an alternate location per SECTIONS 8.2.2 and 10.2.2 of the AGREEMENT, to prepare that area for a control building and concrete pads (for remediation equipment,

tanks, transformer, etc.) and subsurface treatment system piping to be installed. This work shall include, as necessary, grubbing, stripping, stockpiling, grading, and backfilling.

b. HONEYWELL shall install the components of the PRIMARY SSC TREATMENT PLANT, which are anticipated to include an air stripper or LPGAC tanks to remove volatile organic compounds, pursuant to conditions stipulated in the NHOU SETTLMENT AGREEMENT.

c. HONEYWELL shall also install other elements of the PRIMARY SSC TREATMENT PLANT, which are anticipated to include a power drop, sanitary sewer connection for routine backwash operations, installation of a treatment system control building (if not integrated into the CCC SYSTEM control room) and concrete pads, a permanent connection to the conveyance line to the storm drain for commissioning purposes, a SCADA system (or integration into the CCC SYSTEM control system), associated electrical and plumbing systems, site security systems, and vehicular access.

d. HONEYWELL shall install any other elements necessary for the PRIMARY SSC TREATMENT PLANT, as specified in the AGREEMENT not listed above, for that system to meet the requirements contained in the NHOU SETTLMENT AGREEMENT. Communication between the SSC TREATMENT PLANT and WH4-5 WELLS shall be established via radio signal or other reliable means of communications between the wells and programmable logic controller.

C. Startup, Shakedown, Testing, Monitoring and O&M of Primary SSC Treatment System

1. In the event LADWP provides notice to HONEYWELL pursuant to SECTION 14.1.2 of the NHOU SETTLMENT AGREEMENT:

a. HONEYWELL shall complete startup, shakedown, testing and initial O&M of the PRIMARY SSC TREATMENT PLANT, as set forth in the NHOU SETTLMENT AGREEMENT.

b. LADWP shall complete O&M of the PRIMARY SSC TREATMENT PLANT, including obtaining a permit from DDW, as set forth in the NHOU SETTLMENT AGREEMENT.

c. LADWP and HONEYWELL shall complete testing and monitoring per the NHOU SETTLMENT AGREEMENT and related plans.

IV. Secondary SSC System Construction and Operation

A. Construction of Secondary SSC Treatment System

1. In the event LADWP provides notice to HONEYWELL pursuant to SECTION 14.2.2 of the NHOU SETTLMENT AGREEMENT:

a. HONEYWELL shall complete site preparation, including excavation of soil on the Triangular Lot, or an alternate location per SECTION 10.2.2 of the AGREEMENT, to prepare for the necessary additional treatment components associated with the SECONDARY SSC TREATMENT PLANT. This work shall include, as necessary, grubbing, stripping, stockpiling, grading, and backfilling.

b. HONEYWELL shall install the components of the SECONDARY SSC TREATMENT PLANT, pursuant to conditions stipulated in the NHOU SETTLMENT AGREEMENT.

c. HONEYWELL shall also modify existing elements associated with the PRIMARY SSC TREATMENT PLANT or install new elements as necessary to support the SECONDARY SSC TREATMENT PLANT, which are anticipated to include a power drop, sanitary sewer connection for routine backwash operations, installation of a control building and concrete pads, a permanent connection to the conveyance line to the storm drain for commissioning purposes, a SCADA system, associated electrical and plumbing systems, site security systems, and vehicular access.

d. HONEYWELL shall install any other elements necessary for the SECONDARY SSC TREATMENT PLANT, as specified in the NHOU SETTLEMENT AGREEMENT not listed above, for that system to meet the requirements contained in the NHOU SETTLEMENT AGREEMENT.

B. Startup, Shakedown, Testing, Monitoring and O&M of Secondary SSC Treatment Plant

1. In the event LADWP provides notice to HONEYWELL pursuant to SECTION 14.2.2 of the NHOU SETTLMENT AGREEMENT:

a. HONEYWELL shall complete startup, shakedown, testing and initial O&M of the SECONDARY SSC TREATMENT PLANT, as set forth in the NHOU SETTLEMENT AGREEMENT.

b. LADWP shall complete O&M of the SECONDARY SSC TREATMENT SYSTEM, including obtaining a permit from DDW, as set forth in the NHOU SETTLMENT AGREEMENT.

c. LADWP and HONEYWELL shall complete testing and monitoring per the NHOU SETTLMENT AGREEMENT and related plans.

V. Chlorination Station

A. Expansion of Chlorination System

1. LADWP shall expand the existing CHLORINATION SYSTEM, located at the YARD, to accommodate flows up to approximately 120 cubic feet per second and in accordance with the AGREEMENT. The major components of the CHLORINATION SYSTEM include storage tanks, a dosing system, transfer pumps, and a chlorine generation system. The expanded CHLORINATION SYSTEM shall chlorinate multiple flows passing through the YARD. If LADWP does not complete this expansion prior to the PHASE 3 TREATMENT PLANT becoming operational, LADWP shall make other arrangements so that the flows from the PHASE 3 TREATMENT PLANT can be disinfected and conveyed to the LADWP distribution system.

VI. General Provisions

A. Compliance with Applicable Requirements

1. All work completed pursuant to this SCOPE OF WORK shall comply with all requirements set forth in the NHOU SETTLMENT AGREEMENT, the LICENSE AGREEMENT, and/or permits or other requirements from DDW and/or an ORDER.

B. Relationship to Other Requirements

1. Nothing in this SCOPE OF WORK is intended to limit the obligations or other terms of the NHOU SETTLMENT AGREEMENT.

2. In the event of any conflict between this SCOPE OF WORK and the NHOU SETTLMENT AGREEMENT, the terms of the NHOU SETTLMENT AGREEMENT shall apply.

ATTACHMENT A TO SCOPE OF WORK

The following is a tentative, non-binding, conceptual schedule detailing certain anticipated milestones for activities detailed in the SCOPE OF WORK:

- Start of Drilling of Certain Additional CCC SYSTEM Wells: October 2019
- PHASE 1 TREATMENT SYSTEM Construction Commencement: March 2020
- PHASE 1 TREATMENT SYSTEM Operation Commencement (1,500 AFY): February 2022
- PHASE 1 TREATMENT SYSTEM Shutdown: September 2022
- PHASE 3 TREATMENT SYSTEM Construction Commencement: September 2022
- PHASE 3 TREATMENT SYSTEM Operation Commencement (8,500 AFY): November 2023

SCOPE OF WORK FIGURE 1

Wednesday, November 13, 2019 9:03:51 AM
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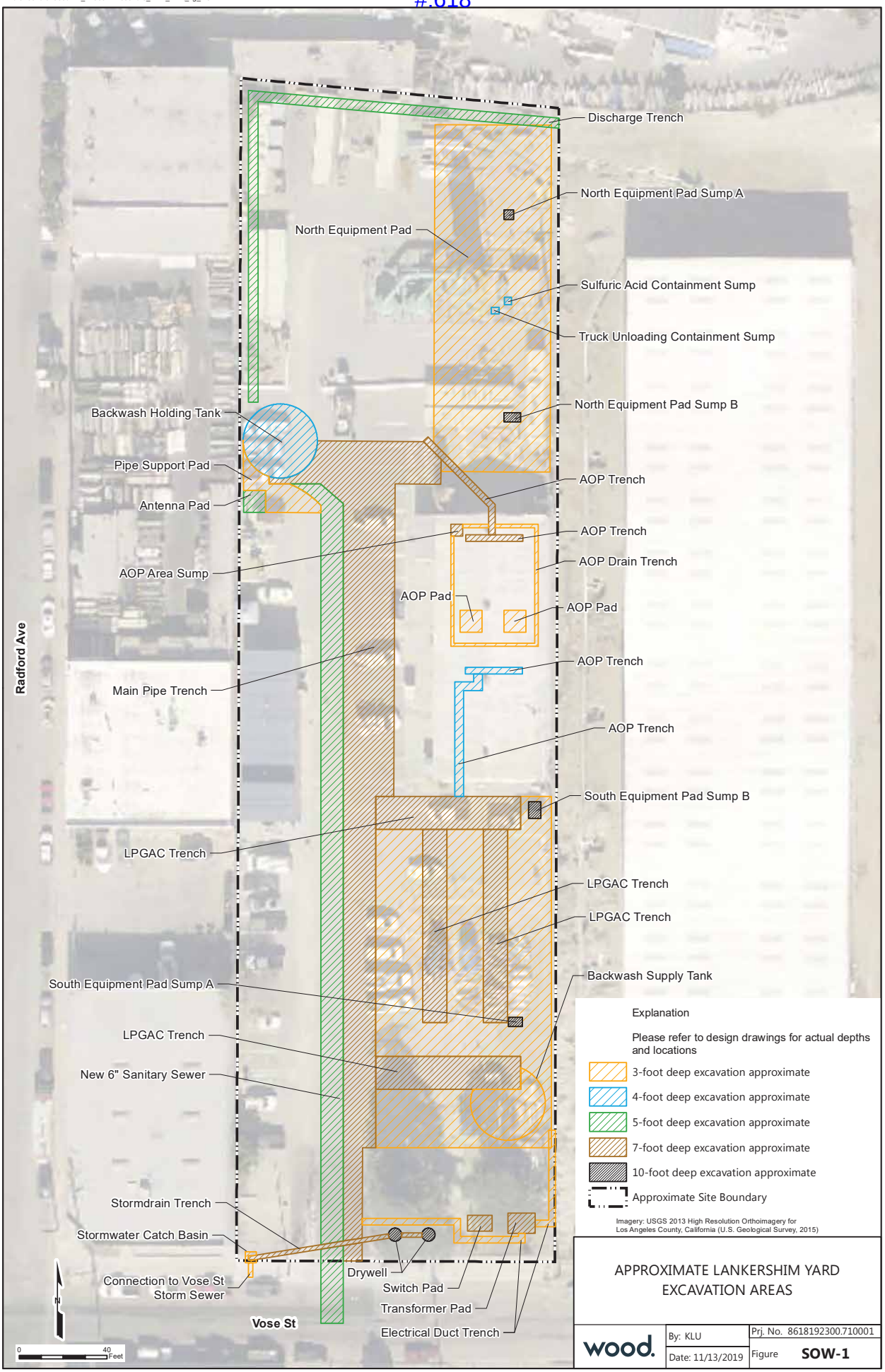
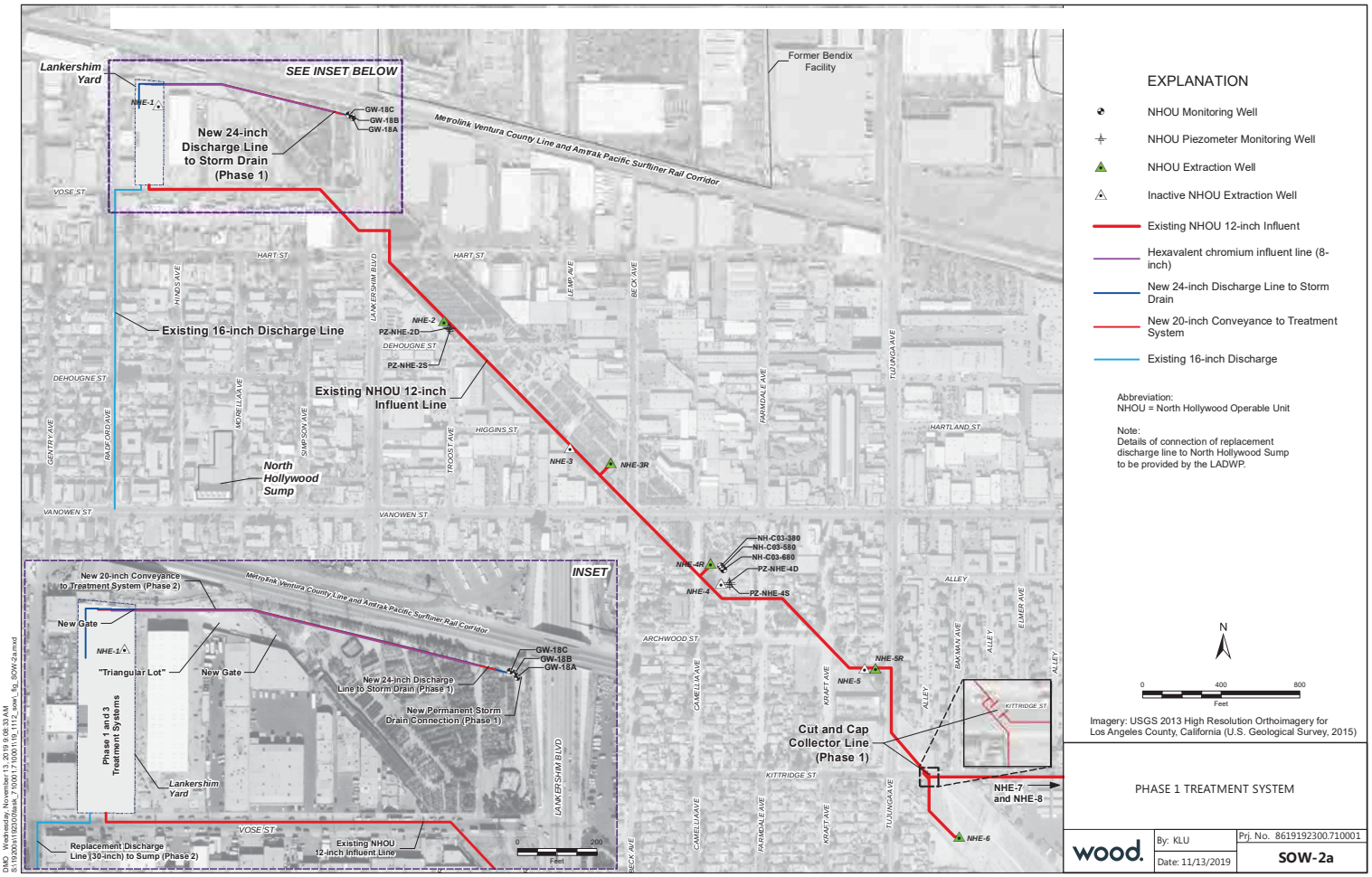
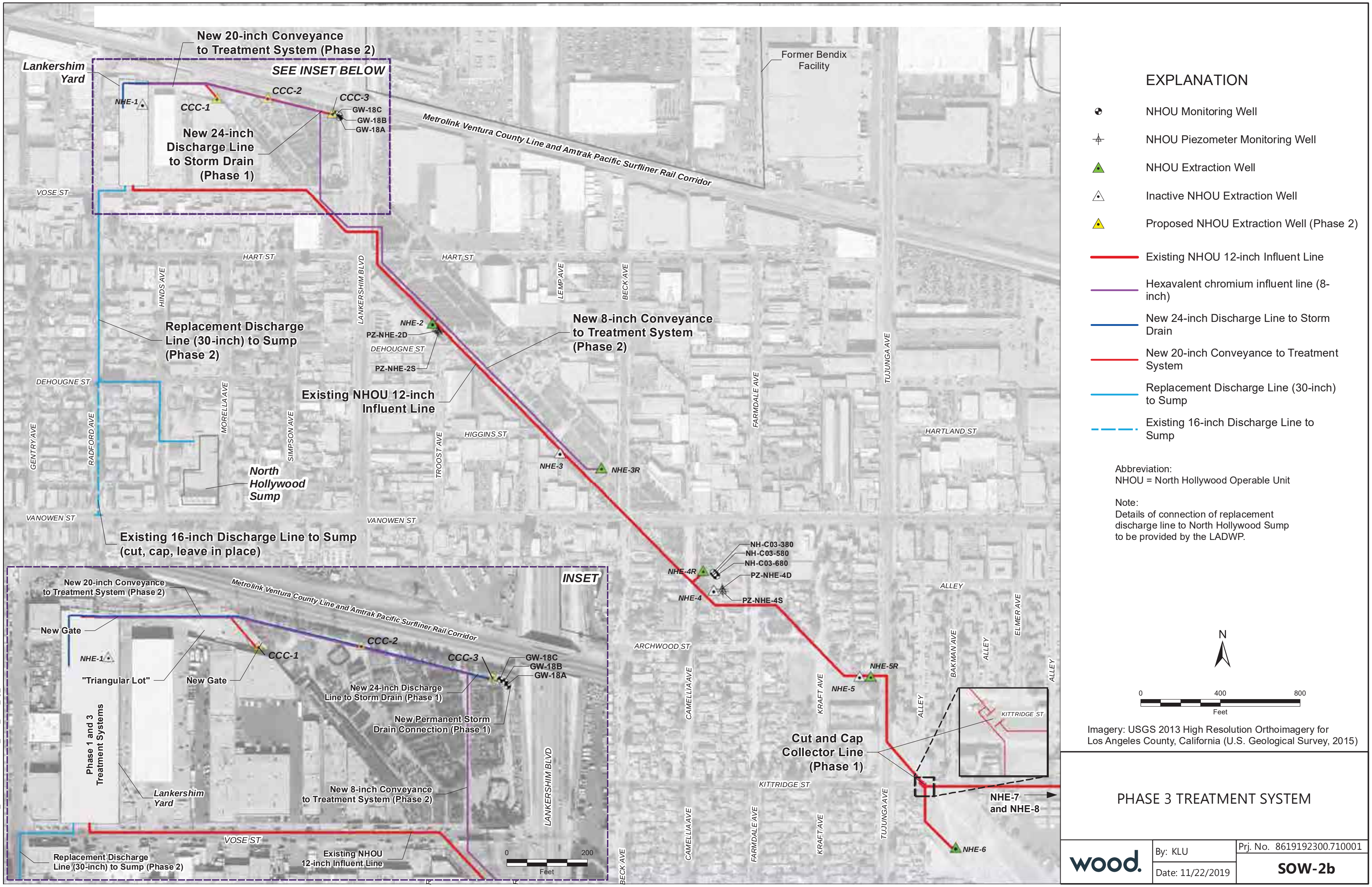


SCOPE OF WORK FIGURE 2A


Lankershim Yard
SEE INSET BELOW
NHE-1
GW-18C
GW-18B
GW-18A
New 24-inch Discharge Line to Storm Drain (Phase 1)
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
Former Bendix Facility
VOSE ST
HART ST
HINDS AVE
LANKERSHIM BLVD
LEMP AVE
BECK AVE
Existing 16-inch Discharge Line
NHE-2
PZ-NHE-2D
PZ-NHE-2S
DEHOUGNE ST
Existing NHOU 12-inch Influent Line
MORELLA AVE
SIMPSON AVE
TROOST AVE
HIGGINS ST
NHE-3
NHE-3R
North Hollywood Sump
VANOWEN ST
FARMDALE AVE
TUJUNGA AVE
HARTLAND ST
NH-C03-380
NH-C03-580
NH-C03-680
PZ-NHE-4D
NHE-4R
NHE-4
PZ-NHE-4S
ALLEY
ARCHWOOD ST
NHE-5R
NHE-5
KRAFT AVE
CAMELLIA AVE
BAKMAN AVE
ELMER AVE
KITTRIDGE ST
Cut and Cap Collector Line (Phase 1)
NHE-7 and NHE-8
NHE-6
INSET
New 20-inch Conveyance to Treatment System (Phase 2)
New Gate
"Trianguiar Lot"
New 24-inch Discharge Line to Storm Drain (Phase 1)
New Permanent Storm Drain Connection (Phase 1)
Phase 1 and 3 Treatment Systems
Lankershim Yard
Replacement Discharge Line (30-inch) to Sump (Phase 2)
Existing NHOU 12-inch Influent Line
0
200
Feet
EXPLANATION
NHOU Monitoring Well
NHOU Piezometer Monitoring Well
NHOU Extraction Well
Inactive NHOU Extraction Well
Existing NHOU 12-inch Influent
Hexavalent chromium influent line (8-inch)
New 24-inch Discharge Line to Storm Drain
New 20-inch Conveyance to Treatment System
Existing 16-inch Discharge
Abbreviation:
NHOU = North Hollywood Operable Unit
Note:
Details of connection of replacement discharge line to North Hollywood Sump to be provided by the LADWP.
N
0
400
800
Feet
Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)
PHASE 1 TREATMENT SYSTEM
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8619192300.710001
SOW-2a

SCOPE OF WORK FIGURE 2B



PHASE 3 TREATMENT SYSTEM

wood.

By: KLU

Date: 11/22/2019

Prj. No. 8619192300.710001

SOW-2b

DMO Friday, November 22, 2019 10:17:04 AM
S:\19200s\192300\task_710001.710001\19_1112_sow_fig_SOW-2b.mxd

SCOPE OF WORK FIGURE 3


RADFORD AVE.
VOSE ST.
EXISTING 16" CS TREATED EFFLUENT
GROUNDW
INGRESS ROUTE
RADFORD AVE.
VOSE ST.
EXISTING 16" CS TREATED EFFLUENT
EXIS
GROUNDW
EGRESS ROUTE
DELIVERY TRUCK ROUTE
wood.
By: KLU
Date: 11/13/2019
Proj. No. 8619192300.710001
Figure
SOW-3

EXHIBIT 4

FORM OF LICENSE AGREEMENT

THE CITY OF LOS ANGELES, acting by and through its DEPARTMENT OF WATER AND POWER (hereinafter referred to as the "LADWP"), for and in consideration of (i) the commitments made in that certain agreement entitled "SETTLEMENT AGREEMENT BETWEEN THE LOS ANGELES DEPARTMENT OF WATER AND POWER AND HONEYWELL INTERNATIONAL INC." (the "NHOU SETTLEMENT AGREEMENT") and (ii) the keeping and performance of the terms and conditions in this License Agreement (the "License"), gives permission to HONEYWELL INTERNATIONAL INC. and its sub-licensees (jointly, severally, and collectively referred to herein as "Licensee"), to enter upon certain real property that is owned by the CITY and/or under the control and jurisdiction of LADWP (the "Licensed Areas") for the purpose of facilitating the construction, operation, and maintenance of groundwater treatment facilities and their associated wells, conveyance, and other necessary infrastructure for the benefit of LADWP, as contemplated by the NHOU SETTLEMENT AGREEMENT and referenced in PARAGRAPH 38 of this License (the "Activities"). Licensee and LADWP (collectively referred to herein as the "Parties" and individually as a "Party") acknowledge that the Activities will implement a portion of the "SECOND INTERIM REMEDY" for the North Hollywood Operable Unit of the San Fernando Valley Area 1 Superfund Site and are required by and subject to the United States Environmental Protection Agency's ("EPA") regulatory authority pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). Terms in all capitalized letters not otherwise defined herein shall have the meaning assigned in the NHOU SETTLEMENT AGREEMENT, which is attached hereto as Attachment A.

The Licensed Areas are shown on Figures LA-1, LA-2, and LA-3 and described as follows:

(a) That real property owned by LADWP, located at 11845 Vose Street, Los Angeles, California (Assessor Parcel Number ("APN") 2321004900), and which is commonly referred to as the "Lankershim Yard" (the "Yard"), as illustrated on Figures LA-1 and LA-2, incorporated herein by this reference.

(b) That real property owned by LADWP located in Los Angeles, California (APN 2321003902), and which is also referred to as "Parcel C" or the "Triangular Lot", as illustrated on Figure LA-1. Collectively, the Yard, Parcel C, and the Triangular Lot are referred to herein this License as the "YARD."

(c) That real property owned by LADWP, located in Los Angeles, California, associated with the following APNs, as illustrated on Figure LA-1:

(i) APN 2320008904 (NHE-2, PZ-NHE-2D, and PZ-NHE-2S): northwest of the intersection between Dehougne Street and Troost Avenue;

(ii) APN 2320006907 (NHE-3 and NHE-3R): northwest of the intersection between Vanowen Street and Beck Avenue;

(iii) APN 2320017901 (NHE-4, NHE-4R, PZ-NHE-4D, PZ-NHE-4S, NH-C03-380, NH-C03-580, and NH-C03-680): south of Vanowen Street, east of Camellia Street;

(iv) APN 2320020900 (NHE-5 and NHE-5R): southwest of the intersection between Archwood Street and Tujunga Avenue;

(v) APN 2336010901 (NHE-6): southeast of the intersection between Kittridge Street and Tujunga Avenue;

(vi) APN 2321003902 (GW-18A, GW-18B, and GW-18C): southwest of the intersection of Lankershim Boulevard and the Metrolink Ventura County Line and Amtrak Pacific Surfline Rail Corridor;

(vii) APN 2321004900 (NHE-1): inactive NHOU extraction well on the YARD and APN 2321004901;

(viii) APN 2414029900 (PZ-NHE-7S and PZ-NHE-7D): at the intersection of Cleon Avenue and Kitteridge Street;

(ix) APN 2317010900 (4919D): within "power transmission corridor," north of Runnymede Street;

(x) APN 2336021904 (NH-VPB-08): within power transmission corridor, east of Debby Street (access from Vineland Avenue); and,

(xi) Certain other wells owned by LADWP that are located in public rights of way, including: 3811E (sidewalk on Troost Avenue) and 4918A (Strathern Street right of way).

(d) LADWP-owned real property associated with the following APNs to the extent needed to access the existing LADWP-owned water distribution conveyance lines from the CCC production wells to the CCC treatment plant at the YARD and from the treatment plant at the YARD to the SUMP: APNs 2321004900, 2321007901, 2320001902, 2320008904, 2320009902, 2320010900, 2320006907, 2320016903, 2320017901, 2320017900, 2320018902, 2320020900, 2319008900, and 2336010901, as illustrated on Figures LA-1 and LA-3.

(e) That LADWP-owned real property (APN 2321020900), which is associated with the LADWP-owned "North Hollywood Sump" or "SUMP", to the extent needed to complete the installation of the discharge conveyance, as described in the SCOPE OF WORK, which is set forth in EXHIBIT 3 of the NHOU SETTLEMENT AGREEMENT.

(f) On the above-referenced real property, Licensee shall not have access to LADWP infrastructure and fixtures other than existing conveyance lines to convey water from the CCC wells to the YARD and from the YARD to the SUMP, as applicable, and the wells identified in (a) through (e), above.

LADWP finds that, at this time: (i) the Licensed Areas, other than their present use, are not presently needed for other LADWP departmental purposes; (ii) the grant of the License will not interfere with LADWP departmental purposes; and (iii) the grant of the License is necessary for Licensee and the LADWP to facilitate the NHOU SETTLEMENT AGREEMENT.

THE FOREGOING PERMISSION is given upon and subject to the following terms and conditions:

1. The right and permission of Licensee is subordinate to the prior and paramount right of LADWP to use said Licensed Areas for the public purposes to which they now are and may be, at the option of LADWP, devoted. Licensee undertakes and agrees to use said Licensed Areas solely in the exercise of this License and solely for the purposes set forth herein and in the NHOU SETTLEMENT AGREEMENT, and will at all times exercise the permission herein given in such manner consistent with this License and the NHOU SETTLEMENT AGREEMENT.

LADWP shall provide Licensee with all information that is known or readily accessible to LADWP and not otherwise privileged or protected, which may be reasonable and/or necessary for completion of the Activities. Information provided by LADWP is solely determined by LADWP, including the location of all utility lines and subterranean structures within the property lines of the Site; *provided*, *however*, that Licensee may request information Licensee considers to be reasonable and/or necessary for completion of the Activities, and that provision of such information shall not be unreasonably withheld by LADWP. However, LADWP maintains the right to require Licensee to agree to certain reasonable conditions to keep certain information confidential for reasons of security, including, if necessary, the execution of a confidentiality agreement. LADWP makes no representation, warranty, or guarantee regarding the accuracy and completeness of the information provided pursuant to this PARAGRAPH 1, and Licensee assumes full responsibility for investigating the completeness and accuracy of such information.

Licensee hereby acknowledges title in the CITY, a municipal corporation, and LADWP in said real property, and agrees never to assail or resist the same, and further agrees that Licensee's right to use and occupancy of said Licensed Areas arises solely from the permission given herein.

2. Term.

A. This License shall commence following execution by both Parties and shall remain in force for a term of fifty (50) years or until the Activities have been completed consistent with the obligations set forth in the NHOU SETTLEMENT AGREEMENT, whichever occurs first. Licensee hereby acknowledges LADWP's

ability to execute this License and enter into this transaction is subject to approval by the Board of Water and Power Commissioners of the Department of Water and Power of the CITY and subsequent action and review by the CITY COUNCIL pursuant to the CHARTER. Licensee further acknowledges that it cannot rely upon the representations of anyone acting on behalf of, or claiming to act on behalf of, LADWP or as LADWP's agent relating to the probability of the License being approved and that this transaction may or may not be consummated.

B. In the event the Activities have not been completed consistent with the NHOU SETTLEMENT AGREEMENT within one hundred eighty (180) DAYS of the expiration of the License, the Parties shall meet and confer to discuss whether good cause exists to enter into a new license.

C. In the event that the NHOU SETTLEMENT AGREEMENT becomes null and void due to the failure of the condition subsequent pursuant to SECTION 28 of the NHOU SETTLEMENT AGREEMENT, this License shall terminate a reasonable time following the failure of such condition (in order to allow Licensee time to meet its wind-up obligations hereunder) or the then-applicable termination date, whichever is sooner.

3. Licensee shall remove all construction-derived waste, investigation-derived waste, and drilling wastes within ninety (90) DAYS after the wastes are placed in containers, and Licensee will act diligently in removing the waste as quickly as possible and, in any event, before the expiration of this License and in accordance with applicable law.

4. Response to Introduction of Contamination.

A. To the extent any discharge, release, or spillage of material, which is or becomes defined as any CONTAMINATION, is caused by Licensee, or if CONTAMINATION is introduced by the Licensee onto the Licensed Areas during the term of this License as a result of the use of the Licensed Areas by Licensee pursuant to this License, Licensee shall be responsible for all cleanup, remediation and/or removal and all associated costs and expenses, including but not limited to

any fines, penalties, judgments, litigation costs, and attorneys' fees incurred in connection with such CONTAMINATION to the extent required by any and all applicable local, state, and federal laws, regulations, rules, and permits ("Licensee-induced Response Costs").

B. The contractual obligation for Licensee-induced Response Costs in this PARAGRAPH 4 shall have the following duration:

i. For Licensee-induced Response Costs that are caused by Licensee prior to the end of CCC transition period pursuant to SECTION 5.3.5 of the NHOU SETTLEMENT AGREEMENT ("CCC Transition Period"), the obligations set forth under this PARAGRAPH 4.B.i shall not apply to claims made against Licensee by LADWP more than five (5) years after the termination of the CCC Transition Period.

ii. For Licensee-induced Response Costs that are caused by Licensee associated with the design, construction or operation of the PRIMARY SSC TREATMENT SYSTEM until the end of the SSC transition period pursuant to SECTION 11.3.4 of the NHOU SETTLEMENT AGREEMENT ("SSC Transition Period"), the obligations set forth in this PARAGRAPH 4 shall not apply to claims made against Licensee by LADWP more than five (5) years after the termination of the SSC Transition Period.

iii. For Licensee-induced Response Costs that are caused by Licensee other than those addressed in PARAGRAPHS 4.B.i and 4.B.ii, the obligations set forth in this PARAGRAPH 4.B.iii shall not apply to claims made against Licensee by LADWP more than five (5) years after the discharge, release, spillage or introduction of material, which is or becomes defined as any CONTAMINATION. This obligation shall survive the termination of this License.

C. Notwithstanding PARAGRAPHS 4.B.i, 4.B.ii, and 4.B.iii, no time limit shall apply to the obligations set forth in this PARAGRAPH 4 for claims made by LADWP

against Licensee arising from or related to the off-site disposal or transshipment of any materials by the Licensee or Licensee's agents. This obligation shall survive the expiration or termination of this License.

D. The Parties do not intend for this PARAGRAPH 4 to impose any additional obligation for PRE-EXISTING ENVIRONMENTAL CONDITIONS, beyond those expressly set forth in the NHOU SETTLEMENT AGREEMENT.

E. The obligations set forth in this PARAGRAPH 4 shall be in addition to any other rights or remedies that LADWP has under law, the NHOU SETTLEMENT AGREEMENT, and this License. The Parties agree that the expiration of any contractual obligations set forth in this PARAGRAPH 4 do not alter the allocation or apportionment of Licensee-induced Response Costs that would otherwise exist in the absence of such contractual obligation.

5. The Licensee shall, at no cost to LADWP, provide electronic copies of any and all tests, studies, reports, or data that are in any way obtained by Licensee or its agents and contractors or derived from the Activities to LADWP, to the attention of: Director of Water Quality, 111 N. Hope Street, Room 1213, Los Angeles, CA 90051-0100. At a minimum, such data shall be provided in a format identical to that provided to EPA, the Los Angeles Regional Water Quality Control Board, or other relevant regulatory agency and provided within the time frame established in the NHOU SETTLEMENT AGREEMENT. At the request of LADWP, Licensee shall, at no cost to LADWP, provide two (2) hard copies of such tests, studies, reports, or data.

6. Nothing contained in this License shall be construed as consent by LADWP to any holding over by Licensee. LADWP expressly reserves the right to require Licensee to surrender possession of the Licensed Areas to LADWP as provided in this License upon the expiration or other termination of this License. In all other respects, the use of the Licensed Areas shall be governed by the provisions of this License.

7. Notices. Except as otherwise expressly provided in this License, all notices pursuant to this License shall be in writing and shall be sent or delivered to the following:

To LADWP:

Director of Water Quality
Department of Water and Power
111 N. Hope Street, Room 1213
Los Angeles, CA 90012

With copies to:

Michelle Lyman, Esq.
Deputy City Attorney
Los Angeles City Attorney, Department of Water and Power
221 N. Figueroa, 10th Floor
Los Angeles, CA 90012

and

Thomas A. Bloomfield, Esq.
Kaplan Kirsch & Rockwell LLP
1675 Broadway, Suite 2300
Denver, CO 80202

To Licensee:

Benny Dehghi, Director, Major Projects
Honeywell International Inc.
2525 W. 190th Street, MS 23/35-1-A
Torrance, CA 90504-6099

With copies to:

Gene A. Lucero, Esq.
1462 Claridge Drive
Beverly Hills, CA 90210

and

John C. Heintz, Esq.
Latham & Watkins LLP
355 S. Grand Ave., Suite 100
Los Angeles, CA 90071

Any notice or demand required shall be given (i) personally, (ii) by certified or registered mail, postage prepaid or return receipt requested, or (iii) by reliable messenger or overnight courier to the addresses of the respective Parties set forth above. Any notice served personally shall be deemed delivered on the date of delivery, and any notice served by certified or registered mail or

by reliable messenger or overnight courier shall be deemed delivered on the date of receipt as shown on the addressee's registry or certification of receipt or on the date receipt is refused as shown on the records or manifest of the U.S. Postal Service or such courier, or five (5) business days after deposit in the United States Mail. LADWP and/or Licensee may from time-to-time designate any other address or addressee or additional addresses for this purpose by written notice to the other Party.

8. Upon the expiration or other termination of this License, unless otherwise provided for in a new license entered following the meet and confer contemplated in PARAGRAPH 2.B of this License, Licensee shall surrender the Licensed Areas in a neat and clean condition, meaning that, pursuant to this PARAGRAPH 8, Licensee will make reasonable efforts to remove any equipment, vehicles, trailers, containers, signs, litter, and/or debris, if any, brought on to the Licensed Areas by Licensee during the term of this License; *provided*, *however*, certain equipment and fixtures can remain to become the property of LADWP, at the election of LADWP. Unless otherwise agreed by LADWP and Licensee, Licensee shall complete restoration of the Licensed Areas to their original condition or better prior to the expiration or other termination of this License. Restoration of the Licensed Areas shall include, but not be limited to, removal of all of the Licensee's equipment, signs, litter, and debris. Licensee shall remove or, in the case of wells and conveyance infrastructure, appropriately and consistent with applicable laws, abandon in place all improvements unless otherwise agreed to in writing by mutual agreement of the Parties. Any and all improvements agreed to remain shall become the property of LADWP unless otherwise provided by mutual agreement of the Parties. This obligation shall survive the expiration or other termination of this License. Licensee shall contact LADWP and make arrangements for a field inspection of the Licensed Areas prior to the expiration or other termination of this License and surrender of the Licensed Areas by Licensee. If LADWP reasonably and in good faith determines that restoration has not been completed pursuant to this PARAGRAPH 8 upon expiration or other termination of this License, LADWP may, following notice and an opportunity to meet and confer, restore said Licensed Areas entirely at the risk and expense of Licensee. LADWP will bill Licensee for the full cost of said restoration and the Licensee shall promptly pay LADWP for the restoration costs.

9. All Activities performed pursuant to the terms of this License shall be done in accordance with the terms and conditions specified in the NHOU SETTLEMENT AGREEMENT and applicable ordinances, statutes, permits, and regulations governing such instances, and the provisions of such NHOU SETTLEMENT AGREEMENT and applicable ordinances, statutes, permits, and regulations are, by reference, made a part hereof as though incorporated verbatim herein.

10. Defense and Indemnity.

A. Licensee has inspected the Licensed Areas, knows the condition thereof, and, except as otherwise provided in the NHOU SETTLEMENT AGREEMENT, on behalf of itself and its successors, assigns, and sub-licensees, undertakes and agrees to indemnify, defend, and hold LADWP, the CITY, and its successors and assigns, directors, officers, commissioners, boards, employees, parents, subsidiaries, affiliates, contractors, and agents (individually and collectively "Indemnitees") harmless, and at the option of the LADWP, defend by counsel satisfactory to the LADWP, for any claims made against Indemnitees and all liens and claims of liens, suits, causes of action, claims, administrative proceedings, charges, damages, demands, judgments, civil fines, penalties, or losses that are incurred by or asserted against the Indemnitees, for:

i. death, bodily injury or personal injury to any person, including but not limited to Licensee's agents (including but not limited to Licensee's officers, invitees, employees, contractors, sub-licensees of any tier, sub-contractors of any tier, and customers, collectively, "Licensee's Agents"), or persons who enter onto the Licensed Areas;

ii. damage to or destruction or loss of use of any property of either Party hereto, or third persons in any manner arising by reason of, Licensee's presence on the License Areas and the Activities performed pursuant to this License; or

iii. in addition to, and without limiting, PARAGRAPH 4 hereof, environmental investigations, monitoring, containment, abatement, removal, repair,

cleanup, restoration, remediation, penalties and fines arising from the violation of any local, regional, state or federal law, or regulation, disbursements, and other environmental response costs relating directly or indirectly to the release or spill of any CONTAMINATION onto the License Areas by Licensee or Licensee's Agents.

Together or individually, the acts and/or omissions resulting in a claim pursuant to PARAGRAPHS 10.A.i - 10.A.iii above shall be referred to as "Claim Events" or a "Claim Event."

B. Licensee's indemnity and defense obligation pursuant to this provision shall not extend to that portion of any claim(s) that arises from the gross negligence or willful misconduct of Indemnitees.

C. Termination or continuation of defense and indemnity obligation:

i. For Claim Events completed prior to the end of the CCC Transition Period, the defense and indemnity obligations set forth in this PARAGRAPH 10 shall not apply to claims made against Indemnitees more than five (5) years after the termination of the CCC Transition Period.

ii. For Claim Events associated with the construction or operation of the PRIMARY SSC TREATMENT SYSTEM until the end of the SSC Transition Period, the defense and indemnity obligations set forth in this PARAGRAPH 10 shall not apply to claims made against Indemnitees more than five (5) years after the termination of the SSC Transition Period.

iii. For Claim Events other than those addressed in PARAGRAPHS 10.C.i and 10.C.ii, the defense and indemnity obligations set forth in this PARAGRAPH 10 shall not apply to claims made against Indemnitees more than five (5) years after the Claim Event(s). This obligation shall survive the expiration or other termination of this License.

iv. Notwithstanding PARAGRAPHS 10.C.i - 10.C.iii, no time limit shall apply to the defense and indemnity obligation for claims arising from or related to the off-site disposal or transshipment of any materials by the Licensee, by Licensee's Agents, or by LADWP. This obligation shall survive the expiration or other termination of this License.

D. Notwithstanding this PARAGRAPH 10, Licensee shall have no defense or indemnity obligations for claims arising from PRE-EXISTING ENVIRONMENTAL CONDITIONS, except to the extent that Licensee exacerbates PRE-EXISTING ENVIRONMENTAL CONDITIONS.

E. The obligations set forth in this PARAGRAPH 10 shall be in addition to any other rights and remedies that the Parties have under the law, the NHOU SETTLEMENT AGREEMENT, and this License. The Parties agree that the expiration of any indemnity and defense obligation under this PARAGRAPH 10 does not alter the allocation or apportionment of liability or costs that would otherwise exist in the absence of such contractual indemnity and obligation.

11. Except as otherwise expressly provided in the NHOU SETTLEMENT AGREEMENT, Licensee shall pay for all materials placed upon, joined, or affixed to said Licensed Areas by or at the request or direction of Licensee, and shall pay in full all persons who perform labor upon said Licensed Areas at the request or direction of Licensee, and shall not cause or permit any liens of any kind or nature to be levied against said Licensed Areas for any work done or materials furnished thereon at the request or direction of Licensee. Licensee shall provide LADWP notice in writing of any liens levied against the Licensed Areas. Licensee shall have fifteen (15) DAYS to cause the removal of any such liens, and if such liens are not removed, LADWP may pay any amount owed and cause their removal. LADWP may bill the Licensee for the amount paid out by LADWP in removing such liens. Licensee shall have thirty (30) DAYS to repay the funds expended by LADWP necessary to remove such lien. Failure to comply with the requirements of this PARAGRAPH 11 shall be considered a default, and LADWP shall have the right but not the obligation to terminate this License. The exercise by LADWP of its right to

terminate under this PARAGRAPH 11 shall not be construed as a waiver of any of its rights to any other remedy or lawful action to recover funds paid by LADWP.

12. This License and permission herein given is personal to Licensee, including sub-licensees it designates, which may include, among others, a legal entity or entities established to facilitate and/or undertake the Activities, and is not otherwise assignable, and any attempt to do so shall be void and shall confer no right on any third party.

13. Licensee acknowledges that Licensee is not entitled to relocation assistance or any other benefits under the Uniform Relocation Assistance Act or any other provisions of law upon the expiration or other termination of this License.

14. Licensee hereby acknowledges that this License is a license only and does not constitute a lease of, invitation or obligation to lease, or any present or future interest in real property.

15. While not anticipated, Licensee, by executing this License and accepting the benefits hereof, understands that a property right pursuant to applicable ordinances and codes under tax law (known as "possessory interest") may be created and may be subject to property taxation. Licensee will be responsible for payment of any property taxes associated with the Licensed Areas' APNs, if applicable. Licensee herewith acknowledges that it is Licensee's responsibility to comply with all applicable tax requirements.

16. Licensee is hereby notified that this License is non-exclusive. Licensee acknowledges the Activities on the Licensed Areas pursuant to this License must occur alongside other uses of the Licensed Areas, such as existing use by LADWP and the CITY for conveyance, power, and water disinfection and uses by other subtenants and licensees. However, LADWP agrees that Licensee's Activities taken pursuant to this License shall take precedence over those of all other subtenants and licensees, and that, upon notice to LADWP and in accordance with the provisions herein, including but not limited to PARAGRAPHS 37 – 40, this License provides exclusive use of discrete portions of the Licensed Areas during such periods of time exclusive use is necessary for Licensee to accomplish the Activities. In the event disagreements arise regarding whether Licensee's non-exclusive access to discrete portions of the Licensed Areas is necessary

to accomplish the Activities, either Party may invoke the dispute resolution provisions in SECTION 36 of the NHOU SETTLEMENT AGREEMENT. Following the termination of the CCC Transition Period and, if necessary, the SSC Transition Period, Licensee's access pursuant to this License shall be limited to that access necessary to comply with the NHOU SETTLEMENT AGREEMENT. Notwithstanding the foregoing:

A. Tenant Removal for CCC. As reasonably required for the CCC TREATMENT SYSTEM, LADWP shall determine how and where to remove existing tenants, including licensees, presently using the YARD and other LADWP-owned property reasonably necessary for the construction of the CCC TREATMENT SYSTEM, following receipt of written notice from Licensee. LADWP shall remove such tenants and/or licensees no later than one hundred and twenty (120) DAYS after receipt of such notice from Licensee. If judicial proceedings are necessary to remove tenants, access will be provided following such proceedings.

B. Tenant Removal for SSC. As reasonably required for the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM, LADWP shall determine how and where to remove the tenants, including licensees, using the YARD and other LADWP-owned property necessary for the construction of such SSC TREATMENT SYSTEM, following receipt of written notice from Licensee. LADWP shall remove such tenants and/or licensees no later than one hundred and eighty (180) DAYS after receipt of such notice from Licensee. If judicial proceedings are necessary to remove tenants, access will be provided following such proceedings.

17. Training. Licensee shall be responsible for the training of Licensee's personnel in compliance with all applicable laws, including but not limited to work under and adjacent to energized high-voltage transmission lines and training with regards to the operation of equipment and the handling and disposal of CONTAMINATION.

18. Insurance. Licensee shall obtain and keep in force during the term of this License the insurance coverage outlined below and specified in greater detail in the "Contract Insurance Requirements – Department of Water and Power," attached hereto as Attachment B and

incorporated herein by this reference. On an annual basis, Licensee shall provide LADWP with evidence of insurance from insurers that have procured a Certificate of Authority from the State Department of Insurance pursuant to the California Insurance Code or in a form acceptable to LADWP. Licensee acknowledges that it has been provided with insurance endorsement forms for use in showing evidence of the required coverage. Instructions for completing, executing and submitting evidence of insurance are attached thereto. LADWP may from time-to-time reasonably require Licensee to secure and maintain additional insurance coverage not specified in Attachment B, and/or increase the coverage amount required therein. Licensee may from time-to-time reasonably request that LADWP reduce or adjust the coverage amount required therein. LADWP will not unreasonably withhold approval of such requests. In the event disagreements arise regarding a request by Licensee for adjustment of the insurance coverage amount required, either Party may invoke the dispute resolution provisions in SECTION 36 of the NHOU SETTLEMENT AGREEMENT.

19. Compensation Review and Adjustment. The Licensee compensation for this License shall be the consideration of the NHOU SETTLEMENT AGREEMENT. The Parties recognize that the NHOU SETTLEMENT AGREEMENT provides ongoing consideration to LADWP in the form of 8,500 AFY of water and that the infrastructure Licensee is installing pursuant to this License will be operated by LADWP for LADWP's benefit. The CHARTER requires licenses like the License to include a procedure to adjust compensation periodically. Such compensation shall be subject to adjustment as set forth in this PARAGRAPH 19.

Beginning on the fifth (5th) anniversary of the effective date of this License, and on each fifth (5th) anniversary of the effective date thereafter, LADWP shall review the compensation to determine whether adjustments shall be made. Six (6) months prior to each fifth (5th) year anniversary of the effective date. LADWP and Licensee shall meet and confer to review the compensation and determine whether any adjustments shall be made. Such compensation shall be mutually agreed upon between LADWP and Licensee within thirty (30) DAYS, and shall be authorized on behalf of LADWP by the General Manager or designee. No compensation change shall be made absent mutual agreement of the Parties and a dispute over such change shall not be subject to the dispute resolution provisions in SECTION 36 of the NHOU SETTLEMENT AGREEMENT. If for any reason said compensation shall not be finally determined until after the

beginning of any period for which the rent is to be adjusted, Licensee shall continue to pay at the former rate as a credit against the amount of the new compensation when fixed; *provided, however*, that the amount fixed as new compensation shall accrue from the beginning of said period, and proper adjustment shall be made for any payments made by Licensee at the former rates in the interim.

20. Equal Benefits Ordinance. This License is subject to Section 10.8.2.1, Article 1, Chapter 1, Division 10 of the Los Angeles Administrative Code related to equal benefits to employees ("Equal Employment Benefits Provisions"). To the extent required by law, Licensee agrees to comply with the provisions of Section 10.8.2.1. By way of specification but not limitation, pursuant to Section 10.8.2.1.c and 10.8.2.1.f of the Los Angeles Administrative Code, the failure of Licensee to comply with the Equal Employment Benefits Provisions of this License may be deemed to be a material breach of this License. No such finding shall be made or penalties assessed except upon a full and fair hearing after notice and an opportunity to be heard have been given to Licensee. Upon a finding duly made that Licensee has failed to comply with the Equal Employment Benefits Provisions of this License, this License may be forthwith terminated.

21. Equal Employment Practices Provisions. Licensee agrees and obligates itself in the performance of this License not to discriminate against any employee or applicant for employment because of the employee's or applicant's race, religion, national origin, ancestry, sex, sexual orientation, age, physical handicap, marital status, domestic partner status, or medical condition. This License is a contract with or on behalf of the CITY for which the consideration is one thousand dollars ($1,000.00) or more. Accordingly, during the performance of this License, Licensee further agrees to comply with Section 10.8.3 of the Los Angeles Administrative Code ("Equal Employment Practices"). By way of specification but not limitation, pursuant to Sections 10.8.3E and 10.8.3F of the Los Angeles Administrative Code, the failure of Licensee to comply with the Equal Employment Practices provisions of this License may be deemed to be a material breach of this License. No such finding shall be made or penalties assessed except upon a full and fair hearing after notice and an opportunity to be heard have been given to Licensee. Upon a finding duly made that Licensee has failed to comply with the Equal Employment Practices provisions of this License, the License may be terminated forthwith.

22. Slavery Disclosure Ordinance. To the extent required by law, Licensee shall comply with the applicable provisions of the Slavery Disclosure Ordinance ("SDO") (Section 10.41, *et seq.*, of the Los Angeles Administrative Code). Unless otherwise exempt in accordance with the provisions of the SDO, Licensee certifies that it has complied with the applicable provisions of the SDO. Under the provisions of Section 10.41.2(b) of the Los Angeles Administrative Code, LADWP has the authority, under appropriate circumstances, to terminate this License and otherwise pursue legal remedies that may be available to LADWP if LADWP determines that Licensee failed to fully and accurately complete the SDO affidavit or otherwise violated any provision of the SDO.

23. Child Support Assignment Orders Ordinance. To the extent required by law, Licensee shall comply with Section 10.10, Article 1, Chapter 1, Division 10 of the Los Angeles Administrative Code related to Child Support Assignment Orders. Said ordinance is incorporated by reference as though fully set forth herein. Failure to comply with this ordinance shall constitute a default of the License subjecting the License to termination where such failure shall continue for more than ninety (90) DAYS after notice of such failure to Licensee by LADWP or the CITY.

24. Campaign Contributions. To the extent required by law, the Licensee, sub-licensees, and their principals (if any) are obligated to fully comply with CHARTER Section 470(c)(12) and related ordinances, regarding limitations on campaign contributions and fundraising for certain elected CITY officials or candidates for elected CITY office if the License is valued at $100,000 or more and requires approval of a CITY elected official. Additionally, the Licensee is required to provide and update certain information to the CITY as specified by law. Any Licensee subject to CHARTER Section 470(c)(12), shall include the following notice in any contract with a subcontractor or sublicensee expected to pay at least $100,000 in rent under this License:

> Notice Regarding Los Angeles Campaign Contribution and Fundraising Restrictions
>
> As provided in Charter Section 470(c)(12) and related ordinances, you are a sublicensee on LADWP License Agreement _____. Pursuant to City Charter Section 470(c)(12), sublicensee and its principals are prohibited from making campaign contributions and fundraising for certain elected City officials or candidates for elected City office for 12 months after the LADWP License is signed. Sublicensee is required to provide to

> Licensee names and addresses of the sublicensee's principals and contact information and shall update that information if it changes during the 12-month time period. Sublicensee's information included must be provided to Licensee within five business days. Failure to comply may result in termination of the License or any other available legal remedies including fines. Information about the restrictions may be found at the City Ethics Commission's website at http://ethics.lacity.org or by calling (213) 978-1960.

Licensee, sublicensees, and their principals shall comply with these requirements and limitations. Violation of this provision shall entitle LADWP or the CITY to terminate this License and pursue any and all legal remedies that may be available.

25. Tax Registration. This PARAGRAPH 25 is applicable where Licensee is engaged in business within the CITY and Licensee is required to obtain a Tax Registration Certificate ("TRC") pursuant to one or more of the following articles (collectively "Tax Ordinances") of Chapter II of the Los Angeles Municipal Code: Article 1 (Business Tax Ordinance) [Section 21.00, *et seq.*], Article 1.3 (Commercial Tenant's Occupancy Tax) [Section 21.3.1, *et seq.*], Article 1.7 (Transient Occupancy Tax) [Section 21.7.1, *et seq.*], Article 1.11 (Payroll Expense Tax) [Section 21.11.1, *et seq.*], or Article 1.15 (Parking Occupancy Tax) [Section 21.15.1, *et seq.*]. Prior to the execution of this License or the effective date of any extension of the term or renewal of this License, Licensee shall provide to LADWP proof satisfactory to LADWP's Real Estate Section that Licensee has the required TRCs and that Licensee is not then currently delinquent in any tax payment required under the Tax Ordinances. LADWP may terminate this License if LADWP determines that Licensee failed to have the required TRCs or was delinquent in any tax payments required under the Tax Ordinances at the time of entering into, extending the term of, or renewing this License. LADWP may also terminate this License at any time during the term of this License if Licensee fails to maintain required TRCs or becomes delinquent in tax payments required under the Tax Ordinances and Licensee fails to cure such deficiencies within the thirty (30) day period.

26. Tax Registration Certificate. To the extent required by law, the Licensee shall obtain and keep in full force and effect during the term of the License all Business Tax Registration Certificates required by the CITY Business Tax Ordinance, Article 1, Chapter II, Section 21.00 of the Los Angeles Municipal Code. For additional information regarding applicability of the CITY Business Tax Registration, contact the Office of Finance at (844) 663-4411.

27. Living Wage Ordinance. To the extent required by law, Licensee shall comply with the applicable provisions of the Living Wage Ordinance ("LWO"); Section 10.37 *et seq*. of the Los Angeles Administrative Code as amended. The Ordinance requires that, unless specific exemptions apply, all employers (as defined) under contracts primarily for the furnishing of services to or for the CITY and that involve an expenditure or receipt in excess of $25,000 and a contract term of at least three months; Licensee or certain recipients of CITY financial assistance, generally, shall provide the following:

A. Payment of a minimum initial wage rate to employees as defined in the LWO.

B. Provision of compensated days off annually for sick leave, vacation, or personal necessity at the employee's request, and additional days annually of uncompensated time off for sick leave as prescribed in the LWO.

Under the provisions of Section 10.37.6(c) of the Los Angeles Administrative Code, the CITY shall have the authority, under appropriate circumstances, to terminate this contract and otherwise pursue legal remedies that may be available if the CITY determines that the subject Licensee or financial assistance recipient violated the provisions of the referenced Code Sections. For additional information, please contact the Office of the CITY Administrative Officer at (213) 473-7500.

28. Prevailing Wage. To the extent required by applicable law, Licensee shall pay or cause to be paid to all workers employed in connection with the work on the Licensed Areas not less than the prevailing rates of wages, as provided in the statutes applicable to CITY public work contracts, including, without limitation, by Sections 1770–1780 of the California Labor Code.

A. If federal funds were at any time used in the acquisition of this land or will be used in connection with the work on the Licensed Areas, to the extent required by applicable law, Licensee shall, or cause its general contractor and all subcontractors to, comply with the requirements of the Davis-Bacon Act (40 U.S.C. § 276 *et seq*.). The Davis-Bacon Act requires the payment of wages to all laborers and mechanics at a rate not less than the minimum wage specified by the Secretary of Labor in periodic wage rate determinations as described in the Federal Labor Standards

Provisions (HUD-4010). In the event both STATE prevailing wages and Davis-Bacon Act wages will be required, all work shall be paid at the higher of the two wages.

B. If prevailing wages are required to be paid by applicable law, prior to the commencement of work or construction, and as soon as practicable in accordance with the applicable schedule of performance, Licensee shall contact LADWP to schedule a preconstruction orientation meeting with Licensee and the subcontractor to explain such matters as the specific rates of wages to be paid to workers in connection with the work on the Licensed Areas, preconstruction conference requirements, record keeping, and reporting requirements necessary for the evaluation of Licensee's compliance with this PARAGRAPH 28.

C. If prevailing wages are required to be paid by applicable law, Licensee shall monitor and enforce all applicable prevailing wage requirements imposed on its contractors and subcontractors, including withholding payments to those contractors or subcontractors who violate these requirements. In the event that Licensee fails to monitor or enforce these requirements against any contractor or subcontractor, Licensee shall be liable for the full amount of any underpayment of wages, plus costs and attorneys' fees, as if Licensee was the actual employer, and the CITY or the STATE Department of Industrial Relations may withhold monies owed to Licensee, may impose penalties on Licensee as permitted by law, may take action directly against the contractor or subcontractor as permitted by law, and/or may declare Licensee in default of the License and thereafter pursue any of the remedies available at law or in equity.

D. Licensee agrees to include, or cause to be included, the above provisions in all bid specifications for work covered under this License.

E. Notwithstanding any other provisions in this License, Licensee shall indemnify, hold harmless, and defend (with counsel reasonably acceptable to LADWP) LADWP against any claim for damages, compensation, fines, penalties, or other amounts arising out of the failure or alleged failure of any person or entity

(including LADWP, its contractors, and subcontractors) to pay prevailing wages as determined pursuant to California Labor Code Sections 1720 *et seq*. and implementing regulations of the Department of Industrial Relations or comply with the other applicable provisions of California Labor Code Sections 1720 *et seq*. and implementing regulations of the Department of Industrial Relations in connection with construction of the improvements or any other work undertaken or in connection with the Licensed Areas ("Prevailing Wage Claims"). This indemnity, hold-harmless, and defense obligation shall only apply to claims initiated (either to an administrative agency or in court) within three (3) years of the completion of the CCC Transition Period; *except*, *however*, for those claims arising from Activities associated with the construction or operation of the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM, the indemnity, hold-harmless, and defense obligation shall only apply to claims initiated (either to an administrative agency or in court) within three (3) years of the completion of the SSC Transition Period. Notwithstanding the three (3)-year limitations in the prior sentence, the indemnity and hold harmless, and defense obligation for Prevailing Wage Claims shall apply to Prevailing Wage Claims arising from or related to any other Activities undertaken by Licensee or Licensee Agents in connection with the Licensed Areas, *provided* the claim is brought within (3) years of the completion of such activity.

F. The obligations set forth in this PARAGRAPH 28 shall be in addition to any other rights and remedies that the Parties have under the law, the NHOU SETTLEMENT AGREEMENT, and this License.

29. Ordinance and Los Angeles Administrative Code. The obligation to comply with any Ordinances or Codes which have been incorporated into this License by reference, shall extend to any amendments which may be made to those Ordinances and Codes during the term of this License.

30. Licensee shall not use the Licensed Areas to satisfy any zoning demands, zoning variances, open space or parking requirements, or any other governmentally imposed conditions

for building plans and permits, except as provided for in the NHOU SETTLEMENT AGREEMENT.

31. Except if caused by the gross negligence, willful misconduct, or as otherwise provided for in the NHOU SETTLEMENT AGREEMENT, LADWP shall not be liable for any damage to vehicles or improvements resulting from LADWP's operation and maintenance and from any construction or reconstruction of LADWP's facilities or transmission line right-of-way.

32. During any period that Licensee is conducting construction activities at the Licensed Areas (including the CCC SYSTEM construction through the PHASE 1 or PHASE 3 STARTUP AND SHAKEDOWN PERIODS, the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM construction through the respective STARTUP AND SHAKEDOWN PERIOD, and any other construction by Licensee pursuant to the NHOU SETTLEMENT AGREEMENT), Licensee shall use reasonable measures to minimize disturbances to neighboring businesses or nearby residences and shall assume the responsibility of resolving any complaints or disputes from adjacent property owners or the public arising out of Licensee's use of the Licensed Areas. Any inquiries or complaints brought to the attention of LADWP shall be directed to the Licensee's representative identified in SECTION 24 of the NHOU SETTLEMENT AGREEMENT. For other Activities carried out by Licensee, Licensee shall take reasonable measures to minimize disturbances to neighboring businesses or nearby residences and shall assume the responsibility of resolving any complaints or disputes from adjacent property owners or the public arising out of Licensee's use of the Licensed Areas. Any inquiries or complaints brought to the attention of LADWP shall be directed to the Licensee's representative identified in SECTION 24 of the NHOU SETTLEMENT AGREEMENT.

33. During any period that Licensee is conducting construction activities at the Licensed Areas (including the CCC SYSTEM construction through the PHASE 1 or PHASE 3 START-UP AND SHAKEDOWN PERIODS, the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM construction through the respective STARTUP AND SHAKEDOWN PERIOD, and any other construction by Licensee pursuant to the NHOU SETTLEMENT AGREEMENT), Licensee must post and maintain onsite the required signage,

which includes, but is not limited to, the following information, at a designated location approved by LADWP:

A. Licensee's 24-hour contact name;

B. Licensee's 24-hour phone number; and

C. Licensee's License number.

34. Licensee shall access the Licensed Areas by conforming to LADWP security and operational procedures and, until the completion of the respective STARTUP and SHAKEDOWN PERIODS, shall take reasonable precautions to prevent unauthorized ingress and egress to the License Areas.

35. Licensee agrees that this License will not be recorded.

36. During and for the five (5) years following any period that Licensee is conducting construction or operational activities at the Licensed Areas (including the CCC SYSTEM construction) through the CCC Transition Period, the SSC Transition Period, and any other construction or operation period by Licensee per the NHOU SETTLEMENT AGREEMENT, respectively, and without limiting the obligations set forth in PARAGRAPHS 4 and 10 herein, the Licensee shall, unless otherwise provided in the NHOU SETTLEMENT AGREEMENT, be responsible, to the extent caused by and introduced onto the Licensed Areas as a result of the use of the Licensed Areas by Licensee pursuant to this License, for all cleanup costs and expenses, including but not limited to any fines, penalties, judgments, litigation costs, and attorneys' fees incurred as a result of any and all discharge, leakage, spillage, and emission of CONTAMINATION onto the License Areas. Said cleanup shall be accomplished to the satisfaction of LADWP and any governmental body having jurisdiction thereover.

37. Licensee shall manage any transportation, storage, and/or disposal of CONTAMINATION according to any and all applicable local, state, and federal laws, regulations, rules, and permits.

38. A summary of the work anticipated to be undertaken pursuant to this License is described in the SCOPE OF WORK, EXHIBIT 3 to the NHOU SETTLEMENT AGREEMENT, which is hereby incorporated by reference. The Parties recognize that this work may change or be modified in response to, among other things, the regulatory approval processes under CERCLA.

39. LADWP's Water Operation Division ("WOD") Requirements. Licensee shall comply with LADWP's WOD requirements as follows:

A. Licensee shall purchase and install a lock into the daisy chain to gain access for the License duration, as appropriate. A duplicate key shall be provided to LADWP. The lock shall be removed upon expiration or other termination of License.

B. Licensee shall not block access to any existing equipment so as to prevent access by WOD staff.

C. Licensee shall specify the construction materials stockpile and laydown area in the design drawings. Licensee shall restrict construction material stockpiles and laydown to the specified area during construction and clear upon completion.

D. Any lighting to be used shall not impact neighboring properties to the Licensed Areas.

E. Information of the project duration and contact information shall be provided to the neighbors in the vicinity of Licensed Areas through signage or other means.

F. Licensee shall provide temporary fencing for the duration of construction, pursuant to this License, as appropriate. Any changes to the fencing or equipment shall be restored by Licensee to the original fence layout at the expiration or other termination of the License.

G. Once construction of the new extraction wells is complete, Licensee shall install a permanent perimeter fence, of a design approved by LADWP, around the newly installed extraction wells, located no less than fifty (50) feet from each pylon, unless

approved in writing by LADWP. The location and orientation of fencing around each well will be determined with input from LADWP.

H. Licensee shall have in place the appropriate equipment and plans to prevent spillage of any hazardous materials onto LADWP property or the public street and sidewalks according to local jurisdiction, state, and federal standards.

I. Licensee shall install appropriate fencing around the treatment systems.

J. Licensee shall ensure that any contractor that performs any work on the wells shall possess an active State of California C-57 license.

K. Licensee shall notify WOD Transmissions Operations Sr. Water Utility Supervisor at (213) 367-8184 at least four (4) business days before removal of any well pump and motor, so that the unit can be electrically locked and tagged out.

L. Licensee shall notify the WOD Property Management Group at (213) 367-1057 at least four (4) business days before performing any maintenance, clearing, redeveloping, or rehabilitation of a well, or any major repair or reconstruction of the CCC SYSTEM, the PRIMARY SSC TREATMENT SYSTEM, or SECONDARY SSC TREATMENT SYSTEM.

M. Any activities associated with the clearing, redeveloping, or rehabilitation of a well shall need prior approval by WOD before start of work.

N. Licensee shall be responsible for repairing any damages caused by Licensee activity pursuant to this License.

40. LADWP's Right-of-Way and Power Transmission System ("ROWPT") Requirements. A portion of the Activities will occur near three (3) electrical transmission lines, including the Rinaldi-Toluca lines (230 kv), Valley-Hollywood lines (230 kv), and Adelanto-Toluca lines (500 kv), which are located along the west, central, and eastern portions of the ROWPT transmission lines right-of-way. Where the Activities are located within or in the vicinity

of the Power Transmission and/or Distribution Line right-of-way, Licensee shall comply with ROWPT requirements, as follows:

A. Activities conducted in ROWPT transmission lines right-of-way shall adhere to the following criteria:

i. Energized transmission lines can produce electrical effects, including but not limited to induced voltages and currents in persons and objects. Licensee hereby acknowledges a duty to conduct Activities in such manner that will not expose persons to injury or property to damage from such effects.

ii. Licensee shall ensure that the Activities, at all times, are in compliance with General Order No. 95 (Rules for Overhead Electric Line Construction, California Public Utilities Commission) and State of California Code of Regulations, Title 8, Industrial Relations, Chapter 4, Division Industrial Safety, Subchapter 5, Electrical Safety Orders.

iii. The extraction well sites shall be at least fifty (50) feet from transmission line towers, unless otherwise permitted in writing by LADWP.

iv. Except as otherwise permitted in writing by LADWP, the drilling rig tower location at each extraction well site shall be located a minimum of ten (10) feet horizontally from the conductor drip lines. Licensee shall be responsible for maintaining safe CalOSHA working clearances when working near and around energized wires.

B. Notwithstanding any other notices given by Licensee required herein, Licensee shall notify LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5031 or (818) 771-5076, no earlier than fourteen (14) DAYS and no later than two (2) DAYS prior to the start of any grading, paving, construction work, drilling, well construction, testing, or monitoring activities. All

activities shall be coordinated with LADWP's Transmission Construction and Maintenance Business Group.

C. Prior to initiating the Activities associated with this License, Licensee shall ensure clearance that meets the State of California, Public Utilities Commission, General Order No. 95, Conductor Clearances. A power outage will not be necessary for work to proceed, unless it is determined that the conductor clearances during the equipment staging phases are not adequately met. If, however, while working below or near an active power line, equipment that has a higher reach than fourteen (14) feet is deemed necessary by Licensee, the Power System Transmission Engineer shall determine whether permitted operations shall require a power outage of the transmission line, which will have to be coordinated. Licensee shall acknowledge that if an outage is scheduled, it will have to assume the risk that it may have to be cancelled and rescheduled due to Power System operational obligations. If such a planned power outage is required by Licensee pursuant to this PARAGRAPH 40.C, all expenses associated with such power outage shall be borne by Licensee.

D. Except otherwise permitted in writing by ROWPT, rigs with cranes shall be located a minimum of fifteen (15) feet from the conductor drip lines. Licensee shall be responsible for maintaining CalOSHA safe working clearances when working near and around energized wires.

E. All manhole covers, paving, driveways, bridges, crossings, and substructures located within the right-of-way shall be designed to withstand the American Association of State Highway and Transportation Officials' vehicular loading H20-44 (M18) or HL-93 design standards.

F. No grading, including soil storage, shall be conducted within LADWP's transmission line right-of-way without prior written approval by LADWP, which shall not be unreasonably withheld or delayed if required to complete the Activities.

G. No structures shall be constructed within LADWP's transmission line right-of-way without prior written approval by LADWP, which shall not be unreasonably withheld or delayed if required to complete the Activities.

H. Licensee shall maintain the permanent, unobstructed roadway (patrol road), which shall be accessible at all times by LADWP maintenance personnel. Licensee shall ensure that the roadway remains open and unobstructed, excluded from any watering, and kept as dry as possible at all times. Notwithstanding the foregoing, Licensee's obligations under this PARAGRAPH 40.H shall not apply during those periods of time the Activities require temporary obstruction of the roadway.

I. Licensee is hereby notified that facilities of other licensees or easement holders of LADWP may exist on the Licensed Areas. Licensee shall take reasonable precautions and actions to avoid infringement, interference, or damage to all installations or rights. Notwithstanding the foregoing, LADWP agrees that Licensee's Activities taken pursuant to this License shall take precedence over all other licensees or easement holders of LADWP, and that LADWP will provide exclusive use of the Licensed Areas during such periods of time Licensee reasonably determines that such exclusive use is necessary for Licensee to accomplish the Activities. Such exclusive use does not preclude existing use by LADWP for conveyance of water or transmission of power and other utilities.

J. Condition Nos. 1–7, 9, 11A, 12–16, 20, 21, 22C, 23A, 24, 25, and 31A of the Standard Conditions for Construction, attached hereto as Attachment C and incorporated herein by this reference, shall apply. If any excavations are required, utility agencies within the excavation sites shall be notified of impending work. Licensee shall be responsible, financially and otherwise, for coordinating relocation of utilities, if any, within the project boundaries. Before commencing any excavations, Licensee shall contact Underground Service Alert of Southern California (a.k.a. DigAlert).

41. Other Requirements.

A. Licensee shall comply with the following measures to mitigate potential noise impacts:

i. Except as otherwise provided by the Los Angeles Police Department ("LAPD"), Licensee shall limit work hours to comply with LAPD construction noise restrictions, posted on lapdonline.org, to minimize impact to residents in the vicinity of the Licensed Areas.

ii. Where necessary to comply with applicable ordinances, noisy equipment shall be subject to appropriate noise reduction measures.

iii. Unless otherwise approved, for construction activities with the potential to impact noise- or vibration-sensitive land uses, construction activities shall not occur between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, 6:00 p.m. and 8:00 a.m. on Saturday, or on Sundays or national holidays.

iv. Pumps and associated equipment (e.g., portable generators) shall be shielded from sensitive uses using local temporary noise barriers or enclosures, or shall otherwise be designed or configured so as to minimize noise at nearby noise-sensitive receivers.

v. Staging of construction equipment shall not occur within twenty (20) feet of any noise- or vibration-sensitive land uses.

vi. All noise-producing equipment and vehicles using internal combustion engines shall be equipped with mufflers; air-inlet silencers where appropriate; and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.

vii. All mobile or fixed noise-producing equipment used on the project facilities that are regulated for noise output by a local, state, or federal agency shall comply with such regulation while in the course of project activity.

viii. Idling equipment shall be kept to a minimum and moved as far as practicable from noise-sensitive land uses.

ix. Electrically-powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.

x. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

xi. The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

xii. Notification at Sensitive Receptors

a) Effective communication with local residents shall be maintained during construction, including keeping them informed of the schedule, duration, and progress of the construction to minimize public complaints regarding noise and vibration levels.

B. Licensee shall utilize appropriate best management practices to minimize the generation of dust during construction.

C. In the event that archaeological resources (sites, features, or artifacts) are discovered during construction activities for the proposed project, all construction work occurring within one hundred (100) feet of the find shall immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find and determine whether or not additional study is warranted. Construction activities may continue on other parts of the construction site while evaluation and treatment at the

discovery site take place. Depending on the significance of the find, the archaeologist may simply record the find and allow work to continue. If the discovery proves significant, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. Work in the area may resume once evaluation and treatment of the resource is completed or the resource is recovered and removed from the site.

D. In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are discovered, the County Coroner shall be immediately notified of the discovery. No further excavation or disturbance of the project site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two (2) working days of notification of the discovery, the appropriate treatment and disposition of the human remains. Construction activities may continue on other parts of the construction site while evaluation and treatment at the discovery site take place. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the Native American Heritage Commission ("NAHC") in Sacramento within twenty-four (24) hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete their inspection within forty-eight (48) hours of being granted access to the site. The designated Native American representative would then determine, in consultation with LADWP, the disposition of the human remains. Work at the discovery site may resume after consultation with the most likely descendant and treatment of the remains and any associated resources has been concluded.

E. In the event that cultural resources are inadvertently discovered, all construction work occurring within one hundred (100) feet of the find shall immediately stop. Construction activities may continue on other parts of the construction site while evaluation and treatment at the discovery site take place. If LADWP determines that the resources may potentially be tribal cultural resources (as defined by Public

Resources Code Section 21074), it shall notify any Native American tribes that have informed LADWP that they are traditionally and culturally affiliated with the geographic area of the proposed project. LADWP would provide any affected tribe a reasonable period of time to conduct a site visit and make the treatment and disposition of any discovered tribal cultural resources as well as recommendations regarding monitoring of future ground disturbance activities. Construction in the area of the discovery may resume once evaluation and treatment of the resource is completed and/or the resource is recovered and removed from the site.

42. This License shall be interpreted, governed by, and construed under the laws of the State of California or the laws of the United States, as applicable, as if executed and to be performed wholly in the State of California.

43. To the extent there is a conflict between the terms of this License and the terms of the NHOU SETTLEMENT AGREEMENT, the terms of the NHOU SETTLEMENT AGREEMENT shall apply and control.

44. Except as otherwise expressly provided in this License, the Parties to this License do not intend to create rights in or grant remedies to any third party as a beneficiary of this License or of any duty, covenant, obligation, or undertaking established under this License.

45. Any waiver at any time by either Party of its rights with respect to a default under this License, or with respect to any other matter arising in connection with this License, shall not be deemed a waiver with respect to any subsequent default or other matter arising in connection therewith. Any delay in assessing or enforcing any right shall not be deemed to be a waiver of such right; *provided*, *that*, unless otherwise specified in the NHOU SETTLEMENT AGREEMENT, all applicable statutory periods of limitation shall apply.

46. Licensee and LADWP and their respective legal counsel have participated fully in the review and preparation of this License. Any rule of construction to the effect that ambiguities are to be resolved against the drafting Party shall not apply in interpreting this License. The language in this License shall be interpreted as to its fair meaning and not strictly for or against either Party.

47. This License may be executed at different times in one or more counterparts, each of which shall be regarded as an original and all of which, taken together, shall constitute the same License.

48. Each Party to this License shall bear its own attorney's fees and costs in the event of a dispute as to this License.

49. While on the Licensed Areas, Licensee shall comply with all of LADWP's posted safety rules and requirements without exception.

The signatories below represent that they have been appropriately authorized to enter into this License on behalf of the Party for which they sign. This License is hereby executed as of _____ and effective as of _____.

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES

By: _____
MARTIN L. ADAMS
General Manager and Chief Engineer
LADWP

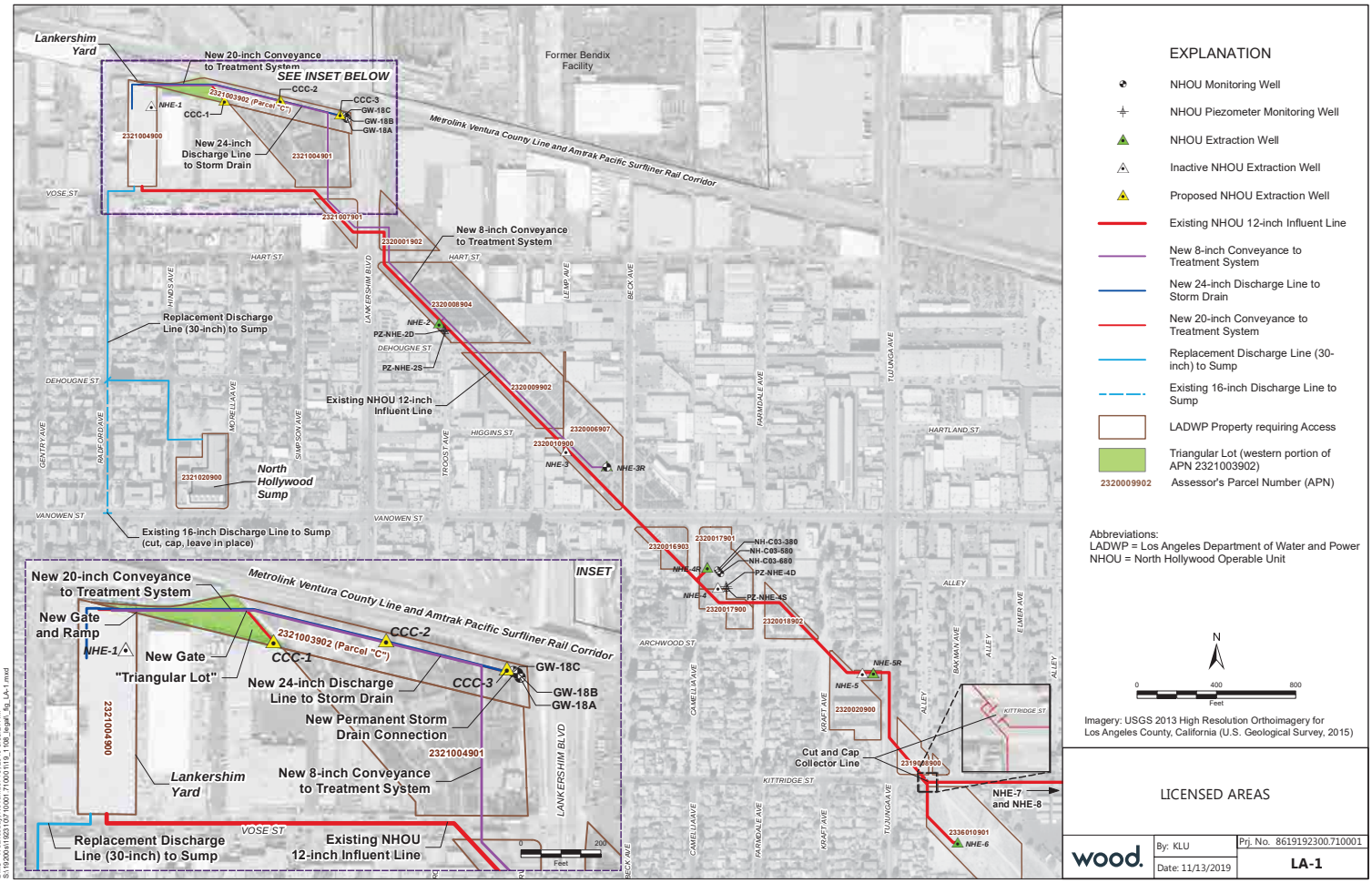
APPROVED:

By: _____
RICHARD F. HARASICK
Senior Assistant General Manager –
Water System

HONEYWELL INTERNATIONAL INC.

By:_____
BENNY DEHGHI
Director, Major Projects
LICENSEE

FORM OF LICENSE AGREEMENT – FIGURE LA-1


Lankershim Yard
New 20-inch Conveyance to Treatment System
SEE INSET BELOW
CCC-2
CCC-3
GW-18C
GW-18B
GW-18A
NHE-1
CCC-1
2321003902 (Parcel "C")
2321004900
New 24-inch Discharge Line to Storm Drain
2321004901
Former Bendix Facility
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
VOSE ST
2321007901
New 8-inch Conveyance to Treatment System
2320001902
HART ST
HINDS AVE
LANKERSHIM BLVD
LEMP AVE
BECK AVE
Replacement Discharge Line (30-inch) to Sump
2320008904
NHE-2
PZ-NHE-2D
PZ-NHE-2S
DEHOUGNE ST
Existing NHOU 12-inch Influent Line
2320009902
HIGGINS ST
2320006907
2320010900
NHE-3
NHE-3R
TROOST AVE
FARMDALE AVE
TUJUNGA AVE
HARTLAND ST
GENTRY AVE
RADFORD AVE
MORELLA AVE
SIMPSON AVE
2321020900
North Hollywood Sump
VANOWEN ST
Existing 16-inch Discharge Line to Sump (cut, cap, leave in place)
2320016903
2320017901
NH-C03-380
NH-C03-580
NH-C03-680
NHE-4R
PZ-NHE-4D
NHE-4
PZ-NHE-4S
2320017900
2320018902
ALLEY
ARCHWOOD ST
CAMELIA AVE
KRAFT AVE
BAKMAN AVE
ELMER AVE
NHE-5R
NHE-5
2320020900
KITTRIDGE ST
Cut and Cap Collector Line
2319008900
KITTRIDGE ST
NHE-7 and NHE-8
2336010901
NHE-6
INSET
New 20-inch Conveyance to Treatment System
New Gate and Ramp
NHE-1
New Gate
"Triangular Lot"
CCC-2
CCC-1
2321003902 (Parcel "C")
GW-18C
CCC-3
GW-18B
GW-18A
New 24-inch Discharge Line to Storm Drain
New Permanent Storm Drain Connection
2321004900
2321004901
Lankershim Yard
New 8-inch Conveyance to Treatment System
LANKERSHIM BLVD
VOSE ST
Replacement Discharge Line (30-inch) to Sump
Existing NHOU 12-inch Influent Line
0
200
Feet
EXPLANATION
NHOU Monitoring Well
NHOU Piezometer Monitoring Well
NHOU Extraction Well
Inactive NHOU Extraction Well
Proposed NHOU Extraction Well
Existing NHOU 12-inch Influent Line
New 8-inch Conveyance to Treatment System
New 24-inch Discharge Line to Storm Drain
New 20-inch Conveyance to Treatment System
Replacement Discharge Line (30-inch) to Sump
Existing 16-inch Discharge Line to Sump
LADWP Property requiring Access
Triangular Lot (western portion of APN 2321003902)
2320009902
Assessor's Parcel Number (APN)
Abbreviations:
LADWP = Los Angeles Department of Water and Power
NHOU = North Hollywood Operable Unit
N
0
400
800
Feet
Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)
LICENSED AREAS
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8619192300.710001
LA-1

FORM OF LICENSE AGREEMENT – FIGURE LA-2

Explanation

Approximate Site Boundary

Access Area

2321004900 Assessor's Parcel Number (APN)

LANKERSHIM YARD LICENSED AREA

wood.

By: KLU

Date: 11/13/2019

Prj. No. 8619192300.710001

LA-2

Wednesday, November 13, 2019 8:48:41 AM
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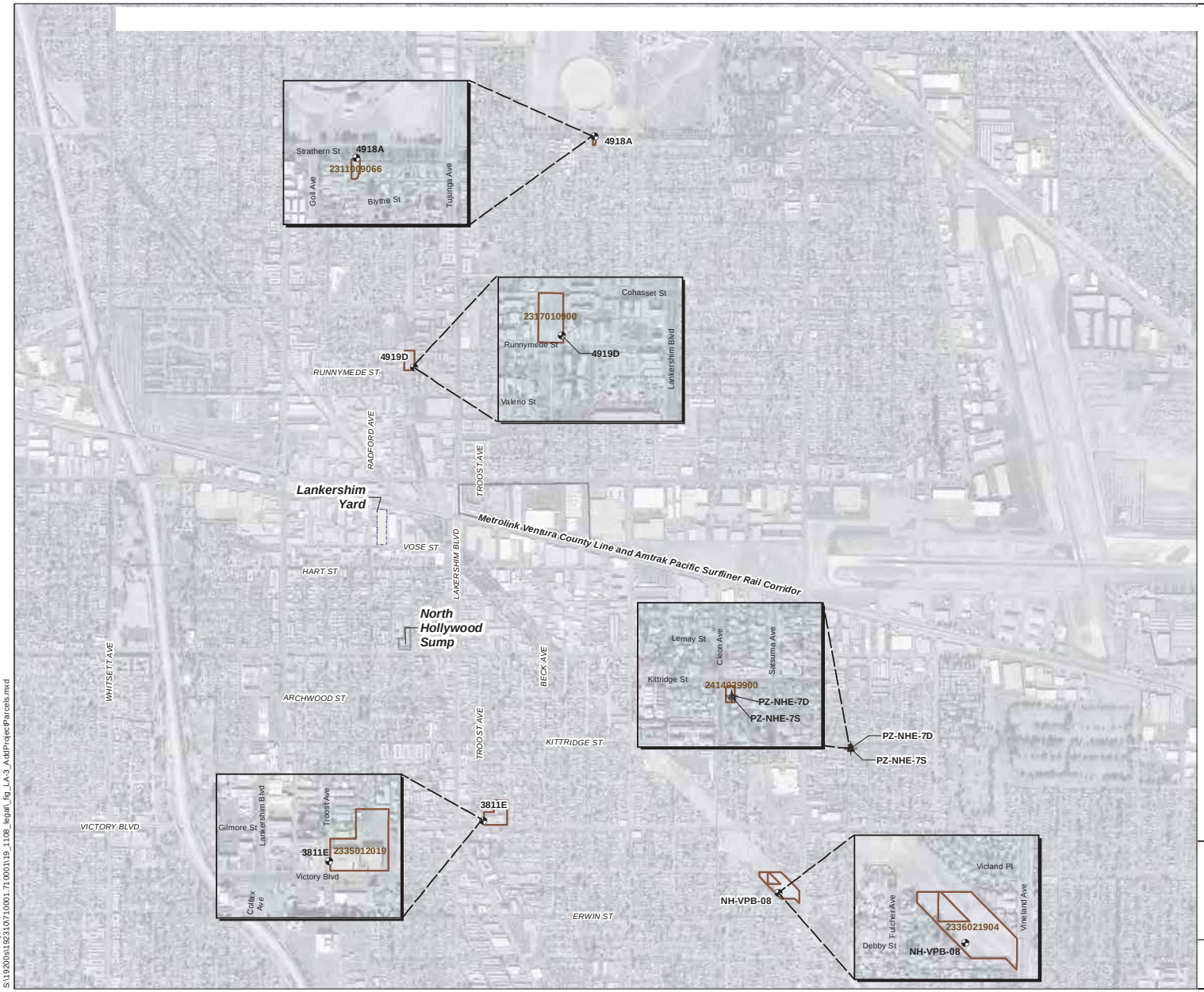
FORM OF LICENSE AGREEMENT – FIGURE LA-3



EXPLANATION

- NHOU Monitoring Well
- NHOU Piezometer Monitoring Well
- LADWP Property requiring Access
- 2320009902 Assessor's Parcel Number (APN)

Abbreviation:
LADWP = Los Angeles Department of Water and Power

N

0 1,500
Feet

Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)

ADDITIONAL LICENSED AREAS

wood.

By: KLU	Prj. No. 8619192300.710001
Date: 11/25/2019	LA-3

DMO Monday, November 25, 2019 7:19:48 AM
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FORM OF LICENSE AGREEMENT – ATTACHMENT A

FORM OF LICENSE AGREEMENT – ATTACHMENT B

CONTRACT INSURANCE REQUIREMENTS -- DEPARTMENT OF WATER AND POWER

For Contractors, Service Providers, Vendors, and Tenants

Agreement/Activity/Operation: See Scope of Work for NHOU Settlement Agreement
Reference/Agreement: NHOU Settlement Agreement - CERTIFICATE ACCEPTABLE (w/proper endorsements)
Term of Agreement: _____
Contract Administrator and Phone: Vahe Dabbaghian (213) 367-3543
Buyer and Phone Number: _____

Contract-required types and amounts of insurance as indicated below by checkmark are the minimum which must be maintained. All limits are Combined Single Limit (Bodily Injury/Property Damage) unless otherwise indicated. Firm 30 day Notice of Cancellation required by Receipted Delivery.

PER OCCURRENCE LIMITS

(✓) WORKERS' COMPENSATION(Stat. Limits)/Employer's Liability: ($1,000,000.00)
- (✓) Broad Form All States Endorsement
- ( ) Jones Act (Maritime Employment)
- (✓) Waiver of Subrogation
- ( ) Other: _____
- ( ) US L&H (Longshore and Harbor Workers)
- ( ) Outer Continental Shelf
- ( ) Black Lung (Coal Mine Health and Safety)
- ( ) Other: _____

(✓) AUTOMOBILE LIABILITY: ($1,000,000.00)
- (✓) Owned Autos
- (✓) Hired Autos
- ( ) Contractual Liability
- ( ) MCS-90 (US DOT)
- ( ) Waiver of Subrogation
- ( ) Any Auto
- (✓) Non-Owned Auto
- (✓) Additional Insured
- ( ) Trucker's Form
- ( ) Other: _____

(✓) GENERAL LIABILITY: ( ) Limit Specific to Project ( ) Per Project Aggregate ($10,000,000.00)
- (✓) Broad Form Property Damage
- (✓) Premises and Operations
- ( ) Fire Legal Liability
- ( ) Corporal Punishment
- ( ) Watercraft Liability
- ( ) Waiver of Subrogation
- ( ) Marine Contractors Liability
- (✓) Contractual Liability
- (✓) Products/Completed Ops.
- ( ) Garagekeepers Legal Liab.
- (✓) Collapse/Underground
- ( ) Pollution
- ( ) Airport Premises
- ( ) Other: _____
- (✓) Personal Injury
- ( ) Independent Contractors
- ( ) Child Abuse/Molestation
- (✓) Explosion Hazard
- (✓) Additional Insured Status
- ( )Hangarkeepers Legal Liab.
- ( ) Other: _____

(✓) PROFESSIONAL LIABILITY: ($1,000,000.00)
- (✓) Contractual Liability
- (✓) Additional Insured
- (✓) Waiver of Subrogation
- (✓) Vicarious Liability Endt.
- (✓) 3 Year Discovery Tail
- ( ) Other: _____

( ) AIRCRAFT LIABILITY: ( )
- ( ) Passenger Per Seat Liability
- ( ) Pollution
- ( ) Contractual Liability
- ( ) Additional Insured
- ( ) Hull Waiver of Subrogation
- ( ) Other: _____

( ) PROPERTY DAMAGE: ( ) Loss Payable Status (AOIMA) ( )
- ( ) Replacement Value
- ( ) All Risk Form
- ( ) Builder's Risk:$_____
- ( ) Transportation Floater:$_____
- ( ) Scheduled Locations/Propt.
- ( ) Actual Cash Value
- ( ) Named Perils Form
- ( ) Boiler and Machinery
- ( ) Contractors Equipment$_ ___ _
- ( ) Other: _____
- ( ) Agreed Amount
- ( ) Earthquake: _____
- ( ) Flood: _____
- ( ) Loss of Rental Income: _____
- ( ) Other: _____

( ) WATERCRAFT: ( )
- ( ) Protection and Indemnity
- ( ) Waiver of Subrogation
- ( ) Pollution
- ( ) Other: _____
- ( ) Additional Insured
- ( ) Other: _____

( ) POLLUTION: ($5,000,000.00)
- (✓) Incipient/Long Term
- ( ) Waiver of Subrogation
- ( ) Sudden and Accidental
- ( ) Contractor's Pollution
- (✓) Additional Insured
- ( ) Other: _____

( ) CRIME: ( ) Joint Loss Payable Status ( ) Additional Insured ( )
- ( ) Fidelity Bond
- ( ) Employee Dishonesty
- ( ) Computer Fraud
- ( ) Other: _____
- ( ) Financial Institution Bond
- ( ) In Transit Coverage
- ( ) Commercial Crime
- ( ) Other: _____
- ( ) Loss of Monies/Securities
- ( ) Wire Transfer Fraud
- ( ) Forgery/Alteration of Docs.

( ) ASBESTOS LIABILITY: ( ) Additional Insured ( )

FORM OF LICENSE AGREEMENT – ATTACHMENT C

STANDARD CONDITIONS FOR CONSTRUCTION

1. Energized transmission lines can produce electrical effects including, but not limited to, induced voltages and currents in persons and objects. Licensee hereby acknowledges a duty to conduct activities in such manner that will not expose persons to injury or property to damage from such effects.

2. The Los Angeles Department of Water and Power (LADWP) personnel shall have access to the right of way at all times.

3. Unauthorized parking of vehicles or equipment shall not be allowed on the right of way at any time.

4. Unauthorized storage of equipment or material shall not be allowed on the right of way at any time.

5. Fueling of vehicles or equipment shall not be allowed on the right of way at any time.

6. Patrol roads and/or the ground surfaces of the right of way shall be restored by the Licensee to original conditions, or better.

7. All trash, debris, waste, and excess earth shall be removed from the right of way upon completion of the project, or the LADWP may do so at the sole risk and expense of the Licensee.

~~8. All cut and fill slopes within the right of way shall contain adequate berms, benches, and interceptor terraces. Revegetation measures shall also be provided for dust and erosion control protection of the right of way.~~

9. All paving, driveways, bridges, crossings, and substructures located within the right of way shall be designed to withstand the American Association of State Highway and Transportation Officials' vehicular loading H20-44 or HL-93. The design shall also comply with applicable design standards.

~~10. The location of underground pipelines and conduits shall be marked at all points where they cross the boundaries of the right of way and at all locations where they change direction within the right of way. The markings shall be visible and identifiable metal post markers for underground pipelines. Utility markers flush with surface may be used on pavement.~~

11A. General Grounding Condition

All aboveground metal structures including, but not limited to, pipes, drainage devices, fences, and bridge structures located within or adjoining the right of way shall be properly grounded, and shall be insulated from any fencing or other conductive materials located outside of the right of way. For safety of personnel and equipment, all equipment and structures shall be grounded in accordance with State of California Code of Regulations, Title 8, Section 2941, and National Electric Code, Article 250.

~~11B. Grounding Condition for Cellular Facilities on Towers~~

~~All aboveground metal structures including, but not limited to, pipes, drainage devices, fences, and bridge structures located within or adjoining the right of way shall be properly grounded, and shall be insulated from any fencing or other conductive materials located outside of the right of way. For safety of personnel and equipment, all equipment and structures shall be grounded in accordance with American National Standards Institute of Electrical and Electronics Engineers Standard 487 latest edition, IEEE Guide for Safety in AC Substation Grounding.~~

12. Licensee shall neither hold the LADWP liable for nor seek indemnity from the LADWP for any damage to the Licensee's project due to future construction or reconstruction by the LADWP within the right of way.

13. Fires and burning of materials is not allowed on the right of way.

14. Licensee shall control dust by dust-abatement procedures approved by the LADWP, such as the application of a dust palliative or water.

15. The right of way contains high-voltage electrical conductors; therefore, the Licensee shall utilize only such equipment, material, and construction techniques that are permitted under applicable safety ordinances and statutes, including the following: State of California Code of Regulations, Title 8, Industrial Relations, Chapter 4, Division of Industrial Safety, Subchapter 5, Electrical Safety Orders; and California Public Utilities Commission, General Order No. 95, Rules for Overhead Electric Line Construction.

16. Licensee is hereby notified that grounding wires may be buried in the right of way; therefore, the Licensee shall notify the LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5014, or (818) 771-5076, at least 48 hours prior to the start of any construction activities in the right of way.

~~17A. Vehicle Parking~~

~~An area within 50 feet around the base of each tower must remain open and unobstructed for maintenance and emergencies, including periodic washing of insulators by high-pressure water spray. Clearances of 100 feet may be required under circumstances where access is limited.~~

~~17B. Trucking Operations and Storage Operations~~

~~An area within 50 feet around the base of each tower must remain open and unobstructed for maintenance and emergencies, including periodic washing of insulators by high-pressure water spray. Clearances of 100 feet may be required under circumstances where access is limited.~~

~~17C. Permanent Structures~~

~~An area within 100 feet on all sides of each tower shall remain open and unobstructed for maintenance and emergencies, including periodic washing of insulators by high-pressure water spray.~~

~~18. Detailed plans for any grading, paving, and construction work within the right of way~~

~~shall be submitted for approval to the Real Estate Services, 221 N. Figueroa St., Suite 1600, Los Angeles, California 90012, no later than 45 days prior to the start of any grading, paving, or construction work. Notwithstanding any other notices given by Licensee required herein, Licensee shall notify the LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5014, or (818) 771-5076, no earlier than 14 days and no later than two days prior to the start of any grading, paving, or construction work.~~

~~19. "As Constructed" drawings showing all plans and profiles of the Licensee's project shall be furnished to the Real Estate Services, 221 N. Figueroa St., Suite 1600, Los Angeles, California 90012, within five days after completion of Licensee's project.~~

20. In the event that construction within the right of way is determined upon inspection by the LADWP to be unsafe or hazardous to the LADWP facilities, the LADWP may assign a line patrol mechanic at the Licensee's expense.

21. If the LADWP determines at any time during construction that the Licensee's efforts are hazardous or detrimental to the LADWP facilities, the LADWP shall have the right to immediately terminate said construction.

~~22A. All concentrated surface water which is draining away from the permitted activity shall be directed to an approved storm drain system where accessible, or otherwise restored to sheet flow before being released within or from the right of way.~~

~~22B. Drainage from the paved portions of the right of way shall not enter the unpaved area under the towers. Drainage diversions such as curbs shall be used on three sides of each tower. The open side of each tower shall be the lowest elevation side to allow storm water which falls under the tower to drain. The area under the towers shall be manually graded to sheet flow out from under the towers.~~

22C. Ponding or flooding conditions within the right of way shall not be allowed, especially around the transmission towers. All drainage shall flow off of the right of way.

~~22D. Licensee shall comply with all Los Angeles County Municipal Storm Water Permit and Standard Urban Storm Water Mitigation Plan requirements.~~

23A. Fills, including backfills, shall be in horizontal, uniform layers not to exceed six inches in thickness before compaction, then compacted to 90 percent relative compaction in accordance with the American Society for Testing and Materials D1557.

~~23B. The top two inches to six inches of the concrete footings of the towers shall remain exposed and not covered over by any fill from grading operations.~~

~~23C. Licensee shall provide the LADWP with one copy each of the compaction report and a Certificate of Compacted Fill, for clean fill compaction within the LADWP's right of way in accordance with the American Society for Testing and Materials D1557, approved by a geotechnical engineer licensed in the State of California.~~

24. A surety bond in the amount to be determined by the LADWP shall be supplied by the Licensee to assure restoration of the LADWP's right of way and facilities, and compliance with all conditions herein.

25. The Licensee shall obtain and pay for all permits and licenses required for performance of the work and shall comply with all laws, ordinances, rules, orders, or regulations

including, but not limited to, those of any agencies, departments, districts, or commissions of the State, County, or City having jurisdiction thereover.

~~26. The term "construction", as used herein, refers only to that construction incidental to the maintenance or repair of the existing (requested facility) and shall not be construed to mean permission to construct any additional (requested facility).~~

~~27. Signs shall not exceed four feet wide by eight feet long, shall not exceed a height of 12 feet, shall be constructed of noncombustible materials, and shall be installed manually at, and parallel with, the right of way boundary.~~

~~28. Remote-controlled gates, or lock boxes containing the device or key for opening the remote-controlled gates, shall be capable of being interlocked with an LADWP padlock to allow access to the right of way by the LADWP. Licensee shall contact LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5014, or (818) 771-5076, to coordinate the installation of an LADWP padlock.~~

~~29. Licensee's cathodic protection system, if any, shall have a design that does not cause corrosion to LADWP facilities. A detailed design of the Licensee's cathodic protection system shall be submitted for approval to the Real Estate Services, 221 N. Figueroa St., Suite 1600, Los Angeles, California 90012, no later than 45 days prior to the start of construction or installation of the cathodic protection system.~~

~~30A. Licensee shall install K-rails at a distance of ten feet from each side of the tower base for protection of towers. A distance of five feet from the tower base may be acceptable in locations where the patrol roads would be obstructed.~~

~~30B. Licensee shall install removable pipe bollards, spaced four feet apart, and at a distance of ten feet from each side of the tower base for protection of towers. A distance of five feet from the tower base may be acceptable in locations where the patrol roads would be obstructed.~~

31A Licensee shall provide and maintain a minimum 20-foot wide transition ramp for the patrol roads from the pavement to the ground surface. The ramp shall not exceed a slope of ten percent.

~~31B. Licensee shall provide and maintain a minimum 20-foot wide driveway and gate at all locations where the (road/street) crosses the LADWP's patrol roads. The designed gates must be capable of being interlocked with an LADWP padlock to allow access to the right of way by the LADWP.~~

~~32. Licensee shall post a sign on the entrance gate to the right of way, or in a visible location inside the entrance gate, identifying the contact person's name and telephone number for the prompt moving of (vehicles/trucks/trailers/containers) at times of LADWP maintenance or emergency activities, or any other event that (vehicles/trucks/trailers/containers) must be moved. In emergency conditions, the LADWP reserves all rights at any time to move or tow (vehicles/trucks/trailers/containers) out of specific areas for any transmission operation or maintenance purposes.~~

EXHIBIT 5

RECORD OF DECISION

EPA Superfund

Interim Action Record of Decision

North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

09/30/2009

Interim Action Record of Decision

For the

North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

September 30, 2009

United States Environmental Protection Agency

Region IX – San Francisco, California

Table of Contents

List of Tables

List of Figures

List of Appendices

Acronyms and Abbreviations

µg/L	micrograms per liter
AOP	advanced oxidation process
ARAR	Applicable or Relevant and Appropriate Requirements
BAC	biologically activated carbon
bgs	below ground surface
BOU	Burbank Operable Unit
CAO	Cleanup and Abatement Order
CCR	California Code of Regulations
CDI	chronic daily intake
CDPH	California Department of Public Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
COPC	chemicals of potential concern
DTSC	State of California Department of Toxic Substances Control
DWR	Department of Water Resources
EPA	U.S. Environmental Protection Agency
FFS	Focused Feasibility Study
FS	Feasibility Study
GOU	Glendale Operable Unit
gpm	gallons per minute
HI	hazard index
HHRA	human health risk assessment
HQ	hazard quotient
ID	identifier
LADWP	Los Angeles Department of Water and Power
lbs	pounds
LPGAC	liquid phase granular activated carbon
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
msl	mean sea level
NAPLs	non-aqueous phase liquids
NDMA	N-Nitrosodimethylamine
NHE	North Hollywood Extraction
NHOU	North Hollywood Operable Unit
NPV	net present value
O&M	operation and maintenance

OU	Operable Unit
PCE	tetrachloroethylene, also known as perchloroethylene
PRP	Potentially Responsible Party
RfD	reference dose
RI	remedial investigation
RME	reasonable maximum exposure
ROD	Record of Decision
RSL	regional screening level
RWQCB	Los Angeles Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SDWA	Safe Drinking Water Act
SF	slope factor
SFV	San Fernando Valley
State	State of California
TCA	1,1,1-trichloroethane
TCE	trichloroethylene
TCP	1,2,3-trichloropropane
ULARA	Upper Los Angeles River Area
VOC	volatile organic compound
VPGAC	vapor-phase granular activated carbon

Part 1
Declaration

Part 1 – Declaration

1.1 Site Name and Location

The North Hollywood Operable Unit (NHOU) of the San Fernando Valley (Area 1) Superfund Site (Site) is located in Los Angeles County, California (CERCLIS ID No. CAD980894893).

1.2 Statement of Basis and Purpose

This Interim Action Record of Decision (ROD) selects a new interim remedy for the North Hollywood/Burbank Well Field area of the San Fernando Valley (Area 1) Superfund Site, and presents the selected interim remedy for the NHOU (Second Interim Remedy).[1] The Second Interim Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the administrative record for the Site. The State of California (State) concurs with this Second Interim Remedy.

The selection and implementation of a new remedy for the NHOU is necessary because the interim remedy selected in the Record of Decision for a Remedial Action for Area 1 of the San Fernando Valley Superfund Sites, dated September 23, 1987 (Existing NHOU Extraction and Treatment System), is no longer capable of fully containing the groundwater plume, and because new contaminants have been discovered in the aquifer. Selection and implementation of the Second Interim Remedy is intended to address the continued presence of significant dissolved-phase volatile organic compound (VOC) contamination in groundwater in exceedance of the Maximum Contaminant Levels (MCLs) or state notification levels, the presence of chromium and other emerging chemicals in groundwater in exceedance of the MCLs or state notification levels, and the need to achieve more complete capture of the VOC plume. Changing groundwater conditions in the aquifer and the discovery of VOC contamination in new areas have made it impossible for the Existing NHOU Extraction and Treatment System to fully contain the VOC plume. In addition, the Existing NHOU Extraction and Treatment System was not designed to treat chromium or the emerging chemicals that have been detected in the groundwater since its construction. The presence of elevated concentrations of chromium in the aquifer, as well as the lack of chromium treatment in the treatment system, resulted in the extended shutdown, in 2007, of one NHOU remedy (extraction) well, NHE-2, which serves an important plume containment function.

[1] The Selected Interim Remedy addresses groundwater contamination in the same geographic area as the interim remedy selected in the *Record of Decision for a Remedial Action for Area 1 of the San Fernando Valley Superfund Sites*, dated September 23, 1987 ("1987 ROD"). Because the interim remedy selected in the 1987 ROD was intended only to be the first phase in the response to groundwater contamination in the vicinity of the Los Angeles Department of Water and Power's North Hollywood well field, consistent with the NCP, EPA created a new OU, OU4, to manage the second phase of the response, which will be conducted pursuant to the Selected Interim Remedy. Despite the fact that EPA has created a new OU, it continues to refer to the response action in the vicinity of the North Hollywood well field as the "NHOU" in this document and elsewhere.

The scope of the remedy does not include restoration of the aquifer (i.e., removal of all manmade contaminants), in part because additional data are needed in some areas of the aquifer where the extent of contamination must be better defined before the U.S. Environmental Protection Agency (EPA) can determine what additional actions, if any, are needed to address these other areas of groundwater contamination. In the meantime, EPA considers it important to implement this remedy for groundwater as soon as practicable to prevent further migration of the known high-concentration contaminant plumes, as described above, and to collect additional data to evaluate the need for (and scope of) further action.

To ensure that the groundwater cleanup achieved by this remedy is sustained over the long term, EPA will continue to work closely with the State to ensure that contaminant source areas at individual facilities within the NHOU have been addressed.

1.3 Assessment of the Site

EPA has determined that hazardous chemicals have been released into groundwater within the NHOU, and that a substantial threat of release to groundwater still exists. The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

1.4 Description of the Second Interim Remedy

The Second Interim Remedy for the NHOU addresses contaminated groundwater by containing and remediating the groundwater using an extraction well network and above-ground water treatment system. The Second Interim Remedy is a containment remedy for groundwater contaminated with VOCs and chromium in the shallow and deep zone in the NHOU and is intended to prevent further migration of existing groundwater contamination.

The eastern region of the San Fernando Valley (SFV) is characterized by a continuous plume of VOC contamination that starts in the Area 1 Site and continues downgradient in a generally southeast direction through the Area 2 and Area 4 Sites. The NHOU comprises the western portion of the SFV Area 1 Superfund Site; to the east of the NHOU is the Burbank OU, where an interim pump-and-treat remedy has been in place and operating since 1996. By improving the capture of the contaminant plume within the NHOU, the Second Interim Remedy will minimize the migration of contaminants from the NHOU to the Burbank OU and to the downgradient SFV Area 2 Superfund Site. In the future, following additional plume characterization, evaluation of the performance of the Second Interim Remedy and an evaluation of the existing Burbank remedy, EPA will select a final remedy for the SFV Area 1 Site.

The Second Interim Remedy includes performance criteria that will require extraction and treatment of contaminated groundwater at certain locations within the plume, expanded treatment for VOCs, and additional treatment for chromium and 1,4-dioxane. The selected remedy also includes institutional controls (in the form of a groundwater management plan) to insure that changes in groundwater pumping from nearby water supply well fields do not have a negative impact on the NHOU remedy performance.

Components of the Second Interim Remedy for the North Hollywood Operable Unit include the following:

- Repair and/or modification (deepening) of existing extraction wells NHE-1 through NHE-8;
- Construction of approximately 3 new extraction wells and associated piping;
- Addition of the new VOC air stripper treatment process, and installation of a liquid phase granular activated carbon (LPGAC) treatment system;
- Wellhead treatment at existing extraction well NHE-2 to remove chromium and 1,4-dioxane;
- Ex situ chromium treatment for the combined inflow from existing extraction well NHE-1 and two of the new groundwater;
- Delivery of treated water to the Los Angeles Department of Water and Power ("LADWP") drinking water system;
- Institutional controls (ICs) in the form of a groundwater management plan; and,
- Installation of approximately 37 new groundwater monitoring wells.

1.5 Statutory Determinations

The Second Interim Remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is cost effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

This remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment).

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-Site (i.e., in groundwater) above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

1.6 ROD Certification Checklist

The following information is presented in the Decision Summary section (Part 2 of this ROD). Additional information can be found in the administrative record file for the NHOU.

- Contaminants of concern (COCs) and their respective concentrations (see Sections 2.5 and 2.8)
- Baseline risk represented by the COCs (see Section 2.7)
- Cleanup levels established for the COCs and the basis for these levels (see Section 2.8)

- Current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD (see Sections 2.6 and 2.7)
- Potential groundwater use that will be available at the Site as a result of the selected remedy (see Section 2.12)
- Estimated capital, operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (see Section 2.12)
- Key factors that led to selecting the remedy (i.e., how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria) (see Section 2.12)

1.7 Authorizing Signature

This ROD documents the Second Interim Remedy for contaminated groundwater at the North Hollywood Operable Unit of the San Fernando Valley (Area 1) Superfund Site. This remedy was selected with the concurrence of State of California Department of Toxic Substances Control. The Assistant Director of the Superfund Division (EPA, Region 9) has been delegated the authority to approve and sign this ROD.

Kathleen Salyer

9/30/09
Date

Kathleen Salyer
Assistant Director, Superfund Division
California Site Cleanup Branch

Part 2
Decision Summary

Part 2 – Decision Summary

2.1 Site Name, Location, and Description

The NHOU is one of two geographically-defined operable units within the San Fernando Valley (Area 1) Superfund Site. The NHOU comprises approximately 4 square miles of contaminated groundwater underlying an area of mixed industrial, commercial, and residential land use in the community of North Hollywood (a district of the City of Los Angeles). The NHOU is approximately 15 miles north of downtown Los Angeles and immediately west of the City of Burbank, and has approximate Site boundaries of Sun Valley and Interstate 5 to the north, State Highway 170 and Lankershim Boulevard to the west, the Burbank Airport to the east, and Burbank Boulevard to the south (see Figure 1).

The EPA is the lead agency for the current and planned future groundwater remedial activities at the NHOU. The EPA's response activities at the NHOU are and have been conducted under the authority established in the federal Superfund law, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. Section 9601 et seq. The lead state agency is the California Department of Toxic Substances Control (DTSC). The Los Angeles Regional Water Quality Control Board (RWQCB) has provided and continues to provide substantial support, particularly with the investigation and cleanup of sources of contamination in the SFV. The expected source of cleanup monies for the NHOU is an enforcement settlement with the Potentially Responsible Parties (PRPs).

2.2 Site History and Enforcement Activities

2.2.1 Site History

Prior to World War II, most land in the SFV was occupied by farms, orchards, and ranchland. By 1949, after the war, nearly all the land in Burbank and North Hollywood was occupied by housing developments, industrial facilities, retail establishments, and the Burbank Airport. Accompanying these land use changes in the 1940s was a substantial increase in population and groundwater withdrawals from the SFV. In the 1950s, the North Hollywood, Erwin, Whitnall, and Verdugo Well Fields were constructed by the LADWP in the North Hollywood area to meet the increasing demand for water. In 1968, groundwater withdrawals from the SFV were reduced to achieve "safe yield" from the basin, and more surface water was imported to the basin from external sources.

In 1979, industrial contamination was found in groundwater in the San Gabriel Valley (to the east of the SFV), prompting the California Department of Public Health (CDPH; formerly the California Department of Health Services) to request that all major water providers in the region, including those in the SFV, sample and analyze groundwater for potential industrial contaminants. Trichloroethylene (TCE) and tetrachloroethylene (PCE) were consistently detected in a large number of production wells in the SFV at concentrations greater than Federal and State MCLs for drinking water.

TCE and PCE were widely used in the San Fernando Valley starting in the 1940s for dry cleaning and for degreasing machinery. Disposal was not well regulated at that time, and releases

from a large number of facilities throughout the eastern SFV have resulted in the large plume of VOC-contaminated groundwater that extends from the NHOU to the southeast (see Figure 2). To replace wells within the NHOU area contaminated by TCE and PCE, and to provide more operational flexibility for groundwater recharge and pumping in the SFV, LADWP constructed the Rinaldi-Toluca Well Field in 1988 and 1989, and the Tujunga Well Field in 1993 (see Figure 1).

2.2.2 Federal, State, and Local Site Investigations and Remedial Actions

Based on the significant levels of groundwater contamination present in the SFV and the impact of that contamination on numerous municipal water supply wells, EPA added four SFV Sites to the NPL in 1986 and defined them as areas of regional groundwater contamination. Three of the four Sites (Areas 1, 2 and 4) are contiguous areas within whose boundaries are well fields that serve the water supply systems for the cities of Los Angeles, Burbank and Glendale. There is a large, continuous plume of groundwater contamination that runs through these three Sites. The fourth Site, Area 3, lies in the Verdugo basin, a geographically separate area of the eastern San Fernando Valley (see Figure 1).

In the SFV Area 1 Site, located at the upgradient end of the contaminated groundwater plume, the selection and implementation of the initial interim remedy – the Existing NHOU Extraction and Treatment System – for the LADWP's North Hollywood well field was given fast-track status because of the potential for contamination to spread to other well fields and areas of uncontaminated groundwater. In 1986, LADWP completed the *Operable Unit Feasibility Study for the North Hollywood Well Field Area of the North Hollywood-Burbank NPL Site* (LADWP, 1986), which was the basis for selection and implementation of the Existing NHOU Extraction and Treatment System. The 1987 ROD for the Site selected the Existing NHOU Extraction and Treatment System as an interim groundwater containment remedy.

In 1989, LADWP constructed the Existing NHOU Extraction and Treatment System with financial support from EPA. The Existing NHOU Extraction and Treatment System consists of eight groundwater extraction wells (NHE-1 through NHE-8), an air-stripping treatment system to remove VOCs from the extracted groundwater, activated carbon filters to remove VOCs from the air stream, and ancillary equipment. The treated groundwater is discharged into an LADWP blending facility where it is combined with water from other sources before entering the LADWP water supply system. The Existing NHOU Extraction and Treatment System commenced operation in December 1989 and remains in operation today.

In 1989, EPA issued a ROD for the Burbank OU (BOU) of the SFV Area 1 Site. That ROD also selected an interim remedy (containment) for the VOC-contaminated groundwater within the Burbank area, where ten of the city's water supply wells had been shut down due to contamination. The BOU remedy, which provides treated water for the City of Burbank's water supply system, began operation in 1996 and remains in operation to this day.

In December 1992, a remedial investigation (RI) for the SFV groundwater basin, including installation and subsequent regular monitoring of 84 groundwater wells, was completed under a cooperative agreement between EPA and the LADWP. The RI was conducted to evaluate the groundwater quality throughout the SFV basin and assist in identifying the best treatment method(s) and optimal locations to install groundwater treatment systems to address the SFV groundwater contamination.

EPA listed the SFV Sites as groundwater only, with the intent to focus on addressing the regional groundwater contamination, with an agreement with the state agencies to address the sources. From the late 1980s to late 1990s, EPA provided funds to RWQCB to conduct assessments of facilities in the SFV to determine the extent of solvent usage and to assess past and current chemical handling, storage, and disposal practices. These investigations were conducted pursuant to RWQCB's Well Investigation Program and resulted in source remediation activities under RWQCB oversight at several facilities within the SFV, including two within the NHOU. Source investigations and remediation activities are currently in progress under the lead of RWQCB and DTSC.

In 1993, 1998, 2003, and 2008, EPA conducted five-year reviews (as required by CERCLA) to evaluate the protectiveness of the NHOU interim remedy. The *Third NHOU Five-Year Review (*EPA, 2003) reported that the TCE and PCE groundwater plume that the remedy was designed to capture was migrating vertically and laterally beyond the remedy's zone of hydraulic control. This conclusion was based largely on EPA's evaluation of the current NHOU groundwater conditions and LADWP findings in the *Draft Evaluation of the North Hollywood Operable Unit and Options to Enhance Its Effectiveness* (LADWP, 2002). The *Final Evaluation of the North Hollywood Operable Unit and Options to Enhance Its Effectiveness* (LADWP, 2003) also raised concerns regarding detections of total chromium and hexavalent chromium in extraction well NHE-2 of the NHOU interim remedy. Well NHE-2 is located just a short distance from the former Bendix facility, one of the major VOC sources in the NHOU.

In July 2006, after a year of unusually high rainfall and rising groundwater levels in the SFV, the total chromium concentration detected at NHOU extraction well NHE-2 began to increase. Chromium was used in the metal plating and aerospace industry (metal fabrication), as well as for corrosion inhibition in industrial cooling towers, from the 1940s through the 1980s. It was also used extensively at the former Bendix facility. In 2007, the elevated concentrations of chromium at well NHE-2 caused total chromium concentrations in the combined NHOU treatment system effluent to exceed 30 micrograms per liter (µg/L) (60 percent of the state MCL). As a result, CDPH advised LADWP to shut down well NHE-2 or divert the water produced by the well to a nonpotable use. Chromium concentrations at this well have subsequently ranged from approximately 280 to 440 µg/L. In addition, 1,4-dioxane was detected at well NHE-2 during 2007 and 2008 at concentrations ranging from 4 to 7 µg/L. There is no MCL for 1,4-dioxane, but the CDPH notification level for 1,4-dioxane is 3 µg/L.

Extraction well NHE-2 remained shut down until September 2008, when the installation of a wellhead VOC treatment unit and modification of the discharge piping were completed, which allowed this well to return to service. The NHE-2 effluent, which still contains elevated levels of chromium, is currently discharged to the Los Angeles Bureau of Sanitation sewer system. This work was conducted by Honeywell International (a corporate successor to Bendix) as an interim measure, pursuant to a Cleanup and Abatement Order (CAO) from RWQCB that requires Honeywell to clean up the chromium contamination and to restore lost water caused by the shut down of well NHE-2. A long-term wellhead treatment system for well NHE-2, including treatment for chromium and, if necessary, 1,4-dioxane, to meet drinking water standards is expected to be implemented pursuant to the RWQCB CAO prior to the implementation of the NHOU Second Interim Remedy.

2.2.3 History of CERCLA and State Enforcement Actions

Following construction and start up of the Existing NHOU Extraction and Treatment System, EPA issued general and special notice letters to PRPs. In 1996 and 1997, EPA reached two separate settlements with PRPs in which the settling parties agreed to pay EPA's past costs and fund operation of the Existing NHOU Extraction and Treatment System for the remainder of its fifteen-year term. In 2008, when the funds collected pursuant to the 1996 and 1997 settlements were close to being exhausted, EPA entered into an administrative order on consent with a number of parties from 1996 and 1997 settlements and issued a unilateral administrative order to the remaining viable parties in order to secure funding to continue operating the Existing NHOU Extraction and Treatment System until the Second Interim Remedy is constructed and operational. In preparation for the selection and implementation of the Second Interim Remedy, EPA has conducted additional PRP search activity.

The RWQCB has issued CAOs to two parties in the NHOU. In December 1987, Lockheed was issued a CAO (No. 87-161) directing it to remediate contaminated soil and groundwater at Plant B-1 (in the BOU) and to complete a comprehensive Site assessment at all of Lockheed's other Burbank Airport facilities, including Plants B5 and C1 (in the NHOU), to determine the sources and extent of soil and groundwater contamination. The RWQCB issued a CAO in February 2003 (No. R4-2003-037) to Honeywell International, Inc., for VOC and chromium contamination in groundwater at the former Bendix facility in North Hollywood. This CAO was amended in April 2007 to include investigation and mitigation of emerging contaminants at the former Bendix facility and to address elevated chromium concentrations at NHOU extraction well NHE-2.

2.3 Community Participation

After listing the SFV Area 1 Superfund Site on the NPL, EPA developed a Community Involvement Plan that outlined the types of activities envisioned to keep the local community informed. Throughout its involvement in the SFV, EPA has kept State agencies, cities, businesses, residents and property owners in and near the Site informed of its activities and the results of its studies via periodic newsletters. These newsletters and other documents referred to in this ROD are available to the public as part of the administrative record file at the EPA Region 9 Superfund Records Center in San Francisco, California. The administrative record is also available for public review at the following information repositories:

- City of Los Angeles Central Library, Science & Technical Department: 630 West 5th Street, Los Angeles, CA, 90071
- North Hollywood Regional Branch Library, 5211 Tujunga Avenue, North Hollywood, CA, 91601
- Burbank Public Library, Central Library, 110 North Glen Oaks Blvd., Burbank, CA, 91502
- Glendale Public Library, 222 East Harvard St., Glendale, CA, 91205

The Focused Feasibility Study (FFS) report and Proposed Plan for the NHOU Second Interim Remedy were made available to the public in July 2009. The notice of the availability of the FFS

and Proposed Plan for NHOU was published in the Daily Breeze on July 8, 2009. EPA held a public meeting in Burbank on July 21, 2009, to present the Proposed Plan to the community and other NHOU stakeholders. At this meeting, EPA representatives were also available during an open house session to answer questions about the NHOU and the remedial alternatives evaluated in the FFS.

The original public comment period on the Proposed Plan was set for July 13 to August 10, 2009. An extension to the public comment period was requested shortly after the public meeting and, as a result, it was extended to September 10, 2009. The public was notified of this extension through a public notice published in the Daily Breeze on August 8, 2009, a flyer sent to the NHOU mailing list, and an email notice sent to state and local agencies, elected officials, PRPs and other stakeholders. EPA's responses to the comments received during this period are included in the Responsiveness Summary, which is Part 3 of this ROD.

2.4 Scope and Role of Operable Unit

2.4.1 Role of Operable Unit

This section briefly describes the NPL Sites in the eastern SFV, to provide context for the role of the selected NHOU remedy and how it relates to the response actions underway in the nearby Burbank and Glendale OUs.

As noted earlier, there are four NPL Sites in the eastern SFV:

- Area 1 – North Hollywood: made up of the NHOU and the Burbank Operable Unit (BOU)
- Area 2 – Crystal Springs: includes the Glendale North and Glendale South Operable Units (referred to collectively as the Glendale OU or GOU)
- Area 3 – Verdugo
- Area 4 – Pollock

All of these Sites were listed on the NPL as "groundwater only" Sites, i.e., only the regional groundwater contamination was intended to be addressed by EPA's Superfund program. Due to the vast size of each of these Sites, it was agreed with the State that it would address the vadose zone contamination from sources, and EPA would address the groundwater contamination.

EPA has issued RODs for the NHOU (1987) and the BOU (1989) in the Area 1 NPL Site, the Glendale OUs (1993) in the Area 2 NPL Site, and the Area 3 (Verdugo) NPL Site. In the cases of the Area 1 and Area 2 Sites, EPA selected interim pump-and-treat remedies to "slow down or arrest" the migration of VOC-contaminated groundwater and remove contaminant mass. The purpose of these interim remedies was to stop the further spread of contamination as much as possible and begin to remove contaminant mass from the aquifer while the state worked on source identification and cleanup. EPA also planned to further characterize the regional groundwater contamination and aquifer characteristics to provide the basis for evaluating and selecting additional response actions leading to a final remedy at each Site.

In 2004, EPA issued a no-action ROD for the SFV Area 3 (Verdugo) Site, which was subsequently deleted from the NPL in October 2004. No Superfund remedy has been selected by

EPA for the Area 4 Site. However, in 1998, LADWP completed construction of the Pollock Wells Treatment Plant, which enabled LADWP to reactivate the Pollock well field. LADWP continues to operate the Pollock treatment plant to remove VOCs from groundwater, which is then used as part of the City's water supply system.

The Existing NHOU Extraction and Treatment System has been operating since 1989, and the BOU interim remedy has been operating since 1996. The GOU interim remedy, which consists of two extraction well fields and one treatment plant, began limited operations in August 2000 and achieved full operational capacity in June 2002. The treated water from the BOU and GOU remedies is delivered to the cities of Burbank and Glendale, respectively, for use in their municipal water supply systems.

The Second Interim Remedy addresses groundwater contamination in that part of the eastern SFV at the upgradient end of a continuous plume of VOC-contaminated groundwater that extends from the North Hollywood area down through Burbank and Glendale and into the Pollock area (see Figure 2). The primary role of the Second Interim Remedy for the NHOU is to improve containment of contaminated groundwater in the North Hollywood area (including the areas of highest contamination) in order to limit its migration downgradient and to prevent further contamination of LADWP production (water-supply) wells.

The direction of regional groundwater movement in the eastern SFV is generally south and southeast; therefore, groundwater contamination that escapes capture in the NHOU will tend to migrate towards the BOU and GOU. The primary roles of the BOU and GOU remedies are to contain groundwater contamination in the Burbank and Glendale areas, respectively. Secondary roles for each of the remedies in these OUs (NHOU, BOU, and GOU) include reduction of contaminant mass in groundwater through treatment.

2.4.2 Scope of Response Action

Selection and implementation of the Second Interim Remedy in the NHOU is intended to address the continued presence of contaminated groundwater in the vicinity of the LADWP production well fields within and adjacent to the North Hollywood area as well as uncertainties about lateral and vertical extent of the VOC plume in certain parts of the NHOU. The NHOU plume contains significant VOC contamination, along with the localized areas where chromium and other emerging chemicals exceed the MCLs or state notification levels. The Existing NHOU Extraction and Treatment System is not designed to remove chromium or the other emerging contaminants, and it is unable to achieve adequate capture of the VOC plume.

The scope of the Second Interim Remedy is:

1. Containment of the contaminant plume in the NHOU to the extent practicable, including containment of the highest-concentration VOC, chromium, and emerging contaminant plumes in groundwater in the immediate vicinity of the Existing NHOU Extraction and Treatment System. This will prevent the further migration of contaminated groundwater to the nearby Rinaldi-Toluca and North Hollywood West production wells and to areas of the aquifer with significantly lower contaminant concentrations.
2. Expansion of the NHOU groundwater monitoring well network to adequately monitor performance of the Second Interim Remedy and provide data required to optimize future system performance.

The scope of the Second Interim Remedy does not include restoration of the aquifer (i.e., attainment of MCLs and other groundwater cleanup goals in the aquifer) within the NHOU. This is because additional data are needed in some areas of the aquifer where the extent of contamination is not completely delineated before EPA can determine what additional remedial actions, if any, are needed to address these other areas of groundwater contamination. Additional data obtained during design and implementation of the Second Interim Remedy is expected to provide the basis for EPA's development of a final remedy for the NHOU. In the meantime, EPA considers it important to implement the Second Interim Remedy as soon as practicable to prevent further migration of the contaminant plumes, as described above, as well as to collect additional data to evaluate the need for (and scope of) further action within the NHOU. The Second Interim Remedy will be consistent with implementation of the final remedy for the NHOU and the SFV Area 1 Site, including any additional response actions for the Burbank OU.

2.5 Site Characteristics

2.5.1 Conceptual Site Model

For the San Fernando Valley (Area 1) Site, the conceptual Site model consists of past spills, leaks, or other releases of hazardous contaminants that have occurred at several sources within the NHOU, which has resulted in significant groundwater contamination that poses a potential risk to human health via the use of contaminated groundwater for potable water supply.

Significant releases of VOCs (primarily TCE and PCE) and other contaminants have occurred at several sources within the NHOU, including the former Bendix facility in North Hollywood and the Lockheed facilities near the western end of the Burbank Airport, resulting in contamination of underlying soil and groundwater. Two hot spots of VOC contamination, where concentrations are greater than 1,000 µg/L, are present in shallow groundwater in the immediate vicinity of these facilities (Figure 3). In deeper groundwater, localized areas of high VOC concentrations also exist, although concentrations are lower than those found in the shallow groundwater hot spots (Figure 4).

High concentrations of hexavalent and total chromium (see Figure 5), together with elevated levels of other emerging contaminants (most notably 1,4-dioxane) have also been detected in groundwater below the former Bendix facility. Other facilities may have discharged chromium and other emerging contaminants that impacted groundwater quality within NHOU; however, the highest concentrations detected to date (by three orders of magnitude for chromium) occur at, and downgradient from, the former Bendix facility.

Groundwater in the NHOU generally flows south and southeast, approximately parallel to the axis of the Existing NHOU Extraction and Treatment well field. Much of the contaminated groundwater present near the extraction well field is "captured" by the extraction wells and pumped from the aquifer. Groundwater that is not captured by the Existing NHOU Extraction and Treatment System, including groundwater in areas of the aquifer outside of the capture zone for the NHOU extraction wells, is withdrawn by LADWP water supply wells in and near the NHOU, or by the extraction well fields of the Burbank and Glendale OU remedies to the east and southeast (Figure 2).

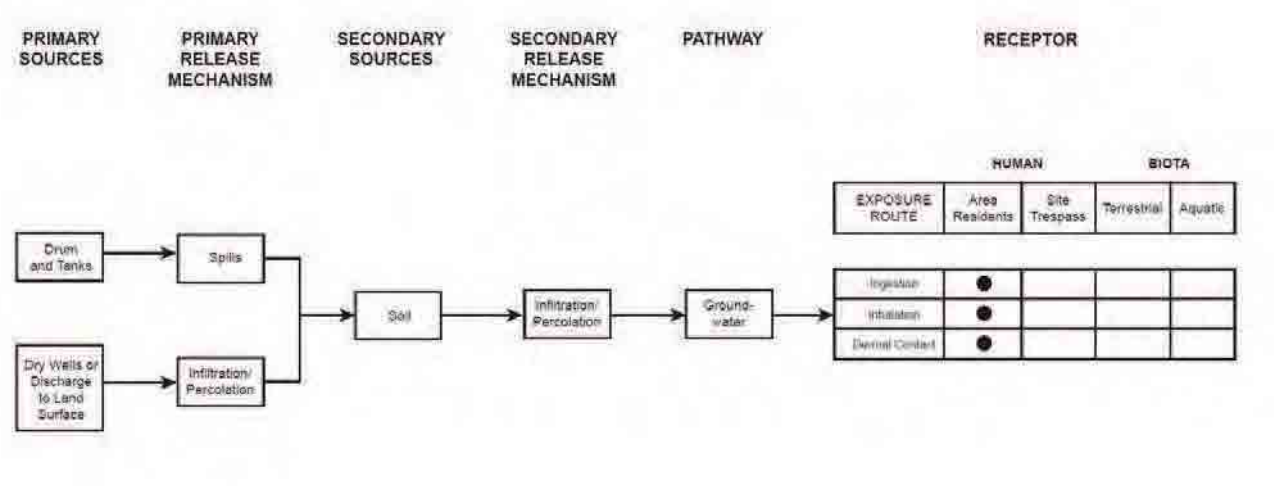
Some of the VOCs, chromium, and emerging contaminants that have spilled or leaked in the NHOU remain in the vadose zone. In 2006, a rising water table in the NHOU apparently intersected a substantial mass of VOCs and chromium in the vadose zone at the former Bendix facility (at an elevation that had not been saturated for several years), causing concentrations to increase an order of magnitude or more at downgradient wells, including NHOU extraction well NHE-2. Honeywell International, which has assumed responsibility for the former Bendix facility by virtue of a corporate merger, is currently conducting *in situ* remediation of hexavalent chromium in the vadose zone and groundwater at the former Bendix facility to mitigate this contaminant threat to groundwater.

The Existing NHOU Extraction and Treatment System was designed to remove VOC contaminant mass and contain the groundwater plume in the most contaminated portions of the NHOU, which are primarily located downgradient from the former Bendix facility and the Lockheed facilities. For several reasons, the design flow rate of 2,000 gallons per minute (gpm) for the first interim remedy has not been met, and as a result, the degree of plume containment has been less than intended. A key factor is that extraction well NHE-1 was shut down before the system became operational because of changes in groundwater conditions resulting in insufficient groundwater yield, and it has not been pumped since the system began operations in December 1989. Additional factors include declining groundwater levels, maintenance problems, and periodic shutdowns of extraction well NHE-2 due to excessive chromium concentrations.

The Existing NHOU Extraction and Treatment System's effectiveness is also currently limited because it was designed to extract and treat groundwater primarily from Depth Region 1, where groundwater contamination was known to exist in the 1980s. However, in the intervening years, substantial TCE and PCE concentrations have been detected in Depth Regions 2 and 3 in the NHOU. With the exception of extraction well NHE-6, the NHOU extraction wells are screened in Depth Region 1 and the upper part of Depth Region 2 to maximum depths ranging from 270 to 300 feet below ground surface (bgs). Elevated concentrations of TCE and PCE have now been detected in the lower part of Depth Region 2 and in Depth Region 3 in areas north of extraction well NHE-2 and south of extraction wells NHE-7 and NHE-8, and the extraction system is incapable of completely containing these deeper contaminant plumes. This has allowed migration of TCE and PCE contamination to nearby LADWP well fields including the Rinaldi-Toluca well field and the North Hollywood West well field.

Because the San Fernando Valley (Area 1) Site is considered a groundwater-only Site and the SFV groundwater is used by LADWP, Burbank, and Glendale for municipal drinking water supply, the exposure pathway considered in the human health risk assessment was residential use of groundwater for potable water supply (with exposure occurring via ingestion and inhalation). The conceptual Site model is graphically illustrated in Figure 6. Groundwater/surface water interactions do not occur within the NHOU, and as a result, the ecological risk posed by contaminants in groundwater is negligible.

Figure 6: Conceptual Site Model



2.5.2 Overview of the Site

The NHOU lies within the San Fernando Valley, which is an alluvial basin in the south-central portion of the Transverse Ranges of Southern California. The SFV is bordered on the east by the Verdugo Mountains, on the west by the Simi Hills, on the north by the Santa Susana and San Gabriel Mountains, and on the south by the Santa Monica Mountains. Average annual precipitation in the SFV (valley floor) is 16.48 inches. The San Fernando Valley is extensively developed, dominated by residential, retail, and industrial land use in the area of the NHOU.

The area of the NHOU is approximately 4 square miles, and is characterized by a relatively flat topographic surface that slopes gently to the south-southeast from approximately 800 feet above mean sea level (msl) in the north, to approximately 600 feet msl in the south. A concrete-lined flood control channel, the Central Branch of Tujunga Wash, is present along the western edge of the NHOU. The Los Angeles River, also concrete-lined in the vicinity of North Hollywood, is present south of the NHOU and drains stormwater runoff from most of the SFV, including North Hollywood (see Figure 1).

The NHOU is situated in the eastern half of the San Fernando Valley basin, which is underlain by alluvial deposits consisting of coarse materials, such as sands and gravels, interbedded with localized lenses of clays and silts. This portion of the basin has some of the best aquifer characteristics (from a water production perspective), and the well fields within the vicinity of the NHOU provide a large proportion of the groundwater produced from the basin. Locally, groundwater flow is influenced by well field pumping and by groundwater recharge at the Hansen, Branford, and Tujunga spreading grounds, which are located north of the NHOU. These spreading grounds are used by LADWP to increase infiltration of storm water runoff from streams issuing from the San Gabriel Mountains, rather than allowing most of this water to flow out of the basin as surface water.

The depth to groundwater in nonpumping wells near the NHOU extraction well field is approximately 240 to 250 feet bgs. Groundwater levels measured at most NHOU monitoring wells declined approximately 20 to 50 feet from the mid-1990s to 2004, which corresponds to increases in groundwater production and declines in recharge in the SFV. Pumping groundwater

levels at the NHOU extraction wells reportedly approached the depths of the pump intakes in 2003 to 2004, near the bottom of the screened intervals, in the range of approximately 260 to 290 feet bgs. This condition limited extraction well pumping rates.

Horizontal hydraulic gradients in the eastern SFV are generally south and east, toward the Los Angeles River Narrows, where essentially all groundwater and surface water outflow from the SFV occurs. In the NHOU, horizontal hydraulic gradients range from south to southeast, with the active LADWP production well fields having localized effects on groundwater flow. Since the original ROD for this Site, the groundwater flow direction near the NHOU extraction system has changed in response to seasonal and annual variations in pumping rates at the nearby Rinaldi-Toluca Well Field (to the northwest), the western portion of the North Hollywood Well Field (to the west), and the Whitnall Well Field (to the south). Pumping in the BOU (to the east) and more distant well fields in the NHOU has also affected hydraulic gradients and groundwater flow directions, although to a lesser extent.

Groundwater flow velocities in the NHOU were estimated during the RI to range from approximately 290 to 1,000 feet per year, depending on location. Estimated groundwater flow velocities are generally highest in the area of the NHOU extraction system where aquifer hydraulic conductivities are highest.

2.5.3 Sampling Strategy

In 1985, groundwater contamination by VOCs was detected in water supply wells in the SFV, including the areas that later became the four NPL Sites. By 1992, EPA had constructed and begun monitoring a network of 84 groundwater monitoring wells in the eastern SFV (referred to as “RI monitoring wells”), including the NHOU. Additional monitoring wells were constructed by others at several industrial facilities in and near the NHOU during the 1980s and 1990s. More recently (since 2003), Honeywell has constructed several new monitoring wells to delineate the extent and direction of contaminant migration from the former Bendix facility in North Hollywood. Most of the RI and other monitoring wells in the NHOU are sampled and analyzed periodically (typical sampling frequency ranges from quarterly to annually) for chemicals of potential concern (COPCs).

In addition to groundwater sampling, many of the facility-specific investigations directed by RWQCB and DTSC also included collection and analysis of soil samples and/or soil vapor samples to delineate contamination in near-surface and deep soils at facilities suspected as source areas for COPCs.

2.5.4 Contaminant Source Areas

While EPA is the lead agency for addressing groundwater contamination at the SFV NPL Sites, investigation and cleanup at the source areas have been managed by the RWQCB. From the late 1980s to late 1990s, EPA provided funds to the RWQCB to conduct facility assessments in the SFV. These investigations were conducted pursuant to the RWQCB’s Well Investigation Program and resulted in source remediation activities at facilities within the SFV. Many of these investigations and source remediation activities are still in progress and will continue because they are important to ensure that the groundwater remedy is maximally effective and the groundwater quality improvements gained by the NHOU remedy are sustained over time.

Of the many facilities investigated by DTSC and RWQCB, approximately 25 have been ordered to sample for contaminated soils. Of these 25 facilities, the former Bendix facility (for which

Honeywell International, Inc. has assumed responsibility) and Plants C-1 and B-5 at the former Lockheed Martin Corporation facility have been identified as the largest contributors of VOCs and chromium to the NHOU. Both Honeywell and Lockheed have taken steps to remove or otherwise address contaminated soil on these properties.

At its facilities in the San Fernando Valley, Lockheed used a variety of solvents, thinners, sealants, adhesives, oils, cleaners, lubricants, and paints from approximately 1936 – 1991. Soon after the San Fernando Valley NPL sites were identified, the RWQCB issued Lockheed a CAO requiring groundwater quality assessments and soil cleanup at the contaminated sites. Soil investigations conducted from 1986-1993 revealed that Plant C-1, located in the western portion the Burbank airport, was contaminated with PCBs, VOCs, and petroleum hydrocarbons. In response, Lockheed installed 62 groundwater-monitoring wells and ordered soil removal where appropriate. By 1994, sampling showed that excavated areas had attained the cleanup goals set by the RWQCB, and Lockheed was issued a No Further Action (NFA) letter for VOC clean up in this area.

Soil gas samples and groundwater monitoring data suggested that Lockheed plant B-5, also located on the western end of the Burbank airport, was another source of VOC contamination in the NHOU, and groundwater and soil gas were continuously monitored at Plant B-5 from 1989-1998. In 1998, the RWQCB determined that the site was not contributing to further VOC contamination and issued a NFA letter. The RWQCB and the EPA are currently working with Lockheed to re-assess sites as potential chromium sources.

Through corporate mergers, Honeywell is now responsible for cleanup actions at three adjacent NHOU properties where Allied Signal-Aerospace Co. and Bendix Aviation, Ltd conducted operations from 1941-1992. Operations at these facilities involved the use of heavy metals, acids, cyanide, petroleum, chlorinated cleaning solvents, motor fuels, and hydraulic test oils. Honeywell began working with the RWQCB to investigate and remediate the three facilities in 1984. Honeywell's cleanup activities included installation of groundwater monitoring wells and multiple soil excavations. In 2003 the RWQCB issued Honeywell a CAO requiring additional groundwater quality assessments and soil removal at the three sites. Since the issuance of the CAO, Honeywell has installed additional groundwater monitoring wells, injection borings, and a soil vapor extraction remedy.

In 2007, the RWQB issued a General Waste Discharge Requirement permit to Honeywell that allows for the *in-situ* remediation of soil contaminated with hexavalent chromium. Once a complete model is developed, the RWQCB expects Honeywell to conduct further excavation and cleanup of its respective properties.

The EPA, DTSC, and RWQCB are in the process of evaluating additional sites where releases of contaminants may have occurred. As part of this effort, the State and EPA have launched several efforts aimed at identifying additional sources of VOCs and emerging contaminants, including a basin-wide (NHOU, BOU, and GOU) sampling effort aimed at locating additional sources of chromium. As potential sources are identified, the agencies will work cooperatively to identify the appropriate lead agency for oversight of investigation and cleanup work.

2.5.5 Types of Contamination and Affected Media

Operations at several industrial facilities in the NHOU have resulted in the discharge of COCs and COPCs to the vadose zone and the underlying groundwater. The primary COCs at the NHOU have historically been TCE and PCE. TCE and PCE are solvents that have been widely used as industrial cleaning and degreasing agents, are mobile in groundwater, and are known to have both carcinogenic and non-carcinogenic impacts on human health. Carbon tetrachloride, 1,1,1-trichloroethane (TCA), and several other chlorinated VOCs have also been detected in NHOU extraction wells, typically at lower concentrations than TCE and PCE.

Two emerging contaminants of concern, hexavalent chromium and 1,4-dioxane, have been detected in the last few years in one of the NHOU extraction wells at concentrations that exceed the MCL for chromium and the state's notification level for 1,4-dioxane. Both of these contaminants are mobile in groundwater and have both probable carcinogenic and non-carcinogenic impacts on human health. Chromium's industrial uses include metal plating operations and aviation and aerospace parts manufacturing. Hexavalent chromium was also used to inhibit corrosion in industrial cooling towers. 1,4-dioxane is a stabilizing agent that was added to chlorinated solvents such as TCE and TCA, and is often associated with VOC contamination in groundwater. 1,4-dioxane is also commonly found in some paint strippers, dyes, greases, varnishes, waxes, antifreeze, and aircraft deicing fluids.

The target medium for the EPA's Second Interim Remedy in the NHOU is groundwater. The uppermost layer of the aquifer contains the highest known concentrations and masses of VOC and chromium contamination, which are the primary targets of the Second Interim Remedy. Some contamination "hot spots" have been detected in deeper layers and will be further investigated by EPA so that appropriate action can be implemented for this deeper groundwater contamination.

2.5.6 Location of Contamination and Potential Routes of Migration

Groundwater contamination within the NHOU is present from the water table to depths exceeding 500 feet bgs, although certain contaminants (such as hexavalent chromium) are present primarily in the upper layer of the aquifer and/or only in localized areas. Since 1996, EPA has been defining aquifer zones in the NHOU by four depth regions and has used these depth regions as the basis for mapping the extent of contamination. All four depth regions are below the water table and correspond to common screened intervals (typically placed in more permeable strata) for monitoring and production wells in the NHOU. The depths and thicknesses of the depth regions can vary depending on location within the NHOU. Following are descriptions of the four depth regions:

- **Depth Region 1.** This depth interval occurs from approximately 200 to 280 feet bgs, with a typical thickness of 75 feet; it includes the screened intervals for most shallow monitoring wells and some older production wells.
- **Depth Region 2.** This depth interval ranges from approximately 280 to 420 feet bgs, with a typical thickness of 140 feet; it includes highly permeable deposits that are penetrated by most production wells in the NHOU.

- **Depth Region 3.** This depth interval occurs from approximately 420 to 660 feet bgs, with a typical thickness of 240 feet; it can be very permeable and includes the screened intervals for many of the newer LADWP production wells in the NHOU.
- **Depth Region 4.** This depth interval includes all of the basin-fill alluvial deposits deeper than 660 feet bgs, with a typical thickness ranging from 100 feet to more than 500 feet; few wells have penetrated this depth region.

The lateral and vertical extent of the primary COCs (TCE, PCE and hexavalent chromium) are shown on Figures 3 through 5 and discussed in more detail below.

TCE and PCE

Figure 3 shows the TCE and PCE concentration contours in Depth Region 1, which are based on the constituent with the higher concentration at each data point from January 2003 through December 2007. This period was selected as being representative of recent conditions in the NHOU, which are most relevant to the selection of a groundwater remedy.

The data shown on Figures 3 and 4 indicate that TCE and PCE concentrations exceeding 5 µg/L are present in a wide area of the NHOU and continue into the BOU, to the east. With few exceptions, TCE concentrations are greater than PCE concentrations within the NHOU, and TCE "hot spots," with concentrations ranging from 50 to 2,900 µg/L, occur within Depth Region 1 of the NHOU.

An area of particularly high TCE concentrations (ranging from 50 to greater than 1,000 µg/L) is centered near the southern boundary of the former Bendix facility. Another area of high TCE concentrations is centered on a Lockheed facility monitoring well near the western end of the Burbank airport runway, with a recent peak concentration of 1,200 µg/L.

In Depth Regions 2 through 4, TCE and PCE concentrations in excess of the MCL are also distributed over a substantial area of the NHOU (see Figure 4), although concentrations are much lower than in Depth Region 1. Notable areas with elevated concentrations include the following:

- Northeast of the Rinaldi-Toluca Well Field
- Immediately south of the former Bendix facility
- East of the Whitnall Well Field

Chromium

Reported total chromium concentrations in the NHOU are highly variable at some wells partly because of differing analytical methods used by the various laboratories and variations in sample collection, filtration, and preservation during different investigations. These investigations were performed by various state and federal agencies and property owners or operators. Over time, analytical methods, sample collection and management processes, and regulatory guidance have been developed or updated to enhance the quality of chromium sampling and data results.

Total and hexavalent chromium detections in excess of the state MCL for total chromium of 50 µg/L are located at, or south (downgradient) of, the former Bendix facility. Total chromium concentrations have ranged as high as 48,000 µg/L in this area. Total chromium levels in the active NHOU extraction wells have reached maximum concentrations ranging from 2 µg/L at

NHE-8 to 440 µg/L at NHE-2. Historically (1990 through 2002), well NHE-2 has had the highest total and hexavalent chromium concentrations of all the extraction wells.

Concentrations of total and hexavalent chromium in Depth Regions 2 through 4 have been as high as 2,010 µg/L and 2,000 µg/L, respectively in the vicinity of the former Bendix facility. However, in most of the SFV, total and hexavalent chromium concentrations are typically elevated in only the uppermost aquifer zones.

Trace background concentrations of chromium occur in SFV groundwater, typically at levels below 3 µg/L, as a result of naturally occurring chromium in the soils comprising the aquifer material.

Emerging Chemicals

Available recent data (January 2003 to December 2007) for several of the emerging chemicals of potential concern, including 1,2,3-trichloropropane (TCP), 1,4-dioxane, N-Nitrosodimethylamine (NDMA), and perchlorate, were reviewed as part of the FFS for the NHOU. In general, the concentrations of TCP, NDMA, and perchlorate in the extraction wells are not expected to exceed the respective MCLs, and therefore will not require treatment. The results for 1,4-dioxane are summarized below.

1,4-dioxane: The state established a drinking water notification level of 3 µg/L for 1,4-dioxane in 1998. Neither CDPH nor EPA has established an MCL for 1,4-dioxane in drinking water. 1,4-dioxane, a semivolatile organic compound, is commonly associated with TCA and TCE contamination in groundwater. In Depth Region 1, 1,4-dioxane has recently been detected in groundwater samples from 20 monitoring wells in or adjacent to NHOU at concentrations that exceed the state drinking water notification level. The highest concentrations of 1,4-dioxane in the NHOU were detected at the former Bendix facility. 1,4-dioxane was also detected at concentrations exceeding the notification level at NHOU extraction wells NHE-2 and NHE-4 at concentrations of 7 and 3.2 µg/L, respectively. In Depth Regions 2 through 4, 1,4-dioxane has been detected above the notification level at former Bendix facility monitoring wells.

All NHOU groundwater contaminants are present in the dissolved phase and will continue to migrate with the regional hydraulic gradient to the south and southeast via advective flow. If nearby LADWP water-supply well fields are pumped at sufficiently high rates, groundwater contamination may be drawn west and northwest toward these well fields. Dispersion, retardation, and biological degradation will affect contaminant migration to some degree. In certain parts of the eastern SFV (primarily Glendale), high groundwater levels can result in the discharge of groundwater in the unlined portions of the Los Angeles River.

There is no evidence to suggest that non-aqueous phase liquids (NAPLs) are present within the NHOU, either in the vadose zone or in groundwater.

2.6 Current and Potential Future Land and Water Uses

The land use in the SFV Area 1 Site, including the NHOU, consists of mixed residential, industrial, and commercial use. The SFV is fully developed and land uses in the NHOU are not expected to change significantly in the next 20 years or longer.

The SFV groundwater basin is an important source of drinking water for the Los Angeles metropolitan area, including the cities of Los Angeles, Glendale, Burbank, and San Fernando. The SFV is located in the Upper Los Angeles River Area (ULARA), which is under adjudicated water rights regulated by the ULARA Watermaster. Through court action in 1975, the City of Los Angeles was granted rights to all groundwater in the San Fernando Basin that is derived from precipitation within ULARA.

There are a number of production well fields in the eastern SFV, including six LADWP well fields located in or near the NHOU. The output from the existing NHOU remedy accounts for approximately 1 to 2 percent of LADWP's total extraction from the SFV groundwater basin. The need for drinking water development in the eastern SFV, including the NHOU, is expected to increase over the next 20 years as restrictions on importing water to Southern California increase and imported water becomes more expensive.

2.7 Summary of Site Risks

Because groundwater is the primary contaminated medium at the Site, and groundwater/surface water interactions do not occur within the NHOU, there are no potentially significant complete exposure pathways for ecological receptors. Therefore, this section focuses on human-health risks.

As part of the RI for the SFV in 1992, a baseline human-health risk assessment (1992 HHRA) was conducted. The baseline risk assessment estimates what risks the Site poses if no action were taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action.

2.7.1 Identification of Chemicals of Concern

In the 1992 HHRA, the preliminary screening of compounds based on magnitude and toxicity was conducted to develop a list of potential chemicals of concern in the groundwater for the Upper Zone and the Lower Zone of the San Fernando Basin for the baseline risk assessment. This screening considered all of the compounds detected during the most current sampling of groundwater from all wells in the basin (September 1990 through May 1991). Table 1 summarizes the occurrence of selected COCs for the NHOU. The COCs for which EPA has selected a performance standard under this ROD are found in Table 6.

Table 1. Occurrence, Distribution, and Selection of Selected Chemicals of Concern

Exposure Medium: Groundwater

Chemical of Potential Concern	Minimum Concentration[a] (µg/L)	Maximum Concentration[a] (µg/L)	Regional Screening Level (µg/L)[b]
Benzene	0.19	1.3	0.41
Carbon Tetrachloride	0.089	13.1	0.20
Chloroform	0.059	31	0.19
1,1-Dichloroethane	0.066	30	2.4
1,2-Dichloroethane	0.1	3.7	0.15
Tetrachloroethylene	0.073	200	0.11
Trichloroethylene	0.057	3,900	1.7
Arsenic	0.08	83	0.045
Chromium (total)	0.005	48,000	110

Key:
µg/L = micrograms per liter
ND = not detected
N/A = not applicable

Notes:
[a]Min/max detected concentration above the minimum detection limit from January 2003 to December 2007.
[b]From EPA's April 2009 Regional Screening Level table; values shown are screening levels for tap water.
[c]Hazard quotient is defined as (maximum concentration)/(screening toxicity value).

2.7.2 Exposure Assessment

The major exposure pathways considered in the human-health risk assessment for the SFV NPL Sites, which includes the NHOU, were those associated with use of contaminated groundwater. Groundwater within the NHOU is used as a source of potable and non-potable water, and the pathway for human exposure is potentially complete if there is no treatment of the contaminated groundwater or monitoring to remove the contaminated drinking water wells from service.

Residential use of groundwater for potable supply was identified as the most significant exposure pathway (via ingestion and inhalation) because the NHOU treated water is delivered to LADWP for municipal drinking water supply. Dermal exposure was considered in the baseline risk assessment, but was not considered significant compared to exposure via ingestion and inhalation. No impacts to indoor air (via the vapor intrusion pathway) or inhalation exposures for construction workers are likely due to the depth of contaminated groundwater (approximately 250 feet bgs).

2.7.3 Toxicity Assessment

Many of the VOCs found in the San Fernando Basin are or have been commonly used as industrial solvents. For the most part, they can be further characterized as belonging to one of two groups: chlorinated straight chain molecules and nonchlorinated aromatic ring compounds. The presence of the chlorine causes some health effects that are not caused by the benzene ring compounds (nonchlorinated). Similarly, the benzene ring causes biological effects unlike those caused by the chlorinated chain compounds.

Chronic exposure to VOCs can affect one or more of the following organs: the central nervous system (CNS), liver, kidney, bone marrow, and the blood or hematological system. The bone marrow is affected by benzene such that blood composition is altered. Red and white blood cell counts may also be depressed.

2.7.4 Health Risk Characterization

The baseline risk assessment conducted for the SFV RI in 1992 identified VOCs, in particular TCE and PCE, as the primary risk drivers for the SFV Superfund Sites, including the NHOU. TCE and PCE are classified as probable human carcinogens based on laboratory studies performed on animals. For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen. Excess lifetime cancer risk is calculated from the following equation:

Risk = CDI x SF

Where: risk = a unitless probability (e.g., $2x10^{-5}$) of an individual developing cancer
CDI = chronic daily intake averaged over 70 years (mg/kg-day)
SF = slope factor, expressed as $(mg/kg\text{-}day)^{-1}$

These risks are probabilities that usually are expressed in scientific notation (e.g., $1x10^{-6}$). An excess lifetime cancer risk of $1x10^{-6}$ indicates that an individual experiencing the reasonable maximum exposure (RME) estimate has a 1 in 1,000,000 chance of developing cancer as a result of Site-related exposure. This is referred to as an "excess lifetime cancer risk" because it would be in addition to the risks of cancer individuals face from other causes such as smoking or exposure to too much sun. The chance of an individual developing cancer from all other causes has been estimated to be as high as one in three. EPA's generally acceptable risk range for Site-related exposures is 10^{-4} to 10^{-6}.

The potential for noncarcinogenic adverse health effects is evaluated by comparing an exposure level over a specified period (e.g., life-time) with a reference dose (RfD) derived for a similar exposure period. An RfD represents a level that an individual may be exposed to that is not expected to cause any deleterious effects. The ratio of exposure to toxicity is called a hazard quotient (HQ). An HQ less than 1 indicates that a receptor's dose of a single contaminant is less than the RfD, and that toxic noncarcinogenic effects from that chemical are unlikely. The Hazard Index (HI) is generated by adding the HQs for all chemicals of concern that affect the same target organ (e.g., liver) or that act through the same mechanism of action within a medium or across all media to which a given individual may reasonably be exposed. An HI less than 1 indicates that, based on the sum of all HQs from different contaminants and exposure routes, toxic noncarcinogenic effects from all contaminants are unlikely. An HI greater than 1 indicates that Site-related exposures may present a risk to human health.

The HQ is calculated as follows:

Non-cancer HQ = CDI/RfD

Where: CDI = chronic daily intake
RfD = reference dose

The CDI and RfD are expressed in the same units and represent the same exposure period.

The exposure point concentration used in the RME scenario in the SFV human health risk assessment was developed using concentrations of VOCs detected in the Upper and Lower aquifer zones (corresponding approximately with Depth Region 1 and Depth Regions 2 through 4, respectively) during sampling of groundwater monitoring wells in 1990 and 1991. The 95 percent upper confidence limit of the arithmetic mean concentration that a single receptor is

likely to encounter was considered to be the exposure point concentration for the RME scenario. The 95 percent upper confidence limits were calculated using regional data from the SFV, rather than data specifically from the NHOU. Results from the baseline risk assessment indicated that if groundwater from the Upper Zone in the SFV was to be used as a source of drinking water without treatment for VOCs, it would exceed acceptable carcinogenic and chronic (non-carcinogenic) risk levels for exposure either by ingestion or by inhalation of vapors during showering. If groundwater from the Lower Zone was to be used as a source of drinking water without treatment for VOCs, the carcinogenic and chronic risk levels for both exposure pathways were calculated to be within the acceptable range as defined by the NCP.

The primary contributors to carcinogenic risk from exposure to Upper Zone groundwater included TCE, carbon tetrachloride, PCE, 1,2-DCA, and arsenic. The total (combined) excess lifetime cancer risk for COCs and exposure scenarios calculated in the SFV RI for the Upper Zone ranged from $1x10^{-3}$ (arithmetic mean) to $2x10^{-2}$ (maximum).

For noncarcinogenic health effects, the hazard index for the RME scenario (ingestion and inhalation pathways combined) for contaminants in the Upper Zone was 5.4, with TCE being the primary contributor. Using the maximum exposure concentration, the HI for the Upper Zone was 34. Among the metals considered in the RI risk assessment, chromium had the highest hazard quotient, although the HQ for each of the metals in the Upper Zone was less than 1. For the Lower Zone, the hazard index was less than 1 for the RME scenario.

2.7.5 Basis for Action

Since the 1992 RI, much higher concentrations of total and hexavalent chromium, TCE, PCE, and other VOCs have been detected in the NHOU, particularly at the former Bendix facility. Recent concentrations of TCE detected in the NHOU have been up to 500 times greater than the MCL, and recent peak concentrations of total chromium have exceeded the state MCL by a factor of nearly 1,000. EPA regional screening levels (RSLs) for TCE and PCE in tap water, representing concentrations calculated to cause an excess lifetime cancer risk of 1 in 1,000,000, are 1.7 µg/L and 0.11 µg/L, respectively. The maximum recent TCE and PCE concentrations detected in groundwater in the NHOU were 2,900 µg/L and 170 µg/L, respectively.

Two RSLs for hexavalent chromium, as a chromic acid mist and as an aerosol mist, exist for tap water, representing the concentration calculated to result in exceeding a hazard index of 1. The RSL for hexavalent chromium as a chromic acid mist is 110 µg/L, and the RSL for hexavalent chromium as an aerosol mist is 730 µg/L. The maximum recent concentration of hexavalent chromium detected in the NHOU was 39,000 µg/L. An EPA RSL has not been developed for total chromium in tap water; however, the federal MCL is 100 µg/L, and the state MCL is 50 µg/L. The maximum recent concentration of total chromium detected in the NHOU was 48,000 µg/L. These maximum total and hexavalent chromium concentrations occurred in the immediate vicinity of the former Bendix facility.

These high concentrations of TCE, PCE, and chromium (both total and hexavalent) in groundwater represent a significant risk to human health if not treated prior to potable use.

The response actions selected in this ROD are necessary to protect public health or welfare or the environment from actual or threatened releases of pollutants or contaminants to groundwater which may present an imminent and substantial endangerment to public health or welfare.

2.8 Remedial Action Objectives

The Second Interim Remedy for the NHOU is intended to achieve the following Remedial Action Objectives (RAOs):

- Prevent exposure to contaminated groundwater, above acceptable risk levels.
- Contain areas of contaminated groundwater that exceed the MCLs and notification levels to the maximum extent practicable.
- Prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production wells by preventing the migration toward these well fields of the more highly contaminated areas of the VOC plume located to the east/southeast.
- Achieve improved hydraulic containment to inhibit horizontal and vertical contaminant migration in groundwater from the more highly contaminated areas and depths of the aquifer to the less contaminated areas and depths of the aquifer, including the southeast portion of the NHOU in the vicinity of the Erwin and Whitnall production well fields.
- Remove contaminant mass from the aquifer.

The improved containment of the contaminant plume called for in these RAOs can be achieved by increasing the number of extraction wells and the volume of contaminated groundwater that is extracted by the NHOU remedy. However, in some areas of the NHOU, high volume LADWP production wells currently capture part of the VOC plume (i.e., groundwater with VOC concentrations of 5 µg/L or greater). LADWP relies on these wells (particularly those in the Rinaldi-Toluca and North Hollywood West well fields) to meet its water supply needs and manages their use so as to ensure that drinking water standards are always met. Because these wells will continue to be used, it is not possible for the NHOU system to capture and contain all of the contaminated groundwater. Consequently, one of EPA's objectives is to improve containment of the high concentration areas of the plume to ensure that no further degradation of groundwater quality occurs in the vicinity of the Rinaldi-Toluca and North Hollywood West well fields.

Groundwater in the NHOU is known to be spreading into less contaminated portions of the aquifer and posing a threat to water supply wells because of the Existing NHOU Extraction and Treatment System's inability to completely capture the plume. Delaying action could result in the following:

- Continued contaminant migration, necessitating additional treatment, increasing costs, and complicating the operation of existing or planned treatment facilities.
- Increased likelihood that additional water supply wells in the SFV would have to be modified, removed from service, or operated intermittently, or that groundwater produced by additional wells would require treatment to remove contaminants.
- Increased cost, difficulty, and time required for containment of contaminant plumes or restoration of the aquifer because continued contaminant migration would increase the volume, contaminant concentrations, and potential COCs in that contaminated groundwater.

2.9 Description of Alternatives

In developing the remedial alternatives for the Site, EPA considered several organic and inorganic contaminants that have been identified in the NHOU since the mid-1990s. Hexavalent chromium is the emerging chemical of greatest concern. For this reason, options to treat dissolved total and hexavalent chromium were part of all alternatives considered for the Second Interim Remedy. In addition, wellhead treatment for 1,4-dioxane is expected to be implemented at well NHE-2 pursuant to an existing CAO issued by the RWQCB and such treatment was assumed to remain in place under all alternatives.

Based on the available information about the current nature and extent of groundwater contamination in the NHOU, the past performance of the existing remedy, and projections for future water withdrawals and recharge by LADWP, EPA developed a range of remedial action alternatives for achieving the RAOs described above. Nine remedial alternatives that incorporate different combinations of technologies, process options, and end uses of treated water have been developed.

2.9.1 Description of Remedy Components

Table 2 summarizes the major components of each alternative. Several of these components are common to all of the remedial alternatives, including Alternative 1, and several are common to Alternatives 2a through 5b. The principal differences between the remedial alternatives are the scale and approach taken for chromium treatment in the extracted groundwater, and the method for reuse of extracted and treated groundwater.

2.9.1.1 Remedy Components Common to All Alternatives

The following components are common to all the alternatives:

1. Develop and implement institutional controls that consist of a groundwater management plan to protect the effectiveness and integrity of the NHOU remedy from adverse impacts caused by LADWP's operation of drinking water production wells;
2. Install and add to the monitoring program approximately 37 new wells (see Figure 9 for proposed locations of monitoring wells) (However, approximately 25 wells have already been installed by Honeywell);
3. Implement well-head treatment for chromium at well NHE-2, with a capacity of at least 300 gpm. A wellhead treatment system is assumed to be implemented in 2009 or 2010 by Honeywell pursuant to the CAO issued by RWQCB. This system, however, is expected to be designed for a pumping rate of 140 gpm, which is the current NHE-2 pumping rate;
4. Implement well-head treatment for 1,4-dioxane at extraction well NHE-2, with a capacity of at least 300 gpm. The wellhead treatment system is assumed to be implemented in 2009 or 2010 by Honeywell under the CAO issued by the RWQCB; and,
5. Monitor the performance of the extraction wells and the treatment systems to ensure attainment of performance standards and evaluate the need to modify operations in response to changes in contaminant concentrations, aquifer conditions or other factors.

Table 2. Summary of Remedial Alternative Components

Remedial Alternative Component	Alternative 1	Alternative 2a	Alternative 2b	Alternative 3a	Alternative 3b	Alternative 4a	Alternative 4b	Alternative 5a	Alternative 5b
Institutional Controls (GW mgt plan to balance long-term effectiveness of remedy with public drinking water needs)	Yes (same for all alternatives)								
Groundwater Monitoring (continue existing monitoring and install new monitoring wells)	Yes (same for all alternatives)								
Groundwater Extraction	Continue existing 7 extraction wells at current pumping rates	Expand extraction well field to 11 wells							
Primary VOC Treatment	Continue existing air stripper	Refurbish existing air stripper and install a second air stripper							
Secondary VOC Treatment	None	LPGAC following each air stripper	None	LPGAC following each air stripper	None	LPGAC following each air stripper	None	LPGAC following each air stripper	None
End Use of Treated Groundwater	Continue delivery to LADWP	Continue delivery to LADWP	Reinjection	Continue delivery to LADWP	Reinjection	Continue delivery to LADWP	Reinjection	Continue delivery to LADWP	Reinjection
1,4-dioxane Treatment (wellhead treatment at NHE-2)	Yes								
Chromium Treatment	Wellhead treatment at NHE-2	Wellhead treatment at NHE-1 and NHE-2		*Ex situ* treatment for combined flow from NHE-1 and NHE-2		Wellhead treatment at NHE-2 & *ex situ* treatment at NHOU plant for combined flow from NHE-1 & 2 new extraction wells		*Ex situ* treatment at the NHOU plant for the combined flow from all extraction wells	

2.9.1.2 Remedy Components Common to "Action" Alternatives (Alternatives 2a through 5b)

The primary objective of Alternatives 2a through 5b (the "action" alternatives) is to improve hydraulic containment, particularly for highly contaminated groundwater in the NHOU. The major differences between the alternatives are the scale of chromium treatment and the end use of the water.

In addition to the components described above in section 2.9.1.1, the following components are common to Alternatives 2a through 5b, as follows:

1. Drill a new deeper well to replace NHE-1 to improve capture of the 5 µg/L VOC plume, to the extent possible. It is assumed that a new well will be required in order to achieve the necessary target pumping rate of 250 gpm; however, modification of the existing well may also be an option, and should be evaluated in the design;
2. Drill new deeper wells, or repair and/or modify existing extraction wells NHE-2, 4, and 5 to improve capture of the 5 µg/L VOC plume, to the extent possible;
3. Implement routine O&M for existing extraction wells NHE-3, 6, 7, and 8;
4. Construct new extraction wells (FFS modeling predicted that three new wells are needed) to improve hydraulic containment of highly contaminated groundwater present south of LADWP's southern Rinaldi-Toluca wells and east of LADWP's North Hollywood West Well Field;
5. Construct a new pipeline to connect the new extraction wells to the NHOU treatment plant; and,
6. Expand air stripping treatment capacity at the NHOU treatment plant Site, for primary VOC treatment. It is assumed that the existing air stripper would be refurbished and a second air stripper, similar in capacity to the original, would be installed and operated in parallel with the existing system.

End Use Options for Treated Water:

Alternatives 1, 2a, 3a, 4a, and 5a assume that the groundwater treated by the NHOU treatment plant and delivered to LADWP would continue to be blended by LADWP with water from other sources, and used in the drinking water system of the City of Los Angeles. Reinjection of treated groundwater into the aquifer using injection wells is assumed under Alternatives 2b, 3b, 4b, and 5b.

All of the "a" alternatives include delivery of the treated water to LADWP as the end use option for treated groundwater. All of the "a" alternatives, therefore, include:

- A secondary treatment system installed downstream from the air strippers to provide "double barrier" VOC treatment, as required by CDPH for domestic use of an extremely impaired water source.

Under the "b" alternatives, the treated water would be reinjected into the aquifer. Reinjection of the treated water would supplement recharge to the aquifer, making the water available for future pumping and use by LADWP. It is assumed that the injection wells would be located north (upgradient) of the NHOU extraction wells. In this configuration, the treated groundwater would

be reinjected into the aquifer at the northern boundary of the VOC and chromium plumes, and supplement the hydraulic gradient driving contaminated groundwater toward the extraction wells. The "b" alternatives include:

- Construction of new injection wells, a pipeline from the NHOU treatment plant to the injection wells, and new monitoring wells in the vicinity of the injection wells; and,
- Construction of a new VOC treatment facility to replace the existing system (LADWP owns the existing system, so a new system will have to be constructed to implement these alternatives).

2.9.1.3 Description of Alternatives

Alternative 1 – Existing NHOU Extraction and Treatment System

A no-action alternative, which is required by the NCP to provide a baseline for comparison to other alternatives, was evaluated in the 1987 ROD for the NHOU. The no-action alternative was eliminated from consideration in the 1987 ROD because "the contamination plumes (in the groundwater) would continue to migrate downgradient, rendering additional wells unusable." Hydraulic gradients and contaminant plume locations in the aquifer system at the NHOU at present remain similar to the conditions in 1987, and although significant VOC mass has been removed by the existing NHOU system, contaminant concentrations in the aquifer remain significantly elevated relative to drinking water standards. Shutting down the existing NHOU treatment system now would result in the same outcome as the 1987 no-action alternative (i.e., further migration of contamination to water supply wells that renders those wells unusable and potential exposure of the public to contaminants in drinking water at unacceptable levels. Therefore, rather than reconsidering the no-action alternative, Alternative 1 consists of continued use of the Existing NHOU Extraction and Treatment System, with minor modification and increased monitoring. It includes all the common elements described above in Section 2.9.1.1.

Alternatives 2a and 2b – Expand Extraction Well System and Operate Chromium Wellhead Treatment Systems at Extraction Wells NHE-1 and NHE-2

Under Alternatives 2a and 2b, separate wellhead chromium treatment systems would be installed at NHE-1 and NHE-2.

In addition to the common components listed above in sections 2.9.1.1 and 2.9.1.2, Alternative 2a includes the following specific actions:

- Addition of wellhead chromium treatment at well NHE-1.
- Expansion of wellhead chromium treatment at well NHE-2 to accommodate a larger peak flow rate of approximately 300 gpm.
- Expansion of wellhead treatment for 1,4-dioxane at well NHE-2 to accommodate a larger peak flow rate of approximately 300 gpm.

Alternative 2b is nearly identical to Alternative 2a, but assumes reinjection of the treated groundwater into the aquifer rather than delivery to LADWP (and thus does not require the secondary VOC treatment system).

Alternatives 3a and 3b – Expand Extraction Well System and Operate Chromium Treatment System for Combined Effluent from Extraction Wells NHE-1 and NHE-2

Alternatives 3a and 3b were developed to evaluate the cost-effectiveness of operating a single chromium treatment system for the combined flow from wells NHE-1 and NHE-2, compared with operation of two individual wellhead chromium treatment systems at these wells.

Alternative 3a is nearly identical to Alternative 2a, except that *ex situ* treatment of chromium would be implemented at the NHOU groundwater treatment facility for the combined discharge of groundwater extracted from wells NHE-1 and NHE-2 instead of using individual wellhead treatment systems at these wells.

Alternative 3b is nearly identical to 3a, but assumes reinjection of treated water rather than delivery to LADWP(and thus does not require the secondary VOC treatment system).

Alternatives 4a and 4b – Expand Extraction Well System and Operate *Ex Situ* Chromium Treatment System for Multiple Extraction Wells

Groundwater modeling results conducted for the FFS indicate that under expected future SFV well field pumping scenarios, new extraction wells NEW-2 and NEW-3 would intercept groundwater containing high concentrations of chromium at levels similar to NHE-1 and NHE-2. Alternatives 4a and 4b include additional chromium treatment for both of these new extraction wells.

Alternative 4a includes the components common to all alternatives listed above in section 2.9.1.1 and 2.9.1.2, with the following specific actions:

- Expansion of wellhead treatment for chromium in the extracted groundwater from NHE-2 to accommodate a larger peak flow rate of approximately 300 gpm.
- Expansion of wellhead treatment for 1,4-dioxane at well NHE-2 to accommodate a larger peak flow rate of approximately 300 gpm.
- *Ex situ* treatment of chromium at the NHOU groundwater treatment facility for the combined influent from extraction well NHE-1 and two new extraction wells.

Alternative 4b is nearly identical to 4a, except for reinjection of treated water, rather than delivery to LADWP(and thus does not require the secondary VOC treatment system).

Alternatives 5a and 5b – Expand Extraction Well System and Operate *Ex Situ* Chromium Treatment System for All Extraction Wells

Alternatives 5a and 5b incorporate chromium treatment of influent from all the extraction wells, which would enable the NHOU system to achieve a hexavalent chromium concentration of less than 2 µg/L in the treated water leaving the plant. These alternatives were originally developed in anticipation of the State adopting a PHG for hexavalent chromium that might lead to an MCL significantly less than 5 µg/L. In August 2009, the State issued a proposed PHG of 0.02 µg/L, but it is too soon to know what the final PHG and eventual MCL might be.

Alternative 5a includes components common to all alternatives (see Section 2.9.1.1 and 2.9.1.2), with the following specific action:

- *Ex situ* treatment of chromium at the NHOU groundwater treatment facility for the combined influent from all of the extraction wells.

Alternative 5b is nearly identical to 5a, except for reinjection of treated water, rather than delivery to LADWP(and thus does not require the secondary VOC treatment system).

2.9.2 Common Elements and Distinguishing Features of Each Alternative

As noted in Section 2.9.1.1 and 2.9.1.2, several potential components of the Second Interim Remedy are shared by all of the remedial alternatives evaluated.

2.9.2.1 Applicable or Relevant and Appropriate Requirements

The following are the principal Applicable or Relevant and Appropriate Requirements (ARARs) that would apply to the proposed alternatives; more details for these and other ARARs are provided in Tables 7, 8, and 9:

- **Safe Drinking Water Act (SDWA).** Established MCLs for COCs in groundwater under the SDWA are: TCE (5 µg/L), PCE (5 µg/L), total chromium (100 µg/L), and vinyl chloride (2 µg/L).
- **State of California Domestic Water Quality and Monitoring Regulations.** Established MCLs for COCs in groundwater under the California Domestic Water Quality and Monitoring Regulations are: TCE (5 µg/L); PCE (5 µg/L); total chromium (50 µg/L); vinyl chloride (0.5 µg/L); and perchlorate (6 µg/L).
- **Clean Air Act**. The permit currently held by DWP for the VOC treatment system at NHOU requires 90 percent removal efficiency for TCE and PCE air emissions and a not-to-exceed level of 2 pounds per day of total VOCs. If the VOC treatment system is modified significantly as part of the selected remedy, then the substantive provisions of SCAQMD Rule 1401 (which limits air emissions of identified toxics from new or modified sources) would apply.
- **State of California Antidegradation Policy.** Prohibits the degradation of groundwater quality. This would apply to all the “b” alternatives (reinjection of treated groundwater) only.

In addition, the other criteria that EPA considered in setting performance standards for the proposed alternatives include:

- **CDPH Drinking Water Notification Levels.** The following notification levels may apply with respect to the off-Site delivery of water to the public: 0.005 µg/L for TCP, 3 µg/L for 1,4-dioxane, and 0.01 µg/L for NDMA.
- **California Public Health Goals (PHGs).** Developed by the Office of Environmental Health Hazard Assessment (OEHHA).

In the absence of MCLs, the state PHGs adopted by OEHHA have been considered during selection of performance standards for extracted groundwater. In the absence of both MCLs and PHGs, the drinking water notification levels established by CDPH have been considered during selection of performance standards for extracted groundwater.

No location-specific ARARs were identified for the Site during the 1987 ROD, and none have been identified for the alternatives presented in this FFS.

2.9.2.2 Distinguishing Features of Alternatives

As discussed above, the primary distinguishing features between the alternatives is the extent of the treatment for chromium, and the disposition of the treated water.

Alternative 1: The time required to implement Alternative 1 is negligible, as the primary treatment processes (the NHOU air stripper and vapor-phase granular activated carbon [VPGAC] unit) are already constructed and operating, and wellhead treatment at NHE-2 can be installed in 6 months or less. Under Alternative 1, approximately 420 million gallons of groundwater would be extracted and treated per year (assuming an 800 gpm average long-term pumping rate). Based on historical performance of the Existing NHOU Extraction and Treatment System, approximately 330 pounds (lbs) of VOCs (including TCE and PCE) would continue to be extracted and treated per year under Alternative 1. In addition, approximately 180 lbs of hexavalent chromium would be extracted and treated at well NHE-2 per year under Alternative 1.

Alternatives 2a and 2b: Repairs and modifications to the existing NHOU extraction wells, along with construction of new wells and treatment system components, would likely require 1 to 3 years. Approximately 1.6 billion gallons of groundwater would be extracted and treated per year, resulting in the projected removal of approximately 1,300 lbs of VOCs (including TCE and PCE) per year. In addition, approximately 380 lbs of hexavalent chromium are projected to be removed per year by the wellhead treatment systems at wells NHE-1 and NHE-2.

Alternatives 3a and 3b: Projected design and construction times, and removal rates for VOCs and hexavalent chromium under Alternatives 3a and 3b are identical to Alternatives 2a and 2b.

Alternatives 4a and 4b: Projected design and construction times, and removal rates for VOCs under Alternatives 4a and 4b are identical to Alternatives 2a through 3b, above. Approximately 540 lbs of hexavalent chromium are projected to be removed per year by the wellhead treatment system at well NHE-2 and the combined treatment system for three other extraction wells.

Alternatives 5a and 5b: Projected design and construction times, and removal rates for VOCs are identical to Alternatives 2a through 4b, above. Approximately 590 lbs of hexavalent chromium are projected to be removed per year by the combined chromium treatment system for all extraction wells.

Estimated Costs for Remedial Alternatives

A summary of the capital, annual O&M, and net present value (NPV) cost for each alternative is presented in Table 3. These cost estimates are based on a 7 percent discount rate and 30-year O&M period. Numerous assumptions have been made in estimating these costs. Details of the cost estimates for each alternative are provided in Appendix D of the FFS.

Table 3. Summary of Estimated Costs for Remedial Alternatives

Alternative	Capital Costs ($)	Annual O&M Costs ($)	Total Estimated NPV ($)
1 – Existing Remedy w/LADWP delivery	12,000,000	2,300,000	40,100,000
2a – Expand Extraction Well System plus Cr wellhead Treatment at Wells NHE-1 & NHE-2 w/LADWP delivery	31,000,000	5,600,000	91,700,000
2b – Expand Extraction Well System plus Cr Wellhead Treatment at Wells NHE-1 & NHE-2 w/reinjection	60,300,000	5,400,000	118,100,000
3a – Expand Extraction Well System plus Cr Treatment for Combined Flow from Wells NHE-1 & NHE-2 w/LADWP delivery	29,900,000	5,000,000	82,600,000
3b – Expand Extraction Well System plus Cr Treatment for Combined Flow from Wells NHE-1 & NHE-2 w/reinjection	59,100,000	4,700,000	109,000,000
4a – Expand Extraction Well System plus *Ex Situ* Cr Treatment for Wells NHE-1 and -2 and NEW-2 and -3 w/LADWP delivery	36,900,000	6,400,000	107,800,000
4b – Expand Extraction Well System plus *Ex Situ* Cr Treatment for Wells NHE-1 and -2 and NEW-2 and -3 w/reinjection	66,100,000	6,200,000	134,200,000
5a – Expand Extraction Well System plus *Ex Situ* Cr Treatment for All Extraction Wells w/LADWP delivery	46,200,000	6,700,000	119,900,000
5b – Expand Extraction Well System plus *Ex Situ* Cr Treatment for All Extraction Wells w/reinjection	75,500,000	6,400,000	146,300,000

Notes: Capital costs and NPV have been rounded to the nearest $100,000. Annual O&M costs have been rounded to the nearest $1,000. NPV calculations assumed 30 years of O&M at 7% Discount Rate

2.9.3 Expected Outcomes of Each Alternative

As noted previously, the scope of the Second Interim Remedy does not include restoration of the aquifer. Furthermore, additional data are needed before EPA can determine what additional remedial actions, if any, are needed to address certain other areas of groundwater contamination. Therefore, none of the remedial alternatives considered are expected to result in unrestricted use of groundwater underlying the NHOU for drinking water, and timeframes for achieving aquifer restoration are not estimated.

Alternative 1

As a result of the diminished pumping rates and periodic shutdowns of extraction wells, a significant portion of the groundwater contaminated with VOCs exceeding the MCLs, as well as groundwater with high levels (greater than 50 µg/L) of VOCs, would not be hydraulically contained and would continue to migrate south and southeast under the regional gradient toward the BOU, GOU, and water-supply wells in the Erwin and Whitnall well fields. In addition, groundwater contaminated with chromium and 1,4-dioxane would likely migrate to the south and southeast from the vicinity of the former Bendix facility and well NHE-2 toward extraction wells

NHE-3 through NHE-5, potentially impacting their future operation. Under the expected future maximum pumping scenario for production wells in the vicinity of the NHOU, groundwater near the former Bendix facility with high concentrations of VOCs, chromium, and emerging contaminants is expected to migrate to LADWP's southern Rinaldi-Toluca water-supply wells, potentially limiting their future use.

Alternatives 2a through 3b

Some areas of VOC contamination (mostly where concentrations are less than 50 µg/L) will continue migrating toward the BOU and some LADWP production wells. Under Alternative 2a, the lack of chromium treatment for the new extraction wells that are expected to capture groundwater with high levels of chromium contamination could result in future shutdown or reduced pumping from those wells. Under Alternatives 2b and 3b, reinjection of treated water could increase the rate of groundwater "flushing" through the most contaminated part of the aquifer in NHOU, which could result in a modest increase in the rate of groundwater remediation. However, reinjecting the treated water would result in it becoming contaminated again following reinjection by mixing with existing groundwater contaminants in the aquifer.

Alternatives 4a and 4b

Alternatives 4a and 4b achieve similar outcomes as Alternatives 2a, 2b, 3a, and 3b with the primary difference being that Alternatives 4a and 4b will achieve greater removal of chromium from treated groundwater. Therefore, Alternatives 4a and 4b will provide enhanced protection of human health and an increased likelihood that the Second Interim Remedy will meet the RAOs in the long term (by including chromium treatment where chromium is likely to occur in groundwater at high concentrations).

Alternatives 5a and 5b

Alternatives 5a and 5b achieve similar outcomes as Alternatives 4a and 4b, but with increased costs, energy use, and production of treatment residuals.

2.10 Comparative Analysis of Alternatives

The NCP (40 CFR Section 300.430(e)(9)(iii)) describes the nine CERCLA criteria used to evaluate the alternatives under consideration. The comparative analysis provides the basis for determining which alternatives are most responsive to the criteria. The NCP categorizes the nine CERCLA evaluation criteria into three groups: (1) threshold criteria; (2) primary balancing criteria; and (3) modifying criteria. Each category of criteria has its own weight when applied to the evaluation of alternatives.

1. Threshold criteria are requirements that each alternative must meet to be eligible for selection as the preferred alternative. Threshold criteria include the overall protection of human health and the environment, and compliance with ARARs (unless a waiver is obtained).
2. Primary balancing criteria weigh the effectiveness and cost trade-offs among alternatives. Primary balancing criteria include long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability;

and cost. The primary balancing criteria are the main technical criteria upon which the evaluation of alternatives is based.

3. Modifying criteria include state and community acceptance, which may be used to modify aspects of the selected alternative presented in the ROD.

A summary of the comparative analysis is presented in Table 4, below.

Table 4. Comparison of Remedial Alternatives

NCP Criteria	Alternative 1 Existing Remedy	Alternatives 2a and 2b Expand Extraction Well System plus Chromium Wellhead Treatment at Wells NHE-1 & NHE-2	Alternatives 3a and 3b Expand Extraction Well System plus Chromium Treatment for Combined Flow from Wells NHE-1 & NHE-2	Alternatives 4a and 4b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for Wells NHE-1 and -2 and NEW-2 and -3	Alternatives 5a and 5b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for All Extraction Wells
Threshold Criteria					
Overall Protection of Human Health and the Environment	Currently removes VOC contaminants in extracted groundwater to acceptable levels; however, does not provide adequate hydraulic containment of the most highly contaminated groundwater in the NHOU, nor does it provide double barrier protection for drinking water (the current beneficial use). Provides for chromium treatment only at well NHE-2.	Containment of the VOC plume is significantly improved compared to Alternative 1, including full containment of the high concentration areas. "Double barrier" protection from VOC contamination under Alternative 2a (delivery to LADWP). Provides for chromium treatment only at wells NHE-1 and NHE-2.	Similar level of protectiveness as Alternatives 2a and 2b.	Improved hydraulic containment compared to Alternative 1 (identical to Alternatives 2a through 3b); also includes chromium treatment for extraction wells NEW-2 and NEW-3.	Improved hydraulic containment compared to Alternative 1 (identical to Alternatives 2a through 4b); also includes chromium treatment for all extraction wells. However, chromium treatment is not expected to be required at all wells in order to meet the cleanup levels for either end use, and a larger quantity of treatment residuals would be produced by the chromium treatment system under Alternatives 5a and 5b.
Compliance with ARARs	Expected to comply with most ARARs. Treating only well NHE-2 for chromium may result in chromium concen-trations in the NHOU treated effluent exceeding the performance standard. Waiver required for cleanup of GW to MCLs.	Similar to Alternative 1, except 2b may require waiver from CA anti-degradation requirements.	Similar to Alternative 2a and 2b,	Expected to comply with the current MCLs and with most other ARARs. If reinjection is the end use of treated water, expected to comply with ARARs, including the State's anti-degradation policy. Waiver required for cleanup of GW to MCLs.	Similar to 4a and 4b.
Balancing Criteria					
Long-term Effectiveness and Permanence	Effective in removing contaminants from the water that it captures and treats, but its limited extraction system would allow VOC and	Improved extraction and treatment system will result in containment of the high concentration plumes and prevent further degradation of water quality in the vicinity	Identical long-term effectiveness and permanence as Alternatives 2a and 2b.	Chromium removal from new NHOU extraction wells NEW-2 and NEW-3 would provide an increased level of effectiveness and permanence compared to	Similar to Alternatives 4a and 4b, with the additional capability of treating chromium extracted from all NHOU extraction wells. However, chromium

Table 4. Comparison of Remedial Alternatives

NCP Criteria	Alternative 1 Existing Remedy	Alternatives 2a and 2b Expand Extraction Well System plus Chromium Wellhead Treatment at Wells NHE-1 & NHE-2	Alternatives 3a and 3b Expand Extraction Well System plus Chromium Treatment for Combined Flow from Wells NHE-1 & NHE-2	Alternatives 4a and 4b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for Wells NHE-1 and -2 and NEW-2 and -3	Alternatives 5a and 5b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for All Extraction Wells
	chromium contamination to migrate towards LADWP well fields and other NHOU extraction wells that lack chromium treatment.	of the LADWP well fields. However, reinjection of treated water under Alternative 2b would likely result in treated water becoming contaminated again following reinjection.		Alternatives 2a through 3b.	treatment is not presently required at all existing extraction wells, nor is it predicted to be needed in the future unless an MCL for hexavalent chromium is set at a level below 5 μg/L. Treatment of the combined discharge from all of the extraction wells under Alternatives 5a and 5b would require significantly more energy and result in production of greater volumes of treatment residuals than the other alternatives.
Reduction of Toxicity, Mobility, and Volume Through Treatment	Toxicity, mobility, and volume of contaminants in extracted groundwater will be permanently reduced by treatment. However, due to smaller groundwater extraction rates compared to the other alternatives, Alternative 1 will provide a lower degree of reduction of toxicity, mobility, and volume through treatment. Alternative 1 also provides less treatment for chromium in groundwater.	Will result in further reduction of the mobility and volume of VOCs and chromium in groundwater compared to Alternative 1, by increasing the volume of contaminated groundwater that is contained, extracted and treated in the NHOU. TCE, PCE, and other VOCs in groundwater will be removed with an expanded treatment system that traps VOCs and permanently destroys them at an off-Site carbon regeneration facility. Chromium will be removed from groundwater extracted by wells NHE-1 and NHE-2.	Identical reduction of toxicity, mobility, and volume of contaminants as Alternatives 2a and 2b.	Similar reduction of mobility of VOCs and chromium as Alternatives 2a through 3b. The combined chromium treatment system for extraction wells NHE-1, NEW-2, and NEW-3 would provide a greater degree of chromium mass removal from the extracted groundwater than Alternatives 2a through 3b, and also produce more treatment residuals.	Similar reduction of mobility of VOCs and chromium as Alternatives 2a through 4b. The combined chromium treatment system for all extraction wells would slightly increase chromium mass removal from the extracted groundwater than Alternatives 2a through 3b, and produce more treatment residuals.

Table 4. Comparison of Remedial Alternatives

NCP Criteria	Alternative 1 Existing Remedy	Alternatives 2a and 2b Expand Extraction Well System plus Chromium Wellhead Treatment at Wells NHE-1 & NHE-2	Alternatives 3a and 3b Expand Extraction Well System plus Chromium Treatment for Combined Flow from Wells NHE-1 & NHE-2	Alternatives 4a and 4b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for Wells NHE-1 and -2 and NEW-2 and -3	Alternatives 5a and 5b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for All Extraction Wells
Short-term Effectiveness	No substantial risks or environmental impacts would be posed to the community during the limited work involved in implementing this alternative.	No substantial risks or environmental impacts to the community or workers during construction or implementation of this alternative, beyond the general hazards associated with any construction project. Construction of new pipelines and wells may create a temporary nuisance to residents.	No substantial risks or environmental impacts (similar to Alternatives 2a and 2b). However, construction of an additional new pipeline from extraction well NHE-2 to the NHOU treatment plant Site may create an additional temporary nuisance to residents.	No substantial risks or environmental impacts (similar to Alternatives 2a and 2b). However, some nuisance to residents related to construction of new pipelines, wells, and a larger chromium treatment system.	No substantial risks or environmental impacts (similar to Alternatives 2a and 2b). However, some nuisance to residents related to construction of new pipelines, wells, and a larger chromium treatment system.
Implementability (technical)	Technically feasible to implement. No unusual technical difficulties are anticipated for design, construction, and operation of the additional extraction wells and more robust VOC treatment system. All the necessary services and materials are readily available.	Technically feasible to implement. Construction of the treatment system, injection wells, pipeline, and additional monitoring wells will add significantly to the time and effort required to implement Alternative 2b (reinjection).	Technically and administratively feasible to implement. Construction of the treatment system, injection wells, pipeline, and additional monitoring wells will add significantly to the time and effort required to implement Alternative 3b (reinjection).	Technically and administratively feasible to implement. Slightly more effort required to implement than Alternatives 2a through 3b (for design, construction, and operation of a chromium treatment system capable of handling the combined discharge from three extraction wells). Construction of the treatment system, injection wells, pipeline, and additional monitoring wells will add significantly to the time and effort required to implement Alternative 4b.	Alternatives 5a and 5b would require significantly more effort than Alternatives 4a and 4b for design, construction, and operation of a chromium treatment system capable of handling the combined discharge from all of the extraction wells.
Implementability (administrative)	Continued coordination would be required with the ULARA Watermaster and LAWDP to implement and maintain the ICs. The ability of Alternative 1 to achieve	Additional administrative issues (compared to Alternative 1) are anticipated regarding permitting and access requirements for the new extraction wells and pipelines, as well as	Identical administrative implementability issues as Alternatives 2a and 2b.	Additional administrative issues (compared to Alternative 1) are anticipated regarding permitting and access requirements for the new extraction wells and pipelines, as well as	Identical administrative issues as Alternatives 4a and 4b.

Table 4. Comparison of Remedial Alternatives

NCP Criteria	Alternative 1 Existing Remedy	Alternatives 2a and 2b Expand Extraction Well System plus Chromium Wellhead Treatment at Wells NHE-1 & NHE-2	Alternatives 3a and 3b Expand Extraction Well System plus Chromium Treatment for Combined Flow from Wells NHE-1 & NHE-2	Alternatives 4a and 4b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for Wells NHE-1 and -2 and NEW-2 and -3	Alternatives 5a and 5b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for All Extraction Wells
	cleanup levels for chromium in the combined effluent from the NHOU treatment system under the expected pumping scenarios is uncertain. Because of this uncertainty, LADWP and/or State agencies may not accept the current end use for the treated water under this alternative.	completing the permit application process for either end use option (LADWP delivery or reinjection). The ability of Alternatives 2a and 2b to achieve cleanup levels for chromium in the combined effluent from the NHOU treatment system under the expected pumping scenarios is uncertain. Because of this uncertainty, LADWP and/or State agencies may not accept either of the planned end use options for the treated water under these alternatives.		completing the permit application process for either end use option (LADWP delivery or reinjection). However, expanded chromium treatment should improve the acceptability of the treated water for the end use options.	
Costs					
Estimated Total Net Present Value (NPV), Including Capital and O&M Costs for 30 Years, Assuming a 7 Percent Discount Rate	$40.1 million	Alternative 2a: $91.7 million Alternative 2b: $118.1 million	Alternative 3a: $82.6 million Alternative 3b: $109.0 million	Alternative 4a: $107.8 million Alternative 4b: $134.2 million	Alternative 5a: $119.9 million Alternative 5b: $146.3 million
Modifying Criteria					
State Acceptance	State agencies have indicated that Alternative 1 is not acceptable because of the continued migration of groundwater contamination and the potential for chromium contamination to migrate and further degrade the aquifer. The State has expressed its support for Alternative 4a, EPA's Preferred Alternative.				
Community Acceptance	LADWP has indicated that this alternative is not acceptable.	No comments were received on these alternatives		The PRPs do not support this alternative.	Preferred by LADWP and Representative Sherman. Not preferred by PRPs.

2.10.1 Overall Protection of Human Health and the Environment

This criterion addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, and/or institutional controls.

Alternative 1 does not provide adequate hydraulic containment of the contaminated groundwater in the NHOU, particularly the areas of highest contamination. Furthermore, although it is able to remove contaminants in extracted groundwater to currently acceptable levels, Alternative 1 does not provide double barrier protection for drinking water (the current beneficial use). Alternative 1 is considered to provide a relatively low level of protection of human health and the environment compared to Alternatives 2a through 5b.

Alternatives 2a through 5b would each achieve improved hydraulic containment of the groundwater exceeding the MCLs, including the most highly contaminated groundwater in the NHOU. Under Alternatives 2a, 3a, 4a, and 5a (providing treated groundwater to LADWP's water supply system), double barrier treatment for VOCs provides an added level of safety towards ensuring that treated water meets all drinking water standards and requirements.

Under expected future production pumping scenarios, new extraction wells NEW-2 and NEW-3 are forecasted to intercept groundwater contaminated with high levels of chromium, which will result in exceedance of the MCL for chromium in the discharge from those wells. Only Alternatives 4a through 5b include chromium treatment for groundwater extracted by these two extraction wells. Alternatives 2a through 3b provide for chromium treatment only from extraction wells NHE-1 and NHE-2, and would therefore not result in achieving the MCL for chromium in the discharge from two of the new extraction wells. However, under Alternatives 2a, 3a, 4a and 5a, chromium concentrations in treated water would meet the identified Performance Standards (Table 6) Alternatives 5a and 5b provide the greatest degree of chromium treatment and would achieve the lowest levels of chromium in the treated water.

2.10.2 Compliance with ARARs

Section 121(d) of CERCLA and NCP § 300.430(f)(1)(ii)(B) require that remedial action sat CERCLA Sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations which are collectively referred to as "ARARs", unless such ARARs are waived.

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA Site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA Site address problems or situations sufficiently similar to those encountered at the CERCLA Site that their use is well suited to the particular Site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

The "Compliance with ARARs" criteria addresses whether an alternative will meet all of the identified ARARs or other federal and state environmental statutes or provides a basis for a invoking waiver.

All alternatives had common ARARs, with the exception that each of the end-use options ("a"s and "b"s) had different requirements. Other than noted below, each alternative is expected to comply with all federal and state ARARs to the same extent.

Under certain circumstances, Alternatives 2b and 3b may fail to comply with the State's antidegradation policy ARAR because: (1) chromium concentrations could exceed the cleanup level in the NHOU treated effluent under certain pumping scenarios; or, (2) the current Honeywell effort to remediate hexavalent chromium in the vadose zone and aquifer in situ could be less effective than expected.

2.10.3 Long-Term Effectiveness and Permanence

This criterion assesses the extent to which each remedial alternative reduces risk after the remedial action objectives are met. Residual risk can result from exposure to untreated waste or treatment residuals. The magnitude of the risk depends on the quantity and concentration of the wastes and the adequacy and reliability of controls, if any, that are used to manage untreated waste and treatment residuals. For the alternatives described in this ROD, treatment residuals may include spent carbon, concentrated brines, or sludges.

Each alternative provides some degree of long-term protection. Alternative 1 would be effective in removing contaminants from the water that it captures and treats, but its limited extraction system would allow areas of high VOC and chromium contamination to migrate towards LADWP well fields, and the existing extraction system might allow hexavalent chromium to migrate to other NHOU extraction wells that lack chromium treatment.

Under Alternatives 2a through 5b, the improvements to the extraction and treatment system will result in containment of the high-concentration VOC and chromium plumes and prevent further degradation of water quality in the vicinity of the LADWP well fields. These alternatives will thus have a much higher degree of long-term protection than Alternative 1.

Alternatives 4a and 4b, which provide for chromium removal from two of the new NHOU extraction wells, would provide an increased level of effectiveness and permanence compared to Alternatives 2a through 3b. Alternatives 5a and 5b expand chromium treatment to include all of the existing and new NHOU extraction wells. However, chromium treatment is not presently required at all existing extraction wells, nor is it predicted to be needed in the future unless an MCL for hexavalent chromium is set at a level below 5 µg/L. Treatment of the combined discharge from all of the extraction wells under Alternatives 5a and 5b would require significantly more energy and result in production of greater volumes of treatment residuals than would be produced under Alternatives 2a through 4b.

2.10.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

This criterion addresses the preference, as stated in the NCP, for selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous substances as a principal element of the action. This preference is satisfied when treatment is used to reduce the principal threats at a Site through destruction of toxic contaminants, reduction of total mass of toxic contaminants, irreversible reduction in contaminant mobility, or reduction of total volume of contaminated media.

All alternatives provide for reduction of toxicity, mobility, or volume through extraction of contaminated groundwater and treatment of VOCs at the NHOU treatment plant. TCE, PCE, and other VOCs in groundwater extracted from the NHOU will be removed with a treatment system that traps VOCs in granular activated carbon and then permanently destroys them at an off-Site carbon regeneration facility. The overall rate of groundwater extraction for Alternative 1 is significantly less than the rates for Alternatives 2a through 5b, and thus Alternative 1 will provide a lower degree of reduction of toxicity, mobility, and volume through treatment.

Under Alternatives 2a through 3b, chromium will be removed by wellhead treatment at extraction wells NHE-1 and NHE-2. The combined chromium treatment system for additional extraction wells included in Alternatives 4a through 5b would provide a greater degree of chromium mass removal from the extracted groundwater than Alternatives 2a through 3b.

2.10.5 Short-Term Effectiveness

This criterion evaluates the effects of each remedial alternative on human health and the environment during construction and operation, as well as the time required to meet the RAOs.

The modifications to the Existing NHOU Extraction and Treatment System included in Alternative 1 are minor, and do not pose substantial risks to the community or construction workers during implementation. No adverse environmental impacts are anticipated in the areas where facilities would be constructed.

Similar to Alternative 1, no special worker-protection issues or environmental impacts are anticipated under Alternatives 2a through 5b. Construction of pipelines from the new extraction wells to the NHOU treatment plant may create a temporary nuisance to residents but should not pose any significant risks. Similarly, under Alternatives 2b, 3b, 4b, and 5b, construction of the injection wells, additional pipelines, and additional monitoring wells may create an additional nuisance to residents but do not pose any substantial risks to the community or construction workers.

Alternatives 2a through 5b would take longer to implement (approximately 3 years) than Alternative 1, which is largely in place already. During that time, the existing NHOU treatment system would continue to be operated in such a manner that the contaminant concentrations in the treatment plant effluent remain below the MCLs and notification levels. Therefore, Alternatives 2a through 5b are expected to be as equally protective of human health in the short term as Alternative 1.

2.10.6 Implementability

This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation.

All alternatives are considered to be technically feasible to implement, although implementation of Alternatives 2a through 5b will require substantially more effort than Alternative 1. Alternatives 5a and 5b are expected to be significantly more difficult to implement from a technical standpoint than Alternatives 2a through 4b, due to the relatively large chromium treatment system required.

As noted in the discussion of Compliance with ARARs, there is some uncertainty regarding the ability of Alternatives 1, 2a, 2b, 3a, and 3b to achieve performance standards for chromium in the combined effluent from the NHOU treatments system under the expected pumping scenarios. Because of this uncertainty, LADWP and/or the state agencies may choose not to accept the treated water for either of the planned end use options under these alternatives. Therefore, implementation of

Alternatives 1 – 3b is expected to be more difficult than Alternatives 4a and 4b from an administrative standpoint.

2.10.7 Cost

This criterion addresses the total cost of each alternative. This includes the capital costs (design, initial permitting, construction, startup, and contingencies), annual O&M costs (labor, materials, energy, laboratory analysis, and other services), and net present value (total cost in today's dollars for capital and O&M costs), assuming a discount rate of 7 percent and a period of operation of 30 years. The 30-year duration was chosen for cost estimating purposes only; a final ROD will be signed in the future that will comprehensively address the Site contamination. The cost estimates are considered order-of-magnitude level estimates, with an expected accuracy of +50 to -30 percent.

Alternative 1 is the lowest-cost alternative (see Table 5) over a 30-year period. Alternatives 2a and 3a, which are identical except for the individual versus combined chromium treatment units for extraction wells NHE-1 and NHE-2, are the next highest-cost alternatives. The difference between costs for these alternatives is within the range of uncertainty in the cost estimate, and should be considered approximately equal. Alternatives 4a and 5a have progressively higher costs, largely due to the higher flow volumes to be treated for chromium. Estimated costs for implementation of the reinjection option for end use of treated water (Alternatives 2b, 3b, 4b, and 5b), which includes construction of additional wells and pipelines, are substantially greater than the LADWP-delivery option (Alternatives 2a, 3a, 4a, and 5a).

2.10.8 State Acceptance

This criterion evaluates the technical and administrative issues and concerns the state may have regarding each alternative.

State agencies have indicated that Alternative 1 is not acceptable because of the continued migration of groundwater contamination and the potential for chromium contamination to migrate and further degrade the aquifer. The State has expressed its support for Alternative 4a, EPA's Preferred Alternative.

2.10.9 Community Acceptance

This criterion evaluates the issues and concerns the public may have regarding each alternative. EPA received comments on the Proposed Plan from nine parties. Seven of these parties were businesses, or parties acting on behalf of businesses or business property owners. These comments focused primarily on the need for more data before taking any action to select a new remedy, and on the lack of necessity for the extent of EPA's preferred alternative. One commenter proposed a sixth alternative. The others did not state a preference for alternatives.

EPA has addressed all of the significant comments received in the Responsiveness Summary section of this ROD. EPA does not believe that any of the issues raised in the comments warrants selection of a different interim remedy to address the groundwater contamination in the NHOU.

2.11 Principal Threat Wastes

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a Site wherever practicable. The "principal threat" concept is applied to the characterization of "source materials" at a Superfund Site. A source material is material that includes or contains

hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water or air, or acts as a source for direct exposure. Contaminated groundwater generally is not considered to be a source material; however, non-aqueous phase liquids (NAPLs) in groundwater may be viewed as source material. Because the NHOU is a groundwater-only Site and NAPL has not been detected in groundwater in the NHOU, principal threat wastes are not considered present for this ROD.

2.12 Selected Remedy

EPA's selected Second Interim Remedy for the NHOU is Alternative 4a, which includes: the construction of new extraction wells; the modification/rehabilitation of several existing extraction wells; expanded VOC treatment; chromium treatment for NHE-1, NHE-2 and two of the new extraction wells; installation of additional monitoring wells; institutional controls; and, use of the treated water in LADWP's water supply system.

2.12.1 Summary of the Rationale for the Second Interim Remedy

Based on the information currently available, EPA believes the Second Interim Remedy meets the threshold criteria and provides the best balance of trade-offs when compared to the other alternatives. The installation of additional extraction wells, the modification of existing extraction wells, and expansion of the VOC treatment system will significantly improve plume capture and prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West well fields. This alternative will also result in permanent and significant reduction in the mobility and volume of VOCs in groundwater in the NHOU. The addition of chromium treatment for four of the extraction wells will insure that the remedy meets all requirements for use of the treated water in LADWP's water supply system, and it will also significantly reduce the possibility that extraction wells would have to shut down or be throttled back as a result of increases in chromium concentrations. Delivery of treated water to LADWP provides the greatest beneficial use of the treated water and at a significantly lower cost than reinjection.

No comments were received from residents in the area of the NHOU. The comments from PRPs expressed their belief that the Selected Interim Remedy is not necessary. LADWP prefers alternative 5a because of its flexibility to adapt to possible future changes in aquifer conditions and/or drinking water standards. The State has concurred with EPA's Selected Interim Remedy.

2.12.2 Description of the Second Interim Remedy

The following is a description of the Second Interim Remedy; Figure 7 schematically illustrates the major components. Although the EPA does not expect significant changes to this remedy, there may be some level of modification during the remedial design and construction processes. Any changes to the remedy described in this ROD would be adopted and documented as appropriate and consistent with the applicable regulations.

Institutional Controls (ICs)

Governmental controls in place in the SFV act as effective institutional controls to prevent the public's exposure to contaminated groundwater. The primary governmental control is the 1979 Final Judgment in the Superior Court of California, County of Los Angeles, (Superior Court Case No. 650079) in the case titled The City of Los Angeles vs. City of San Fernando, et al. The final

judgment created the entity known as "Watermaster" with full authority to administer the adjudication of water rights, under the auspices of the Superior Court.

Under the final judgment, only the cities of Los Angeles, Burbank, and Glendale are permitted to extract groundwater from the Basin. Each of these municipalities administers a public drinking water system, which is regulated and subject to permits issued by the CDPH. These drinking water regulatory controls and the Watermaster's authority to regulate and allocate water resources ensure centralized control over area groundwater and its use as a drinking water source.

However, certain groundwater pumping scenarios acceptable to the Watermaster could interfere with the effectiveness of the Second Interim Remedy. In order to address this issue, an additional IC is necessary, wherein EPA and LADWP work together to develop and implement a groundwater management plan that would protect the effectiveness and integrity of the NHOU remedy while being consistent with LADWP's drinking water production requirements. The groundwater resources management program is expected to provide for regular sharing of relevant groundwater data and pumping rate projections, planning for groundwater use, and a decision-making process to address any potential conflicts between the LADWP's pumping plans and the performance of the remedy. To ensure that the groundwater management plan and the implementation mechanisms for that plan are an effective IC, EPA intends for it to be defined in a formal agreement between EPA and LADWP.

Groundwater and Treatment System Monitoring

Approximately 37 new monitoring wells will be installed; proposed locations are identified on Figure 9. Of these, Honeywell has already installed approximately 25 of these wells, in coordination with, and with oversight by, the EPA.

Monitoring of groundwater levels and groundwater quality from the new monitoring wells included in the Second Interim Remedy and selected existing wells will allow for evaluation of contaminant plume migration and the effectiveness of the selected remedial actions. The specific monitoring objectives that were used to develop a modified groundwater monitoring network as part of the Second Interim Remedy include the following:

- Fill key data gaps to adequately characterize the lateral and vertical extent of contaminant plumes and known hotspot areas and their relationship to known source areas;
- Provide information to monitor the progress of the remedy and to detect the migration of known COCs and emerging chemicals from known plume and hot spot areas; and,
- Develop the data necessary for evaluating and, as necessary, selecting future additional response actions for areas of the VOC plume that may not be captured by the Second Interim Remedy.

Under all alternatives, groundwater monitoring within the NHOU is expected to include continued sampling and analysis of the new and existing EPA monitoring wells in the NHOU, selected facility monitoring wells, LADWP production wells, and extraction wells in the North Hollywood area for VOCs, chromium, emerging chemicals, and parameters indicative of geochemical conditions that may affect chromium speciation and transport.

It is assumed that the future sampling regimen for the new and existing monitoring wells would be similar to the ongoing SFV Basin-wide sampling program, and would include:

- Monthly sampling at the extraction wells and quarterly or annual sampling at the selected monitoring and production wells for VOCs, hexavalent chromium, 1,4-dioxane, and TCP.

- Annual sampling of the extraction wells, selected monitoring wells, and selected production wells for dissolved metals (including total chromium), NDMA, perchlorate, nitrate, common anions, alkalinity, and total dissolved solids.

Depending on the analytical results for groundwater samples collected from the new monitoring wells, construction of additional monitoring wells may be required to further delineate contaminant plumes or determine the locations for continuing sources of groundwater contamination. After the first year of sampling results for all new wells have been evaluated, the frequency and analyte list for the monitoring program may be modified to optimize the efficiency and effectiveness of the NHOU monitoring program.

Wellhead 1,4-dioxane Treatment at Extraction Well NHE-2

Wellhead treatment for 1,4-dioxane will occur at well NHE-2, where concentrations ranging from 4 to 9 µg/L have been detected since 2006 (the CDPH notification level for 1,4-dioxane is 3 µg/L). The treatment technology to be applied is the ultraviolet light and hydrogen-peroxide AOP because it provides the most flexibility for future process modifications; however, during design, another treatment option may be selected. Even though Honeywell is currently under order with the RWQCB to install 1,4-dioxane treatment at NHE-2, EPA has determined that it is also a necessary component of the Second Interim Remedy and is selecting it in this ROD.

The 30-year O&M period for treatment of VOCs at the NHOU is assumed to also apply to wellhead 1,4-dioxane treatment at NHE-2. The estimated O&M duration will be re-evaluated if 1,4-dioxane concentrations change significantly during this period.

Replace Existing Extraction Well NHE-1

To achieve the required hydraulic containment under the Second Interim Remedy, replacement of existing extraction well NHE-1 with a deeper well of similar construction will be necessary. The target screened interval for a replacement for well NHE-1 is from 190 to 401 feet; however, the screened interval may be adjusted during the remedial design phase, depending on results of future groundwater level and quality data.

Replace or Repair and Modify Existing Extraction Wells NHE-2, NHE-4, and NHE-5

Replacement of wells NHE-2, NHE-4, and NHE-5 with deeper wells of similar construction will likely be necessary to achieve the required hydraulic containment under the Second Interim Remedy. Target screened intervals for these wells under Alternatives 2a through 5b are as follows:

- NHE-2: 190 to 390 feet bgs
- NHE-4: 180 to 400 feet bgs
- NHE-5: 180 to 415 feet bgs

Similar to extraction well NHE-1, the screened intervals for these wells may be adjusted during the remedial design phase. Alternatively, the existing wells could remain active in their present configuration, and wells with deeper screened intervals could be constructed adjacent to each existing well. These paired (deeper) wells would also be connected to the existing NHOU treatment plant. The pumping rates at each extraction well pair could be adjusted, depending on the depth to the water table, to maximize containment of the most contaminated aquifer zone, typically Depth Region 1.

Rehabilitate Existing Extraction Wells NHE-3, NHE-6, NHE-7, and NHE-8

Extraction wells NHE-3, NHE-6, NHE-7, and NHE-8 are screened at appropriate depths for plume containment and have been able to pump at or near their design pumping rates for most of the operational history of the NHOU treatment system. They are not expected to require replacement or modification at present. However, routine repair or replacement of pumps and ancillary equipment will be required as part of an ongoing O&M program to maintain design pumping rates. To ensure optimal long-term performance of these wells, it is assumed they will be rehabilitated using swabbing, surging, sand bailing, and over-pumping techniques. Additional rehabilitation efforts (e.g., acid-flushing or jetting) will also be considered on a case-by-case basis, depending on results of the initial rehabilitation efforts.

Construct New Extraction Wells

Preliminary computer modeling conducted during the FFS concluded that three new extraction wells are necessary to further limit contaminant migration and to improve contaminant mass removal. A new pipeline will be required to connect the new extraction wells to the NHOU treatment plant. The exact number, location, and pumping rates for these wells are estimated and will be finalized during remedial design. Based on computer modeling conducted as part of the FFS, these new wells (New Northwestern Wells) should be located northwest of the existing NHOU treatment system in locations (see Figure 8) selected to prevent VOC and chromium migration towards the Rinaldi-Toluca well field and the western portion of the North Hollywood well field. The modeling also suggested that each of the New Northwestern Wells should pump at a maximum rate of 420 gpm (350 gpm long-term average) in order to achieve the containment objective. Screened intervals for these wells are expected to be approximately 220 to 420 feet bgs, but actual intervals, as well as the number and location of the new extraction wells, may be revised during the remedial design phase. Pumping rates and schedules for these wells should be optimized periodically during implementation of the Second Interim Remedy to achieve the desired capture zones, in consideration of pumping rates and drawdown resulting from the southern production wells in the Rinaldi-Toluca well field. Pumping rates for the three New Northwestern Wells will be evaluated and modified, if necessary, to maximize effectiveness and efficiency of the Second Interim Remedy. Depending on groundwater conditions (e.g., hydraulic gradients) in the NHOU, which can change on a seasonal to annual basis, it may be beneficial to temporarily reduce or stop pumping from these wells periodically. A plan for optimizing pumping rates of the NHOU extraction wells will be developed as part of the remedial design process.

Treatment of VOCs in Extracted Groundwater

Expansion of VOC treatment capacity at the NHOU will be necessary to treat the volume of groundwater produced by the existing NHOU extraction wells and the proposed additional extraction wells. The existing NHOU treatment plant will be augmented to accommodate peak and average pumping rates of 3,600 and 3,050 gpm respectively, and for peak VOC concentrations up to 650 µg/L of TCE and 100 µg/L of PCE. The existing air stripper will be refurbished and a second air stripper, similar in capacity to the original, will be installed and operated in parallel with the existing system. The combined maximum capacity of the two parallel air strippers will be 4,800 gpm or more at the anticipated influent VOC concentrations, allowing expansion of the extraction well network or pumping rates in the future, if necessary. With air stripping as the primary VOC treatment process, the VOC treatment train should include the following major components:

- The air stream exiting the air stripper contains TCE and PCE and must be treated using vapor-phase granular activated carbon (VPGAC) vessels (or an alternative technology) to remove the TCE and PCE before the air is discharged to the atmosphere.
- Untreated influent, treated effluent, and air exiting the air stripper at the NHOU treatment plant must be monitored to ensure compliance with permit requirements, ARARs, and LADWP policies.
- A secondary VOC treatment system (such as LPGAC) is required downstream from the air strippers to meet the "double barrier" VOC treatment requirement of CDPH for discharge into a drinking water source. LPGAC would have the additional benefit of also removing VOCs that are not readily removed by the air stripping process, most notably TCP. TCP is not currently detected in the influent to the Existing NHOU Extraction and Treatment System, but has been detected in groundwater within the NHOU at concentrations exceeding the notification level of 0.005 µg/L.

Wellhead Chromium Treatment at Well NHE-2

Ex situ treatment of chromium will be required at well NHE-2. In the FFS, ferrous iron reduction with microfiltration was identified as the preferred technology for a wellhead treatment system (and used for the costing). Alternatively, an anion-exchange-based treatment process could be installed, if pilot test results expected from the GOU in 2010 demonstrate that the process is effective and does not produce excessive NDMA or other problematic organic compounds.

Ferrous iron reduction decreases total chromium concentrations by chemically reducing hexavalent chromium to trivalent chromium and co-precipitating the trivalent chromium with ferric iron. The ferric iron and trivalent chromium co-precipitate is flocculated and removed using a conventional clarifier and media filter polishing or a microfilter. The key components of a ferrous iron reduction and filtration system include a series of reactors for ferrous iron reduction of hexavalent chromium to trivalent chromium. A microfilter system coupled with a backwash system then removes the ferric iron and trivalent chromium precipitate (solids). A batch-thickening and dewatering system receives the resulting solids sludge. The residual sludge is expected to be disposed at an approved off-Site facility, either a RCRA-facility, or perhaps a reclamation facility.

Anion exchange decreases total chromium concentrations by exchanging hexavalent chromium oxy-anions for chloride anions using a bed of selective ion exchange resins. The ion exchange resin is regenerated off-Site by a vendor service. The major components of an anion exchange system for the NHOU plant would be three ion exchange adsorber vessels and a backwash system. The backwash system removes broken resin beads and trace suspended solids, and it recovers backwash water. Disposal of backwash solids as a wet sludge is assumed. Similar to the ferrous-iron reduction system for chromium treatment, an anion-exchange system could be scaled up or down in capacity to accommodate a changing number of extraction wells or concentrations requiring treatment.

A peak pumping rate of 300 gpm (250 gpm average long-term flow rate) was assumed in the FFS for chromium treatment at NHE-2. It is assumed the peak chromium concentration in the influent to the wellhead treatment system would be 600 µg/L (1.5 times the current concentration at NHE-2), and would require treatment to 5 µg/L or less. The 30-year O&M period for treatment of VOCs at the NHOU is assumed to also apply to wellhead chromium treatment at NHE-2. The estimated O&M duration will be reevaluated if chromium concentrations change significantly.

EPA is selecting the wellhead chromium treatment described above as part of the Second Interim Remedy despite the fact that Honeywell is currently under CAO with the RWQCB to install a treatment system at NHE-2 for chromium. Honeywell's chromium treatment system is not expected to be of sufficient capacity for the increased pumping rate that is expected from NHE-2 and EPA anticipates that Honeywell's system will either have to be expanded, or a new system installed.

***Ex Situ* Chromium Treatment for Wells NHE-1, NEW-2, and NEW-3**

Ex situ treatment of chromium using the ferrous iron reduction with microfiltration process described above was assumed to be implemented in the FFS for the combined flow from three extraction wells at the NHOU groundwater treatment facility (see previous section for details of this treatment method). It is assumed that this system would be sized to treat the combined influent from extraction well NHE-1 and new extraction wells NEW-2 and NEW-3 (a peak combined pumping rate of 1,100 gpm). Alternatively, an anion-exchange-based treatment process could be installed, similar to the above. A 30-year O&M period for treatment of VOCs at the NHOU is assumed to also apply to *ex situ* chromium treatment.

Delivery of Treated Groundwater to LADWP

The treated groundwater will be used by LADWP as part of their municipal supply (following blending with other water sources and further water treatment). Use of the NHOU treated water in LADWP's drinking water supply requires compliance with federal and state drinking water standards, including the San Fernando Basin Water Management Plan's *Policy Guidance for Direct Domestic Use of Extremely Impaired Sources,* CDPH Policy Memorandum 97-005 ("97-005"), which establishes a specific process for the evaluation of impaired water sources before they can be approved for use as drinking water.

Off-Site Requirements: All CDPH and LADWP treatment levels or standards, including those identified through the 97-005 process, that apply to COCs must be met by the Second Interim Remedy in order to deliver the NHOU treated water to LADWP for use in its domestic water supply. Because these treatment levels and standards are off-Site drinking water requirements, they are not ARARs. However, they must be met in order to comply with the Second Interim Remedy's end use, and therefore, are incorporated into this ROD as enforceable standards. Because they are not ARARs, offsite requirements that change over time must be met in order to comply with the Second Interim Remedy's selected end use. Currently, the concentrations of the NDMA, TCP, perchlorate, and 1,4-dioxane in the NHOU groundwater are sufficiently low that treatment is only needed for 1,4-dioxane at NHE-2. If, during the design process, concentrations are found to be increasing at any of the extraction wells, such that the cleanup level is exceeded at the compliance point, additional well-head treatment may be necessary.

2.12.3 Summary of the Estimated Remedy Costs

A summary of the estimated capital, O&M, and present worth costs of the major components of the Second Interim Remedy is included in Table 5. A detailed breakdown of these costs is provided in Appendix D of the FFS. The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the Second Interim Remedy. Major changes, if they were to occur, would be adopted and documented as appropriate. As is the practice at federal Superfund Sites, these cost estimates are based on an expected accuracy range of -30 to +50 percent of actual costs.

Table 5. Cost Estimate Summary for the Second Interim Remedy

	Component	Notes and Assumptions	Capital Cost[a]	Annual O&M Cost[b]	Net Present Value[c]
1	Groundwater monitoring	Install 37 new monitoring wells and periodically sample existing and planned monitoring wells, production wells, and extraction wells (includes quality assurance/quality control samples)	$6,980,000	$758,000	$16,379,200
2	Groundwater extraction from existing NHOU extraction wells	Deepen 4 existing extraction wells, rehabilitate 4 existing extraction wells, and operate all 8 extraction wells at design pumping rates (2,000 gpm combined average flow, 2,400 gpm peak)	$2,740,000	$527,000	$9,274,800
3	Groundwater extraction from new extraction wells	Install 3 new extraction wells and new pipeline to NHOU treatment plant, operate new extraction wells (1,050 gpm combined average flow, 1,200 gpm peak)	$3,770,000	$213,000	$6,411,200
4	Primary VOC treatment (air-stripping)	Construct and operate second air stripper, and use existing air stripper at design rate (includes refurbishment at year 15)	$1,908,140	$599,000	$9,335,740
5	Secondary VOC treatment (LPGAC)	Construct and operate two new LPGAC treatment units in parallel downstream from air strippers (redundant VOC treatment)	$2,870,000	$576,000	$10,012,400
6	Interim wellhead treatment for 1,4-dioxane and chromium at extraction well NHE-2	Performed prior to completion of Second Interim Remedy; operate at 190 gpm for 3 years	$4,130,000	$790,000	$6,199,800
7	Expand wellhead treatment for chromium at extraction well NHE-2	Expand interim wellhead treatment system for chromium at NHE-2 (to 250 gpm average flow, 300 gpm peak) following construction of Second Interim Remedy, operate for 30 years	$3,650,000	$861,000	$14,326,400
8	Chromium treatment for combined flow from NHE-1 and two new extraction wells	Single treatment unit designed for 950 gpm average flow, 1,100 gpm peak	$9,410,000	$1,691,000	$30,378,400
9	Expand wellhead treatment for 1,4-dioxane at extraction well NHE-2	Expand interim wellhead treatment system for 1,4-dioxane at NHE-2 (to 250 gpm average flow, 300 gpm peak) following completion of Second Interim Remedy, operate for 30 years	$640,000	$428,000	$4,708,080
10	CDPH 97-005 process	Required to use treated water from NHOU as part of LADWP's water-supply	$750,000	$0	$750,000
		TOTALS:	$36,848,140	$6,443,000	$107,776,020

Notes:

[a] Capital cost estimates are not discounted because the construction work will be performed in the first year.

[b] O&M costs include labor and expenses for repairs, energy for operation, and other costs that accrue on a continuous or periodic basis during an average year of system operation.

[c] Net present value estimates assume a 7% discount rate on annual O&M costs for a 30-year period for all remedial components.

Costs for monitoring the treatment system performance are included in each alternative above.

2.12.4 Expected Outcomes of the Second Interim Remedy

Improvements to the existing NHOU extraction wells and construction of new extraction wells will result in improved hydraulic containment under the expected future pumping scenarios for water supply in the eastern SFV. The goal of the remedy is to improve hydraulic containment and to control migration of the contaminated plume in excess of MCL's, The Selected Interim Remedy will prevent

groundwater with the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells and areas of the aquifer with significantly lower contaminant concentrations. As a result, water-supply wells screened in areas or depth intervals of the aquifer that contain small or no detectable concentrations of the COCs are expected to continue operating without further restrictions caused by increasing contaminant levels.

Because the Second Interim Remedy is for containment and not restoration, no final cleanup standards have been established for restoration of groundwater. This means that at least a portion of the shallow and deep zones upgradient of the compliance wells and any associated extraction systems will likely remain contaminated and unusable for a considerable length of time.

2.12.5 Applicable or Relevant and Appropriate Requirements

The Selected Interim Remedy is expected to comply with all federal and state ARARs except for 40 CFR § 300.430(e)(2)(i)(A), which requires that the contaminant levels of the groundwater that remains in the aquifer be reduced below MCLs. Because this is an interim action for containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater remaining on-Site. EPA is waiving this ARAR pursuant to CERCLA Section 121(d)(4)(A), 42 U.S.C. § 9621(d)(4)(A), and 40 CFR § 300.430(f)(1)(ii)(C), which allows EPA to select a remedy that does not achieve an ARAR when the remedial alternative selected is an interim measure that will become part of a total remedial action that will attain ARARs. EPA's waiver of the aquifer cleanup standard does not apply to water extracted from the aquifer and delivered to LADWP for use as drinking water; all extracted and treated water is expected to comply with MCL ARARs.

2.13 Statutory Determinations

Under CERCLA Section 121, EPA must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), consider the reasonableness of cost for the selected remedy, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ, as a principal element, treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes and a bias against off-Site disposal of untreated wastes. The following sections discuss how the Second Interim Remedy meets these statutory requirements.

2.13.1 Protection of Human Health and the Environment

Exposure to contaminated groundwater through the potable water supply is the area of potential human-health risk in the NHOU. There are no potentially complete exposure pathways for contaminated groundwater to reach ecological receptors.

The Second Interim Remedy will protect human health and the environment by achieving hydraulic containment, to the extent practicable, of groundwater exceeding the MCLs, including the most significant areas of groundwater contamination in the NHOU and thereby preventing the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells. The Selected Interim Remedy's double-barrier VOC treatment components will remove the VOCs that the existing NHOU treatment system was designed to remove, and other treatment components will remove emerging contaminants of potential concern (including hexavalent chromium and 1,4-dioxane) to the performance standards identified in this ROD. Water supply wells,

NHOU extraction wells, EPA (RI) monitoring wells, and facility monitoring wells will be monitored and access to contaminated groundwater will be restricted through institutional controls.

The remedy will not have detrimental cross-media impacts. The groundwater treatment system will comply with air quality requirements. Treated groundwater will be conveyed directly to LADWP's closed distribution system. There are no short-term threats associated with the Second Interim Remedy that cannot be readily controlled.

2.13.2 Compliance with Applicable or Relevant and Appropriate Requirements

The Second Interim Remedy shall comply with ARARs as described below. A complete list of all ARARs for the Second Interim Remedy is provided in Tables 7 and 8, below. Table 9 summarizes To-Be-Considered (TBC) criteria. Because this is an interim action for the containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater.

40 CFR § 300.430(e)(2)(i)(A) requires that the contaminant levels of the groundwater that remains in the aquifer are reduced below MCLs. EPA is waiving this ARAR pursuant to CERCLA Section 121(d)(4)(A), 42 U.S.C. § 9621(d)(4)(A), and 40 CFR § 300.430(f)(1)(ii)(C), which allows EPA to select a remedy that does not achieve an ARAR when the remedial alternative selected is an interim measure that will become part of a total remedial action that will attain ARARs. EPA's waiver of the aquifer cleanup standard does not apply to water extracted from the aquifer and delivered to LADWP for use as drinking water or re-injected; all extracted and treated water is expected to comply with MCL ARARs.

Performance Standards for treated groundwater are summarized in Table 6. The current regulatory standards for TCE, PCE, and the other VOC COCs are the state and federal MCLs. The current regulatory standard for total chromium is the state MCL of 50 µg/L. As of September 2009, there is no MCL for hexavalent chromium. However, LADWP has indicated that it will not accept water for use in its drinking water supply system with hexavalent chromium levels exceeding 5 ug/L. Therefore, EPA has chosen to use LADWP's 5 ug/L voluntary limit as a performance standard in the remedy. If a new MCL for hexavalent chromium is adopted a higher degree of chromium treatment may be required in order to ensure that the treated water continues to meet requirements for drinking water.

No state or federal MCLs have been promulgated for TCP, 1,4-dioxane, or NDMA. For these emerging chemicals that lack MCLs, EPA is treating the CDPH notification levels, which are health-based advisory levels for drinking water use, as criteria to be considered in setting alternative performance standards for extracted groundwater in the NHOU. Notification levels are established as precautionary measures for contaminants that may be considered candidates for establishment of MCLs.

For the purposes of determining compliance with the performance standards presented in Table 6, the point of compliance shall be the combined effluent from the NHOU treatment facility, just prior to its delivery to the end use, the LADWP drinking water system.

The ARARs are frozen at the time the ROD is signed, but off-site requirements, including requirements applicable to treated water delivered to the drinking water supply, must be met in order to comply with the Second Interim Remedy's selected end use regardless of whether those requirements change over time. As a result, if an offsite drinking water requirement changes, the

treatment system must meet whichever standard - the performance standard selected in the ROD or the offsite requirement - is lower.

Table 6. Performance Standards for COCs in Extracted and Treated Groundwater

Contaminant of Concern	Federal MCL (µg/L)	California MCL (µg/L)	CDPH Notification Level (µg/L)	Basis for Performance Standard	Performance Standard (µg/L)[a]
TCE	5	5	None	Federal MCL	5
PCE	5	5	None	Federal MCL	5
1,1-DCA	5	5	None	Federal MCL	5
1,2-DCA	0.5	0.5	None	Federal MCL	0.5
1,1-DCE	6	6	None	Federal MCL	6
cis-1,2-DCE	6	6	None	Federal MCL	6
1,1,2-TCA	5	5	None	Federal MCL	5
Carbon tetrachloride	0.5	0.5	None	Federal MCL	0.5
Methylene Chloride	5	5	None	Federal MCL	5
Total Chromium	100	50	None	California MCL	50
Hexavalent Chromium	None[b]	None[b,c]	None	See footnote “d”	5[d]
Perchlorate	None	6	None	California MCL	6
TCP	None	None	0.005	CDPH notification level	0.005
1,4-dioxane	None	None	3	CDPH notification level	3
NDMA	None	None	0.01	CDPH notification level	0.01

Notes:

[a]The CDPH permitting process may require lower concentrations in the treated effluent.

[b]Federal and state MCLs specific to hexavalent chromium have not been established; therefore, the state MCL for total chromium currently is applied to hexavalent chromium.

[c]A PHG for hexavalent chromium is currently under development by OEHHA. Following development of a PHG, a state MCL specific to hexavalent chromium may be established.

[d]Based on discussions with LADWP, it is EPA's understanding that LADWP will continue to use a voluntary cleanup level of 5 µg/L for hexavalent chromium for water it will accept for use in its water supply system. Consequently, under the drinking water end use option, chromium treatment at the NHOU will be needed so that LADWP's voluntary cleanup level of 5 µg/L can be met.

Table 7. Chemical-specific Applicable or Relevant and Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
SDWA (2 USC 300 et seq.)	National Primary Drinking Water Standards, including 40 CFR 141.61 and 40 CFR 141.62	Relevant and appropriate	Chemical-specific drinking water standards and MCLs have been promulgated under the SDWA; MCLGs above zero are considered chemical-specific ARARs under the NCP (40 CFR 300.430(e)(2)(i)(B)). When the MCLGs are equal to zero, which is generally the case for a chemical considered to be a carcinogen, the MCL is considered the chemical-specific ARAR instead of the MCLG (40 CFR 300.430(e)(2)(i)(C)). Established MCLs for COCs are listed in Table 3-4 of the FFS. Performance Standards for the SFV treated effluent were established in the 1987 ROD at 5 µg/L for TCE and 4 µg/L for PCE. However, the MCL and performance standard for PCE has since been changed to 5 µg/L. The MCL of 5 ug/L for TCE and PCE will apply to the effluent from the treatment plant. Performance Standards for groundwater in the aquifer are not established at this time in any of the alternatives.	The MCLs are ARARs for the purpose of establishing Performance Standards for the treated water from the NHOU treatment plant. 40 CFR 300.430(e)(2)(i)(B) and 40 CFR 300.430(e)(2)(i)(C) require that the remedy selected attain non-zero MCLGs or MCLs for each contaminant if the groundwater is a current or potential drinking water source.
SDWA (42 USC 300 et seq.)	National Primary Drinking Water Standards, 40 CFR 141, including 40 CFR 141.23 and 40 CFR 141.24	Relevant and appropriate	Requires monitoring to determine compliance with MCLs.	Substantive monitoring requirements in 40 CFR 141.23 and 40 CFR 141.24 are relevant and appropriate, to ensure that treated effluent is meeting performance standards.
State of California Domestic Water Quality and Monitoring Regulations	California Safe Drinking Water Regulations, including 22 CCR 64431 and 22 CCR 64444	Relevant and appropriate	Contains provision for California domestic water quality; establishes MCLs for primary drinking water chemicals.	The MCLs are ARARs for the purpose of establishing performance standards for COCs in the water extracted from the basin and treated at the treatment plant.

Notes:

CCR = California Code of Regulations
MCLG = maximum contaminant level goal
SDWA = Safe Drinking Water Act

Table 8. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
Clean Air Act SCAQMD	Air Pollution Control Equipment Permit 144890 was granted August 29, 1986.	Substantive require-ments of the permit are applicable	In California, the authority for enforcing the standards established under the Clean Air Act has been delegated to the state. The program is administered by the SCAQMD in Los Angeles. Permit 144890 (held by LADWP) requires 90 percent removal efficiency for TCE and PCE air emissions and a not-to-exceed level of 2 pounds per day of total VOCs.	The existing system includes use of air stripping technology to remove VOCs from the groundwater. Emissions from the air stripper must meet SCAQMD limits and the other substantive provisions established in this permit. Although a permit is not required for the air stripper pursuant to CERCLA § 121(d), LADWP obtained a permit in advance of construction in 1986. According to SCAQMD, the permit from the SCAQMD remains valid, and the emission limits and other substantive requirements in it are applicable. If the air stripping treatment system is modified significantly as part of the selected remedy, the substantive provisions of SCAQMD Rule 1401 (which limits air emissions of identified toxics from new or modified sources) may apply.
California Water Code and State Water Resources Control Board Model Well Standards Ordinance (1989)	Division 7, Chapter 10, Section 13700 et seq.	Applicable	The California Water Code requires the State Water Resources Control Board to adopt a model well ordinance implementing the standards for well construction, maintenance, and abandonment contained in the con-struction requirements for wells, in conformance with DWR Bulletin 74-81. DWR Bulletin 74-90 updates DWR Bulletin 74-81.	If the selected alternative involves well construction or maintenance, substan-tive provisions of this code will be applicable.

Table 8. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.10	Applicable	22 CCR 66262.10 lists the sections of California law with which a generator of hazardous waste must comply.	The selected remedy need only comply with the substantive provisions of the regulations listed in 22 CCR 66262.10. Each alternative considered in the FFS has the potential to generate hazardous waste. Examples of hazardous wastes generated on-Site include: (1) spent granular activated carbon filters from the air stripper, (2) purged water from new or modified wells that meets characteristic waste levels, and (3) well casing soils from new or modified wells that meet characteristic waste levels.
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.11	Applicable	Requires waste generators to determine if wastes are hazard-ous, and establishes procedures for such determinations.	The substantive requirements will be applicable to management of waste materials generated by a groundwater treatment plant and to any waste generated while installing new wells.
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.34(a)(1)(A)	Relevant and appropriate	Waste stored on-Site should be placed in containers or tanks that are in compliance with California Hazardous Waste Regulations.	Storage of hazardous waste accumulated on-Site must be in compliance with substantive requirements for interim status facilities.
California Hazardous Waste Regulations, Storage of Hazardous Waste	22 CCR 66265.170 et seq. (Article 9) 22 CCR 66265.190 et seq. (Article 10)	Applicable	Regulates use and management of containers, compatibility of wastes with containers, and special requirements for certain wastes.	Substantive provisions of Articles 9 and 10 will be applicable if hazardous waste is generated and accumulated on-Site.
California Land Disposal Restrictions, Requirements for Generators	22 CCR 66268.3, 22 CCR 66268.7, 22 CCR 66268.9, and 22 CCR 66268.50	Applicable	Compliance with land disposal regula-tion treatment standards is required if hazardous waste (e.g., contaminated soil) is placed on land. Soil treatability variance may be invoked, according to 40 CFR 268.44 (h)(3) and (4).	Hazardous waste hauled off-Site must meet “land-ban” requirements.

Table 8. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
California Land Disposal Restrictions, Requirements for Generators	22 CCR 66268.1 et seq. (Article 1)	Applicable	Prior to transporting for off-Site disposal, hazardous waste must be characterized to determine whether land disposal restriction treatment standards apply and whether the waste meets the treatment standards. This information must be provided to the off-Site facility with the first waste shipment.	The substantive requirements will be applicable to management of waste materials generated by a groundwater treatment plant and to any waste generated while installing new wells.
Spent Carbon Disposal	40 CFR 268.40	Applicable	Attain land disposal treatment standards before putting waste into landfill to comply with land disposal restriction.	Substantive requirements apply.

Notes:

NPDES = National Pollutant Discharge Elimination System
SCAQMD = South Coast Air Quality Management District
DWR = Department of Water Resources
CFR = Code of Federal Regulations
CCR = California Code of Regulations
RWQCB = Regional Water Quality Control Board

Table 9. To-Be-Considered Criteria

Source	Citation	Description	Findings and Comments
California PHGs, California Environmental Protection Agency, and OEHHA	California Calderon-Sher SDWA of 1996, California Health and Safety Code 116365	OEHHA has adopted PHGs for chemicals in drinking water. PHGs are levels of drinking water contaminants at or below which adverse health effects are not expected to occur from a lifetime of exposure.	In the absence of MCLs, the state PHGs adopted by OEHHA have been considered during selection of performance standards for extracted groundwater.
CDPH Drinking Water Notification Levels	California Health & Safety Code § 116455	CDPH has established drinking water notification levels (formerly known as action levels) based on health effects, but in some cases they are based on organoleptic (taste and odor) values for chemicals without MCLs.	In the absence of MCLs, the drinking water notification levels established by CDPH have been considered during selection of performance standards for extracted groundwater.

No location-specific ARARs were identified for the Site during the 1987 ROD, and none have been identified for the Second Interim Remedy.

This interim remedial action shall comply with all ARARs described in this section. Because this is an interim action for containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater remaining on-Site. These ARARs will be addressed in the Final ROD for the NHOU.

2.13.3 Cost-Effectiveness

In EPA's judgment, the Second Interim Remedy is cost-effective and represents a reasonable value for the money to be spent. Section 300.430(f)(ii)(D) of the NCP requires EPA to evaluate the cost of an alternative relative to its overall effectiveness. This was accomplished by evaluating "overall effectiveness" of those alternatives that satisfied the threshold criteria (i.e., Alternatives 2a through 5b, which are protective of human health and comply with all selected ARARs). Overall effectiveness was evaluated by assessing four of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; short-term effectiveness; and implementability). Overall effectiveness was then compared to costs to determine cost-effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs and hence this alternative represents a reasonable value for the money spent.

The estimated net present value of the Second Interim Remedy (Alternative 4a) is $108 million. Although Alternatives 2a and 3a were $16 million to $26 million less expensive, respectively, expected chromium migration to the new extraction wells was not addressed. EPA believes that the Second Interim Remedy's additional cost for expanded chromium treatment provides a significant increase in protection of human health and the environment, and increased likelihood that the remedy will remain in compliance with ARARs during its anticipated period of operation.

2.13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined that the Second Interim Remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the NHOU, until EPA obtains sufficient data to select a final remedy. EPA has also determined that the Second Interim Remedy provides the best balance of tradeoffs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and bias against off-Site treatment and disposal, as outlined below:

- Long-term Effectiveness and Permanence: By controlling (to the extent practicable) migration of the groundwater exceeding MCLs, including the most highly contaminated groundwater in the NHOU, the area for potential future residual contamination in groundwater and the vadose zone is limited.
- Reduction of Toxicity, Mobility, or Volume Through Treatment: Improved hydraulic containment and expanded groundwater treatment will reduce the mobility and volume of dissolved-phase VOC and emerging contaminant concentrations in groundwater, result in the permanent destruction of VOCs and 1,4-dioxane, and reduce the toxicity of chromium by converting it from the hexavalent to the trivalent form.
- Short-term Effectiveness: There are no special short-term effectiveness issues that set the Second Interim Remedy apart from the other alternatives evaluated.
- Implementability: The Second Interim Remedy is not significantly more complex to implement than the other remedial alternatives.

2.13.5 Preference for Treatment as a Principal Element

The Second Interim Remedy will treat VOCs, chromium, and other emerging contaminants in the extracted groundwater to achieve the cleanup levels. By utilizing treatment as a significant portion of the remedy, the statutory preference for remedies that employ treatment as a principal element is satisfied.

2.13.6 Five-Year Review Requirements

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-Site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

Part 3
Responsiveness Summary

Part 3 – Responsiveness Summary

The purpose of this Responsiveness Summary is to provide a summary of EPA's responses to comments received from stakeholders and the public on EPA's Proposed Plan for the North Hollywood Operable Unit (NHOU) Second Interim Remedy. During the Public Meeting (held on July 21, 2009), EPA provided verbal clarifications to questions about the NHOU Proposed Plan. The proceedings of the Public Meeting were transcribed by a court reporter and are included in the Administrative Record.

During the public comment period, EPA received nine letters from stakeholders with comments on the Proposed Plan. EPA is required to consider and address only those comments that are pertinent and significant to the remedial action being selected. EPA is not required to address comments which pertain to the allocation of liability for the remedial action, nor potential enforcement actions to implement the remedial action, as these are independent of the selection of the remedial action and EPA's Proposed Plan. EPA does have the discretion to address comments with limited pertinence if doing so would address the concern of a significant segment of the public.

A summary of the major issues raised by commenters is presented in the next section. Additional detail on the specific technical comments can be found in Appendix A.

FFS Errata

During EPA's review of the documents relied upon for this decision, an error was discovered in the summary-cost calculation in the *North Hollywood Operable Unit (NHOU) Focused Feasibility Study* (FFS) cost summary table D-1. This error led to incorrect capital and operations/maintenance (O&M) costs being tabulated in the FFS and Proposed Plan (PP). The 30-yr net present value (NPV) costs are all correct in the FFS and PP, and the more detailed cost table in the FFS (Table D-2) correctly lists the capital and O&M costs for each alternative.

The miscalculation consisted of double-counting some capital and O&M costs, but the NPV costs for each alternative were calculated separately (from the detailed cost summary in Table D-2), and therefore did not include the double-counting error. Therefore, where capital and O&M costs are summarized in the FFS and PP, they are about 35% higher than actual estimated costs. Following are the specific locations where the capital and O&M cost summaries listed in the FFS and PP are miscalculated:

- FFS: Table 5-2, Table D-1 (Appendix D), and Sections 5.2.1.7, 5.2.2.7, 5.2.3.7, 5.2.4.7, and 5.2.5.7
- PP: Table 3

Replacement tables and pages have been placed in the Administrative Record for this action.

3.1 Stakeholder Issues

EPA received limited community response regarding the FFS and Proposed Plan provided to EPA during the public comment period, but numerous stakeholder submitted comments. Most of these comments were submitted by potentially responsible parties (PRPs) or on behalf of the PRPs.

LADWP and Congressman Sherman also submitted comments expressing their preference for Alternative 5a, rather than EPA's Preferred Alternative (Alternative 4a). The primary difference between Alternatives 4a and 5a is that Alternative 4a includes chromium treatment only for the four extraction wells expected to be impacted by the highest concentrations of chromium, whereas Alternative 5a includes chromium treatment for the combined flow from all of the existing and new extraction wells, regardless of the chromium concentration detected at individual extraction wells.

3.2 Technical and Legal Issues

Several PRPs commented that insufficient groundwater data were available to adequately evaluate remedial alternatives in the FFS or select a Preferred Remedy in the Proposed Plan. EPA's review of available data indicates that although data gaps existed in some areas of NHOU, sufficient data were available to achieve the objectives of the FFS and prepare a Proposed Plan for the Second Interim Remedy. The next step, remedial design of the remedy identified in the ROD, will require that key data gaps be filled. Additional groundwater data are currently being collected in the NHOU, which will be incorporated into the remedial design process.

Some PRPs expressed concern that deepening existing extraction wells and installing new extraction wells could cause cross-contamination of different depth intervals of the aquifer underlying the NHOU. In response to this concern, EPA will require that during the remedial design stage specific drilling methods, well locations, and well depths will be selected to mitigate the possibility of cross contamination.

Some PRPs felt that new extraction wells were not necessary. However, modeling performed as part of the FFS indicates that under the maximum pumping scenario for water supply anticipated by LADWP, the capture zones for the Rinaldi-Toluca and North Hollywood (West Branch) water supply well fields are predicted to include groundwater in the vicinity of NHE-1 and NHE-2 with high concentrations of VOC and chromium contamination. The three proposed new extraction wells in the vicinity of NHE-1 are intended to intercept contaminated groundwater migrating toward these water supply well fields under the maximum pumping scenario, and to significantly expand contaminant plume capture under the average pumping scenario. Specific pumping rates, locations and pumping schedules for these wells will be further evaluated during remedial design to maximize their effectiveness and optimize their efficiency.

Use of a performance standard of 5 µg/L for hexavalent chromium was questioned by some PRPs. Although 5 ug/L is not an ARAR, the Selected Interim Remedy must meet this performance standard in order to deliver the treated water to LADWP (the selected end use), for use in its drinking water supply.

Appendix A

Detailed Response to Technical Comments

The following is EPA's more detailed response to the comments received on the proposed plan. The NCP requires EPA to summarize significant comments, criticisms, and relevant information submitted during the public comment period and to respond to each significant issue raised. Although EPA is not required to re-print the public comments verbatim, in many cases in this response summary EPA has included large segments of the original comments. Persons wishing to see the full text of all comments should refer to the commenters' submittals to EPA, which are included in the Administrative Record.

Specific comments (and responses by EPA) are numbered for convenient reference. The comments are numbered sequentially through the Response Summary, without reference to the specific commenter. Comments are shown in normal text, and EPA responses are shown in italics.

1. FFS and PP fail to meet standard for FS; lacks important data; fails to consider appropriate alternatives.

   Response: EPA believes that the Focused Feasibility Study (FFS), which is intended to focus on a limited number of critical issues for the development of an interim ROD, fully satisfies the requirements for such documents. Until a final remedy is developed for the Site, the goal of the interim remedy selected in this ROD is to contain plume migration, reduce contaminant mass, and address the emerging contaminants that currently pose a risk. The alternatives evaluated in the FFS are targeted to those goals.

2. EPA lacks sufficient GW data to Support the PP; The GW model is subject to significant uncertainty on the local scale and needs to be regarded with caution

   Response: The groundwater model was calibrated to 25 years of available head data in the vicinity of NHOU. While uncertainty is always a concern with groundwater modeling forecasts, the version of the San Fernando Valley model that was used for the FFS is adequate to illustrate the significant differences in forecasted containment between the remedial alternatives, and to evaluate effectiveness of each alternative in capturing both the source areas and more distal portions of the contaminant plumes.

3. EPA must gather more environmental data before adopting a deficient FFS.

   Response: The objective of the FFS was to: (1) identify, evaluate, and compare alternatives for plume containment, reduction of contaminant mass, and treatment of emerging contaminants that currently pose a risk; and, (2) identify a preferred alternative to present in the Proposed Plan. Although data gaps existed in some areas of NHOU, sufficient data were available to achieve the objective of the FFS. The next step, remedial design of the remedy identified in the ROD, will require that key data gaps be filled. Additional groundwater data are currently being collected in the NHOU and will be incorporated into the remedial design.

4. Drilling deeper wells and installing new wells will cause cross contamination and alter the existing contaminant plume

   Response: During the remedial design phase, specific drilling methods, well locations, and well depths will be selected to mitigate the possibility of cross contamination. One of the goals of the Second Interim Remedy is to "alter the existing contaminant plume" in a way that will improve capture and prevent further contamination of water-supply wells in the North Hollywood area.

5. EPA should consider the benefits of Alternative 5a as a means of adopting the most flexible and expansive remediation plan.

   Response: Although this would certainly be the most flexible in terms of potential long-term goals, it is not the alternative that best meets the nine criteria evaluation. Currently, there is no need for the additional treatment capacity specified in alternative 5a, and there is no certainty that there will be such a need in the future. Should the state ultimately promulgate an MCL for chromium that is lower than 5 µg/L, the remedy can be re-evaluated at that time, and changed if necessary to accommodate that revised standard. At this point, there is no added benefit of the additional treatment included in Alternative 5a.

6. Based on the anticipated concentrations of the potential byproducts created during the chromium treatment process, relative to any regulatory level, there is no need for BAC and no need for coagulation and filtration

   Response: The most important design requirement of the Second Interim Remedy is to be protective of human health. During development of the remedial alternatives presented in the FFS, treatment components required to meet expected process conditions were included. As noted in the comment, byproducts are formed in the advanced-oxidation process (AOP) for 1,4-dioxane, particularly partially oxidized organic carbon compounds such as aldehydes, ketones, carboxylic acids, and keto acids), and the effluent concentration of the partially oxidized byproducts cannot be precisely predicted. The oxidation treatment will partly or completely oxidize the target chemicals of concern (COCs), as well as other naturally occurring organic materials (also called naturally occurring carbon [NOC]). The NOC has not been characterized and the byproducts of the COCs or the NOC cannot be precisely predicted. During the remedial design phase, Site-specific bench-scale or pilot-scale tests with the selected oxidation technology can be conducted. Based on the results of those tests, the need for biologically activated carbon (BAC) can be evaluated. If BAC is included, coagulation and filtration, as well as disinfection, are required by CDPH.

7. The Summary of Estimated Costs may underestimate and unevenly weigh the costs for the different remedial alternatives because EPA uses too high a discount rate.

   Response: The federal Office of Management and Budget has set forth guidelines on acceptable discount rates to be used, which EPA has adopted. That rate is 7%, which was applied in the FFS.

8. The proposed installation of three extraction wells in the vicinity of NHE-1 is not supported by the current data.

   Response: Under the maximum pumping scenario for water supply anticipated by LADWP, the Rinaldi-Toluca and North Hollywood (West Branch) water supply well fields are forecasted to withdraw contaminated groundwater from the western area of the VOC plume in Depth Regions 1 and 2 (within the 50 µg/L contours), and potentially from the chromium plume, as described in the FFS. The three proposed new extraction wells in the vicinity of NHE-1 are forecasted to intercept contaminated groundwater migrating toward these water supply well fields under the maximum pumping scenario, and to significantly expand contaminant plume capture under the average pumping scenario. Specific pumping rates and pumping schedules for these wells will be further evaluated during remedial design to maximize their effectiveness and optimize their efficiency.

9. Containment areas were based on data collected between 2003- 2007. Current data should be included in the analysis where possible.

   Response: Use of current data only to define target volumes for plume containment in NHOU would not adequately delineate areas where high concentrations of contaminants are expected in the future. Contaminant concentrations have fluctuated by one to two orders of magnitude over periods of several years at monitoring, extraction, and production wells in the NHOU. This is partly due to horizontal migration of contaminant plumes, and partly due to contaminant mass remaining in the vadose zone above the water table, which has been remobilized when groundwater levels increased in the past 5 years. Therefore, contaminant concentrations in groundwater are likely to increase substantially in the future at wells where high concentrations were detected in the recent past.

   In addition, the Focused Feasibility Study was begun in 2008, and so the most current, fully available, data was used in the development of the model. It is not anticipated that the more recent data would substantially change the decision. The most up-to-date data will be used in during the design process, to refine the proposed remedy.

10. The FFS appears to be considering two different GW remediation strategies simultaneously: removal of existing VOCs from the overall GW plume and removal of emerging contaminants in specific locations.

    Response: The EPA is required to address contamination that exists in the groundwater, and this includes all the contaminants. There is no separate "strategy", and the removal of all contaminants to levels that do not pose a human health threat is the goal of addressing both VOCs and emerging contaminants.

11. There were several questions relating to the end point of this remedy, the choice of it being an "interim" remedy, and how long it will take to complete the remedy.

    Response: As is indicated, this is an interim remedy, and the final remedy will be proposed and selected at a future date. The EPA believes that there are still some significant data gaps which prohibit the selection of a final remedy at this time. The

end point of the remediation will be when the cleanup has met the objectives specified in the final remedy.

12. Have the mitigation aspects of "natural attenuation" been considered as a part of the "leave in place" treatment option for VOCs?

Response: The focus of the Second Interim Remedy is containment of the VOC plume exceeding MCLs, including the highest-concentration VOC, chromium, and emerging contaminant plumes in groundwater in the immediate vicinity of the Existing NHOU Extraction and Treatment System. Natural attenuation would not be expected to significantly affect concentrations of VOCs or emerging contaminants over the relatively short distances considered for containment in the Proposed Plan. One of the objectives of the additional data collection described in the Proposed Plan is to improve delineation of groundwater contamination beyond the immediate vicinity of the Existing NHOU Extraction and Treatment System to determine whether additional remedial actions are necessary. Natural attenuation would be considered when making such a determination in the future, following collection of the additional data.

13. Has *in situ* biological remediation been considered for the existing VOC concentrations?

Response: The FFS focused on technologies for plume containment as a first priority, and also evaluated technologies and alternatives for reduction of contaminant mass, and treatment of emerging contaminants that currently pose a risk. The FFS did not include in situ bioremediation of the VOC plumes as one of the technologies due to the large plume areas, significant depth to groundwater, diffuse nature of the VOC plumes, and the need for rapid containment. In situ bioremediation is not a viable remedial option under such conditions due to its high cost, incomplete effectiveness, and the time required for remediation to acceptable levels. In situ treatment methods, possibly including bioremediation, can be effective at small, highly concentrated source areas, and may be considered as part of a final remedy for NHOU.

14. To deepen the wells to 425 feet will draw down contamination deeper into the aquifer; The FFS alternative 4 plan will result in the horizontal and vertical spreading of the plume contamination.

Response: During the remedial design phase, specific drilling methods, well locations, and well depths will be selected to mitigate the potential for cross contamination. Groundwater modeling results presented in the FFS indicate that Alternatives 4a and 4b will improve hydraulic containment and limit spreading of contamination. Further evaluation of specific pumping rates and extraction well locations will be performed during remedial design to ensure that implementation of the Second Interim Remedy will not cause additional degradation of the aquifer.

15. FFS alternative 4 does not address other wellfields besides Rinaldi – Toluca.

Response: Alternative 4a (the preferred alternative in the FFS and Proposed Plan) addresses contamination currently impacting, or expected to impact, the North Hollywood (East and West Branches), Whitnall, and Erwin well fields, in the same manner as the Rinaldi-Toluca well field. The improved containment of highly contaminated groundwater in the vicinity of the existing NHOU extraction and

treatment system, as well as the additional investigation planned in the NHOU, are expected to reduce impacts to these well fields or provide sufficient data to plan future remedial measures, if necessary, to protect these well fields.

16. EPA's FFS does not take into account the natural chrome already in existence at the NHOU.

Response: The target volumes described in the FFS for containment of chromium contamination include areas and depths where chromium concentrations exceed naturally occurring concentrations in the vicinity of the NHOU. Chromium concentrations detected in monitoring wells located upgradient from known areas of anthropogenic chromium contamination are typically less than 5 µg/L in Depth Region 1, and are generally less than 1 µg/L where detected in Depth Regions 2, 3, and 4. The remedial alternatives presented in the FFS do not target chromium treatment for areas of the aquifer where concentrations of chromium are lower than these levels, nor is the performance standard less than background levels.

17. The number of wells needed and the rationale for these wells has not been established.

Response: The number of extraction wells to be installed was estimated based on the results of modeling that was performed over the last several years and considered a range of pumping and recharge scenarios. The number of wells, their location and pumping rates will be refined during the remedial design process. The rationale is to meet the RAOs as presented in the FFS.

18. How does alternative 4 assist LADWP in producing more water from the San Fernando Valley?

Response: This is not the goal of the remedy. The goal of this remedy is to meet the RAOs specified in this ROD. However, one of the RAOs is to prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production fields, and the Second Interim Remedy achieves this RAO by improving the capture and containment of groundwater contamination in excess of MCLs through the installation of the new extraction wells.

19. How does alternative 4 comply with LADWP 97.005 regulations [sic]?

Response: The alternative itself cannot "comply", but in order for the treated water to by utilized by LADWP in its drinking water (the selected end use), the process set forth by the CA Department of Public Health (not the LADWP), and delineated in their 97.005 policy, will need to be implemented.

20. The costs for the proposed remedy are not broken down sufficiently despite its being 85 pages long.

Response: Estimated costs for all significant components for each remedial alternative, including the Second Interim Remedy, are detailed in Appendix D of the FFS, which is available in the Administrative Record. The level of detail provided is consistent with EPA policy and guidance regarding cost estimates developed in a feasibility study.

21. The FFS gives alternative 1a, a meets criteria best grade for compliance with applicable or relevant and appropriate requirements and short term effectiveness. Based on the flaws and costs of alternative 4a and 4b, how does EPA justify not employing 1a?

    Response: The EPA chose the remedy that best met all the nine criteria, not simply the one that best met the two criteria cited. This is a complex Site, with complex hydrogeological conditions; there is no remedy that is not without limitations, but Alternative 4a was chosen as the remedy that best meets the objectives and RAOs.

22. The TCE/PCE 5 µg/l concentration contour is inaccurately placed with regard to Penrose Well MW-4927. Figure 2-2 (of the FFS) shows the well to be within the 5 µg/l contour line when the concentration shown on the figure indicates that the concentration is 1.8 µg/l PCE. Figure 2-2 should be revised to reflect these data.

    Response: EPA concurs that well 4927 incorrectly appears inside the 5 µg/L TCE/PCE contour. This contour should have been placed approximately 1/10th of an inch to the left on this figure, representing a real shift of approximately 200 feet to the west. However, this minor graphical issue does not affect the analysis or results of the FFS, Proposed Plan, or ROD. In future versions of this map, the contour will be adjusted appropriately.

23. The plume drawings for the extent of the contamination are not supported by the number of sampling points and are only a "best guess" estimation by the computer program used to draw the plume maps.

    As shown on Figure 2-2, Hewitt monitoring wells 4909F and 4909C are very close to one another. However, the contours drawn to the north, northeast, west and south are based on only two data points more than 2,000 and 3,000 feet away.

    The 1,4-dioxane concentration line on Figure 2-8 for the Landfills is shown as a long, narrow, elongated rectangle which never occurs in the natural environment. This concentration line cannot be supported by the data, is not technically defensible and should be removed from the figure.

    A disclaimer should be added to the figures stating that the plumes are computer generated and may not reflect the actual extent of TCE/PCE concentrations in the subsurface.

    Response: The FFS figures referenced in the comment portray maximum concentrations detected from January 2003 through December 2007, and were drawn for the purpose of developing target volumes for remediation, not to map the geometry of contaminant plumes in the NHOU at any particular period, current or past. The concentration contours in the areas of concern noted in the comment are dashed on the figures. These dashed lines represent areas where the contour lines are approximate. Improved delineation of contaminant plumes in the NHOU is a goal of this ROD.

    Regarding the "narrow, elongated" 5 µg/L concentration contour for 1,4-dioxane shown on Figure 2-8, EPA disagrees with the statement that such a geometry "never occurs in the natural environment." In areas of relatively high groundwater velocity (where the hydraulic gradient or hydraulic conductivity of the aquifer is high), long

and narrow contaminant plumes are common, especially where laterally constrained by less permeable materials, as in this situation.

24. EPA's "Double Barrier" for treatment of VOCs is not needed. Since the existing air stripper system delivers water with satisfactory VOC concentrations to the LADWP, it is not necessary to treat all the pumped ground water a second time by passing treated water through granular activated charcoal (the so-called "double barrier"). EPA's Alternatives 2, 3, 4 and 5 all contemplate adding additional air strippers to improve the removal of VOCs. EPAs proposal to add further treatment by liquid-phase granular activated charcoal is redundant and very expensive. The "double barrier" for treatment is not identified as an ARAR in the discussion of ARARs in the FFS.

    Response: The added treatment is a requirement of the CDPH for the use of extremely impaired water as a source of water supply. The "Double Barrier" treatment is an "off-Site" requirement, and therefore, not an ARAR, but it is a requirement that must be met in order to comply with the end use for the Second Interim Remedy, which is delivery of treated water to LADWP for domestic use.

25. The 5 µg/l Target for Chromium is Not an ARAR. Page ES-9 of the Executive Summary states "For this FFS, a target concentration for capture and treatment of hexavalent and total chromium of 5 µg/l is assumed in anticipation of the issuance of a significantly lower state MCL for hexavalent chromium." An MCL that might be issued someday and then again might not be issued does not have the status of an Applicable or Relevant and Appropriate Requirement under CERCLA. Given the difference in toxicity of trivalent and hexavalent chromium, the FFS provides inadequate justification for targeting ground water with a total chromium concentration of 5 µg/l as if it was all hexavalent chromium. Even if the MCL for hexavalent chromium actually was 5 µg/l, adopting as a goal the containment of the ground water plume using a target concentration of 5 µg/l for total chromium would likely result in an overestimate of the volume of ground water requiring treatment. An overestimate of the volume of contaminated ground water directly affects EPAs estimate of the cost of remedial alternatives since a significant fraction of the cost, such as that for LPGAC treatment, is proportional to the amount of contaminated ground water to be treated.

    Response: EPA agrees that the 5 µg/l target for hexavalent chromium is not an ARAR; it is, however, required in order for the end use selected as part of this remedy, which is provision of the treated water to the LA DWP to be used in its drinking water.

    Most of the dissolved chromium detected in groundwater in the NHOU is present in the more toxic hexavalent state (chromium-6), rather than the trivalent state (chromium-3). Therefore, most of the total chromium detected in groundwater samples consists of hexavalent chromium. Regarding volumes of groundwater targeted for extraction and treatment, the FFS notes that the volume of groundwater within the NHOU that is contaminated with VOCs is significantly greater than the volume contaminated with hexavalent chromium. The chromium target volumes (5 and 50 µg/L) are mostly encompassed by the 50 µg/L VOC contour. Therefore, treatment volumes and associated costs are controlled by the VOC plume dimensions, not the chromium (either total or hexavalent) plume dimensions.

26. One commenter suggested an alternative approach for the Second Interim Remedy, which it claims reduces the risk of exacerbating contaminant plume migration while improving plume containment where data are sufficient to support such actions. Under the commenters proposed alternative, EPA would move forward with the following elements of the Proposed Plan:

- Remediation of chromium at NHE-2, with consideration of treating NHE-2 water with equipment located at the former Bendix facility to achieve better efficiency and cost savings;
- Improving groundwater containment in the area of NHE-4 and NHE-5, either through the installation of new wells or the rehabilitation of NHE-4 and NHE-5 in a manner that minimizes downward contaminant migration;
- Refurbishment of the existing air stripper and the addition of carbon polishing (granular activated carbon or "GAC") at the NHOU Central Treatment Facility; and,
- Implementation of source control under RWQCB oversight and orders.

An analysis would be made of the following elements of EPA's Proposed Plan after more data has been collected to substantiate whether these measures will be effective in remediating the aquifer for drinking water purposes:

- Installation of three NEW pumping wells and deepening of NHE-1, which are not technically justified based on available data, and which may exacerbate contaminant plume migration;
- Deepening of NHE-2, as investigation at the former Bendix facility indicated that NHE-2 is of sufficient depth to capture the high concentration contaminant mass;
- Deployment of remediation for 1,4-dioxane at NHE-2, which requires further information to determine its necessity, and
- Elimination of a second carbon stripping tower and carbon polish at the NHOU Central Treatment Facility which is not necessary in terms of throughput to the system.

Honeywell concludes that this alternative best meets the nine CERCLA criteria for an effective remedy.

Response: EPA disagrees that this proposed alternative would be protective, and it does not meet the RAOs specified in this ROD. It does not address the 1,4-dioxane in NHE-2, which results in the treated water being unusable by LA DWP, and is too slow in implementation. EPA modeling has determined that NHE-2 is not of sufficient depth and needs to be deepened to capture the high concentration contaminant mass.

EPA modeling has also indicated that additional extraction wells are needed to provide sufficient containment. Results over the last 10 years have clearly indicated that the existing extraction well network is not sufficient to contain the plume. With the increased groundwater volume extraction that will result from the additional wells, a second carbon stripping tower is necessary. The need for the LPGAC has been addressed elsewhere in this appendix.

27. Currently, there is no data indicating the presence of chromium in groundwater between the former Bendix facility and the Rinaldi-Toluca wellfield. NHE-1 has not been tested for chromium or hexavalent chromium. There is only one monitoring well in this area (NH-VPB-06), which has a chromium concentration of 2.4 µg/L. Production wells along the southeast end of the Rinaldi-Toluca well field have chromium levels of <2 µg/L. A groundwater sample from newly-installed groundwater monitoring well R-2, located near the southeastern edge of the Rinaldi-Toluca wellfield, indicates only 0.83 ug/L hexavalent chromium. Field screening during the installation of monitoring well T-1, located southeast of the wellfield, indicates less than 0.27 ug/L hexavalent chromium. The cost estimate of $30 million for these new extraction wells and ex situ chromium treatment is too much to commit for a contingency that may or may not happen.

    Protection of the Rinaldi-Toluca wellfield should be addressed in the Groundwater Management Plan, not by $30 million in remedy costs. The Groundwater Management Plan could include monitoring of NHOU T-1 and T-2 as sentinel wells. There will be ample time to evaluate the most cost-effective response if chromium is observed in these wells. The ROD could include a contingency in the event that monitoring and sampling of these wells indicates chromium migration toward the Rinaldi-Toluca well field. The contingency should consider other potential more effective and less costly alternatives such as Rinaldi-Toluca wellhead treatment or a transportable treatment unit. In the absence of data, EPA's approach, as presented in this FFS, could result in expensive and inefficient remedial action with the outcome being additional production well shutdown, resulting in diminished drinking water supplies.

    Response: Regarding the comment that the ROD could include a contingency in the event that chromium migration toward the Rinaldi-Toluca well field is detected, contamination by VOCs and emerging contaminants is also a concern for these water supply wells. The three proposed new extraction wells in the vicinity of NHE-1 are intended to intercept contaminated groundwater migrating toward these water supply well fields under the maximum pumping scenario anticipated by LADWP, and to significantly expand contaminant plume capture under the average pumping scenario. If new data collected prior to, or during, remedial design indicates that a different configuration of extraction wells is more effective and cost efficient than the configuration described in the Proposed Plan, then that different configuration will be considered for implementation as part of the Second Interim Remedy. Similarly, if new data collected prior to completion of the remedial design indicate that chromium treatment as set forth in Alternative 4a is not needed to meet performance standards over the life of the Selected Interim Remedy, then a lesser degree of chromium treatment will be considered. The converse condition is also true for both issues (i.e., if more extraction wells/treatment than predicted is needed to achieve the RAOs, then those features will be added).

28. The FFS states or implies that Honeywell owns or operates the former Bendix facility. The correct term for the facility is "former Bendix facility." These references should be corrected in the FFS and in future documents or presentations so that the Site is referred to as the "former Bendix facility," and when Honeywell's role is described, that it be made clear that Honeywell is the corporate successor to the previous Site owners and operators, Bendix Corporation and AlliedSignal, Inc.

Response: In the reports and work plans received by EPA from Honeywell and its consultants through 2009, the facility is labeled "the Honeywell North Hollywood Site" in report titles, text, and figures, rather than "the former Bendix facility." Therefore, the FFS simply follows the Site naming convention used by Honeywell for many years. EPA does not believe that the comment requires issuing a correction to the FFS and Proposed Plan. However, the Site will be referred to as "the former Bendix facility" in the ROD and future EPA documents.

29. The Chronology of North Hollywood Operable Unit Events (Table 1-1) should include more key dates for significant milestones and events.

Response: The Focused Feasibility Study included the key dates that EPA felt were relevant for a document of this nature.

30. Per the text, the plume maps (Figures 1-3 to 1-7) are based on 2007 data, where available, and historical data where few recent data are available. The plume to the northwest of the NHOU Central Treatment Facility in Figure 1-3 indicates trichloroethene (TCE) concentrations exceeding 100 µg/L. This data is not presented in either Figure 2-3 or Appendix A – Summary of Recent Analytical Data (January 2003 through December 2007). The source of this data should be provided or the plume maps refined.

Response: Figures 1-3 through 1-7 are intended to provide an overview of the distribution of selected contaminants throughout the basin, and Figures 2-2 through 2-13 are used for target volume development. The TCE, PCE, and chromium distribution maps shown on Figures 1-3 through 1-7 are adapted from the annual monitoring reports prepared by EPA for the San Fernando Valley basin, and represent different time frames and aquifer depth intervals than were used in Figures 2-2 through 2-13. Therefore, the contours shown on these different sets of maps are somewhat different. Data for Figures 1-3 through 1-7 are provided in the San Fernando Valley Superfund Sites Groundwater Monitoring Program report for 2007, prepared in July 2009.

31. Figure 1-8 of the In-Situ Chromium Treatment is not correct.

Response: Figure 1-8 of the FFS consists of an exact copy of the schematic diagram for in situ chromium treatment as shown on Figure 7 of the "Soil and Interim Groundwater Remedial Action Plan for Reduction of Hexavalent Chromium—Former Honeywell North Hollywood Site," prepared by MWH Americas on behalf of Honeywell on July 30, 2004. The updated version of this figure submitted by the commenter is helpful, but does not change the analysis or conclusions of the FFS or Proposed Plan.

32. Per the fourth paragraph of this section, it is noted that recent peak concentrations of total chromium have exceeded the California maximum contaminant level (MCL) by a factor of nearly 1000 (50 µg/L x 1000 = 50,000). These peak concentrations were present in fourth quarter 2006 under the former Bendix facility when the groundwater elevation was higher than it had been since prior to 2000. As presented in the Groundwater Monitoring Report, Second Quarter 2009, Honeywell North Hollywood Site, the maximum detected hexavalent chromium concentration in groundwater at the Site is 1,500 µg/L, not 50,000 µg/L.

Response: The comment notes that the maximum detected hexavalent chromium concentration at the former Bendix facility was 1,500 µg/L in the second quarter of 2009, and was nearly 50,000 µg/L in the fourth quarter of 2006. It should also be noted that the maximum hexavalent chromium concentration was 9,100 µg/L in 2005, 15,000 µg/L in 2004, and 27,000 µg/L in 2003. These concentrations illustrate the variability in hexavalent chromium concentrations (similar to total chromium concentrations) in wells at the former Bendix facility. Based on historical concentrations, it is reasonable to assume that total and hexavalent chromium concentrations at the facility will again exceed 10,000 µg/L at or downgradient from the former Bendix facility.

33. The FFS incorrectly states that groundwater flow velocities are greatest where hydraulic conductivities are highest (p. 2-5). In fact, groundwater velocities are a function of both the hydraulic gradient and hydraulic conductivity. Hydraulic gradients within much of the NHOU area are relatively flat.

    Section 2.3 of the FFS does not acknowledge any uncertainty in the hydrogeologic conceptual model of the NHOU area, nor does it anticipate potential improvements in the hydrogeologic conceptual model as a result of new data obtained from the 33 groundwater monitoring wells. These data may significantly alter the conceptual model and improve the predictive capability of groundwater modeling.

    Response: The groundwater velocity discussion on page 2-5 of the FFS summarizes conclusions of the 1992 Remedial Investigation (RI) for the SFV Superfund Sites (including NHOU) and states that "Groundwater flow velocities in the NHOU were estimated during the RI to range from approximately 290 to 1,000 feet per year, depending on location. Estimated groundwater flow velocities are generally highest in the area of the NHOU extraction system where aquifer hydraulic conductivities are highest." EPA understands that groundwater velocities are a function of hydraulic gradient and hydraulic conductivity, as well as effective porosity. Hydraulic conductivity can vary by orders of magnitude in an aquifer, whereas hydraulic gradient and effective porosity typically are much less variable. Therefore, groundwater velocities are commonly highest in areas of an aquifer with the highest hydraulic conductivity. However, EPA recognizes that steep hydraulic gradients can develop around active production and extraction well fields, which can result in high groundwater velocities in the immediate vicinity of the well fields, primarily a result of gradient rather than hydraulic conductivity.

    Horizontal hydraulic gradients in many alluvial basin-fill aquifers, such as the SFV Basin aquifer, are "relatively flat" (commonly in the range from 1 foot of head change per 1,000 feet of horizontal distance to 1 foot head change per 100 feet of horizontal distance). Groundwater still moves under these "relatively flat" gradients, and is capable of transporting dissolved constituents such as naturally occurring minerals or anthropogenic contaminants significant distances.

    Regarding the last part of the comment (uncertainty in the conceptual Site model), please see the response to Comment 2. EPA plans to continue updating the conceptual model and the numerical models for groundwater flow in the SFV Superfund Sites as

new data are received that indicate that model improvements and revisions would be appropriate.

34. The FFS's distinction between shallow and deep contaminated zones may be misleading in areas where Depth Region 1 is periodically dry. In these areas, plotted values for Depth Region 2 may represent the top of the saturated zone at the time of sampling, rather than evidence of downward contaminant migration.

Response: It is correct that in areas where Depth Region 1 is periodically dry (the north part of NHOU) "plotted values for Depth Region 2 may represent the top of the saturated zone at the time of sampling." However, EPA disagrees with the suggestion that such an occurrence would not be "evidence of downward contaminant migration." If contamination is transported from Depth Region 1 to Depth Region 2 due to declining water levels, that represents downward contaminant migration.

35. It should be noted that there are discrepancies between the EPA database and the data presented in the FFS. The following examples include 1,4-dioxane concentrations that are presented in the database but are not discussed in Section 2.6.2 or presented in Appendix A:

Detected Concentration	Monitoring Well	Sampling Date
20 µg/L	NH-C01-324	3/14/07
20 µg/L	NH-C02-325	3/12/07
20 µg/L	NH-VPB-02	3/12/07
20 µg/L	NH-VPB-05	3/12/07
20 µg/L	NH-VPB-06	3/12/07
100 µg/L	NH-C05-460	3/14/07
100 µg/L	NH-C06-285	3/13/07

The concentrations and dates suggest the data may be subject to further scrutiny and the FFS should not exclude it without explanation. This is an important issue because the FFS currently focuses on 1,4-dioxane only in the vicinity of extraction well NHE-2 and the data above suggest that 1,4-dioxane concentrations could be more widespread within the NHOU.

Response: There are not substantial discrepancies between the SFV database and the data reported in the FFS. The 1,4-dioxane values tabulated in the comment above appear to have been obtained from the March 2008 update of the SFV database shared with the public. The values were flagged as "rejected" in that database update, and were removed from subsequent database updates (December 2008, April 2009). These 1,4-dioxane values were flagged as rejected, and later removed, because the laboratory mistakenly listed the reporting limits as detected concentrations (note that six of the referenced concentrations are precisely 20 µg/L and the remaining two are precisely 100 µg/L); this error was noticed immediately during data validation, resulting in

rejection of the data. 1,4-dioxane concentrations in previous (and subsequent) groundwater samples from these wells were either non-detectable (most samples) or below the notification level of 3 µg/L. It is recommended that the commenter use one of the more recent updates of the SFV database for tabulation of data; the updates contain data obtained in late 2008 and early 2009, and have removed rejected data (e.g., the 1,4-dioxane values listed above).

The FFS focuses on 1,4-dioxane primarily (but not exclusively) in the vicinity of extraction well NHE-2 because that it is where 1,4-dioxane concentrations are most likely to have a significant negative impact on operation of the existing or proposed remedy. Furthermore, concentrations of 1,4-dioxane at several monitoring wells immediately upgradient from NHE-2 at the former Bendix facility have exceeded the state notification level by a factor of 10 or more. These are the highest levels of 1,4-dioxane detected in the vicinity of the NHOU. These high levels of 1,4-dioxane would have a significant negative impact on groundwater treatment at the NHOU if they reached the existing or proposed NHOU treatment system, unless it included treatment for 1,4-dioxane.

36. In summarizing the rationale for additional monitoring wells (p. 2-13), the first bullet should be revised as follows:

    Adequately characterize the lateral and vertical extent of contaminant plumes and known hotspot areas and their relationship to known *and potential* source areas.

    The logic behind the labeling and grouping of EPA's proposed additional monitoring wells is unclear (Figure 2-14). The rationale provided in Table 2-1 for each proposed cluster of monitoring wells consists largely of redundant verbiage and lacks adequate detailed explanations. The FFS should link each proposed well to one or more upcoming critical decisions and describe how the information obtained from these wells will successfully contribute to the decision-making process (i.e., EPA's Data Quality Objectives process).

    Detailed comments on the proposed monitoring wells are as follows:

    - Location A: The well proposed at Location A is intended to define the hydraulic gradient between the Rinaldi-Toluca well field and the former Bendix facility. Because there will be groundwater depressions around each of the pumping systems, at least two wells will be necessary to understand the hydraulic gradient and whether a hydraulic divide already exists.

    - Location C: The rationale for installing four monitoring wells east of Vineland Avenue and Vanowen Street warrants further discussion. Existing wells 3830Q and 3830S may negate the need for at least one of these monitoring wells.

      Furthermore, this section should address the 33 new groundwater monitoring wells and ongoing investigation activities that Honeywell has proactively agreed to complete under the AOC. These new wells should also be addressed in Sections 4.2.2 and 4.3.1.2. The resultant data from these wells should be considered in the analysis and evaluation of the Second Interim Remedy.

Response: Development of a detailed set of data quality objectives and specific monitoring well locations or rationale is more appropriate for the remedial design effort. At the feasibility study level, determination of the approximate number and locations for new monitoring wells required to monitor the proposed remedy and provide additional delineation of groundwater plumes was performed for cost estimating purposes only. Construction of 33 new groundwater monitoring wells by Honeywell's consultants began at approximately the same time that the FFS was released, and the work plan for monitoring well construction was not finalized until a month after FFS release. The resultant data from the new monitoring wells, when provided to EPA (expected in December 2009), will be used in remedial design.

37. The FFS does not state the point of compliance with the cleanup levels. The third paragraph in this section indirectly states that drinking water standards should not be exceeded in the treated water from the NHOU treatment system. We assume that wellhead treatment systems will need to reduce contaminant levels to allow for drinking water standards to be met at the NHOU treatment system.

    Response: The point of compliance has been clarified in this ROD, and is specifically the point where the treated water leaves the NHOU treatment plant, after going through the "double barrier" treatment system, and just before it enters the LADWP blending facility.

38. Summary Table 4.3 for the conceptual anion exchange treatment system defines the type of resin proposed as Duolite™ A7, which is a weak based resin. No rationale is presented for proposing a weak based resin versus a strong based resin. We recommend that the FFS does not stipulate a specific resin since selection of the resin is a design issue.

    Response: The ROD does not specify the resin. It is agreed that this is a design issue.

39. If treatment for 1,4-dioxane is required, other advanced oxidation process (AOP) treatment technologies should be considered and tested.

    Response: The ROD allows flexibility during the design on the specific treatment technology for 1,4-dioxane.

40. The 1,4-dioxane data for NHE-2 identified in this section indicates that concentrations have ranged from 4 µg/L to 9 µg/L. Data available to Honeywell indicate that results at NHE-2 have ranged from 2.4 µg/L to 7 µg/L. The maximum detected concentration of 1,4-dioxane identified in Appendix A for the time period January 2003 through December 2007 is also 7 µg/L. Please identify the sample specifics justifying the 9 µg/L maximum or revise the range identified in this section.

    The FFS cites that 1,4-dioxane has ranged from 4 µg/L to 7 µg/l between 2007 and 2008. In the first quarter of 2009, the 1,4-dioxane level was 2.4 µg/L. 1,4-dioxane concentrations in the NHE-2 influent have ranged from 2.4 µg/L to 5 µg/L since 2008 and the CDPH Notification Level is 3 µg/L. The marginal detections of 1,4-dioxane above a CDPH Notification Level of 3 µg/L should not immediately trigger the need for an AOP at the NHE-2 wellhead. A broader set of more recent groundwater sampling results, as well as the flow rates from other extraction wells and the NHOU Central Treatment Facility influent concentrations, should be used along with modeling to evaluate the toxicological risk

associated with 1,4-dioxane treatment at the NHE-2 wellhead versus no treatment. The results of these analyses, in conjunction with the 97-005 process, should be used to determine the need for treatment.

Response: The reference to 9 µg/L in Section 4.3.1.2 is a typographical error. However, concentrations of 1,4-dioxane as high as 90 µg/L have been detected at the former Bendix facility, within ¼ mile upgradient from extraction well NHE-2. Therefore, it is prudent to plan for wellhead treatment for 1,4-dioxane at extraction well NHE-2 (see response to Comment 35). In addition, it is anticipated that this will be a CDPH requirement for the end use chosen in this ROD under the 97-005 process.

41. After reviewing Section 4.3.4 of the FFS, it appears that an evaluation will need to be conducted to determine which wells require treatment and to what concentrations in order to "decrease total chromium concentrations in the NHOU central treatment plant effluent to 5 ug /L." Cleanup goals need to balance toxicological risk with, consideration of the appropriate point of compliance and the use of blending when appropriate. A broader set of more recent groundwater sampling results from nearby monitoring wells and the concentrations from other extraction wells should be used along with modeling to evaluate the need for treatment.

    Note that Honeywell would like the FFS/Proposed Plan to consider evaluating use of the existing equipment at the former Bendix facility for treatment of the chromium from NHE-2. It may be possible to secure access agreements allowing the extracted groundwater to be conveyed to the former Bendix facility where the existing ion exchange vessels could be used for chromium treatment.

    Response: Evaluation of recent chromium trends at the extraction wells and at upgradient monitoring wells was conducted by EPA to determine which extraction wells will likely require chromium treatment in the future. The remedial design can consider use of the existing equipment at the former Bendix facility for chromium treatment.

42. Figures 4-15 and 4-16 illustrate simulated flowlines generated from groundwater modeling of the proposed pumping rates for the extraction wells under Alternative 4a (the selected alternative). For forward particle tracking, the flowlines represent the path that will be taken by particles released at specific points at a specified time. However, if the particles are released when the flow field changes substantially, the flowlines will follow different paths. Therefore, in a groundwater basin such as the San Fernando Valley, where pumping from water supply wells changes significantly, flowline information needs to be interpreted with caution. When pumping changes significantly with time, contaminant transport simulation will provide a better interpretation of plume movement because, unlike particle tracking, the entire plume does not instantaneously leave its starting location. A portion of the plume still lingers at the starting location and can react to the changing flow field.

    The discussion regarding the maximum production scenario seems to suggest flow from Depth Region 1 (DR-1) at the former Bendix facility to the Rinaldi-Toluca well field. Because DR-1 is likely to be dewatered at the former Bendix facility under this pumping condition, there can be no saturated flow and consequently, no chemical migration in that

depth region from the former Bendix facility to the Rinaldi-Toluca well field. There will, however, be flow in DR-2 from the former Bendix facility to the Rinaldi-Toluca well field.

The pumping/flow rates may be overly conservative. The proposed flow rate of over 3,000 gallons per minute (gpm), in combination with the Maximum Pumping Scenario, is likely to dewater DR-1 and, therefore, is not feasible given the Watermaster's safe yield. Balancing regulatory storage requirement/safe yield for the San Fernando Basin versus the Maximum Pumping Scenario used to justify the addition of the three new wells needs to be addressed, along with concerns regarding contaminant plume migration and production well shutdown.

Response: The flowlines on Figures 4-15 and 4-16 were projected in the model-forecast NHOU flow field including both extraction well pumping and LADWP's anticipated future average pumping scenario in the San Fernando Valley. The uncertainty that is inherent in those pumping forecasts makes analysis of every possible future pumping scenario impractical. Such exhaustive modeling is unnecessary to assess the relative merits of the remedial alternatives at the feasibility study level. Addition of flowlines in subsequent model years in the predictive simulations would be expected to follow similar paths to those shown on Figures 4-15 and 4-16.

For the maximum pumping scenario for water supply in the San Fernando Valley, the same flowline starting locations were used in the flow field that resulted from planned extraction well pumping and LADWP forecasts of future maximum pumping scenario. As shown on Figures 4-17 and 4-18 and discussed in the FFS text, the modeling indicates that while the increased production "significantly influences the extent of hydraulic containment," Alternatives 2a through 5b are still forecasted to "provide complete containment of the main body of the western 50 µg/L VOC target volume despite a strong hydraulic gradient to the northwest." Therefore, the FFS modeling effort forecasts that the Second Interim Remedy includes robust hydraulic containment of the key source zone in the vicinity.

Depth Region 1 is forecasted to become unsaturated in some areas due in part to the additional groundwater extraction assumed in the remedial alternatives. However, the statement "there can be no saturated flow and consequently, no chemical migration in that depth region from the former Bendix facility to the Rinaldi-Toluca well field" is mistaken. Groundwater recharge, for example, will allow contaminant transport to the saturated zone if mobile contaminants are present in the vadose zone. Moreover, the Rinaldi-Toluca well field is screened in Depth Regions 2 and 3, and if water levels in the vicinity of the former Bendix facility decline, it can be assumed that dissolved contaminants, particularly VOCs, will migrate downward with the groundwater. Therefore, even if Depth Region 1 becomes desaturated, contaminants can still migrate from the former Bendix facility to the Rinaldi-Toluca well field.

The quantity of sustainable pumping in the San Fernando Valley basin depends not only on pumping rates, but also on the amount of spreading basin recharge that is applied. As noted above, the maximum pumping scenario modeled in the FFS is considered to be on the upper end of the range of possible future pumping rates, and was used in the FFS primarily to illustrate that the hydraulics of Alternatives 2a

through 5b are hydraulically robust enough to capture the groundwater under the former Bendix facility source area even under these extreme conditions.

43. Extraction well NHE-1 is dry and has never been operational. Deepening NHE-1 requires further evaluation. Since NHE-1 has never operated, the orientation of the plume from the former Bendix facility has been determined by the groundwater flow direction and the extraction rates of LADWP's pumping of the NHOU extraction wells. Rehabilitating NHE-1 may alter this flow direction, causing chromium and VOC migration to the northwest.

    If the purpose of the Second Interim Remedy is to contain the high concentration contaminant plumes, it may be premature to deepen NHE-2. Geologic cross-sections provided as ***Attachments 7a and 7b*** (extracted from the *Groundwater Monitoring Report, Second Quarter 2009, Honeywell North Hollywood Site)* indicate that VOCs and hexavalent chromium extend to a depth of approximately 330 feet below ground surface (bgs) and the high concentration portion is above 300 feet bgs. The NHE-2 well is screened between 190 and 300 feet bgs. When vertical flow fields are considered, the wells current configuration may be acceptable to achieve the performance goal. The need for a deeper well may depend upon the lateral extent of the plume and the subsequent pumping rate need for capture. The results of the ongoing NHOU 33 groundwater monitoring well installation should provide the information necessary to make this determination.

    NHE-4 has not been operated since February 2008 and NHE-5 has not operated since December 2005. While we recognize that deepening of these wells may be necessary to obtain the desired hydraulic capture for Depth Region 1, the well design must, nevertheless, minimize plume smearing. The well design should either include separate shallow and deep wells, or a packer system in the well to hydraulically isolate the Depth Zones.

    To the extent that deepening of these wells is part of a water supply strategy, this is not a 'necessary' remedial measure or response cost under CERCLA. (See, City of Moses Lake v. United States, 458 F. Supp. 2nd 1198 (E.D. Wash. 2006); *Santa Clara Valley Water District v. Olin Corp.,* N.D. Cal., No. 07-3756, 2009 WL 2581290 Aug. 19, 2009.). Costs that are principally for water supply or provision of municipal services cannot be passed to PRPs as part of a putative "remedy"; they remain the responsibility of the water supply agency or municipality.

    Response: EPA agrees that details regarding the depths and approach to deepening the extraction wells should be further evaluated, and is best considered during remedial design. The possibility of constructing separate shallow/deep well pairs or using packers, rather than simply deepening existing wells, is suggested as an option in the FFS. Deepening the wells is proposed in the FFS to allow sufficient long-term pumping rates to achieve hydraulic containment; deepening of the wells is not part of a water-supply strategy.

44. The number and size of the air stripping and carbon treatment equipment at the NHOU Central Treatment Facility will need to be re-evaluated once the target cleanup area has been further identified and the location and pumping rates of wells has been determined. It is possible that the design of the Second Interim Remedy will show that only one air stripper and carbon treatment unit will be adequate or that other treatment trains may be necessary (i.e., 1,4-dioxane or chromium treatment).

Response: EPA agrees that details of the treatment system should be further evaluated during the remedial design effort. However, when sizing treatment units, long-term average pumping rates required to meet RAOs must be considered together with estimates of treatment system downtime for maintenance and repairs. For example, if only one treatment train is constructed, and it is anticipated to be operational 80% of the time (20% downtime assumed for maintenance and repairs), then the extraction wells should be designed to operate at 125% of the design long-term average discharge rate (because the wells will only operate 80% of the time). Two smaller, parallel treatment trains may be somewhat more costly to construct than a single large-capacity treatment train, but their presence will provide more options for keeping the treatment system partly operational when individual components require maintenance or replacement. Such redundancy would have the potential to reduce overall system downtime and improve performance and efficiency of the system.

45. Section B.2.2 of the FSS states that recalibration of the model was improved by increasing vertical and horizontal hydraulic conductivity by 50%. It is not clear why this was considered appropriate. Before such drastic changes are undertaken, it would seem that the hydrogeologic Conceptual Site Model should be re-evaluated, since increasing hydraulic conductivity significantly affects flow rates. Discrepancies in the calibration of the numerical model, as shown on Figure 7 of Appendix B of the FFS, may be caused by the use of inaccurate hydraulic parameters, such as hydraulic conductivity (see Figures 3, 4, 5 and 6), effective porosity, storage coefficient, anisotropy, and dispersivities. Spatial variability of hydraulic parameters should be treated geostatistically to determine expected values, spatial correlation, and estimated uncertainties. Once the ongoing NHOU groundwater characterization activities have been completed, the groundwater model should be re-calibrated and sensitivity analyses conducted to refine the number, location, and pumping rates of the extraction wells.

Response: As is standard practice in model calibration, the aquifer parameters in the SFV model used for the FFS modeling were modified to adjust the "goodness of fit" to the calibration. The hydraulic conductivities that were ultimately selected in the model are consistent with the presence of coarse sand and gravel aquifer materials that were observed as drill cuttings during installation of the Remedial Investigation wells in the early 1990s.

The principal hydraulic goal of the proposed remedial alternatives is containment of contaminants over the long term. Of the specific parameters mentioned in this comment, hydraulic conductivity and aquifer anisotropy are the most important in the design of a pump-and-treat system that operates at a relatively steady pumping rate. These parameters will be reconsidered following the current additional groundwater investigation of the NHOU. Transport modeling that includes dispersivity (and perhaps other contaminant transport parameters) should be considered for the remedial design effort.

Geostatistical analysis proposed in the comment would not necessarily mitigate modeling uncertainty (unless a system is so robust that the aquifer parameters input to the model have little effect on the model outcome), but instead provides a basis for

describing the uncertainty in detail. Geostatistical analysis can be considered in the remedial design phase, but was unnecessary at the feasibility study level.

For these reasons, the parameters chosen for the FFS modeling are considered by EPA to be conservative and appropriate for the required level of analysis and comparison of the FFS remedial alternatives.

46. In the comparison spreadsheet of EPA's alternative vs. Honeywell's proposed alternative for 1-4 dioxane treatment, the capital cost and operations and maintenance (O&M) cost are the same. However, while calculating the net present value (NPV) for 26 years at 7%, there is a discrepancy between EPA's and our calculations. The NPV for Honeywell's alternative was calculated using the following formula:

PV(0.07,26,H24,0,0)+G24

where:

H 24 = O&M cost

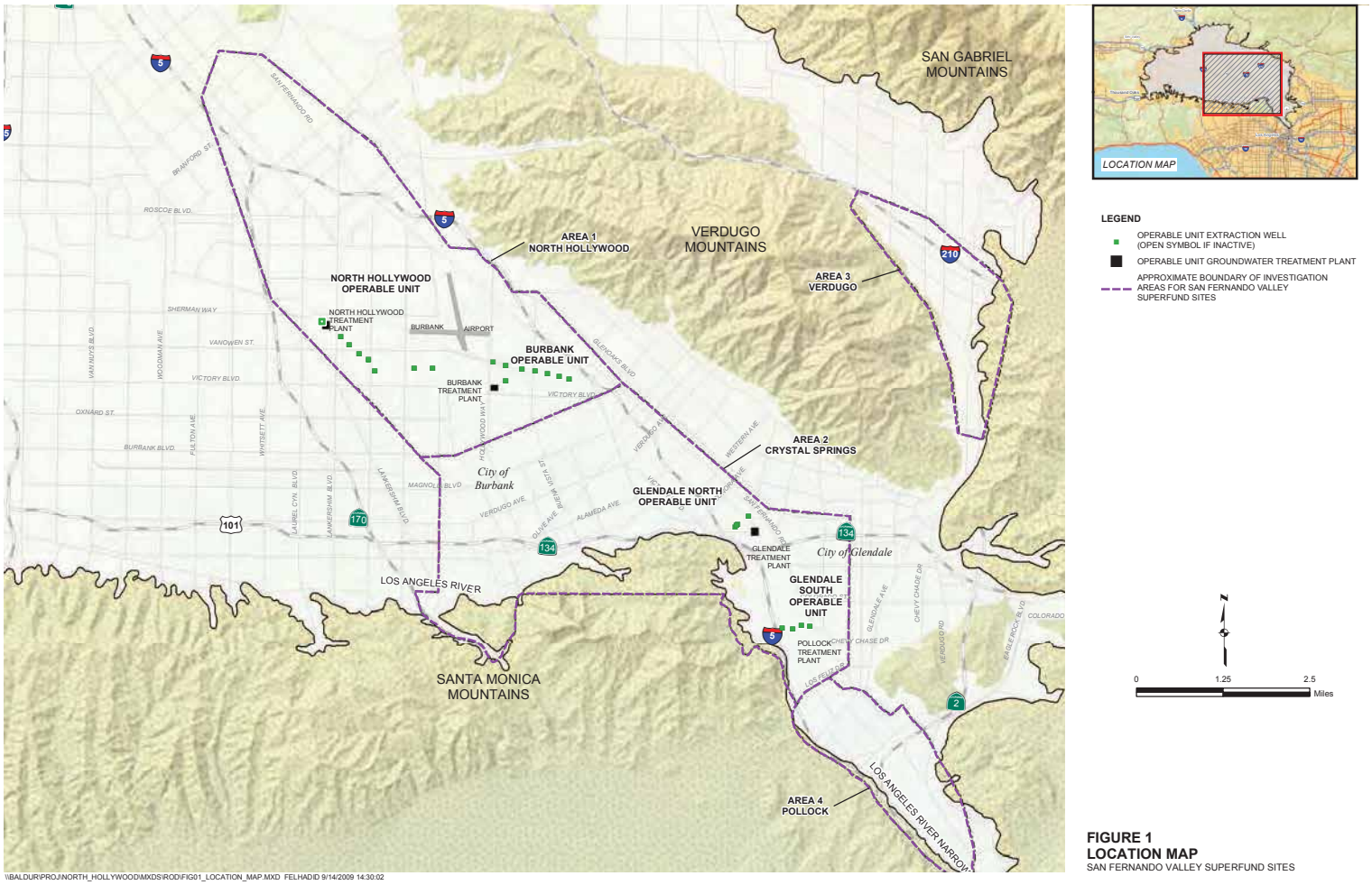
G 24 = capital cost.

Even though Honeywell's approach is the same as EPA's, Honeywell's NPV 7% value, based on the formula above, is $5.7 million vs. EPA's value of $4.7 million. Please verify the basis for EPA's calculation. Also, note that in ***Attachment 2*** of this letter, we did not change the NPV for EPA's alternative.

Response: Based on the information presented in the comment the Honeywell NPV calculation assumes a 26-year discount period for this component starting the first year of construction. The NPV calculated in the FFS assumed a 27-year discount period that starts three years after construction of the rest of the extraction and treatment system. In other words, the NPV of the 1,4-dioxane treatment system is further discounted due to the delay in its construction.

47. Appendix E of the FFS and Figure 2-1 both identified selected "Facility Locations" (i.e., potential sources). The listed locations tend to be Sites where a known release has occurred (i.e., soil or groundwater data exists confirming a release) but the list appears to be incomplete. Lockheed Building 528 and Hangar 22 are not mentioned. Also, several of the smaller degreaser/plating operations identified by MWH Americas, Inc. (MWH) were not included (i.e., Skipower Plating, AAA Plating, Caravan Fashions, F&H Plating, Nickel Solutions Recycling, Electromatic, etc.). Honeywell has also identified other entities that are known to have impacted the subsurface. These entities are provided in ***Attachment 4***.

Response: The source areas were mentioned only as a reference. The EPA acknowledges that there is ongoing work for source identification, and the intent is to identify and address as many sources as possible in the NHOU.



\\BALDUR\PROJ\NORTH_HOLLYWOOD\MXDS\ROD\FIG01_LOCATION_MAP.MXD FELHADID 9/14/2009 14:30:02

FIGURE 1
LOCATION MAP
SAN FERNANDO VALLEY SUPERFUND SITES

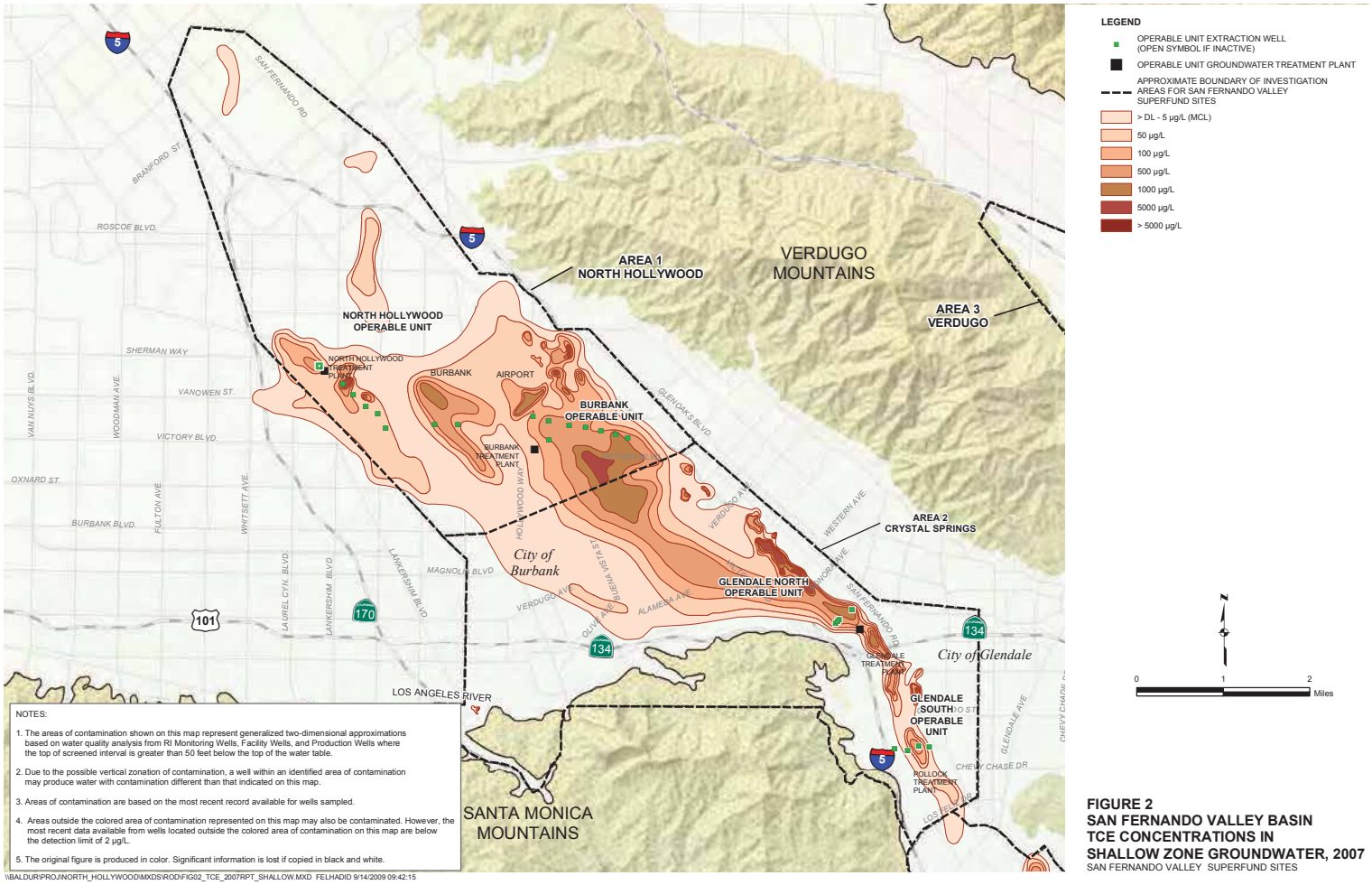
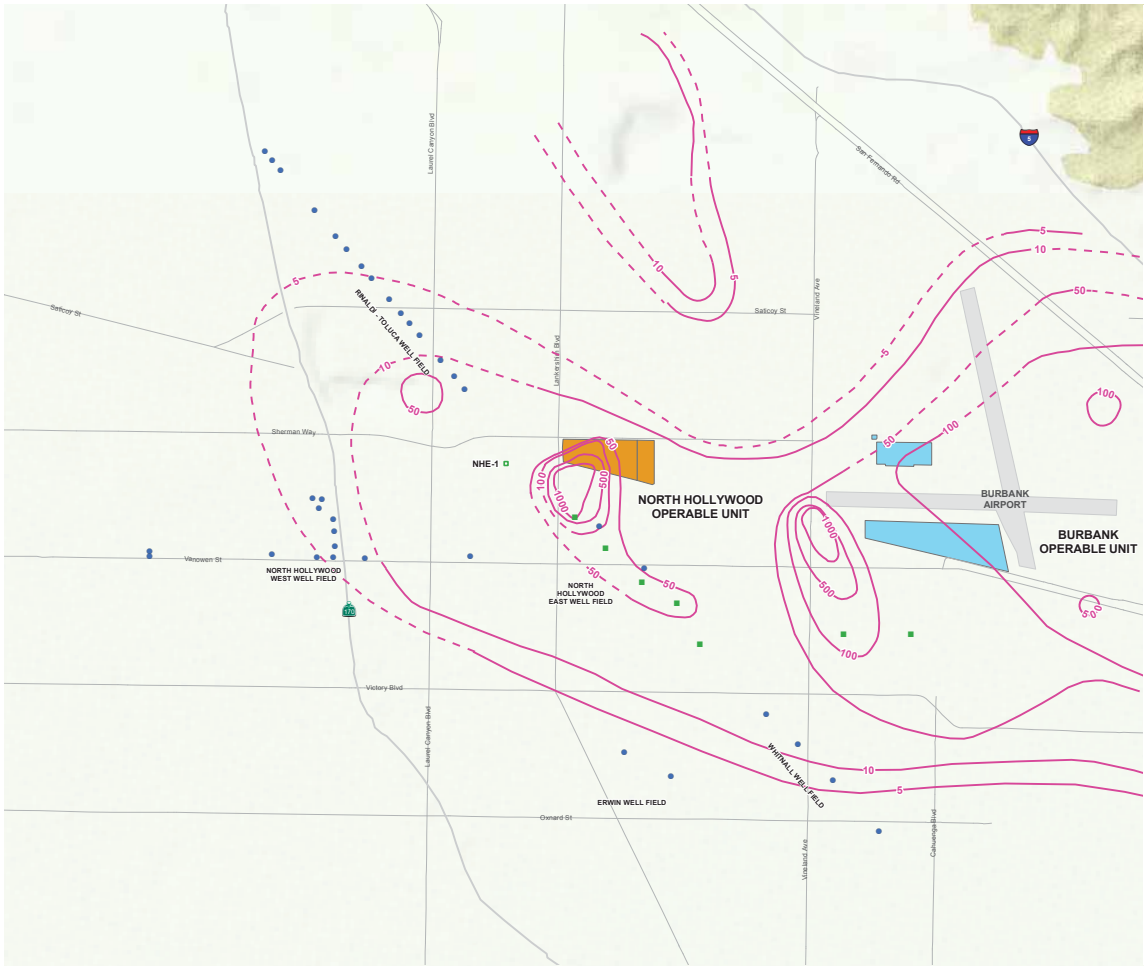


FIGURE 2
SAN FERNANDO VALLEY BASIN TCE CONCENTRATIONS IN SHALLOW ZONE GROUNDWATER, 2007
SAN FERNANDO VALLEY SUPERFUND SITES



\\BALDUR\PROJ\NORTH_HOLLYWOOD\MXDS\ROD\FIG03_MAX_TCEPCE_DEPTH1.MXD FELHADID 9/14/2009 09:49:07

LEGEND

- NHOU EXTRACTION WELL (OPEN SYMBOL IF INACTIVE)
- PRODUCTION WELL

LOCATION OF SELECTED FACILITY

- FORMER BENDIX FACILITY
- LOCKHEED
- CONTOUR OF TCE AND PCE CONCENTRATIONS (µg/L) (DASHED WHERE APPROXIMATE) MCL FOR TCE AND PCE IS 5 µg/L
- MAJOR ROADS
- HIGHWAYS

NOTES:

1. THE MAXIMUM RESULTS SHOWN ARE FROM SAMPLES COLLECTED JANUARY 2003 THROUGH DECEMBER 2007.
2. THE MAXIMUM OF EITHER TCE OR PCE AT EACH LOCATION WAS USED TO GENERATE THE CONTOURS.

0 2,000 4,000 Feet

N

FIGURE 3
MAXIMUM CONCENTRATION OF TCE AND PCE IN GROUNDWATER, DEPTH REGION 1
SAN FERNANDO VALLEY SUPERFUND SITES

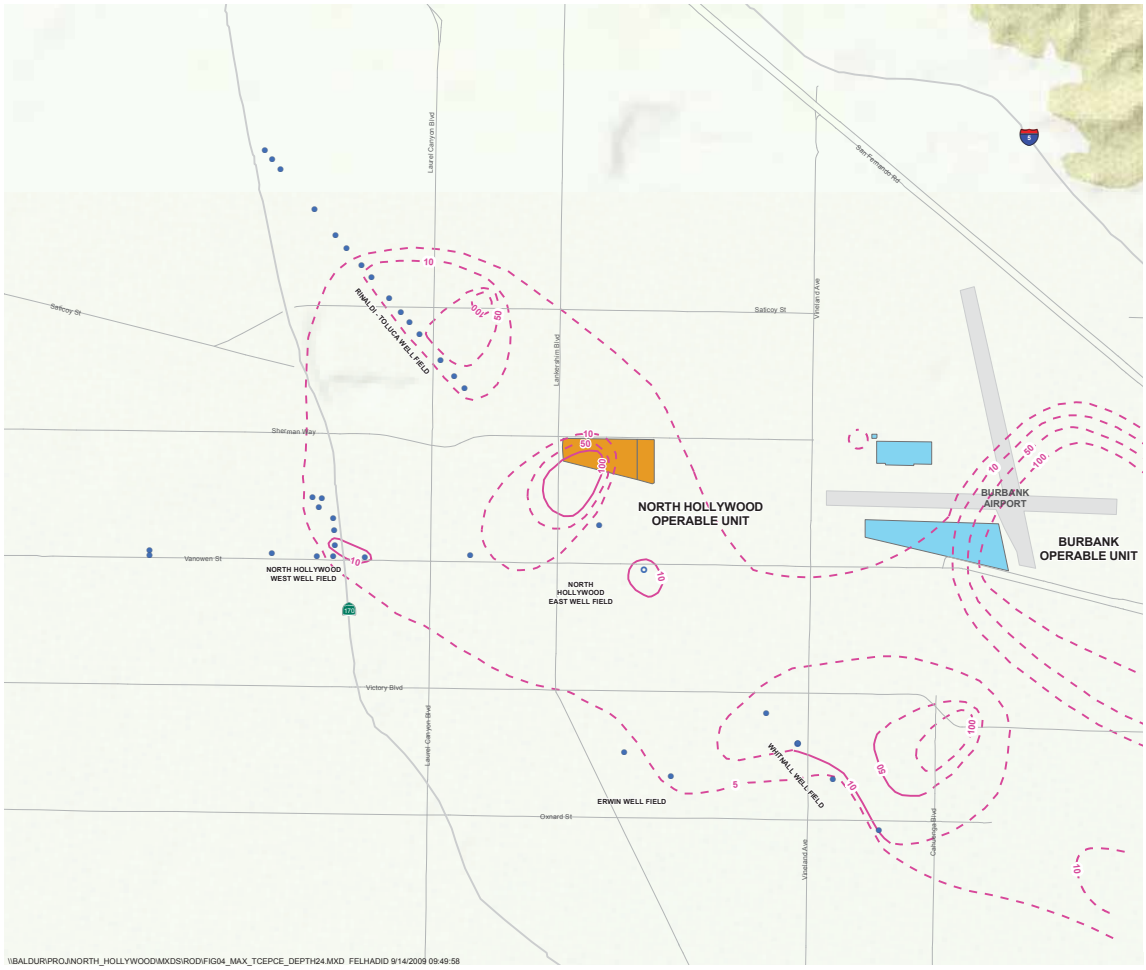
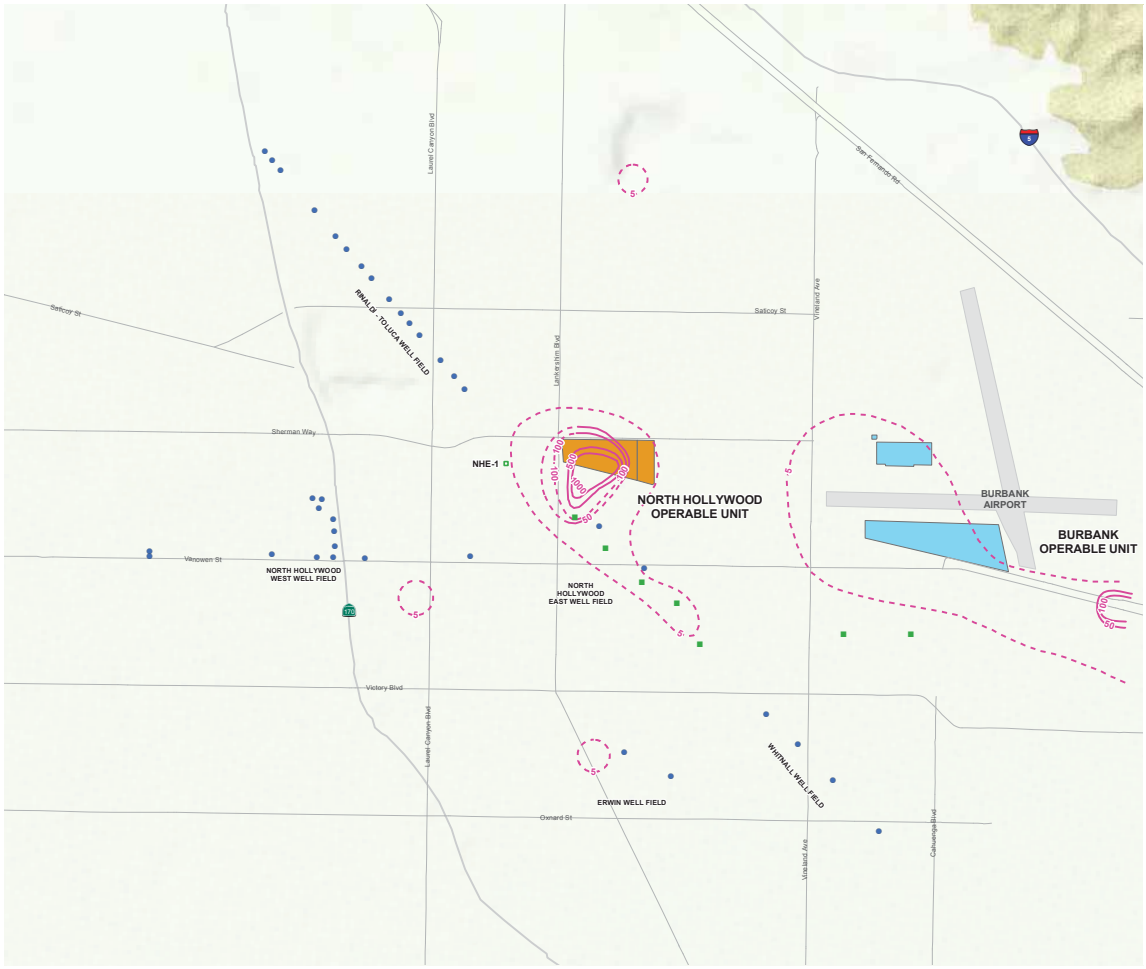


FIGURE 4
MAXIMUM CONCENTRATION OF TCE AND PCE IN GROUNDWATER, DEPTH REGIONS 2 THROUGH 4
SAN FERNANDO VALLEY SUPERFUND SITES



RDD \\BALDUR\PROJ\NORTH_HOLLYWOOD\MXDS\ROD\FIG05_MAX_CRCR6_DEPTH1.MXD MSCHROCK 9/8/2009 16:36:21

FIGURE 5
MAXIMUM CONCENTRATION OF CHROMIUM IN GROUNDWATER, DEPTH REGION 1
SAN FERNANDO VALLEY SUPERFUND SITES

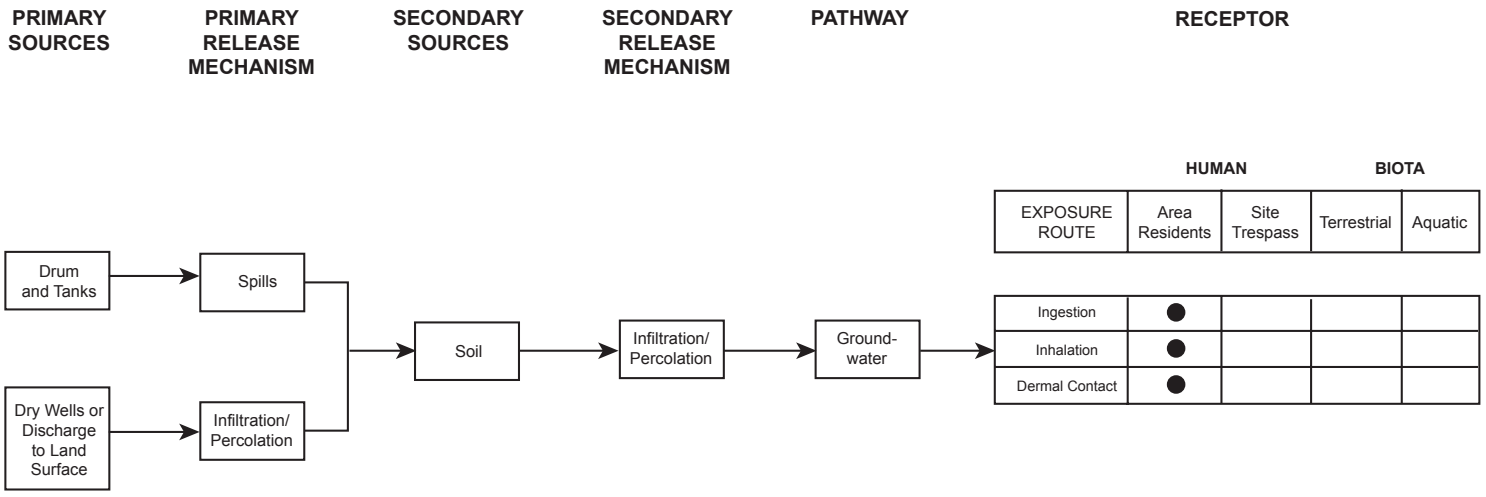
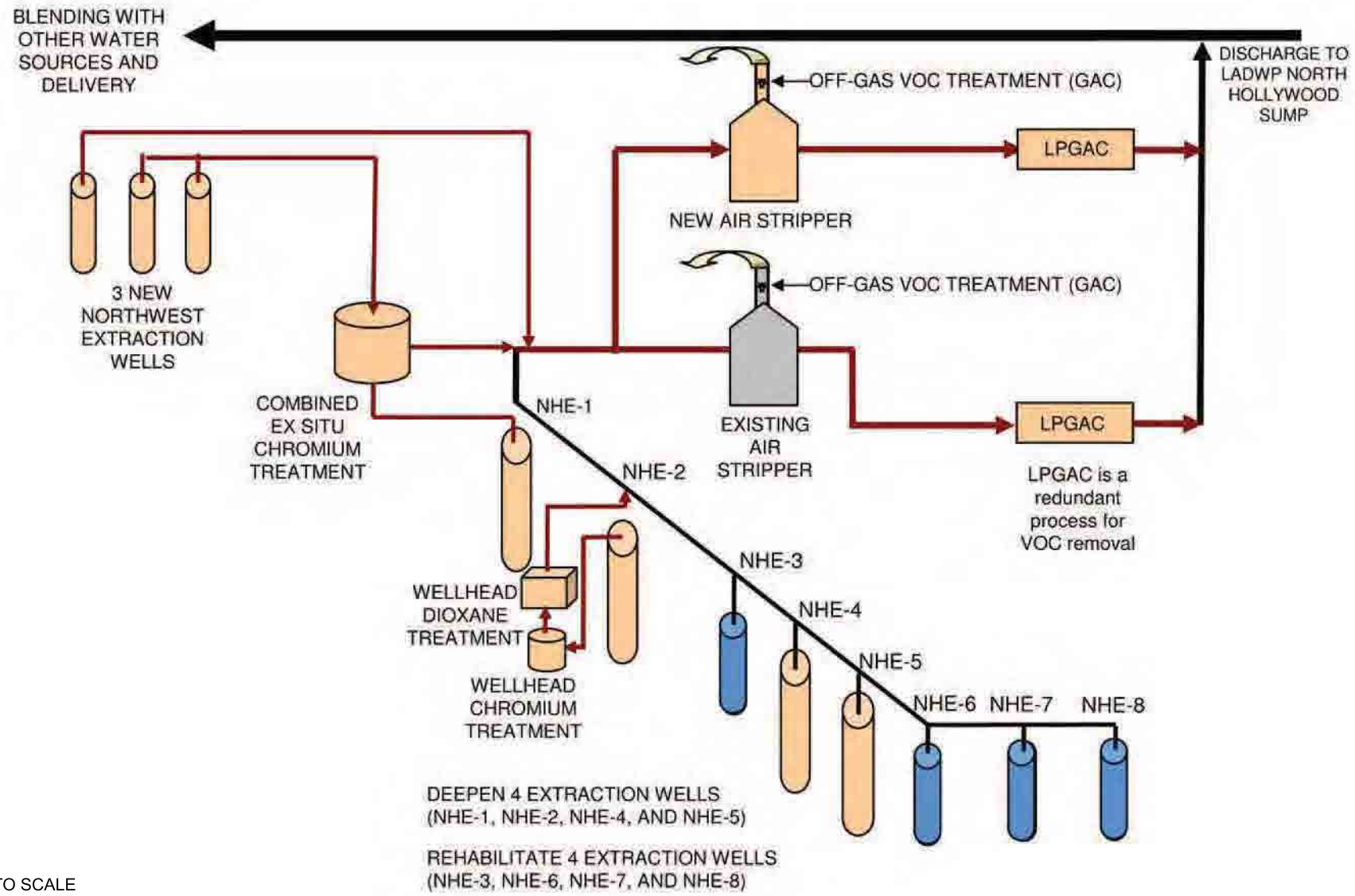


FIGURE 6
CONCEPTUAL SITE MODEL
SAN FERNANDO VALLEY SUPERFUND SITES

ES092209222300_05 (9/22/09)



NOT TO SCALE

FIGURE 7
SCEHMATIC LAYOUT OF SELECTED REMEDY (ALTERNATIVE 4a)
SAN FERNANDO VALLEY SUPERFUND SITES

FIG16_ALT4ASCHEMATIC.PSD

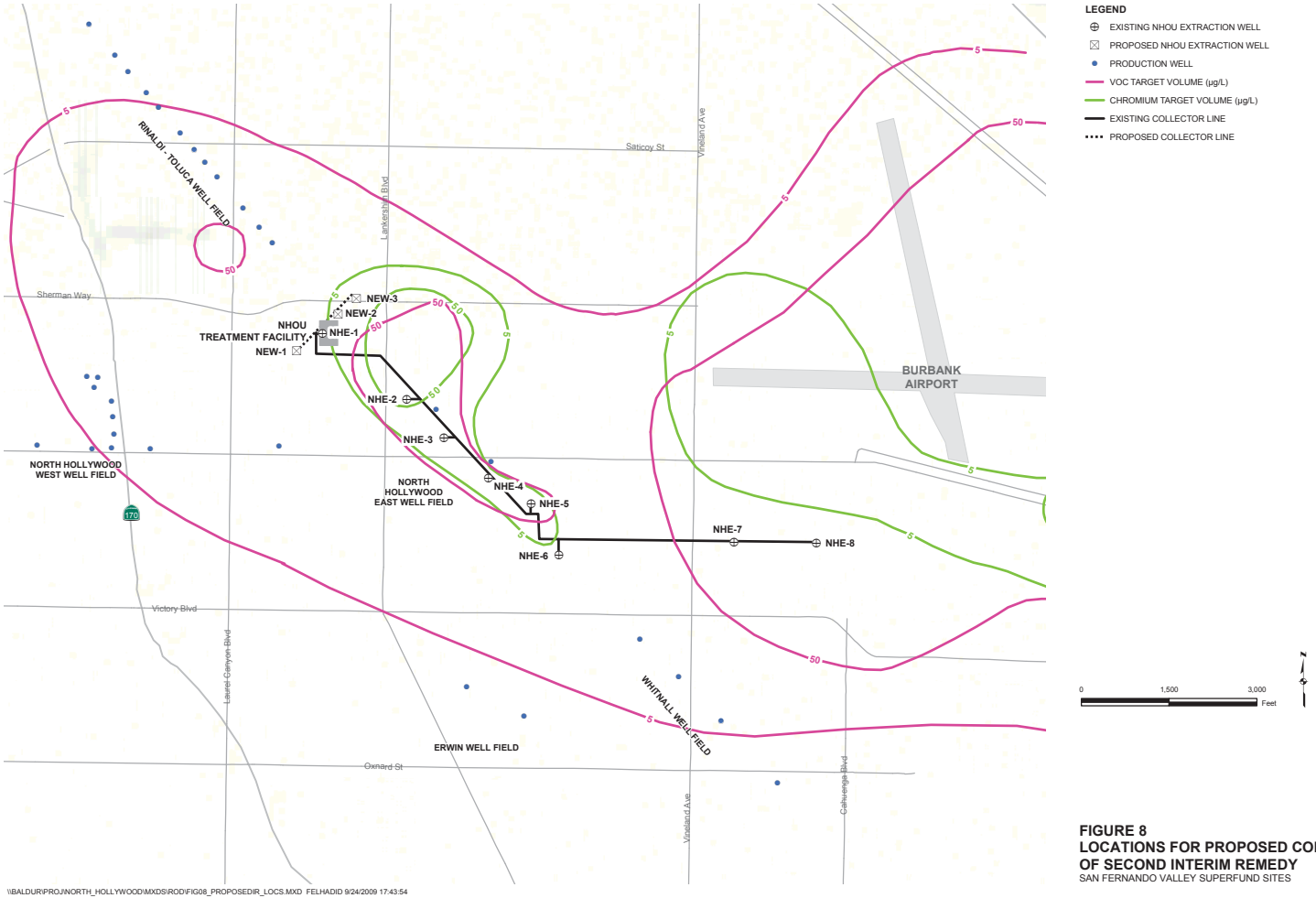


FIGURE 8
LOCATIONS FOR PROPOSED COMPONENTS OF SECOND INTERIM REMEDY
SAN FERNANDO VALLEY SUPERFUND SITES

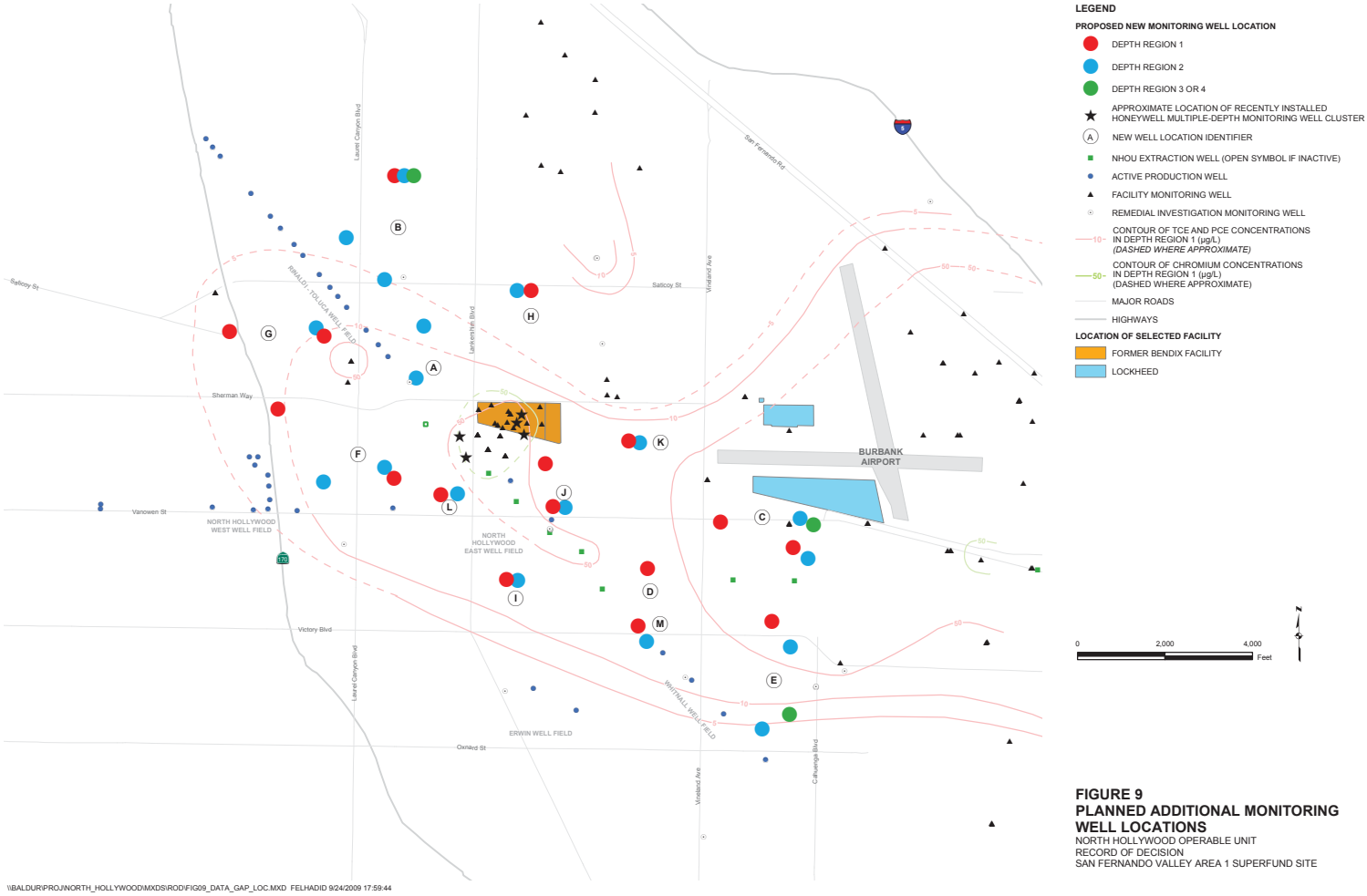


FIGURE 9
PLANNED ADDITIONAL MONITORING WELL LOCATIONS
NORTH HOLLYWOOD OPERABLE UNIT
RECORD OF DECISION
SAN FERNANDO VALLEY AREA 1 SUPERFUND SITE

EPA Superfund

Amendment to the 2009 Interim Action Record of Decision

North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

January 10, 2014

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Amendment to the
2009 Interim Action Record of Decision
for the
North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

January 10, 2014

United States Environmental Protection Agency

Region IX – San Francisco, California

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Table of Contents

List of Tables

List of Figures

List of Appendices

Acronyms and Abbreviations

1987 ROD	Record of Decision for a Remedial Action for Area 1 of the San Fernando Valley Superfund sites
2009 ROD	EPA Superfund Interim Action Record of Decision: North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, Los Angeles, California
µg/L	micrograms per liter
ARAR	Applicable or Relevant and Appropriate Requirements
Basin Plan	Water Quality Control Plan, Los Angeles Region
bgs	below ground surface
BOU	Burbank Operable Unit
CCR	California Code of Regulations
CDPH	California Department of Public Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
DTSC	State of California Department of Toxic Substances Control
DWR	Department of Water Resources
EPA	U.S. Environmental Protection Agency
FFS	Focused Feasibility Study, North Hollywood Operable Unit, San Fernando Valley Area 1 Superfund Site, Los Angeles County, California
First Interim Remedy	the existing NHOU interim remedy
gpm	gallons per minute
Honeywell	Honeywell International Inc.
IC	institutional controls
LADWP	Los Angeles Department of Water and Power
LPGAC	liquid phase granular activated carbon
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NDMA	n-nitrosodimethylamine
NHOU	North Hollywood Operable Unit
NL	notification level
NPDES	National Pollutant Discharge Elimination System
NPV	net present value
O&M	operation and maintenance
OEHHA	Office of Environmental Health Hazard Assessment

OU	Operable Unit(s)
PCE	tetrachloroethylene (also known as perchloroethylene)
PHG	California Public Health Goal
PRP	Potentially Responsible Party
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RD	remedial design
ROD	Record of Decision
RODA	Amendment to the 2009 Interim Action Record of Decision
RWQCB	Los Angeles Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SDWA	Safe Drinking Water Act
SFV	San Fernando Valley
Site	North Hollywood Operable Unit (NHOU) of the San Fernando Valley (SFV) (Area 1) Superfund Site
State	State of California
TBC	To-Be-Considered
TCE	trichloroethylene
TCP	1,2,3-trichloropropane
ULARA	Upper Los Angeles River Area
U.S.C.	United States Code
VOC	volatile organic compound.

Part 1
Declaration

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Part 1 – Declaration

1.1 Site Name and Location

The North Hollywood Operable Unit ("NHOU") of the San Fernando Valley ("SFV") (Area 1) Superfund Site ("Site") is located in Los Angeles County, California (CERCLIS ID No. CAD980894893).

1.2 Statement of Basis and Purpose

On September 30, 2009, the United States Environmental Protection Agency ("EPA") issued an Interim Action Record of Decision ("2009 ROD"), selecting a second interim remedy for the NHOU ("2009 Remedy" or "Second Interim Remedy"). This document, the Amendment to the 2009 Interim Action Record of Decision ("RODA"), amends the 2009 ROD. In doing so, it leaves the groundwater extraction and treatment system selected in the 2009 ROD unchanged, but adds a second end-use option (re-injection), which will allow for remedy implementation with an end use that either delivers the treated water to the Los Angeles Department of Water and Power ("LADWP") for use in its domestic water supply system (as selected in the 2009 ROD) or re-injects it back into the aquifer.

The 2009 Remedy, in combination with the RODA that adds a second end-use option (together referred to as the "Amended Remedy"), was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), as amended by the Superfund Amendments and Reauthorization Act, and in a manner that is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"). The decision to amend the 2009 Remedy is based on the information available in the administrative record for the Site. The RODA has been prepared following the procedures specified in CERCLA Section 117 and Section 300.435(c)(2)(ii) of the NCP. In accordance with Section 300.825(a)(2) of the NCP, this RODA will become part of the administrative record for the site. The State of California ("State") concurs with the Amended Remedy.

The 2009 ROD specified that the end use for groundwater treated by the Second Interim Remedy would consist of delivery to LADWP for use in its domestic water supply system. EPA has concluded that re-injection of the treated groundwater might be necessary if LADWP and the NHOU potentially responsible parties ("PRPs") are unable to reach an agreement that is acceptable to EPA regarding terms for delivery and acceptance of the treated water. The Amended Remedy, which allows re-injection of treated groundwater back into the SFV groundwater aquifer, ensures that EPA has the flexibility to design the most effective remedy and implement that remedy without significant delay in the event that LADWP and the NHOU PRPs are unable to reach agreement. Although this RODA allows re-injection as an additional end-use option, it does not specify which end use will be implemented. Consequently, both the drinking water and the re-injection end uses are considered part of EPA's Preferred Alternative in the Amended Remedy.

Consistent with the Second Interim Remedy, the scope of the Amended Remedy does not include restoration of the aquifer (i.e., removal of all manmade contaminants), in part because additional data are needed in some areas of the aquifer where the extent of contamination must be better defined before EPA can determine what additional actions, if any, are needed to address these other areas of groundwater contamination. In the meantime, EPA considers it important to implement the Amended Remedy as soon as practicable in order to prevent further migration of the known high-concentration contaminant plumes, as described above, and to collect additional data to evaluate the need for (and scope of) further action.

1.3 Assessment of the Site

EPA has determined that hazardous chemicals have been released into groundwater within the NHOU, and that a substantial threat of release to groundwater still exists. The response action selected in this RODA is necessary to ensure that the groundwater extraction and treatment components of the 2009 Remedy can be implemented and that the public health or welfare or the environment can be protected from actual or threatened releases of hazardous substances into the environment.

1.4 Description of the Amended Remedy

The Amended Remedy includes the groundwater extraction and treatment technology, institutional controls ("ICs"), and groundwater monitoring selected in the 2009 Remedy, and provides an additional end-use option (re-injection) that will allow for the remedy to be implemented by either delivering the treated water to LADWP for use in its domestic water supply system (as selected in the 2009 ROD) or re-injecting it back into the aquifer.

The eastern region of the SFV is characterized by a continuous plume of volatile organic compound ("VOC") contamination that starts in the SFV (Area 1) Superfund Site, and continues downgradient in a generally southeast direction through the SFV (Area 2 and Area 4) Superfund Sites. The NHOU comprises the western portion of Area 1; to the east of the NHOU, still within Area 1, is the Burbank Operable Unit ("BOU"), where an interim pump-and-treat remedy has been in place and operating since 1996. In the future, following additional plume characterization, evaluation of the performance of the Amended Remedy, and an evaluation of the existing BOU remedy, EPA will select a final remedy for the SFV (Area 1) Superfund Site.

1.5 Statutory Determinations

The Amended Remedy, implementing either end-use option, is protective of human health and the environment, complies with federal and State requirements that are applicable or relevant and appropriate to the remedial action, is cost effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

The Amended Remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment), in accordance with CERCLA §121.

Because hazardous substances, pollutants, or contaminants have continued to be present on-site (i.e., in groundwater) above levels that allow for unlimited use and unrestricted exposure since the NHOU First Interim Remedy was implemented in 1989, EPA has conducted five statutory five-year reviews at the NHOU pursuant to CERCLA §121. Because the Amended Remedy will also result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the Amended Remedy to ensure that it is, or will be, protective of human health and the environment.

1.6 ROD Certification Checklist

The following information is presented in the Decision Summary section (Part 2 of this RODA). Additional information can be found in the administrative record file for the NHOU.

- Contaminants of concern ("COCs") and their respective concentrations (see Section 2.5.5)
- Baseline risk represented by the COCs (see Section 2.7 in the 2009 ROD)
- Performance standards established for the COCs and the basis for these levels (see Section 2.5.9)
- Current and potential future beneficial uses of groundwater used in the baseline risk assessment and RODA (see Sections 2.6 and 2.7 in the 2009 ROD and Section 2.5.4 in the RODA)
- Potential groundwater use that will be available at the Site as a result of the selected remedy (see Section 2.5)
- Estimated capital, operation and maintenance ("O&M"), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (see Section 2.5.6)
- Key factors that led to selecting the amended remedy (i.e., how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria) (see Section 2.6)

1.7 Authorizing Signature

This RODA documents an amendment of the Second Interim Remedy, which addresses contaminated groundwater at the North Hollywood Operable Unit of the San Fernando Valley (Area 1) Superfund Site. The Amended Remedy was selected with the concurrence of the California Department of Toxic Substances Control ("DTSC"). The Assistant Director of the Superfund Division (EPA, Region 9) has been delegated the authority to approve and sign this RODA.

Kathleen Salyer
Assistant Director, Superfund Division
California Site Cleanup Branch

1/10/14
Date

Part 2
Decision Summary

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Part 2 – Decision Summary

2.1 Site Name, Location, and Description

The NHOU is one of two geographically defined operable units ("OUs") within the SFV (Area 1) Superfund Site. The NHOU comprises approximately 4 square miles of contaminated groundwater underlying an area of mixed industrial, commercial, and residential land uses in the community of North Hollywood (a district of the City of Los Angeles). The NHOU is approximately 15 miles north of downtown Los Angeles and immediately west of the City of Burbank, and has approximate site boundaries of Sun Valley and Interstate 5 to the north, State Highway 170 and Lankershim Boulevard to the west, the Burbank Airport to the east, and Burbank Boulevard to the south (see Figure 1).

The EPA is the lead agency for the current and planned future groundwater remedial activities at the NHOU. The EPA's response activities at the NHOU are and have been conducted under the authority established in the federal Superfund law, CERCLA, as amended, 42 United States Code ("U.S.C.") §9601 et seq. The lead State agency is the DTSC. The Los Angeles Regional Water Quality Control Board ("RWQCB") has provided and continues to provide substantial support, particularly with the investigation and cleanup of sources of contamination in the SFV. The expected source of cleanup monies for the NHOU is an enforcement settlement with the PRPs.

2.2 Site Background

This section provides a brief summary of the background of the 2009 Remedy. More details regarding site history, characteristics, risks, remedial action objectives, and alternatives considered are provided in the 2009 ROD.

EPA and LADWP have been involved in addressing groundwater contamination in the NHOU since 1981, when LADWP and the Southern California Association of Governments, funded by EPA, performed a study titled *Groundwater Management Plan—San Fernando Valley Basin,* to investigate widespread groundwater contamination in the SFV. The primary groundwater contaminants of concern in the SFV at that time were trichloroethylene ("TCE") and tetrachloroethylene ("PCE"; also known as perchloroethylene). These VOCs are commonly used as industrial solvents.

To address the widespread groundwater contamination in the SFV, EPA placed four SFV sites (or Areas) on the National Priorities List in 1986. These four Superfund sites are referred to as:

- SFV Area 1 - North Hollywood, which includes the NHOU and the BOU;
- SFV Area 2 - Crystal Springs, which includes the Glendale North OU, the Glendale South OU, and the Glendale Chromium OU;
- SFV Area 3 - Verdugo;

- SFV Area 4 - Pollock.

EPA has focused its resources on addressing the regional groundwater contamination, while the State (primarily through the RWQCB) has had the primary role for soil cleanup work at the numerous VOC sources that caused the groundwater contamination.

The first interim Record of Decision for the NHOU ("1987 ROD") was signed in September 1987. The 1987 ROD selected an interim remedy to address VOC-contaminated groundwater in the North Hollywood area ("First Interim Remedy"). The objective of the selected remedy was to slow down or arrest the migration of the contaminant plume at the North Hollywood-Burbank well field and remove contaminant mass.

Under the First Interim Remedy, the movement of groundwater in the aquifer is controlled by utilizing a series of extraction wells that pump contaminated groundwater from the SFV aquifer. After the water is extracted from the SFV aquifer, it is treated to remove contamination. The NHOU treatment plant removes VOCs from the extracted groundwater using air stripping, with granular activated carbon filters used to remove VOCs from the process air before it is discharged to the atmosphere. The treated water meets drinking water standards for COCs and is delivered via pipeline to the LADWP water supply system, where it is blended with water from other sources and distributed through the water supply system for the City of Los Angeles.

The First Interim Remedy has limited contaminant migration and removed contaminant mass from groundwater in the NHOU. However, changing groundwater conditions in the aquifer and the discovery of VOC contamination in new areas of the aquifer beneath North Hollywood limit the ability of the First Interim Remedy to fully contain the VOC plume. In addition, emerging contaminants, including hexavalent chromium and 1,4-dioxane, in excess of the State maximum contaminant level ("MCL") for total chromium and the California Department of Public Health ("CDPH") notification level ("NL") for 1,4-dioxane impacted or threatened to impact a number of NHOU extraction wells. Chromium contamination in the NHOU is shown in Figure 1. In response to the continued migration of VOC-contaminated groundwater and the presence of chromium and other emerging contaminants in the NHOU, EPA conducted a Focused Feasibility Study ("FFS"), completed in 2009, to evaluate alternatives for improving the groundwater remedy. The FFS presented a range of alternatives for addressing the contaminants in groundwater, as well as options for the end use of the treated water.

The Second Interim Remedy, selected in the 2009 ROD, includes construction of new extraction wells, chromium and 1-4 dioxane treatment, expanded VOC treatment, and continued delivery of the treated water to LADWP's municipal water supply system.

2.3 Community Participation

After listing the SFV Area 1 Superfund Site on the NPL, EPA developed a Community Involvement Plan that outlined the types of activities envisioned to keep the local community informed. Throughout its involvement in the SFV, EPA has kept State agencies, cities, businesses, residents, and property owners in and near the SFV Superfund sites informed of its activities and the results of its studies via periodic newsletters. These newsletters and other

documents referred to in this RODA are available to the public as part of the Administrative Record file at the EPA Region 9 Superfund Records Center in San Francisco, California. The Administrative Record is also available for public review at the following information repositories:

- City of Los Angeles Central Library, Science & Technical Department: 630 West 5th Street, Los Angeles, CA, 90071
- North Hollywood Regional Branch Library, 5211 Tujunga Avenue, North Hollywood, CA, 91601
- Burbank Public Library, Central Library, 110 North Glen Oaks Boulevard, Burbank, CA, 91502
- Glendale Public Library, 222 East Harvard Street, Glendale, CA, 91205

The Proposed Plan for the RODA was made available to the public on May 1, 2013, in accordance with 40 Code of Federal Regulations ("CFR") §300.435(c)(2)(ii). EPA held a public meeting in North Hollywood on June 5, 2013, to present the Proposed Plan for the RODA to the community and other NHOU stakeholders. The public was notified of this meeting through a public notice published in the Los Angeles Daily News on May 15, 2013, a flyer sent to the NHOU mailing list, and an email notice sent to State and local agencies, elected officials, PRPs and other stakeholders. The original public comment period on the Proposed Plan for the RODA was from May 13 to June 13, 2013. An extension to the public comment period was requested by the PRPs shortly after the Proposed Plan was made available, to provide sufficient time for review and preparation of comments; as a result, the public comment period was extended to July 11, 2013. The public was notified of this extension through a public notice published in the Los Angeles Daily News on June 3, 2013, a flyer sent to the NHOU mailing list, and an email notice sent to State and local agencies, elected officials, PRPs and other stakeholders. EPA's responses to the comments received during this period are included in the Responsiveness Summary, which is Part 3 of this RODA.

2.4 Remedial Action Objectives

The remedial action objectives ("RAOs") for the Amended Remedy are unchanged from those set forth in the 2009 ROD:

- Contain areas of contaminated groundwater that exceed the MCLs and notification levels to the maximum extent practicable.
- Prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production wells by preventing the migration toward these well fields of the more highly contaminated areas of the VOC plume located to the east/southeast.
- Achieve improved hydraulic containment to inhibit horizontal and vertical contaminant migration in groundwater from the more highly contaminated areas and depths of the aquifer to the less contaminated areas and depths of the aquifer, including the southeast portion of

the NHOU in the vicinity of the Erwin and Whitnall production well fields.

- Remove contaminant mass from the aquifer.

2.5 Amended Remedy

2.5.1 Summary of 2009 Remedy

EPA's selected remedy in the 2009 ROD was FFS Alternative 4a, which included: construction of new extraction wells; modification/rehabilitation of several existing extraction wells; expanded VOC treatment; chromium treatment for extraction wells NHE-1, NHE-2, and two new extraction wells; installation of additional monitoring wells; ICs; and use of the treated water in LADWP's water supply system.

2.5.2 Summary of the Amended Remedy

The Amended Remedy is very limited in its scope; the only component of the 2009 Remedy that is impacted by the RODA is the end use of the groundwater following treatment. Otherwise, the 2009 Remedy is unchanged, including construction of an estimated three new extraction wells; modification/rehabilitation of several existing extraction wells; and expanded VOC and chromium treatment for extraction wells NHE-1, NHE-2, and two of the new extraction wells. Rather than limiting the end use to delivery of water to LADWP following the treatment process selected in the 2009 Remedy, the RODA adds to the remedy the option of re-injecting the treated water back into the aquifer. The exact number, locations, and pumping rates for the groundwater injection wells will be finalized during remedial design ("RD").

2.5.3 Rationale for Amending the 2009 Remedy

Since issuance of the 2009 ROD, EPA has engaged in negotiations with both the NHOU PRPs and LADWP regarding implementation of the 2009 Remedy. As these negotiations have progressed, EPA realized that LADWP and the NHOU PRPs may be unable to reach an agreement that is acceptable to EPA regarding the terms and criteria for delivery and acceptance of treated groundwater for use in LADWP's drinking water supply system. If an acceptable agreement is not reached between LADWP and the PRPs and the treated water cannot be reliably delivered to LADWP, water extracted from all remedy wells will have to be re-injected in order to ensure that the Second Interim Remedy can effectively operate.

2.5.4 Summary Evaluation of the Nine Criteria for the Amended Remedy

Based on the information currently available, EPA believes that the Amended Remedy, incorporating either proposed end-use option, meets the NCP's threshold criteria and provides the best balance of trade-offs when compared to the other alternatives evaluated in the 2009 ROD. The installation of additional extraction wells, modification of existing extraction wells, and expansion of the VOC treatment system will significantly improve plume capture and prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production well fields. Regardless of which end use is implemented, the Amended Remedy will result in permanent and significant reduction in the mobility and volume of VOCs in groundwater in the NHOU. The addition of chromium and 1,4-dioxane treatment at selected

extraction wells will ensure that the Amended Remedy meets all requirements for use of the treated water in LADWP's water supply system or for re-injection, and it will also significantly reduce the possibility that extraction wells would have to shut down or be pumped at decreased rates as a result of increases in chromium concentrations. Delivery of treated water to LADWP would result in significantly lower cost than re-injection. However, if delivery of treated water to LADWP is not possible, then re-injection would be a viable option to meet the RAOs for the Amended Remedy.

If LADWP and the NHOU PRPs, after negotiating in good faith, (1) have not come to an agreement on the terms for the delivery and acceptance of treated groundwater satisfying EPA that the remedy will be able to operate reliably and effectively and (2) such an agreement has not been reached sufficiently far in advance of remedial design completion so that the end use to be implemented can be incorporated into a final design, EPA will make the decision to proceed with re-injection as the end use so that the remedy can be implemented in a timely manner.

2.5.5 Description of the Amended Remedy

The following is a description of the Amended Remedy. Other than the addition of the option to re-inject treated water as an end use, the major components of the Amended Remedy are identical to the 2009 Remedy. All differences between the Amended Remedy and the 2009 Remedy (which are limited to the alternate end-use option) are identified in **bold text**. Figure 2 schematically illustrates the major components assuming implementation of delivery of the treated water to LADWP as the end-use option. Figure 3 schematically illustrates the major components assuming implementation of re-injection as the end-use option. Although the EPA does not expect significant changes to this remedy, there may be some level of modification during the RD and construction processes if implemented under either end-use option. RD and construction of the Amended Remedy is expected to be completed in 2017. Achievement of the RAOs for the Amended Remedy is expected to occur shortly after system operation commences. Because the RAOs are focused primarily on hydraulic containment, the Amended Remedy is expected to continue operating until a final remedy for the NHOU is selected and implemented. For cost estimating purposes, the Second Interim Remedy was assumed in the FFS to operate for 30 years. Any changes to the remedy described in this RODA would be adopted and documented as appropriate and consistent with the applicable regulations.

Institutional Controls

Governmental controls in place in the SFV act as effective ICs to prevent the public's exposure to contaminated groundwater. The primary governmental control is the 1979 Final Judgment in the Superior Court of California, County of Los Angeles, (Superior Court Case No. 650079) in the case titled The City of Los Angeles vs. City of San Fernando, et al. The final judgment created the entity known as "Watermaster" with full authority to administer the adjudication of water rights, under the auspices of the Superior Court.

Under the final judgment, only the cities of Los Angeles, Burbank, and Glendale are permitted to extract groundwater from the SFV Basin ("Basin"). Each of these municipalities administers a public drinking water system, which is regulated and subject to permits issued by the CDPH. These drinking water regulatory controls and the Watermaster's authority to regulate and allocate

water resources ensure centralized control over area groundwater and its use as a drinking water source.

However, certain municipal groundwater-supply pumping scenarios could interfere with the effectiveness of the Amended Remedy under either end-use option. In order to address this issue, an additional IC is necessary, wherein EPA, LADWP, and the NHOU PRPs work together to develop and implement a groundwater management plan that would protect the effectiveness and integrity of the NHOU remedy while being consistent with LADWP's drinking water production requirements. The groundwater management plan is expected to provide for regular sharing of relevant groundwater data and pumping rate projections, planning for groundwater use, and a decision-making process to address any potential conflicts between the LADWP's pumping plans and the performance of the remedy. To ensure that the groundwater management plan and the implementation mechanisms for that plan are an effective IC, a formal agreement is currently being developed between EPA and LADWP.

Groundwater and Treatment System Monitoring

Regardless of which end-use option is implemented, approximately 37 new monitoring wells will be installed. Honeywell International Inc. ("Honeywell") has already installed most of these wells, in coordination with the EPA. **If the re-injection end-use option is implemented, an estimated nine additional monitoring wells will be required in order to monitor impacts on groundwater levels and quality around and downgradient from the injection wells.** Details regarding number and location of additional monitoring wells required for the re-injection end-use option will be developed during the RD process.

Monitoring of groundwater levels and groundwater quality in the monitoring wells will allow for evaluation of contaminant plume migration and the effectiveness of the selected remedial actions. The specific monitoring objectives that were used to develop a modified groundwater monitoring network as part of the Amended Remedy include the following:

- Fill key data gaps to adequately characterize the lateral and vertical extent of contaminant plumes and known hotspot areas and their relationship to known source areas.
- Provide information to monitor the progress of the remedy and to detect the migration of known COCs and emerging chemicals from known plume and hot spot areas.
- Develop the data necessary for evaluating and, as necessary, selecting future additional response actions for areas of the VOC plume that may not be captured by the Amended Remedy.

Groundwater monitoring within the NHOU is expected to include continued sampling and analysis of the new and existing EPA monitoring wells in the NHOU, selected facility monitoring wells, LADWP production wells, and extraction wells in the North Hollywood area for VOCs, chromium, emerging chemicals, and parameters indicative of geochemical conditions that may affect chromium speciation and transport.

The future sampling regimen for the new and existing monitoring wells will be determined during testing. The ongoing Basin-wide sampling program includes:

- Monthly sampling at the extraction wells and quarterly or annual sampling at the selected monitoring and production wells for VOCs, hexavalent chromium, 1,4-dioxane, and 1,2,3-trichloropropane ("TCP").
- Annual sampling of the extraction wells, selected monitoring wells, and selected production wells for dissolved metals (including total chromium), n-nitrosodimethylamine ("NDMA"), perchlorate, nitrate, common anions, alkalinity, and total dissolved solids.

Depending on the analytical results for groundwater samples collected from the new monitoring wells, construction of additional monitoring wells may be required to further delineate contaminant plumes or determine the locations for continuing sources of groundwater contamination.

Wellhead 1,4-Dioxane Treatment at Extraction Well NHE-2

Wellhead treatment for 1,4-dioxane will occur at extraction well NHE-2, where concentrations ranging from 4 to 9 micrograms per liter ("µg/L") have been detected since 2006 (the CDPH notification level for 1,4-dioxane is 1 µg/L). The treatment technology selected is the ultraviolet light and hydrogen-peroxide advanced oxidation process because it provides the most flexibility for future process modifications; however, during design, another treatment option may be selected. The 30-year O&M period for treatment of VOCs at the NHOU is assumed to also apply to wellhead 1,4-dioxane treatment at extraction well NHE-2. The estimated O&M duration will be re-evaluated if 1,4-dioxane concentrations change significantly during this period.

Replace Existing Extraction Well NHE-1

To achieve the required hydraulic containment under the Amended Remedy, replacement of existing extraction well NHE-1 with a deeper well of similar construction will be necessary. The target screened interval for a replacement for extraction well NHE-1 is from 190 to 401 feet; however, the screened interval may be adjusted during the RD phase, depending on results of future groundwater level and quality monitoring.

Replace or Repair and Modify Existing Extraction Wells NHE-2, NHE-4, and NHE-5

Replacement of extraction wells NHE-2, NHE-4, and NHE-5 with deeper wells of similar construction will likely be necessary to achieve the required hydraulic containment under the Amended Remedy. Target screened intervals for these wells are as follows:

- NHE-2: 190 to 390 feet below ground surface ("bgs")
- NHE-4: 180 to 400 feet bgs
- NHE-5: 180 to 415 feet bgs

Similar to extraction well NHE-1, the screened intervals for these wells may be adjusted during the RD phase. Alternatively, the existing wells could remain active in their present configuration, and wells with deeper screened intervals could be constructed adjacent to each existing well. These paired (deeper) wells would also be connected to the NHOU treatment plant. The pumping rates at each extraction well pair could be adjusted, depending on the depth to the water table, to maximize containment of the most contaminated aquifer zone.

Rehabilitate Existing Extraction Wells NHE-3, NHE-6, NHE-7, and NHE-8

Extraction wells NHE-3, NHE-6, NHE-7, and NHE-8 are screened at appropriate depths for plume containment and have been able to pump at or near their design pumping rates for most of the operational history of the NHOU treatment system. They are not expected to require replacement or modification at present. However, routine repair or replacement of pumps and ancillary equipment will be required as part of an ongoing O&M program to maintain design pumping rates. To ensure optimal long-term performance of these wells, it is assumed they will be rehabilitated using swabbing, surging, sand bailing, and over-pumping techniques. Additional rehabilitation efforts (e.g., acid flushing or jetting) will also be considered on a case-by-case basis, depending on results of the initial rehabilitation efforts.

Construct New Extraction Wells

Preliminary computer modeling conducted during the FFS concluded that three new extraction wells are necessary to further limit contaminant migration and to improve contaminant mass removal. A new pipeline will be required to connect the new extraction wells to the NHOU treatment plant. The exact number, location, and pumping rates for these wells are estimated and will be finalized during RD. Based on the preliminary computer modeling, these new wells ("New Northwestern Wells") should be located northwest of the existing NHOU treatment system in locations (see Figure 4) selected to prevent VOC and chromium migration toward the Rinaldi-Toluca well field and the western portion of the North Hollywood well field. The modeling also suggested that each of the New Northwestern Wells should pump at a maximum rate of 420 gallons per minute ("gpm") (350 gpm long-term average) in order to achieve the containment objective. Screened intervals for these wells are expected to be approximately 220 to 420 feet bgs, but actual intervals, as well as the number and location of the New Northwest Extraction wells, may be revised during the RD phase. Pumping rates and schedules for these wells should be optimized periodically during implementation of the Amended Remedy to achieve the desired capture zones, in consideration of pumping rates and drawdown resulting from the southern production wells in the Rinaldi-Toluca well field. Pumping rates for the three New Northwestern Wells will be evaluated and modified, if necessary, to maximize effectiveness and efficiency of the Amended Remedy. Depending on groundwater conditions (e.g., hydraulic gradients) in the NHOU, which can change on a seasonal to annual basis, it may be beneficial to temporarily reduce or stop pumping from these wells periodically. A plan for optimizing pumping rates of the NHOU extraction wells will be developed as part of the RD process.

Treatment of VOCs in Extracted Groundwater

Expansion of VOC treatment capacity at the NHOU will be necessary to treat the volume of groundwater produced by the existing NHOU extraction wells and the proposed additional extraction wells. The existing NHOU treatment plant will be augmented to accommodate peak and average pumping rates of 3,600 and 3,050 gpm respectively, and for peak VOC concentrations up to 650 µg/L of TCE and 100 µg/L of PCE. The existing air stripper will be refurbished and a second air stripper, similar in capacity to the original, will be installed and operated in parallel with the existing system. The combined maximum capacity of the two parallel air strippers will be 4,800 gpm or more at the anticipated influent VOC concentrations, allowing expansion of the extraction well network or pumping rates in the future, if necessary.

With air stripping as the primary VOC treatment process, the VOC treatment train should include the following major components:

- The air stream exiting the air stripper contains TCE and PCE and must be treated using vapor-phase granular activated carbon vessels (or an alternative technology) to remove the TCE and PCE before the air is discharged to the atmosphere.
- Untreated influent, treated effluent, and air exiting the air stripper at the NHOU treatment plant must be monitored to ensure compliance with permit requirements, ARARs, and LADWP policies.
- If delivery of treated water to the LADWP is implemented as the end-use option, a secondary VOC treatment system (such as liquid phase granular activated carbon ["LPGAC"]) is required downstream from the air strippers to meet the "double barrier" VOC treatment requirement of CDPH for delivery to a drinking water supply. LPGAC would have the additional benefit of also removing VOCs that are not readily removed by the air stripping process, most notably TCP. TCP is not currently detected in the influent to the existing NHOU extraction and treatment system, but has been detected in groundwater within the NHOU at concentrations exceeding the notification level of 0.005 µg/L. **"Double-barrier" treatment would not be necessary if the re-injection end-use option is implemented.**

Wellhead Chromium Treatment at Extraction Well NHE-2

Ex situ treatment of chromium will be required at extraction well NHE-2. In the FFS, ferrous iron reduction with microfiltration was identified as the preferred technology for a wellhead treatment system (and used for the costing). Alternatively, an anion-exchange-based treatment process could be installed, if it can be demonstrated during RD that the process is effective and does not produce excessive NDMA or other problematic organic compounds.

Ferrous iron reduction decreases total chromium concentrations by chemically reducing hexavalent chromium to trivalent chromium and co-precipitating the trivalent chromium with ferric iron. The ferric iron and trivalent chromium co-precipitate is flocculated and removed using a conventional clarifier and media filter polishing or a microfilter. The key components of a ferrous iron reduction and filtration system include:

1. A series of reactors for ferrous iron reduction of hexavalent chromium to trivalent chromium.
2. A microfilter system coupled with a backwash system that removes the ferric iron and trivalent chromium precipitate (solids).
3. A batch-thickening and dewatering system that receives the resulting solids sludge.

The residual sludge is expected to be disposed of at an approved off-site facility, either a Resource Conservation and Recovery Act ("RCRA")-permitted facility or perhaps a reclamation facility.

Anion exchange decreases total chromium concentrations by exchanging hexavalent chromium oxy-anions for chloride anions using a bed of selective ion exchange resins. The ion exchange resin is regenerated off-site by a vendor service. The major components of an anion exchange system

for the NHOU plant would be three ion exchange adsorber vessels and a backwash system. The backwash system would remove broken resin beads and trace suspended solids and it recovers backwash water. Disposal of backwash solids as a wet sludge is assumed. Similar to the ferrous-iron reduction system for chromium treatment, an anion-exchange system could be scaled up or down in capacity to accommodate a changing number of extraction wells or concentrations requiring treatment.

A peak pumping rate of 300 gpm (250 gpm average long-term flow rate) was assumed in the FFS for chromium treatment at extraction well NHE-2. It is assumed the peak chromium concentration in the influent to the wellhead treatment system would be 600 µg/L (1.5 times the peak concentration detected at extraction well NHE-2) and would require treatment to 5 µg/L or less. The 30-year O&M period for treatment of VOCs at the NHOU is assumed to also apply to wellhead chromium treatment at extraction well NHE-2. The estimated O&M duration will be re-evaluated if chromium concentrations change significantly.

Honeywell is currently designing both the chromium treatment for extraction well NHE-2 that was selected in the 2009 ROD as well as an alternative treatment system for chromium at extraction well NHE-2 pursuant to an administrative order on consent with EPA (Docket No. EPA- 2012-04). If EPA approves Honeywell's alternate design for chromium treatment at well NHE-2, it will be incorporated into the Amended Remedy and it, rather than the treatment selected for well NHE-2 in the 2009 ROD, is likely to be implemented as part of the final design.

Ex Situ Chromium Treatment for Extraction Wells NHE-1, NEW-2, and NEW-3

Ex situ treatment of chromium using the ferrous iron reduction with microfiltration process described above was assumed to be implemented in the FFS for the combined flow from three extraction wells at the NHOU groundwater treatment facility (see previous section for details of this treatment method). This system would be sized to treat the combined influent from extraction well NHE-1 and new extraction wells NEW-2 and NEW-3 (a peak combined pumping rate of 1,100 gpm). Alternatively, an anion-exchange-based treatment process could be installed, similar to the option assumed for wellhead treatment at extraction well NHE-2, as described above. The 30-year O&M period for treatment of VOCs at the NHOU also applies to *ex situ* chromium treatment.

End-Use Option 1: Delivery of Treated Groundwater to LADWP

Use of the NHOU treated water in LADWP's drinking water supply requires compliance with federal and State drinking water standards, including the *Policy Guidance for Direct Domestic Use of Extremely Impaired Sources,* CDPH Policy Memorandum 97-005 ("97-005"), which establishes a specific process for the evaluation of impaired water sources before they can be approved for use as drinking water.

Off-site Requirements: All CDPH and LADWP treatment levels or standards, including those identified through the 97-005 process, that apply to COCs must be met by the Amended Remedy in order to deliver the NHOU treated water to LADWP for use in its domestic water supply. Because these treatment levels and standards are off-site drinking water requirements, they are not ARARs. However, they must be met in order to comply with this end-use option, and therefore, are incorporated into this ROD as enforceable standards. Because they are not ARARs,

off-site requirements that change over time must be met in order to comply with the LADWP-delivery end–use option. Currently, the concentrations of NDMA, TCP, perchlorate, and 1,4-dioxane in NHOU groundwater are sufficiently low that treatment is only needed for 1,4-dioxane at extraction well NHE-2. If, during RD, concentrations are found to be increasing at any of the extraction wells, such that the performance standard is exceeded at the compliance point, additional well-head treatment may be necessary.

End-Use Option 2: Re-injection of Treated Groundwater

Re-injection of treated groundwater from the existing and planned new NHOU extraction wells would require an estimated six injection wells and associated pipelines, in addition to the nine additional new monitoring wells discussed above. The potential configuration of the injection wells, treatment system components, and ancillary equipment are discussed in the FFS, and are shown schematically on Figure 3. The injection wells would most likely be located north (upgradient) of the NHOU extraction wells, as shown on Figure 4. In this configuration, the treated groundwater would be re-injected into the aquifer at the northern boundary of the VOC and chromium plumes, which would supplement the hydraulic gradient driving contaminated groundwater toward the extraction wells. Because extracted groundwater would still be treated to remove contaminants (VOCs, chromium, and 1,4-dioxane) under this alternate end use scenario, both wellhead treatment and a central VOC treatment system will still be necessary, although redundant VOC treatment would no longer be required.

Performance standards for the re-injection end-use option would be established during RD, based on the injection locations and discussions with the RWQCB, which regulates groundwater injection. Treatment would need to comply with the California Antidegradation Policy. The treatment levels would be dependent on the location(s) ultimately selected for re-injection, and would be selected such that re-injection would not degrade groundwater quality at the injection location(s).

Because the extracted and treated groundwater would no longer be delivered to LADWP for blending and municipal use under the re-injection option, existing remedy components constructed on LADWP property may need to be replaced with new components constructed elsewhere by the PRPs. Alternatively, the land containing the existing components could potentially be purchased or leased from LADWP. For the purpose of estimating costs in the FFS, EPA assumed that the following existing remedy components would be replaced with new, equivalent components:

- **The eight existing NHOU extraction wells (NHE-1 through NHE-8)**
- **The pipeline that conveys groundwater extracted by the eight existing NHOU extraction wells to the existing NHOU treatment system**
- **The existing NHOU treatment system**

2.5.6 Summary of the Estimated Remedy Costs

Table 1 summarizes the estimated capital, O&M, and present worth costs of the major components of the Amended Remedy, including costs for the two distinct end-use options. These cost estimates were developed for the FFS. A detailed breakdown of these costs is provided in Appendix D of the FFS. The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during RD of the Amended Remedy. Major changes, if they were to occur, would be adopted and documented as appropriate. As is the practice at Superfund sites, these cost estimates are based on an expected accuracy range of -30 to +50 percent of actual costs.

2.5.7 Expected Outcomes of the Amended Remedy

The expected outcomes of the Amended Remedy would be identical under either end-use option and have not changed from the expected outcomes listed in the 2009 ROD. Improvements to the existing NHOU extraction wells and construction of new extraction wells will result in improved hydraulic containment under the expected future pumping scenarios for water supply in the eastern SFV. The goal of the remedy is to improve hydraulic containment and to control migration of the contaminated plume in excess of MCLs. The Amended Remedy will prevent groundwater with the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells and areas of the aquifer with significantly lower contaminant concentrations. As a result, water-supply wells screened in areas or depth intervals of the aquifer that contain small or no detectable concentrations of the COCs are expected to continue operating without further restrictions caused by increasing contaminant levels.

Because the Amended Remedy is for containment and not restoration, no final cleanup standards have been established for restoration of groundwater. This means that at least a portion of the shallow and deep zones upgradient of the compliance wells and any associated extraction systems will likely remain contaminated and unusable for a considerable length of time.

Table 1. Cost Estimate Summary for the Amended Remedy

	Component	Notes and Assumptions	LADWP-Delivery End-Use Option (Alt. 4a)			Re-injection End-Use Option (Alt. 4b)		
			Capital Cost[a]	Annual O&M Cost[b]	NPV[c]	Capital Cost[a]	Annual O&M Cost[b]	NPV[c]
1a	Groundwater monitoring—hydraulic containment (both end-use options)	Install 37 new monitoring wells and periodically sample existing and planned monitoring wells, production wells, and extraction wells (includes quality assurance/quality control samples)	$6,980,000	$758,000	$16,379,200	$6,980,000	$758,000	$16,379,200
1b	Groundwater monitoring—re-injection impacts (re-injection option)	Install and periodically sample nine additional new monitoring wells specifically for effects of re-injection	N/A	N/A	N/A	$1,740,000	$86,000	$2,806,400
2a	Groundwater extraction from eight existing NHOU extraction wells (LADWP-delivery option)	Deepen four existing extraction wells, rehabilitate four existing extraction wells, and operate all eight extraction wells at design pumping rates (2,000 gpm combined average flow, 2,400 gpm peak)	$2,740,000	$527,000	$9,274,800	N/A	N/A	N/A
2b	Groundwater extraction from eight replacement NHOU extraction wells (re-injection option)	Purchase or replace eight existing extraction wells and operate at design pumping rates	N/A	N/A	N/A	$13,470,000	$527,000	$20,004,800
3	Groundwater extraction from three new extraction wells (both end-use options)	Install three new extraction wells and new pipeline to NHOU treatment plant, operate new extraction wells (1,050 gpm combined average flow, 1,200 gpm peak)	$3,770,000	$213,000	$6,411,200	$3,770,000	$213,000	$6,411,200
4a	Primary VOC treatment—air-stripping (LADWP-delivery option)	Construct and operate second air stripper, and use existing air stripper at design rate (includes refurbishment at year 15)	$1,908,140	$599,000	$9,335,740	N/A	N/A	N/A

Table 1. Cost Estimate Summary for the Amended Remedy

	Component	Notes and Assumptions	LADWP-Delivery End-Use Option (Alt. 4a)			Re-injection End-Use Option (Alt. 4b)		
			Capital Cost[a]	Annual O&M Cost[b]	NPV[c]	Capital Cost[a]	Annual O&M Cost[b]	NPV[c]
4b	Primary VOC treatment—air stripping (re-injection option)	Construct and operate two new air strippers (assume existing air-stripper on LADWP property must be replaced, and new air strippers constructed on purchased property)	N/A	N/A	N/A	$7,598,140	$599,000	$15,025,740
5	Secondary VOC treatment—LPGAC (LADWP-delivery option)	Construct and operate two new LPGAC treatment units in parallel downstream from air strippers (redundant VOC treatment)	$2,870,000	$576,000	$10,012,400	N/A	N/A	N/A
6	Interim wellhead treatment for 1,4-dioxane and chromium at extraction well NHE-2 (both end-use options)	Performed prior to completion of Amended Remedy; operate at 190 gpm for 3 years	$4,130,000	$790,000	$6,199,800	$4,130,000	$790,000	$6,199,800
7	Expand wellhead treatment for chromium at extraction well NHE-2 (both end-use options)	Expand interim wellhead treatment system for chromium at extraction well NHE-2 (to 250 gpm average flow, 300 gpm peak) following construction of Amended Remedy; operate for 30 years	$3,650,000	$861,000	$14,326,400	$3,650,000	$861,000	$14,326,400
8	Chromium treatment for combined flow from NHE-1 and two new extraction wells (both end-use options)	Single treatment unit designed for 950 gpm average flow, 1,100 gpm peak	$9,410,000	$1,691,000	$30,378,400	$9,410,000	$1,691,000	$30,378,400
9	Expand wellhead treatment for 1,4-dioxane at extraction well NHE-2 (both end-use	Expand interim wellhead treatment system for 1,4-dioxane at NHE-2 (to 250 gpm average flow, 300 gpm peak) following completion of Amended	$640,000	$428,000	$4,708,080	$640,000	$428,000	$4,708,080

Table 1. Cost Estimate Summary for the Amended Remedy

	Component	Notes and Assumptions	LADWP-Delivery End-Use Option (Alt. 4a)			Re-injection End-Use Option (Alt. 4b)		
			Capital Cost[a]	Annual O&M Cost[b]	NPV[c]	Capital Cost[a]	Annual O&M Cost[b]	NPV[c]
	options)	Remedy; operate for 30 years						
10	CDPH 97-005 process (LADWP-delivery option)	Required to use treated water from NHOU as part of LADWP's water supply	$750,000	$0	$750,000	N/A	N/A	N/A
11	Groundwater injection (re-injection option)	Install and operate six new injection wells, construct and maintain 9,000-foot-long pipeline from NHOU treatment plant to new injection wells	N/A	N/A	N/A	$14,680,000	$263,000	$17,941,200
		TOTALS:	**$36,848,140**	**$6,443,000**	**$107,776,020**	**$66,068,140**	**$6,216,000**	**$134,181,220**

[a] Capital cost estimates are not discounted because the construction work will be performed in the first year.
[b] O&M costs include labor and expenses for repairs, energy for operation, and other costs that accrue on a continuous or periodic basis during an average year of system operation.
[c] Net present value estimates assume a 7% discount rate on annual O&M costs for a 30-year period for all remedial components.
Notes:
Alt. = Alternative
N/A = Not applicable
Costs for monitoring the treatment system performance are included in each alternative above.

2.5.8 Applicable or Relevant and Appropriate Requirements

The Amended Remedy is expected to comply with all federal and State Applicable or Relevant and Appropriate Requirements ("ARARs") except for 40 CFR §300.430(e)(2)(i)(A), which requires that the contaminant levels of the groundwater that remains in the aquifer be reduced below the selected applicable or relevant and appropriate cleanup standard, which generally is the MCL for drinking water. Because this is an interim action for containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater remaining on-site. EPA is waiving this ARAR pursuant to CERCLA §121(d)(4)(A), 42 U.S.C. §9621(d)(4)(A), and 40 CFR §300.430(f)(1)(ii)(C), which allows EPA to select a remedy that does not achieve an ARAR when the remedial alternative selected is an interim measure that will become part of a total remedial action that will attain ARARs. EPA's waiver of the aquifer cleanup standard does not apply to water extracted from the aquifer and either delivered to LADWP for use as drinking water or re-injected back into the aquifer; all extracted and treated water is expected to comply with ARARs, including the MCLs for drinking water.

2.5.9 Amended Remedy Performance Standards

Performance standards for treated groundwater under both end-use options are summarized in Table 2.

For the LADWP-delivery end-use option, the current regulatory standards for TCE, PCE, and the other VOC COCs are the State and federal MCLs. Similarly, the current regulatory standard for total chromium is the State MCL of 50 µg/L. Although there is currently no promulgated State or federal MCL for hexavalent chromium, in August 2013, CDPH proposed a draft MCL for hexavalent chromium of 10 µg/L. LADWP has indicated that it will not accept water with hexavalent chromium levels exceeding 5 µg/L for use in its drinking water supply system. Until the MCL is final and/or until LADWP agrees to accept water with hexavalent chromium concentrations up to 10 µg/L, EPA will use LADWP's 5 µg/L voluntary limit as a performance standard for the drinking water end-use option. If delivery of the treated water to LADWP is implemented as the end-use option, when California finalizes its MCL for hexavalent chromium, a different level of chromium treatment may be required in order to ensure that the treated water continues to meet requirements for drinking water. No State or federal MCLs have been promulgated for TCP, 1,4-dioxane, or NDMA. For these emerging chemicals, which lack MCLs, EPA is treating the CDPH notification levels, which are health-based advisory levels for drinking water use, as criteria to be considered in setting alternative performance standards for extracted groundwater in the NHOU for the drinking water end-use option. Notification levels are established as precautionary measures for contaminants that may be considered candidates for establishment of MCLs.

Under the re-injection end-use option for treated water, the performance standard for COCs will be the lower of the MCL or a level that will comply with the California Anitdegradation Policy for groundwater. The performance standard for non-COCs and for contaminants that do not have MCLs is the level that will comply with the California Anitdegradation Policy for groundwater. The levels will be determined through discussion with the RWQCB during RD, if the re-injection end-use option is implemented. The treatment levels will be dependent on the location(s) ultimately selected for re-injection, and will be selected such that re-injection would

not degrade groundwater quality at the injection location(s). Compliance with the California Antidegradation Policy is assumed to be achieved by meeting the substantive requirements of the RWQCB's *"Order No. R4-2007-0019, Revised General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites"* (Order No. R4-2007-0019), which applies to re-injection of groundwater extracted and treated by the Amended Remedy.

Table 2. Performance Standards for COCs in Extracted and Treated Groundwater

COC	Federal MCL (µg/L)	State MCL (µg/L)	CDPH NL (µg/L)	LADWP-Delivery End-Use Option		Re-injection End-Use Option	
				Basis for Performance Standard	Performance Standard[a] (µg/L)	Basis for Performance Standard	Performance Standard[b] (µg/L)
TCE	5	5	None	Federal MCL	5	Federal MCL and California Anti-Degradation Policy	TBD (5 or less)
PCE	5	5	None	Federal MCL	5	Federal MCL and California Anti-Degradation Policy	TBD (5 or less)
1,1-Dichloroethane	5	5	None	Federal MCL	5	Federal MCL and California Anti-Degradation Policy	TBD (5 or less)
1,2-Dichloroethane	0.5	0.5	None	Federal MCL	0.5	Federal MCL and California Anti-Degradation Policy	TBD (0.5 or less)
1,1-Dichloroethene	6	6	None	Federal MCL	6	Federal MCL and California Anti-Degradation Policy	TBD (6 or less)
cis-1,2-Dichloroethene	6	6	None	Federal MCL	6	Federal MCL and California Anti-Degradation Policy	TBD (6 or less)
1,1,2-Trichloroethane	5	5	None	Federal MCL	5	Federal MCL and California Anti-Degradation Policy	TBD (5 or less)
Carbon Tetrachloride	0.5	0.5	None	Federal MCL	0.5	Federal MCL and California Anti-Degradation Policy	TBD (0.5 or less)
Methylene Chloride	5	5	None	Federal MCL	5	Federal MCL and California Anti-Degradation Policy	TBD (5 or less)
Total Chromium	100	50	None	State MCL	50	California MCL and California Anti-Degradation Policy	TBD (50 or less)
Hexavalent Chromium	None	None[c]	None	See footnote "d"	5[d]	California Anti-Degradation Policy	TBD
Perchlorate	None	6	None	State MCL	6	State MCL and California Anti-Degradation Policy	TBD (6 or less)
TCP	None	None	0.005	CDPH NL	0.005	California Anti-Degradation Policy	TBD

Table 2. Performance Standards for COCs in Extracted and Treated Groundwater

COC	Federal MCL (µg/L)	State MCL (µg/L)	CDPH NL (µg/L)	LADWP-Delivery End-Use Option		Re-injection End-Use Option	
				Basis for Performance Standard	Performance Standard[a] (µg/L)	Basis for Performance Standard	Performance Standard[b] (µg/L)
1,4-Dioxane	None	None	1	CDPH NL	1	California Anti-Degradation Policy	TBD
NDMA	None	None	0.01	CDPH NL	0.01	California Anti-Degradation Policy	TBD

[a]Under the LADWP-delivery end-use option for treated water, the CDPH permitting process may require lower concentrations in the treated effluent.

[b] Under the re-injection end-use option for treated water, the performance standard for COCs will be the lower of the MCL or a level that will comply with the California Anitdegradation Policy for groundwater. The performance standard for non-COCs and for contaminants that do not have MCLs is the level that will comply with the California Anitdegradation Policy for groundwater. The levels will be determined through discussion with the RWQCB during RD, if the re-injection end-use option is implemented. "TBD" in this column indicates that the performance standard has yet to be determined.

[c]In August 2013, CDPH announced the availability of the proposed 0.010-milligram per liter (10 µg/L) draft MCL for hexavalent chromium for public comment. The final MCL will be adopted after the public review and comment process.

[d]Based on discussions with LADWP, it is EPA's understanding that in the absence of a final federal or State MCL for hexavalent chromium, LADWP will continue to use a voluntary cleanup level of 5 µg/L for hexavalent chromium for water it will accept for use in its water supply system. Consequently, under the drinking water end-use option, chromium treatment at the NHOU will be needed so that LADWP's voluntary cleanup level of 5 µg/L can be met.

Note:

TBD = To be determined

For the purposes of determining compliance with the performance standards presented in Table 2, the point of compliance shall be the combined effluent from the NHOU treatment facility, immediately prior to its delivery to the selected end use—the LADWP drinking water system or re-injection system.

2.6 Evaluation of the Nine Criteria/Comparative Analysis of End Uses

The NCP (40 CFR §300.430(e)(9)(iii)) describes the nine CERCLA criteria used to evaluate the alternatives under consideration. The NCP categorizes the nine CERCLA evaluation criteria into three groups: (1) threshold criteria; (2) primary balancing criteria; and (3) modifying criteria. Each category has its own weight when applied to the evaluation of alternatives:

1. Threshold criteria are requirements that each alternative must meet to be eligible for selection as the preferred alternative. Threshold criteria include the overall protection of human health and the environment and compliance with ARARs (unless a waiver is obtained).

2. Primary balancing criteria weigh the effectiveness and cost trade-offs among alternatives. Primary balancing criteria include long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; and cost. The primary balancing criteria are the main technical criteria upon which the evaluation of alternatives is based.

3. Modifying criteria include State and community acceptance, which may be used to modify aspects of the selected alternative presented in the ROD or RODA.

This section provides a comparative analysis of the two end-use options for treated water currently under consideration—delivery to LADWP (the selected end-use option in the 2009 ROD), versus re-injection (the alternative end-use option added to the 2009 Remedy by this RODA)—to evaluate the extent to which each is responsive to the nine CERCLA criteria. A comparative analysis of all the remedial alternatives considered in the FFS can be found in the 2009 ROD.

2.6.1 Overall Protection of Human Health and the Environment

Exposure to contaminated groundwater through the potable water supply is the area of potential human health risk in the NHOU. There are no potentially complete exposure pathways for contaminated groundwater to reach ecological receptors. The Amended Remedy will protect human health and the environment by achieving hydraulic containment, to the extent practicable, of groundwater exceeding the MCLs, including the most significant areas of groundwater contamination in the NHOU, and thereby preventing the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells. Water supply wells, NHOU extraction wells, EPA (remedial investigation) monitoring wells, and facility monitoring wells will be monitored and access to contaminated groundwater will be restricted through ICs. Performance standards for treated groundwater are summarized in Table 2. As set forth in the FFS and 2009 ROD, the Amended Remedy provides the same level of protection to human health and the environment whether the end use for extracted water is

delivery to LADWP for drinking water supply purposes or re-injection of all extracted water into the aquifer.

2.6.2 Compliance with ARARs

As set forth in the FFS and 2009 ROD, both the drinking water delivery end use selected in the 2009 ROD and the alternate re-injection end–use option comply with ARARs. A complete list of all ARARs for the Amended Remedy is provided in Tables 3 and 4. Table 5 summarizes To-Be-Considered ("TBC") criteria. The primary ARARs identified include the Safe Drinking Water Act (underground injection and MCLs), the RCRA (disposal of spent treatment residuals), California Domestic Water Quality and Monitoring Regulations (State MCLs and monitoring requirements), and the RWQCB Water Quality Control Plan (California Antidegradation Policy).

Because this is an interim action for the containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater. 40 CFR §300.430(e)(2)(i)(A) requires that the contaminant levels in the groundwater that remains in the aquifer be reduced below MCLs. EPA is waiving this ARAR pursuant to CERCLA §121(d)(4)(A), 42 U.S.C. §9621(d)(4)(A), and 40 CFR §300.430(f)(1)(ii)(C), which allow EPA to select a remedy that does not achieve an ARAR when the remedial alternative selected is an interim measure that will become part of a total remedial action that will attain ARARs. EPA's waiver of the aquifer cleanup standard does not apply to water extracted from the aquifer and delivered to LADWP for use as drinking water or re-injected; all extracted and treated water is expected to comply with MCL ARARs.

2.6.3 Long-term Effectiveness and Permanence

By controlling (to the extent practicable) migration of the groundwater exceeding MCLs, including the most highly contaminated groundwater in the NHOU, the improvements to the extraction and treatment system will prevent the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells. In addition, the treatment system will be effective in removing contaminants from the extracted water. Differences in hydraulic containment and treatment levels under the two end-use options allowed by the Amended Remedy are expected to be small and have an insignificant impact on the long-term effectiveness and permanence of the Amended Remedy. EPA considers both the drinking water delivery end use selected in the 2009 ROD and the alternate end use whereby all extracted water is re-injected to be protective over the long term.

2.6.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Expanded groundwater treatment will reduce the mobility and volume of dissolved-phase VOCs and emerging contaminant concentrations in groundwater, result in the permanent destruction of VOCs and 1,4-dioxane, and reduce the toxicity of chromium by converting it from the hexavalent to the trivalent form. Differences in the treatment levels under the two end-use options allowed by the Amended Remedy are expected to be small and have an insignificant impact on the overall reduction in toxicity, mobility, or volume of contaminants. EPA considers both the drinking water delivery end use selected in the 2009 ROD and the alternate re-injection end-use option to be consistent with EPA's mandate to reduce toxicity, mobility, or volume through treatment.

Table 3. Chemical-specific Applicable or Relevant and Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
SDWA (2 U.S.C. 300 et seq.)	National Primary Drinking Water Standards, including 40 CFR 141.61 and 40 CFR 141.62	Relevant and appropriate	Chemical-specific drinking water standards and MCLs have been promulgated under the SDWA; MCLGs above zero are considered chemical-specific ARARs under the NCP (40 CFR 300.430(e)(2)(i)(B)). When the MCLGs are equal to zero, which is generally the case for a chemical considered to be a carcinogen, the MCL is considered the chemical-specific ARAR instead of the MCLG (40 CFR 300.430(e)(2)(i)(C)). Established MCLs for COCs are listed in Table 3-4 of the FFS. Performance standards for the SFV treated effluent were established in the 1987 ROD at 5 µg/L for TCE and 4 µg/L for PCE. However, the MCL and performance standard for PCE has since been changed to 5 µg/L. The MCL of 5 µg/L for TCE and PCE will apply to the effluent from the treatment plant. Performance standards for groundwater in the aquifer are not established at this time in any of the alternatives.	Applies to both end uses of treated water—delivery to LADWP and re-injection. The MCLs are ARARs for the purpose of establishing performance standards for the treated water from the NHOU treatment plant, whether it is delivered to LADWP for municipal use or re-injected to the aquifer underlying the SFV. 40 CFR 300.430(e)(2)(i)(B) and 40 CFR 300.430(e)(2)(i)(C) require that the remedy selected attain non-zero MCLGs or MCLs for each contaminant if the groundwater is a current or potential drinking water source.
SDWA (42 USC 300 et seq.)	National Primary Drinking Water Standards, 40 CFR 141, including 40 CFR 141.23 and 40 CFR 141.24	Relevant and appropriate	Requires monitoring to determine compliance with MCLs.	Applies to both end uses of treated water—delivery to LADWP and re-injection. Substantive monitoring requirements in 40 CFR 141.23 and 40 CFR 141.24 are relevant and appropriate, to ensure that treated effluent meets performance standards.
State of California Domestic Water Quality and Monitoring Regulations	California Safe Drinking Water Regulations, including 22 CCR 64431 and 22 CCR 64444	Relevant and appropriate	Contains provision for California domestic water quality; establishes MCLs for primary drinking water chemicals.	Applies to both end uses of treated water—delivery to LADWP and re-injection. The MCLs are ARARs for the purpose of establishing performance standards for COCs in the water extracted from the Basin and treated at the treatment plant.

Table 3. Chemical-specific Applicable or Relevant and Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments

Notes:
CCR = California Code of Regulations
MCLG = maximum contaminant level goal
SDWA = Safe Drinking Water Act

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
Clean Air Act SCAQMD	Air Pollution Control Equipment Permit 144890 (granted August 29, 1986)	Substantive requirements of the permit are applicable	In California, the authority for enforcing the standards established under the Clean Air Act has been delegated to the State. The program is administered by the SCAQMD in Los Angeles. Permit 144890 (held by LADWP) requires 90 percent removal efficiency for TCE and PCE air emissions and a not-to-exceed level of 2 pounds per day of total VOCs.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** The existing system includes use of air stripping technology to remove VOCs from the groundwater. Emissions from the air stripper must meet SCAQMD limits and the other substantive provisions established in the permit. Although a permit is not required for the air stripper pursuant to CERCLA §121(d), LADWP obtained a permit in advance of construction in 1986. According to SCAQMD, the permit from the SCAQMD remains valid, and the emission limits and other substantive requirements in it are applicable. If the air stripping treatment system is modified significantly as part of the selected remedy, the substantive provisions of SCAQMD Rule 1401 (which limits air emissions of identified toxics from new or modified sources) may apply.

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
California Water Code and State Water Resources Control Board Model Well Standards Ordinance (1989)	Division 7, Chapter 10, Section 13700 et seq.	Applicable	The California Water Code requires the State Water Resources Control Board to adopt a model well ordinance implementing the standards for well construction, maintenance, and abandonment contained in the construction requirements for wells, in conformance with DWR Bulletin 74-81. DWR Bulletin 74-90 updates DWR Bulletin 74-81.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** If the selected alternative involves well construction or maintenance, substantive provisions of this code will be applicable.
SDWA (42 USC 300 et seq.)	Federal Underground Injection Control Plan, 40 CFR 144, including 40 CFR 144.12, 40 CFR 144.13, and 40 CFR 146.10	Applicable	Prohibits injection wells from (1) causing a violation of primary MCLs in the receiving waters and (2) adversely affecting the health of persons. Provides that contaminated groundwater that has been treated may be re-injected into the formation that it was withdrawn from if such injection is conducted pursuant to a CERCLA cleanup and is approved by EPA.	***Applies to re-injection end-use option only.***
RCRA	RCRA Sections 3020 (a) and (b)	Applicable	RCRA §3020(a) bans hazardous waste disposal by underground injection into a drinking water aquifer (within 0.25 mile of a well) or above such a formation. However, §3020(b) exempts from this ban on re-injection of treated contaminated groundwater if the following criteria are met: (1) the re-injection is part of a response action under CERCLA; (2) the water is treated to substantially reduce	***Applies to re-injection end-use option only.*** The substantive requirements will apply if the extracted groundwater meets the definition of hazardous waste and is re-injected into the aquifer.

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
			hazardous constituents prior to re-injection, and (3) the response action is sufficient to protect human health and the environment upon completion.	
RWQCB Basin Plan	Basin Plan, Chapters 2 and 3	Relevant and Appropriate	The Basin Plan incorporates State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California." Resolution No. 68-16 requires maintenance of existing State water quality unless it is demonstrated that a change will benefit the people of California, will not unreasonably affect present or potential uses, and will not result in water quality less than that prescribed by other State policies.	***Applies to re-injection end-use option only.***

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
RWQCB	Order No. R4-2007-0019	Relevant and Appropriate	Describes the circumstances and waste discharge requirements under which groundwater extracted and remediated at petroleum hydrocarbon fuel, VOC, or hexavalent chromium sites in the Los Angeles region can be reinjected into the aquifer, to comply with the California Antidegradation Policy.	***Applies to reinjection end-use option only.*** The selected remedy need only comply with the substantive provisions of the regulations listed in Order No. R4-2007-0019.
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.10	Applicable	Lists the sections of California law with which a generator of hazardous waste must comply.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** The selected remedy need only comply with the substantive provisions of the regulations listed in 22 CCR 66262.10. Each alternative considered in the FFS has the potential to generate hazardous waste. Examples of hazardous wastes generated on-site include: (1) spent granular activated carbon filters from the air stripper, (2) purged water from new or modified wells that meets characteristic waste levels, and (3) well casing soils from new or modified wells that meet characteristic waste levels.
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.11	Applicable	Requires waste generators to determine if wastes are hazardous and establishes procedures for such determinations.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** The substantive requirements will be applicable to management of waste materials generated by a groundwater treatment plant and to any waste

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
				generated while installing new wells.
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.34(a)(1)(A)	Relevant and appropriate	Waste stored on-site should be placed in containers or tanks that are in compliance with California Hazardous Waste Regulations.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** Storage of hazardous waste accumulated on-site must be in compliance with substantive requirements for interim status facilities.
California Hazardous Waste Regulations, Storage of Hazardous Waste	22 CCR 66265.170 et seq. (Article 9) 22 CCR 66265.190 et seq. (Article 10)	Applicable	Regulates use and management of containers, compatibility of wastes with containers, and special requirements for certain wastes.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** Substantive provisions of Articles 9 and 10 will be applicable if hazardous waste is generated and accumulated on-site.
California Land Disposal Restrictions, Requirements for Generators	22 CCR 66268.3, 22 CCR 66268.7, 22 CCR 66268.9, and 22 CCR 66268.50	Applicable	Compliance with land disposal regulation treatment standards is required if hazardous waste (e.g., contaminated soil) is placed on land. Soil treatability variance may be invoked, in accordance with 40 CFR 268.44 (h)(3) and (4).	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** Hazardous waste hauled off-site must meet "land-ban" requirements.
California Land Disposal Restrictions, Requirements for Generators	22 CCR 66268.1 et seq. (Article 1)	Applicable	Prior to transporting for off-site disposal, hazardous waste must be characterized to determine whether land disposal restriction treatment standards apply and whether the waste meets the treatment standards. This information must be provided to the off-site facility with the first waste shipment.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** The substantive requirements will be applicable to management of waste materials generated by a groundwater treatment plant and to any waste generated while installing new wells.
Spent Carbon	40 CFR 268.40	Applicable	Attain land disposal treatment	***Applies to both end uses of treated***

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
Disposal			standards before putting waste into landfill to comply with land disposal restriction.	***water—delivery to LADWP and re-injection.*** Substantive requirements apply.

Notes:
Basin Plan = Water Quality Control Plan, Los Angeles Region
DWR = Department of Water Resources
NPDES = National Pollutant Discharge Elimination System
SCAQMD = South Coast Air Quality Management District

Table 5. TBC Criteria

Source	Citation	Description	Findings and Comments
California PHGs, California Environmental Protection Agency, and OEHHA	California Calderon-Sher SDWA of 1996, California Health and Safety Code §116365	OEHHA has adopted PHGs for chemicals in drinking water. PHGs are levels of drinking water contaminants at or below which adverse health effects are not expected to occur from a lifetime of exposure.	***Applies to LADWP-delivery end-use option only.*** In the absence of MCLs, the State PHGs adopted by OEHHA have been considered during selection of performance standards for extracted groundwater delivered to LADWP following treatment.
CDPH Drinking Water Notification Levels	California Health and Safety Code §116455	CDPH has established drinking water notification levels (formerly known as action levels) based on health effects, but in some cases they are based on organoleptic (taste and odor) values for chemicals without MCLs.	***Applies to LADWP-delivery end-use option only.*** In the absence of MCLs, the drinking water notification levels established by CDPH have been considered during selection of performance standards for extracted groundwater delivered to LADWP following treatment.

Notes:
PHG = California Public Health Goal
OEHHA = Office of Environmental Health Hazard Assessment

2.6.5 Short-term Effectiveness

The Amended Remedy requires construction of pipelines from the new extraction wells to the NHOU treatment plant and if the re-injection end-use option is implemented, construction of the injection wells and additional pipelines to those wells. No special worker-protection issues or environmental impacts are anticipated as a result of pipeline construction activities nor are any additional risks to the community or construction workers. Construction of the injection wells and additional pipelines for the re-injection end use may require an additional 12 months compared to the LADWP-delivery option. Regardless of which end-use option is implemented, the existing NHOU treatment system will have to be shut down at some point during construction of the Amended Remedy. Following shut down, there is not expected to be any extraction or treatment of groundwater by remedy wells until the Amended Remedy is implemented. Until the existing NHOU extraction and treatment system is shut down, it is expected that the contaminant concentrations in the treatment plant effluent will remain below the MCLs and notification levels. As a result, EPA considers both the end-use options in the Amended Remedy to be equally protective of human health in the short term.

2.6.6 Implementability

Permitting, construction, and operation of the injection wells and new pipelines required if re-injection is selected as the end-use option may add to the complexity of implementing the Amended Remedy compared to implementation of the LADWP-delivery end-use option. However, if delivery of the water to LADWP for use as drinking water is not possible, the alternate end use will be essential to successful remedy implementation. If the re-injection end-use option is implemented, analysis of the administrative details will be conducted during RD. However, significant administrative constraints that would impact implementability are not expected. EPA considers both end-use options to be implementable. However, if LADWP and the PRPs are not able to reach an acceptable agreement in a timely manner, then re-injection may be the only implementable option.

2.6.7 Cost

A summary of the capital, annual O&M, and net present value ("NPV") costs for each alternative is presented in Table 1. These cost estimates are based on a 7% discount rate and 30 year O&M period. Details of the cost estimates for each alternative are provided in Appendix D of the FFS. Although the costs are higher for re-injection, if the option of providing the extracted and treated water to LADWP proves to be infeasible, then the remedy cannot be implemented without another end-use option, and the additional costs will be justified in order to be able to implement a remedy.

2.6.8 State Acceptance

The State has expressed its support for EPA's Preferred Alternative in a concurrence letter dated October 25, 2013.

2.6.9 Community Acceptance

EPA received comments on the Proposed Plan for the RODA from five parties; three of the parties were local community members, one was the LADWP, and one was the engineering firm

conducting the RD on behalf of Honeywell and Lockheed-Martin Corporation. Issues raised by the community members during the public comment period included a question about performance standards for the re-injection end-use option, a concern that air-stripping treatment might discharge chromium into the atmosphere, a preference that groundwater contamination be cleaned quickly, and a preference for implementing the re-injection option to store groundwater for future use.

EPA has addressed all of the significant comments received in Section 3 – Responsiveness Summary. EPA does not believe that any of the issues raised in the comments would result in rejection of the re-injection end-use option for treated water from the Amended Remedy.

2.7 Statutory Determinations

Under CERCLA §121, EPA must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), consider the reasonableness of cost for the selected remedy, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ, as a principal element, treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes and a bias against off-site disposal of untreated wastes. The following sections discuss how the Amended Remedy meets these statutory requirements.

2.7.1 Protection of Human Health and the Environment

Exposure to contaminated groundwater through the potable water supply is the area of potential human-health risk in the NHOU. There are no potentially complete exposure pathways for contaminated groundwater to reach ecological receptors. The Amended Remedy is protective of human health and the environment, whether the end use for extracted and treated water is delivery to LADWP for drinking water supply purposes or re-injection of all extracted and treated water into the Basin.

2.7.2 Compliance with Applicable or Relevant and Appropriate Requirements

Both the drinking water delivery end use selected in the 2009 ROD and the re-injection end use added by this RODA comply with ARARs. A complete list of all ARARs for the Amended Remedy is provided in Tables 3 and 4. Table 5 summarizes TBC criteria. Because this is an interim action for the containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater.

The ARARs are "frozen" at the time the RODA is signed, but off-site requirements, including requirements applicable to treated water delivered to the drinking water supply, may have to be met in order to deliver the treated water to LADWP (if implemented as the end-use option), regardless of whether those requirements change over time. As a result, if an off-site drinking water requirement changes, the treatment system must meet whichever standard is lower (the performance standard selected in the ROD or the off-site requirement).

No location-specific ARARs were identified for the Site for the 1987 ROD, and none have been identified for the 2009 Remedy or the Amended Remedy.

2.7.3 Cost Effectiveness

In EPA's judgment, the Amended Remedy (under either end-use option) is cost effective and represents a reasonable value for the money to be spent. Section 300.430(f)(ii)(D) of the NCP requires EPA to evaluate the cost of an alternative relative to its overall effectiveness. This was accomplished by evaluating the "overall effectiveness" of the Amended Remedy using either end-use option. Overall effectiveness was evaluated by assessing four of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; short-term effectiveness; and implementability). Overall effectiveness was then compared to costs to determine cost-effectiveness. The relationship of the overall effectiveness of the Amended Remedy was determined to be proportional to its costs; hence, this alternative represents a reasonable value for the money spent.

The estimated NPV of the Amended Remedy with delivery of treated water to LADWP as the end-use option is $108 million. The estimated NPV of the Amended Remedy with re-injection of treated water as the end-use option is $134 million. Although the costs are higher for re-injection, if the option of providing the extracted and treated water to LADWP is infeasible, the remedy cannot be implemented without another end-use option. Therefore, the additional costs will be justified in order to be able to implement a remedy.

2.7.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined that the Amended Remedy, including either of the end-use options described in this RODA, represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the NHOU, until EPA obtains sufficient data to select a final remedy. EPA has also determined that, compared to the other alternatives considered in the FFS or 2009 ROD, implementation of either end-use option under the Amended Remedy will provide the best balance of tradeoffs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and bias against off-site treatment and disposal, as outlined below:

- Long-Term Effectiveness and Permanence: By controlling (to the extent practicable) migration of the groundwater exceeding MCLs, including the most highly contaminated groundwater in the NHOU, the area for potential future residual contamination in groundwater and the vadose zone is limited.
- Reduction of Toxicity, Mobility, or Volume through Treatment: Expanded groundwater treatment will reduce the mobility and volume of dissolved-phase VOCs and emerging contaminant concentrations in groundwater, result in the permanent destruction of VOCs and 1,4-dioxane, and reduce the toxicity of chromium by converting it from the hexavalent to the trivalent form.
- Short-term Effectiveness: Construction of the injection wells and additional pipelines for the re-injection end use may require an additional 12 months compared to the LADWP-delivery option. Regardless of which end-use option is implemented, the existing NHOU treatment system will have to be shut down at some point during construction of the Amended

Remedy. Until the existing NHOU extraction and treatment system is shut down, it is expected that the contaminant concentrations in the treatment plant effluent will remain below the MCLs and notification levels. As a result, EPA considers both the end-use options in the Amended Remedy to be equally protective of human health in the short term.

- Implementability: Implementation of the re-injection end-use option under the Amended Remedy would be somewhat more complex than delivery of the treated water to LADWP. However, if delivery of the water to LADWP for use as drinking water is not possible, the re-injection end use will be essential to the successful remedy implementation.

2.7.5 Preference for Treatment as a Principal Element

Under either end-use option, the Amended Remedy will treat VOCs, chromium, and other emerging contaminants in the extracted groundwater. By utilizing treatment as a significant element of the remedy, the statutory preference for remedies that employ treatment as a principal element is satisfied.

2.7.6 Five-Year Review Requirements

Under either end-use option, the Amended Remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure. Therefore, a statutory review will be conducted within 5 years after initiation of remedial action to ensure that the Amended Remedy is, or will be, protective of human health and the environment.

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Part 3
Responsiveness Summary

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Part 3 – Responsiveness Summary

The purpose of this Responsiveness Summary is to provide a summary of EPA's responses to comments received from stakeholders and the public on EPA's "*North Hollywood OU Proposed Plan to Amend Groundwater Record of Decision*" dated May 1, 2013. During the public meeting held on June 5, 2013, EPA provided verbal clarifications to questions about the Proposed Plan. The proceedings of the public meeting were transcribed by a court reporter and are included in the Administrative Record.

During the public meeting, EPA received comments from three members of the audience. During the public comment period, EPA received one e-mail from a community member and two letters from stakeholders with comments on the Proposed Plan. EPA is required to consider and address only those comments that are pertinent and significant to the remedial action being selected. EPA is not required to address comments which pertain to the allocation of liability for the remedial action, nor potential enforcement actions to implement the remedial action, as these are independent of the selection of the remedial action and EPA's Proposed Plan. EPA does have the discretion to address comments with limited pertinence if doing so would address the concern of a significant segment of the public.

A summary of the major issues raised by commenters is presented in the following subsections of this Responsiveness Summary. Each comment received by EPA during the comment period, together with EPA's responses, can be found in Appendix A.

3.1 Stakeholder Issues

Issues raised by community members during the public comment period included a question about performance standards for the re-injection end-use option, a concern that air-stripping treatment might discharge chromium into the atmosphere, a preference that groundwater contamination be cleaned quickly, and a preference for implementing the re-injection option to store groundwater for future use.

The engineering consultants performing RD activities for the NHOU PRP group submitted three comments on behalf of the PRPs. The comments included support of re-injection as an alternative end-use option for the Amended Remedy, a request for further clarification of when the re-injection option would be acceptable to implement, and a statement in support of selecting the specific configuration of injection wells and other infrastructure during the RD process.

LADWP submitted 23 comments, many of which consisted of requests for additional details regarding how the re-injection option would be evaluated, implemented, operated, and monitored. Most of those details are presented in the FFS, the 2009 ROD, and this RODA, or will be provided during the RD process. Similar to the PRP group's consultants, LADWP requested clarification of when the re-injection option would be acceptable to implement. LADWP also requested more information regarding the performance standards that would apply to the re-injection option (more details regarding performance standards are presented in this RODA).

Figures

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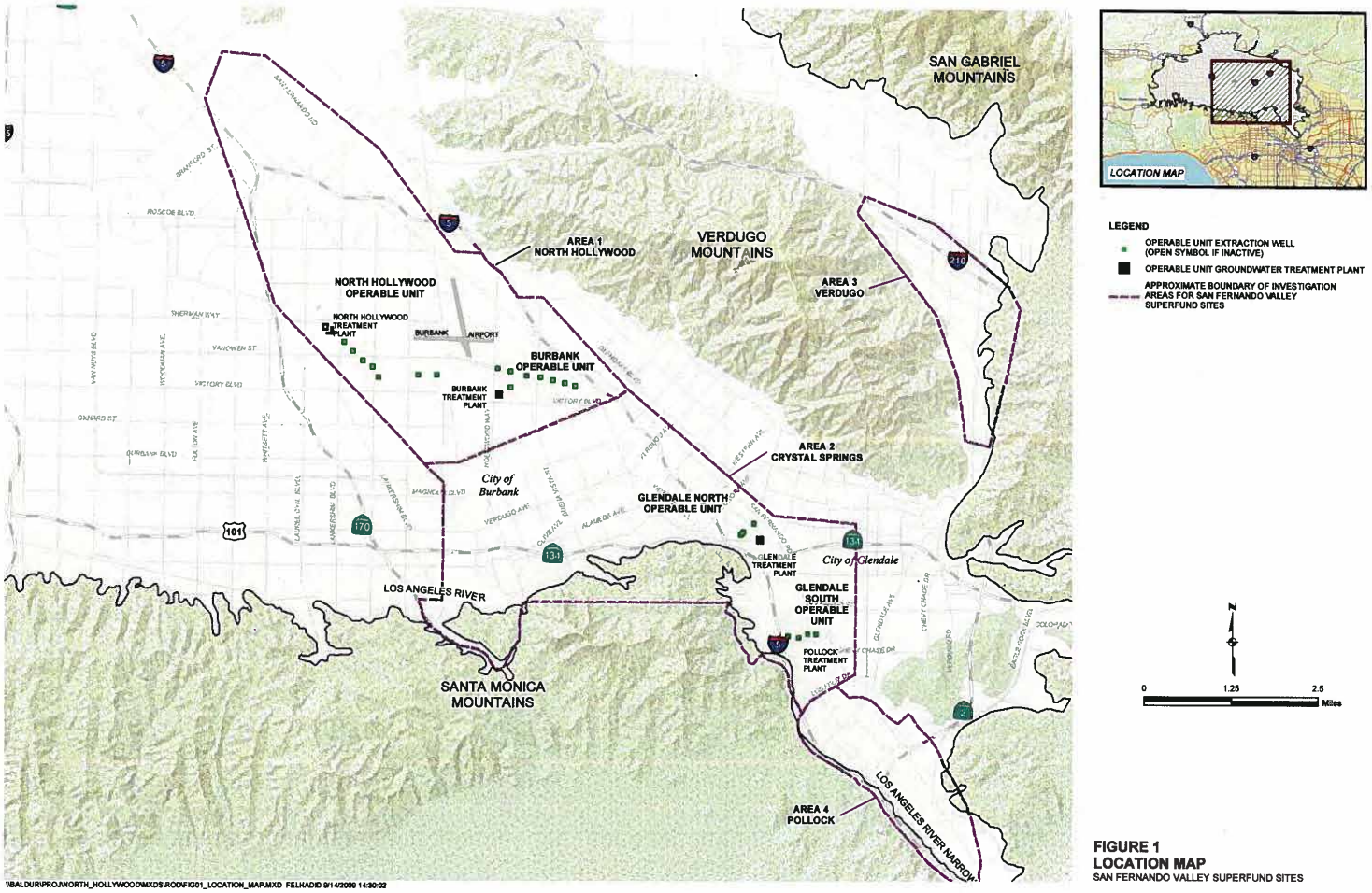

FIGURE 1
LOCATION MAP
SAN FERNANDO VALLEY SUPERFUND SITES

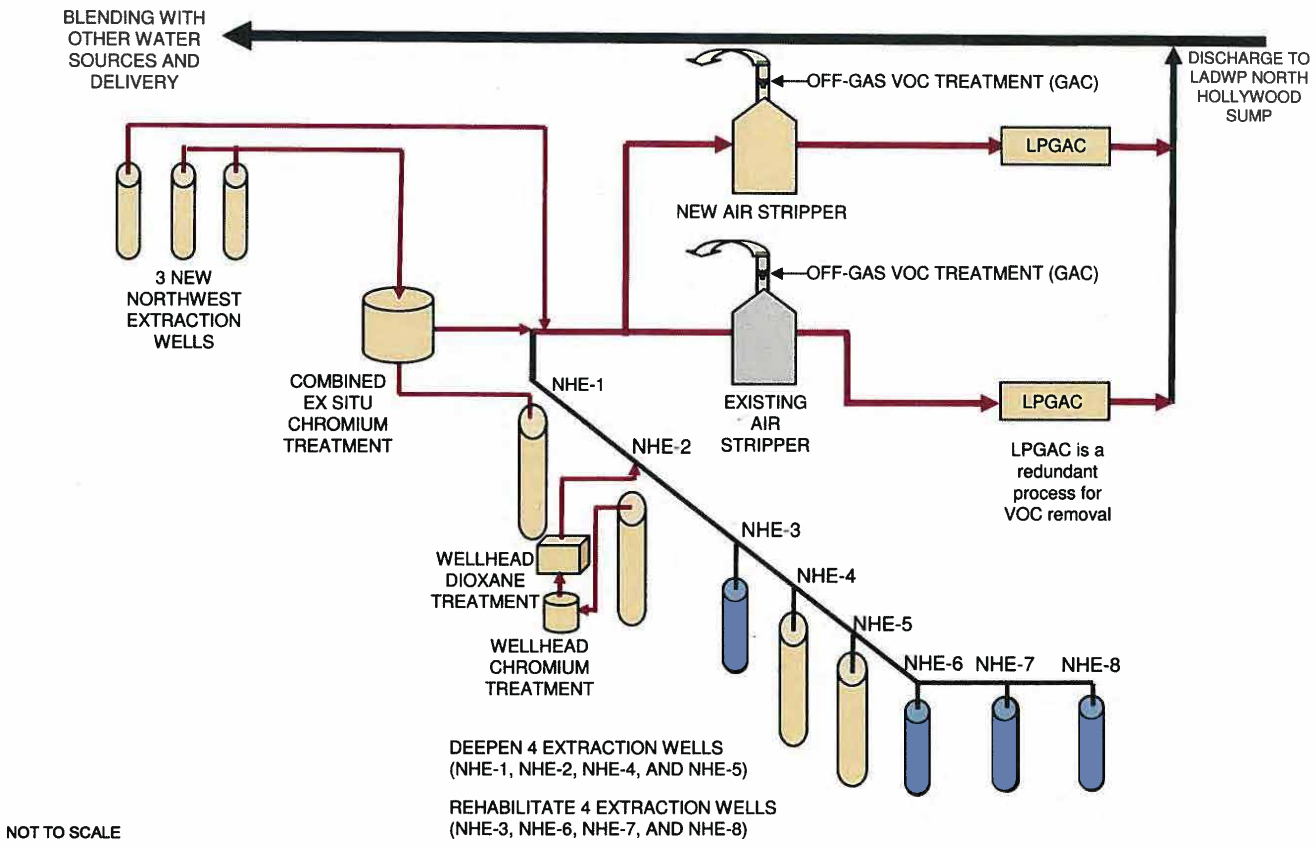

FIG2_ALT4ASCHEMATIC.PSD

FIGURE 2
SCHEMATIC LAYOUT OF SELECTED REMEDY WITH LADWP DELIVERY END-USE OPTION (ALTERNATIVE 4a)
SAN FERNANDO VALLEY SUPERFUND SITES

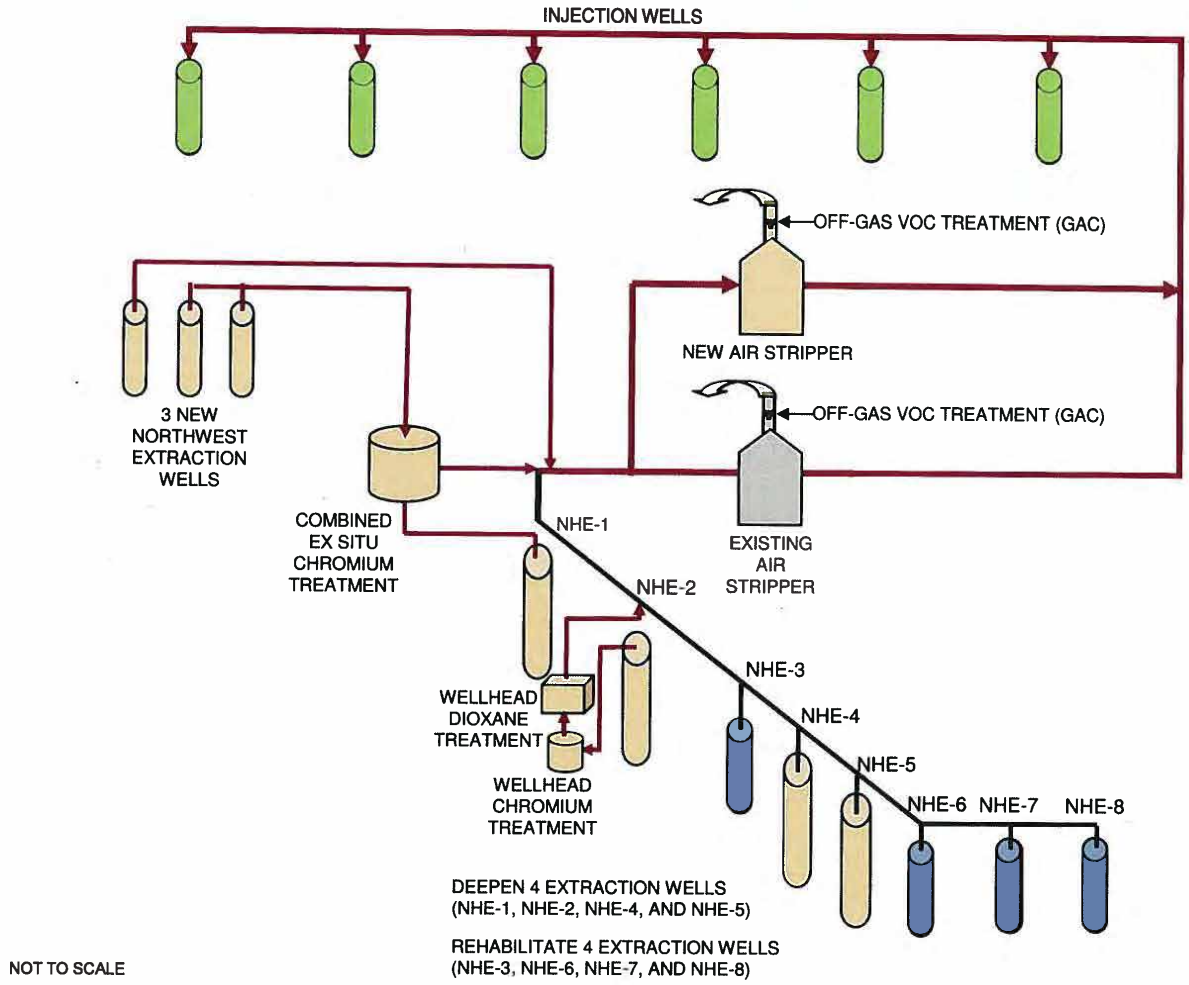

FIG3_ALT4ASCHEMATIC.PSD

FIGURE 3
SCHEMATIC LAYOUT OF SELECTED REMEDY WITH REINJECTION END-USE OPTION (ALTERNATIVE 4b)
SAN FERNANDO VALLEY SUPERFUND SITES

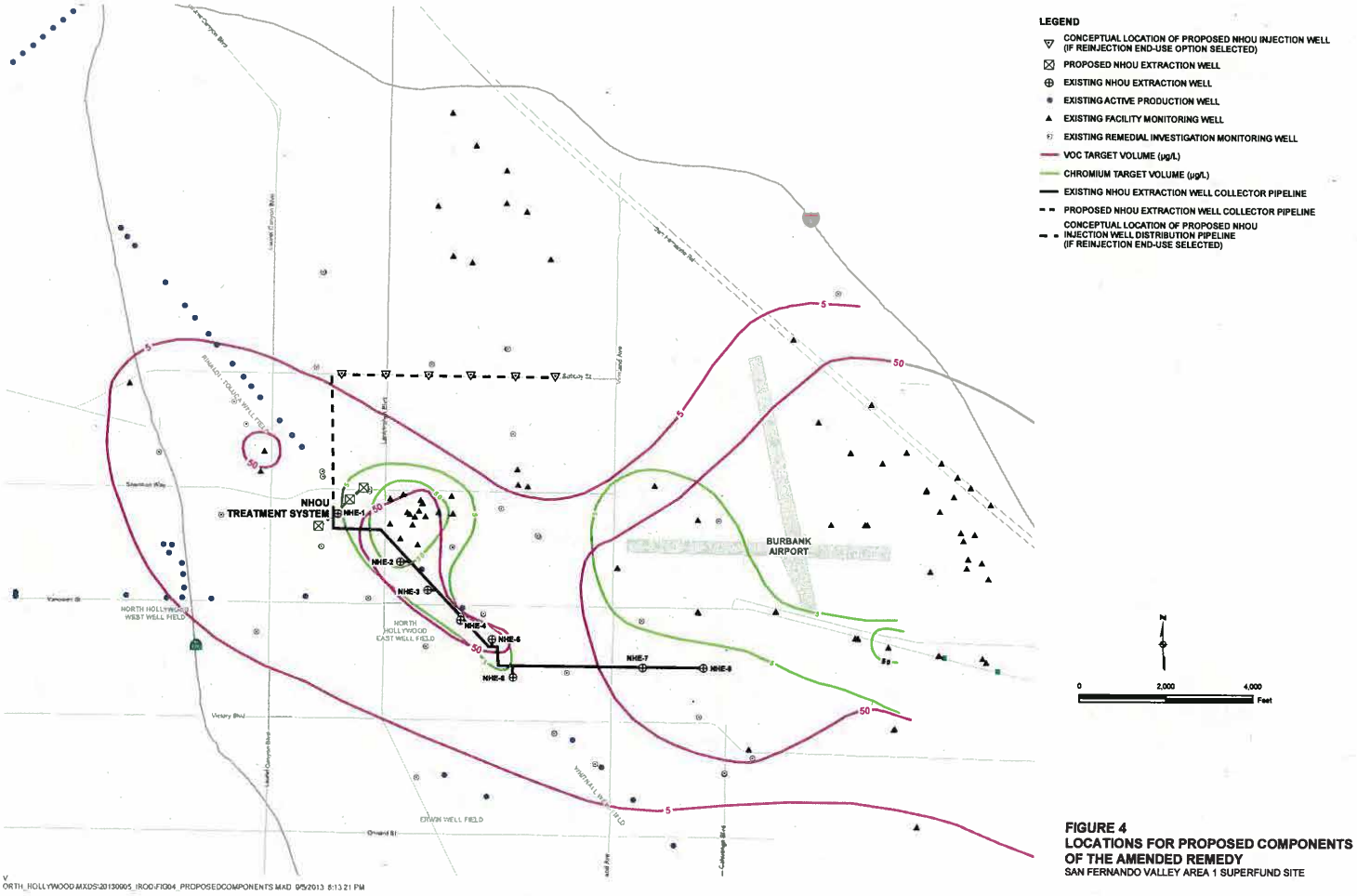

FIGURE 4
LOCATIONS FOR PROPOSED COMPONENTS OF THE AMENDED REMEDY
SAN FERNANDO VALLEY AREA 1 SUPERFUND SITE

Appendix A

Detailed Response to Technical Comments

Following is the EPA response to the comments received on the Proposed Plan ("Plan") to amend the 2009 Interim Action Record of Decision ("2009 ROD"). The NCP requires EPA to summarize significant comments, criticisms, and relevant information submitted during the public comment period and to respond to each significant issue raised. Although EPA is not required to re-print the public comments verbatim, in many cases in this response summary EPA has included large segments of the original comments. Persons wishing to see the full text of all comments should refer to the commenters' submittals to EPA, which are included in the Administrative Record.

Specific comments (and responses by EPA) are numbered for convenient reference. The comments are numbered sequentially through the Response Summary, without reference to the specific commenter. Comments are shown in normal text, and EPA responses are shown in italics.

Verbal comments received by EPA during June 5, 2013, public meeting

Note: the following verbal comments, which were provided during the public meeting, were transcribed by a court reporter.

1. For re-injection, how will the treatment levels be set for the constituents that have only state notification levels?

   Response: As discussed in EPA's 2009 Focused Feasibility Study ("FFS") for the NHOU Second Interim Remedy and the 2009 ROD, cleanup levels for the re-injection end-use option would be established during remedial design ("RD") based on the injection locations. Under the re-injection end-use option, removal of constituents that only have notification levels would need to comply with the California Antidegradation Policy. The treatment levels would be dependent on the location(s) ultimately selected for re-injection, and the locations would be selected such that re-injection would not degrade groundwater quality at the injection location(s).

2. I am aware that the utilities or clean water producing systems, they try to go to the lower zone because the lower zone is not contaminated. So they don't use the -- they don't use – your goal is different from their goal. Your goal is to take the contaminants and clean the underground source. Your goal is different. But their goal is different from yours. Their goal is to go deeper; find cleaner, less caustic treatment of water. That's clear, right? But -- you do not -- with the facilities that we have, with the computer that we have and all this, you can't generate the plume containment. How is it progressed this year from the year before? Is this containment? So spending so much money up to now, what's the result of our spending so much money? So to make it short, that this -- this project should be looked over with more experts, people who know how to do it, what to do it. And the goal is not having good

quality, good water. Shortage of water in this valley. You know about that. There is shortage of water. One drop of water is very important. But the goal is not that. The goal is to clean the underground. That's it. It's not clean.

Response: The Remedial Action Objectives ("RAOs"), or goals, of the Amended Remedy are stated in the Proposed Plan, and include:

- ***Contain areas of contaminated groundwater that exceed the MCLs and notification levels to the maximum extent practicable.***
- ***Prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production wells by preventing the migration toward these well fields of the more highly contaminated areas of the VOC plume located to the east/southeast.***
- ***Achieve improved hydraulic containment to inhibit horizontal and vertical contaminant migration in groundwater from the more highly contaminated areas and depths of the aquifer to the less contaminated areas and depths of the aquifer, including the southeast portion of the NHOU in the vicinity of the Erwin and Whitnall production well fields.***
- ***Remove contaminant mass from the aquifer.***

As noted in the Proposed Plan, The First Interim Remedy (designed in 1986) has limited contaminant migration and removed contaminant mass from groundwater in the NHOU. However, new contaminants of concern have been identified in the NHOU, primarily hexavalent chromium and 1,4-dioxane, and changing groundwater conditions in the aquifer and the discovery of VOC contamination in new areas of the aquifer beneath North Hollywood limit the ability of the First Interim Remedy to fully contain the VOC plume. RD of the Second Interim Remedy is currently underway, as required by the 2009 ROD, and is being conducted by experts in the fields of hydrogeology and engineering, under the oversight of EPA. EPA fully expects the Amended Remedy to improve plume containment, as well as achieve the other RAOs. System startup and operations will be monitored by EPA, and reviews of the effectiveness of the Amended Remedy will be periodically conducted until all RAOs have been met.

3. To me, it appears that you're converting a contaminated system in the liquid state into an air pollution problem. You're drawing contaminants and putting it into the air. Presently, I am not affected by the water -- contaminants in the water. But being in this region, and if you put it into the air, I am affected. Let me point out that with respect to chromium, it's in the water phase. And if you're air stripping, the air that strips the VOC out becomes saturated with the very water that contains it. The chromium becomes a vapor. You're not doing -- you're not stopping the chromium from leaving the air stripper.

Response: As noted in the Proposed Plan, the Amendment to the 2009 Interim Action Record of Decision ("RODA") (which contains identical treatment components as the selected remedy in the 2009 ROD) includes treatment processes to remove chromium from groundwater withdrawn by extraction wells with elevated chromium concentrations before that water is treated for VOCs. Therefore, most of the chromium would be removed before entering an air stripper. To expand on the comment above, the air stripping process transfers VOCs from the aqueous phase (dissolved in water) to the vapor phase (as a gas

mixed with the passing air stream). The target VOCs in solution (such as trichloroethylene ("TCE") and tetrachloroethylene ["PCE"]) have relatively high Henry's Law constants, indicating that they are readily removed from water by the air-stripping process. In the First Interim Remedy and the Amended Remedy, the "stripped" VOCs are captured by granular activated carbon filters before the air is discharged to the atmosphere. Chromium is not a VOC—rather, it is a metal, which occurs in the dissolved phase as a cation or, more commonly in groundwater, as an oxyanion (combined with oxygen). At standard temperature and pressure, chromium cannot form a vapor phase like TCE or PCE, and its Henry's Law constant is effectively zero, meaning that it remains dissolved in liquid water. Therefore, the limited quantities of chromium that would reach the air stripper in the Amended Remedy would not volatilize and enter the air stream as a vapor.

E-mailed comment received by EPA during public comment period

1. Even though it will cost more money I am in favor of re-injecting water into the East Valley aquifer to help dilute the pollutants that now exist so that the aquifer can be used as a water reserve for LA's future. This last part is most important.

   Response: As noted in the Proposed Plan, the RODA allows two end-use options for the treated water from the Amended Remedy: (1) delivery to LADWP to meet its municipal supply needs, or (2) re-injection to the aquifer. If the treated water is delivered to LADWP, less pumping may be required by LADWP at other production well fields in the eastern SFV to meet its water-supply needs, resulting in an equal impact on the future water supply in Los Angeles compared to the re-injection option.

Comments received by EPA via letter during public comment period

1. The proposed amendment of the Second Interim Remedy to add the option to re-inject groundwater extracted from the North Hollywood Operable Unit ("NHOU") extraction wells is important and should be incorporated into the Record of Decision ("ROD"). As EPA notes, it is a necessary option because it may not be possible to achieve a drinking water end use. Moreover, re-injection of treated groundwater for aquifer recharge or as a component of a recirculating treatment system constitutes beneficial use of such treated water. Having a re-injection option for managing extracted groundwater will provide additional flexibility to design a remediation system that can meet the ROD and stakeholder interests in a manner that will achieve the remedial action objectives ("RAOs") efficiently and cost-effectively. The re-injection option does not prevent full consideration of using the treated water in the end as a drinking water supply for the Los Angeles Department of Water and Power ("LADWP") in the remedial design process. Indeed, the proposed configuration of the Second Interim Remedy, including extraction and/or injection wells and transfer of treated water to the LADWP, as appropriate, will be considered as part of the Groundwater Modeling Memorandum and subsequent design packages.

Response: As noted in the Proposed Plan, the RODA will allow the re-injection of the treated water if EPA determines that delivery of the water to LADWP is unachievable. Based on the information currently available, EPA believes the Amended Remedy meets the threshold criteria and balances the trade-offs between competing interests at the NHOU.

2. The Proposed Plan states that re-injection of the treated water would be the preferred option if the option to deliver the water to LADWP is thoroughly explored and deemed impractical. While the Proposed Plan does not specify what conditions would deem the drinking water end use impracticable, an option that involves injection or a combination of injection and drinking water end use that achieve the RAOs in a manner that is more easily and effectively implemented than a drinking water end option should be acceptable. We recommend that EPA clarify its standard for when the re-injection option will be acceptable.

   Response: EPA believes that delivery of treated groundwater to LADWP makes the most sense from a resource perspective. If LADWP and the NHOU Potentially Responsible Parties ("PRPs"), after negotiating in good faith, (1) have not come to an agreement on the terms for the delivery/acceptance of treated groundwater that satisfies EPA that the remedy will be able to operate reliably and effectively and (2) such an agreement has not been reached sufficiently far in advance of completion of design so that it can be incorporated into a final design, EPA will make the decision to proceed with re-injection as the end use so that the remedy can be implemented.

3. The Proposed Plan refers to the re-injection scenario presented in the 2009 Focused Feasibility Study, which included an estimated six injection wells and nine additional monitoring wells, noting that the injection wells would most likely be located north (up gradient) of the NHOU extraction wells. The 2011 Agreement and Order on Consent ("AOC") accounts for flexibility within the Record of Decision ("ROD"), which acknowledges that "further evaluation of specific pumping rates and extraction well locations will be performed during Remedial Design ("RD") to ensure that implementation of the Second Interim Remedy will not cause additional degradation of the aquifer." Additionally, the ROD states that "if new data collected prior to or during RD indicates that a different configuration of extraction wells is more effective and cost effective than the configuration described in the Proposed Plan, then that different configuration will be considered for implementation as part of the Second Interim Remedy." Given that re-injection would be an integral component of the Second Interim Remedy that could have a significant influence of the hydraulics of groundwater in the containment zone, we anticipate that the actual re-injection configuration will be determined during development of the RD.

   Response: EPA concurs that the actual re-injection configuration will be determined during the RD phase of implementation of the Amended Remedy.

4. LADWP's comments only focus on the proposed amendment of allowing re-injection of treated water back into the San Fernando Basin ("SFB") groundwater as a preferred alternative, and it is not intended to modify LADWP's prior comments submitted as part of the 2009 ROD review and approval process.

   Response: Comment noted—LADWP's comments on the 2009 ROD, together with EPA's responses, are included in Appendix A of the 2009 ROD.

5. The USEPA has indicated previously that re-injection is not the preferred end use, but rather that remediation of the groundwater and delivery to LADWP is preferred.

   Response: As noted in the Proposed Plan, EPA has concluded that re-injection of all extracted groundwater might be necessary if LADWP and the NHOU PRPs are unable to reach an agreement that is acceptable to EPA regarding terms/criteria for delivery and acceptance of the treated water. EPA believes that delivery of treated groundwater to LADWP makes the most sense from a resources perspective, but recognizes that water delivery requires a complex agreement between LADWP and the NHOU PRPs that is acceptable to EPA. In the absence of such an agreement, the remedy can only be successfully implemented if the treated groundwater is re-injected into the aquifer.

6. After thorough review of the referenced and provided information, LADWP was unable to determine the implementability and effectiveness of the proposed re-injection alternative. Summarized in this letter is additional information that is needed to determine the viability of the proposed re-injection in order to consider it as a viable alternative for containment, remediation, and removal of contaminants from the SFB (San Fernando Basin) groundwater. To be considered viable and effective, this option should also be able to prevent the continuing escape and migration of contaminants into other areas of the SFB aquifer.

   Response: As set forth in the FFS and 2009 ROD, the Amended Remedy provides the same level of protection to human health and the environment whether the end use for extracted water is delivery to LADWP for drinking water supply purposes or re-injection of all extracted water into the Basin. If delivery of the water to LADWP for use as drinking water is not possible, the alternate end use will be essential to the successful remedy implementation and, therefore, to protect human health and the environment.

7. The USEPA has not provided a defined process which may be used for deciding to exercise the re-injection option. The USEPA should provide information about its decision process, including, but not limited to, information about the following considerations:

   - What are the criteria for deciding that LADWP and the Potentially Responsible Parties ("PRPs") are unable to reach an agreement in good faith?
   - What is the recommended process and objective criteria for evaluating the reasonableness of the "terms/criteria" being negotiated?

   Response: EPA believes that delivery of treated groundwater to LADWP makes the most sense from a resource perspective. If LADWP and the NHOU PRPs, after negotiating in good faith, (1) have not come to an agreement on the terms for the delivery/acceptance of treated groundwater that satisfies EPA that the remedy will be able to operate reliably and effectively, and (2) such an agreement has not been reached sufficiently far in advance of completion of design so that it can be incorporated into a final design, EPA will make the decision to proceed with re-injection as the end use so that the remedy can be implemented.

8. The USEPA has not provided information that will ensure the re-injection end use satisfies all primary objectives for a preferred alternative as defined in the 2009 Focused Feasibility Study ("FFS") and 2009 ROD, such as but not limited to:

- Vertical and horizontal containment of contaminant concentrations which exceed the federal and state Maximum Contaminant Levels ("MCLs") and Notification Levels (NLs) for all constituents of concern ("COCs") which have been detected within the groundwater proximal to the NHOU and LADWP's various groundwater production wellfields,
- Groundwater extraction and re-injection flow rates of approximately 5,000 acre feet per year ("AF/Y"), and
- The deepening of existing wells and establishing of new extraction and re-injection wells.

Response: As set forth in the FFS and 2009 ROD, the Amended Remedy provides the same level of protection to human health and the environment whether the end use for extracted water is delivery to LADWP for drinking water supply purposes or re-injection of all extracted water into the Basin. The actual configuration of extraction and re-injection wells will be determined during the RD phase of implementation of the Amended Remedy.

9. The USEPA has not provided the Performance Standards for the re-injection end use option. The proposed amendment states that such standards will be established later, during the remedial design process based on the COC concentrations in the groundwater at the injection well location(s). What process will the USEPA use for establishing these Performance Standards?

Response: As described in the Proposed Plan, in the scenario where the contaminant of concern ("COC") is already at levels higher than MCLs in the aquifer, then the basis for a performance standard will be (at a minimum) MCLs (federal or State). In the scenario in which a given constituent is present at lower levels than the MCL, then the re-injected water must be treated in a manner consistent with the California Antidegradation Policy requirements.

10. The USEPA has not provided any requirements for how PRP's will demonstrate compliance with California's Anti-degradation Policy. In question are:

- How will re-injection of contaminated groundwater back into the aquifer be prevented in the event of malfunction with the treatment plant?
- What monitoring processes and frequencies will be in place to ensure full compliance?
- What enforcement mechanisms will be imposed for any violations which may occur?
- How will the USEPA respond to and recover any contaminants which may have been re-injected into the aquifer?

Response: The RD effort will include development of a Pre-Achievement Operations and Maintenance ("O&M") Plan describing actions to be taken to avoid re-injection of contaminated water and response actions in case of a plant failure. The Pre-Achievement O&M Plan will also include a Compliance Monitoring Sampling and Analysis Plan.

11. The USEPA has not provided proposed locations for any re-injection wells. How will the USEPA identify candidate sites, and what process will be used to evaluate and screen for appropriate and suitable locations for re-injecting the treated groundwater?

Response: As described in the FFS, six injection wells were assumed to be located north (upgradient) of the NHOU extraction wells. In this configuration, the treated groundwater would be re-injected into the aquifer at the northern boundary of the VOC and chromium plume, and supplement the hydraulic gradient driving contaminated groundwater toward the extraction wells. The actual re-injection configuration will be determined during the RD phase of implementation of the Amended Remedy, considering effects that the injection wells are forecast to have on groundwater quality at the re-injection location, as well as forecast hydraulic containment of contaminated groundwater in the NHOU.

12. In this proposed amendment, the USEPA has not provided its evaluation of the potential adverse effects caused by re-injection to the aquifer.

    - Groundwater mounding as a result of re-injection may liberate unknown contaminants which are currently trapped within the unsaturated zone of the soil matrix. Raising the water table as a result of re-injection would saturate the lower vadose zone, potentially leaching Volatile Organic Compounds ("VOCs") and other contaminants into the shallow groundwater.

    - The re-injection of treated groundwater may also potentially cause spreading of the contaminant plume to other parts of the SFB where extraction and treatment systems are not in place.

    - How will the USEPA identify the potential for these situations at each re-injection; what analytical process will be utilized (such as groundwater modeling), and how will these situations be evaluated, monitored, and prevented during the implementation phase?

    Response: A detailed analysis of effects of re-injection will be conducted during the RD effort. The RD effort includes pre-design groundwater modeling, which will be used by EPA to identify potential issues with re-injection and to modify the re-injection configuration as necessary before and during the RD process. If re-injection is selected as the end-use option, the Pre-Achievement O&M Plan will be developed during the RD process and will include a Compliance Monitoring Sampling and Analysis Plan that will incorporate monitoring of impacts of re-injection. Implementation of the Amended Remedy will be required to meet performance standards and RAOs.

13. The USEPA should disclose more information and details about the plans for the re-injection alternative before concluding that this end use provides for the Overall Protectiveness of Human Health and the Environment.

    Response: As noted in the FFS and 2009 ROD, the Second Interim Remedy (and Amended Remedy) will protect human health and the environment by achieving, to the extent practicable, hydraulic containment of groundwater exceeding the MCLs, including the most significant areas of groundwater contamination in the NHOU, thereby preventing the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells. The Amended Remedy's VOC treatment components will remove the VOCs and other treatment components will remove emerging contaminants of concern (including hexavalent chromium and 1,4-dioxane) to the performance standards identified in this RODA. Water supply wells, NHOU extraction wells, EPA remedial investigation monitoring wells, and facility monitoring wells will be

monitored, and access to contaminated groundwater will be restricted through institutional controls ("ICs"). These goals will be achieved under either end-use option included in the Amended Remedy.

14. The USEPA has not provided its identification and evaluation of any risks which may remain after the long-term implementation of the re-injection alternative. There may be risks associated with remaining sources of contamination in the extraction areas or contaminant residuals which pass through the treatment process and back into the aquifer by way of re-injection.

    Response: The plans for groundwater extraction under both the LADWP-delivery and the re-injection end-use options are identical; therefore, risks associated with remaining sources of contamination in the extraction areas are expected to be identical (see previous response to comment for more detail). As discussed in the FFS for the NHOU Second Interim Remedy and the 2009 ROD, cleanup levels for the re-injection end-use option would be established during the RD phase based on the injection locations. As described in the Proposed Plan, in the scenario where the contaminant of concern ("COC") is already at levels higher than MCLs in the aquifer, then the basis for a performance standard will be (at a minimum) MCLs (federal or State). In the scenario in which a given constituent is present at lower levels than the MCL, then the re-injected water must be treated in a manner consistent with the California Antidegradation Policy requirements.

15. The USEPA has not provided any evaluation for adequacy and reliability of critical technology controls. This should address the degree of confidence that such vital controls may fail and uncertainties with re-injection water that may still contain wastes. Risks and difficulties associated with the long-term management and maintenance strategies should be discussed to ensure the re-injection alternative remains viable and effective over the life of the remedy. This would include reviewing the potential need for replacement re-injection wells or moving the re-injection to new locations.

    Response: The RD effort will include development of a Pre-Achievement O&M Plan describing system controls and equipment, routine operating activities, routine maintenance activities, well rehabilitation requirements, emergency operating activities, and other procedures required to keep the Amended Remedy, including the re-injection components (if necessary), operating effectively for the long term.

16. The USEPA must disclose more information about the risks associated with plans for the re-injection alternative before concluding that this end use provides for the Long-term Effectiveness and Permanence.

    Response: As discussed in EPA's FFS for the NHOU Second Interim Remedy and the 2009 ROD, the Second Interim Remedy (and the Amended Remedy) will permanently remove VOCs, 1,4-dioxane, and chromium from extracted groundwater under either end-use option. Implementation of the ICs is intended to ensure that this alternative prevents the continued migration of contaminants and remains protective in the long term.

17. The determination of whether the proposed amendment considers the ability of the alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present cannot be

properly evaluated. Significantly more information about details of the re-injection alternative end use must be disclosed and certain analysis must be completed before concluding that the proposed amendment provides for a Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment. The proposed amendment must layout some acceptable parameters for an appropriate evaluation. Such disclosure should provide for, at a minimum, the same information requested in our general comments above.

Response: As discussed in the FFS for the NHOU Second Interim Remedy and the 2009 ROD, the Second Interim Remedy (and Amended Remedy) will permanently remove VOCs, 1,4-dioxane, and chromium from extracted groundwater under either end-use option.

18. The USEPA has not provided a full analysis of the time needed to implement the re-injection alternative, in light of the various concerns and information needed to adequately define the project, evaluate the effectiveness, implementability, and associated risks and impacts related to the re-injection end use.

Response: The FFS and 2009 ROD included evaluation of the short-term effectiveness of the re-injection end-use option under the Preferred Alternative (Alternative 4b). Construction of the injection wells, additional pipelines, and additional monitoring wells required for the re-injection option may require an additional 6 to 12 months to implement. Ultimately, if re-injection is implemented as the end-use option, a new schedule for implementation will be developed as part of the RD process.

19. In evaluating implementability, the USEPA must address both the technical and administrative feasibility of implementing a technology process or remedy from design through construction and operation, including the availability of services and materials needed to implement a particular option and the need for coordination with other governmental entities. Significantly more information about details of the re-injection alternative end use must be disclosed and certain analysis must be completed before the alternative end use is declared as a preferred alternative. The proposed amendment must layout some acceptable parameters for an appropriate evaluation. Such disclosure must provide for, at a minimum, the following to determine both technical implementability and administrative implementability:

- Given that sites have not yet been identified, it is difficult to fully assess the relevant issues affecting construction and operation of the re-injection end-use option. The installation of conveyance pipelines between the Second Interim Remedy treatment plant and each of the re-injection wells will require PRPs to secure pipeline franchises from the City of Los Angeles. PRPs would need to obtain all necessary easements, right of ways, water rights, and real property identified for accommodating the pipeline alignments, booster pump stations, electrical power services and controls infrastructure, and space to be utilized during the operations and maintenance phase. None of this is discussed in the proposed amendment.

Response: The FFS and 2009 ROD included evaluation of the implementability of the re-injection end-use option under the Preferred Alternative (Alternative 4b). The injection wells required under Alternative 4b can be difficult and costly to operate and maintain, and the time required for planning, permitting, and construction of the re-injection

infrastructure would likely be greater than the time required for implementation of delivery of the water to LADWP (the existing end-use). However, if delivery of the water to LADWP for use as drinking water is not possible, the alternate end use will be essential to the successful remedy implementation and, therefore, to its implementability. If re-injection is implemented as the end-use option, additional information regarding planning, permitting, and construction requirements will be included in the RD documents.

20. The USEPA has not provided any criteria or information that discusses the technical aspects of the re-injection end use, such as:

    - What technical reliability issues are being considered as part of evaluating the re-injection end-use option?
    - Are the potential failure modes and risks known, and how will system operations respond if there was a sudden failure with one or more re-injection wells, a treatment plant component, or a pipeline break?

    Response: The RD documents will discuss technical reliability concerns and ways to mitigate them. The Pre-Achievement O&M Plan will include emergency operating activities, an assessment of potential equipment or control failures, and a compliance monitoring sampling and analysis plan.

21. The USEPA must outline its requirements and mitigation for the consequence of re-injection water picking up contaminants due to groundwater flow and gradients.

    Response: If re-injection is selected as the end-use option, additional evaluation of groundwater quality and potential source areas in the vicinity and downgradient of the planned injection wells will be conducted to reduce the potential risk of raising contaminant levels in previously uncontaminated areas of the aquifer.

22. Based on the information provided, it is not possible to determine whether migration or exposure pathways can be adequately monitored since the proposed locations of the re-injection wells were not specified.

    Response: It was assumed in the FFS that nine additional monitoring wells would be installed in the area of the injection wells to monitor groundwater levels and water quality in the vicinity of the new injection wells. More than nine additional monitoring wells will be installed if deemed necessary during the RD process, in order to adequately monitor the re-injection option. The locations for the injection wells and associated monitoring wells will be selected during the RD process.

23. The USEPA has not provided any information which describes the basic administrative issues such as, but not limited to:

    - How will PRPs be required to demonstrate to the Los Angeles Regional Water Quality Control Board and California Department of Public Health their continuing compliance with the California Anti-degradation Policy (State Water Resources Control Board Resolution No. 68-16) and other Performance Standards, which are yet to be determined, so that the issue of implementability can be tested?

- What will be the USEPA's process for oversight, compliance, and enforcement, and how will it coordinate with LADWP and California's environmental regulators to participate in these functions, so that the issue of implementability can be tested?
- There is no indication as to what will be the process for involving the Upper Los Angeles River Area ("ULARA") Watermaster in the review and evaluation of the re-injection end-use option, including evaluation of appropriate re-injection locations and depths, review of modeling and analysis of effects on existing contaminant plumes, and agreement on systems and processes to allow for accurate accounting of operational losses of groundwater.
- There is no indication as to whether or not the PRPs can obtain the pipeline franchise agreements from the City of Los Angeles.
- In the 2009 ROD, the USEPA anticipated "additional administrative issues" for either end use (drinking water or re-injection) in regards to permitting and access requirements for new infrastructure. With the increased focus on re-injection as a preferred end use, it now seems the USEPA should update its analysis of the administrative challenges with more specifics. This will allow for a more detailed comparison of the challenges with permitting and access requirements, and to more appropriately weigh the major trade-offs between these two options.

Response: A Pre-Achievement O&M Plan will be developed during the RD process, which will include reporting requirements to demonstrate compliance of either end-use option with the RAOs for the Amended Remedy and ARARs established in the 2009 ROD and ROD Amendment.

The ULARA Watermaster will be provided with relevant RD documents and given an opportunity to review and comment, consistent with past practice at the NHOU.

As noted in the FFS and 2009 ROD, new pipelines are required for extraction wells and (if re-injection is selected as the end-use option) injection wells under the selected remedy. Compliance with the substantive requirements of any applicable permitting process (including "franchise agreements") was anticipated by EPA under either end-use option and will be investigated in more detail during RD.

The re-injection end-use option was already considered and evaluated during the FFS as a potentially equally viable alternative to delivery of the water to LADWP as an end-use option. Alternative 4a (delivery to LADWP as the end-use option) was selected instead of Alternative 4b (re-injection as the end-use option) in the 2009 ROD as the Second Interim Remedy, primarily based on cost. The net present value ("NPV") of the re-injection option was estimated to be approximately $26 million greater than the NPV of the LADWP-delivery option. However, if delivery of the water to LADWP for use as drinking water is not possible, the alternate end use will be essential to the successful remedy implementation. If the re-injection end-use option is implemented, analysis of the administrative details will be conducted during RD.

24. Availability of services and materials need to be considered as part of concluding whether the re-injection end-use option is feasible and can be implemented. The USEPA has not provided

any indication as to considerations for availability of treatment, storage capacity, and disposal services which will be dependent on the resources of the PRP operators.

- How were these components of the re-injection end-use option identified and evaluated?
- Can this evaluation component be provided for our additional review and comment?
- Have the necessary specialists, operations staff, and equipment required for implementing the re-injection end- use option been identified and evaluated?
- Has the availability of the prospective technologies been considered with regard to whether there are multiple vendors available to offer the required services and provide competitive bids, or whether technology is available to provide re-injection in the expected volume and flow rate of approximately 5,000 AF/Y?

Response: Identification and evaluation of the basic components of the re-injection end-use option were presented in the FFS. Design and cost assumptions are presented in Appendices C and D of the FFS. Although implementation of the re-injection end-use option would entail greater administrative and technical challenges than delivery to LADWP, re-injection of treated groundwater is not a new science or technology, and has been successfully implemented as an end-use technology at many other Superfund sites. EPA does not anticipate encountering difficulty finding appropriate staff and equipment or multiple vendors to implement the re-injection option, if it becomes necessary.

25. This evaluation includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Given that expected costs for the re-injection end use are nearly $27 million more costly than the drinking water end use, the drinking water end use alternative is vastly superior to the option for re-injection end use.

Response: Alternative 4a (delivery to LADWP as the end-use option) was selected instead of Alternative 4b (re-injection as the end-use option) in the 2009 ROD for the Second Interim Remedy, primarily based on cost. The NPV of the re-injection option was estimated to be approximately $26 million greater than the NPV of the LADWP-delivery option (NPV of $134.2 million versus $107.8 million). However, if LADWP and the NHOU PRPs are unable to reach an agreement that is acceptable to EPA regarding terms/criteria for delivery and acceptance of the treated water, implementation of the alternate end use will be essential to the successful remedy implementation, despite the cost difference.

26. The USEPA indicated that the California agencies have expressed their support for the USEPA's preferred alternative. LADWP appreciates the continued support and partnerships which have been developed over the recent decades with our environmental regulatory agencies at the federal and state levels. However, LADWP was not made aware of such support being provided by the California environmental regulators for the re-injection end-use option. Please provide any relevant documentation which has indicated the state's support for this proposed amendment and the information and criteria that were relied upon as a basis for providing support.

Response: In 2009, DTSC (the State lead agency for the NHOU) expressed support for EPA's Preferred Remedy in the FFS, which became the Selected Remedy in the 2009

ROD. A letter of support from DTSC for the Amended Remedy is included in the Administrative Record for the NHOU.

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EPA Superfund

Explanation of Significant Differences to the 2009 Interim Action Record of Decision

North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

February 22, 2018

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Explanation of Significant Differences to the 2009 Interim Action Record of Decision for the North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

February 22, 2018

United States Environmental Protection Agency

Region IX - San Francisco, California

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TABLE OF CONTENTS

FIGURES

ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

1987 ROD	Record of Decision for a Remedial Action for Area 1 of the San Fernando Valley Superfund sites
2009 ROD	EPA Superfund Interim Action Record of Decision: North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, September 29, 2009
2014 RODA	EPA Superfund Amendment to the Interim Action Record of Decision: North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, January 10, 2014
2016 MOF	EPA Memorandum to File, Addition of Groundwater Extraction Wells West of Hewitt Pit to the NHOU Second Interim Remedy; June 20, 2016
µg/L	microgram per liter
ARARs	Applicable or Relevant and Appropriate Requirements
BOU	Burbank Operable Unit of the San Fernando Valley Area 1 Superfund Site
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DDW	CA Department of Drinking Water
DTSC	California Department of Toxic Substances Control
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FFS	Focused Feasibility Study, North Hollywood Operable Unit, San Fernando Valley Area 1 Superfund Site, (2009)
GAC	granular activated carbon
gpm	gallons per minute
LADWP	Los Angeles Department of Water and Power
LPGAC	liquid phase granular activated carbon
MCLs	Maximum Contaminant Levels
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NHOU	North Hollywood Operable Unit, San Fernando Valley Area 1 Superfund Site
NHOU2IR	NHOU Second Interim Remedy
PRP	potentially responsible party
RAO	Remedial Action Objective
RWQCB	Regional Water Quality Control Board
State	State of California
VOCs	volatile organic compounds

1.0 INTRODUCTION

1.1 SITE LOCATION

The North Hollywood Operable Unit (NHOU) of the San Fernando Valley (SFV) Area 1 Superfund Site (Site) is located in Los Angeles County, California (CERCLIS ID No. CAD980894893). The NHOU comprises approximately four (4) square miles of contaminated groundwater underlying an area of mixed industrial, commercial, and residential land use in the community of North Hollywood (a district of the City of Los Angeles). The NHOU is approximately 15 miles north of downtown Los Angeles and immediately west of the City of Burbank (see Figure 1).

1.2 PURPOSE

This Explanation of Significant Differences (ESD) documents significant changes to the cleanup remedy in the NHOU. The significant changes include: increased groundwater extraction; expanded treatment plant capacity to treat the additional extracted water; and transfer of some of the extracted groundwater to the SFV Area 1 Burbank Operable Unit (BOU) treatment plant.

The United States Environmental Protection Agency (EPA) signed an Interim Action Record of Decision for the NHOU on September 30, 2009 (2009 ROD). The remedy selected in the 2009 ROD is intended to contain contaminated groundwater in the SFV and remove contaminant mass. The 2009 ROD requires extraction and treatment of approximately 3,600 gallons per minute (gpm) of contaminated groundwater, with delivery of the treated water to the Los Angeles Department of Water and Power (LADWP) for use in its domestic water supply system. EPA selected the remedy in the 2009 ROD in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). EPA amended the 2009 ROD in 2014 to add re-injection of the treated water as an alternate end use, and EPA confirmed the need for additional extraction wells in a 2016 Memorandum to the File. The remedy selected in the 2009 ROD and modified by the subsequent amendment, memorandum to file, and this explanation of significant differences are collectively referred to as the NHOU Second Interim Remedy (NHOU2IR).

EPA prepared this ESD based on the information available in the administrative record for the Site, the public comments received, and consistent with CERCLA Section 117(c) and Section 300.435(c)(2)(i) of the NCP. In accordance with Section 300.825(a)(2) of the NCP, this ESD will become part of the administrative record for the Site. This ESD does not fundamentally alter the overall cleanup approach of the NHOU2IR, remains

protective, and continues to meet Applicable or Relevant and Appropriate Requirements (ARARs) per NCP Section 300.430(f)(1)(ii)(B)(1) and (2).

1.3 Lead and Support Agencies

The EPA is the lead agency for the current and planned future groundwater remedial activities at the NHOU. The EPA's response activities at the NHOU are and have been conducted under the authority established in the federal Superfund law, CERCLA, as amended, 42 United States Code ("U.S.C.") §9601 et seq. The lead State agency is the California Department of Toxic Substances Control. The Los Angeles Regional Water Quality Control Board ("RWQCB") has provided and continues to provide substantial support, particularly with the investigation and cleanup of sources of contamination.

1.4 Location of Administrative Record File

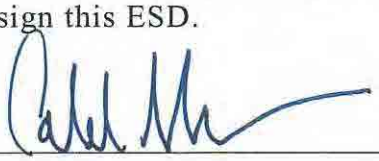
The Administrative Record file is available to the public at the EPA Region 9 Superfund Records Center, 75 Hawthorne Street, San Francisco, California, 94105 (415) 536-2000. The Administrative Record is also available for public review at the following information repositories:

- City of Los Angeles Central Library, Science & Technical Department: 630 West 5th Street, Los Angeles, CA, 90071, (213) 228-7216;
- North Hollywood Regional Branch Library, 5211 Tujunga Avenue, North Hollywood, CA, 91601; and,
- Burbank Public Library, Central Library, 110 North Glen Oaks Boulevard, Burbank, CA, 91502.

EPA also maintains a Site information web page at:
http://www.epa.gov/superfund/sanfernandonorthhollywood

1.5 Authorizing Signature

This ESD documents changes to the Second Interim Remedy for contaminated groundwater at the North Hollywood Operable Unit of the San Fernando Valley Area 1 Superfund Site. The California DTSC concurs with this ESD. The Assistant Director of the Superfund Division (EPA, Region 9) has been delegated the authority to approve and sign this ESD.



2/22/18

Caleb Shaffer — Date

Acting Assistant Director, Superfund Division

California Site Cleanup Branch

2.0 SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

The San Fernando Valley Basin (Basin) is an important source of drinking water for the Los Angeles metropolitan area. On average, groundwater in the vicinity of the NHOU accounts for approximately 15 percent of the City of Los Angeles' drinking water supply. For many reasons, including the recent drought, groundwater is an increasingly important source of drinking water for the City of Los Angeles. Extraction and management of the groundwater is closely regulated by an adjudication, which is overseen by a court-appointed special master, the Upper Los Angeles River Area Watermaster.

2.1 SITE HISTORY

EPA signed the first ROD for the NHOU in September 1987, selecting an interim remedy to address contaminated groundwater in the North Hollywood area (First Interim Remedy). The objective of the First Interim Remedy was to slow down or stop the movement of the contaminant plume and remove contaminant mass. The First Interim Remedy began operation in 1989, and LADWP continued to operate the treatment plant and many of the extraction wells until November 2017, when the system was shut down in preparation for construction of the Second Interim Remedy. The First Interim Remedy controlled the movement of groundwater by using a series of extraction wells that pumped contaminated groundwater from the San Fernando Valley aquifer. After the water was extracted from the aquifer, LADWP treated it using an air stripper, and then used carbon filters to remove contaminants. The treated water was then sent to a blending station, where it was further treated, blended with water from other sources, and then distributed through the water supply system for the City of Los Angeles.

Changing groundwater conditions and the discovery of VOC contamination in new areas of the aquifer beneath North Hollywood limited the ability of the First Interim Remedy to fully contain the VOC plume in the NHOU. In addition, LADWP shut down two of the First Interim Remedy's extraction wells, as well as a number of its own municipal drinking supply water wells, after emerging contaminants, including hexavalent chromium and 1,4-dioxane, were detected above state standards.

In response to these issues, the EPA conducted a Focused Feasibility Study (FFS) in 2007-2008 to evaluate alternatives for a Second Interim Remedy. The results of the FFS, including the comparative analysis of alternatives and identification of a preferred alternative, are summarized in the July 2009 Proposed Plan, and the preferred remedy was documented in the 2009 ROD. The remedy that EPA selected in the 2009 ROD included: installation of well-head treatment for hexavalent chromium and 1,4-dioxane;

expansion of the treatment system; installation of additional monitoring wells; installation and operation of up to three additional groundwater extraction wells; and, continued provision of the treated water to the LADWP.

EPA amended the 2009 ROD on January 10, 2014 (2014 RODA), in order to add re-injection as an alternative end use for the treated water. In addition, EPA signed a Memorandum to the File on June 20, 2016, confirming that additional extraction wells were needed in order to protect LADWP's North Hollywood West (NHW) Wellfield from 1,4-dioxane contamination (2016 MOF).

2.2 Remedial Action Objectives

The remedial action objectives (RAOs) for the NHOU2IR are unchanged from those set forth in the 2009 ROD:

- Prevent exposure to contaminated groundwater, above acceptable risk levels;
- Contain areas of contaminated groundwater that exceed the Maximum Contaminant Levels (MCLs) and notification levels to the maximum extent practicable;
- Prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production wells by preventing the migration toward these well fields of the more highly contaminated areas of the VOC plume located to the east/southeast;
- Achieve improved hydraulic containment to inhibit horizontal and vertical contaminant migration in groundwater from the more highly contaminated areas and depths of the aquifer to the less contaminated areas and depths of the aquifer, including the southeast portion of the NHOU in the vicinity of the Erwin and Whitnall production well fields; and,
- Remove contaminant mass from the aquifer.

The EPA inadvertently left out the first RAO (Prevent exposure to contaminated groundwater, above acceptable risk levels) from the final published 2014 ROD Amendment. This ESD clarifies that all five of the RAOs listed in the 2009 ROD continue to apply to the NHOU2IR.

The scope of the NHOU2IR does not include restoration of the aquifer (i.e., removal of all manmade contaminants), in part because additional data are needed in some areas of the aquifer where the extent of contamination and potential sources must be better defined before EPA can determine what additional actions, if any, are needed to address these other areas, and possible sources, of groundwater contamination.

2.3 DESCRIPTION OF REVISED REMEDY

The NHOU2IR includes the components listed below in Sections 2.3.1 through 2.3.6, and incorporates the modifications to the 2009 ROD as set forth in the 2014 RODA, the 2016 MOF, and this ESD. Section 4.0 presents a comparison of the changes.

This ESD does not change the RAOs, the contaminants addressed, nor the NHOU2IR's approach to containment and mass removal, and it does not fundamentally change the scope, performance, or cost of the NHOU2IR. Accordingly, EPA has determined that, consistent with EPA's *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*, the changes to the remedy in this ESD are best characterized as "significant" rather than "fundamental," as further described below.

2.3.1 Groundwater Extraction

The 2009 ROD requires hydraulic containment of the most contaminated areas of the NHOU plume "to the maximum extent practicable." In the 2009 FFS, EPA estimated that the minimum extraction rate necessary to achieve the containment RAO was 3,600 gpm. After reviewing additional groundwater data collected since 2009 and securing LADWP's cooperation regarding its planned groundwater extraction rates and possible use of out-of-service LADWP extraction wells, EPA determined that the NHOU2IR was capable of achieving greater levels of containment in the NHOU. With the changes in this ESD, EPA estimates that the NHOU2IR can achieve an annual average pumping rate of 6,500 gallons per minute (gpm), improving both hydraulic containment and contaminant mass removal.

Incorporating the changes in this ESD, the NHOU2IR groundwater extraction system will include the following components:

- Replace existing extraction wells NHE-3, NHE-4 and NHE-5 with deeper wells (NHE-3R, NHE-4R, and NHE-5R, respectively)
- Continue operation of the existing extraction wells NHE-2 and NHE-6, as currently constructed;
- Abandon existing well NHE-1, and remove it from the extraction well network;
- Continue operation of extraction wells NHE-7 and NHE-8;
- Add approximately seven additional extraction wells in the NHOU plume area to improve hydraulic containment and treatment of the plume. These wells may be unused LADWP production wells or newly installed, as determined during the

design. At least two of the wells shall be installed in the eastern plume area, around NHE-7 and NHE-8.

2.3.2 Groundwater Treatment Levels

The 2009 ROD establishes performance standards for the contaminants of concern at the NHOU, and requires that the treated water meet all applicable drinking water standards and treatment levels that apply to these contaminants in order to ensure successful implementation of the drinking water end use selected in the remedy. The performance standards selected in the 2009 ROD are unchanged by this ESD with the exception of hexavalent chromium.

At the time EPA signed the 2009 ROD, the Maximum Contaminant Level (MCL) for total chromium was 50 micrograms per liter (ug/L) and there was no MCL for hexavalent chromium. LADWP, however, refused to accept delivery of treated water to its municipal water supply system that exceeded 5 ug/L for hexavalent chromium. Although EPA did not consider LADWP's 5 ug/L limit for hexavalent chromium to be an ARAR, EPA identified it as an offsite requirement that must be satisfied in order for the Second Interim Remedy to be successfully implemented. Accordingly, EPA included the 5 ug/L limit for hexavalent chromium as a performance standard that must be met by the Second Interim Remedy.

On July 1, 2014, an MCL of 10 ug/L for hexavalent chromium went into effect in the State of California. On May 31, 2017, the Superior Court of Sacramento County issued a judgment invalidating the hexavalent chromium MCL, and as of September 11, 2017, the MCL for hexavalent chromium is no longer in effect. As a result, the California MCL of 50 ug/L for total chromium, which was identified as a relevant and appropriate requirement in the 2009 ROD and is unchanged by this ESD, is currently the only ARAR for chromium.

Since the 2009 ROD, LADWP has revised its position and will no longer require that water delivered to it from the NHOU2IR be treated to 5 ug/L for hexavalent chromium. Both LADWP and the City of Burbank will accept treated water from the NHOU2IR that meets the treatment levels specified in their respective drinking water permits issued by the CA Department of Drinking Water (DDW). Because the treatment level for hexavalent chromium in LADWP's and the City of Burbank's drinking water permits may change over time, particularly if the State of California promulgates a new hexavalent chromium MCL, EPA is not specifying a numeric performance standard for hexavalent chromium in this ESD. Instead, if the end use for the treated water is municipal water supply, the NHOU2IR's performance standard for hexavalent chromium will be the lower of the MCL or the treatment level that appears in city's

drinking water permit.[1] Because drinking water permit levels are offsite requirements, the NHOU2IR performance standard will change if the treatment level specified in the drinking water permit changes.[2] If the end use for the treated water is re-injection, the performance standard for hexavalent chromium is unchanged by this ESD.[3]

2.3.3 Groundwater Treatment Location

Consistent with the 2009 ROD, water extracted from NHE-2, NHE-3, NHE-4, NHE-5, and NHE-6 will be treated at the NHOU treatment plant located on Lankershim Boulevard. With the exception of the approximately two new extraction wells installed in the vicinity of NHE-7 and NHE-8, the water extracted from the new wells required by this ESD will also be treated at the NHOU treatment plant located on Lankershim Boulevard.

Pursuant to this ESD, water extracted by wells NHE-7 and NHE-8 and by the new wells installed in the vicinity of NHE-7 and NHE-8 (together, the "Eastern NHOU Wells") will be diverted to the treatment plant for the Burbank Operable Unit (BOU) of the San Fernando Valley Area 1 Superfund Site, located at 2030 North Hollywood Way, Burbank, California, for treatment. The BOU remedy will be updated to include this additional groundwater stream, via a Memorandum to File.

The BOU treatment plant is physically closer to the Eastern NHOU Wells than the NHOU treatment plant and it has both the treatment technology and the capacity to accommodate the water from Eastern NHOU Wells. Because chromium and 1,4-dioxane levels are much lower in the eastern area of the NHOU, the water extracted by the Eastern NHOU Wells will be treated only for VOCs. The primary contaminants of concern at the BOU and the NHOU are the same, TCE and PCE, and the treatment technology and goals in the BOU remedy are equivalent to the NHOU2IR for these contaminants.

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[1] In the event that the hexavalent chromium treatment levels are different in LADWP's and the City of Burbank's drinking water permits, the treated water in LADWP's system must meet the applicable offsite requirement for LADWP's drinking water permit, and the treated water in the City of Burbank's system must meet the City of Burbank's drinking water permit.

[2] If California promulgates a new MCL for hexavalent chromium, EPA will evaluate whether it is necessary to further revise the ROD and change the ARARs for the NHOU2IR in order to ensure that the remedy is protective of human health.

[3] As stated in the 2014 RODA, performance standards for the re-injection end-use option would be established during remedial design based on the injection locations and discussions with the RWQCB, which regulates groundwater injection.

Lockheed Martin Corporation is currently conducting a focused feasibility study (FFS) in the BOU to: identify, collect, and evaluate updated BOU site data; evaluate the effectiveness of the existing BOU interim remedy in achieving the RAOs set forth in the 1989 BOU ROD; and, evaluate containment and treatment options to improve remedy performance. As part of this effort, Lockheed will evaluate the impacts of managing the Eastern NHOU Wells as part of the BOU remedy rather than the NHOU remedy. Following completion of the FFS, EPA expects to issue a second interim record of decision for the BOU (BOU2IR).

2.3.4 Groundwater Treatment System

In order to accommodate the additional volume of water extracted pursuant to this ESD, the capacity of the NHOU2IR groundwater treatment system will be expanded to accommodate at least 4,800 gallons per minute. The components of the treatment system located on Lankershim Boulevard are unchanged by this ESD:

- VOC treatment by air stripping, followed by GAC;
- Treatment for hexavalent chromium by ferrous iron reduction with microfiltration, or an anion-exchange-based treatment process; and,
- Treatment for 1,4-dioxane by ultraviolet light and hydrogen-peroxide AOP.

As in the 2009 ROD, treatment technologies for hexavalent chromium and 1,4-dioxane at the Lankershim Boulevard treatment plant may be changed during design if another technology is demonstrated to be equally effective and more cost-effective, and/or if required by the DDW permit.

Water extracted from the Eastern NHOU Wells, approximately 1,700 gallons per minute, will be delivered to the BOU treatment plant for VOC treatment. The components of the BOU treatment plant, as selected in the 1989 BOU ROD, are:

- VOC treatment by air stripping followed by vapor phase GAC.

2.3.5 End-Use of Extracted and Treated Water for the Eastern NHOU Wells

The end-use options for the treated water from the NHOU2IR are:

Eastern NHOU Wells

- **Option 1:** Water from the Eastern NHOU Wells that is treated at the BOU plant will be used by the City of Burbank for its municipal drinking water supply or conveyed to LADWP for use in its municipal drinking water supply.

- **Option 2:** Any water not used in the City of Burbank's or LADWP's municipal drinking water supply will be re-injected back into the ground.

All other NHOU Wells

- **Option 1:** Water treated at the Lankershim Boulevard treatment plant will be delivered to LADWP for use in its municipal drinking water supply.
- **Option 2:** Any water not used in LADWP's municipal drinking water supply will be re-injected back into the ground.

2.3.6 Other Requirements

The following components of the NHOU2IR are unchanged by this ESD:

- **Prevent Migration of 1,4-Dioxane to the North Hollywood West Wellfield.** As previously determined in the 2016 MOF, at least two extraction wells located to the southwest of the Hewitt Pit Landfill shall be installed to capture contamination migrating from the Hewitt Pit towards the North Hollywood West Wellfield. The final location of the treatment system for these wells shall be determined during design.
- **Groundwater Monitoring.** Install, and add to the investigation and monitoring program, approximately 12 new wells (approximately 25 wells have previously been installed, of the 37 specified in the 2009 ROD).
- **Institutional Controls.** In addition to the groundwater pumping restrictions imposed by the Watermaster under the auspices of the California Superior Court, the primary institutional control for the NHOU2IR is a groundwater management plan whereby the EPA, LADWP, and the NHOU Potentially Responsible Parties (PRPs) will develop a plan to coordinate groundwater pumping activities in order to protect the effectiveness and integrity of the NHOU2IR while accommodating, to the greatest extent possible, LADWP's drinking water production.

2.4 Management of the Eastern NHOU Wells as part of the BOU

If, in the BOU2IR ROD, EPA elects to shift management of the Eastern NHOU Wells from the NHOU2IR to the BOU2IR, as is currently being evaluated in the BOU FFS, the Eastern NHOU Wells will cease to be a part of the NHOU2IR and, from that point forward, will be incorporated into and managed as part of the BOU2IR.

3.0 BASIS FOR THE DOCUMENT

After reviewing additional groundwater data collected since 2009 and securing LADWP's cooperation regarding its planned groundwater extraction rates and potential use of LADWP extraction and conveyance infrastructure, EPA determined that increased groundwater extraction in the NHOU could practicably achieve greater containment than the remedy selected in the 2009 ROD. The NHOU PRPs prepared two documents analyzing the effects of an expanded extraction well network: *Groundwater Modeling Technical Memorandum* (July 21, 2015), and *Treatment Options Memorandum* (December 9, 2016). Both documents support the conclusions that increased groundwater extraction pursuant to this ESD improves the performance of the NHOU2IR and better achieves RAOs. Additionally, the expansion of groundwater extraction in the NHOU and LADWP's contributions to the remedy improve the reliability of the drinking water end use.

The risk information contained in the 2009 ROD is still accurate. High concentrations of TCE, PCE, 1,4-dioxane, and chromium (both total and hexavalent) in groundwater represent a significant risk to human health if not treated prior to potable use. This ESD offers an improved interim remedy, improved protection of human health, and better achievement of the RAOs.

4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES

4.1 SUMMARY COMPARISON OF ORIGINAL AND CHANGED REMEDY

A comparison of the differences between the 2009 ROD, as modified, and this ESD is summarized in Table 1, below.

Table 1 – Comparison of 2009 ROD, as modified, and ESD components

ROD Component	Description	ESD Modifications
Institutional Controls	EPA, LADWP, and the NHOU PRPs develop and implement a groundwater management plan to protect the effectiveness and integrity of the NHOU remedy while accommodating, to the greatest extent possible, LADWP's drinking water production.	Unchanged
Groundwater Monitoring	Install approximately 37 new groundwater-monitoring wells to further define the nature and extent of the NHOU contamination.	Unchanged; however, approximately 25 of the 37 monitoring wells have been installed.
Extraction well Network	Replace NHE-1	NHE-1 will be abandoned.
	Replace NHE-2, NHE-4, and NHE-5 with deeper wells to achieve required hydraulic containment.	Unchanged
	Rehabilitate NHE-3, NHE-6, NHE-7 and NHE-8 as required to maintain design pumping rates.	Unchanged; Except, NHE-8 has failed, and must now be replaced.
	Install approximately three (3) new extraction wells in the area south of the Rinaldi-Toluca wellfield. The exact number, location, and pumping rates for these wells will be finalized during remedial design.	Install approximately seven (7) new extraction wells. Approximately two of the wells will be installed in the NHOU eastern area, with delivery of water to the BOU treatment system. The exact number, location, and pumping rates for these wells will be finalized during remedial design.
2016 MOF: Extraction and Treatment for 1,4-dioxane	Install at least two new wells southwest of the Hewitt Pit Landfill to contain contaminated groundwater from the landfill.	Unchanged

ROD Component	Description	ESD Modifications
Treatment for Hexavalent Chromium and 1,4-dioxane	Treatment required at NHE-2 at peak flow rate of approximately 300 gpm.	NHE-2 wellhead treatment will not be performed; groundwater extracted from NHE-2 will be treated at the Lankershim Boulevard treatment plant.
Treatment of VOCs in extracted groundwater	Air-stripping for VOCs with GAC treatment of the air stream before discharge to the environment; "double-barrier" treatment for VOCs using LPGAC.	Unchanged
End-Use Options	2009 ROD: Deliver Treated Groundwater to LADWP	Unchanged
	2014 RODA: Optionally reinject Treated Groundwater back into the basin.	Unchanged
	2016 MOF: Treated water from additional Hewitt Pit wells may be either delivered to LADWP or reinjected.	Unchanged[4]
		The water extracted from the Eastern NHOU wells will be delivered to the Burbank Operable Unit Treatment system.

The following table summarizes the changes in the scope, anticipated performance, and costs of the expanded remedy.

Table 2 – Comparison of Scope, Performance, and Cost Changes

Remedy Element	NHOU2IR as Modified	ESD Modifications
Scope	The selected remedy is a groundwater extraction and treatment remedy with either a drinking-water end use or re-injection into the aquifer.	Unchanged, except expanded extraction capacity.

[4] The end use for the water treated from the Hewitt Pit extraction wells may be different than the end-use selected for the water extracted from other extraction wells for this remedy.

Remedy Element	NHOU2IR as Modified	ESD Modifications
Performance/ Pumping Rates	The 2009 ROD as modified does not recommend a specific pumping rate for the NHOU2IR; rather, the RAO for hydraulic containment must be met by the remedial design. The 2009 FFS estimated a total pumping rate of 3,600 gpm with a long-term average of 3,050 gpm.	This ESD does not change the ROD requirement for hydraulic containment. The modeling performed during the design phase since the 2009 ROD and 2014 RODA indicates an increased pumping capacity is possible by integration of deeper LADWP production wells into the final remedy design. The estimated long-term average total pumping rate is 6,500 gpm for all anticipated wells.
Cost	The Alternative 4a remedy cost was estimated to be $107.8 million in the 2009 FFS. Alternative 4b remedy cost was estimated to be $134.1 million in the 2009 FFS.	Estimated costs for this revised remedy are not expected to be significantly greater. This is due to savings that will be realized by a phased approach, as well as the increased cooperation with LADWP, including use of existing LADWP infrastructure.
Expected outcomes	Meets RAOs "Contains to maximum extent practicable" assuming limited LADWP participation in remedy implementation.	Will more effectively meet RAO for hydraulic containment due to the higher pumping rates of the extraction wells.

4.2 EXPECTED OUTCOMES

EPA anticipates that the expanded NHOU2IR will more effectively and completely meet the RAOs than the original 2009 ROD as amended. In particular, EPA expects that the increased pumping rates will improve hydraulic containment of contaminated groundwater. Groundwater flow modeling performed by the PRPs predicts a high probability of complete plume capture in the central and eastern portions of the plume under the expanded remedy within 30 years.

5.0 SUPPORT AGENCY COMMENTS

The Department of Toxic Substances Control, which is the primary lead agency for the State of California, supports this ESD.

The Regional Water Quality Control Board, Los Angeles Region, which has been heavily involved in cleanup of SFV groundwater contamination, also supports this ESD.

6.0 STATUTORY DETERMINATIONS

In accordance with CERCLA Section 121, the EPA believes that the NHOU2IR, as modified by this ESD, remains protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to this interim remedial action, and is cost effective. In addition, this remedy satisfies the statutory preference for remedies that employ treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances as a principal element. It also complies with the statutory preference for remedies that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The changes and clarifications contained in this ESD are significant but do not fundamentally change the remedy.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-Site (i.e., in groundwater) above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

7.0 PUBLIC PARTICIPATION ACTIVITIES

EPA has presented these changes to the remedy in the form of an Explanation of Significant Differences because the changes are of a significant, but not fundamental, nature. The basic groundwater extraction and treatment concepts presented in this ESD are essentially the same as the concepts presented in the 2009 ROD.

EPA provided an opportunity for public comment on this ESD from February 27, 2017 to March 28, 2017. A notice of the opportunity to comment was sent to potentially responsible parties, LADWP, surrounding cities, and interested community members on February 21, 2017, and published on EPA's NHOU Site Overview webpage. The public comment period was subsequently extended by request to April 18, 2017.

The comments received, and the responses to those comments, are summarized in Attachment A. In general, the comments received were all supportive of this revised decision.

In accordance with 40 CFR 300.435(c)(2)(i), and EPA's San Fernando Valley Superfund Site Community Involvement Plan (September 2016), EPA will conduct the following additional public participation activities:

- A notice of availability of this ESD and a brief description of this ESD will be published in a prominent local newspaper, the *Reel World Post*, as required by 40 CFR Section 300.435 (c)(2)(i)(B); and,
- The ESD and supporting information will be made available to the public in the administrative records established under 40 CFR 300.815 and the information repositories (locations listed in Section 1.4).

8.0 REFERENCES

AMEC. 2012. *Final Data Gap Analysis North Hollywood Operable Unit Second Interim Remedy Groundwater Remediation System Design*. Prepared by AMEC for Honeywell International, Inc. and Lockheed Martin Corporation. March.

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EPA Superfund. 2014. *Amendment to the 2009 Interim Action Record of Decision, North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, Los Angeles County, California*. EPA ID: CAD980894893. January 10.

EPA Superfund. 2016. Memorandum to File, Addition of Extraction Wells Near Hewitt Pit Landfill As Part of Second Interim Remedy, North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, Los Angeles County, California. June 20.

ATTACHMENT A

EPA Response to Public Comments

Comment provided by Los Angeles Department of Water and Power (Correspondence dated March 6, 2017)	
Comment	**EPA Response to Comments**
LADWP has always called for the implementation of a comprehensive remediation plan at the NHOU. We believe that the proposed changes are essential in meeting EPA's Remedial Action Objectives, which include increasing the extraction rate, adding more extraction wells, and designing a more efficient treatment system that will treat for emerging contaminants. This is a step forward toward achieving a more effective and reliable remedy that will allow a full containment, prevent further plume migration, and expedite the mass removal of contamination in SFB. As such, LADWP understands the benefit and the urgency of the proposed modifications to the ROD and thus fully supports its implementation.	Comment acknowledged.
Comments provided by Gene A. Lucero on behalf of Honeywell International Inc. (Correspondence dated April 18, 2017)	
Comment	**EPA Response to Comments**
For the last several years, Honeywell has worked hand-in-hand with EPA, the Los Angeles Department of Water and Power ("LADWP"), and other stakeholders to advance the groundwater remedy outlined in the ROD. While Honeywell believes that Alternative 4B (reinjection) as adopted in the 2014 amendment to the ROD (the "RODA") will meet the NHOU remedial action objectives ("RAOs"), Honeywell supports the proposed changes in the Fact Sheet and the inclusion of an additional option (while retaining Alternative 4B as currently adopted) to the "Preferred Alternative" because such an option enhances the implementability and likelihood of state acceptance of a drinking water end-use option, and it helps facilitate a beneficial end-use for the treated water from the contemplated extraction wells.	Comment acknowledged.

Honeywell comments (continued)	**EPA Response to Comments (continued)**
Preservation of ROD Alternative 4B: When EPA adopted an amendment to the ROD in 2014 (the "RODA") to add reinjection as part of its Preferred Alternative for the NHOU remedy, it noted that "LADWP and the NHOU PRPs may be unable to reach an agreement that is acceptable to EPA regarding the terms and criteria for delivery and acceptance of treated groundwater for use in LADWP's drinking water supply system." Based on the extensive efforts of EPA, LADWP, Honeywell, and other NHOU stakeholders since the adoption of the RODA, Honeywell is confident that the parties will find an acceptable construct. Nevertheless, at this time Honeywell recommends preserving Alternative 4B (as currently adopted) as part of the ROD's Preferred Alternative.	The ESD does not change the selected remedy end-use alternatives; both Alternative 4A and Alternative 4B remain as options.
Clarification of the ROD Treatment Standards: Honeywell requests that the ESD recognize that for the remedy option where the end-use of the extracted and treated groundwater is drinking water, there are overlapping statutory authorities that apply to this scenario. The State Water Resources Control Board's Division of Drinking Water ("DDW") ultimately holds responsibility for setting and enforcing drinking water quality standards for any extracted and treated groundwater that will be offered as a supply source for drinking water (e.g., primary and secondary MCLs, notification levels, etc.). By contrast, CERCLA requires the treatment of extracted water to the standards established by the Applicable or Relevant and Appropriate Requirements. Given DDW's statutory mandate and the contemplated remedy construct, making DDW requirements enforceable CERCLA standards is not warranted in this instance, is an unnecessary step for successful implementation of the modified groundwater remedy, and creates confusion and potential conflict as the treatment remains a Superfund project under CERCLA and not a DDW-driven program.	If the end use of the treated water is provision to LADWP and the City of Burbank for use in their drinking water systems, DDW's drinking water permit requirements must be met in order to successfully implement the remedy.

Honeywell comments (continued)	**EPA Response to Comments (continued)**
Accounting for the New Hexavalent Chromium MCL: The ESD should update the ROD to reflect that fact that the State of California promulgated a 10 micrograms per liter MCL for hexavalent chromium after the 2009 ROD was released. The ESD should make it clear that the treatment required under Superfund must meet this new standard.	In the intervening time since the comment was written, the MCL for Hexavalent Chromium was challenged in court. The State of California lost the challenge and the MCL was voided.
We encourage that the ESD describe potential options available to deliver the water extracted and treated to prevent further degradation of the Rinaldi-Toluca and North Hollywood West production wells to LADWP for eventual use in its drinking water supply.	The ROD as amended and ESD state that details on how best to achieve the RAOs will be developed during the Remedial Design (RD) phase.
Comment provided by Carolyn S. Monteith for Lockheed Martin Corporation (Correspondence dated April 17, 2017)	
Comment	**EPA Response to Comments**
As a party participating in implementation of the Second Interim Remedy, Lockheed Martin supports the proposed modification as a means of increasing the effectiveness and sustainability of the remedy.	Comment acknowledged.

EXHIBIT 6

TRIGGER WELLS

EXPLANATION

- Proposed Extraction Well
- LA DWP Rinaldi-Toluca Wellfield Well
- A Zone Trigger Well
- B Zone Trigger Well
- Approximate Boundary San Fernando Valley Investigation Area 1

TRIGGER WELL LOCATIONS
North Hollywood Operable Unit
Los Angeles County, California

wood.

By: KLU
Date: 11/25/2019
Project No. 8617190370.1.1

Exhibit 6

Monday, November 25, 2019 4:05:33 PM
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EXHIBIT 7

FORM OF TOLLING AGREEMENT

WHEREAS, LOS ANGELES DEPARTMENT OF WATER AND POWER and HONEYWELL INTERNATIONAL, INC. entered into a SETTLEMENT AGREEMENT BETWEEN THE LOS ANGELES DEPARTMENT OF WATER AND POWER AND HONEYWELL INTERNATIONAL, INC. on the EFFECTIVE DATE of _____ ("NHOU SETTLEMENT AGREEMENT").

WHEREAS, in the NHOU SETTLEMENT AGREEMENT, the PARTIES mutually covenanted and agreed therein, not to sue or take administrative action against each other on any RESERVED CLAIMS for a period of fifteen (15) years from the EFFECTIVE DATE of the NHOU SETTLEMENT AGREEMENT and further agreed to toll the running of all limitations applicable to their RESERVED CLAIMS for a period of fifteen (15) years.

WHEREAS, the PARTIES previously entered into agreements tolling the claims against each other, with respect to any and all rights, claims, causes of action, counter-claims, third-party claims, cross-claims or defenses that could or might be asserted by the PARTIES against each other that are based on, or arise out of, actual or alleged CONTAMINATION at the NHOU, which include but are not limited to the claims tolled by this Tolling and Standstill Agreement ("Tolling Agreement").

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants and agreements herein, and contained in the NHOU SETTLEMENT AGREEMENT attached hereto, the PARTIES hereby agree in this Tolling Agreement as follows:

1. Definitions: Terms in all capital letters and not otherwise defined herein shall have the meaning as set forth in the NHOU SETTLEMENT AGREEMENT.

2. To effectuate the covenants set forth in SECTION 26.3.1 of the NHOU SETTLEMENT AGREEMENT, the PARTIES hereby agree to continue to toll the running of any statutes of limitation, any statutes of repose, and any other statute, law, rule or principle of equity with similar effect (collectively, "Limitations") applicable to their RESERVED CLAIMS from the

EFFECTIVE DATE through four (4) years from the EFFECTIVE DATE. The PARTIES further agree to enter into subsequent tolling agreements to ensure the running of all limitations applicable to the RESERVED CLAIMS for a period of fifteen (15) years from the EFFECTIVE DATE.

3. The PARTIES, and each of them, shall not assert, plead or raise in any fashion, whether by answer, motion, or otherwise, any defense of laches, estoppel, or waiver, or other equitable defense based on the running of any statute of limitations or the passage of time during the tolling period for any of the RESERVED CLAIMS.

4. This Tolling Agreement does not constitute any admission or acknowledgment of any fact, conclusion of law, or liability by any PARTY to this Tolling Agreement. Nor does this Tolling Agreement constitute any admission or acknowledgement on the part of either PARTY that any statute of limitations, or defense based upon the timeliness of commencing a civil action, is applicable to the RESERVED CLAIMS. The PARTIES reserve the right to assert that no statute of limitations applies to any of the RESERVED CLAIMS and that no other defense based upon the timeliness of commencing a civil action is applicable.

5. This Tolling Agreement may not be modified except in a writing signed by all the PARTIES.

6. This Tolling Agreement may be executed in counterparts with the same force and effect as if executed in one complete document by all PARTIES. Signatures by facsimile or delivered electronically shall be binding and treated as though they were originals.

7. No term, recital, and/or provision in this Tolling Agreement shall be construed as having any bearing on any allocation of liability relating to the NHOU to any PARTY.

8. This Tolling Agreement shall inure to the benefit of, and be binding upon, each PARTY and its successors in interest, and cannot be assigned by any PARTY without the consent of the other PARTY. With the exception of successors, no other persons or entities shall be bound by, or deemed to be beneficiaries of, this Tolling Agreement.

9. If any term or provision in this Tolling Agreement is determined to be illegal or unenforceable, all other terms and provisions in this Tolling Agreement shall remain effective and shall be enforced to the full extent permitted by law.

10. Each of the PARTIES has participated in the drafting of this Tolling Agreement. Therefore, the language of this Tolling Agreement shall not be presumptively construed in favor of or against any of the PARTIES.

11. The PARTIES and undersigned hereby represent and warrant that: (a) the person executing this Tolling Agreement on behalf of each PARTY is fully authorized to execute this Tolling Agreement on behalf of such PARTY; (b) they have not previously assigned or transferred in any manner, or purported to have assigned or transferred in any manner, any of the RESERVED CLAIMS described or set forth in the NHOU SETTLEMENT AGREEMENT to any third party or entity; and (c) this Tolling Agreement is the product of arms' length negotiations between and among the PARTIES, and that the PARTIES have been advised by competent counsel.

12. This Tolling Agreement shall, in all respects, be interpreted, enforced, and governed by and under the laws of the state of California applicable to instruments, persons, and transactions which have legal contacts and relationships within the state of California, without regard to conflict of laws provisions.

DEPARTMENT OF WATER AND POWER OF
THE CITY OF LOS ANGELES
APPROVED:

By: _____
MARTIN L. ADAMS
General Manager and Chief Engineer

HONEYWELL INTERNATIONAL INC.
APPROVED:

By: _____
D. EVAN VAN HOOK
Corporate V.P., Health, Safety, Environment, Product Stewardship & Sustainability

EXHIBIT 8

HONEYWELL IDENTIFIED PERSON WITH KNOWLEDGE

- Benny Dehghi, Director, Major Projects, Honeywell International Inc.

EXHIBIT 9

FORM OF LADWP BUDGET

Form of Annual Budget

Operating Budget Estimate - Calendar Year 2022

Budget Estimate Summary

	CCC				SSC	
	Phase 1		Phase 3			
	On the Ground	O&M	On the Ground	O&M	On the Ground	O&M
Total Labor Costs (see detailed labor cost estimate)	$ -	$ -	$ -	$ -	$ -	$ -
Total Direct Costs (see detailed direct cost estimate)	$ -	$ -	$ -	$ -	$ -	$ -
Total Capital Costs (see detailed capital cost estimate)	$ -	$ -	$ -	$ -	$ -	$ -

SUBTOTAL ANNUAL BUDGET:	$ -	
CONTINGENCY:	$ -	10%
TOTAL ANNUAL BUDGET:	$ -	

Form of Annual Budget

Operating Budget Estimate - Calendar Year 2022

Labor Cost Estimate Worksheet

CCC

Phase 1 - On the Ground Labor

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Labor
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
			Summary Labor - Phase 1 On the Ground:		**$ -**

Phase 1 - Operations & Maintenance Labor

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Budget
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
			Summary Labor - Phase 1 O&M:		**$ -**

Phase 3 - On the Ground Labor

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Budget
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
			Summary Labor - Phase 3 On the Ground:		**$ -**

Phase 3 - Operations & Maintenance Labor

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Budget
Wastewater Treatment Plant Manager	-	$ -	$ -	$ -	$ -
Building Operating Engineer (Central Control Room Operator)	-	$ -	$ -	$ -	$ -
Wastewater Treatment Plant Operator	-	$ -	$ -	$ -	$ -
Wastewater Treatment Mechanic	-	$ -	$ -	$ -	$ -
Wastewater Treatment Electrician	-	$ -	$ -	$ -	$ -
Maintenance Laborer (Building)	-	$ -	$ -	$ -	$ -
Instrument Mechanic	-	$ -	$ -	$ -	$ -
Mechanical Repairer	-	$ -	$ -	$ -	$ -
Electrical Pump Plant Operator	-	$ -	$ -	$ -	$ -
Maintenance Laborer (Media Changeouts)	-	$ -	$ -	$ -	$ -
Storekeeper (Warehouse Management, Procurement, Tracking)	-	$ -	$ -	$ -	$ -
Plant Equipment Trainee (training)	-	$ -	$ -	$ -	$ -
Mechanical Engineering Associate	-	$ -	$ -	$ -	$ -
Information Systems Operations Manager (Systems Programmer)	-	$ -	$ -	$ -	$ -
Sample Collection	-	$ -	$ -	$ -	$ -
Laboratory Technician (Sample Analysis)	-	$ -	$ -	$ -	$ -
			Summary Labor - Phase 3 O&M:		**$ -**

Form of Annual Budget

Operating Budget Estimate - Calendar Year 2022

Labor Cost Estimate Worksheet

SSC

SSC - On the Ground Expenses

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Budget
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
			Summary Labor - SSC On the Ground:		**$ -**

SSC - Operations & Maintenance

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Budget
Building Operating Engineer (Central Control Room Operator)	-	$ -	$ -	$ -	$ -
Wastewater Treatment Plant Operator	-	$ -	$ -	$ -	$ -
Wastewater Treatment Mechanic	-	$ -	$ -	$ -	$ -
Instrument Mechanic	-	$ -	$ -	$ -	$ -
Maintenance Laborer (Media Changeouts)	-	$ -	$ -	$ -	$ -
Mechanical Engineering Associate	-	$ -	$ -	$ -	$ -
			Summary Labor - SSC O&M:		**$ -**

NOTES:

* As published by LADWP (July to June). Rates to be adjusted mid calendar year

Form of Annual Budget
Operating Budget Estimate - Calendar Year 2022
Direct Cost Worksheet

CCC

Phase 1 - On the Ground Direct Costs

Direct Cost	Total Budget
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - Phase 1 On the Ground: $ -

Phase 1 - Operations & Maintenance Direct Costs

Direct Cost	Total Budget
Expense Item 1	$ -
Expense Item 2	$ -
Expense Item 3	$ -
Expense Item 4	$ -
Laboratory Costs	$ -
Processing Chemicals and Materials	$ -
LPGAC Replacement	$ -
UV Bulbs Replacements	$ -
Sulfuric Acid	$ -
Hydrogen Peroxide	$ -
Electric	$ -
Field instrument replacement	$ -
Lamp replacement	$ -
Resin Replacement	$ -
Replacement Bag filters	$ -
Misc spare parts and maintenance	$ -
Other Utilities (natural gas, city water, internet)	$ -
Disposal Costs	$ -
LABOS Annual Permit Fee	$ -
BOE and Manifest Fees on Waste	$ -
Permitting/agency Fees	$ -
Waste management and disposal	$ -
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - Phase 1 Operations & Maintenance $ -

Form of Annual Budget
Operating Budget Estimate - Calendar Year 2022
Direct Cost Worksheet

CCC

Phase 3 - On the Ground Direct Costs

Direct Cost	Total Budget
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - Phase 3 On the Ground: $ -

Phase 3 - Operations & Maintenance Direct Costs

Direct Cost	Total Budget
Expense Item 1	$ -
Expense Item 2	$ -
Expense Item 3	$ -
Expense Item 4	$ -
Laboratory Costs	$ -
Processing Chemicals and Materials	$ -
LPGAC Replacement	$ -
UV Bulbs Replacements	$ -
Sulfuric Acid	$ -
Hydrogen Peroxide	$ -
Electric	$ -
Field instrument replacement	$ -
Lamp replacement	$ -
Resin Replacement	$ -
Replacement Bag filters	$ -
Misc spare parts and maintenance	$ -
Other Utilities (natural gas, city water, internet)	$ -
Disposal Costs	$ -
LABOS Annual Permit Fee	$ -
BOE and Manifest Fees on Waste	$ -
Permitting/agency Fees	$ -
Waste management and disposal	$ -
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - Phase 3 Operations & Maintenance $ -

Form of Annual Budget
Operating Budget Estimate - Calendar Year 2022
Direct Cost Worksheet

SSC

SSC - On the Ground Expenses

Direct Cost	Total Budget
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - SSC On the Ground: $ -

SSC - Operations & Maintenance

Direct Cost	Total Budget
Expense Item 1	$ -
Expense Item 2	$ -
Expense Item 3	$ -
Expense Item 4	$ -
Laboratory Costs	$ -
Processing Chemicals and Materials	$ -
LPGAC Replacement	$ -
UV Bulbs Replacements	$ -
Sulfuric Acid	$ -
Hydrogen Peroxide	$ -
Electric	$ -
Field instrument replacement	$ -
Lamp replacement	$ -
Resin Replacement	$ -
Replacement Bag filters	$ -
Misc spare parts and maintenance	$ -
Other Utilities (natural gas, city water, internet)	$ -
Disposal Costs	$ -
LABOS Annual Permit Fee	$ -
BOE and Manifest Fees on Waste	$ -
Permitting/agency Fees	$ -
Waste management and disposal	$ -
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - SSC Operations & Maintenance $ -

Form of Annual Budget

Operating Budget Estimate - Calendar Year 2022

Capital Cost Estimate Worksheet

CCC

Phase 1 - On the Ground Capial Costs

Capital Cost	Total Budget
Capital Project Ph. 1-OTG.1	$ -
Capital Project Ph. 1-OTG.2	$ -
Capital Project Ph. 1-OTG.3	$ -
Capital Project Ph. 1-OTG.4	$ -

Summary Capital Costs - Phase 1 On the Ground: $ -

Phase 1 - Operations & Maintenance Capital Costs

Capital Cost	Total Budget
Capital Project Ph. 1-OM.1	$ -
Capital Project Ph. 1-OM.2	$ -
Capital Project Ph. 1-OM.3	$ -
Capital Project Ph. 1-OM.4	$ -

Summary Capital Costs - Phase 1 Operations & Maintenance $ -

Phase 3 - On the Ground Capital Costs

Capital Cost	Total Budget
Capital Project Ph. 3-OTG.1	$ -
Capital Project Ph. 3-OTG.2	$ -
Capital Project Ph. 3-OTG.3	$ -
Capital Project Ph. 3-OTG.4	$ -

Summary Capital Costs - Phase 3 On the Ground: $ -

Phase 3 - Operations & Maintenance Capital Costs

Capital Cost	Total Budget
Capital Project Ph. 3-OM.1	$ -
Capital Project Ph. 3-OM.2	$ -
Capital Project Ph. 3-OM.3	$ -
Capital Project Ph. 3-OM.4	$ -

Summary Capital Costs - Phase 3 Operations & Maintenance $ -

SSC

SSC - On the Ground Expenses

Capital Cost	Total Budget
Capital Project SSC-OTG.1	$ -
Capital Project SSC-OTG.2	$ -
Capital Project SSC-OTG.3	$ -
Capital Project SSC-OTG.4	$ -

Summary Captial Costs - SSC On the Ground: $ -

SSC - Operations & Maintenance

Capital Cost	Total Budget
Capital Project SSC-OM.1	$ -
Capital Project SSC-OM.2	$ -
Capital Project SSC-OM.3	$ -
Capital Project SSC-OM.4	$ -

Summary Capital Costs - SSC Operations & Maintenance: $ -

EXHIBIT 10

ROLLING ANNUAL AVERAGE CALCULATION

This EXHIBIT 10 sets forth the formula and method to calculate the ROLLING ANNUAL AVERAGE as defined in the NHOU SETTLEMENT AGREEMENT, which is intended to be a 5-year rolling average for production rates of treated water via CCC SYSTEM and SSC SYSTEM. These calculations are solely for purposes of the NHOU SETTLEMENT AGREEMENT, and are not intended to be used by EPA or any other third party for any purpose. Terms in all capital letters not otherwise defined in this EXHIBIT 10 shall have the meaning set forth in the NHOU SETTLEMENT AGREEMENT.

The calculations provided herein account for a partial year of operation, which is anticipated to be most important for the first five-year period of operation due to the planned shutdown of the PHASE 1 TREATMENT SYSTEM to upgrade it to the PHASE 3 TREATMENT SYSTEM. However, for subsequent five-year periods, it may be desirable to calculate the five-year rolling average with a start date of either October 1 (i.e., the beginning of the water year) or January 1 (i.e., the beginning of the calendar year). If so, the second five-year period would slightly overlap with the first five-year period, which would maintain accounting for all treated water provided to the LADWP by the CCC SYSTEM.

The programmable logic controller (PLC) will receive data from field devices and the historian will pull data from the PLC. This data may be exported to a spreadsheet, which will have the formulas described herein incorporated into the spreadsheet. Manual entry will be required to account for downtime or to determine if reduced flows that occurred each month were due to **Factors Beyond Operator Control at Site** (defined in Section 1.e., below). When either plant is out of service or operating at a reduced capacity, the operator shall prepare a backup incident report that includes information about the cause of the shutdown, its duration, and the estimated impact on capacity. The number of hours comprising such downtime and flow reduction factors are anticipated to be discussed and agreed upon on a quarterly basis by the STEERING COMMITTEE due to the subjective nature of those determinations.

1. The 5-year CCC period Average Annual Requirement (**AAR**) and Rolling Production Average (**RPA)** for the CCC during CCC PHASE 1 and CCC PHASE 3 shall be calculated as follows:

a. The NHOU 2IR is anticipated to operate 328.7 days per year (90% up-time), and produce an average of 1,500 acre-feet per year (AFY), or 4.56 acre-feet (AF) per day (1,500 AFY ÷ 328.7 days/year = 4.56 AF/day), during CCC PHASE 1 (pilot scale facility); and an average of 8,500 AFY, or 25.86 AF per day (8,500 AFY ÷ 328.7 days/year = 25.86 AF/day), during CCC PHASE 3 (full scale facility).

b. The Average Annual Requirement for NHOU 2IR (**AAR**, in AFY; see formula below) shall be calculated as the sum of 1,500 AF per year times the number of years (**x**; which can include a partial year) that the PHASE 1 TREATMENT SYSTEM is in operation during the most recent 5-year CCC period of NHOU 2IR operation, plus 8,500 AF per year times the number of years (**5-x**) that the PHASE 3 TREATMENT SYSTEM is in operation during the most recent 5-year CCC period of NHOU 2IR operation, divided by 5.

c. The **AAR** shall exclude process water flow that is not discharged to the conveyance to the SUMP (e.g., routine backwash water discharged to the sanitary sewer) unless non-process water (i.e., municipal water) was used to perform the backwashing operation. Typical backwash operations anticipate using process water and, as such, the monthly production volume shall be determined by summing the totalizers associated with each pair of LPGAC tanks, less the volume of process water used for routine backwash operations. The volume of process water used for backwash operations shall be determined by summing the totalizers associated with the LPGAC and ion exchange backwash pumps. Totalizer calculations shall be performed via the treatment system PLC. In the event that non-process water is used to perform backwash operations, all process water shall be accounted for in rolling average calculations during that month.

d. The 5-year CCC periods do not include the downtime of the NHOU 2IR system between the shutdown of the PHASE 1 TREATMENT SYSTEM and start-up of the PHASE 3 TREATMENT SYSTEM, which will be necessary to construct the PHASE 3 TREATMENT SYSTEM.

e. The CCC Period Pumping Credit (**CPPC** in AF; see formula below) shall be calculated based on the total volume of water in AF (**b + c**, see formulas below) that would have been produced (not to exceed the maximum monthly capacity) during the most recent 5-year CCC period of NHOU 2IR operation but during which the NHOU 2IR was shut down due to **Factors Beyond Operator Control at Site**, as defined below. Additionally, a "d" factor (as defined below) is added to the CPPC to account for the variance (in AF) of water below the monthly production goal that could not be produced by the NHOU 2IR system during the most recent 5-year CCC period due to lowered pumping rates due to **Factors Beyond Operator Control at Site**.

As used in this Attachment B, the term "**Factors Beyond Operator Control at Site**" means:

(i) the lowering of groundwater elevations;

(ii) intermittent or long-term curtailment or interruption of electrical energy supplies to the CCC;

(iii) long-term reorganization and bulk permeability reduction of aquifer sediment or strata resulting from seismic shaking following a very large, regional seismic event(s);

(iv) inability of LADWP to accept water into its distribution system due to system upsets or planned or unplanned water distribution system maintenance; or

(v) any event that qualifies as a FORCE MAJEURE.

f. The monthly credit (in AF) received for a system shutdown due to **Factors Beyond Operator Control at Site** will result in a concomitant reduced production goal ("corrected goal") during that month that shall be factored into the pumping credit (**CPPC**; see formula below).

g. The 5-year Rolling Production Average for NHOU 2IR (**RPA** in AFY; see formula below) shall be calculated as the sum of water production in AF (V_i) during the most recent 5-year CCC period of NHOU 2IR operation, plus the 5-year CCC period pumping credit (**CPPC**; see formula below), divided by 5.

h. The 5-year **RPA** (units of AFY) shall be compared to the 5-year **AAR** (unit of AFY) to determine if the 5-year rolling production average NHOU 2IR water production requirement has been met for each 5-year CCC period.

$$Average\ Annual\ Requirement\ (in\ AFY) = \boldsymbol{AAR} = \frac{\left(1{,}500\ AFY \times (x\ years) + 8{,}500\ AFY \times (5 - x\ years)\right)}{5\ years}$$

i. The 5-year **CPPC** (units of AF) shall be calculated using the following formula:

$$CCC\ Period\ Pumping\ Credit\ (in\ AF) = \boldsymbol{CPPC} = \boldsymbol{b} + \boldsymbol{c} + \boldsymbol{d}$$

Where,

x = number of years (range is 0 to 5, but need not be an integer) that the PHASE 1 TREATMENT SYSTEM was in operation during the most recent 5-year CCC period of the NHOU 2IR.

b = total volume of water (in AF) during **x** years of operation in the most recent 5-year CCC period that could not be produced by the PHASE 1 TREATMENT SYSTEM due to monthly downtime of the system due to **Factors Beyond Operator Control at Site**, per Section 1.e, corrected for reduced average production rates in each month and for 90% of the system downtime hours (assuming a 90% uptime overall). Additionally, if a system shutdown occurs while the treatment system was operating at an above-average water production rate, the monthly corrected downtime credit is limited to the average treatment system capacity (i.e. limited to the downtime times 0.19 AF/hr). This value **b** does not include any water from the PHASE 3 TREATMENT SYSTEM.

$$\boldsymbol{b} = \sum_{0}^{x} \left(Corrected\ downtime\ credit\ during\ Phase\ 1B\ month\ \left[\frac{AF}{month}\right]\right)$$

Where, if:

$$\left[90\%\ \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right)\right.$$
$$\times (1\ + fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control)$$
$$\left.\times \frac{Actual\ Phase\ 1B\ Month\ Production\ \left(\frac{AF}{month}\right)}{657.5\frac{hrs}{month} - 90\%\ \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right)}\right]$$
$$> \left[\left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right) \times 0.19\ \left[\frac{AF}{hr}\right]\right]$$

Then,

$$Corrected\ downtime\ credit\ during\ Phase\ 1B\ month\ \left[\frac{AF}{month}\right]$$
$$= \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right) \times 0.19\ \left[\frac{AF}{hr}\right]$$

Otherwise,

$$Corrected\ downtime\ credit\ during\ Phase\ 1B\ month\ \left[\frac{AF}{month}\right]$$
$$= 90\%\ \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right)$$
$$\times (1\ + fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control)$$
$$\times \frac{Actual\ Phase\ 1B\ Month\ Production\ \left(\frac{AF}{month}\right)}{657.5\frac{hrs}{month} - 90\%\ \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right)}$$

c = total volume of water (in AF) during **5-x** years of operation in the most recent 5-year CCC period that could not be produced by the PHASE 3 TREATMENT SYSTEM due to monthly downtime of the system due to **Factors Beyond Operator Control at Site**,

per Section 1.e, corrected for reduced average production rates in each month and for 90% of the system downtime hours (assuming a 90% uptime overall). Additionally, if a system shutdown occurs while the treatment system was operating at an above-average rate, this value **c** is limited to the average treatment system capacity. This value **c** does not include any water from the PHASE 1 TREATMENT SYSTEM.

$$\boldsymbol{c} = \sum_{x}^{5} \left(Corrected\ downtime\ credit\ during\ Phase\ 3\ month\ \left[\frac{AF}{month}\right]\right)$$

Where, if:

$$\left[90\% \left(downtime\ during\ Phase\ 3\ month\ \left[\frac{hrs}{month}\right]\right) \times (1 + fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control) \times \frac{Actual\ Phase\ 3\ Month\ Production\ \left(\frac{AF}{month}\right)}{657.5\frac{hrs}{month} - 90\% \left(downtime\ during\ Phase\ 3\ month\ \left[\frac{hrs}{month}\right]\right)}\right] > \left[\left(downtime\ during\ Phase\ 3\ month\ \left[\frac{hrs}{month}\right]\right) \times 1.08\left[\frac{AF}{hr}\right]\right]$$

Then,

$$Corrected\ downtime\ credit\ during\ Phase\ 3\ month\ \left[\frac{AF}{month}\right] = \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right) \times 1.08\ \left[\frac{AF}{hr}\right]$$

Otherwise,

$$Corrected\ downtime\ credit\ during\ Phase\ 3\ month\ \left[\frac{AF}{month}\right]$$
$$= 90\%\ \left(downtime\ during\ Phase\ 3\ month\ \left[\frac{hrs}{month}\right]\right)$$
$$\times\ (1\ +\ fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control)$$
$$\times\ \frac{Actual\ Phase\ 3\ Month\ Production\ (\frac{AF}{month})}{657.5\frac{hrs}{month} - 90\%\ (downtime\ during\ Phase\ 3\ month\ [\frac{hrs}{month}])}$$

and,

d = total volume of water (in AF) in the most recent 5-year CCC period below the 5-year goal that could not be produced due to **Factors Beyond Operator Control at Site**, per Section 1.e. Reduced monthly production rates (e.g., due to lowered groundwater elevations) are accounted for each year by summing the product of the difference in the corrected monthly production goals and the actual monthly production by that fraction (ranging from 0 to 1) of the monthly production volume difference during months with a production deficit that was caused by **Factors Beyond Operator Control at Site**. The corrected monthly production goal is calculated by subtracting the corrected monthly credit for system downtime (i.e., the monthly **b** or **c** values) that occurs due to **Factors Beyond Operator Control at Site** (see Section 1.f) from the regular monthly goal. In this way, this value **d** excludes the value of reduced flow that is caused by a system shutdown, which is accounted for by the values **b** and **c**.

d

$$= \sum_{x}^{5} \left(Variance\ from\ corrected\ monthly\ goal\ during\ Phase\ 1B\ or\ 3\ month\ \left[\frac{AF}{month}\right]\right)$$

Where, if:

$$(Delta\ \times Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control$$
$$< 0\ \left[\frac{AF}{month}\right])$$

$$Delta \ = \ (Corrected\ monthly\ goal \ - Actual\ monthly\ production) \left[\frac{AF}{month}\right]$$

$$Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control =$$
$$manually\ entered\ value\ ranging\ from\ 0\ to\ 1,$$
$$with\ 0\ meaning\ fully\ within\ operator\ control\ and\ 1\ meaning\ fully\ beyond\ operator\ control$$

Then:

$$Variance\ from\ corrected\ monthly\ goal\ during\ Phase\ 1B\ or\ 3\ month \left[\frac{AF}{month}\right] = 0$$

(i.e., goal has been met or exceeded, and no variance is added)

Otherwise:

$$Variance\ from\ corrected\ monthly\ goal\ during\ Phase\ 1B\ or\ 3\ month \left[\frac{AF}{month}\right]$$
$$= Delta \ \times Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control$$

j. The 5-year RPA (units of AFY) shall be calculated using the following formula:

$$5\text{-}year\ CCC\ Period\ Rolling\ Production\ Average\ for\ NHOU\ 2IR\ Phases\ 1B\ and\ 3\ (in\ AFY)$$

$$= \boldsymbol{RPA} = \frac{(V_i + V_{i+1} + V_{i+2} + V_{i+3} + V_{i+4} + CPPC)}{5\ years}$$

Where,

$$\boldsymbol{V_i} = acre\ feet\ of\ water\ produced\ by\ the\ NHOU\ 2IR\ system\ (either\ Phase\ 1B\ or\ 3)$$

$$in\ year\ \boldsymbol{i}\ (the\ first\ year\ of\ the\ most\ recent\ 5\text{-}year\ CCC\ period)$$

k. A tracking spreadsheet was prepared to facilitate calculation and comparison of the **AAR** and **RPA**, based on user inputs of monthly water production and backwash volume (obtained from totalizer readings), number of hours of downtime each month (due to

Factors Beyond Operator Control at Site, per Section 1.e), and fraction (ranging from 0 to 1) of any month's delta (i.e., actual monthly production not meeting corrected monthly goal, separate from the downtime factor) that was due to **Factors Beyond Operator Control at Site**. The tracking spreadsheet can be used to track progress of the PHASE 1 TREATMENT SYSTEM and/or PHASE 3 TREATMENT SYSTEM before the full 5-year CCC period is satisfied by inputting expected average monthly production rates for all months past the current month of operation. However, it is anticipated that the formulas contained in the spreadsheet will be integrated into the treatment system PLC, which will be used in conjunction with the SCADA system to calculate the ROLLING ANNUAL AVERAGE, with the exception of calculating the **CPPC**, which will require manual entry of downtime hours and the fraction of reduced flows that occurred due to **Factors Beyond Operator Control at Site** (discussed in 1.h).

2. The 5-year period Average Annual Requirement and Rolling Production Average for the SSC shall be calculated as follows:

a. The SSC is anticipated to operate 328.7 days per year (90% up-time), and produce an average of 6,500 AFY, or 19.70 AF per day (6,500 AFY ÷ 328.7 days/year = 19.77 AF/day).

b. The Average Annual Requirement for SSC (**SAAR,** in AFY**)** shall be 6,500 AFY.

c. The first 5-year SSC period starts with the start of SSC operation, and does not roll over from the NHOU 2IR operation period.

d. The SSC Period Pumping Credit (**SPPC** in AF; see formula below) shall be calculated based on the total volume of water in AF (**e**, see formula below) that would have been produced during the most recent 5-year SSC period operation but during which the SSC was shut down due to **SSC Production Impact**. Additionally, an "**f**" factor (as defined below) is added to the SPPC to account for the variance (in AF) of water below the monthly production goal that could not be produced by the SSC system during the most recent 5-year SSC period due to lowered pumping rates due to **SSC Production Impact**. The term **SSC Production Impact** means:

1. **Factors Beyond Operator Control at Site** or

2. A decision by LADWP to voluntarily curtail production at the SSC.

e. The monthly credit (in AF) received for a system shut down due to **SSC Production Impact** will result in a concomitant reduced production goal ("corrected goal") during that month that shall be factored into the pumping credit (**SPPC**; see formula below).

f. The 5-year Rolling Production Average for SSC (**SRPA**, unit of AFY; see formula below) shall be calculated as the sum of water production in AF (V_i) during the most recent 5-year SSC period, plus the 5-year SSC period pumping credit (**SPPC**; see formula below), divided by 5.

g. The 5-year **SRPA** (unit of AFY) shall be compared to the 5-year **SAAR** (6,500 AFY) to determine if the 5-year rolling production average SSC water production requirement has been met for each 5-year SSC period.

h. The 5-year **SPPC** (units of AF) shall be calculated using the following formula:

$$SSC\ Period\ Pumping\ Credit\ (in\ AF) = \boldsymbol{SPPC} = \boldsymbol{e} + \boldsymbol{f}$$

Where,

e = total volume of water (in AF) in the most recent 5-year SSC period that could not be produced by the SSC system due to monthly downtime of the system due to **SSC**

Production Impact, per Section 2.d, corrected for reduced average production rates in each month and for 90% of the downtime hours (assuming a 90% uptime overall). Additionally, if a system shutdown occurs while the treatment system was operating at an above-average rate, this value **e** is limited to the average treatment system capacity.

$$\boldsymbol{e} = \sum_{0}^{5} \left(Corrected\ downtime\ credit\ during\ SSC\ month\ \left[\frac{AF}{month}\right]\right)$$

Where, if:

$$\left[90\%\ \left(downtime\ during\ SSC\ month\ \left[\frac{hrs}{month}\right]\right)\right.$$
$$\times (1\ + fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control)$$
$$\left.\times \frac{Actual\ SSC\ Month\ Production\ \left(\frac{AF}{month}\right)}{657.5\frac{hrs}{month} - 90\%\ \left(downtime\ during\ SSC\ month\ \left[\frac{hrs}{month}\right]\right)}\right]$$
$$> \left[\left(downtime\ during\ SSC\ month\ \left[\frac{hrs}{month}\right]\right) \times 0.82\ \left[\frac{AF}{hr}\right]\right]$$

Then,

$$Corrected\ downtime\ credit\ during\ SSC\ month\ \left[\frac{AF}{month}\right]$$
$$= \left(downtime\ during\ SSC\ month\ \left[\frac{hrs}{month}\right]\right) \times 0.82\ \left[\frac{AF}{hr}\right]$$

Otherwise,

$$\begin{aligned} &Corrected\ downtime\ credit\ during\ SSC\ month\ \left[\frac{AF}{month}\right] \\ &\quad = 90\%\ \left(downtime\ during\ SSC\ month\ \left[\frac{hrs}{month}\right]\right) \\ &\quad \times (1 \\ &\quad + fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control) \\ &\quad \times \frac{Actual\ SSC\ Month\ Production\ (\frac{AF}{month})}{657.5\frac{hrs}{month} - 90\%\ (downtime\ during\ SSC\ month\ [\frac{hrs}{month}])} \end{aligned}$$

and,

f = total volume of water (in AF) in the most recent 5-year SSC period below the 5-year goal that could not be produced due to **SSC Production Impact**, per Section 2.d. Reduced monthly production rates (e.g., due to lowered groundwater elevations) are accounted for each year by summing the product of the difference in the corrected monthly production goals and the actual monthly production by that fraction (ranging from 0 to 1) of the monthly production volume difference during months with a production deficit that was caused by **SSC Production Impact**. The corrected monthly production goal is calculated by subtracting the corrected monthly credit for system downtime (i.e., the monthly **e** values) that occurs due to **SSC Production Impact** (see Section 2.d.) from the regular monthly goal. In this way, this value **f** excludes the value of reduced flow that is caused by a system shutdown, which is accounted for by the value **e**.

$$\boldsymbol{f} = \sum_{x}^{5} \left(Variance\ from\ corrected\ monthly\ goal\ during\ SSC\ month\ \left[\frac{AF}{month}\right]\right)$$

Where, if:

$$\begin{aligned} &(Delta\ \times Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control \\ &\quad < 0\ \left[\frac{AF}{month}\right] \end{aligned}$$

$$Delta = (Corrected\ monthly\ goal - Actual\ monthly\ production)\left[\frac{AF}{month}\right]$$

$$Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control =$$
$$manually\ entered\ value\ ranging\ from\ 0\ to\ 1,$$
$$with\ 0\ meaning\ fully\ within\ operator\ control\ and\ 1\ meaning\ fully\ beyond\ operator\ control$$

Then:

$$Variance\ from\ corrected\ monthly\ goal\ during\ SSC\ month\left[\frac{AF}{month}\right] = 0$$

(i.e., goal has been met or exceeded, and no variance is added)

Otherwise:

$$Variance\ from\ corrected\ monthly\ goal\ during\ SSC\ month\left[\frac{AF}{month}\right]$$
$$= Delta$$
$$\times Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control$$

i. The 5-year **SRPA** (units of AF) shall be calculated using the following formula:

$$5\text{-}year\ Compliance\ Period\ Rolling\ Production\ Average\ for\ SSC\ (in\ AFY)$$

$$= \boldsymbol{SRPA} = \frac{(V_i + V_{i+1} + V_{i+2} + V_{i+3} + V_{i+4} + SPPC)}{5\ years}$$

Where,

$$\boldsymbol{V_i} = acre\ feet\ of\ water\ produced\ by\ the\ SSC\ system\ in\ year\ \boldsymbol{i}$$

$$(the\ first\ year\ of\ the\ most\ recent\ 5 - year\ compliance\ period)$$

LICENSE AGREEMENT – ATTACHMENT B

CONTRACT INSURANCE REQUIREMENTS – DEPARTMENT OF WATER AND POWER

CONTRACT INSURANCE REQUIREMENTS -- DEPARTMENT OF WATER AND POWER

For Contractors, Service Providers, Vendors, and Tenants

Agreement/Activity/Operation: See Scope of Work for NHOU Settlement Agreement

Reference/Agreement: NHOU Settlement Agreement - CERTIFICATE ACCEPTABLE (w/proper endorsements)

Term of Agreement: _____

Contract Administrator and Phone: Vahe Dabbaghian (213) 367-3543

Buyer and Phone Number: _____

Contract-required types and amounts of insurance as indicated below by checkmark are the minimum which must be maintained. All limits are Combined Single Limit (Bodily Injury/Property Damage) unless otherwise indicated. Firm 30 day Notice of Cancellation required by Receipted Delivery.

PER OCCURRENCE LIMITS

(✓) WORKERS' COMPENSATION(Stat. Limits)/Employer's Liability: ($1,000,000.00)
- (✓) Broad Form All States Endorsement
- ( ) US L&H (Longshore and Harbor Workers)
- ( ) Jones Act (Maritime Employment)
- ( ) Outer Continental Shelf
- (✓) Waiver of Subrogation
- ( ) Black Lung (Coal Mine Health and Safety)
- ( ) Other: _____
- ( ) Other: _____

(✓) AUTOMOBILE LIABILITY: ($1,000,000.00)
- (✓) Owned Autos
- ( ) Any Auto
- (✓) Hired Autos
- (✓) Non-Owned Auto
- ( ) Contractual Liability
- (✓) Additional Insured
- ( ) MCS-90 (US DOT)
- ( ) Trucker's Form
- ( ) Waiver of Subrogation
- ( ) Other: _____

(✓) GENERAL LIABILITY: ( ) Limit Specific to Project ( ) Per Project Aggregate ($10,000,000.00)
- (✓) Broad Form Property Damage
- (✓) Contractual Liability
- (✓) Personal Injury
- (✓) Premises and Operations
- (✓) Products/Completed Ops.
- ( ) Independent Contractors
- ( ) Fire Legal Liability
- ( ) Garagekeepers Legal Liab.
- ( ) Child Abuse/Molestation
- ( ) Corporal Punishment
- (✓) Collapse/Underground
- (✓) Explosion Hazard
- ( ) Watercraft Liability
- ( ) Pollution
- (✓) Additional Insured Status
- ( ) Waiver of Subrogation
- ( ) Airport Premises
- ( )Hangarkeepers Legal Liab.
- ( ) Marine Contractors Liability
- ( ) Other: _____
- ( ) Other: _____

(✓) PROFESSIONAL LIABILITY: ($1,000,000.00)
- (✓) Contractual Liability
- (✓) Waiver of Subrogation
- (✓) 3 Year Discovery Tail
- (✓) Additional Insured
- (✓) Vicarious Liability Endt.
- ( ) Other: _____

( ) AIRCRAFT LIABILITY: ( )
- ( ) Passenger Per Seat Liability
- ( ) Contractual Liability
- ( ) Hull Waiver of Subrogation
- ( ) Pollution
- ( ) Additional Insured
- ( ) Other: _____

( ) PROPERTY DAMAGE: ( ) Loss Payable Status (AOIMA) ( )
- ( ) Replacement Value
- ( ) Actual Cash Value
- ( ) Agreed Amount
- ( ) All Risk Form
- ( ) Named Perils Form
- ( ) Earthquake: _____
- ( ) Builder's Risk:$_____
- ( ) Boiler and Machinery
- ( ) Flood: _____
- ( ) Transportation Floater:$_____
- ( ) Contractors Equipment$_ ___ _
- ( ) Loss of Rental Income: _____
- ( ) Scheduled Locations/Propt.
- ( ) Other: _____
- ( ) Other: _____

( ) WATERCRAFT: ( )
- ( ) Protection and Indemnity
- ( ) Pollution
- ( ) Additional Insured
- ( ) Waiver of Subrogation
- ( ) Other: _____
- ( ) Other: _____

( ) POLLUTION: ($5,000,000.00)
- (✓) Incipient/Long Term
- ( ) Sudden and Accidental
- (✓) Additional Insured
- ( ) Waiver of Subrogation
- ( ) Contractor's Pollution
- ( ) Other: _____

( ) CRIME: ( ) Joint Loss Payable Status ( ) Additional Insured ( )
- ( ) Fidelity Bond
- ( ) Financial Institution Bond
- ( ) Loss of Monies/Securities
- ( ) Employee Dishonesty
- ( ) In Transit Coverage
- ( ) Wire Transfer Fraud
- ( ) Computer Fraud
- ( ) Commercial Crime
- ( ) Forgery/Alteration of Docs.
- ( ) Other: _____
- ( ) Other: _____

( ) ASBESTOS LIABILITY: ( ) Additional Insured ( )

LICENSE AGREEMENT – ATTACHMENT C

STANDARD CONDITIONS FOR CONSTRUCTION

STANDARD CONDITIONS FOR CONSTRUCTION

1. Energized transmission lines can produce electrical effects including, but not limited to, induced voltages and currents in persons and objects. Licensee hereby acknowledges a duty to conduct activities in such manner that will not expose persons to injury or property to damage from such effects.

2. The Los Angeles Department of Water and Power (LADWP) personnel shall have access to the right of way at all times.

3. Unauthorized parking of vehicles or equipment shall not be allowed on the right of way at any time.

4. Unauthorized storage of equipment or material shall not be allowed on the right of way at any time.

5. Fueling of vehicles or equipment shall not be allowed on the right of way at any time.

6. Patrol roads and/or the ground surfaces of the right of way shall be restored by the Licensee to original conditions, or better.

7. All trash, debris, waste, and excess earth shall be removed from the right of way upon completion of the project, or the LADWP may do so at the sole risk and expense of the Licensee.

~~8. All cut and fill slopes within the right of way shall contain adequate berms, benches, and interceptor terraces. Revegetation measures shall also be provided for dust and erosion control protection of the right of way.~~

9. All paving, driveways, bridges, crossings, and substructures located within the right of way shall be designed to withstand the American Association of State Highway and Transportation Officials' vehicular loading H20-44 or HL-93. The design shall also comply with applicable design standards.

~~10. The location of underground pipelines and conduits shall be marked at all points where they cross the boundaries of the right of way and at all locations where they change direction within the right of way. The markings shall be visible and identifiable metal post markers for underground pipelines. Utility markers flush with surface may be used on pavement.~~

11A. General Grounding Condition

All aboveground metal structures including, but not limited to, pipes, drainage devices, fences, and bridge structures located within or adjoining the right of way shall be properly grounded, and shall be insulated from any fencing or other conductive materials located outside of the right of way. For safety of personnel and equipment, all equipment and structures shall be grounded in accordance with State of California Code of Regulations, Title 8, Section 2941, and National Electric Code, Article 250.

~~11B. Grounding Condition for Cellular Facilities on Towers~~

~~All aboveground metal structures including, but not limited to, pipes, drainage devices, fences, and bridge structures located within or adjoining the right of way shall be properly grounded, and shall be insulated from any fencing or other conductive materials located outside of the right of way. For safety of personnel and equipment, all equipment and structures shall be grounded in accordance with American National Standards Institute of Electrical and Electronics Engineers Standard 487-latest edition, IEEE Guide for Safety in AC Substation Grounding.~~

12. Licensee shall neither hold the LADWP liable for nor seek indemnity from the LADWP for any damage to the Licensee's project due to future construction or reconstruction by the LADWP within the right of way.

13. Fires and burning of materials is not allowed on the right of way.

14. Licensee shall control dust by dust-abatement procedures approved by the LADWP, such as the application of a dust palliative or water.

15. The right of way contains high-voltage electrical conductors; therefore, the Licensee shall utilize only such equipment, material, and construction techniques that are permitted under applicable safety ordinances and statutes, including the following: State of California Code of Regulations, Title 8, Industrial Relations, Chapter 4, Division of Industrial Safety, Subchapter 5, Electrical Safety Orders; and California Public Utilities Commission, General Order No. 95, Rules for Overhead Electric Line Construction.

16. Licensee is hereby notified that grounding wires may be buried in the right of way; therefore, the Licensee shall notify the LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5014, or (818) 771-5076, at least 48 hours prior to the start of any construction activities in the right of way.

~~17A. Vehicle Parking~~

~~An area within 50 feet around the base of each tower must remain open and unobstructed for maintenance and emergencies, including periodic washing of insulators by high-pressure water spray. Clearances of 100 feet may be required under circumstances where access is limited.~~

~~17B. Trucking Operations and Storage Operations~~

~~An area within 50 feet around the base of each tower must remain open and unobstructed for maintenance and emergencies, including periodic washing of insulators by high-pressure water spray. Clearances of 100 feet may be required under circumstances where access is limited.~~

~~17C. Permanent Structures~~

~~An area within 100 feet on all sides of each tower shall remain open and unobstructed for maintenance and emergencies, including periodic washing of insulators by high-pressure water spray.~~

~~18. Detailed plans for any grading, paving, and construction work within the right of way~~

~~shall be submitted for approval to the Real Estate Services, 221 N. Figueroa St., Suite 1600, Los Angeles, California 90012, no later than 45 days prior to the start of any grading, paving, or construction work. Notwithstanding any other notices given by Licensee required herein, Licensee shall notify the LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5014, or (818) 771-5076, no earlier than 14 days and no later than two days prior to the start of any grading, paving, or construction work.~~

~~19. "As Constructed" drawings showing all plans and profiles of the Licensee's project shall be furnished to the Real Estate Services, 221 N. Figueroa St., Suite 1600, Los Angeles, California 90012, within five days after completion of Licensee's project.~~

20. In the event that construction within the right of way is determined upon inspection by the LADWP to be unsafe or hazardous to the LADWP facilities, the LADWP may assign a line patrol mechanic at the Licensee's expense.

21. If the LADWP determines at any time during construction that the Licensee's efforts are hazardous or detrimental to the LADWP facilities, the LADWP shall have the right to immediately terminate said construction.

~~22A. All concentrated surface water which is draining away from the permitted activity shall be directed to an approved storm drain system where accessible, or otherwise restored to sheet flow before being released within or from the right of way.~~

~~22B. Drainage from the paved portions of the right of way shall not enter the unpaved area under the towers. Drainage diversions such as curbs shall be used on three sides of each tower. The open side of each tower shall be the lowest elevation side to allow storm water which falls under the tower to drain. The area under the towers shall be manually graded to sheet flow out from under the towers.~~

22C. Ponding or flooding conditions within the right of way shall not be allowed, especially around the transmission towers. All drainage shall flow off of the right of way.

~~22D. Licensee shall comply with all Los Angeles County Municipal Storm Water Permit and Standard Urban Storm Water Mitigation Plan requirements.~~

23A. Fills, including backfills, shall be in horizontal, uniform layers not to exceed six inches in thickness before compaction, then compacted to 90 percent relative compaction in accordance with the American Society for Testing and Materials D1557.

~~23B. The top two inches to six inches of the concrete footings of the towers shall remain exposed and not covered over by any fill from grading operations.~~

~~23C. Licensee shall provide the LADWP with one copy each of the compaction report and a Certificate of Compacted Fill, for clean fill compaction within the LADWP's right of way in accordance with the American Society for Testing and Materials D1557, approved by a geotechnical engineer licensed in the State of California.~~

24. A surety bond in the amount to be determined by the LADWP shall be supplied by the Licensee to assure restoration of the LADWP's right of way and facilities, and compliance with all conditions herein.

25. The Licensee shall obtain and pay for all permits and licenses required for performance of the work and shall comply with all laws, ordinances, rules, orders, or regulations

including, but not limited to, those of any agencies, departments, districts, or commissions of the State, County, or City having jurisdiction thereover.

~~26. The term "construction", as used herein, refers only to that construction incidental to the maintenance or repair of the existing (requested facility) and shall not be construed to mean permission to construct any additional (requested facility).~~

~~27. Signs shall not exceed four feet wide by eight feet long, shall not exceed a height of 12 feet, shall be constructed of noncombustible materials, and shall be installed manually at, and parallel with, the right of way boundary.~~

~~28. Remote-controlled gates, or lock boxes containing the device or key for opening the remote-controlled gates, shall be capable of being interlocked with an LADWP padlock to allow access to the right of way by the LADWP. Licensee shall contact LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5014, or (818) 771-5076, to coordinate the installation of an LADWP padlock.~~

~~29. Licensee's cathodic protection system, if any, shall have a design that does not cause corrosion to LADWP facilities. A detailed design of the Licensee's cathodic protection system shall be submitted for approval to the Real Estate Services, 221 N. Figueroa St., Suite 1600, Los Angeles, California 90012, no later than 45 days prior to the start of construction or installation of the cathodic protection system.~~

~~30A. Licensee shall install K-rails at a distance of ten feet from each side of the tower base for protection of towers. A distance of five feet from the tower base may be acceptable in locations where the patrol roads would be obstructed.~~

~~30B. Licensee shall install removable pipe bollards, spaced four feet apart, and at a distance of ten feet from each side of the tower base for protection of towers. A distance of five feet from the tower base may be acceptable in locations where the patrol roads would be obstructed.~~

31A Licensee shall provide and maintain a minimum 20-foot wide transition ramp for the patrol roads from the pavement to the ground surface. The ramp shall not exceed a slope of ten percent.

~~31B. Licensee shall provide and maintain a minimum 20-foot wide driveway and gate at all locations where the (road/street) crosses the LADWP's patrol roads. The designed gates must be capable of being interlocked with an LADWP padlock to allow access to the right of way by the LADWP.~~

~~32. Licensee shall post a sign on the entrance gate to the right of way, or in a visible location inside the entrance gate, identifying the contact person's name and telephone number for the prompt moving of (vehicles/trucks/trailers/containers) at times of LADWP maintenance or emergency activities, or any other event that (vehicles/trucks/trailers/containers) must be moved. In emergency conditions, the LADWP reserves all rights at any time to move or tow (vehicles/trucks/trailers/containers) out of specific areas for any transmission operation or maintenance purposes.~~

Appendix E

Honeywell/LADWP Settlement Agreement

SETTLEMENT AGREEMENT BETWEEN

THE LOS ANGELES DEPARTMENT OF WATER AND POWER

AND

HONEYWELL INTERNATIONAL INC.

SETTLEMENT AGREEMENT BETWEEN THE LOS ANGELES DEPARTMENT OF WATER AND POWER AND HONEYWELL INTERNATIONAL INC.

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF EXHIBITS

RECITALS

A. WHEREAS, this AGREEMENT establishes a unique and historic long-term public-private partnership between the Los Angeles Department of Water and Power ("LADWP") and Honeywell International Inc. ("HONEYWELL") that will operate to enhance and expedite remediation of contamination and support restoration of beneficial uses of groundwater within the North Hollywood Operable Unit ("NHOU"), which is located in the San Fernando Valley Groundwater Basin ("SFV GROUNDWATER BASIN"), by implementing, among other things, the "Cooperative Containment Concept" ("CCC"), which will pump, treat and provide 8,500 acre-feet per year ("AFY") of treated groundwater with an end use as public drinking water in lieu of expensive imported water. The CCC will operate until the United States Environmental Protection Agency ("EPA") determines the remedial action objectives of the NHOU Second Interim Remedy ("SECOND INTERIM REMEDY" or "NHOU 2IR") have been met. If certain conditions are met, an additional 6,500 AFY of treated groundwater will be provided to LADWP with an end use as public drinking water in lieu of expensive imported water;

B. WHEREAS, under *City of Los Angeles v. City of San Fernando* (1975) 14 Cal.3d 199, the City of Los Angeles ("CITY") has the right to, among other things, all groundwater in the SFV GROUNDWATER BASIN derived either from precipitation within the Upper Los Angeles River Area, or from water it has imported from outside the Upper Los Angeles River Area and either spread or delivered within the Area, insofar as the CITY uses such water to satisfy its municipal needs and reasonable beneficial uses;

C. WHEREAS, industrial and other facilities located in and around the NHOU historically handled, treated, transported, and disposed of waste that resulted in releases of hazardous substances that over time percolated through subsurface soils and contributed to contamination of the SFV GROUNDWATER BASIN, which has severely compromised the ability of the CITY to depend on these water rights as a long-term source of supply;

D. WHEREAS, beginning in the 1940s, HONEYWELL's predecessors operated facilities at a site in North Hollywood, Los Angeles (the "FORMER BENDIX SITE"), which state and federal agencies allege to be a source of contamination to groundwater in the SFV GROUNDWATER BASIN;

E. WHEREAS, LADWP has been working with state and federal agencies to identify and hold responsible parties liable to remediate the SFV GROUNDWATER BASIN so that all beneficial uses can be fully restored;

F. WHEREAS, this AGREEMENT addresses remediation of the "central" portion of NHOU, which is under the jurisdiction of EPA located within the SFV GROUNDWATER BASIN;

G. WHEREAS, activities and conditions with respect to the NHOU are within the jurisdiction of several federal and state regulatory agencies. EPA is the lead federal agency for current and planned future groundwater remediation activities at the NHOU; EPA conducts response activities at the NHOU under the authority granted by the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). The Regional Water Quality Control Board for the Los Angeles Region ("RWQCB") has been heavily involved with the investigation and remediation of source properties within the NHOU, including, among others, the FORMER BENDIX SITE;

H. WHEREAS, on September 23, 1987, EPA issued a record of decision selecting the NHOU First Interim Remedy ("FIRST INTERIM REMEDY") that called for an extraction and treatment system which was intended to treat the primary chemicals of concern identified at that time, trichloroethylene ("TCE") and perchloroethylene or tetrachloroethylene ("PCE"). That system was anticipated to provide up to 3,226 AFY (approximately 2,000 gallons per minute) of treated groundwater to LADWP;

I. WHEREAS, while EPA was undertaking efforts to recover costs and secure response actions from responsible parties, LADWP moved forward to construct and operate the extraction and treatment system through a cooperative agreement with and funding from EPA;

J. WHEREAS, following the construction and startup of the extraction and treatment system by LADWP, EPA began negotiations with potentially responsible parties ("PRPs"), including HONEYWELL, who EPA alleged caused or contributed to, or whose predecessors caused or contributed to, groundwater contamination within the NHOU;

K. WHEREAS, in 1996 and 1997, EPA reached two separate settlements with PRPs in which the settling parties, including HONEYWELL, agreed to pay EPA's past costs and a sum certain to help fund operation of the groundwater extraction and treatment system;

L. WHEREAS, in 2008, when funds collected pursuant to the 1996 and 1997 settlements neared exhaustion, EPA proposed and HONEYWELL, along with a number of other PRPs, and without admitting liability for further funding, entered a "Settlement Agreement for Recovery of Response Costs" to secure further funding to continue operating the existing system until the SECOND INTERIM REMEDY is constructed and operational. In 2013 and 2015, and again without admitting liability for further funding, HONEYWELL signed amendments to the Settlement Agreement for Recovery of Response Costs to secure further funding to continue operating the existing system;

M. WHEREAS, the FIRST INTERIM REMEDY was intended to limit volatile organic compound ("VOC") contaminant migration (primarily PCE and TCE) and remove contamination from groundwater in the NHOU; however, emerging contaminants, including hexavalent chromium ("CrVI") and 1,4-dioxane, were detected and these chemicals impacted or threatened to impact a number of NHOU extraction wells, and could not be treated by the original treatment system. In addition, EPA determined that changing groundwater conditions in the aquifer and the discovery of contamination in new areas of the aquifer beneath the NHOU required a modification of the remedy;

N. WHEREAS, on September 30, 2009, EPA issued the RECORD OF DECISION ("ROD"), which selected the SECOND INTERIM REMEDY for the NHOU. The ROD set forth EPA's determination that changed conditions necessitated selection and implementation of the SECOND INTERIM REMEDY;

O. WHEREAS, the ROD deemed potable use the preferred end use for water treated via the SECOND INTERIM REMEDY and envisioned a groundwater remediation system that would provide approximately 4,900 AFY (approximately 3,050 gallons per minute) of treated groundwater from the NHOU to LADWP;

P. WHEREAS, on July 1, 2010, EPA sent the special notice letter to 21 EPA-identified PRPs, including HONEYWELL, associated with 10 source properties in the NHOU, indicating that they were liable under CERCLA to implement or fund the SECOND INTERIM REMEDY in accordance with the ROD for the NHOU;

Q. WHEREAS, on January 10, 2014, EPA released an amendment to the ROD authorizing reinjection of treated water into the SFV GROUNDWATER BASIN as an alternative remedy to supplying treated groundwater to LADWP in the event that LADWP and the NHOU PRPs were unable to reach an agreement that is acceptable to EPA regarding terms for delivery and acceptance of the treated water;

R. WHEREAS, on October 26, 2017, EPA issued a Unilateral Administrative Order for Remedial Action to HONEYWELL directing HONEYWELL to construct certain replacement wells in the vicinity of certain current NHOU extraction wells and develop a treatment system capable of removing VOCs, 1,4-dioxane, and CrVI from the extracted groundwater;

S. WHEREAS, on February 22, 2018, based on additional groundwater data and other factors, EPA issued an Explanation of Significant Differences (the "ESD") to the ROD that concludes that increased groundwater extraction would be more effective in attaining the NHOU 2IR Remedial Action Objectives ("NHOU 2IR RAOs") and protecting production wells in LADWP's RT WELL FIELD and North Hollywood West Branch Well Fields. The portion of the SECOND INTERIM REMEDY to be implemented by HONEYWELL pursuant to this AGREEMENT is referred to herein as the Cooperative Containment Concept ("CCC");

T. WHEREAS, on July 8, 2019, EPA amended the 2017 Unilateral Administrative Order for Remedial Action to direct HONEYWELL to install three new extraction wells in the NHOU;

U. WHEREAS the CCC portion of the SECOND INTERIM REMEDY is expected, among other things, to capture and contain certain contaminants that might otherwise impact certain LADWP groundwater production wells downgradient of the North Hollywood East Branch Well Field ("NHEB WELL FIELD"), and this AGREEMENT provides that in the event that certain contaminants exceeding maximum contaminant levels for drinking water ("MCLs") and/or

drinking water notification levels ("NLs") are encountered and identified in the downgradient WH4-5 WELLS following the sustained operation of the CCC, the PARTIES contemplate that HONEYWELL will treat the water from WH4-5 WELLS, re-drilled by LADWP, consistent with SECTION 11; this contingent treatment of contaminated groundwater (at an amount of 6,500 AFY) from such wells is referred to as the SECOND STAGE CONCEPT, or "SSC," and is outside the scope of the ROD and not subject to EPA oversight;

V. WHEREAS, LADWP and HONEYWELL have negotiated this AGREEMENT, which, among other things, provides for (i) how the CCC SYSTEM will be designed and implemented in a manner consistent with the ROD, as amended and clarified, under the direction of EPA, (ii) how the SSC SYSTEM will be designed and implemented, and (iii) how the PARTIES, either individually or jointly, will allocate responsibilities for both the CCC and SSC SYSTEMS in this AGREEMENT;

W. WHEREAS, LADWP and HONEYWELL expect that HONEYWELL, or a separate legal entity formed in whole or in part by HONEYWELL, will construct, and LADWP will operate, with support from HONEYWELL or a separate legal entity formed in whole or in part by HONEYWELL, the facilities that will comprise the CCC and SSC SYSTEMS; but in all instances subject to the requirement of SECTION 31 that provides HONEYWELL shall remain directly liable and responsible to LADWP for all obligations to LADWP hereunder;

X. WHEREAS, LADWP anticipates that the water it will receive from the CCC and SSC SYSTEMS will play a critical role in LADWP's plans to ensure that groundwater in the SFV GROUNDWATER BASIN is remediated to its beneficial use as a drinking water supply so that LADWP may serve such groundwater to the public and reduce purchases of imported water;

Y. WHEREAS, LADWP and HONEYWELL understand and anticipate that, due to the concentration of hazardous substances in the NHOU and other factors, the California State Water Resources Control Board's Division of Drinking Water ("DDW") will evaluate the CCC and SSC SYSTEMS consistent with DDW Policy Guidance for Direct Domestic Use of Extremely Impaired Sources, California Department of Public Health Policy Memorandum 97-005 ("DDW 97-005"), prior to permitting LADWP to accept the water from the CCC and SSC SYSTEMS for further treatment and eventual distribution for domestic use;

Z. WHEREAS, LADWP and HONEYWELL recognize, under CERCLA, implementation of remedial actions "onsite" are not required to comply with state environmental laws unless such laws are defined as Applicable or Relevant and Appropriate Requirements ("ARAR") in a ROD. LADWP and HONEYWELL further recognize that case law interpreting CERCLA confirms that state and local agencies are also not obligated to comply with non-ARAR state laws in connection with remediation projects. Furthermore, it is the PARTIES' view that EPA's anticipated review of the CCC SYSTEM under CERCLA is functionally equivalent to the environmental reviews typically conducted under CEQA (which is not a ROD-listed ARAR);

AA. WHEREAS, LADWP and HONEYWELL expect that PRPs in the NHOU, including at a minimum HONEYWELL, and EPA will enter into a consent decree to implement the SECOND INTERIM REMEDY that will govern, in part, CCC SYSTEM operations; and

BB. WHEREAS, FURTHER, to achieve resolution of outstanding technical and legal issues concerning the CCC and SSC SYSTEMS, to fully and finally resolve their differences regarding the PARTIES' CLAIMS, as set forth herein, to toll and stand down with respect to certain claims arising outside the NHOU, and in the spirit of entering into a private-public partnership to facilitate the implementation of the CCC and the SSC, the PARTIES wish to enter into this AGREEMENT on the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, and for good and valuable consideration, the PARTIES agree as follows:

1. DEFINITIONS

Where the context so indicates or requires, each defined term stated in the singular includes the plural, and each defined term stated in the plural includes the singular. Unless otherwise stated, terms in this AGREEMENT indicated with ALLCAPS shall have the definitions stated in the subparagraphs below. The definitions in this AGREEMENT shall apply only to this AGREEMENT and EXHIBITS to this AGREEMENT, where so indicated, and shall not apply to any other agreement, nor shall they be used as evidence, except with respect to this AGREEMENT, of the meaning of any term. As used in this AGREEMENT, the following terms have the following meanings set forth below.

1.1 **AFY** means acre-feet per year, in reference to a volume of water.

1.2 **AGREEMENT or NHOU SETTLEMENT AGREEMENT** means this settlement agreement and all attachments, exhibits, and figures hereto.

1.3 **ANNUAL BUDGET** means the budget defined in SECTION 8.

1.4 **ANTICIPATED PENALTY PAYMENT** means reasonably anticipated CCC PENALTIES AND/OR COSTS arising from a TRIGGERING EVENT.

1.5 **AOP** means advanced oxidation processes.

1.6 **APN** means assessor's parcel number.

1.7 **BENDIX PLUME** means the extent of groundwater impacted by releases from the FORMER BENDIX SITE.

1.8 **CALENDAR YEAR** means the period of a year beginning January 1 and ending December 31.

1.9 **CAPITAL TRUST** means the trust account established in SECTION 16.

1.10 **CAPITAL TRUSTEE** means the trustee appointed pursuant to SECTION 16.

1.11 **CCC or the COOPERATIVE CONTAINMENT CONCEPT** means the groundwater remediation and water supply project involving the design, permitting, construction, and operation of the CCC SYSTEM, consisting of three project phases defined herein, and as more fully described in the SCOPE OF WORK.

1.12 **CCC 97-005 MONITORING PLAN** means the final water quality monitoring and surveillance plan approved by DDW for the CCC SYSTEM in connection with DDW 97-005.

1.13 **CCC MONITORING PLAN** means a groundwater, influent, and effluent monitoring plan for the CCC SYSTEM, to be completed and approved by EPA as may be required, that will describe existing and proposed monitoring wells, the frequency of sampling,

groundwater elevations, and analytical parameters necessary for monitoring: (i) to evaluate the location and movement of groundwater contamination with respect to the NHOU; and (ii) the quality of influent and effluent entering and leaving the PHASE 1 and PHASE 3 TREATMENT SYSTEMS.

1.14 **CCC PENALTIES AND/OR COSTS** means costs associated with an LADWP FAILURE that causes: (i) payment of fees or stipulated or civil penalties pursuant to an ORDER; (ii) additional response costs to comply with an ORDER; or (iii) other such damages or losses as a result of, or arising out of, an LADWP FAILURE. Unless otherwise stated, CCC PENALTIES AND/OR COSTS shall not include attorneys' fees or defense costs.

1.15 **CCC PHASE 1 or PHASE 1 TREATMENT SYSTEM** means the installation and testing of three replacement extraction wells (NHE-3R, NHE-4R, and NHE-5R), as shown on FIGURE 1, and the development of a groundwater treatment system that will be designed, permitted, constructed, and commissioned to reduce and/or remove ROD Contaminants of Concern ("COCs"). The PHASE 1 TREATMENT SYSTEM will be designed to operate at a flow rate of 1,500 AFY (based on the ROLLING ANNUAL AVERAGE) with the purpose of performing treatment system pilot testing prior to establishing the full-scale groundwater treatment system. Groundwater to be treated is anticipated to come from extraction wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6. Raw groundwater will be delivered to the PHASE 1 TREATMENT SYSTEM via an existing twelve (12)-inch diameter conveyance line. Treated water from the PHASE 1 TREATMENT SYSTEM will be discharged (after being disinfected by the CHLORINATION SYSTEM) to the SUMP via an existing sixteen (16)-inch discharge line. The PHASE 1 TREATMENT SYSTEM will be constructed at the YARD.

1.16 **CCC PHASE 2 or PHASE 2** means the installation of new extraction wells and conveyance lines to provide higher flow rates in support of the PHASE 3 TREATMENT SYSTEM operations. Three extraction wells are anticipated to be installed on LADWP property (CCC-1, CCC-2, and CCC-3), as shown on FIGURE 1. Anticipated conveyance includes: (i) piping that will extend from the PHASE 2 extraction wells to the YARD,

(ii) piping that will extend from extraction wells NHE-2 and NHE-3R to the YARD, and (iii) the replacement of the existing sixteen (16)-inch diameter discharge line from the YARD to the North Hollywood West Branch Well Fields trunk line near the SUMP with a thirty (30)-inch diameter discharge line from the YARD to the SUMP that will support at least 15,000 AFY of treated water from both the PHASE 3 TREATMENT SYSTEM and the potential flow from the SSC SYSTEM.

1.17 **CCC PHASE 3 or PHASE 3 TREATMENT SYSTEM** means the expansion of the PHASE 1 TREATMENT SYSTEM with additional equipment to support an increased flow rate of 8,500 AFY (based on the ROLLING ANNUAL AVERAGE). Groundwater to be treated is anticipated to originate from the wells active during CCC PHASE 1, as well as three new extraction wells anticipated to be installed during CCC PHASE 2. Raw groundwater will be delivered to the PHASE 3 TREATMENT SYSTEM through one of three influent conveyance lines. Treated water from the PHASE 3 TREATMENT SYSTEM will be discharged (after being disinfected by the CHLORINATION SYSTEM) to the SUMP via the thirty (30)-inch discharge line installed during PHASE 2.

1.18 **CCC SYSTEM** means the extraction wells (including but not limited to pumps, motors, drop pipe, casing and associated electrical, instrumentation, Supervisory Control and Data Acquisition, or "SCADA," and controls), above-grade and sub-grade conveyance lines from the wells to the treatment plant, the associated treatment plant, and the associated equipment and appurtenances necessary for plant operation, waste management systems, and purchased and leased land housing the plant and its equipment and appurtenances (collectively shown on FIGURE 2), up to the identified "CCC Effluent Monitoring Point" as shown on FIGURE 2.

1.19 **CCC SYSTEM OPERATIONAL SUPPORT PLAN** means the plan described in EXHIBIT 2.

1.20 **CEQA** means the California Environmental Quality Act, California Public Resources Code §§ 21000, *et seq*., and its implementing regulations, as such may be amended from time-to-time.

1.21 **CERCLA** means the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675, and its implementing regulations, as such may be amended from time-to-time.

1.22 **CHARTER** means the Charter of the CITY.

1.23 **CHLORINATION SYSTEM** means the LADWP-owned chlorination unit located on the YARD that will be utilized by LADWP to disinfect treated water received from, among other locations, the CCC SYSTEM and, potentially, the SSC SYSTEM.

1.24 **CITY** means the City of Los Angeles, California.

1.25 **CITY COUNCIL** means the City Council of the CITY.

1.26 **CLAIMS** means claims for soil or groundwater CONTAMINATION arising out of or attributable to the activities of, or the ownership or operation of property by, the respective PARTIES that they have or could have in the future against one another with respect to liability under CERCLA, California's Hazardous Substance Account Act, other comparable federal or state environmental laws, or other federal or state statutes or laws, including common law claims and claims for damages or harm for past or future lost water production or other impairment of water rights in the SFV GROUNDWATER BASIN.

1.27 **CONTAMINATION** means any pollutant, contaminant, hazardous waste or hazardous substance under any federal, state, or local laws, regulations, rules, statutes, ordinances, codes, decrees, requirements, or permits of any governmental authority regulating, or imposing liability or standards of conduct concerning any hazardous substance, as now or may at any later time be in effect, including, without limitation, CERCLA [42 U.S.C. §§ 9601 *et seq.*]; the Resource Conservation and Recovery Act [42 U.S.C. §§ 6901 *et seq.*]; the Clean Water Act, also known as the Federal Water Pollution Control Act [33 U.S.C. §§ 1251 *et seq.*]; the Toxic Substances Control Act [15 U.S.C. §§ 2601 *et seq.*]; the Hazardous Materials Transportation Act [49 U.S.C. §§ 5101 *et seq.*]; the Federal Insecticide, Fungicide, Rodenticide Act [7 U.S.C. §§ 136 *et seq.*]; the Clean Air Act [42 U.S.C. §§ 7401 *et seq.*]; the Safe Drinking Water Act [42 U.S.C. §§ 300f *et seq.*]; the Solid Waste Disposal Act [42 U.S.C. §§ 6901 *et seq.*]; the Surface Mining Control and

Reclamation Act [30 U.S.C. §§ 1201 *et seq.*]; the Emergency Planning and Community Right to Know Act [42 U.S.C. §§ 11001 *et seq.*]; the Occupational Safety and Health Act [29 U.S.C. §§ 651 *et seq.*]; the California Underground Storage of Hazardous Substances Act [Cal. Health & Safety Code §§ 25280 *et seq.*]; the California Hazardous Substances Account Act [Cal. Health & Safety Code §§ 25300 *et seq.*]; the California Hazardous Waste Control Act [Cal. Health & Safety Code §§ 25100 *et seq.*]; the California Safe Drinking Water and Toxic Enforcement Act [Cal. Health & Safety Code §§ 25249.5 *et seq.*]; and the Porter-Cologne Water Quality Control Act [Cal. Water Code §§ 13000 *et seq.*], together with any amendments of or regulations promulgated under the statutes cited above and any other federal, state, or local law, statute, ordinance, or regulation now in effect or later enacted that pertains to hazardous substances on, including ambient air, soil, soil vapor, groundwater, surface water, or land use.

1.28 **CPRA** means the California Public Records Act, Government Code § 6250, *et seq*., as such may be amended from time-to-time.

1.29 **CrVI** means hexavalent chromium.

1.30 **DAY** means a calendar day.

1.31 **DDW** means the California State Water Resources Control Board's Division of Drinking Water (formerly the California Department of Public Health) and its successor departments, agencies, or instrumentalities.

1.32 **DDW 97-005** means the DDW Policy Guidance for Direct Domestic Use of Extremely Impaired Sources, California Department of Public Health Policy Memorandum 97-005 (originally dated November 5, 1997), as such may be amended from time-to-time.

1.33 **DTSC** means the California Department of Toxic Substances Control, the Toxic Substances Control Account, and their successor departments, agencies, or instrumentalities.

1.34 **EFFECTIVE DATE** means the date upon which this AGREEMENT is countersigned and executed between the PARTIES and the condition precedent set forth in SECTION 29 has

been met, and notwithstanding that the condition subsequent set forth in SECTION 28 may not occur until sometime following execution of this AGREEMENT.

1.35 **EPA** means the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

1.36 **EPA REQUIREMENTS** means any requirements contained in an ORDER and/or letter and/or directive published or issued by EPA.

1.37 **ERWIN WELL FIELD** means the LADWP-owned Erwin Branch Well Field, including wells and associated conveyance, as shown on FIGURE 3.

1.38 **ESD** means an "Explanation of Significant Differences," as that term applies pursuant to CERCLA.

1.39 **FIRST INTERIM REMEDY** means the interim remedy selected by EPA for the NHOU in EPA's September 23, 1987 ROD.

1.40 **FORCE MAJEURE** means circumstances beyond the reasonable control of LADWP or HONEYWELL and without the fault and negligence of either LADWP or HONEYWELL including but not be limited to, acts of God or of the public enemy; insurrection; acts of the federal government or any unit of state or local government in either sovereign or contractual capacity; sabotage; vandalism; and earthquakes, fires, floods, hurricanes, storms, high water, extended droughts, volcanic eruptions, epidemics, quarantine restrictions, strikes, freight embargos, or delays in transportation, to the extent that they are not caused by the PARTIES' willful or negligent acts or omissions, and to the extent that they are beyond either LADWP's or HONEYWELL's reasonable control and that prevents or delays performance of an obligation under this AGREEMENT.

1.41 **FORMER BENDIX SITE** means the site of facilities formerly owned or operated by HONEYWELL's predecessors, including the Bendix Corporation, the Allied Corporation, and the Signal Companies, Inc., located on APN 2320-001-030, APN 2320-001-036, APN 2320-001-041, and APN 2320-001-042 in Los Angeles (North Hollywood), California.

1.42 **GPM** means gallons per minute.

1.43 **HONEYWELL** means Honeywell International Inc., a Delaware corporation, and successor-in-interest to AlliedSignal Inc.

1.44 **INCREMENTAL MONITORING COSTS** means additional monitoring costs incurred as the result of requirements imposed by DDW on LADWP for either the CCC SYSTEM or SSC SYSTEM that go beyond what monitoring EPA has required pursuant to an ORDER.

1.45 **INDEMNITY MEDIATOR** means the mediator identified in SECTION 27.

1.46 **INDEMNITY TRUST** means the trust fund or escrow account established in connection with SECTION 27.

1.47 **LADWP** means the Los Angeles Department of Water and Power, a proprietary department of the CITY.

1.48 **LADWP COSTS** means all costs incurred by LADWP not inconsistent with standard practices of a public drinking water system operated by a public utility of similar nature, scope and complexity as LADWP. Such costs shall include labor charges, indirect costs and expenses, accounting, supplies, equipment, infrastructure, structures, utilities and other third-party costs. LADWP labor shall be calculated on actual hours worked multiplied by the hourly rates. The hourly rates include labor base rate, labor distribution rate for labor burden, and add-on rate for particular job classification. The hourly rates are subject to change every fiscal year. LADWP indirect costs will include "Administrative and General," "Retirement and Death Benefits," "Health Care Costs," "Supervision and Engineering Expense," "Shops," "Tools," and "Material Handling," and other such costs, as published annually by LADWP in its Accounting Bulletin, consistent with U.S. generally accepted accounting principles and the applicable Governmental Accounting Standard Board. Reimbursement of LADWP COSTS by HONEYWELL are subject to the provisions of this AGREEMENT.

1.49 **LADWP FAILURE** means an event in which LADWP operates, or directs the operation of, the CCC SYSTEM in a manner that is both (i) inconsistent with the requirements of this AGREEMENT and (ii) causes HONEYWELL to be out of compliance with EPA REQUIREMENTS contained in an ORDER concerning the CCC SYSTEM, including noncompliance caused by LADWP failing or refusing to accept the water produced by the CCC SYSTEM. The term LADWP FAILURE excludes any failure caused directly or indirectly by HONEYWELL or by a failure of HONEYWELL to meet a material obligation of this AGREEMENT.

1.50 **LADWP INDEMNITY DISPUTE LETTER** means a written letter by LADWP to HONEYWELL objecting to a demand for payment of CCC PENALTIES AND/OR COSTS or an ANTICIPATED PENALTY PAYMENT, which shall specify therein a short description LADWP's reasons for objecting to the HONEYWELL payment demand.

1.51 **LADWP RESIDENT ENGINEER** means the person identified by LADWP with authority to observe the implementation of the construction of the CCC SYSTEM and SSC SYSTEMS on behalf of LADWP.

1.52 **LADWP SSC WORK** means the re-drilling of the WH4-5 WELLS at or adjacent to their current location, and construction of all necessary infrastructure to transport treated water to the YARD, and any conveyance bypass for untreated water, if any, to convey water from WH4-5 WELLS to the SUMP; *except, however*, LADWP SSC WORK shall not include the installation of conveyance piping from the YARD to the SUMP.

1.53 **LICENSE AGREEMENT** means that certain license agreement by and among HONEYWELL and LADWP, the form of which is attached hereto as EXHIBIT 4, that gives HONEYWELL and its sub-licensees permission to enter upon certain real property that is owned by the CITY and/or under the control and jurisdiction of LADWP for the purpose of facilitating the construction, operation, and maintenance of groundwater treatment facilities and their associated wells, conveyance, and other necessary infrastructure for the benefit of LADWP, as contemplated in this AGREEMENT.

1.54 **LIMITATIONS** means any statutes of limitation, any statutes of repose, and any other statute, law, rule, or principle of equity with similar effect.

1.55 **LPGAC** means liquid phase granular activated carbon.

1.56 **MCL** means maximum contaminant levels for drinking water as established by EPA or the STATE.

1.57 **NATIONAL CONTINGENCY PLAN or NCP** means the National Oil and Hazardous Substances Pollution Contingency Plan, sometimes referred to as the NCP, promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, as such may be amended from time-to-time.

1.58 **NEW CONTAMINANTS** means contaminants not presently identified as ROD COCs.

1.59 **NHEB WELL FIELD** means the LADWP-owned North Hollywood East Branch Well Field, including wells and associated conveyance, as shown on FIGURE 3.

1.60 **NHOU** means the North Hollywood Operable Unit of the San Fernando Valley Area 1 Superfund Site.

1.61 **NHOU 2IR CENTRAL PORTION CD** means a fully effective consent decree, by and among, at a minimum, EPA and HONEYWELL, providing for the implementation of a groundwater extraction and treatment system in substantially similar form to the CCC as a component of the NHOU 2IR.

1.62 **NHOU 2IR RAOs** means NHOU Second Interim Remedy Remedial Action Objectives set by EPA, as set forth in the ROD.

1.63 **NHOU CO** means the legal entity, if any, established by HONEYWELL to facilitate and/or undertake groundwater remediation in the NHOU.

1.64 **NL** means drinking water notification levels as established by the STATE.

1.65 **O&M** means operation and maintenance, repairs, replacement, and capital improvements.

1.66 **O&M COSTS** means all costs, including but not limited to LADWP COSTS, incurred by LADWP to operate and maintain the CCC SYSTEM and, if it is necessary, the SSC SYSTEM pursuant to this AGREEMENT, including but not limited to the labor, materials, equipment, supplies, consumables, management, oversight, utilities and electrical costs (including costs to pump water to the surface, transport water to the treatment system, and to operate the system), training, monitoring, recordkeeping, consulting (health and safety or otherwise), permit compliance and fees, insurance, security, testing, waste and off-spec water management, responding to spills or releases from the CCC SYSTEM or SSC SYSTEM, repairing and replacing components and system elements, designing and installing system upgrades, repairs, replacement, major repairs and capital improvements and related infrastructure, accounting and any and all other costs associated with operation and maintenance of the CCC SYSTEM and, if it is necessary, the SSC SYSTEM, consistent with the then-current requirements of any ORDER (if applicable) and DDW permit and any other applicable requirement. Such costs also include fifty percent (50%) of the cost to maintain and repair the thirty (30)-inch conveyance line from the YARD to the SUMP that will be installed during PHASE 2, once HONEYWELL constructs and installs that conveyance, with the other fifty percent (50%) of the cost to maintain and repair the thirty (30)-inch conveyance being borne by LADWP. Notwithstanding the language above, O&M COSTS shall not include costs that are expressly placed on LADWP in this AGREEMENT.

1.67 **O&M TRUST ACCOUNT** means the trust account established in SECTION 17.

1.68 **O&M TRUSTEE** means the trustee appointed pursuant to SECTION 17.1.1.

1.69 **ON THE GROUND EXPENSES** means all costs, including but not limited to LADWP COSTS, incurred by LADWP during and in connection with the PHASE 1 and PHASE 3 STARTUP AND SHAKEDOWN PERIODS, the PHASE 1 and PHASE 3 WARRANTY PERIODS, the SSC STARTUP AND SHAKEDOWN PERIOD, and the SSC WARRANTY PERIOD, including but not limited to costs for training, observation, security, reporting, and oversight, and sample collection and analysis.

1.70 **ORDER** means a fully effective consent decree, unilateral administrative order, administrative order on consent, or similar agreement with, or directive from, EPA, entered with or issued to HONEYWELL, addressing releases of hazardous substances in groundwater in the "central" area of the NHOU.

1.71 **PARTY or PARTIES** means the signatories to this AGREEMENT, including, specifically, LADWP and HONEYWELL.

1.72 **PCE** means tetrachloroethylene or perchloroethylene.

1.73 **PERSON** means an individual, a partnership, a corporation, an association, a limited liability company, a limited liability partnership, a syndicate, a joint stock company, a trust, a joint venture, an unincorporated organization, or other entity, including any governmental entity, and including any successor, by merger, assignment, assumption, change of control, or otherwise of any of the foregoing.

1.74 **PHASE 1 STARTUP AND SHAKEDOWN PERIOD** means the period of time during which HONEYWELL (or its designated contractor approved by LADWP) will undertake the necessary actions (including but not limited to prove-out of individual equipment operation and continuous operation at rated load ranges, mechanical (contractual) acceptance testing, permit requirement acceptance testing, communications testing and verification, operator training, and issuance of what is commonly referred to as a "Certificate of Completion") to verify that the PHASE 1 TREATMENT SYSTEM is constructed in conformance and operating consistent with the design. The PHASE 1 STARTUP AND SHAKEDOWN PERIOD shall include the period of time from the completion of the PHASE 1 TREATMENT SYSTEM construction until such time DDW issues a new or amended WATER SUPPLY PERMIT to LADWP allowing LADWP to accept treated water from the PHASE 1 TREATMENT SYSTEM for further treatment and eventual distribution as drinking water.

1.75 **PHASE 1 WARRANTY PERIOD** means the anticipated twenty-four (24) months of the PHASE 1 TREATMENT SYSTEM operation following the PHASE 1 STARTUP AND SHAKEDOWN PERIOD.

1.76 **PHASE 3 STARTUP AND SHAKEDOWN PERIOD** means the period of time during which HONEYWELL (or its designated contractor approved by LADWP) will undertake the necessary actions (including but not limited to prove-out of individual equipment operation and continuous operation at rated load ranges, mechanical (contractual) acceptance testing, permit requirement acceptance testing, communications testing and verification, operator training, and issuance of what is commonly referred to as a "Certificate of Completion") to verify that the PHASE 3 TREATMENT SYSTEM is constructed in conformance and operating consistent with the design. The PHASE 3 STARTUP AND SHAKEDOWN PERIOD shall include the period of time from the completion of the PHASE 3 TREATMENT SYSTEM construction until such time DDW issues a new or amended WATER SUPPLY PERMIT to LADWP allowing LADWP to accept treated water from the plant for further treatment and eventual distribution as drinking water.

1.77 **PHASE 3 TOLLING INCIDENT** means operational upset of the PHASE 3 TREATMENT SYSTEM or other incident that causes the PHASE 3 TREATMENT SYSTEM to produce less than seventy percent (70%) of its design capacity during the PHASE 3 WARRANTY PERIOD.

1.78 **PHASE 3 WARRANTY PERIOD** means the anticipated twenty-four (24) months of the PHASE 3 TREATMENT SYSTEM operation following the PHASE 3 STARTUP AND SHAKEDOWN PERIOD.

1.79 **PRE-EXISTING ENVIRONMENTAL CONDITIONS** means the presence of soil or groundwater CONTAMINATION prior to the EFFECTIVE DATE from sources caused or contributed to by LADWP activities at the YARD. By way of clarification, such conditions expressly exclude the migration of CONTAMINATION into, onto, or beneath the YARD from off-site, not caused or contributed to by LADWP.

1.80 **PRIMARY SSC TREATMENT PLANT** means a water treatment plant or other treatment system capable of treating groundwater for PCE and/or TCE at a rate of 6,500 AFY, based on the ROLLING ANNUAL AVERAGE, that is built in the event the contingencies set forth in SECTION 14.1 are met.

1.81 **PROJECT COORDINATOR** means the individual(s) identified by each PARTY in SECTION 24.

1.82 **PRP** means a potentially responsible party, as such term is defined by CERCLA.

1.83 **RECORD OF DECISION OR ROD** means the EPA-approved, September 30, 2009 Interim Action Record of Decision (as amended or modified by the January 10, 2014 Amendment to the Interim Action Record of Decision and the February 22, 2018 ESD, and as may be amended or modified or clarified further from time-to-time, including through an amendment, ESD, or EPA five-year review process) for the NHOU, a copy of which is included as EXHIBIT 5 to this AGREEMENT.

1.84 **RESERVED CLAIMS** means any CLAIMS that either PARTY may have against the other that may arise out of or result from any releases of CONTAMINATION or other activities in the SFV GROUNDWATER BASIN, other than those CLAIMS settled and released under SECTION 26.

1.85 **ROD COC** means a contaminant of concern as set forth in Table 2 of the January 10, 2014 amendment to the ROD, as reproduced in EXHIBIT 5.

1.86 **ROLLING ANNUAL AVERAGE** means an average quantity of water treated and delivered to LADWP's water distribution system over the (5) five years, as calculated consistent with SECTION 19.

1.87 **RT WELL FIELD** means the LADWP-owned Rinaldi-Toluca Branch Well Field, including wells and associated conveyance, as shown on FIGURE 3.

1.88 **RT-INDUCED INCREMENTAL RESPONSE COSTS** means costs incurred by HONEYWELL or the NHOU CO implementing additional response actions directed by EPA or other authority having jurisdiction to address ROD COCs, if such response actions are the result of LADWP pumping at the RT WELL FIELD.

1.89 **RWQCB** means the Los Angeles Regional Water Quality Control Board and its successor departments, agencies, or instrumentalities.

1.90 **SCADA** means Supervisory Control and Data Acquisition.

1.91 **SCOPE OF WORK** means the document titled "SCOPE OF WORK" included as EXHIBIT 3 to this AGREEMENT, which the PARTIES may agree to amend, as necessary.

1.92 **SECOND INTERIM REMEDY or NHOU 2IR** means the interim remedy selected by EPA for the NHOU in the ROD.

1.93 **SECONDARY SSC TREATMENT PLANT** means a water treatment plant or other treatment system capable of treating groundwater for select contaminants besides PCE and/or TCE (as defined in SECTION 14.2) at a rate of 6,500 AFY (equivalent to an instantaneous average rate of approximately 4,477 GPM, assuming ten percent (10%) downtime), based on the ROLLING ANNUAL AVERAGE, that is built in the event the contingencies set forth in SECTION 14.2 are met.

1.94 **SECONDARY SSC TREATMENT PLANT CONDITIONS** means those conditions identified in SECTION 14.2, the satisfaction of which the PARTIES' obligations in respect to the SECONDARY SSC TREATMENT PLANT depend.

1.95 **SECTION** means a portion of this AGREEMENT identified by an Arabic numeral.

1.96 **SFV GROUNDWATER BASIN** means the San Fernando groundwater basin (California Department of Water Resources Basin No. 4-12), which includes the underlying San Fernando Valley Area 1 Superfund Site, as shown on FIGURE 3.

1.97 **SSC or SECOND STAGE CONCEPT** means the alternative water treatment and supply project triggered under certain conditions as set forth herein, and which includes building and operating the SSC SYSTEM, as more fully described in the SCOPE OF WORK included as EXHIBIT 3 to this AGREEMENT.

1.98 **SSC 97-005 MONITORING PLAN** means the final water quality monitoring and surveillance plan approved by DDW for the SSC SYSTEM in connection with DDW 97-005.

1.99 **SSC CO** means the legal entity, if any, established by HONEYWELL to facilitate and/or design, construct, and operate the SSC SYSTEM.

1.100 **SSC MONITORING COSTS** means such monitoring costs incurred as the result of requirements imposed by DDW that are beyond the requirements of the CCC MONITORING PLAN.

1.101 **SSC STARTUP AND SHAKEDOWN PERIOD** means the period of time during which the SSC SYSTEM operator will undertake the necessary actions (including but not limited to prove-out of individual equipment operation and continuous operation at rated load ranges, mechanical (contractual) acceptance testing, permit requirement acceptance testing, communications testing and verification, operator training, and issuance of what is commonly referred to as a "Certificate of Completion") to verify that the SSC SYSTEM is constructed in conformance and operating consistent with the design. The SSC STARTUP AND SHAKEDOWN PERIOD shall include the period of time from the completion of the PRIMARY SSC TREATMENT PLANT and/or SECONDARY SSC TREATMENT PLANT construction until such time DDW issues a new or amended WATER SUPPLY PERMIT to LADWP allowing LADWP to accept treated water from the SSC SYSTEM for further treatment and eventual distribution as drinking water.

1.102 **SSC SYSTEM or SSC TREATMENT SYSTEM** means the extraction wells (including but not limited to pumps, motors, drop pipe, and associated electrical, instrumentation, SCADA, and controls), the above-grade and sub-grade conveyance lines from the wells to the treatment plant, the associated PRIMARY SSC TREATMENT PLANT or SECONDARY SSC TREATMENT PLANT, each capable of treatment at a rate of 6,500 AFY water (equivalent to an instantaneous average rate of approximately 4,477 GPM, assuming ten percent (10%) downtime), based on the ROLLING ANNUAL AVERAGE, and the associated equipment and appurtenances necessary for plant operation, waste management systems, and purchased and leased land housing the treatment system and its equipment and appurtenances, up to the terminal flange of the replacement discharge line at the YARD. The definition of the SSC SYSTEM does not include WH4-5 WELLS (and associated conveyance).

1.103 **SSC SYSTEM ALTERNATIVES** means alternatives to the construction of the SSC SYSTEM, such as HONEYWELL's financial contribution to operation and maintenance costs at an existing LADWP treatment facility.

1.104 **SSC WARRANTY PERIOD** means the twenty-four (24) months of the PRIMARY SSC TREATMENT PLANT and/or SECONDARY SSC TREATMENT PLANT operation following the SSC STARTUP AND SHAKEDOWN PERIOD.

1.105 **STATE** means the State of California and any and all agents thereof.

1.106 **STEERING COMMITTEE** means the committee established in SECTION 25.

1.107 **SUMP** means LADWP's "North Hollywood Sump," as more particularly shown on FIGURE 1.

1.108 **SWRCB** means the California State Water Resources Control Board and its successor departments, agencies, or instrumentalities.

1.109 **TANGIBLE TRIGGER** means, following commencement of pumping at LADWP's RT WELL FIELD, detection of CrVI at the specific existing designated TRIGGER WELLS, as shown on EXHIBIT 6, located between the CCC SYSTEM and the RT WELL FIELD over three sequential (no more frequent than quarterly) monitoring periods at or above ten (10) µg/L in any well sampling point or one detection at or above one hundred (100) µg/L in any well, in conjunction with groundwater elevation data indicating that past or ongoing migration (in response to historical or current pumping from the RT WELL FIELD) from what the PARTIES refer to as the "BENDIX PLUME" is responsible for the measured CrVI concentrations in the TRIGGER WELLS. The PARTIES may, in the sole discretion of each, agree in writing to different or additional trigger levels or chemicals, in response to new information or changed conditions.

1.110 **TCE** means trichloroethylene.

1.111 **TRIGGERING EVENT** means an event where LADWP's operation of or failure to operate the CCC SYSTEM would trigger grounds for a stipulated penalty or other penalty to be asserted against HONEYWELL by EPA under an ORDER, whether or not EPA

actually issues a stipulated penalty. A list of categories of such events includes and is limited to: LADWP intentionally shutting down the CCC SYSTEM outside of normal O&M to a degree that is likely to trigger a penalty under the ORDER, and where such shutdown is not consistent with the obligations of LADWP under this AGREEMENT, or intentionally failing to maintain and/or repair or failing to allow HONEYWELL to repair the CCC SYSTEM in a reasonably timely manner.

1.112 **TRIGGER WELLS** means the specific wells shown on EXHIBIT 6 that the PARTIES agree should be used for purposes of the TANGIBLE TRIGGER. Additional or replacement TRIGGER WELLS may be established by express agreement of both PARTIES, in their sole discretion.

1.113 **VOCs** means volatile organic compounds.

1.114 **WATER SUPPLY PERMIT** means a new or amended permit issued by DDW to LADWP authorizing it to receive water from extraction wells for the CCC SYSTEM and/or the SSC SYSTEM through treatment at the CCC SYSTEM and/or the SSC SYSTEM, respectively.

1.115 **WATER SUPPLY PERMIT REQUIREMENTS** means any and all requirements of the WATER SUPPLY PERMIT. These provisions include, but are not limited to, meeting requirements at the final compliance point for LADWP's broader water distribution system prior to delivery of water to the public as potable water, that would enable LADWP to serve water without the need to notify customers about NLs or other similar requirements.

1.116 **WBA** means weak base anion exchange.

1.117 **WBA SYSTEM** means the components of the WBA treatment unit that removes CrVI as water passes through.

1.118 **WH4-5 WELLS** means those LADWP-owned wells named WH-4 and WH-5, as shown on FIGURE 3.

1.119 **WHITNALL WELL FIELD** means the LADWP-owned Whitnall Branch Well Field, including wells and associated conveyance, as shown on FIGURE 3.

1.120 **YARD** means collectively the real property owned by LADWP, located at 11845 Vose Street, and commonly referred to as the "Lankershim Yard," and certain other LADWP-owned property, as more particularly shown in FIGURE 4 to this AGREEMENT.

2. CCC DESIGN

2.1 HONEYWELL'S RESPONSIBILITIES

2.1.1 **CCC System Design**. HONEYWELL shall design the CCC SYSTEM in three phases to meet the requirements of the NHOU 2IR RAOs and consistent with the ROD and NCP. The CCC SYSTEM shall be capable of producing the 8,500 AFY ROLLING ANNUAL AVERAGE following the construction of the PHASE 3 TREATMENT SYSTEM (as discussed in SECTION 4), plus a design buffer/safety factor as set forth below. Other than the flange or similar connection at the SUMP and the CHLORINATION SYSTEM per SECTION 4.2 below, HONEYWELL shall be responsible for the design of all of the infrastructure necessary for the CCC SYSTEM.

2.1.2 **CCC System Components**. A description of the proposed CCC SYSTEM components for each of the three contemplated construction phases (discussed in SECTION 4 below) is included in the SCOPE OF WORK attached as EXHIBIT 3.

2.1.3 **Design Considerations and Coordination with LADWP**. HONEYWELL shall, among other things, design the CCC SYSTEM with due consideration for EPA requirements, DDW requirements, LADWP standards and specifications, and HONEYWELL procurement procedures. HONEYWELL shall provide LADWP the opportunity to review and comment on the CCC SYSTEM design documents that are submitted to EPA. HONEYWELL acknowledges that LADWP will be operating the CCC SYSTEM and that there is value in designing systems consistent with LADWP standards and other LADWP systems, where appropriate and where costs are not excessive. HONEYWELL shall accommodate LADWP requests related to the CCC SYSTEM design, except in those instances where HONEYWELL shows that the costs are excessive and such deviations are

unnecessary or not proper (e.g. not appropriate for the intended purpose/use of the CCC SYSTEM). Disagreements arising out of this SECTION 2.1.3 are subject to the dispute resolution provisions in SECTION 36.

2.1.4 **Design Buffer/Safety Factor**. HONEYWELL shall design the CCC SYSTEM to produce at a rate of 8,500 AFY (equivalent to an instantaneous average rate of approximately 25.86 acre-feet per day, assuming ten percent (10%) downtime) plus a five percent (5%) to twenty percent (20%) buffer/safety factor for additional groundwater treatment capacity in excess of the planned 8,500 AFY ROLLING ANNUAL AVERAGE.

2.1.5 **As-Built Drawings**. HONEYWELL shall provide as-built drawings to LADWP once the construction is complete for CCC PHASE 1 and CCC PHASE 3 and for any updates to the design as installed over time. These drawings shall include, but not be limited to, electrical and other drawings acceptable to LADWP.

2.2 LADWP'S RESPONSIBILITIES

2.2.1 **Separate Infrastructure Design**. LADWP shall design the flange or similar connection at or adjacent to the SUMP necessary to accept water from the CCC SYSTEM after remediation for use as potable water. LADWP shall also design, as necessary, to modify or replace the existing CHLORINATION SYSTEM, for disinfection of water treated by the CCC SYSTEM during CCC PHASE 3, or, if necessary, CCC PHASE 1. LADWP shall provide HONEYWELL the opportunity to review and comment on design documents associated with the infrastructure contemplated in this SECTION 2.2.1. LADWP shall accept timely input as to the design from HONEYWELL and any required governmental authority.

2.2.2 **Review of CCC System Design Documents and Acknowledgement**. LADWP shall have the right to review and provide comments on major CCC SYSTEM design documents and all documents that are submitted to EPA or otherwise requested by LADWP. LADWP shall endeavor to review and provide comments on all CCC SYSTEM design documents within sixty (60) DAYS of receipt. If

LADWP provides notice to HONEYWELL that additional review time is required, such additional time shall be provided unless HONEYWELL demonstrates that such additional review time will generate delays that will unreasonably interfere with HONEYWELL's obligations to EPA or otherwise materially prejudice HONEYWELL. In providing such review and comment, LADWP acknowledges that given the unique nature of the CCC SYSTEM being designed by HONEYWELL under EPA's authority, there will be deviations from LADWP standards and differences between the CCC SYSTEM and other LADWP production facilities.

2.3 JOINT RESPONSIBILITIES

2.3.1 **Coordination Regarding Applicable Laws**. The PARTIES, in consultation with any identified necessary other entity, either private or governmental, shall ensure that, for its portion of the design, the CCC SYSTEM is consistent with all federal, state, and local laws, rules, and regulations such that they may obtain all necessary and applicable permits of all types whether federal, state, or local.

3. CCC PERMITTING & APPROVALS

3.1 HONEYWELL'S RESPONSIBILITIES

3.1.1 **EPA Approvals and Submissions**. HONEYWELL shall be responsible for obtaining any required EPA approvals and presenting any and all submissions to EPA, including submission of any and all documentation or reports that EPA may require in reference to the design, construction, testing, operation, and maintenance of the CCC SYSTEM as may become necessary.

3.1.2 **Construction Permits**. HONEYWELL or the NHOU CO shall be responsible for obtaining all required permits for construction and testing of the CCC SYSTEM, other than obtaining DDW permits and, if applicable, obtaining other permits related solely to the provision of drinking water to the public. HONEYWELL's responsibility pursuant to this SECTION 3.1 shall include obtaining permits, if

necessary, to discharge water to the sewer and/or storm drain during the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD.

3.2 LADWP'S RESPONSIBILITIES

3.2.1 **Drinking Water Permits and Approvals**. LADWP shall apply for, and obtain, any and all permits, permit amendments, or other such documents or approvals required by DDW, or any other governmental agency with jurisdiction, necessary to deliver treated water produced by the CCC SYSTEM for use in LADWP's domestic drinking water supply.

3.2.2 **City Coordination**. Given the benefits of the CCC to LADWP, LADWP shall advocate and use reasonable efforts to work with the CITY to, as appropriate, waive all past, current, and future fees the CITY would charge a non-CITY entity for permitting, reviewing applications, environmental assessments, and plans for CCC SYSTEM construction and associated wells and conveyance pipeline. LADWP shall also work with the CITY to, as appropriate, assist HONEYWELL in its efforts to obtain expeditious processing of any HONEYWELL applications, requests for plan approvals, environmental assessments, and other permissions or determinations that may be required before installation and operation of the CCC SYSTEM. Such approvals and permits may include, but are not limited to, the Bureau of Street Services Street-Use Permit, Bureau of Engineering Permit, Department of Transportation Traffic Control Plans, and Temporary No Parking Permit. LADWP has explained to HONEYWELL that its ability to secure such waiver or expedited permitting is at most limited, and it makes no warranty with respect to its ability to achieve such outcomes.

3.2.3 **CEQA**. Pursuant to, among other grounds, CERCLA section 121(e), 42 U.S.C. section 9621(e), CEQA does not apply to the CCC; however, in the event that environmental review under CEQA is determined to be required to construct and/or operate the CCC SYSTEM, LADWP shall prepare all necessary documentation and

proceed with environmental review as required by CEQA, either as the lead agency or actively in support of another lead agency.

3.3 JOINT RESPONSIBILITIES

3.3.1 **Coordination on Necessary Approvals**. HONEYWELL and LADWP shall coordinate, exchange information, and work collaboratively so that (i) the necessary environmental review can be undertaken and (ii) permits and approvals can be obtained for the CCC SYSTEM, whether federal, state, or local.

4. CCC CONSTRUCTION

4.1 HONEYWELL'S RESPONSIBILITIES

4.1.1 **Construction Obligation**. HONEYWELL or the NHOU CO shall construct the CCC SYSTEM, including demolition and removal of the FIRST INTERIM REMEDY (excluding actions to be performed by LADWP as described in SECTION 4.2), construction of a new treatment plant situated at the YARD, rehabilitation of certain existing wells, rehabilitation/repair of existing conveyance infrastructure, and development of new conveyance infrastructure, and installation of new extraction wells. Additional detail regarding HONEYWELL's construction obligations is included in EXHIBIT 3 to this AGREEMENT. Other than the flange or similar connection at the SUMP and CHLORINATION SYSTEM per SECTION 4.2.2, below, and the FIRST INTERIM REMEDY demolition activities described in SECTION 4.2.1, HONEYWELL shall be responsible for the construction of all of the infrastructure necessary for the CCC SYSTEM.

4.1.2 **CCC Phase 1 Construction**. During CCC PHASE 1 construction, HONEYWELL shall replace and deepen Wells NHE-3, NHE-4 and NHE-5 with NHE-3R, NHE-4R and NHE-5R, and connect those new wells to conveyance piping in anticipation of extracting water from these wells and sending extracted water to the YARD for treatment to make available an anticipated 1,500 AFY to LADWP, with a buffer/safety factor of five percent (5%) to twenty percent (20%). Additional detail

regarding HONEYWELL's construction obligations during CCC PHASE 1 are included in EXHIBIT 3 to this AGREEMENT.

4.1.3 **CCC Phases 2 and 3 Construction**. During PHASE 2 and CCC PHASE 3 construction, HONEYWELL shall complete build-out of the CCC SYSTEM, including installation of new extraction wells, conveyance piping, treated water effluent piping, and the construction of the expanded treatment plant. Specifically, regarding the treated water effluent piping, HONEYWELL shall replace the effluent line from the YARD to the SUMP with a new thirty (30)-inch conveyance to accommodate flows from both the CCC SYSTEM and the SSC SYSTEM. HONEYWELL shall also install a new discharge line from the PHASE 1 and PHASE 3 TREATMENT SYSTEMS to the storm drain to accommodate flows during the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD. If HONEYWELL is unable to install a permanent storm drain connection, HONEYWELL shall be responsible for implementing an alternative approach (e.g., a temporary storm drain connection) to manage process water during the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD. HONEYWELL further intends to establish a new sanitary sewer lateral at the YARD for the CCC SYSTEM. Additional details regarding HONEYWELL's construction obligations during PHASE 2 and CCC PHASE 3 are included in EXHIBIT 3 to this AGREEMENT.

4.2 LADWP'S RESPONSIBILITIES

4.2.1 **First Interim Remedy Demolition**. Within sixty (60) DAYS of the execution of this AGREEMENT, as part of the demolition of the FIRST INTERIM REMEDY, LADWP shall remove the granular activated carbon contained in the vapor-phase granular activated carbon unit tanks and chemicals associated with the anti-scaling unit, both of which were associated with the FIRST INTERIM REMEDY.

4.2.2 **Separate Infrastructure Construction**. LADWP shall construct the flange or similar connection at the SUMP as necessary to accept water from the CCC

SYSTEM. LADWP shall also undertake, if necessary, the modification, expansion, or replacement of the CHLORINATION SYSTEM and associated infrastructure (i.e., if the existing sanitary sewer lateral does not have sufficient capacity for the disinfection system) at the YARD, for disinfection of water treated by the CCC SYSTEM and for discharge of combined flows from the disinfection system.

4.2.3 **Availability of LADWP Property**. Pursuant to the LICENSE AGREEMENT, LADWP shall make available to HONEYWELL the YARD and other real property identified in FIGURE 4 and FIGURE 5 for the construction of the CCC SYSTEM.

4.2.4 **Pre-Existing Environmental Conditions at the YARD**. Except as provided in SECTION 6.1.2, LADWP shall be responsible for PRE-EXISTING ENVIRONMENTAL CONDITIONS on or about the YARD encountered during the construction of the CCC SYSTEM. In the event PRE-EXISTING ENVIRONMENTAL CONDITIONS are encountered during construction of the CCC SYSTEM, and if such conditions affect the construction of the CCC SYSTEM, LADWP shall use reasonable efforts to address and remedy the PRE-EXISTING ENVIRONMENTAL CONDITIONS in a time frame to avoid adversely impacting HONEYWELL's construction schedule. If, following consultation with HONEYWELL, LADWP determines that it cannot timely address such PRE-EXISTING ENVIRONMENTAL CONDITIONS, LADWP may request that HONEYWELL or the NHOU CO identify and engage a contractor to undertake the remediation at LADWP's expense. In such a situation, the PARTIES agree to arrange an appropriate mechanism for LADWP involvement in decision making with regard to such work and an appropriate mechanism for the funding.

4.3 JOINT RESPONSIBILITIES

4.3.1 **Coordination Regarding Applicable Laws**. HONEYWELL and LADWP, in consultation with any identified necessary other entity, either private or governmental, shall construct the portion of the CCC SYSTEM for which it is responsible in a manner consistent with all federal, state, and local laws, rules and

regulations and in a manner such that they may obtain all necessary and applicable permits of all types whether federal, state, or local.

4.3.2 **Coordination During Construction**.

(a) During periods when HONEYWELL or the NHOU CO is engaged in construction activities, HONEYWELL and LADWP shall coordinate construction activities and staging in a manner that minimizes interference with construction and other activities of each other.

(b) The PARTIES shall comply with the "Site Specific Health & Safety Plan" submitted to EPA by HONEYWELL during the construction of the CCC SYSTEM, provided such plan is reviewed and approved by LADWP, which approval shall not be unreasonably withheld or delayed.

(c) During periods when HONEYWELL or the NHOU CO is engaged in construction activities, LADWP shall have the right but not the obligation to observe all construction activities, but shall not have the right to stop work or otherwise direct work by HONEYWELL or the NHOU CO or its contractors, except as set forth herein for safety concerns. HONEYWELL agrees to keep the LADWP RESIDENT ENGINEER informed of planned construction activities and issues, and agrees to allow the LADWP RESIDENT ENGINEER to observe planned coordination meetings, including tailgate and similar meetings. If the LADWP RESIDENT ENGINEER observes conditions, work, or planned work that it believes is unsafe, not in conformance with specifications, or otherwise of concern to LADWP, the LADWP RESIDENT ENGINEER may raise the concern with HONEYWELL, the NHOU CO, or the contractor foreman or supervisor. If the concern is not resolved by the field personnel, the matter may be elevated to the project management level, which shall include the LADWP project manager (as identified from time-to-time) and the HONEYWELL or NHOU CO project manager (as identified from time-to-time). The project managers agree to discuss the concern either in person or over the

telephone in an effort to resolve the concern. If the concern is not resolved at the project manager level, the matter may be elevated to the executive level, where representatives of the STEERING COMMITTEE shall meet to discuss the matter in an effort to resolve the issue. Notwithstanding the above, LADWP, through the LADWP RESIDENT ENGINEER, shall have the right but not the obligation to immediately stop work in situations that it concludes could result in injury or materially deviate from applicable LADWP safety procedures. In all instances, HONEYWELL or the NHOU CO (and not LADWP) remains fully responsible for identifying and responding to safety hazards during its construction and active operation periods.

5. CCC OPERATION

5.1 HONEYWELL'S RESPONSIBILITIES

5.1.1 **CCC Phase 1 Startup and Shakedown**. Prior to acceptance of treated water from the PHASE 1 TREATMENT SYSTEM, HONEYWELL or the NHOU CO shall engage a contractor acceptable to LADWP with expertise in the operation of water treatment plants to operate the PHASE 1 TREATMENT SYSTEM through completion of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD.

5.1.2 **CCC Phase 1 Warranty Period**. Following completion of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from the PHASE 1 TREATMENT SYSTEM for use in its potable water distribution system until the termination of the PHASE 1 WARRANTY PERIOD, HONEYWELL or the NHOU CO shall engage a contractor, acceptable to LADWP, with expertise in the operation of water treatment plants to operate and maintain the PHASE 1 TREATMENT SYSTEM under LADWP's authority. Such O&M responsibilities shall include influent and effluent monitoring as required by EPA.

5.1.3 **Post-CCC Phase 1 Warranty Period**. Following transition of operational responsibility to LADWP following the PHASE 1 WARRANTY PERIOD (unless LADWP declines to operate the PHASE 1 TREATMENT SYSTEM pursuant to its rights under SECTION 5.2.2), HONEYWELL or the NHOU CO shall arrange for operational and maintenance support and waste disposal services consistent with the CCC SYSTEM OPERATIONAL SUPPORT PLAN attached hereto as EXHIBIT 2. HONEYWELL or the NHOU CO shall also conduct EPA-required groundwater monitoring.

5.1.4 **CCC Phase 3 Startup and Shakedown**. Prior to acceptance of treated water from the PHASE 3 TREATMENT SYSTEM, HONEYWELL or the NHOU CO shall engage a contractor acceptable to LADWP with expertise in the operation of water treatment plants to operate the PHASE 3 TREATMENT SYSTEM through completion of the PHASE 3 STARTUP AND SHAKEDOWN PERIOD.

5.1.5 **CCC Phase 3 Warranty Period**. Following completion of the PHASE 3 STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from the PHASE 3 TREATMENT SYSTEM for use in its potable water distribution system until the termination of the PHASE 3 WARRANTY PERIOD, HONEYWELL or the NHOU CO shall engage a contractor acceptable to LADWP with expertise in the operation of water treatment systems to operate the PHASE 3 TREATMENT SYSTEM under LADWP's authority. Such O&M responsibilities shall include influent and effluent monitoring as required by EPA.

5.1.6 **Post-CCC Phase 3 Warranty Period**. Following transition of operational responsibility to LADWP following the PHASE 3 WARRANTY PERIOD, HONEYWELL or the NHOU CO shall arrange for operational and maintenance support and waste handling, management, and disposal services as set forth in the CCC SYSTEM OPERATIONAL SUPPORT PLAN attached hereto as EXHIBIT 2. HONEYWELL or the NHOU CO shall also conduct EPA-required groundwater monitoring.

5.1.7 **LADWP Approval of Operator**. During the period that HONEYWELL or the NHOU CO is responsible for providing a contractor for the operation of the PHASE 1 TREATMENT SYSTEM or PHASE 3 TREATMENT SYSTEM or the O&M of the WBA SYSTEM during or following such period, under LADWP's authority, LADWP shall have the right to approve the contractor (and any replacement) that may operate the PHASE 1 or PHASE 3 TREATMENT SYSTEMS or WBA SYSTEM, which approval shall not be unreasonably withheld or delayed. LADWP shall also have the right to remove such contractor (and any replacement) for cause. Unless otherwise agreed by the PARTIES or in an emergency, LADWP shall endeavor to provide HONEYWELL a minimum of sixty (60) DAYS' notice prior to exercising its removal right under this SECTION 5.1.7. HONEYWELL agrees to provide reasonable information requested by LADWP to assist LADWP in its review of the proposed contactor (or its replacement). Prior to its procurement of the contractor or replacement, HONEYWELL agrees to obtain from LADWP a list of requirements for the contractor, such as operator certification requirements, which LADWP may reasonably require. As part of its review of a contractor pursuant to this SECTION 5.1.7, and oversight of same, LADWP shall have the right but not the obligation to review, and as applicable approve, (i) the plans of the contractor as may be required by the WATER SUPPLY PERMIT or reasonably required by LADWP, (ii) the ability of the contractor to comply with such plans, and (iii) the contract terms related to same. Such plans shall include the Operations Maintenance and Monitoring Plan as required by DDW, an Emergency Response Plan, Standard Operating Procedures for chemical delivery, isolation of equipment, lockout tagout procedures, plant startup and shutdown, reactor maintenance, and emergency operating activities (responding to and managing emergency alarm conditions and upset conditions in a timely and appropriate and safe manner, consistent with LADWP practices and the WATER SUPPLY PERMIT), notifications for off-spec water incidents, and reporting for DDW.

5.1.8 **Operation and Maintenance of WBA**. HONEYWELL shall be responsible for O&M of the WBA SYSTEM related to the resin, including (i) any maintenance on or repairs requiring internal access to the resin vessel, (ii) internal vessel inspections and repairs (when resin is exchanged or otherwise), (iii) any resin changeouts, (iv) responding to spills or releases at the WBA SYSTEM and notifying LADWP and appropriate regulatory authorities of releases consistent with the applicable response plan and law (only during the PHASE 1 and PHASE 3 WARRANTY PERIODS), and (v) any other work that creates a risk of exposure to the resin or activities that require special equipment to manage risks for exposure to radioactive materials.

5.1.9 **Management and Disposal of Certain Waste**. HONEYWELL or the NHOU CO shall be responsible for the handling, management, transportation, and disposal of hazardous and/or low-level radioactive waste generated by the WBA SYSTEM or other low-level radioactive waste that requires management due to the operation of the PHASE 1 and PHASE 3 TREATMENT SYSTEMS. This responsibility includes, but is not limited to, managing such materials onsite, arranging and performing onsite treatment if applicable, and manifesting and arranging for disposal off-site, using its own generator number, recordkeeping and otherwise complying with all applicable state and federal environmental laws. LADWP shall be responsible for managing other hazardous wastes generated during normal operations of the PHASE 1 and PHASE 3 TREATMENT SYSTEMS onsite; *provided, however*, HONEYWELL or the NHOU CO shall be responsible for off-site treatment and/or disposal of such hazardous wastes.

5.1.10 **Manifesting of Generated Waste**. HONEYWELL or the NHOU CO, and not LADWP, shall be identified as the sole generator of any and all hazardous waste and low-level radioactive waste generated by the O&M of the PHASE 1 and PHASE 3 TREATMENT SYSTEMS. HONEYWELL shall be responsible for selecting the location for disposal, which location shall meet all requirements of local, state, and federal law. LADWP shall have the right but not obligation to review and approve such disposal location, which approval shall not be

unreasonably withheld or delayed. Such review and approval right shall not apply to locations selected by HONEYWELL and approved by EPA for such disposal.

5.2 LADWP'S RESPONSIBILITIES

5.2.1 **CCC Phase 1 Warranty Period**. Following completion of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from the PHASE 1 TREATMENT SYSTEMS for use in its potable water distribution system until the termination of the PHASE 1 WARRANTY PERIOD, LADWP shall oversee and direct the contractor engaged by HONEYWELL or the NHOU CO to operate and maintain the PHASE 1 TREATMENT SYSTEM.

5.2.2 **Post-CCC Phase 1 Warranty Period**. Following the PHASE 1 WARRANTY PERIOD, LADWP shall operate and maintain the PHASE 1 TREATMENT SYSTEM; *except, however*, LADWP may instead direct the contractor engaged by HONEYWELL or the NHOU CO to continue operating and maintaining the PHASE 1 TREATMENT SYSTEM under LADWP oversight until such time that LADWP, in its discretion, desires to transition to operate the PHASE 1 TREATMENT SYSTEM. LADWP shall operate and maintain the PHASE 1 TREATMENT SYSTEM consistent with the requirements of any ORDER and DDW permit and applicable operations and monitoring plans. LADWP shall not be obligated to operate the PHASE 1 TREATMENT SYSTEM in a manner that exceeds 1,500 AFY ROLLING ANNUAL AVERAGE, nor shall LADWP be obligated to operate the PHASE 1 TREATMENT SYSTEM or accept treated water from that system if (i) the water quality from the CCC SYSTEM prevents LADWP from meeting the WATER SUPPLY PERMIT REQUIREMENTS, or (ii) some or all of the LADWP distribution system is shut down for repairs or to meet WATER SUPPLY PERMIT REQUIREMENTS and such shutdown prevents LADWP from accepting water from the CCC into the distribution system, or (iii) other FORCE MAJEURE events occur. In the event LADWP is not able, within a reasonable period of time, to resume acceptance of water for a reason specified in (i), (ii), or

(iii), the PARTIES shall promptly convene a special meeting of the STEERING COMMITTEE, and the PARTIES shall invite EPA to such special meeting, which purpose is to discuss the issue and seek to identify a path forward for LADWP to resume acceptance of the water. In such an instance, either PARTY may request such a special meeting.

(a) If the special meeting is due to the reason specified in (i), prior to the meeting LADWP shall prepare a list of options for putting LADWP in a position to be able to resume acceptance of the water, which shall include, if applicable, an analysis of, among other options, the feasibility of reducing pumping at other well fields in order to meet the WATER SUPPLY PERMIT REQUIREMENTS for the CCC SYSTEM. In such an instance, either PARTY may also invite DDW to the special meeting.

5.2.3 **CCC Phase 3 Warranty Period**. Following completion of the PHASE 3 STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from the PHASE 3 TREATMENT SYSTEM for use in its potable water distribution system until the termination of the PHASE 3 WARRANTY PERIOD, LADWP shall oversee and direct the contractor engaged by HONEYWELL or the NHOU CO to operate and maintain the PHASE 3 TREATMENT SYSTEM.

5.2.4 **Post-CCC Phase 3 Warranty Period**. Following the PHASE 3 WARRANTY PERIOD, LADWP shall operate and maintain the PHASE 3 TREATMENT SYSTEM. Such O&M responsibilities shall include influent and effluent monitoring as required by EPA and/or DDW. LADWP shall operate and maintain the PHASE 3 TREATMENT SYSTEM consistent with the requirements of any ORDER and DDW permit and applicable operations and monitoring plans. LADWP shall not be obligated to operate the PHASE 3 TREATMENT SYSTEM in a manner that exceeds 8,500 AFY ROLLING ANNUAL AVERAGE, nor shall LADWP be obligated to operate the PHASE 1 TREATMENT SYSTEM or accept treated water from that system if (i) the water quality from the CCC SYSTEM

prevents LADWP from meeting the WATER SUPPLY PERMIT REQUIREMENTS, or (ii) some or all of the LADWP distribution system is shut down for repairs or to meet WATER SUPPLY PERMIT REQUIREMENTS and such shutdown prevents LADWP from accepting water from the CCC into the distribution system, or (iii) other FORCE MAJEURE events occur. In the event LADWP is not able, within a reasonable period of time, to resume acceptance of water for a reason specified in (i), (ii), or (iii), the PARTIES shall promptly convene a special meeting of the STEERING COMMITTEE, and the PARTIES shall invite EPA to such special meeting, which purpose is to discuss the issue preventing acceptance of the water and discuss and identify a path forward for resumed acceptance. In such an instance, either PARTY may request such a special meeting.

(a) If the special meeting is due to the reason specified in (i), prior to the meeting LADWP shall prepare a list of options for putting LADWP in a position to be able to resume acceptance of the water, which shall include, if applicable, an analysis of, among other options, the feasibility of reducing pumping at other well fields in order to meet the WATER SUPPLY PERMIT REQUIREMENTS for the CCC SYSTEM. In such an instance, either PARTY may also invite DDW to the special meeting.

5.2.5 **Use of Sanitary Sewer**. Nothing in this AGREEMENT ever obligates LADWP to discharge treated or partially treated groundwater to a sanitary sewer, but LADWP may, in its sole discretion, use the sanitary sewer to discharge groundwater, provided such discharge is consistent with applicable permit and other requirements. The exercise of discretion of whether to use the sanitary sewer shall never be considered an LADWP FAILURE. Provided, further, LADWP agrees that water may be discharged during the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD and for treatment plant backwash and other such routine maintenance activities similar to other LADWP treatment facilities where LADWP discharges water to the sanitary sewer, and in connection with a restart following an extended

shut-down period, reconstruction, or other major repair, provided such discharge is consistent with applicable permit and other requirements.

5.2.6 **Use of Storm Drain**. Nothing in this AGREEMENT ever obligates LADWP to discharge treated or partially treated groundwater to a storm drain, but LADWP may, in its sole discretion, use the storm drain to discharge groundwater, provided such discharge is consistent with applicable permits and other requirements. The exercise of discretion of whether to use the storm drain shall never be considered an LADWP FAILURE. Provided, further, LADWP agrees that water may be discharged to the storm drain for testing during the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD and in connection with a non-routine restart, reconstruction, or other major repair, where directed by DDW or where otherwise warranted to comply with DDW testing requirements, provided such discharge is consistent with applicable permit and other requirements.

5.2.7 **Operation and Maintenance of WBA**. LADWP shall be responsible for O&M of the WBA SYSTEM, other than O&M to be performed by HONEYWELL as stated in SECTION 5.1.8, including (i) routine external inspections, operations and repairs that do not involve the risk of contact with the resin (e.g., adjusting/repairing flow valves) and (ii) following the PHASE 1 and PHASE 3 WARRANTY PERIODS, responding to spills or releases at the WBA SYSTEM, and notifying appropriate authorities and HONEYWELL of such spills or releases consistent with the applicable response plan and law. LADWP shall have access to a monitoring point outside of the fenced area for the WBA SYSTEM to allow LADWP to collect routine monitoring samples, as necessary.

5.3 JOINT RESPONSIBILITIES

5.3.1 **Coordination Regarding Applicable Laws**. The PARTIES, in consultation with any identified necessary other entity, either private or governmental, shall operate and maintain the CCC SYSTEM in a manner consistent with all federal, state, and local laws, rules, and regulations and in a manner such that all necessary and

applicable permits of all types whether federal, state, or local are obtained and maintained.

5.3.2 **Cooperation to Meet EPA and DDW Requirements**. The PARTIES shall cooperate with any reasonable request from each other to meet the HONEYWELL obligations to EPA under an ORDER and LADWP obligations to DDW. This shall include reasonable requests to access records, real property, equipment, reports, testing results, and any other information needed to comply with such obligations.

5.3.3 **Efficient Operation**. Over the course of this AGREEMENT, the PARTIES shall make reasonable efforts to identify and implement CCC SYSTEM efficiencies and operational synergies over time, consistent with the other terms of this AGREEMENT, and LADWP's other regulatory and legal obligations, and with the understanding that the CCC SYSTEM is treating water that contains hazardous substances to be served for domestic use and where certain production rates will need to be achieved to meet the NHOU 2IR RAOs.

5.3.4 **Transition Period during the Phase 1 Warranty Period**. The provisions of this SECTION 5.3.4 shall only apply if (i) operation of the PHASE 1 TREATMENT SYSTEM has not been discontinued to facilitate the construction of the PHASE 3 TREATMENT SYSTEM and (ii) LADWP elects to have its own operators operate the PHASE 1 TREATMENT SYSTEM in a period following eighteen (18) months following the completion of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD.

(a) **Observation**. For a period of two (2) months beginning eighteen (18) months following the completion of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD, the contractor engaged by HONEYWELL or the NHOU CO shall operate and maintain the PHASE 1 TREATMENT SYSTEM, and LADWP shall observe the O&M. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(b) **Joint Operation**. For a two (2)-month period beginning immediately after the two (2)-month period described in SECTION 5.3.4(a) above, the contractor engaged by HONEYWELL or the NHOU CO and LADWP shall jointly operate and maintain the PHASE 1 TREATMENT SYSTEM. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(c) **Final Transition**. For a two (2)-month period beginning immediately after the two (2)-month period described in SECTION 5.3.4(b) above, the contractor engaged by HONEYWELL or the NHOU CO shall remain present and provide all backup support necessary for LADWP to operate and maintain the PHASE 1 TREATMENT SYSTEM during this two (2)-month period. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(d) **Turnover**. Following the two (2)-month period described in SECTION 5.3.4(c) above, LADWP shall provide HONEYWELL or the NHOU CO with a letter identifying any issues associated with the design of the PHASE 1 TREATMENT SYSTEM to be resolved prior to LADWP taking over day-to-day operations and operating the PHASE 1 TREATMENT SYSTEM at 1,500 AFY on a ROLLING ANNUAL AVERAGE, or confirming that LADWP's operators are prepared to take over day-to-day operations. If LADWP does not confirm that LADWP's operators are prepared to take over day-to-day operations, HONEYWELL shall either address the issues raised by LADWP in the letter or inform LADWP why it believes such issues do not need to be addressed. This process shall be repeated until the issues identified by LADWP are resolved. The time period for the final transition may also be extended by mutual agreement of the PARTIES. Within forty-five (45) DAYS following the final transition to LADWP taking over day-to-day operations, LADWP

shall provide HONEYWELL written confirmation, in a mutually agreeable form, that the PHASE 1 TREATMENT SYSTEM is continuing to operate consistent with the design. In the event LADWP in good faith believes that the PHASE 1 TREATMENT SYSTEM is not operating consistent with the design after forty-five (45) DAYS, it shall inform HONEYWELL of that determination, and the PARTIES shall meet and confer in good faith until the issues identified by LADWP are resolved. Disputes over whether or not the PHASE 1 TREATMENT SYSTEM has been designed properly and is operating consistent with the design shall be handled consistent with SECTION 36. Notwithstanding the above, if at any time LADWP identifies design changes that are needed at the PHASE 1 TREATMENT SYSTEM to meet the requirements of this AGREEMENT, due to latent defects or otherwise, HONEYWELL shall be responsible for addressing such changes. Notwithstanding the foregoing, HONEYWELL shall not be responsible for design changes that HONEYWELL demonstrates are necessitated by LADWP willful misconduct, LADWP gross negligence, or a pattern and practice of LADWP failing to meet material operational requirements. The PARTIES may meet and confer to resolve disputes over such design changes, consistent with SECTION 36.

5.3.5 **Transition Period during the Phase 3 Warranty Period**.

(a) **Observation**. For a period of two (2) months beginning eighteen (18) months following the completion of the PHASE 3 STARTUP AND SHAKEDOWN PERIOD, the contractor engaged by HONEYWELL or the NHOU CO shall operate and maintain the PHASE 3 TREATMENT SYSTEM, and LADWP shall observe the O&M. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(b) **Joint Operation**. For a two (2)-month period beginning immediately after the two (2)-month period described in SECTION 5.3.5(a) above, the contractor engaged by HONEYWELL or the NHOU CO and LADWP shall jointly operate and maintain the PHASE 3 TREATMENT SYSTEM. During this time, HONEYWELL (through its approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(c) **Final Transition**. For a two (2) month period beginning immediately after the two (2) month period described in SECTION 5.3.5(b) above, the contractor engaged by HONEYWELL or the NHOU CO shall remain present and provide all backup support necessary for LADWP to operate and maintain the PHASE 3 TREATMENT SYSTEM during this two (2)-month period. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(d) **Turnover**. Following the two (2)-month period described in SECTION 5.3.5(c) above, LADWP shall provide HONEYWELL or the NHOU CO with a letter identifying any issues associated with the design of PHASE 3 TREATMENT SYSTEM to be resolved prior to LADWP taking over day-to-day operations and operating the PHASE 3 TREATMENT SYSTEM at 8,500 AFY (25.86 AF/day assuming ten percent (10%) downtime), on a ROLLING ANNUAL AVERAGE, plus the required buffer/safety factor or confirming that LADWP's operators are prepared to take over day-to-day operations. If LADWP does not confirm that LADWP's operators are prepared to take over day-to-day operations, HONEYWELL shall either address the issues raised by LADWP in the letter or inform LADWP why it believes such issues do not need to be addressed. This process shall be repeated until the issues identified by LADWP are resolved. The time period for the final transition may also be extended by mutual agreement of the PARTIES. Within forty-five (45)

DAYS following the final transition to LADWP taking over day-to-day operations, LADWP shall provide HONEYWELL written confirmation, in a mutually agreeable form, that the PHASE 3 TREATMENT SYSTEM is continuing to operate consistent with the design. In the event LADWP in good faith believes that the PHASE 3 TREATMENT SYSTEM is not operating consistent with the design after forty-five (45) DAYS, it shall inform HONEYWELL of that determination, and the PARTIES shall meet and confer in good faith until the issues identified by LADWP are resolved. Disputes over whether or not the PHASE 3 TREATMENT SYSTEM has been designed properly and is operating consistent with the design shall be handled consistent with SECTION 36. Notwithstanding the above, if at any time LADWP identifies design changes that are needed at the PHASE 3 TREATMENT SYSTEM to meet the requirements of this AGREEMENT, due to latent defects or otherwise, HONEYWELL shall be responsible for addressing such changes. Notwithstanding the foregoing, HONEYWELL shall not be responsible for design changes that HONEYWELL demonstrates are necessitated by LADWP willful misconduct, LADWP gross negligence, or a pattern and or practice of LADWP failing to meet material operational requirements. The PARTIES may meet and confer to resolve disputes over such design changes, consistent with SECTION 36.

5.3.6 **Observation of Repairs**. During the PHASE 1 WARRANTY PERIOD and PHASE 3 WARRANTY PERIOD, HONEYWELL shall reasonably notify LADWP prior to conducting major or unique repairs to provide LADWP the opportunity to observe the major or unique repairs as an element of the LADWP training and as an ON THE GROUND EXPENSE.

5.3.7 **Retention of Records**. The PARTIES shall maintain all records required to be maintained related to the CCC SYSTEM, including without limitation all log books, records, data, reports, and all other information relating to environmental testing, quality assurance, water quality before transmission to a public water supply pipeline, and compliance with EPA requirements. The PARTIES shall

preserve and maintain such records and documents until ten (10) years after EPA provides notice that all the work required by HONEYWELL under the SECOND INTERIM REMEDY has been completed. At the conclusion of the retention period, the PARTIES shall notify each other at least ninety (90) DAYS prior to the destruction of any such records, and upon request of a PARTY, shall deliver all requested records to the requesting PARTY; *except, however*, LADWP can meet its obligations under this SECTION 5.3.7 by providing HONEYWELL with copies of any records required to be maintained pursuant to this SECTION 5.3.7.

6. CCC FUNDING

6.1 HONEYWELL'S RESPONSIBILITIES

6.1.1 **CCC Design Funding**. HONEYWELL shall fund the design of the CCC SYSTEM and shall bear its own costs during planning, permitting, and design of the CCC SYSTEM.

6.1.2 **CCC Construction Funding**. HONEYWELL shall fund the construction and necessary testing of the CCC SYSTEM in three phases, as detailed herein. As part of this obligation, and notwithstanding whether such soil constitutes a PRE-EXISTING ENVIRONMENTAL CONDITION, HONEYWELL shall be responsible for costs associated with the management and disposal of soil associated with site preparation, grading, and construction. For soil managed by HONEYWELL per this SECTION 6 that constitutes PRE-EXISTING ENVIRONMENTAL CONDITION, LADWP shall have the right but not obligation to review and approve such disposal location, which approval shall not be unreasonably withheld or delayed. Such review and approval right shall not apply to locations selected by HONEYWELL and approved by EPA for such disposal.

6.1.3 **CCC Funding of O&M by HONEYWELL**. HONEYWELL shall fund its own costs and expenses of the PHASE 1 STARTUP AND SHAKEDOWN PERIOD and PHASE 3 STARTUP AND SHAKEDOWN PERIOD, the costs and expenses

associated with the PHASE 1 WARRANTY PERIOD, and the PHASE 3 WARRANTY PERIOD, and its own costs and expenses of the CCC SYSTEM OPERATIONAL SUPPORT PLAN, as set forth herein.

6.1.4 **LADWP O&M Funding**. HONEYWELL shall pay LADWP for its O&M COSTS associated with the CCC SYSTEM as set forth in SECTION 17.

6.1.5 **LADWP On the Ground Expenses**. HONEYWELL shall pay LADWP for its ON THE GROUND EXPENSES as set forth in SECTION 17.

6.1.6 **Monitoring Costs**. Except as otherwise provided in SECTION 6.2, HONEYWELL shall fund monitoring costs associated with the CCC SYSTEM.

6.1.7 **Revised Treatment Standards and/or New Contaminant Compliance Costs**. HONEYWELL shall pay the share of costs associated with meeting revised treatment standards for ROD COCs and/or meeting NEW CONTAMINANT treatment standards as specifically allotted to HONEYWELL pursuant to EXHIBIT 1 to this AGREEMENT.

6.2 LADWP'S RESPONSIBILITIES

6.2.1 **LADWP Costs During Planning and Design**. LADWP shall bear its own costs during the design and planning of the CCC SYSTEM.

6.2.2 **Pre-Existing Environmental Conditions**. Except as provided in SECTION 6.1.2, LADWP shall be responsible for costs associated with PRE-EXISTING ENVIRONMENTAL CONDITIONS.

6.2.3 **Construction Funding**. Costs to LADWP relating to CCC SYSTEM construction shall be limited to activities identified in SECTION 4.2.

6.2.4 **Drinking Water Permits and Approvals Costs**. LADWP shall bear its own costs associated with its obligation to obtain drinking water permits and approvals under SECTION 3.2.

6.2.5 **Revised Treatment Standards and/or New Contaminant Compliance Costs**. LADWP shall pay the share of costs associated with meeting revised treatment standards for ROD COCs and/or meeting NEW CONTAMINANT treatment standards as specifically allotted to LADWP pursuant to EXHIBIT 1 to this AGREEMENT.

6.3 JOINT RESPONSIBILITIES

6.3.1 **Environmental Review Costs**. Pursuant to, among other grounds, CERCLA section 121(e), 42 U.S.C. section 9621(e), CEQA does not apply to the CCC; however, in the event environmental review under CEQA is determined to be required for the CCC SYSTEM, HONEYWELL shall provide LADWP with up to one hundred and fifty thousand dollars ($150,000) in in-kind services to support the development of any required CEQA documentation for the CCC SYSTEM.

6.3.2 **Incremental Monitoring Costs**. The PARTIES recognize that DDW may require additional monitoring (in the form of sampling frequency, expanded sampling parameters and constituents, and new sampling locations, etc.) above and beyond what is included in the CCC MONITORING PLAN, and it is the PARTIES' intent to share such costs as follows:

(a) **EPA Monitoring Costs**. HONEYWELL shall fund the CCC SYSTEM monitoring costs required by EPA pursuant to an ORDER.

(b) **Incremental Monitoring Costs**.

(i) For the first five (5) years of sampling pursuant to the CCC 97-005 MONITORING PLAN (including sampling completed per the CCC 97-005 MONITORING PLAN but prior to its formal approval as part of the WATER SUPPLY PERMIT), HONEYWELL shall provide LADWP up to five hundred thousand dollars ($500,000) for INCREMENTAL MONITORING COSTS. LADWP shall be responsible for the next five hundred thousand dollars ($500,000) in

INCREMENTAL MONITORING COSTS. In the event INCREMENTAL MONITORING COSTS exceed one million dollars ($1,000,000) in the first five (5) years of sampling pursuant to the CCC 97-005 MONITORING PLAN, HONEYWELL and LADWP shall share in such costs equally.

(ii) For the second five (5) years after the period in 6.3.2(b)(i) ends, HONEYWELL shall provide LADWP up to three hundred fifty thousand dollars ($350,000) for INCREMENTAL MONITORING COSTS. LADWP shall be responsible for the next three hundred fifty thousand dollars ($350,000) in INCREMENTAL MONITORING COSTS. In the event INCREMENTAL MONITORING COSTS exceed seven hundred thousand dollars ($700,000) in the second five (5) years, HONEYWELL and LADWP shall share in such costs equally.

(iii) For subsequent five (5)-year periods after the period in 6.3.2(b)(ii) ends, until the NHOU 2IR RAOs are met, HONEYWELL shall provide LADWP with up to an additional two hundred fifty thousand dollars ($250,000) for INCREMENTAL MONITORING COSTS. LADWP shall be responsible for the next two hundred fifty thousand dollars ($250,000) in INCREMENTAL MONITORING COSTS. In the event INCREMENTAL MONITORING COSTS exceed five hundred thousand dollars ($500,000), HONEYWELL and LADWP shall share in such costs equally.

7. CCC OWNERSHIP

HONEYWELL or the NHOU CO shall own those portions of the CCC SYSTEM that HONEYWELL or the NHOU CO installs or installed, including but not limited to the newly installed wells, conveyance, and treatment infrastructure. LADWP shall own those portions of the CCC SYSTEM that LADWP installs or installed, including but not limited to existing wells and conveyance lines; *provided, however*, that LADWP shall own the

thirty (30)-inch conveyance line that HONEYWELL will install from the YARD to the SUMP. Disposition of the CCC SYSTEM components following the achievement of the NHOU 2IR RAOs shall be handled in accordance with the LICENSE AGREEMENT, the form of which is attached hereto as EXHIBIT 4.

8. SSC DESIGN

8.1 HONEYWELL'S RESPONSIBILITIES

8.1.1 **SSC System Design**. HONEYWELL shall design the SSC SYSTEM.

(a) **Capacity**. The SSC SYSTEM shall be capable of producing the 6,500 AFY (equivalent to an instantaneous average rate of approximately 4,477 GPM, assuming ten percent (10%) downtime), ROLLING ANNUAL AVERAGE (as discussed in SECTION 19), plus a design buffer/safety factor as set forth below.

(b) **Sixty Percent (60%) Design**. HONEYWELL shall complete the sixty percent (60%) design document for the PRIMARY SSC TREATMENT PLANT component of the SSC SYSTEM prior to the commencement of installation of any equipment specifically necessary for CCC PHASE 3.

(c) **Primary Design Completion**. In the event HONEYWELL receives the written notice from LADWP pursuant to SECTION 14.1.2, HONEYWELL shall complete the design of the PRIMARY SSC TREATMENT PLANT.

(d) **Secondary SSC Treatment Plant Design Completion**. In the event HONEYWELL receives the written notice from LADWP pursuant to SECTION 14.2.2, HONEYWELL shall design the SECONDARY SSC TREATMENT PLANT.

8.1.2 **SSC System Components**. A description of the proposed SSC SYSTEM components, including the PRIMARY SSC TREATMENT PLANT, is included in EXHIBIT 3.

8.1.3 **Design Considerations and Coordination with LADWP**. HONEYWELL shall, among other things, design the SSC SYSTEM with due consideration for DDW requirements, LADWP standards and specifications, and HONEYWELL procurement procedures. HONEYWELL shall provide LADWP the opportunity to review and comment on SSC SYSTEM design documents. HONEYWELL acknowledges that LADWP will be operating the SSC SYSTEM and that there is value in designing systems consistent with LADWP standards and other systems, where appropriate and where costs are not excessive. HONEYWELL shall accommodate LADWP requests related to the SSC SYSTEM design except in those instances where HONEYWELL shows that the costs are excessive and such deviations are unnecessary or not proper. Disagreements arising out of this term are subject to the dispute resolution provisions in SECTION 36.

8.1.4 **Design Buffer/Safety Factor**. HONEYWELL shall design the SSC SYSTEM with a capacity of approximately 4,477 GPM (assuming ten percent (10%) downtime), plus a five percent (5%) to twenty percent (20%) buffer/safety factor for additional groundwater treatment capacity in excess of the planned 6,500 AFY ROLLING ANNUAL AVERAGE.

8.1.5 **As-Built Drawings**. HONEYWELL shall provide as-built drawings to LADWP once the construction is complete and for any updates to the design as installed over time. These drawings shall include, but not be limited to, electrical and other drawings acceptable to LADWP.

8.2 LADWP'S RESPONSIBILITIES

8.2.1 **Separate Infrastructure Design**. LADWP shall design the re-drilled WH4-5 WELLS and all necessary infrastructure to transport water from the WH4-5 WELLS to the YARD or an adjacent LADWP-owned parcel, and from the YARD or an adjacent LADWP-owned parcel to the SUMP, as shown in FIGURE 4. LADWP shall also design, as necessary, required modifications to the CHLORINATION SYSTEM. LADWP shall provide HONEYWELL the opportunity to review and comment on design documents associated with the

infrastructure contemplated in this SECTION 8.2.1. As part of the design for the re-drilled WH4-5 WELLS, LADWP shall evaluate whether deepening the wells is appropriate. LADWP shall accept timely input as to the design from HONEYWELL and any required governmental authority.

8.2.2 **Alternative Location Infrastructure Design**. Should LADWP select an alternative location procured by LADWP for construction of the SSC SYSTEM, other than the YARD or the property immediately adjacent to the YARD, as shown in FIGURE 4, LADWP shall be responsible for designing any associated additional conveyance to the YARD. LADWP shall provide HONEYWELL the opportunity to review and comment on design documents associated with the infrastructure contemplated in this SECTION 8.2.2. LADWP shall accept timely input as to the design from HONEYWELL and any required governmental authority.

8.2.3 **Review of SSC System Design Documents and Acknowledgement**. LADWP shall have the right to review and provide comments on major SSC SYSTEM design documents, including but not limited to the thirty percent (30%) (if prepared), sixty percent (60%) design, and ninety percent (90%) design, and other documents as reasonably requested by LADWP. If LADWP provides notice to HONEYWELL that additional review time is required, such additional time shall be provided unless HONEYWELL demonstrates that such additional review time will generate delays that will materially prejudice HONEYWELL. In providing such review and comment, LADWP acknowledges that there could be deviations from LADWP standards and differences between the SSC SYSTEM and other LADWP production facilities.

8.3 JOINT RESPONSIBILITIES

8.3.1 **Coordination Regarding Applicable Laws**. The PARTIES, in consultation with any identified necessary other entity, either private or governmental, shall ensure that, for its portion of the design, the SSC SYSTEM is consistent with all federal, state, and local laws, rules, and regulations and such that they may obtain all necessary and applicable permits of all types whether federal, state, or local.

9. SSC PERMITTING & APPROVALS

9.1 HONEYWELL'S RESPONSIBILITIES

9.1.1 **Construction Permits**. HONEYWELL shall be responsible for obtaining all required permits for construction of the SSC SYSTEM, other than permits associated with WH4-5 WELLS and with DDW permits, and, if applicable, other permits related solely to the provision of drinking water to the public. HONEYWELL's responsibility pursuant to this SECTION 9.1.1 shall include obtaining permits, if necessary, to discharge water to the sewer and/or storm drain during the SSC STARTUP AND SHAKEDOWN.

9.2 LADWP'S RESPONSIBILITIES

9.2.1 **Construction Permits**. LADWP shall be responsible for obtaining all required permits for the construction identified in SECTION 10.2.

9.2.2 **Drinking Water Permits and Approvals**. LADWP shall apply for, and obtain, any and all permits, permit amendments, or other such documents or approvals required by DDW or any other governmental agency with jurisdiction, necessary to deliver treated water produced by the SSC SYSTEM for use in LADWP's domestic drinking water supply.

9.2.3 **City Coordination**. Given the benefits of the SSC to LADWP, LADWP shall advocate and use reasonable efforts, as appropriate, to work with the CITY to waive all past, current, and future fees the CITY would charge a non-CITY entity for permitting, reviewing applications, environmental assessments, and plans for SSC SYSTEM construction and associated wells and conveyance pipeline. LADWP shall also work with the CITY, as appropriate, to assist HONEYWELL in its efforts to obtain expeditious processing of any HONEYWELL applications, requests for plan approvals, environmental assessments, and other permissions or determinations that may be required before installation and operation of the SSC SYSTEM. Such approvals and permits may include, but are not limited to, the

Bureau of Street Services Street-Use Permit, Bureau of Engineering Permit, Department of Transportation Traffic Control Plans, and Temporary No Parking Permit. LADWP has explained to HONEYWELL that its ability to secure such waiver or expedited permitting is at most limited, and it makes no warranty with respect to its ability to achieve such outcomes.

9.2.4 **CEQA**. In the event that environmental review under CEQA is determined to be required to construct or operate the SSC SYSTEM, LADWP shall prepare all necessary documentation and proceed with environmental review as required by CEQA, either as the lead agency or actively in support of another lead agency, providing such support as the other lead agency reasonably requires.

9.3 JOINT RESPONSIBILITIES

9.3.1 **Coordination on Necessary Approvals**. HONEYWELL and LADWP shall coordinate and work collaboratively such that the necessary approvals can be obtained for the SSC SYSTEM whether federal, state, or local.

10. SSC CONSTRUCTION

10.1 HONEYWELL'S RESPONSIBILITIES

10.1.1 **Primary SSC Treatment Plant**. In the event HONEYWELL receives written notice from LADWP pursuant to SECTION 14.1.2, HONEYWELL shall construct the PRIMARY SSC TREATMENT PLANT, including construction of a new treatment facility situated at the YARD, the immediately adjacent parcel shown on FIGURE 4, or at an alternative location procured by LADWP. Additional detail regarding HONEYWELL's construction obligations is included in EXHIBIT 3 to this AGREEMENT. As part of this obligation, notwithstanding whether such soil constitutes a PRE-EXISTING ENVIRONMENTAL CONDITION, HONEYWELL shall be responsible for costs associated with the management and disposal of soil associated with grading and construction.

10.1.2 **Secondary SSC Treatment Plant**. In the event HONEYWELL receives written notice from LADWP pursuant to SECTION 14.2.2, HONEYWELL shall construct the SECONDARY SSC TREATMENT PLANT at the YARD, the immediately adjacent parcel shown on FIGURE 4, or an alternative location procured by LADWP. Additional details regarding HONEYWELL's construction obligations are included in EXHIBIT 3 to this AGREEMENT.

10.1.3 **SSC Construction Timing**. Following written notice from LADWP that LADWP has (i) approved HONEYWELL's SSC SYSTEM design, (ii) submitted an application to DDW for incorporation of the SSC SYSTEM into LADWP's WATER SUPPLY PERMIT, and (iii) has commenced construction of the conveyance line described in SECTION 10.2, HONEYWELL shall complete the construction within a period of eighteen (18) months, unless delays are caused by conditions beyond its control, including actions of LADWP, DDW, or other governmental entity.

10.2 LADWP'S RESPONSIBILITIES

10.2.1 **WH4-5 Wells and Separate Infrastructure Construction**. LADWP shall construct the re-drilled WH4-5 WELLS and all necessary infrastructure to transport water from the WH4-5 WELLS to the YARD or an adjacent LADWP-owned parcel, and from the YARD or an adjacent LADWP-owned parcel to the SUMP, as shown in FIGURE 4. LADWP shall also construct, as necessary, required modifications to the CHLORINATION SYSTEM.

10.2.2 **Alternative Location Infrastructure Construction**. Should LADWP select an alternative location procured by LADWP for construction of the PRIMARY SSC TREATMENT PLANT or SECONDARY SSC TREATMENT PLANT other than the YARD or property immediately adjacent to the YARD, as shown in FIGURE 4, LADWP shall construct any associated additional conveyance to the YARD. LADWP shall modify or replace the existing disinfection system for disinfection of water treated by the SSC SYSTEM.

10.2.3 **Availability of LADWP Property**. Pursuant to the LICENSE AGREEMENT, LADWP shall make available the YARD and other real property identified in FIGURE 4 and FIGURE 5 for the construction of the SSC SYSTEM.

10.3 JOINT RESPONSIBILITIES.

10.3.1 **Coordination Regarding Applicable Laws**. HONEYWELL and LADWP, in consultation with any identified necessary other entity, either private or governmental, shall construct the portion of the SSC SYSTEM for which it is responsible in a manner consistent with all federal, state, and local laws, rules, and regulations and in a manner such that they may obtain all necessary and applicable permits of all types whether federal, state, or local.

10.3.2 **Coordination During Construction.**

(a) During periods when HONEYWELL is engaged in construction activities, HONEYWELL and LADWP shall coordinate construction activities and staging in a manner that minimizes interference with construction and other activities of each other.

(b) The PARTIES shall comply with the "Site Specific Health & Safety Plan" prepared by HONEYWELL during the construction of the SSC SYSTEM, provided such plan is reviewed and approved by LADWP, which approval shall not be unreasonably withheld or delayed.

(c) During periods when HONEYWELL is engaged in construction activities, LADWP shall have the right but not the obligation to observe all construction activities, but shall not have the right to stop work or otherwise direct work by HONEYWELL or its contractors, except as set forth herein for safety concerns. HONEYWELL agrees to keep the LADWP RESIDENT ENGINEER informed of planned construction activities and issues, and agrees to allow the LADWP RESIDENT ENGINEER to observe planned coordination meetings, including tailgate and similar

meetings. If the LADWP RESIDENT ENGINEER observes conditions, work or planned work that it believes is unsafe, not in conformance with specifications or otherwise of concern to LADWP, the LADWP RESIDENT ENGINEER may raise the concern with the HONEYWELL foreman or supervisor. If the concern is not resolved by the field personnel, the matter may be elevated to the project management level, which shall include the LADWP project manager (as identified from time-to-time) and the HONEYWELL project manager (as identified from time-to-time). The project managers may agree to discuss the concern either in person or over the telephone in an effort to resolve the concern. If the concern is not resolved at the project manager level, the matter may be elevated to the executive level, where representatives of the STEERING COMMITTEE shall meet to discuss the matter in an effort to resolve the issue. Notwithstanding the above, LADWP, through the LADWP RESIDENT ENGINEER, shall have the right but not the obligation to immediately stop work in situations that it concludes could result in injury or materially deviate from applicable LADWP safety procedures. In all instances, HONEYWELL (and not LADWP) remains fully responsible for identifying and responding to safety hazards during its construction and active operation periods.

11. SSC OPERATION

11.1 HONEYWELL'S RESPONSIBILITIES

11.1.1 **SSC Startup and Shakedown**. Prior to acceptance of treated water from the SSC SYSTEM, HONEYWELL or the SSC CO shall engage a contractor acceptable to LADWP with expertise in the operation of water treatment plants to operate the SSC SYSTEM through completion of the SSC STARTUP AND SHAKEDOWN PERIOD.

11.1.2 **SSC Warranty Period**. Following completion of the SSC STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from

the PRIMARY SSC TREATMENT PLANT or SECONDARY SSC TREATMENT PLANT for use in its potable water distribution system until the termination of the SSC WARRANTY PERIOD, HONEYWELL or the SSC CO shall engage a contractor, acceptable to LADWP, with expertise in the operation of water treatment systems to operate and maintain the SSC SYSTEM under LADWP direction and consistent with the WATER SUPPLY PERMIT.

11.1.3 **Management and Disposal of Certain Waste**. HONEYWELL or the SSC CO shall be responsible for the handling, management, transportation, and disposal of hazardous and/or low-level radioactive waste generated by a WBA SYSTEM, if utilized, and other low-level radioactive waste that requires management due to the operation of the SSC TREATMENT SYSTEM. This responsibility includes, but is not limited to, managing such materials onsite, arranging and performing onsite treatment if applicable, and manifesting and arranging for disposal off-site, using its own generator number, recordkeeping, and otherwise complying with all applicable state and federal environmental laws. LADWP shall be responsible for managing other hazardous wastes generated during normal operations of the SSC SYSTEM onsite; *provided, however*, HONEYWELL or the SSC CO shall be responsible for off-site treatment and/or disposal of such hazardous wastes.

11.1.4 **Manifesting of Generated Waste**. HONEYWELL or the SSC CO, and not LADWP, shall be identified as the sole generator of any and all hazardous waste and low-level radioactive waste generated by the SSC SYSTEM. HONEYWELL shall be responsible for selecting the location for disposal, which location shall meet all requirements of local, state, and federal law. LADWP shall have the right but not the obligation to review and approve such disposal location, which approval shall not be unreasonably withheld or delayed. Such review and approval right shall not apply to locations selected by HONEYWELL and approved by EPA for such disposal.

11.1.5 **LADWP Approval of Operator**. During the period that HONEYWELL or SSC CO is responsible for providing a contractor for the operation of the SSC SYSTEM

or the operation of a WBA SYSTEM (if utilized) under LADWP's authority, LADWP shall have the right to approve the contractor (and any replacement) that may operate the SSC SYSTEM or a WBA SYSTEM, which approval shall not be unreasonably withheld or delayed. LADWP shall also have the right to remove such contractor (and any replacement) for cause. Unless otherwise agreed by the PARTIES or in an emergency, LADWP shall endeavor to provide HONEYWELL a minimum of sixty (60) DAYS' notice prior to exercising its removal right under this SECTION 11.1.5. HONEYWELL agrees to provide information requested by LADWP to assist LADWP in its review of the proposed contactor (or its replacement). Prior to its procurement of the contractor or replacement, HONEYWELL agrees to obtain from LADWP a list of requirements for the contractor, such as operator certification requirements, which LADWP may reasonably require. As part of its review of a contractor pursuant to this SECTION 11.1.5, and oversight of same, LADWP shall have the right but not the obligation to review, and as applicable approve, (i) the plans of the contractor as may be required by the WATER SUPPLY PERMIT or reasonably required by LADWP, (ii) the ability of the contractor to comply with such plans, and (iii) the contract terms related to same. Such plans shall include the Operations Maintenance and Monitoring Plan as required by DDW, an Emergency Response Plan, Standard Operating Procedures for chemical delivery, isolation of equipment, lockout and tagout procedures, plant startup and shutdown, reactor maintenance, and emergency operating activities (responding to and managing emergency alarm conditions and upset conditions in a timely, appropriate, and safe manner, consistent with LADWP practices and the WATER SUPPLY PERMIT), notifications for off-spec water incidents, and reporting for DDW.

11.1.6 **Operation and Maintenance of WBA**. If WBA or other system that involves a risk of exposure to radioactive materials is required to treat CrVI, HONEYWELL shall be responsible for O&M of the WBA SYSTEM resin, including (i) any maintenance on or repairs requiring internal access to the resin vessel, (ii) internal vessel inspections and repairs (when resin is exchanged or otherwise), (iii) any resin

changeouts, (iv) responding to spills or releases at the WBA SYSTEM during the SSC WARRANTY PERIOD, (v) notifying LADWP and appropriate regulatory authorities of releases consistent with the applicable response plan and law (only during the SSC WARRANTY PERIOD), and (vi) any other work that creates a risk of exposure to the resin or activities that require special equipment to manage risks for exposure to radioactive materials.

11.2 LADWP'S RESPONSIBILITIES

11.2.1 **SSC Warranty Period**. Following completion of the SSC STARTUP AND SHAKEDOWN PERIOD, and from the time LADWP receives treated water from the SSC SYSTEM for use in its potable water distribution system until the termination of the SSC WARRANTY PERIOD, LADWP shall oversee and direct the contractor engaged by HONEYWELL or the SSC CO to operate and maintain the SSC SYSTEM.

11.2.2 **Post-SSC Warranty Period**. Following the SSC WARRANTY PERIOD, LADWP shall operate and maintain the SSC SYSTEM.

11.2.3 **Use of Sanitary Sewer**. Nothing in this AGREEMENT ever obligates LADWP to discharge treated or partially treated groundwater to a sanitary sewer, but LADWP may, in its sole discretion, use the sanitary sewer to discharge groundwater, provided such discharge is consistent with applicable permit and other requirements. Provided, further, LADWP agrees that water may be discharged during the SSC SHAKEDOWN PERIOD and for treatment plant backwash, and other routine maintenance activities similar to other LADWP treatment facilities where LADWP discharges water to the sanitary sewer, and in connection with a restart following an extended shutdown period, reconstruction, or other major repair, provided such discharge is consistent with applicable permit and other requirements.

11.2.4 **Use of Storm Drain**. Nothing in this AGREEMENT ever obligates LADWP to discharge treated or partially treated groundwater to a storm drain, but LADWP

may, in its sole, discretion use the storm drain to discharge groundwater, provided such discharge is consistent with applicable permits and other requirements. The exercise of discretion of whether to use the storm drain shall never be considered an LADWP FAILURE. Provided, further, LADWP agrees that water may be discharged to the storm drain for testing during the SSC STARTUP AND SHAKEDOWN PERIOD and in connection with a non-routine restart, reconstruction, or other major repair, where directed by DDW or where otherwise warranted to comply with DDW testing requirements, provided such discharge is consistent with applicable permit and other requirements.

11.2.5 **Operation and Maintenance of WBA**. If WBA or other system that involves a risk of exposure to radioactive materials is required to treat CrVI, LADWP shall be responsible for O&M, other than O&M to be performed by HONEYWELL as stated in SECTION 11.1.6, including (i) routine external inspections, operations and repairs that do not involve contact with the resin (e.g., adjusting flow valves), and (ii) following the SSC WARRANTY PERIOD, notifying HONEYWELL and appropriate regulatory authorities of releases consistent with the applicable response plan and law. LADWP shall have access to a monitoring point outside of the fenced area for the WBA SYSTEM to allow LADWP to collect routine monitoring samples, as necessary.

11.3 JOINT RESPONSIBILITIES

11.3.1 **Coordination Regarding Applicable Laws**. The PARTIES, in consultation with any identified necessary other entity, either private or governmental, shall operate and maintain the SSC SYSTEM in a manner consistent with all federal, state, and local laws, rules, and regulations and in a manner such that all necessary and applicable permits of all types whether federal, state, or local are obtained and maintained.

11.3.2 **Cooperation to Meet DDW Requirements**. The PARTIES shall cooperate with any reasonable request from each other to meet the LADWP obligations to DDW. This shall include reasonable requests to access records, real property, equipment,

reports, testing results, and any other information needed to comply with such obligations.

11.3.3 **Efficient Operation**. Over the course of this AGREEMENT, the PARTIES shall make reasonable efforts to identify SSC SYSTEM efficiencies and operational synergies over time, consistent with the other terms of this AGREEMENT, with the understanding that the SSC SYSTEM is treating water that contains hazardous substances to be served for domestic use.

11.3.4 **Transition Period During SSC Warranty Period**.

(a) **Observation**. For a period of two (2) months beginning eighteen (18) months following the completion of the SSC STARTUP AND SHAKEDOWN PERIOD, the contractor engaged by HONEYWELL or the NHOU CO shall operate and maintain the PRIMARY SSC TREATMENT PLAN, and LADWP shall observe the O&M. During this time, HONEYWELL or the NHOU CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(b) **Joint Operation**. For a two (2)-month period beginning immediately after the two (2)-month period described in SECTION 11.3.4(a) above, the contractor engaged by HONEYWELL or the SSC CO and LADWP shall jointly operate and maintain the SSC SYSTEM. During this time, HONEYWELL or the SSC CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(c) **Final Transition**. For a two (2)-month period beginning immediately after the two (2)-month period described in SECTION 11.3.4(b) above, the contractor engaged by HONEYWELL or the SSC CO shall remain present and provide all backup support necessary for LADWP to operate and maintain the SSC SYSTEM during this two (2)-month period. During this

time, HONEYWELL or the SSC CO (through the approved contractor) shall have primary responsibility for day-to-day O&M, under the supervision and direction of LADWP.

(d) **Turnover**. Following the two (2)-month period described in SECTION 11.3.4(c) above, LADWP shall provide HONEYWELL or the SSC CO with a letter identifying issues associated with the design of the PRIMARY SSC TREATMENT PLANT to be resolved prior to LADWP taking over day-to-day operations and operating the PRIMARY SSC TREATMENT PLANT at 6,500 AFY (equivalent to an instantaneous average rate of approximately 4,477 GPM (assuming ten percent (10%) downtime), on a ROLLING ANNUAL AVERAGE, plus the required buffer/safety factor or confirming that LADWP's operators are prepared to take over day-to-day operations. If LADWP does not confirm that LADWP's operators are prepared to take over day-to-day operations, HONEYWELL shall either address the issues raised by LADWP in the letter or inform LADWP why it believes such issues do not need to be addressed. This process shall be repeated until the issues identified by LADWP are resolved. The time period for the final transition may also be extended by mutual agreement of the PARTIES. Within forty-five (45) DAYS following the final transition to LADWP taking over day-to-day operations, LADWP shall provide HONEYWELL written confirmation, in a mutually agreeable form, that the PRIMARY SSC TREATMENT PLANT is continuing to operate consistent with the design. In the event LADWP in good faith believes that the PRIMARY SSC TREATMENT PLANT is not operating consistent with the design after forty-five (45) DAYS, it shall inform HONEYWELL of that determination, and the PARTIES shall meet and confer in good faith until the issues identified by LADWP are resolved. Disputes over whether or not the PRIMARY SSC TREATMENT PLANT has been designed properly and is operating consistent with the design shall be handled consistent with SECTION 36.

Notwithstanding the above, if at any time LADWP identifies design changes that are needed at the PRIMARY SSC TREATMENT PLANT to meet the requirements of this AGREEMENT, due to latent defects, or otherwise, HONEYWELL shall be responsible for addressing such changes. Notwithstanding the foregoing, HONEYWELL shall not be responsible for design changes that HONEYWELL demonstrates are necessitated by LADWP willful misconduct, LADWP gross negligence, or a pattern and practice of LADWP failing to meet material operational requirements. The PARTIES may meet and confer to resolve disputes over such design changes, consistent with SECTION 36.

11.3.5 **Observation of Repairs**. During the SSC WARRANTY PERIOD, HONEYWELL shall reasonably notify LADWP prior to conducting major or unique repairs to provide LADWP the opportunity to observe the major or unique repairs as an element of LADWP training, and as an ON THE GROUND EXPENSE.

11.3.6 **Operation of Secondary SSC Treatment Plant**.

(a) In the event HONEYWELL constructs the SECONDARY SSC TREATMENT PLANT pursuant to SECTION 10.1.2, the PARTIES shall coordinate operation of such SECONDARY SSC TREATMENT PLANT consistent with the principals established in this SECTION 11; *except, however,* if the PARTIES determine that operation of the SECONDARY SSC TREATMENT PLANT can be more effectively accomplished by LADWP during the anticipated startup and shakedown and warranty periods, the PARTIES can agree to such arrangement.

12. SSC FUNDING

12.1 HONEYWELL'S RESPONSIBILITIES

12.1.1 **SSC Design Funding**. HONEYWELL shall fund the design of the SSC SYSTEM and shall bear its own costs during planning and design of the SSC SYSTEM.

12.1.2 **SSC Construction Funding**. HONEYWELL shall fund the construction and testing of the SSC SYSTEM, as outlined in the SCOPE OF WORK.

12.1.3 **SSC O&M Funding**. HONEYWELL shall fund O&M COSTS associated with the SSC SYSTEM as set forth in this SECTION 12 (excluding the electrical costs of lifting the water from the aquifer to the conveyance infrastructure). Such O&M COSTS shall also include costs associated with maintaining the SSC SYSTEM in operating condition while the plant is not in operation, as a result of testing pursuant to SECTION 14.3.3.

12.1.4 **SSC On the Ground Expenses**. HONEYWELL shall pay LADWP for its ON THE GROUND EXPENSES as set forth in SECTION 17. In the event LADWP is operating the SSC SYSTEM during the SSC STARTUP AND SHAKEDOWN PERIOD and WARRANTY PERIOD, following agreement by the PARTIES pursuant to SECTION 11.3.6, HONEYWELL shall pay O&M COSTS incurred by LADWP during such period.

12.1.5 **Revised Treatment Standards and/or New Contaminant Compliance Costs**. HONEYWELL shall pay the share of costs associated with meeting revised treatment standards for existing ROD COCs and/or meeting NEW CONTAMINANT treatment standards as specifically allotted to HONEYWELL pursuant to EXHIBIT 1 to this AGREEMENT.

12.1.6 **Groundwater Sampling**. HONEYWELL shall conduct all groundwater sampling events necessary to determine whether any of the conditions triggering construction or restart of the SSC SYSTEM outlined in SECTIONS 14.2 and 14.3 have been

satisfied, excluding sampling of WH4-5 WELLS, which sampling shall be completed by LADWP.

12.2 LADWP'S RESPONSIBILITIES

12.2.1 **LADWP Costs During Planning and Design**. LADWP shall bear its own costs during the design and planning of the SSC SYSTEM.

12.2.2 **Construction Funding**. LADWP's construction costs shall be limited to activities identified in SECTION 10.2.

12.2.3 **Drinking Water Permits and Approvals Costs**. LADWP shall bear its own costs associated with its obligation to obtain drinking water permits and approvals under SECTION 9.2.

12.2.4 **Revised Treatment Standards and/or New Contaminant Compliance Costs**. LADWP shall pay the share of costs associated with meeting revised treatment standards for ROD COCs and/or meeting NEW CONTAMINANT treatment standards as specifically allotted to LADWP pursuant to EXHIBIT 1 to this AGREEMENT.

12.2.5 **Sampling of WH-4 and WH-5**. LADWP shall be responsible for sampling WH4-5 WELLS. LADWP may utilize sampling procedures intended to ensure samples are representative of operational conditions.

12.3 JOINT RESPONSIBILITIES

12.3.1 **Environmental Review Costs**. In the event environmental review under CEQA is determined to be required for the SSC SYSTEM, HONEYWELL shall provide LADWP with up to thirty thousand dollars ($30,000) in in-kind services to support the development of any required CEQA documentation for the SSC SYSTEM.

12.3.2 **DDW Monitoring Costs**. For the first five (5) years of sampling pursuant to the SSC 97-005 MONITORING PLAN (including sampling completed per the SSC 97-005 MONITORING PLAN but prior to its formal approval as part of the

WATER SUPPLY PERMIT), HONEYWELL shall provide LADWP up to two hundred fifty thousand dollars ($250,000) for SSC SYSTEM MONITORING COSTS. LADWP shall be responsible for the next two hundred fifty thousand dollars ($250,000) in SSC MONITORING COSTS. In the event SSC MONITORING COSTS exceed five hundred thousand dollars ($500,000) in the first five (5) years of sampling pursuant to the SSC 97-005 MONITORING PLAN, HONEYWELL and LADWP shall share in such costs equally. For subsequent five (5)-year periods after the first five (5) years of SSC SYSTEM operation, HONEYWELL shall provide LADWP with up to two hundred fifty thousand dollars ($250,000) for SSC MONITORING COSTS. LADWP shall be responsible for the next two hundred fifty thousand dollars ($250,000) in SSC MONITORING COSTS. In the event SSC MONITORING COSTS exceed five hundred thousand dollars ($500,000) in subsequent five (5)-year periods following the first five (5) years of SSC SYSTEM operations, HONEYWELL and LADWP shall share in such costs equally.

13. SSC OWNERSHIP

13.1 SSC SYSTEM OWNERSHIP. HONEYWELL or the SSC CO shall own those portions of the SSC SYSTEM that HONEYWELL or the SSC CO installs or installed. LADWP shall own those portions of the SSC SYSTEM that LADWP installs or installed.

14. SSC CONTINGENCIES

14.1 CONDITIONS TRIGGERING OBLIGATIONS FOR THE SSC SYSTEM (PRIMARY SSC TREATMENT PLANT)

14.1.1 **Contingency for SSC System**. All obligations and requirements under SECTIONS 8 through 13 concerning the design, permitting, construction, operation, funding, and ownership of the SSC SYSTEM, aside from HONEYWELL's obligation to complete sixty percent (60%) of the PRIMARY SSC TREATMENT PLANT component of the SSC SYSTEM design under

SECTION 8.1.1(b), shall be contingent upon the successful and sustained operation of the CCC SYSTEM in accordance with this SECTION 14.1.

14.1.2 **Successful and Sustained Operation of the CCC System and Construction of the Primary SSC Treatment Plant**. The CCC SYSTEM shall be considered successful and sustained in operation, and no obligations to complete design, permitting, construction, operation, financing, or ownership of the SSC SYSTEM shall be effective, unless, after the first three (3) years of the CCC SYSTEM operation following the completion of the CCC STARTUP AND SHAKEDOWN and until such time as the NHOU 2IR RAOs are met, LADWP establishes that concentrations of TCE and/or PCE in the combined groundwater extracted from the re-drilled WH4-5 WELLS:

(a) exceed the current MCL of five (5) µg/L for six (6) consecutive groundwater monitoring events at the sampling location designated "SSC Influent Monitoring Point" in FIGURE 2; or

(b) exceed ten times (10X) the current MCL of five (5) µg/L for two (2) consecutive groundwater monitoring events at the sampling location designated "SSC Influent Monitoring Point" in FIGURE 2; or

(c) cause water to be out of compliance at the River Supply Conduit (PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW) under normal operating conditions.

In the event LADWP establishes one of the conditions in SECTIONS 14.1.2 (a)-(c), then LADWP may provide HONEYWELL with written notification that it desires HONEYWELL complete the design and construct the PRIMARY SSC TREATMENT PLANT.

14.1.3 **Concentration Testing**. For purposes of this SECTION 14, the constituent concentration shall be measured at the "SSC Influent Monitoring Point" in

FIGURE 2. The minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between each sampling event.

14.1.4 **Limitation of Obligations During Three-Year Startup Period**.

(a) In the event that prior to three (3) years of the CCC SYSTEM operation following the completion of the CCC STARTUP AND SHAKEDOWN, EPA or the STATE adopts a new, lower MCL for TCE and/or PCE and, based on the criteria specified in SECTION 14.3.1 and EXHIBIT 1, the construction triggering event in SECTION 14.1.2 is deemed to occur due to the lowered MCL, then LADWP may, in its discretion, request that HONEYWELL initiate the PRIMARY SSC TREATMENT PLANT construction. If LADWP requests the initiation of construction pursuant to this SECTION 14.1.4(a), HONEYWELL and LADWP shall share equally in the costs of constructing and operating the SSC SYSTEM. In the event of this occurrence only, HONEYWELL's obligations for funding the construction and operation of the SSC SYSTEM shall be capped at the cost associated with funding the construction and operation of a system capable of treating PCE/TCE to the current MCL of five (5) µg/L for thirty (30) years or until the NHOU 2IR RAOs are met.

(b) In the event that there is a PHASE 3 TOLLING INCIDENT, HONEYWELL may provide notice of the PHASE 3 TOLLING INCIDENT to LADWP. In the event of a PHASE 3 TOLLING INCIDENT, the three (3) years of contemplated operation of the CCC SYSTEM before the SSC SYSTEM construction triggering event shall be tolled for the duration of the PHASE 3 TOLLING INCIDENT. A PHASE 3 TOLLING INCIDENT shall end automatically once the PHASE 3 TOLLING INCIDENT is remedied and the CCC SYSTEM resumes full operations.

14.1.5 **No Prior Election of SSC SYSTEM ALTERNATIVES**. The PARTIES retain the option to implement one or more SSC SYSTEM ALTERNATIVES. No

obligations with respect to the SSC SYSTEM under this AGREEMENT shall be enforceable if the PARTIES elect to implement such SSC SYSTEM ALTERNATIVES in lieu of performance of the SSC.

14.2 CONDITIONS TRIGGERING OBLIGATIONS FOR THE ADDITIONAL SSC SYSTEM COMPONENTS (SECONDARY SSC TREATMENT PLANT)

14.2.1 All obligations and requirements under SECTIONS 8 through 13 concerning the design, permitting, construction, operation, funding, or ownership of the SECONDARY SSC TREATMENT PLANT shall be contingent upon satisfaction of the terms of this SECTION 14.2.

14.2.2 After the first three years of the operation of the PHASE 3 TREATMENT SYSTEM following the completion of the PHASE 3 STARTUP AND SHAKEDOWN PERIOD, and until such time as the NHOU 2IR RAOs have been met, LADWP must:

(a) establish that the combined groundwater extracted from the re-drilled WH4-5 WELLS has concentrations of (i) CrVI above the assumed MCL of ten (10) µg/L for six (6) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2 or (ii) 1,4-dioxane above the current NL of one (1) µg/L for six (6) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2, *and*

(b) establish that the concentrations CrVI or 1,4-dioxane in excess of the MCL or NL are present in all of wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6 concurrently (indicating a migration from the FORMER BENDIX SITE), *and*

(c) provide HONEYWELL with written notification that it desires HONEYWELL to design and construct the SECONDARY SSC TREATMENT PLANT.

14.2.3 **Concentration Testing**. For purposes of this SECTION 14.2, the constituent concentration shall be measured at the "SSC Influent Monitoring Point" as shown in FIGURE 2. For purposes of this SECTION 14.2, the minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between samples.

14.2.4 **Tolling Incident**. For purposes of this SECTION 14.2, in the event of a PHASE 3 TOLLING INCIDENT of which HONEYWELL provides notice to LADWP, the three (3)-year period of contemplated operation of the CCC SYSTEM shall be tolled for the duration of the PHASE 3 TOLLING INCIDENT. The PHASE 3 TOLLING INCIDENT shall end automatically once the PHASE 3 TOLLING INCIDENT is remedied and the CCC SYSTEM resumes full operations.

14.3 OTHER CONTINGENCIES

14.3.1 **Changed MCLs or NLs and Emerging Contaminants**. It is possible that in the future currently established MCLs or NLs may change and/or that NEW CONTAMINANTS that are not ROD COCs may require treatment at the SSC treatment plant due to changes in the law, rules, or regulations promulgated by EPA or the STATE. If the lower MCL and/or NL or presence of a NEW CONTAMINANT prevents LADWP from delivering drinking water consistent with its DDW permit, HONEYWELL shall accept responsibility for the treatment to the new MCLs or NLs and NEW CONTAMINANTS at the SSC consistent with EXHIBIT 1 of this AGREEMENT. Notwithstanding other provisions of this AGREEMENT, in the event of a new or lower MCL or NL, the trigger for the initiation of treatment and suspension and termination of treatment shall be based on the new or lower MCL or NL, as applicable, consistent with EXHIBIT 1.

14.3.2 **Duration of SSC System Funding Obligation**. HONEYWELL shall fund the O&M COSTS of the SSC SYSTEM until the PCE and/or TCE concentration in the combined flow from the re-drilled WH4-5 WELLS has been measured below the MCL of five (5) µg/L for three (3) consecutive groundwater monitoring events (or an alternative number of events if specified by DDW) taken from the sampling

location at the SSC Influent Monitoring Point shown in FIGURE 2. The minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between samples.

14.3.3 **Recommencement of SSC System Funding Obligation**. Only after receipt of written notice from LADWP, HONEYWELL shall recommence funding the O&M COSTS of the SSC SYSTEM if LADWP demonstrates that the PCE and/or TCE concentrations in the combined water from the re-drilled WH4-5 WELLS:

(a) exceed the current MCL of five (5) µg/L for three (3) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2; or

(b) exceed ten times (10X) the current MCL of five (5) µg/L for two (2) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2; or

(c) cause water to be out of compliance at the River Supply Conduit (PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW) under normal operating conditions.

For purposes of this SECTION 14.3.3, the minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between sampling events.

14.3.4 **Secondary SSC Treatment Plant Expenses**. HONEYWELL shall fund the operations and maintenance of the SECONDARY SSC TREATMENT PLANT.

(a) **Duration of Secondary SSC Treatment Plant Funding Obligation**. HONEYWELL shall fund the operations and maintenance of the SECONDARY SSC TREATMENT PLANT until the concentration in the combined flow from the re-drilled WH4-5 WELLS of CrVI has been measured below the assumed MCL of ten (10) µg/L and the concentration of 1,4-dioxane has been measured below the current NL of one (1) µg/L, each for three (3) consecutive groundwater monitoring events (or an

alternative number of events if specified by DDW) taken from the sampling location at the SSC Influent Monitoring Point shown in FIGURE 2. The minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between samples.

(b) **Recommencement of Secondary SSC Treatment Plant Funding Obligation**. HONEYWELL shall recommence funding of the SECONDARY SSC TREATMENT PLANT after receipt of written notice from LADWP and only if LADWP's sampling demonstrates that the CrVI or 1,4-dioxane concentrations in the combined water from the re-drilled WH4-5 WELLS:

(i) exceed the assumed MCL of ten (10) µg/L for CrVI or the current NL of one (1) µg/L for 1,4-dioxane for three (3) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2; *or*

(ii) exceed ten times (10X) the assumed MCL of ten (10) µg/L for CrVI or the current NL of one (1) µg/L for 1,4-dioxane for two (2) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2; *or*

(iii) cause water to be out of compliance at the River Supply Conduit (PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW) under normal operating conditions; *and, in addition to satisfaction of subparagraphs (i), (ii), or (iii),*

(iv) establishes that the concentrations in excess of the MCL or NL are present in all of wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6 concurrently, indicating a migration from the FORMER BENDIX SITE.

For purposes of this SECTION 14.3.4, the minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between sampling events.

14.3.5 **Lifting Costs**. HONEYWELL shall not be obligated to reimburse LADWP for lifting costs associated with conveying the groundwater from the re-drilled WH4-5 WELLS ground surface to either the SSC SYSTEM or the SECONDARY SSC TREATMENT PLANT.

14.3.6 **Electrical Costs**. While either the SSC SYSTEM or the SECONDARY SSC TREATMENT PLANT is in operation, HONEYWELL shall reimburse LADWP for the electrical costs associated with conveying the groundwater from the re-drilled WH4-5 WELLS ground surface to either plant.

15. MAJOR REPAIRS/RECONSTRUCTION

15.1 **Major Repairs/Reconstruction**. If major repairs or reconstruction of the CCC SYSTEM and/or the SSC SYSTEM are required, due to a FORCE MAJEURE, latent design defect, or otherwise, the design, permitting and construction, and funding responsibilities for such major repairs or reconstruction shall follow the approach outlined in the AGREEMENT for the initial design, permitting and construction, and funding of the CCC SYSTEM and/or the SSC SYSTEM. Notwithstanding the foregoing, HONEYWELL shall not be responsible for the design, permitting and construction, and funding of needed major repairs or reconstruction that HONEYWELL demonstrates are necessitated by LADWP willful misconduct, LADWP gross negligence, or a pattern and practice of LADWP failing to meet material operational requirements. Disputes arising out of this SECTION 15 shall be handled consistent with SECTION 36.

16. DESIGN AND CONSTRUCTION FUNDING FOR THE CCC SYSTEM

HONEYWELL shall have the right, but not obligation, to form a trust account for the benefit of LADWP to facilitate construction of the CCC SYSTEM.

17. PAYMENT OF LADWP OPERATION AND MAINTENANCE COSTS AND ON THE GROUND EXPENSES

17.1 FORMATION AND USE OF O&M TRUST ACCOUNT

Within one hundred eighty (180) DAYS after the execution of this AGREEMENT, HONEYWELL shall legally form an interest-bearing trust account for the benefit of LADWP to cover O&M COSTS and ON THE GROUND EXPENSES (the "O&M TRUST ACCOUNT").

17.1.1 **Trustee**. The PARTIES shall jointly appoint a trustee (the "O&M TRUSTEE") to administer the O&M TRUST ACCOUNT in accordance with this AGREEMENT and any other documents and/or agreements developed and/or executed, with the written consent of LADWP (which consent shall not be unreasonably withheld or delayed), to facilitate the payment of O&M COSTS and ON THE GROUND EXPENSES incurred by LADWP pursuant to this AGREEMENT.

17.1.2 **Contributions**. HONEYWELL, NHOU CO, or SSC CO may make contributions to be accepted by the O&M TRUST ACCOUNT on an annual or more frequent basis in accordance with the terms of this AGREEMENT and/or any other documents and/or agreements establishing the O&M TRUST ACCOUNT, which agreements shall be subject to the written approval of LADWP, whose approval shall not be unreasonably withheld or delayed. If additional funds are needed to pay LADWP ON THE GROUND EXPENSES or O&M COSTS in excess of the ANNUAL BUDGET, HONEYWELL shall make additional contributions to the O&M TRUST ACCOUNT, in accordance with this SECTION 17.

17.1.3 **Disbursements**. The O&M TRUSTEE shall disburse funds from the O&M TRUST ACCOUNT solely to pay (i) LADWP ON THE GROUND EXPENSES and O&M COSTS consistent with the terms of this AGREEMENT. The failure of LADWP to receive payments to which it is entitled under this AGREEMENT shall be a material breach of this AGREEMENT; (ii) costs HONEYWELL or the NHOU CO incur procuring materials or services pursuant to SECTIONS II.C.3 and 5 of

the CCC SYSTEM OPERATIONAL SUPPORT PLAN (EXHIBIT 2), that are included in the ANNUAL BUDGET. If HONEYWELL or the NHOU CO seeks reimbursement for such expenses, the review and approval procedures in SECTION 18.2.6 shall apply, with the roles of HONEYWELL/NHOU CO and LADWP being reversed for such costs; and (iii) costs associated with administration of the O&M TRUST ACCOUNT.

17.1.4 **Cost Payment**. The O&M TRUSTEE shall pay from the O&M TRUST ACCOUNT all ON THE GROUND EXPENSES and O&M COSTS due and payable under this AGREEMENT; *provided*, *however*, that HONEYWELL shall ensure sufficient liquidity of the O&M TRUST ACCOUNT to cover the amounts budgeted under ANNUAL BUDGETS (plus a ten percent (10%) overrun contingency) as detailed in SECTION 18.2 and to fund any additional amounts owed to LADWP for O&M COSTS or ON THE GROUND EXPENSES.

18. COVERED COSTS

18.1 The O&M TRUST ACCOUNT shall be used to pay ON THE GROUND EXPENSES and O&M COSTS as such costs become due and payable in accordance with the terms of this AGREEMENT and the costs associated with the administration of the O&M TRUST ACCOUNT.

18.2 BUDGET AND COORDINATION FOR O&M COSTS AND ON THE GROUND EXPENSES

18.2.1 **Annual Budget**. By February 1 of each CALENDAR YEAR, LADWP shall provide HONEYWELL with a proposed annual budget for the next budget year (the "ANNUAL BUDGET") for O&M COSTS and ON THE GROUND EXPENSES, as applicable. Each ANNUAL BUDGET prepared pursuant to this AGREEMENT shall include budgeting for each category of anticipated O&M COSTS and ON THE GROUND EXPENSES in substantially similar form as EXHIBIT 9 to this AGREEMENT. The PARTIES shall review and update the

form of ANNUAL BUDGET in advance of the completion of the PHASE 3 WARRANTY PERIOD, and as necessary and appropriate over time.

18.2.2 **Right to Review**. HONEYWELL shall have thirty (30) DAYS to review and comment in writing on the ANNUAL BUDGET prepared pursuant to this AGREEMENT, and may request additional time if required, provided that such request for additional time shall not relieve HONEYWELL of its obligation to ensure sufficient liquidity of the O&M TRUST ACCOUNT to cover ongoing O&M COSTS and ON THE GROUND EXPENSES.

18.2.3 **Assignment of Right to Review**. HONEYWELL, at its discretion, may assign this review right to the NHOU CO and/or the SSC CO.

18.2.4 **Conference at Quarterly Meetings and Funding**. The PARTIES shall meet and confer in good faith to reach concurrence on the ANNUAL BUDGET. At a minimum, the PARTIES shall discuss the proposed ANNUAL BUDGET at a quarterly meeting held pursuant to SECTION 25.3. The PARTIES shall discuss ways that LADWP can exercise due diligence and reasonable efforts to achieve efficiencies and synergies over time, given, among other things, other similar LADWP operations at nearby LADWP treatment plants. In the event that the proposed budget exceeds the ANNUAL BUDGET for the current budget year by more than twenty-five percent (25%), the PARTIES shall also discuss the reasons for the increase, any cash flow constraints on HONEYWELL, and seek to reach concurrence on possible phasing or other changes to the proposal budget. LADWP shall consider the comments of HONEYWELL in good faith, but shall have final say on setting the ANNUAL BUDGET in good faith.

18.2.5 **Annual Payment**. Following such finalization and no later than June 30 of each year, HONEYWELL shall deposit, or cause the NHOU CO or SSC CO to deposit, sufficient funds into the O&M TRUST ACCOUNT to fund the ANNUAL BUDGET and maintain ten percent (10%) overrun contingency; *provided, however*, that contributions may be made in phases if provided for in the ANNUAL BUDGET.

18.2.6 **Quarterly Audits and Disputes**. Following each quarter, LADWP shall provide a cost accounting package to HONEYWELL for O&M COSTS and ON THE GROUND EXPENSES. Such package may include amounts incurred in the prior quarter, as well as unbilled amounts from prior quarters, if applicable. HONEYWELL (or the NHOU CO or SSC CO if such right is delegated by HONEYWELL) shall have the right to conduct a reasonable review or audit of LADWP's records of expenditures for the O&M COSTS and ON THE GROUND EXPENSES, including invoices and support documentation reasonably required for or related to such expenditures. Costs and expenditures not disputed by HONEYWELL within sixty (60) DAYS of submittal (or such longer period as agreed to by LADWP) shall be deemed approved and payable. In the event that HONEYWELL reasonably determines that particular costs claimed by LADWP are inconsistent with standard practices of a public drinking water system operated by a public utility of similar nature, scope, and complexity as LADWP and the CCC SYSTEM or SSC SYSTEM, as applicable, or with the relevant ANNUAL BUDGET, and disputes such costs in accordance with the dispute resolution process set forth in SECTION 36, HONEYWELL shall have the right to direct the O&M TRUSTEE to withhold such amounts until the dispute over such amount is resolved; *provided, however*, costs incurred that do not exceed the non-disputed portion of the ANNUAL BUDGET by category with contingency (labor, supplies/consumables/contracts, capital improvements, other) are presumed to be consistent with this standard and shall be paid by the O&M TRUSTEE pursuant to SECTION 17.1.4. The dispute of particular costs does not affect the payment of amounts not in dispute. If the cost dispute is formally resolved by the selected mediator in favor of LADWP with a finding that the withholding of funds was not in good faith, LADWP shall be entitled to payment of interest at a rate of six percent (6%) per year for amounts withheld, such amount to be paid to LADWP by a combination of the interest earned by the O&M Trust on the disputed amounts and such additional interest that HONEYWELL shall have to pay to reach the amount due.

18.2.7 **Annual Budget Disputes**. To the extent that the finalized ANNUAL BUDGET exceeds the current year ANNUAL BUDGET by twenty-five percent (25%) or more, HONEYWELL may (i) object to certain costs included in the ANNUAL BUDGET finalized by LADWP in SECTION 18.2.4 and dispute such costs in accordance with the dispute resolution process set forth in SECTION 36 and (ii) HONEYWELL shall have the right to withhold some or all the disputed amount from the annual payment required by SECTION 18.2.5 pending resolution of the dispute, provided that the resulting annual payment (whether paid in a lump sum or phases, if provided by the ANNUAL BUDGET) shall ensure sufficient liquidity of the O&M TRUST ACCOUNT to cover ongoing O&M COSTS and ON THE GROUND EXPENSES. If the cost dispute is formally resolved by the selected mediator in favor of LADWP with a finding that the withholding of funds was not in good faith, HONEYWELL shall pay LADWP interest at a rate of six percent (6%) per year for amounts withheld. Costs incurred consistent with the non-disputed portion of the ANNUAL BUDGET shall be paid by the O&M TRUSTEE pursuant to SECTION 17.1.4.

18.2.8 **Quarterly Payments**. Prior to the start of each quarter (July 1, October 1, January 1, and April 1), the O&M TRUST ACCOUNT shall pay LADWP an amount equal to the ANNUAL BUDGET for that quarter, adjusted by (i) the amount by which the LADWP cost package provided in the prior quarter is less than or greater than the budgeted value for that quarter (true up), (ii) the withholding of amounts, if any, disputed by HONEYWELL pursuant to SECTION 18.2.6 for that submission, and (iii) amounts owed to LADWP, if any, following the resolution of amounts previously disputed by HONEYWELL that have not yet been paid to LADWP. LADWP shall invoice the O&M TRUST ACCOUNT for these amounts, either quarterly (or on a less frequent basis if agreed by the PARTIES).

19. CALCULATION OF CCC AND SSC SYSTEM ROLLING ANNUAL AVERAGE

For purposes of this AGREEMENT, the ROLLING ANNUAL AVERAGE shall be calculated on annual basis consistent with EXHIBIT 10.

20. GROUNDWATER MANAGEMENT

20.1 COORDINATION REGARDING LADWP'S RINALDI-TOLUCA WELL FIELD PUMPING PLANS

HONEYWELL and LADWP shall meet quarterly (or more or less frequently as agreed) regarding LADWP's ongoing and future pumping and spreading plans. If it has any, HONEYWELL can communicate its concerns, and LADWP agrees to use reasonable best efforts (within its discretion) to minimize the impacts of its pumping on the NHOU 2IR RAOs; reasonable best efforts could include, but are not limited to, adjusting the timing, amount, and location of its pumping activities. LADWP has no absolute duty to adjust the timing, amount, and location of its pumping, unless the TANGIBLE TRIGGER is met.

20.2 LADWP ACTIONS FOLLOWING A TANGIBLE TRIGGER

If the TANGIBLE TRIGGER is met, LADWP commits to HONEYWELL to reduce pumping at its RT WELL FIELD until such time as increasing or restoring the pumping rate poses no unreasonable risk that hazardous substances emanating from the FORMER BENDIX SITE will be captured by the wells pumping in the RT WELL FIELD. The PARTIES intend that if the TANGIBLE TRIGGER is met, an approach would apply involving the reduction in pumping, or ceasing to pump a well, followed by monitoring and then making further adjustments in pumping (up or down) based on those monitoring results and other data and analysis.

20.3 COORDINATION REGARDING HONEYWELL'S BENDIX SOURCE CONTROL

Following HONEYWELL's implementation of the SECOND INTERIM REMEDY consistent with an ORDER, the PARTIES agree to enhanced coordination surrounding HONEYWELL's onsite source control program at the FORMER BENDIX SITE as follows:

20.3.1 HONEYWELL agrees to use reasonable best efforts for source control at the FORMER BENDIX SITE;

20.3.2 HONEYWELL agrees to consult with LADWP prior to requesting any material changes requiring RWQCB approval to the onsite source control program, including a meet and confer for any proposed major changes;

20.3.3 If LADWP identifies onsite activities at the FORMER BENDIX SITE that it believes could address a potential risk to the RT WELL FIELD, LADWP may request at the quarterly meeting described above that HONEYWELL consider undertaking such onsite activities. HONEYWELL agrees to consider such recommendations in good faith. LADWP agrees that it shall discuss its request for such onsite activities with HONEYWELL, or, if invoked, participate in the expedited technical mediation contemplated in SECTION 20.3.5, prior to submitting comments to the RWQCB regarding such a request;

20.3.4 Notwithstanding SECTIONS 20.3.1 to 20.3.3 above, as between HONEYWELL and LADWP, RWQCB shall remain the final arbiter of any obligations of HONEYWELL with respect to its source control obligations at the FORMER BENDIX SITE; and

20.3.5 If, following the consultation contemplated in SECTION 20.3.3, the PARTIES are not able to reach consensus, either LADWP or HONEYWELL may submit the matter for an expedited, nonbinding technical mediation before a mutually acceptable third party to assist in reaching a resolution acceptable to both PARTIES. If the PARTIES are not able to reach a resolution following such mediation, LADWP may submit its comments to the RWQCB regarding its request.

20.4 COORDINATION REGARDING ADDITIONAL RESPONSE ACTIONS

If, following HONEYWELL's implementation of the SECOND INTERIM REMEDY consistent with EPA orders (and/or decrees), the TANGIBLE TRIGGER is met, the following shall apply:

20.4.1 If LADWP does not reduce pumping consistent with its commitment in SECTION 20.2 within a reasonable time after a meet and confer regarding

appropriate reduced RT WELL FIELD pumping rates after notice that there is a TANGIBLE TRIGGER *and* HONEYWELL has met its obligations under the agreement *and*:

20.4.2 EPA orders or otherwise directs HONEYWELL to implement additional response actions as a result of such RT WELL FIELD pumping to address ROD COCs that cause HONEYWELL to incur RT-INDUCED INCREMENTAL RESPONSE COSTS, *then*:

(a) HONEYWELL pays the first two million dollars ($2,000,000) and LADWP pays the next three and a half million dollars ($3,500,000) of RT-INDUCED INCREMENTAL RESPONSE COSTS.

(b) If there are additional RT-INDUCED INCREMENTAL RESPONSE COSTS necessary beyond the five and a half million dollars ($5,500,000) specified in SECTION 20.4.2(a), HONEYWELL pays the first one and a half million dollars ($1,500,000) and LADWP pays the next two million dollars ($2,000,000) of RT-INDUCED INCREMENTAL RESPONSE COSTS.

(c) In the event RT-INDUCED INCREMENTAL RESPONSE COSTS exceed nine million dollars ($9,000,000), HONEYWELL reserves the right to bring an action against LADWP for such additional damages above nine million dollars ($9,000,000) incurred as a result of LADWP's failure to reduce pumping consistent with SECTION 20.2 within a reasonable time after the meet and confer. In such lawsuit, HONEYWELL shall be required to prove that such costs are the result of LADWP over-pumping at the RT WELL FIELD after the TANGIBLE TRIGGER has been met in violation of the AGREEMENT. In such a lawsuit, LADWP reserves the right to all defenses and counterclaims for HONEYWELL's failure to adhere to the commitments made pursuant to this AGREEMENT, including but not limited to the obligation to implement the CCC SYSTEM in a timely or

proper manner. Prior to initiating any such lawsuit, HONEYWELL agrees to meet and confer with LADWP in an effort to resolve the dispute.

(d) The PARTIES agree to collaborate so as to inform and/or challenge the assertions made by EPA that could potentially give rise to RT-INDUCED INCREMENTAL RESPONSE COSTS, within the discretion of each PARTY.

(e) Cost-sharing and the potential cost allocation lawsuit do not arise in the context of:

(i) FORCE MAJEURE events;

(ii) changes in water levels in the SFV GROUNDWATER BASIN; and

(iii) a new EPA NHOU remedy.

Disagreements arising out of this SECTION 20 are subject to the dispute resolution provisions in SECTION 36.

21. LANKERSHIM YARD ONE-TIME PAYMENT

Within forty-five (45) DAYS of the execution of the AGREEMENT, HONEYWELL shall deposit two and a half million dollars ($2,500,000) in an escrow account that shall be available to LADWP immediately following the EFFECTIVE DATE in consideration for LADWP making the YARD available for the purposes identified in this AGREEMENT. In the event of release to LADWP following the EFFECTIVE DATE, LADWP shall be entitled to all accrued interest on funds placed in the escrow account.

22. HONEYWELL RIGHT OF ACCESS

LADWP shall provide access to LADWP-owned or LADWP-controlled property, facility, right-of-way, or other LADWP interest in land required or necessary for the design, construction, and O&M work contemplated under this AGREEMENT, as provided in the LICENSE AGREEMENT, the form of which is attached hereto as EXHIBIT 4. In the

event the achievement of the NHOU 2IR RAOs has not been completed within one hundred eighty (180) DAYS of the expiration of the LICENSE AGREEMENT, the PARTIES shall meet and confer to discuss whether good cause exists to enter into a new license agreement. Nothing in this AGREEMENT precludes the PARTIES from entering into a new license by mutual consent at an earlier date. Provided, further, the PARTIES recognize that any new license agreement may require approval by the CITY COUNCIL pursuant to the CHARTER.

22.1 LICENSE AGREEMENT MODIFICATION

In the event modifications or amendments are necessary to the LICENSE AGREEMENT to facilitate HONEYWELL's construction and/or O&M of the CCC SYSTEM and/or the SSC SYSTEM, LADWP shall take reasonable efforts to process and/or seek such modifications or amendments within a reasonable period following receipt of the request.

23. WATER RIGHTS

23.1 FACILITATION OF GROUNDWATER EXTRACTION IN THE ADJUDICATED BASIN

The SFV GROUNDWATER BASIN has been adjudicated such that total groundwater extractions by parties to the judgment holding water rights are limited by court order. During such time HONEYWELL operates the CCC SYSTEM and/or the SSC SYSTEM, LADWP agrees, at no cost to HONEYWELL, to take such action, including but not limited to filing necessary applications with the Upper Los Angeles River Watermaster necessary to permit the pumping and extraction of LADWP's rights to pump groundwater for treatment at the CCC SYSTEM and SSC SYSTEM treatment facilities and eventual delivery to LADWP.

24. PROJECT COORDINATOR

Each PARTY shall designate a project coordinator (the "PROJECT COORDINATOR"), who shall endeavor to ensure clear and responsive communication between the PARTIES and the effective exchange of information and shall serve as the primary point of contact

for any issues arising under this AGREEMENT. The PROJECT COORDINATOR shall be of sufficient seniority to make decisions on behalf of the PARTY or identify and make available those persons who can make such decisions. Each PARTY may, in its sole discretion, change its PROJECT COORDINATOR by providing written notice to the other PARTY of such change.

HONEYWELL identifies the following person as its PROJECT COORDINATOR:

Benny Dehghi
Honeywell International Inc.
2525 West 190th Street
M/S 23-21-80
Torrance, CA 90504-6099
benny.dehghi@honeywell.com
Office: (310) 512-2296

LADWP identifies the following person as its PROJECT COORDINATOR:

Dave Christensen
Manager of Project and Construction Management Group
Water Engineering and Technical Services Division
Los Angeles Department of Water and Power
111 N. Hope St., Room 1315
Los Angeles, CA 90012
Dave.Christensen@LADWP.com
Office: (213) 367-3080

25. PROJECT MANAGEMENT AND ESTABLISHMENT OF STEERING COMMITTEE

25.1 PURPOSE

25.1.1 The PARTIES shall establish a committee (the "STEERING COMMITTEE") which shall be in place during the life of this AGREEMENT, or until such time as the PARTIES mutually agree in writing that such STEERING COMMITTEE is no longer necessary.

25.1.2 The STEERING COMMITTEE shall have oversight of all activities relating to the AGREEMENT (including, without limitation, respective design, permitting,

construction, operation and maintenance, and financing obligations for the CCC SYSTEM and SSC SYSTEM, groundwater management coordination, compliance with EPA, DDW, and other regulatory agency requirements, and such other tasks necessary to accomplish the purposes of this AGREEMENT).

25.1.3 The STEERING COMMITTEE may make any material decisions necessary to facilitate the purposes of this AGREEMENT.

25.2 COMPOSITION OF THE STEERING COMMITTEE

The STEERING COMMITTEE shall be composed of up to two (2) representatives of each PARTY. Each PARTY may also appoint legal and technical consultants to support the respective PARTY's selected representatives.

25.3 CONVENING MEETINGS OF STEERING COMMITTEE

25.3.1 The STEERING COMMITTEE shall meet as often as is necessary or appropriate to carry out the activities contemplated by this AGREEMENT, which meetings may be held by telephone, videoconference, or otherwise, as agreed between the PARTIES. At a minimum, however, the STEERING COMMITTEE shall meet in person at least quarterly, unless otherwise agreed by the PARTIES.

25.3.2 Any STEERING COMMITTEE member may invite outside entities (for example, representatives from EPA, DDW, the NHOU CO or SSC CO, etc.) to participate in STEERING COMMITTEE meetings, as appropriate. At least thirty (30) DAYS prior to extending such invitation, the STEERING COMMITTEE member shall inform the other STEERING COMMITTEE members of the intent to extend such invitation.

25.3.3 Decisions of the STEERING COMMITTEE shall require consent of both PARTIES.

25.4 STEERING COMMITTEE COSTS

Each PARTY shall bear its own costs to fund its participation in the STEERING COMMITTEE.

26. SETTLEMENT & RELEASE OF CLAIMS

26.1 HONEYWELL RELEASES

26.1.1 **Release of Claims Against LADWP**. HONEYWELL settles, covenants not to sue, and releases LADWP from any and all CLAIMS it may have for releases of CONTAMINATION, regardless of where such releases occurred, that may have caused or contributed to CONTAMINATION of LADWP's NHEB WELL FIELD, the WHITNALL WELL FIELD, and the ERWIN WELL FIELD.

26.2 LADWP RELEASES

26.2.1 **Release of SFV Groundwater Basin Claims**. LADWP settles, covenants not to sue, and releases HONEYWELL from any and all CLAIMS it may have for releases of CONTAMINATION from the FORMER BENDIX SITE, regardless of where such CONTAMINATION may have migrated, that may have caused or contributed to CONTAMINATION of any of LADWP's wells in the SFV GROUNDWATER BASIN.

26.2.2 **Release of Well Field Contamination Claims**. LADWP settles, covenants not to sue, and releases HONEYWELL from any and all CLAIMS it may have for releases of CONTAMINATION, regardless of where such releases occurred, that may have caused or contributed to CONTAMINATION of LADWP's NHEB WELL FIELD, the WHITNALL WELL FIELD, and the ERWIN WELL FIELD.

26.3 RESERVED CLAIMS

26.3.1 **Mutual Covenants on Reserved Claims**.

(a) **Honeywell's Covenant**. Subject to the foregoing provisions of this SECTION 26, HONEYWELL covenants and agrees not to sue or take administrative action against LADWP on any RESERVED CLAIMS for a period of fifteen (15) years from the EFFECTIVE DATE.

(b) **LADWP's Covenant**. Subject to the foregoing provisions of this SECTION 26, LADWP covenants and agrees not to sue or take administrative action against HONEYWELL on any RESERVED CLAIMS for a period of fifteen (15) years from the EFFECTIVE DATE.

26.3.2 **Tolling of Reserved Claims**. To effectuate the covenants set forth in this SECTION 26.3, the PARTIES agree to toll the running of any LIMITATIONS applicable to their RESERVED CLAIMS for such period(s) of time that any action must be brought within sixteen (16) years of the EFFECTIVE DATE. (By example, the PARTIES' intent of this SECTION 26.3.2 contemplates that a four (4)-year statute of limitation that would accrue after the EFFECTIVE DATE would begin to run twelve (12) years after the EFFECTIVE DATE, and a two (2)-year statute of limitation would begin to run fourteen (14) years after the EFFECTIVE DATE, thereby both terminating sixteen (16) years after the EFFECTIVE DATE.) The PARTIES further agree that during the fifteen (15) years from the EFFECTIVE DATE, the PARTIES shall successively renew not later than every four (4) years, the terms of this SECTION 26.3.2, as set forth in EXHIBIT 7, without either PARTY conceding that such renewal is necessary to effectuate the tolling contemplated herein. However, no action may be brought on any RESERVED CLAIMS after sixteen (16) years. In consideration of the mutual releases provided above and in recognition of the cooperative effort of the PARTIES, the PARTIES further agree that they shall waive and shall not plead, assert, or otherwise raise any LIMITATIONS or any defense of laches, estoppel, waiver, or any other equitable

defense based upon the passage of time applicable to their RESERVED CLAIMS until, and no sooner than after, sixteen (16) years from the EFFECTIVE DATE.

26.3.3 **Exceptions to Tolling**. Notwithstanding any other provision of this AGREEMENT, either PARTY may raise a RESERVED CLAIM prior to the termination of the tolling period under the following limited circumstances and no others:

(a) If a non-PARTY raises a claim in litigation that implicates a RESERVED CLAIM of either or both PARTIES, insofar as such PARTY reasonably determines that its RESERVED CLAIM is germane to the subject matter of the third-party ligation, this AGREEMENT shall not prevent either PARTY from raising such RESERVED CLAIM against the other by way of a defense, counterclaim, or third-party claim in response to the third-party litigation.

(b) This AGREEMENT shall not prevent either PARTY from asserting a RESERVED CLAIM in litigation against or between any insurance company, obligor, surety, indemnitor or other similar person based upon or arising from that PARTY's claims for insurance, indemnification or other similar recovery.

(c) Nothing in this AGREEMENT shall be deemed an implied admission of fact, law or liability, or an implied waiver of any CLAIM.

26.3.4 **Honeywell Representations and Warranties With Respect to Reserved Claims**. HONEYWELL represents and warrants that to the best of HONEYWELL's knowledge, following a good faith investigation by HONEYWELL into such matters, HONEYWELL (i) has made LADWP aware of material information available to it related to the RESERVED CLAIMS and (ii) such good faith investigation does not indicate that operations from facilities of HONEYWELL or its predecessor resulted in any release or threatened release of CONTAMINATION that provide a basis for RESERVED CLAIMS. This good faith investigation

included a review of known files related to HONEYWELL and its predecessors' operations in the San Fernando Valley. Any representation or warranty in this SECTION 26.3.4 that is qualified to the "knowledge of HONEYWELL" or "HONEYWELL's knowledge" or with any similar knowledge qualification is limited to the information personally known, or which should have been known after reasonable inquiry, by the individual listed in EXHIBIT 8, following such an investigation. In any dispute under this SECTION 26.3.4, HONEYWELL shall have the burden to establish that it either (i) disclosed to LADWP material information available to HONEYWELL about the RESERVED CLAIMS or (ii) as of the EFFECTIVE DATE, such information was not within HONEYWELL's knowledge.

26.4 **Tolling of Released Claims**. The PARTIES agree to toll any LIMITATIONS applicable to CLAIMS released in this SECTION 26, from the EFFECTIVE DATE until (i) the time that the conditions subsequent in SECTION 28 are met or waived or (ii) one hundred eighty (180) DAYS from the termination of this AGREEMENT due to the failure of those conditions being met or waived, whichever is later.

27. INDEMNITY

27.1 HONEYWELL'S CCC INDEMNITIES

27.1.1 **CCC SYSTEM Failure**. HONEYWELL shall indemnify and hold harmless LADWP for any failure of the CCC SYSTEM to produce the quantity and quality of water required under this AGREEMENT if such failure results from a failure of design, construction, maintenance, or operations by any consultant or other entity engaged by HONEYWELL to perform any part of the design, construction, maintenance, and operations of the CCC SYSTEM.

27.1.2 **No Indemnification for LADWP Failure**. HONEYWELL shall not be responsible to indemnify and hold harmless LADWP for any failure of the CCC SYSTEM to produce the quantity and quality of water required under this

AGREEMENT if such failure is directly or indirectly caused by LADWP or a failure of LADWP to meet a material obligation under this AGREEMENT.

27.1.3 The indemnity and hold harmless obligations contained in this SECTION 27 supplement and are in addition to any indemnity and defense obligation contained in the LICENSE AGREEMENT, which are hereby incorporated by reference.

27.2 LADWP's CCC INDEMNITIES

27.2.1 **LADWP Failure**. LADWP shall indemnify and hold harmless HONEYWELL for any and all payment of fees, penalties, or fines assessed against HONEYWELL, or additional response costs, damages, or costs of noncompliance that HONEYWELL may incur, resulting from an LADWP FAILURE. For such an LADWP FAILURE, LADWP shall indemnify HONEYWELL as follows:

(a) **CCC Penalties and/or Costs Demand**. In the event HONEYWELL is required to pay CCC PENALTIES AND/OR COSTS, HONEYWELL, in its sole discretion, may demand that LADWP pay or reimburse on receipt of such demand any CCC PENALTIES AND/OR COSTS incurred by HONEYWELL. LADWP shall pay the demanded amount to HONEYWELL within sixty (60) DAYS, unless LADWP in good faith disputes that such CCC PENALTIES AND/OR COSTS arise out of an LADWP FAILURE. In such event, LADWP shall place the disputed demand amount in the INDEMNITY TRUST.

(b) **Anticipated Penalty Payment Demand**. In the event LADWP's operation or failure to operate the CCC SYSTEM causes a TRIGGERING EVENT, and HONEYWELL, in its sole discretion, believes in good faith that the TRIGGERING EVENT results from an LADWP FAILURE and could result in CCC PENALTIES AND/OR COSTS, HONEYWELL may demand that LADWP place funds in the INDEMNITY TRUST in an amount sufficient to cover the ANTICIPATED PENALTY PAYMENT.

LADWP shall place the ANTICIPATED PENALTY PAYMENT in the INDEMNITY TRUST within sixty (60) DAYS of receipt of the demand.

(c) **Release of Indemnity Trust Funds**. In the event HONEYWELL in fact incurs CCC PENALTIES AND/OR COSTS as a result of the TRIGGERING EVENT, funds sufficient to cover the CCC PENALTIES AND/OR COSTS shall release to HONEYWELL from the INDEMNITY TRUST. Any remaining funds from the ANTICIPATED PENALTY PAYMENT shall release to LADWP upon confirmation from EPA that it will not seek penalties (or will not seek further penalties), and HONEYWELL confirms in writing to LADWP that HONEYWELL has incurred no additional response costs as a result of the TRIGGERING EVENT.

(d) **Expedited Dispute Resolution**. In the event LADWP in good faith disputes HONEYWELL-demanded CCC PENALTIES AND/OR COSTS or that a HONEYWELL-identified TRIGGERING EVENT arose out of an LADWP FAILURE, LADWP shall lodge its objection through an expedited dispute resolution process as follows:

(i) LADWP shall, within seven (7) DAYS of receipt of HONEYWELL's payment demand, invoke this expedited dispute resolution by transmitting to HONEYWELL an LADWP INDEMNITY DISPUTE LETTER;

(ii) the PARTIES shall meet and confer in full confidence with the INDEMNITY MEDIATOR, whether in person or by telephone, within thirty (30) DAYS after transmittal by LADWP of the LADWP INDEMNITY DISPUTE LETTER, at which time the PARTIES may elect to resolve their dispute; and

(iii) in the event the dispute has not yet been resolved, the INDEMNITY MEDIATOR shall issue a written decision within forty-five (45)

DAYS of transmittal of the LADWP INDEMNITY DISPUTE LETTER, which shall guide the PARTIES in reaching resolution of the dispute.

(e) **Collaboration to Challenge EPA Penalties**. The PARTIES shall collaborate so as to inform and/or challenge the assertions made by EPA that give rise to CCC PENALTIES AND/OR COSTS and/or a TRIGGERING EVENT. In the event LADWP requests in writing HONEYWELL to defend itself against EPA pursuant to this SECTION 27.2(e), LADWP shall pay for HONEYWELL's costs (including legal and technical consultant costs) incurred in such defense, notwithstanding SECTION 27.4.2.

(f) **Indemnity Trust Balance and Funding**. Within six (6) months following the EFFECTIVE DATE, LADWP shall deposit five hundred thousand dollars ($500,000) into the INDEMNITY TRUST that shall be available to HONEYWELL for CCC PENALTIES AND/OR COSTS. Within one (1) year following the EFFECTIVE DATE, LADWP shall deposit one million dollars ($1,000,000) into the INDEMNITY TRUST that shall be available to HONEYWELL for CCC PENALTIES AND/OR COSTS. LADWP shall be entitled to all accrued interest on funds placed in the INDEMNITY TRUST. At all times one (1) year or beyond the EFFECTIVE DATE, LADWP shall ensure that a minimum balance of one million dollars ($1,000,000) is maintained in the INDEMNITY TRUST.

(g) **No Indemnification for Honeywell Failure**. LADWP shall not be responsible to indemnify and hold harmless HONEYWELL if such failure is directly or indirectly caused by HONEYWELL or by a failure of HONEYWELL to meet a material obligation of this AGREEMENT.

27.2.2 Notwithstanding any other language in this SECTION 27.2, this AGREEMENT does not impose an obligation on LADWP to indemnify or hold HONEYWELL harmless from third-party claims for personal injury or property damage.

27.3 HONEYWELL'S SSC INDEMNITIES

27.3.1 **SSC System Failure**. HONEYWELL shall indemnify and hold harmless LADWP for any failure of the SSC SYSTEM to produce the quantity and quality of water required under this AGREEMENT if such failure results from a failure of design, construction, maintenance, or operations by any consultant or other entity engaged by HONEYWELL to perform any part of the design, construction, maintenance, or operations of the SSC SYSTEM.

27.3.2 **No Indemnification for LADWP Failure**. HONEYWELL shall not be responsible to indemnify and hold harmless LADWP for any failure of the SSC SYSTEM to produce the quantity and quality of water required under this AGREEMENT if such failure is caused directly or indirectly by LADWP or a failure of LADWP to meet a material obligation of this AGREEMENT.

27.4 OTHER INDEMNITIES AND DUTY TO DEFEND

27.4.1 **Equitable or Implied Contractual Indemnity**. Notwithstanding any other provision of law, the PARTIES agree to mutually waive any equitable or implied contractual indemnity.

27.4.2 **Duty to Defend**. Notwithstanding any other provision of law, the PARTIES agree to mutually waive the duty to defend, whether implied or otherwise, with respect to any and all indemnities provided in this AGREEMENT, except as expressly stated in the LICENSE AGREEMENT.

27.4.3 **Insurers, Obligors, Sureties, and Indemnitors**. The settlements, covenants not to sue, and releases contemplated in this AGREEMENT shall not apply to CLAIMS and liabilities of a PARTY against or between any PERSONS based upon or arising from that PARTY's CLAIMS for insurance, indemnification, or other recovery.

28. AGREEMENT CONDITION SUBSEQUENT

28.1.1 **Condition Subsequent and Available Waiver**. This AGREEMENT enters into force on the EFFECTIVE DATE but is subject to the condition subsequent that a court of competent jurisdiction enters a NHOU 2IR CENTRAL PORTION CD on or before April 1, 2025. If a court with competent jurisdiction does not enter the NHOU 2IR CENTRAL PORTION CD on or before April 1, 2025, then the AGREEMENT shall be null and void unless (i) EPA or other regulatory agency issues an administrative order on consent or other ORDER to HONEYWELL to construct and implement the CCC SYSTEM, (ii) HONEYWELL agrees in writing to extend the court of competent jurisdiction's timeline for entering the NHOU 2IR CENTRAL PORTION CD, or (iii) both HONEYWELL and LADWP elect in writing to waive this condition subsequent, by providing written notice to the other of such waiver. If this condition subsequent is not met, extended, or waived, the PARTIES shall meet and confer to determine the appropriate ways to promptly wind down the activities and operations provided for herein and to terminate the LICENSE AGREEMENT.

28.1.2 **Survival**. The respective rights and obligations of the PARTIES set forth in SECTIONS 21, 26.3.2, 26.3.3, 26.4, 28.1.1 and 31 shall survive even in the event the failure of the condition subsequent renders the AGREEMENT null and void.

29. AGREEMENT CONDITION PRECEDENT

29.1.1 **Condition Precedent To The Effective Date**. Establishment of the EFFECTIVE DATE requires the prior satisfaction of the following condition (unless mutually waived in writing by the PARTIES): CITY COUNCIL approval of the LICENSE AGREEMENT in accordance with Sections 606 and 607 of the CHARTER and mutual execution by the PARTIES of the same.

29.1.2 **Expeditious Efforts**. Following execution of this AGREEMENT, LADWP shall expeditiously seek CITY COUNCIL approval of LICENSE AGREEMENT.

LADWP shall inform HONEYWELL in writing upon receipt of CITY COUNCIL approval.

30. THIRD-PARTY FINANCIAL CONTRIBUTION

Nothing in this AGREEMENT shall bar or limit LADWP or HONEYWELL from seeking from entities or individuals other than the PARTIES, contribution, cost recovery, reimbursement, participation, damages, or other financial redress.

31. HONEYWELL RESPONSIBILITY FOR NHOU CO AND SSC CO

31.1.1 **NHOU CO**. HONEYWELL shall be directly liable and responsible to LADWP for any and all obligations of the NHOU CO, and LADWP need not seek performance from the NHOU CO prior to seeking performance from HONEYWELL.

31.1.2 **SSC CO**. HONEYWELL shall be directly liable and responsible to LADWP for any and all obligations of the SSC CO, and LADWP need not seek performance from the SSC CO prior to seeking performance from HONEYWELL.

32. FORCE MAJEURE

In the event that performance on the part of either LADWP or HONEYWELL shall be delayed or suspended as a result of a FORCE MAJEURE, neither LADWP or HONEYWELL shall incur any liability to the other PARTY as a result of such delay or suspension, subject to the obligations to take reasonable steps to minimize the duration and extent of such event, as set forth herein, including SECTION 15 and otherwise. Disagreements arising out of this SECTION 32 are subject to the dispute resolution provisions in SECTION 36.

33. REPRESENTATIONS

Except for excusable delays as described in the FORCE MAJEURE provision, if either LADWP or HONEYWELL fails to perform, in whole or in part, any promise, covenant, or statement set forth herein, or should any representation made by it be untrue, the

aggrieved PARTY may avail itself of all rights and remedies, at law or equity, in the courts of law.

34. WAIVER

A waiver of a default of any part, term, or provision of this AGREEMENT shall not be construed as a waiver of any succeeding default or as a waiver of the part, term, or provision itself. Either LADWP's or HONEYWELL's performance after the other PARTY's default shall not be construed as a waiver of that default.

35. INSURANCE

HONEYWELL shall maintain insurance consistent with the insurance requirements set forth in the LICENSE AGREEMENT, which requirements are hereby incorporated by reference.

36. DISPUTES

36.1 INFORMAL RESOLUTION

It is the intent of the PARTIES that any dispute be resolved informally and promptly through good-faith negotiation. The PARTIES therefore agree that should any dispute or controversy arise under this AGREEMENT, the following steps toward resolution shall immediately be taken:

36.1.1 **Correspondence**. Either PARTY may initiate negotiation proceedings by writing a certified or registered letter to the other PARTY setting forth the particulars of the dispute, the term(s) of the AGREEMENT that are involved, and a suggested resolution of the problem. The recipient of the letter must respond within twenty (20) DAYS, or longer period as agreed by the PARTIES, with an explanation and response to the proposed solution.

36.1.2 **Meetings**. If correspondence does not resolve the dispute, then the PARTIES' respective PROJECT COORDINATORS shall meet on at least one occasion and attempt to resolve the matter. In the event this meeting does not result in resolution,

the PARTIES shall submit the matter to the STEERING COMMITTEE for discussion at the next quarterly meeting, or sooner, if the nature of the dispute warrants expedited resolution. The STEERING COMMITTEE shall confer in a bona fide attempt to resolve the matter. Should this step not produce resolution, then the PARTIES agree to mediation as provided herein.

36.2 MEDIATION

36.2.1 **Referral to Mediator**. In the event that the controversy is not resolved by informal negotiation within thirty (30) DAYS after consideration by the STEERING COMMITTEE as provided in SECTION 25 (or any mutually agreed extension of time), the case shall be referred for mediation—that is, an informal, non-binding conference or conferences between the PARTIES and the mediator jointly, then in separate caucuses wherein the mediator will seek to guide the PARTIES to a resolution of the case.

36.2.2 **Selection of Mediator**. Within ninety (90) DAYS of the EFFECTIVE DATE, the PARTIES shall engage a mediator. The PARTIES are free to select any mutually acceptable mediator. If the PARTIES cannot agree or have no particular choice of mediator, the PARTIES may request that an organization that provides mediator services, such as, but not limited to, JAMS, assign one to the case, then a list and resumes of available mediators numbering one more than there are PARTIES shall be sent to the PARTIES, each of whom shall strike one name, leaving the remaining name as the mediator. If more than one remains, the designated mediator shall be selected by an organization that provides mediator services from the remaining names.

36.2.3 **Declaration of Impasse**. The mediation process shall continue until the case is resolved or until such time as the mediator makes a finding that there is no possibility of resolution, or the PARTIES mutually agree that the meditation will not be able to resolve the dispute.

36.3 COURT PROCEEDINGS

If the PARTIES cannot agree on mediation or if such mediation is otherwise unsuccessful, either PARTY may submit the dispute or claim to a court of competent jurisdiction for resolution.

37. GOVERNING LAW

The governing law of this AGREEMENT shall be the law of the STATE, without regard to conflict of laws provisions.

38. ADDITIONAL DOCUMENTATION

The PARTIES shall cooperate and agree to create and complete additional documentation as may be necessary to carry out the various terms and conditions in this AGREEMENT.

39. SUCCESSORS & ASSIGNS

The agreements, undertakings, acts, and other things made, done, or to be done by each of the PARTIES under the terms of this AGREEMENT shall run to and be binding upon that PARTY and its respective successors and assigns.

40. NO THIRD-PARTY BENEFICIARIES

This agreement is for the benefit of the PARTIES. With the exception of successors, no other persons or entities shall be bound by, or deemed to be beneficiaries of, this AGREEMENT.

41. ENTIRE AGREEMENT

This AGREEMENT is an integrated agreement. All agreements, covenants, representations and warranties, express and implied, oral and written, of the PARTIES concerning the subject matter of this AGREEMENT are contained herein. No other agreements, covenants, representations, or warranties, express or implied, oral or written, have been made by or relied upon by the PARTIES concerning the subject matter of this AGREEMENT, other than as expressly set forth in this AGREEMENT. This

AGREEMENT prevails over all prior or contemporaneous communications, conversations, negotiations, possible and alleged agreements, representations, covenants, and warranties concerning the subject matter of this AGREEMENT.

42. INFORMED NEGOTIATIONS

This AGREEMENT is the product of informed negotiations between the PARTIES and their representatives, including counsel, which shall not be construed against either PARTY. Each PARTY hereto expressly assumes the risk of any mistake of fact or law, or that the true facts or the law might be other or different from facts or law now known or believed to exist, or that the law may hereafter change, or that the PARTY or its rights may be affected by or over the passage of time or other changes in circumstances. It is the express intention of each of the PARTIES to settle, adjust, and compromise any and all disputes within the scope of the respective releases provided in this AGREEMENT, finally and forever, and without regard to which PARTY may have been correct in its understanding of past, present, or future events or the law relative thereto. Each PARTY acknowledges that it has been advised by counsel of its own choosing that it has made a complete and independent investigation of the facts and law pertaining to the matters released herein, and that it has not relied and does not rely on any promise, representation, or warranty made by or on behalf of any other PERSON concerning such matters except as may be expressly set forth herein.

43. INTERPRETATION

43.1 NEUTRAL INTERPRETATION

In the event of an ambiguity in or a dispute regarding this AGREEMENT or its interpretation, the AGREEMENT shall be interpreted as if each PARTY jointly and fully participated in its drafting, the rule of *contra proferentem* shall not apply.

43.2 HEADINGS

All SECTION headings contained herein are only for convenience and ease of reference of the PARTIES. They do not constitute, and shall not be construed to constitute, a part of

this AGREEMENT, and shall not be considered in the construction or interpretation of any provision of this AGREEMENT or the PARTIES' contracting intent.

43.3 MEANING OF "INCLUDING BUT NOT LIMITED TO". As used in this AGREEMENT, the phrase "including but not limited to" is meant to signal the PARTIES' intent that the listed item(s) should not be construed as limiting under the principle of *ejusdem generis* or otherwise.

44. FURTHER DOCUMENTS

Each PARTY shall execute and deliver all further instruments, documents, and papers, and shall perform any and all acts necessary and reasonably requested by the other PARTY, to give full force and effect to all the terms and provisions of this AGREEMENT.

45. MODIFICATION

This AGREEMENT can only be modified by a writing signed by both PARTIES, and this provision cannot be orally waived.

46. SEVERABILITY

If any non-material provision or any non-material portion of any provision of this AGREEMENT is declared null, void, or unenforceable by any court or tribunal having jurisdiction, then such provision or such portion of a provision shall be considered separate and apart from the remainder of this AGREEMENT, which shall remain in full force and effect.

47. NO ASSIGNMENT

Neither LADWP nor HONEYWELL may assign any of its rights or obligations to any other PERSON without the prior written approval of the other, which approval shall not be unreasonably withheld or delayed.

48. NOTICES

All notices contemplated under this AGREEMENT shall be delivered in person, or sent by overnight carrier, or sent via electronic mail and mailed by certified mail, postage prepaid.

Notices to LADWP shall be addressed to:

Martin L. Adams
General Manager and Chief Engineer
Los Angeles Department of Water and Power
111 S. Hope St.
Los Angeles, CA 90012

With copies to:

Richard F. Harasick
Senior Assistant General Manager
Water System
Los Angeles Department of Water and Power
111 S. Hope St.
Los Angeles, CA 90012

Michelle Lyman, *Esq*.
Deputy City Attorney
Los Angeles City Attorney, Department of Water and Power
221 N. Figueroa, 10th Floor
Los Angeles, CA 90012

Thomas A. Bloomfield, *Esq*.
Kaplan Kirsch & Rockwell LLP
1675 Broadway, Suite 2300
Denver, CO 80202

Notices to HONEYWELL shall be addressed to:

Benny Dehghi
Honeywell International Inc.
2525 West 190th Street
M/S 23-21-80
Torrance, CA 90504-6099

With copies to:

Gene A. Lucero, *Esq*.
1462 Claridge Drive
Beverly Hills, CA 90210

and

John C. Heintz, *Esq*.
Latham & Watkins LLP
355 S. Grand Ave., Suite 100
Los Angeles, CA 90071

49. AUTHORITY TO SIGN

Each PERSON signing this AGREEMENT possesses the authority to enter into this AGREEMENT on behalf of the signing PARTY.

DEPARTMENT OF WATER AND POWER OF
THE CITY OF LOS ANGELES

APPROVED:

By: _____ Date: 12/17/19

MARTIN L. ADAMS
General Manager and Chief Engineer

HONEYWELL INTERNATIONAL, INC.

APPROVED:

By: John J. Morris For Date: 12/20/19

D. EVAN VAN HOOK
Corporate V.P., Health, Safety, Environment, Product Stewardship & Sustainability

APPROVED AS TO FORM AND LEGALITY
MICHAEL N. FEUER, CITY ATTORNEY

NOV 26 2019

BY _____
MICHELLE LYMAN
DEPUTY CITY ATTORNEY

FIGURE 1

PROJECT SITE PLAN

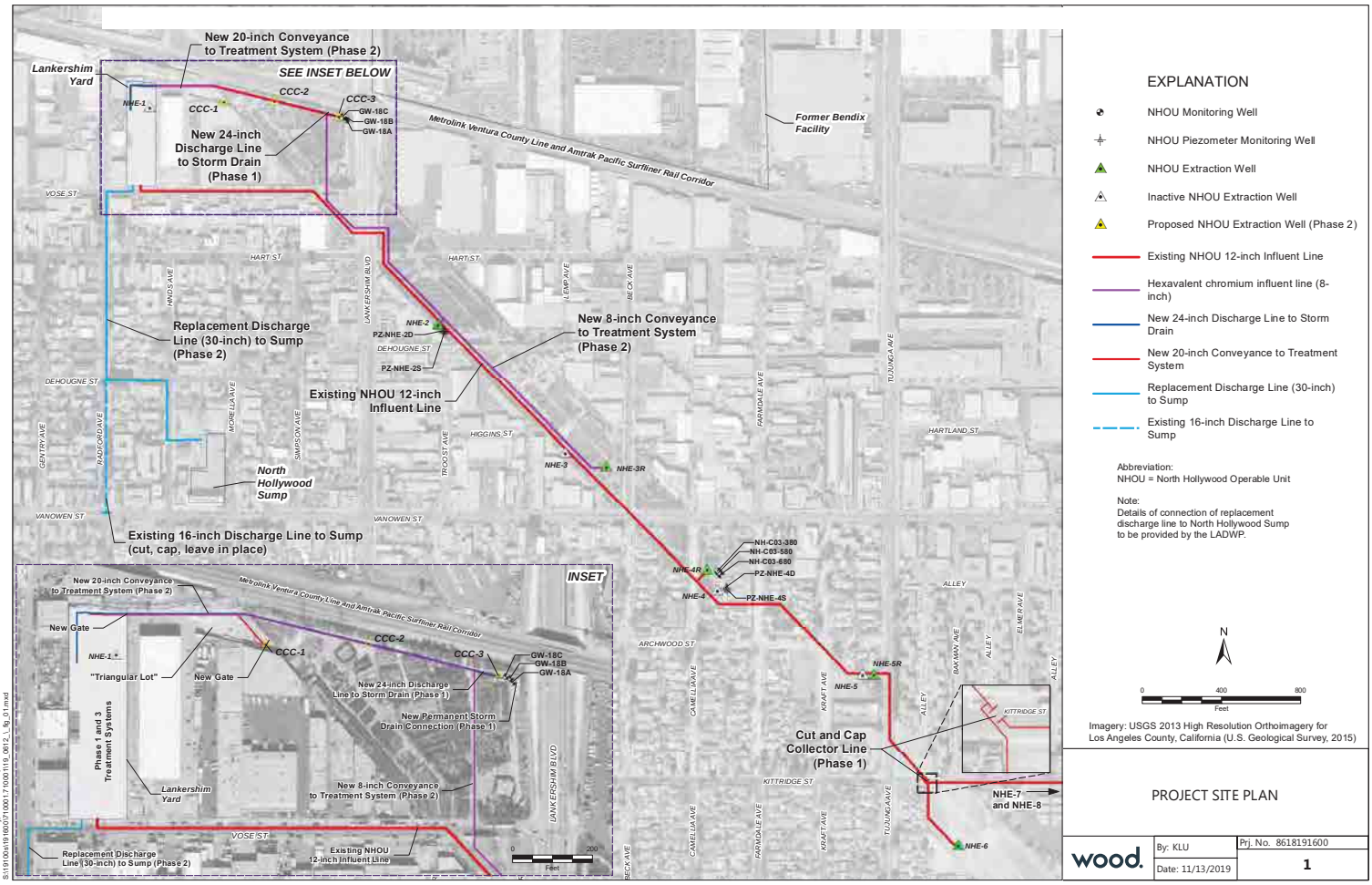
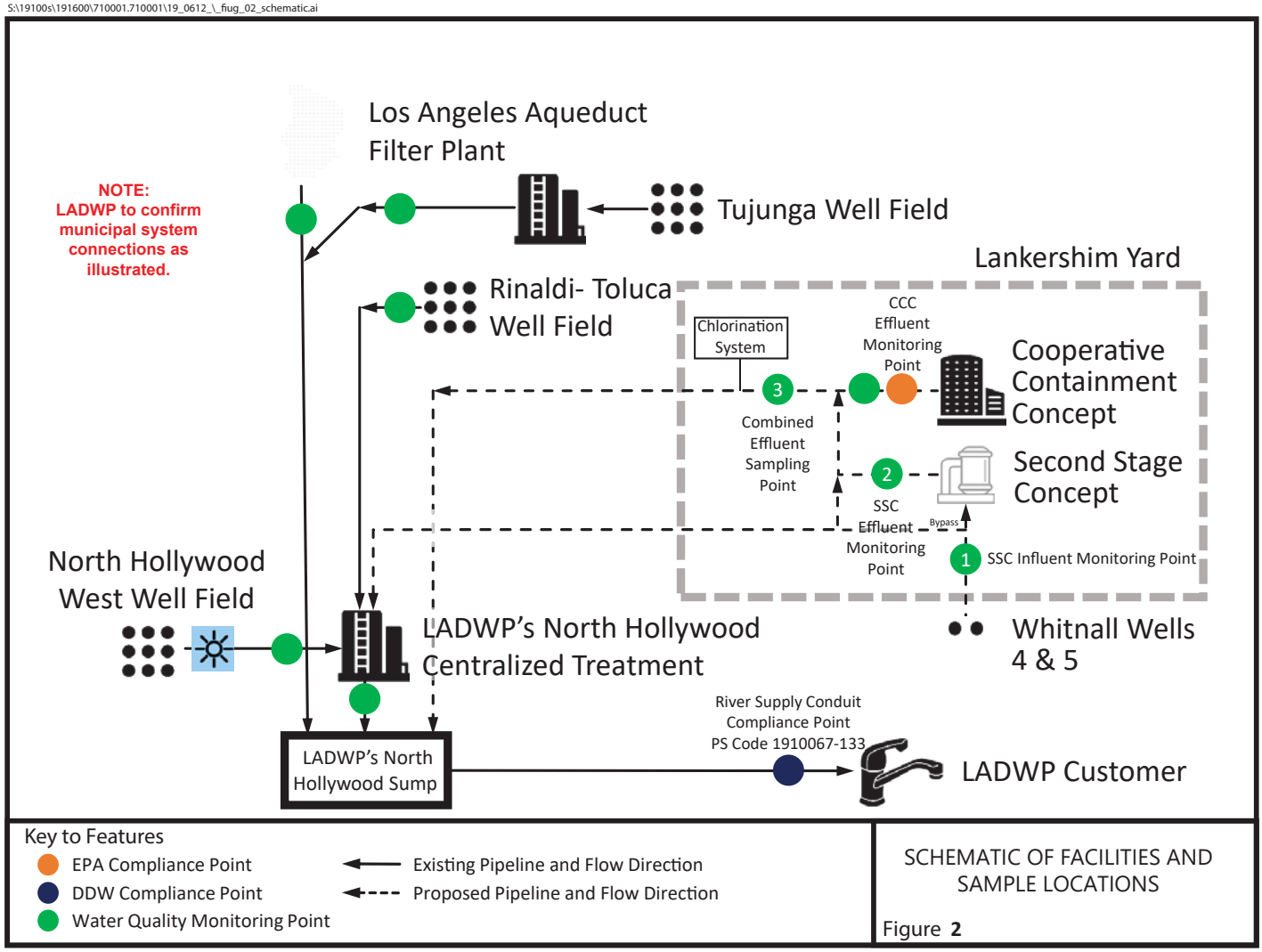

New 20-inch Conveyance to Treatment System (Phase 2)
Lankershim Yard
SEE INSET BELOW
NHE-1
CCC-1
CCC-2
CCC-3
GW-18C
GW-18B
GW-18A
New 24-inch Discharge Line to Storm Drain (Phase 1)
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
Former Bendix Facility
VOSE ST
HART ST
HINDS AVE
LANKERSHIM BLVD
LEMP AVE
BECK AVE
NHE-2
PZ-NHE-2D
PZ-NHE-2S
DEHOUGNE ST
Replacement Discharge Line (30-inch) to Sump (Phase 2)
New 8-inch Conveyance to Treatment System (Phase 2)
Existing NHOU 12-inch Influent Line
MORELIA AVE
SIMPSON AVE
TROOST AVE
HIGGINS ST
FARMDALE AVE
TUJUNGA AVE
HARTLAND ST
GENTRY AVE
RADFORD AVE
North Hollywood Sump
NHE-3
NHE-3R
VANOWEN ST
Existing 16-inch Discharge Line to Sump (cut, cap, leave in place)
NH-C03-380
NH-C03-580
NH-C03-680
PZ-NHE-4D
NHE-4R
NHE-4
PZ-NHE-4S
ALLEY
ARCHWOOD ST
CAMELIA AVE
KRAFT AVE
NHE-5R
NHE-5
BAXMAN AVE
ELMER AVE
KITTRIDGE ST
Cut and Cap Collector Line (Phase 1)
NHE-7 and NHE-8
NHE-6
INSET
New Gate
"Triangular Lot"
New Permanent Storm Drain Connection (Phase 1)
Phase 1 and 3 Treatment Systems
Lankershim Yard
Replacement Discharge Line (30-inch) to Sump (Phase 2)
Existing NHOU 12-inch Influent Line
0
200
Feet
EXPLANATION
NHOU Monitoring Well
NHOU Piezometer Monitoring Well
NHOU Extraction Well
Inactive NHOU Extraction Well
Proposed NHOU Extraction Well (Phase 2)
Existing NHOU 12-inch Influent Line
Hexavalent chromium influent line (8-inch)
New 24-inch Discharge Line to Storm Drain
New 20-inch Conveyance to Treatment System
Replacement Discharge Line (30-inch) to Sump
Existing 16-inch Discharge Line to Sump
Abbreviation:
NHOU = North Hollywood Operable Unit
Note:
Details of connection of replacement discharge line to North Hollywood Sump to be provided by the LADWP.
N
0
400
800
Feet
Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)
PROJECT SITE PLAN
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8618191600
1

FIGURE 2

SCHEMATIC OF FACILITIES AND SAMPLE LOCATIONS

S:\19100s\191600\710001.710001\19_0612__fiug_02_schematic.ai



SCHEMATIC OF FACILITIES AND SAMPLE LOCATIONS

Figure **2**

FIGURE 3

SAN FERNANDO VALLEY GROUNDWATER BASIN WELL FIELDS

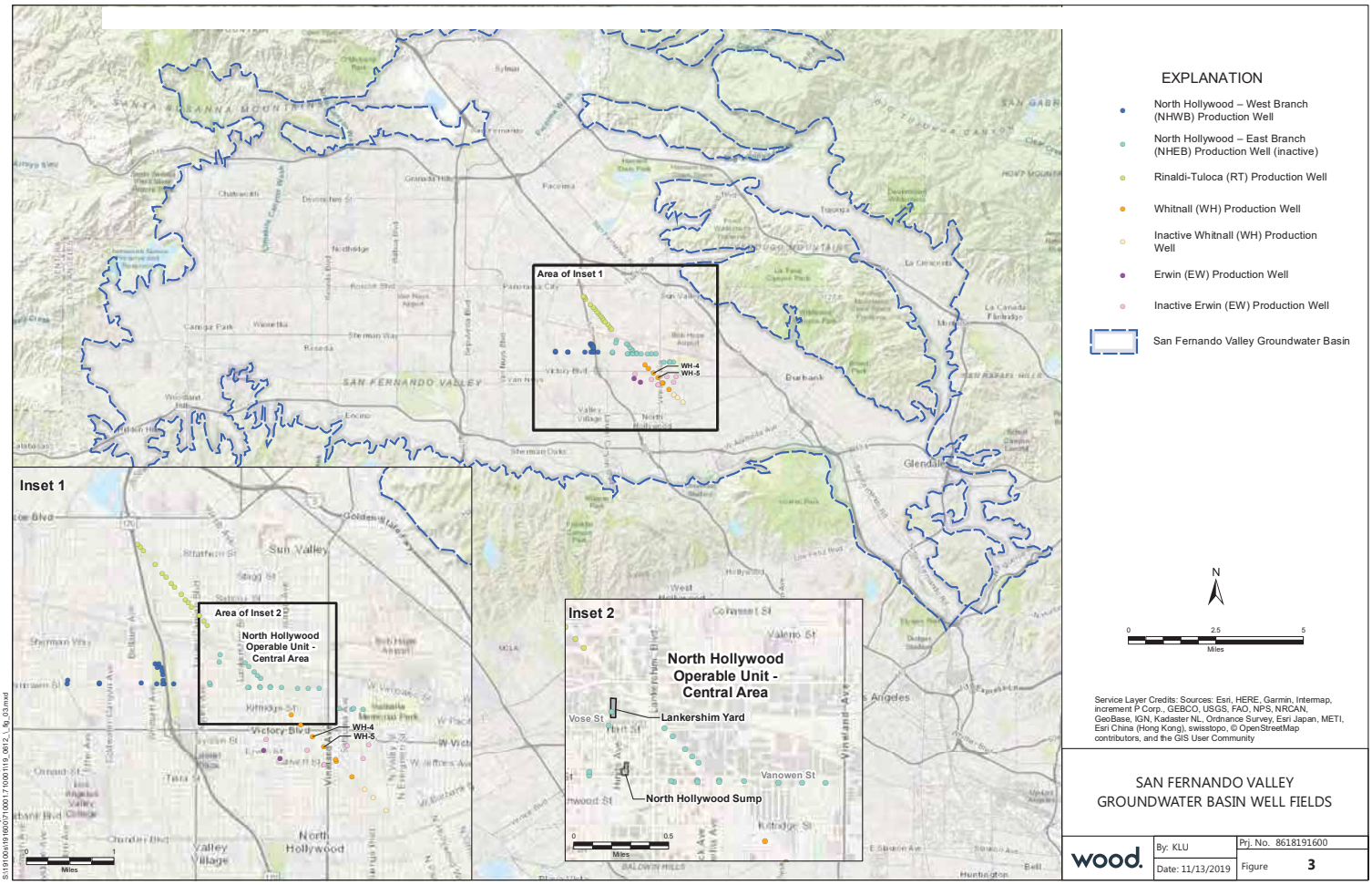

Area of Inset 1
WH-4
WH-5
Inset 1
Area of Inset 2
North Hollywood Operable Unit - Central Area
WH-4
WH-5
Inset 2
North Hollywood Operable Unit - Central Area
Lankershim Yard
North Hollywood Sump
EXPLANATION
North Hollywood – West Branch (NHWB) Production Well
North Hollywood – East Branch (NHEB) Production Well (inactive)
Rinaldi-Tuloca (RT) Production Well
Whitnall (WH) Production Well
Inactive Whitnall (WH) Production Well
Erwin (EW) Production Well
Inactive Erwin (EW) Production Well
San Fernando Valley Groundwater Basin
N
Miles
Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community
SAN FERNANDO VALLEY GROUNDWATER BASIN WELL FIELDS
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8618191600
Figure 3

FIGURE 4

PROJECT PARCELS

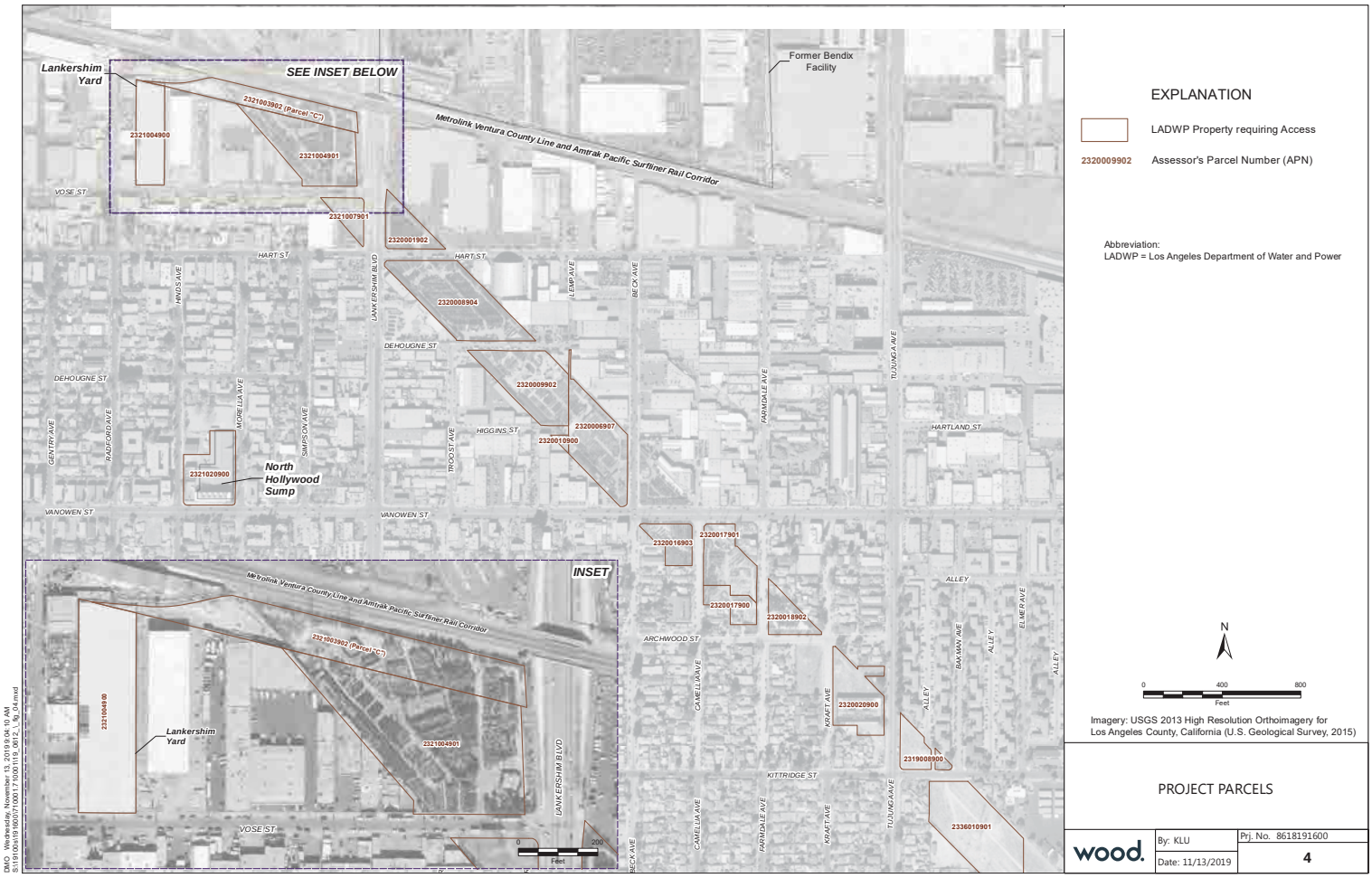
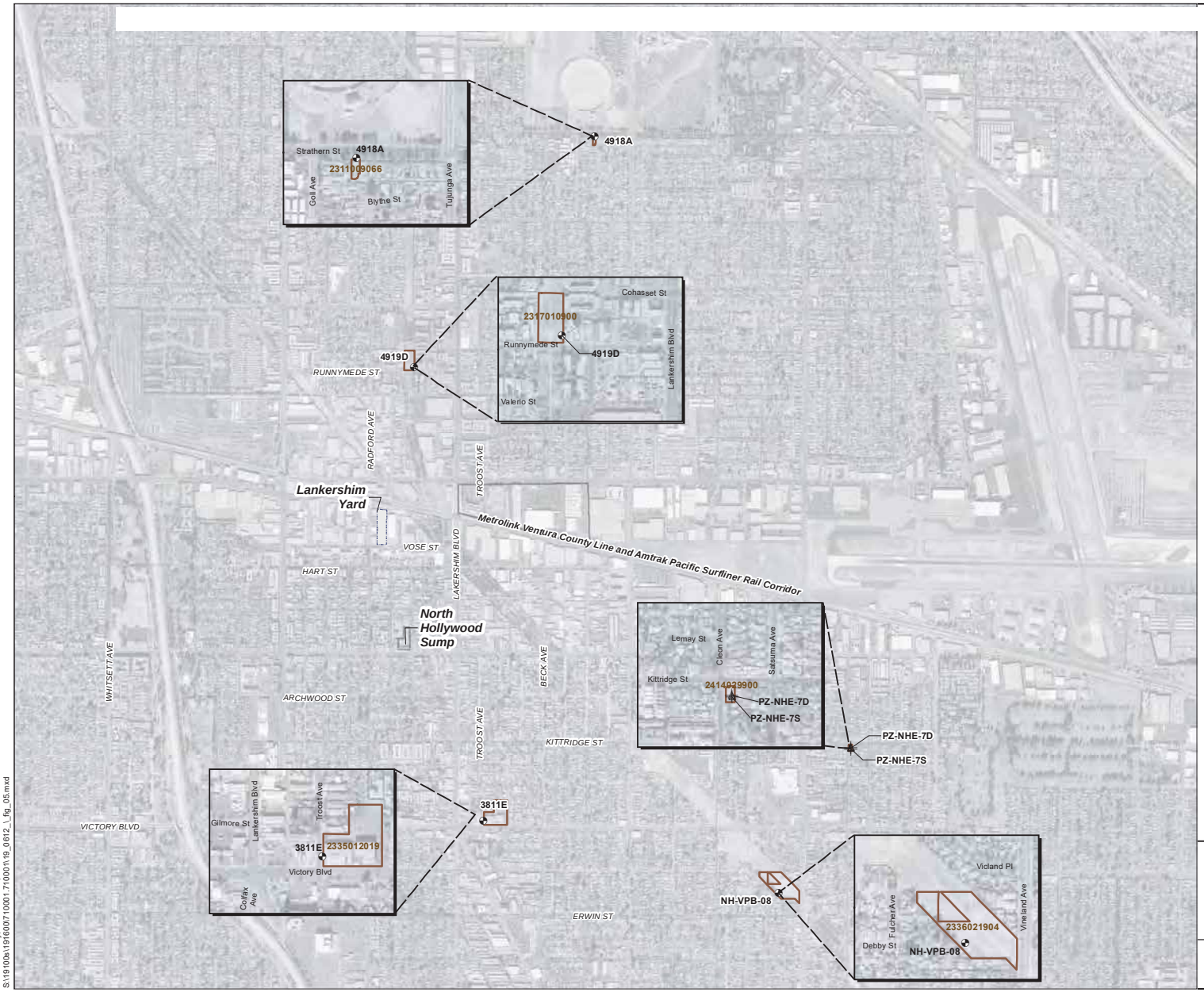

Lankershim Yard
SEE INSET BELOW
2321003902 (Parcel "C")
2321004900
2321004901
2321007901
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
Former Bendix Facility
VOSE ST
HART ST
HINDS AVE
LANKERSHIM BLVD
LEMP AVE
BECK AVE
2320001902
2320008904
DEHOUGNE ST
2320009902
2320006907
2320010900
HIGGINS ST
TROOST AVE
FARMDALE AVE
TUJUNGA AVE
HARTLAND ST
GENTRY AVE
RADFORD AVE
MOREUA AVE
SIMPSON AVE
2321020900
North Hollywood Sump
VANOWEN ST
2320016903
2320017901
2320017900
2320018902
ALLEY
ARCHWOOD ST
CAMELIA AVE
KRAFT AVE
2320020900
BAKMAN AVE
ELMER AVE
2319008900
KITTRIDGE ST
2336010901
INSET
2321004903
0
200
400
800
Feet
N
EXPLANATION
LADWP Property requiring Access
2320009902 Assessor's Parcel Number (APN)
Abbreviation:
LADWP = Los Angeles Department of Water and Power
Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)
PROJECT PARCELS
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8618191600
4

FIGURE 5

ADDITIONAL PROJECT PARCELS



EXPLANATION

- NHOU Monitoring Well
- NHOU Piezometer Monitoring Well
- LADWP Property requiring Access
- 2320009902 — Assessor's Parcel Number (APN)

Abbreviation:
LADWP = Los Angeles Department of Water and Power

N

0 1,500
Feet

Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)

ADDITIONAL PROJECT PARCELS

wood.

By: KLU	Prj. No. 8618191600
Date: 11/25/2019	5

DMO Monday, November 25, 2019 7:17:24 AM
S:\191900s\191600\710001.710001\19_0612_1\fig_05.mxd

EXHIBIT 1

NEW AND/OR REVISED MCLS/ NLS AND NEW CONTAMINANTS

It is possible that in the future, currently established MCLs or NLs may change and that NEW CONTAMINANTS not presently considered ROD COCs may require treatment at either or both the CCC and SSC due to changes in the law, rules, or regulations promulgated by EPA or the STATE. HONEYWELL shall accept responsibility for the treatment of the new MCLs or NLs and NEW CONTAMINANTS consistent with this EXHIBIT 1.

CCC and SSC Treatment Effluent Goals

System		CCC		SSC	
Category	Contaminant	Current Regulation	Future Regulation	Current Regulation	Future Regulation
Category 1	TCE	ROD[1]	ROD[2]	5 µg/L[3]	Note 3
	PCE	ROD[1]	ROD[2]	5 µg/L[3]	Note 3
Category 2	CrVI	ROD[1]	ROD[2]	10 µg/L[4]	Note 4
	1,4-dioxane	ROD[1]	ROD[2]	(1 µg/L or MCL)[4]	Note 4
Category 3	Perchlorate	ROD[1]	ROD[2]	6 µg/L[5]	Note 6
	NEW CONTAMINANTS (NL or MCL)	ROD[1]	ROD[2]	Not applicable	Note 7
	Other ROD COCs	ROD[1]	ROD[2]	Not applicable	Not applicable

Notes:

1. **Baseline CCC Treatment Standards**. Absent the emergence of NEW CONTAMINANTS or revised MCLs or NLs for a ROD COC required to be treated under this AGREEMENT, the required treatment level and timing shall remain as required by EPA in the ROD.

2. **CCC New Contaminants and/or Revised Treatment Standards**. In the event EPA or the STATE lowers the MCL or NL for a ROD COC, or adopts an MCL or NL for a NEW CONTAMINANT, and if the STATE has a more stringent implementation schedule to meet the lowered MCL or NL and/or treatment for the NEW CONTAMINANT than is required under the ROD, then LADWP may, in its discretion, request that HONEYWELL initiate treatment for the lowered MCL/NL and/or NEW CONTAMINANT at the CCC SYSTEM. In the event LADWP makes such a request, LADWP and HONEYWELL shall share equally in (i) the capital costs to construct additional treatment facilities, (ii) the cost to operate and maintain the CCC SYSTEM to treat the water to the new levels and/or for the NEW CONTAMINANT, and (iii) other necessary costs until EPA amends the ROD to require the CCC SYSTEM to treat the lowered levels and/or the NEW CONTAMINANTS.

3. **SSC Revised Treatment Standard for TCE and/or PCE**. If LADWP exercises its right under this AGREEMENT to request that HONEYWELL initiate treatment to meet a lowered MCL for TCE and/or PCE, LADWP and HONEYWELL shall address the lowered MCL in the following manner:

   a. LADWP shall develop, propose, and utilize a blending plan to achieve the treatment goals at the DDW compliance point (River Supply Conduit Compliance Point PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW). LADWP shall lead the effort to develop the blending plan and shall seek approval from DDW.

   b. If a blending plan is not sufficient or not acceptable to DDW, LADWP shall develop a treatment plan for the water system tributary to the SUMP. This treatment plan shall identify treatment technologies, treatment flows, treatment level, and timing of each phase of the treatment plan. The treatment level required at the SSC SYSTEM shall be collaboratively developed between LADWP and HONEYWELL, and the amount of treatment shall be proportional to the flow and the contaminant load on the water system. In addition, the timing of the implementation of the new SSC SYSTEM level shall be consistent with LADWP's last phase of its treatment plan.

c. LADWP and HONEYWELL shall share equally in (i) the capital costs to construct additional treatment facilities required in the treatment plan; (ii) the cost to operate and maintain the SSC SYSTEM to treat the water to meet DDW requirements, and (iii) other necessary costs. Note, however, HONEYWELL's funding of operations and maintenance of the SSC SYSTEM to treat for TCE/PCE is based on the current MCL of five (5) µg/L for a period of thirty (30) years or until NHOU 2IR RAOs are met. The discounted cash flow calculation for treating to the five (5) µg/L level must be equivalent to the discounted cash flow calculation for the lower MCL.

4. **SSC Revised Treatment Standard for CrVI and/or 1,4-Dioxane**. If LADWP exercises its right under this AGREEMENT to request that HONEYWELL initiate treatment to meet a lowered MCL for CrVI or a lowered NL for 1,4-dioxane, LADWP and HONEYWELL shall address the lowered MCL and/or NL in the following manner:

a. LADWP shall develop, propose, and utilize a blending plan to achieve the treatment goals at the DDW compliance point (River Supply Conduit Compliance Point PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW). LADWP shall lead the effort to develop the blending plan and shall seek approval from DDW.

b. If a blending plan is not sufficient, or not acceptable to DDW, LADWP shall develop a treatment plan for the water system tributary to the SUMP. This treatment plan shall identify treatment technologies, treatment flows, treatment level, and timing of each phase of the treatment plan. The treatment level required at the SSC SYSTEM shall be collaboratively developed between LADWP and HONEYWELL, and the amount of treatment shall be proportional to the flow and the contaminant load on the water system. In addition, the timing of the implementation of the new SSC SYSTEM level shall be consistent with LADWP's last phase of its treatment plan.

c. LADWP and HONEYWELL shall share equally in (i) the capital costs to construct additional treatment facilities required in the treatment plan, (ii) the cost to operate and maintain the SSC SYSTEM to treat the water to meet DDW requirements, and

(iii) other necessary costs. Note, however, HONEYWELL's funding of operations and maintenance of the SSC SYSTEM to treat for CrVI is based on the assumed MCL of ten (10) µg/L for a period of thirty (30) years. Note further that HONEYWELL's funding of operations and maintenance of the SSC SYSTEM to treat for 1,4-dioxane is based on the current NL of one (1) µg/L for a period of thirty (30) years or until NHOU 2IR RAOs are met. The discounted cash flow calculation for treating to the current MCL (for CrVI) or NL (for 1,4-dioxane) must be equivalent to the discounted cash flow calculation for the lower MCL (for CrVI) and/or NL (for 1,4-dioxane).

d. If a 1,4-dioxane MCL is promulgated at higher than one (1) µg/L, HONEYWELL shall fund operations and maintenance to meet the new MCL.

5. **SSC Perchlorate Treatment Conditions**. HONEYWELL shall provide treatment for perchlorate at the SSC SYSTEM under the following conditions:

a. RWQCB requires HONEYWELL, via a Cleanup and Abatement Order, to remediate the FORMER BENDIX SITE for perchlorate; and

b. The perchlorate concentration measured concurrently in each of wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6 (indicative of migration from the FORMER BENDIX SITE) is above the current MCL of six (6) µg/L; and

c. The perchlorate concentration is at or above the current MCL of six (6) µg/L in the combined influent from the re-drilled WH4-5 WELLS for six (6) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in FIGURE 2.

If all three (3) conditions are met, HONEYWELL shall construct and fund the O&M of the SSC SYSTEM to treat perchlorate to at or below the current MCL of six (6) µg/L at the "SSC Effluent Monitoring Point" or the "Combined Effluent Sampling Point" (see FIGURE 2) as determined through discussion during the permitting process with DDW. For purposes of this Section 5, the minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between samples.

6. **SSC Revised Treatment Conditions for Perchlorate**. In the event EPA or the STATE lowers the MCL for perchlorate (and the conditions specified in EXHIBIT 1, Section 5 are otherwise met), LADWP may, in its discretion, request that HONEYWELL initiate treatment to meet the lowered MCL. If LADWP makes such a request, LADWP and HONEYWELL shall address the lowered MCL in the following manner:

   a. LADWP shall develop, propose, and utilize a blending plan to achieve the treatment goals at the DDW compliance point (River Supply Conduit Compliance Point PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW). LADWP shall lead the effort to develop the blending plan and shall seek approval from DDW.

   b. If a blending plan is not sufficient, or not acceptable to DDW, LADWP shall develop a treatment plan for the water system tributary to the SUMP. This treatment plan shall identify treatment technologies, treatment flows, treatment level, and timing of each phase of the treatment plan. The treatment level required at the SSC SYSTEM shall be collaboratively developed between LADWP and HONEYWELL, and the amount of treatment shall be proportional to the flow and the contaminant load on the water system. In addition, the timing of the implementation of the new SSC treatment level shall be consistent with LADWP's last phase of its treatment plan.

   c. LADWP and HONEYWELL shall share equally in (i) the capital costs to construct additional treatment facilities required in the treatment plan, (ii) the cost to operate and maintain the SSC SYSTEM to treat the water to meet DDW requirements, and (iii) other necessary costs. Note, however, HONEYWELL's funding of operations and maintenance of the SSC SYSTEM to treat for perchlorate is based on the current MCL of six (6) µg/L for a period of thirty (30) years or until the NHOU 2IR RAOs are met. The discounted cash flow calculation for treating to the current MCL must be equivalent to the discounted cash flow calculation for the lower MCL.

7. **SSC New Contaminant Treatment Conditions**. HONEYWELL shall provide treatment for NEW CONTAMINANTS at the SSC SYSTEM under the following conditions:

a. EPA or the STATE establishes, for the first time, an MCL or NL for the NEW CONTAMINANT; and

b. the RWQCB requires HONEYWELL to remediate the FORMER BENDIX SITE for the identified NEW CONTAMINANT; and

c. the NEW CONTAMINANT is measured concurrently in each of Wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6 (indicative of migration from the FORMER BENDIX SITE) at levels exceeding the established MCL and/or NL; and

d. the combined influent from the WH4-5 WELLS exceeds the new MCL and/or NL for the identified NEW CONTAMINANT for six (6) consecutive groundwater monitoring events at the sampling location designated SSC Influent Monitoring Point in the SCOPE OF WORK.

If all four conditions are met, LADWP may, at its discretion, request that HONEYWELL initiate treatment to meet the NEW CONTAMINANT MCL or NL at the "SSC Effluent Monitoring Point" or the "Combined Effluent Sampling Point" as determined through discussion during the permitting process with DDW.

For purposes of EXHIBIT 1, Section 7, the minimum groundwater monitoring event timeframe shall be no less than thirty (30) DAYS between samples. If LADWP makes such a request, LADWP and HONEYWELL shall address the NEW CONTAMINANT in the following manner:

i. LADWP shall develop, propose, and utilize a blending plan to achieve the treatment goals at the DDW compliance point (River Supply Conduit Compliance Point PS Code 1910067-133) (or an equivalent future compliance point downstream of the SUMP, as designated by DDW).

LADWP shall lead the effort to develop the blending plan and shall seek approval from DDW.

ii. If a blending plan is not sufficient, or not acceptable to DDW, LADWP shall develop a treatment plan for the water system tributary to the SUMP. This treatment plan shall identify treatment technologies, treatment flows, treatment level, and timing of each phase of the treatment plan. The treatment level required at the SSC SYSTEM shall be collaboratively developed between LADWP and HONEYWELL, and the amount of treatment shall be proportional to the flow and the contaminant load on the water system. In addition, the timing of the implementation of the new SSC SYSTEM level shall be consistent with LADWP's last phase of its treatment plan.

iii. LADWP and HONEYWELL shall share equally in (a) the capital costs to construct additional treatment facilities required in the treatment plan and (b) the cost to operate and maintain the SSC SYSTEM to treat the water to meet the DDW requirements, and (c) other necessary costs.

EXHIBIT 2

CCC SYSTEM OPERATIONAL SUPPORT PLAN

I. Purpose.

This CCC SYSTEM OPERATIONAL SUPPORT PLAN ("PLAN") provides a framework to help minimize service interruptions during LADWP's operation of the CCC SYSTEM and to provide for HONEYWELL's (or the NHOU CO performing for HONEYWELL) responsibilities with regard to hazardous and low-level radioactive waste (if generated) and O&M of the WBA SYSTEM for the CCC SYSTEM. More specifically, this PLAN sets forth a proposed framework for managing (i) the supply of equipment and materials; (ii) the procurement of routine maintenance services that are anticipated to be needed to support the effective operation of the CCC SYSTEM; (iii) certain hazardous and low-level radioactive waste (if generated) associated with the PHASE 1 and PHASE 3 TREATMENT SYSTEM operations; and (iv) O&M of the WBA SYSTEM for the CCC SYSTEM.

This PLAN assigns certain responsibilities to HONEYWELL or the NHOU CO. HONEYWELL, however, shall be jointly and severally liable for the performance of such obligations set forth in this PLAN.

Terms in all caps not otherwise defined in this EXHIBIT 2 shall have the meaning defined in the AGREEMENT.

In the event of any conflict between this PLAN and the AGREEMENT, the terms of the AGREEMENT shall apply.

The PARTIES contemplate that the parts and equipment counts identified in the "TIER I", "TIER II" and "TIER III" tables shall be updated (with items added or removed) following the development and approval of applicable CCC SYSTEM operations and monitoring plans by EPA and DDW. At such time, the PARTIES shall develop a final "PLAN EQUIPMENT/MATERIALS LIST." The PLAN EQUIPMENT/MATERIALS LIST may, as appropriate, be incorporated into applicable CCC SYSTEM operations and monitoring plans. During the time LADWP is operating the system, LADWP, in consultation with

HONEYWELL, may revise the PLAN EQUIPMENT/MATERIALS LIST based on experience gained during the O&M of the CCC SYSTEM. Nothing in this PLAN shall limit the ability of LADWP to secure additional spare parts as it deems necessary and appropriate for purposes of minimizing service interruptions and reliable operation of the CCC SYSTEM.

II. Hybrid Approach for Providing Equipment/Materials and Routine Maintenance Services for the CCC SYSTEM.

Equipment/materials and routine maintenance services associated with the CCC SYSTEM shall be separated into three tiers. Each tier is described as follows.

A. Tier I: Equipment/Materials with Long Lead Times.

1. TIER I equipment/materials include items that have long procurement lead times (due to price, fabrication availability, sourcing, etc.) for either LADWP or HONEYWELL/NHOU CO. Examples of anticipated TIER I equipment/materials include AOP unit components, ion exchange unit components, LPGAC components, submersible pump components, "general" system components, power related regulators and conditioners, and communication equipment.

2. Once LADWP begins operating the CCC SYSTEM, HONEYWELL/NHOU CO shall be responsible for ensuring that an inventory of those TIER I items identified on the final PLAN EQUIPMENT/MATERIALS LIST are available onsite at the YARD (including ordering, delivering and restocking) or available for "just in time" delivery through established procurement contracts. As used herein, "just in time" means that the item can be delivered to the site within five business days from a request for the item. The total number of items to be maintained in inventory onsite will be confirmed when the design of the CCC SYSTEM has been finalized and reflected in the final PLAN EQUIPMENT/MATERIALS LIST. LADWP shall be responsible for recording when a TIER I item has been used and notifying

HONEYWELL/NHOU CO of such use, and for maintaining security systems associated with the TIER I inventory stored on LADWP-owned property, but HONEYWELL/NHOU CO shall be responsible for replacing or repairing inventory damaged or stolen and for the filing of insurance claims for such damaged or stolen inventory, if applicable.

3. HONEYWELL/NHOU CO shall be responsible for ensuring that the onsite inventory is maintained consistent with the final PLAN EQUIPMENT/MATERIALS LIST. The PARTIES intend that the replacement of TIER I items during operation shall be consistent with (i) standard practices of a public drinking water system operated by a public utility of similar nature, scope and complexity as LADWP and the CCC SYSTEM; and (ii) applicable CCC SYSTEM operations and monitoring plans.

B. Tier II: Equipment/Materials that Have a Long Lead Time for LADWP, but that HONEYWELL/NHOU CO May be Able to Obtain More Quickly.

1. TIER II equipment/materials include items necessary to maintain CCC SYSTEM operation that could have lead times longer than thirty (30) DAYS for LADWP, but that HONEYWELL/NHOU CO may, following a procurement process, have the capability of obtaining more quickly.

2. During the time LADWP is operating the CCC SYSTEM, LADWP shall be responsible for procuring the TIER II items on the final PLAN EQUIPMENT/MATERIALS LIST. A representative list of anticipated TIER II items is included in PLAN Attachment A ("ATTACHMENT A"). If LADWP determines that it will not be able to obtain within thirty (30) DAYS a particular TIER II item on the final PLAN EQUIPMENT/MATERIALS LIST necessary to maintain CCC SYSTEM operations, LADWP shall request that HONEYWELL/NHOU CO purchase that item on LADWP's behalf. In such an instance, HONEYWELL/NHOU CO shall procure the item and provide it to LADWP. If LADWP and

HONEYWELL mutually agree that HONEYWELL/NHOU CO cannot procure the item more quickly than LADWP, LADWP shall retain responsibility for its procurement.

C. Tier III: Readily Available Equipment/Materials And Routine Services

1. TIER III consists of: 1) equipment/materials readily available to LADWP and, 2) routine maintenance services available through in-place/on-going LADWP contracts.

2. LADWP shall be responsible for procuring items that can be obtained through a purchase process that LADWP can complete within thirty (30) DAYS. If the purchasing process for a particular TIER III item will take longer than thirty (30) DAYS, despite LADWP making reasonable efforts to acquire the item, and the timely purchase of that item is required to prevent or end a CCC SYSTEM shutdown, LADWP shall request that HONEYWELL/NHOU CO acquire the item as soon as practicable. In such an instance, HONEYWELL/NHOU CO shall procure the item and provide it to LADWP. If LADWP and HONEYWELL mutually agree that HONEYWELL/NHOU CO cannot procure the item more quickly than LADWP, LADWP shall retain responsibility for its procurement.

3. LADWP shall be responsible for procuring (maintaining and utilizing contracts, etc.) TIER III services. A representative list of anticipated TIER III services is included in ATTACHMENT A.

4. If the purchasing process for a particular Tier III service will take longer than thirty (30) DAYS, despite making reasonable efforts to acquire or renew the service, and the timely purchase of that service is required to prevent or end a CCC SYSTEM shutdown, LADWP shall request that HONEYWELL/NHOU CO acquire the service as soon as practicable. In such an instance, HONEYWELL/NHOU CO shall procure the service for LADWP. If LADWP and HONEYWELL mutually agree that

HONEYWELL/NHOU CO cannot procure more quickly than LADWP, LADWP shall retain responsibility for its procurement.

5. If such materials or services covered by this SECTION and procured by HONEYWELL/NHOU CO were included in an ANNUAL BUDGET, costs associated with such procurement shall be payable or reimbursable through the O&M TRUST ACCOUNT.

III. Installation of Equipment and Oversight of Services.

During the time that LADWP is operating the CCC SYSTEM, LADWP shall be responsible for installing procured items and completing/overseeing the required maintenance services (regardless of TIER). Notwithstanding the prior sentence, if due to extenuating circumstances, LADWP is not able to, in a reasonably timely manner, install procured items or complete/oversee the required maintenance service, LADWP may request that HONEYWELL/NHOU CO perform those services. In such an instance, HONEYWELL/NHOU CO shall perform those services, at its cost. If such services were included in an ANNUAL BUDGET, costs associated with such procurement shall be payable or reimbursable through the O&M TRUST ACCOUNT.

IV. Management of Waste Generated by Treatment Operations.

HONEYWELL or the NHOU CO shall be responsible for the handling, management, transportation, and disposal of hazardous and/or low-level radioactive waste generated by the weak-base anion exchange resin treatment component of CCC SYSTEM. This responsibility includes, but is not limited to, managing such materials onsite, arranging and performing onsite treatment if applicable, and manifesting and arranging for disposal off-site, using its own generator number, recordkeeping and otherwise complying with all applicable state and federal environmental laws.

HONEYWELL or the NHOU CO, and not LADWP, shall be identified as the generator of such waste.

V. Operation and Maintenance of WBA.

HONEYWELL shall be responsible for O&M of the WBA SYSTEM resin, including (i) any maintenance on or repairs requiring internal access to the resin vessel, (ii) internal vessel inspections and repairs (when resin is exchanged or otherwise), (iii) any resin changeouts, (iv) responding to spills or releases from the WBA SYSTEM and notifying LADWP and appropriate authorities of releases consistent with the applicable response plan and law (only during the PHASE 1 and PHASE 3 WARRANTY PERIODS), and (v) any other work that creates a risk of exposure to the resin or activities that require special equipment to manage risks for exposure to radioactive materials. Following the PHASE 1 and PHASE 3 WARRANTY PERIODS, LADWP shall be responsible for O&M, other than O&M to be performed by HONEYWELL as stated in the SCOPE OF WORK, including (i) routine external inspections, operations and repairs that do not involve contact with the resin (e.g., adjusting flow valves), and (ii) notifying appropriate authorities and HONEYWELL of spills or releases at the WBA SYSTEM consistent with the applicable response plan and law and responding to such spills and releases consistent with the applicable response plan and law.

CCC SYSTEM OPERATIONAL SUPPORT PLAN – ATTACHMENT A
(REPRESENTATIVE EQUIPMENT/MATERIALS/SERVICES BY TIER)

TIER I Items

Equipment with Long Lead Times
AOP unit components • Lamps – approximately __% • Ballast – __ ballast per two lamps • Sleeves – __
Ion Exchange unit components • Metering pump – __ • Spare set of bag filters – __ set of 2 bags
LPGAC components • Pump – __
Submersible pump components (wells) • Pump and motor – __ • Cable – __ • VFD (if using VFD) – __ • Check valve – __ • Air/vacuum valve – __ • Flow meter – __

General system • Inlet automated control valve – __ • Chlorine Injector cabinet – __
Communications • PLC – __ • UPS – __

TIER II Items

Items that Have a Long Lead Time for LADWP, but that the NHOU CO May Be Able to Obtain More Quickly
Special-order parts (e.g., large valve components, etc.) • Conveyance line gate valve(s) • Control panels/motor starters
AOP – Sensors and wiper seals
Gauges – Temperature, pressure, flow
Valves – Check, globe, etc.
Transmitters
Electrical systems (e.g., surge protection, ups, breakers)
Pumps and motors – Manufacturer's replacement parts kits
Equipment that cannot be provided by LADWP within 30 days • Submersible pump and motor • Large quantity of AOP lamps, ballast and sleeves

TIER III Items

Routine Maintenance Services
Bag filters (change-out schedule based on performance monitoring and manufacturers' recommendation)

Fresh carbon (change-out schedule based on performance monitoring and manufacturers' recommendation)
Acid and caustic (supply schedule based on performance monitoring and manufacturers' recommendation)

EXHIBIT 3

SCOPE OF WORK

I. Background and Introduction to Scope of Work

This SCOPE OF WORK to the NHOU SETTLEMENT AGREEMENT contains a summary of the work anticipated to be undertaken by HONEYWELL and LADWP pursuant to the NHOU SETTLEMENT AGREEMENT.

The PARTIES recognize that this work may change or be modified in response to, among other things, the regulatory approval processes under CERCLA and DDW permitting (including DDW 97-005). A tentative, non-binding schedule is attached to this SCOPE OF WORK as SOW Attachment A.

Disputes regarding this SCOPE OF WORK shall be resolved pursuant to SECTION 36 of the NHOU SETTLEMENT AGREEMENT.

Terms in ALL CAPS shall have the meaning as set forth in the NHOU SETTLEMENT AGREEMENT.

II. CCC System Construction and Operation.

A. CCC Site Preparation and CCC Treatment System Components

1. As necessary, HONEYWELL shall excavate soil at the YARD to prepare for installation of concrete pads and subsurface treatment system piping (FIGURE SOW-1). This work shall include, as necessary, grubbing, stripping, stockpiling, grading, and backfilling. Soil excavation is anticipated to primarily occur in the eastern portion of the YARD, north and south of the existing warehouse, as well as beneath the warehouse (pending confirmation of warehouse foundation conditions).

2. HONEYWELL shall construct the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM, as those terms are defined in the

NHOU SETTLEMENT AGREEMENT. The PHASE 1 TREATMENT SYSTEM shall have a capacity of approximately 1,775 AFY (1,100 GPM) with raw water delivered from extraction wells NHE-2, NHE-3R, NHE-4R, NHE-5R, and NHE-6 (FIGURE SOW-2a). The PHASE 3 TREATMENT SYSTEM shall have a capacity of approximately 10,645 AFY (6,600 GPM, excluding the WBA unit) with raw water delivered from wells associated with the PHASE 1 TREATMENT SYSTEM and additional extraction wells CCC-1, CCC-2, and CCC-3 (FIGURE SOW-2b). The PARTIES anticipate that these systems shall include the following primary components:

a. A filtration system to remove particulate matter prior to water entering the treatment system;

b. A WBA unit to remove hexavalent chromium;

c. Chemical supply tanks (sulfuric acid and hydrogen peroxide) and a spill containment unit;

d. Two AOP units (anticipated to be installed within the existing warehouse), with associated above-ground and below-ground piping to remove 1,4-dioxane and other chemicals;

e. Twelve LPGAC tanks, a backwash supply tank, a monitoring port, and associated above-ground and below-ground piping. The PHASE 3 TREATMENT SYSTEM shall be capable of remaining in operation at capacity during servicing of an LPGAC tank;

f. A backwash holding tank with associated above-ground and below-ground piping;

g. A control system (including the use of a programmable logic controller, a human machine interface, and SCADA server) that shall provide the secure capability for data logging and to monitor and control individual well pumps and YARD groundwater

treatment system components. The control system shall also allow for remote off-site communications to the treatment plant by operators. During CCC PHASE 1 operations, HONEYWELL (or its designated contractor) shall have remote monitoring and control capability via a high-speed internet connection. System information shall then be passed to LADWP via cloud transfer, which shall keep LADWP's computer systems separate from the internet. During CCC PHASE 3, the treatment plant control system shall be connected directly to the secure LADWP network for remote monitoring and control of operations by LADWP at its off-site central operator's facility (which is manned continuously). After CCC PHASE 3 is complete, system information (but not control) shall be available to HONEYWELL via cloud transfer, thereby maintaining the security of the LADWP systems;

h. Pad-mounted switch gear and transformer with capacity to supply power to both the PHASE 3 TREATMENT SYSTEM and the CHLORINATION SYSTEM (including the anticipated expansion). HONEYWELL shall install the equipment pads, electrical conduit bank, and local switch gear, and shall reimburse LADWP for the installation of the industrial station (high voltage switchgear and transformer) components;

i. Associated electrical and plumbing systems and power conditioning units for each extraction well and other key systems; and

j. Site security systems, including fencing, key card entry, and other systems.

3. In preparation for constructing the PHASE 1 TREATMENT SYSTEM, HONEYWELL shall undertake the following additional activities:

a. Perform an Environmental Site Assessment of the YARD and APN 2321003902;

b. Undertake a pre-renovation hazardous materials survey of the YARD warehouse;

c. Place a construction trailer and associated infrastructure on the YARD;

d. Install a dry well system (anticipated to be installed in the southeast corner of the YARD to comply with stormwater requirements);

e. Remove two trees on the YARD, immediately east of the entrance gate from Vose Street;

f. Demolish the existing air stripper and associated treatment components and remove from the YARD, except for the portion to be removed by LADWP per the NHOU SETTLEMENT AGREEMENT;

g. As necessary, HONEYWELL shall modify/refurbish the YARD warehouse (including subsurface piping). Access to the warehouse may include necessary investigation to confirm foundation conditions (e.g., excavations or borings), and to upgrade the warehouse, as necessary. LADWP provides this warehouse in an as is condition, without any warranty for fitness or otherwise, and HONEYWELL is responsible for ensuring its suitability for any particular use;

h. HONEYWELL shall establish vehicular access from the YARD to the western portion of APN 2321003902 that lies outside of the power transmission corridor (commonly referred to as the

"Triangular Lot") by, for example, modification of the existing fence and installation of a gate, to install conveyance associated with the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM;

i. Remove a portion of the rail spur (including rails and cross ties) that extends from the YARD onto APN 2321003902;

j. Modify the YARD to enable accommodation of delivery trucks with trailers up to 40 feet long, anticipated to be required for operations, maintenance, and monitoring associated with the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM. The anticipated truck route is illustrated on FIGURE SOW-3; and

k. Install a new sewer lateral from the YARD, to be used for routine backwash of the WBA and LPGAC tanks and discharge to the sanitary sewer, pursuant to applicable City and County permits, including but not limited to a City of Los Angeles Bureau of Sanitation permit. This new sewer lateral shall have sufficient capacity for the PHASE 3 TREATMENT SYSTEM and shall be separate from the existing sewer lateral for LADWP (which LADWP will continue to use for LADWP's existing and planned expanded chlorination system).

B. Installation of Extraction Wells and Conveyance Lines

1. Drilling and Well Installation

HONEYWELL shall install three new extraction wells as follows:

a. HONEYWELL shall advance the boreholes at the proposed locations to no more than 550 feet below ground surface. Anticipated well locations are illustrated on FIGURE SOW-2b; final locations are subject to input from LADWP and approval by EPA,

and shall be illustrated in a work plan. Details therein shall include, but not be limited to, the proposed construction footprint at each well location, ingress and egress routes, and distances from power system towers.

b. HONEYWELL shall complete each borehole with an extraction well (to be named "CCC-1," "CCC-2," and "CCC-3"), with up to three discrete screen intervals. HONEYWELL shall install at each well a permanent steel conductor casing that shall extend to 50 feet below grade.

c. The proposed locations for CCC-2 and CCC-3 include high-voltage power lines within the Rinaldi-Toluca, Valley-Hollywood, or Adelanto-Toluca electrical transmission line rights-of-way. Although the wells are anticipated to be installed outside of the overhead transmission drip-lines, HONEYWELL shall complete drilling operations pursuant to electrical safety and other requirements contained in the LICENSE AGREEMENT.

d. HONEYWELL shall develop each extraction well to remove drilling fluids and fine-grained material from the screen intervals. In the event of high turbidity, HONEYWELL shall dispose of development water off-site at an appropriate facility.

e. HONEYWELL intends to utilize NHE-1, NHE-3, NHE-4, and NHE-5 as monitoring wells, unless and until such wells become dry. Wellheads shall be modified to include lockable caps to restrict access. Once such wells are no longer being used as monitoring wells, HONEYWELL shall destroy those wells, consistent with all applicable rules and regulations.

f. If due to changes in water levels or other factors, the replacement and deepening of NHE-2 is determined by EPA to be necessary to adequately contain the BENDIX PLUME to meet the NHOU 2IR RAOs, HONEYWELL and LADWP shall meet and confer to discuss the merits of such replacement or deepening at the next meeting of the STEERING COMMITTEE. The PARTIES further agree that they shall invite EPA to participate in the STEERING COMMITTEE meeting when such replacement or deepening is discussed. If following such meeting EPA directs HONEYWELL to replace or deepen NHE-2, HONEYWELL shall install such replacement and related infrastructure, consistent with all applicable rules and regulations.

2. Wellhead Installation

a. HONEYWELL shall install concrete pads around existing and proposed extraction wells and associated equipment, to comply with applicable State standards (DWR Bulletins 74-81 and 74-90), LADWP standards, DDW requirements, and local ordinances. Equipment that HONEYWELL shall install at each well includes, without limitation, a power conditioning unit, control panel, and a variable-frequency drive (in associated cabinets).

b. HONEYWELL shall install pumps, control panels, and other associated equipment (e.g., meters, valves, sampling port, etc.) in or at the wellhead of existing and proposed extraction wells. Electrical power shall be provided via either a power-drop or below-grade conduits from the existing electrical infrastructure. HONEYWELL shall physically connect each extraction well to an existing or proposed conveyance pipeline to deliver raw groundwater to the PHASE 1 TREATMENT SYSTEM and the PHASE 3 TREATMENT SYSTEM at the YARD.

c. HONEYWELL shall install fiber optic and/or wireless equipment (e.g., repeater station(s), antennae, tower(s), etc.) to enable communications between the wells and the PHASE 1 TREATMENT SYSTEM and the PHASE 3 TREATMENT SYSTEM.

3. Conveyance Installation

a. HONEYWELL shall modify the existing 12-inch conveyance line (the NHOU collector line) to allow for the physical connection of wellheads at NHE-3R, NHE-4R, and NHE-5R. HONEYWELL shall cut and cap the connection from NHE-3, NHE-4, and NHE-5, and cap east of NHE-6 to physically separate the line from wells NHE-7 and NHE-8 (FIGURE SOW-2a). HONEYWELL shall air gap NHE-3, NHE-4 and NHE-5 at the wellhead. The conveyance line for the PHASE 1 TREATMENT SYSTEM shall terminate at NHE-6, and a blow off assembly shall be installed on the collector line east of the NHE-6 connection. A new connection on the YARD to this conveyance shall be established for the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM.

b. HONEYWELL intends to install a below-grade discharge line (anticipated 24-inch diameter) that shall extend from the YARD, through APN 2321003902, to the storm drain along Lankershim Boulevard (i.e., the Colfax Ave-Lankershim Boulevard Storm Drain, Station 101-111). Among other site work, connection to the storm drain may also require limited excavation on APN 2321004901 to permanently install an access way or other conveyance connection to the storm drain. Extension of the conveyance line from the YARD through APN 2321003902 is anticipated to require, among other site work, excavation and the installation of gates within the fences separating this parcel from

APN 2321004900 and within the fence between the Triangular Lot and the power transmission corridor. The discharge line is meant to only be used during commissioning of the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM, subject to an NPDES permit. After the PHASE 3 TREATMENT SYSTEM has been put into service, the discharge permit may be terminated by LADWP.

c. HONEYWELL shall replace the existing 16-inch discharge line from the YARD to the North Hollywood West Branch Connector Line, prior to initiating PHASE 3 TREATMENT SYSTEM operations, to accommodate flows from the PHASE 3 TREATMENT SYSTEM, with a 30-inch discharge line that shall extend from the YARD to the SUMP. HONEYWELL shall install all connections to put the 30-inch discharge line into service, including connection to an LADWP-provided inlet connection point at the SUMP (or a connection along the existing 60-inch pipeline at the discretion of LADWP between the YARD and the SUMP), and complete all associated site work as necessary. HONEYWELL shall disinfect the 30-inch pipeline, in coordination with LADWP, prior to putting it into service. The replacement discharge line is anticipated to traverse Vose Street, Radford Avenue, Dehougne Street, and Hinds Avenue to directly discharge into the SUMP (as shown on FIGURE SOW-2b). HONEYWELL may either (i) physically remove the existing 16-inch discharge line from the YARD to the intersection of Radford Avenue and Dehougne Street and cap and leave in place the remaining portion of piping from this intersection to Vanowen Street, provided HONEYWELL fills that pipe with low strength material to avoid the collapsing of the pipe, or (ii) cap and leave in place the existing 16-inch discharge line in its entirety, provided HONEYWELL fills that pipe with low strength material to avoid the collapsing of the pipe.

d. HONEYWELL shall install a new eight (8)-inch conveyance line below-grade from NHE-3R to NHE-2 to the YARD to deliver raw groundwater specifically to the WBA unit of the PHASE 3 TREATMENT SYSTEM. HONEYWELL shall install this piping in trenches and/or via jack-and-bore, and complete all site work as necessary. A portion of this conveyance line may be installed in the same trench as described in PARAGRAPHS II.B.3.b and II.B.3.e of this SCOPE OF WORK.

e. HONEYWELL shall install a new conveyance line (anticipated to range from 8-inch to up to 20-inch diameter) from CCC-3 to CCC-2 to CCC-1 to the YARD within APN 2321003902, and complete associated site work. This line may be installed in the same trench as described in PARAGRAPHS II.B.3.b and II.B.3.d of this SCOPE OF WORK.

f. LADWP shall design and construct a thirty (30)-inch flanged inlet to the SUMP to serve as a future connection point for HONEYWELL. Location of the inlet shall be determined by LADWP design manager. LADWP shall complete this connection before the PHASE 3 TREATMENT SYSTEM becomes operational.

g. In the event WBA treatment is needed for wells other than NHE-3R and NHE-2, HONEYWELL shall develop and install infrastructure to enable such treatment, as required to comply with permits or other requirements from DDW and/or an ORDER.

C. Other CCC Components and Elements

1. HONEYWELL shall install other components and elements of the CCC SYSTEM, if not otherwise specified above or in the NHOU SETTLMENT AGREEMENT.

D. CCC Startup, Shakedown, Testing, Monitoring and O&M

1. HONEYWELL shall complete startup, shakedown, testing and initial O&M of the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM, as set forth in the NHOU SETTLMENT AGREEMENT.

2. LADWP shall complete O&M of the PHASE 1 TREATMENT SYSTEM and PHASE 3 TREATMENT SYSTEM with support from HONEYWELL, as set forth in the NHOU SETTLMENT AGREEMENT.

3. LADWP and HONEYWELL shall perform testing and monitoring per the NHOU SETTLMENT AGREEMENT and related plans.

III. Primary SSC Treatment Plan Construction and Operation

A. Re-drilling of Whitnall Wells 4 and 5 and Installation of Conveyance Line

1. If LADWP plans to move forward with the SSC, LADWP shall drill two new wells to replace WH4-5 WELLS and install a conveyance line from those wells to the YARD, as set forth in the AGREEMENT.

B. Construction of Primary SSC Treatment System

1. In the event LADWP provides notice to HONEYWELL pursuant to SECTION 14.1.2 of the NHOU SETTLEMENT AGREEMENT:

a. HONEYWELL shall complete site preparation, such as excavation of soil on APN 2321003902, or an alternate location per SECTIONS 8.2.2 and 10.2.2 of the AGREEMENT, to prepare that area for a control building and concrete pads (for remediation equipment,

tanks, transformer, etc.) and subsurface treatment system piping to be installed. This work shall include, as necessary, grubbing, stripping, stockpiling, grading, and backfilling.

b. HONEYWELL shall install the components of the PRIMARY SSC TREATMENT PLANT, which are anticipated to include an air stripper or LPGAC tanks to remove volatile organic compounds, pursuant to conditions stipulated in the NHOU SETTLMENT AGREEMENT.

c. HONEYWELL shall also install other elements of the PRIMARY SSC TREATMENT PLANT, which are anticipated to include a power drop, sanitary sewer connection for routine backwash operations, installation of a treatment system control building (if not integrated into the CCC SYSTEM control room) and concrete pads, a permanent connection to the conveyance line to the storm drain for commissioning purposes, a SCADA system (or integration into the CCC SYSTEM control system), associated electrical and plumbing systems, site security systems, and vehicular access.

d. HONEYWELL shall install any other elements necessary for the PRIMARY SSC TREATMENT PLANT, as specified in the AGREEMENT not listed above, for that system to meet the requirements contained in the NHOU SETTLMENT AGREEMENT. Communication between the SSC TREATMENT PLANT and WH4-5 WELLS shall be established via radio signal or other reliable means of communications between the wells and programmable logic controller.

C. Startup, Shakedown, Testing, Monitoring and O&M of Primary SSC Treatment System

1. In the event LADWP provides notice to HONEYWELL pursuant to SECTION 14.1.2 of the NHOU SETTLMENT AGREEMENT:

a. HONEYWELL shall complete startup, shakedown, testing and initial O&M of the PRIMARY SSC TREATMENT PLANT, as set forth in the NHOU SETTLMENT AGREEMENT.

b. LADWP shall complete O&M of the PRIMARY SSC TREATMENT PLANT, including obtaining a permit from DDW, as set forth in the NHOU SETTLMENT AGREEMENT.

c. LADWP and HONEYWELL shall complete testing and monitoring per the NHOU SETTLMENT AGREEMENT and related plans.

IV. Secondary SSC System Construction and Operation

A. Construction of Secondary SSC Treatment System

1. In the event LADWP provides notice to HONEYWELL pursuant to SECTION 14.2.2 of the NHOU SETTLMENT AGREEMENT:

a. HONEYWELL shall complete site preparation, including excavation of soil on the Triangular Lot, or an alternate location per SECTION 10.2.2 of the AGREEMENT, to prepare for the necessary additional treatment components associated with the SECONDARY SSC TREATMENT PLANT. This work shall include, as necessary, grubbing, stripping, stockpiling, grading, and backfilling.

b. HONEYWELL shall install the components of the SECONDARY SSC TREATMENT PLANT, pursuant to conditions stipulated in the NHOU SETTLMENT AGREEMENT.

c. HONEYWELL shall also modify existing elements associated with the PRIMARY SSC TREATMENT PLANT or install new elements as necessary to support the SECONDARY SSC TREATMENT PLANT, which are anticipated to include a power drop, sanitary sewer connection for routine backwash operations, installation of a control building and concrete pads, a permanent connection to the conveyance line to the storm drain for commissioning purposes, a SCADA system, associated electrical and plumbing systems, site security systems, and vehicular access.

d. HONEYWELL shall install any other elements necessary for the SECONDARY SSC TREATMENT PLANT, as specified in the NHOU SETTLEMENT AGREEMENT not listed above, for that system to meet the requirements contained in the NHOU SETTLEMENT AGREEMENT.

B. Startup, Shakedown, Testing, Monitoring and O&M of Secondary SSC Treatment Plant

1. In the event LADWP provides notice to HONEYWELL pursuant to SECTION 14.2.2 of the NHOU SETTLMENT AGREEMENT:

a. HONEYWELL shall complete startup, shakedown, testing and initial O&M of the SECONDARY SSC TREATMENT PLANT, as set forth in the NHOU SETTLEMENT AGREEMENT.

b. LADWP shall complete O&M of the SECONDARY SSC TREATMENT SYSTEM, including obtaining a permit from DDW, as set forth in the NHOU SETTLMENT AGREEMENT.

c. LADWP and HONEYWELL shall complete testing and monitoring per the NHOU SETTLMENT AGREEMENT and related plans.

V. Chlorination Station

A. Expansion of Chlorination System

1. LADWP shall expand the existing CHLORINATION SYSTEM, located at the YARD, to accommodate flows up to approximately 120 cubic feet per second and in accordance with the AGREEMENT. The major components of the CHLORINATION SYSTEM include storage tanks, a dosing system, transfer pumps, and a chlorine generation system. The expanded CHLORINATION SYSTEM shall chlorinate multiple flows passing through the YARD. If LADWP does not complete this expansion prior to the PHASE 3 TREATMENT PLANT becoming operational, LADWP shall make other arrangements so that the flows from the PHASE 3 TREATMENT PLANT can be disinfected and conveyed to the LADWP distribution system.

VI. General Provisions

A. Compliance with Applicable Requirements

1. All work completed pursuant to this SCOPE OF WORK shall comply with all requirements set forth in the NHOU SETTLMENT AGREEMENT, the LICENSE AGREEMENT, and/or permits or other requirements from DDW and/or an ORDER.

B. Relationship to Other Requirements

1. Nothing in this SCOPE OF WORK is intended to limit the obligations or other terms of the NHOU SETTLMENT AGREEMENT.

2. In the event of any conflict between this SCOPE OF WORK and the NHOU SETTLMENT AGREEMENT, the terms of the NHOU SETTLMENT AGREEMENT shall apply.

ATTACHMENT A TO SCOPE OF WORK

The following is a tentative, non-binding, conceptual schedule detailing certain anticipated milestones for activities detailed in the SCOPE OF WORK:

- Start of Drilling of Certain Additional CCC SYSTEM Wells: October 2019
- PHASE 1 TREATMENT SYSTEM Construction Commencement: March 2020
- PHASE 1 TREATMENT SYSTEM Operation Commencement (1,500 AFY): February 2022
- PHASE 1 TREATMENT SYSTEM Shutdown: September 2022
- PHASE 3 TREATMENT SYSTEM Construction Commencement: September 2022
- PHASE 3 TREATMENT SYSTEM Operation Commencement (8,500 AFY): November 2023

SCOPE OF WORK FIGURE 1

Wednesday, November 13, 2019 9:03:51 AM
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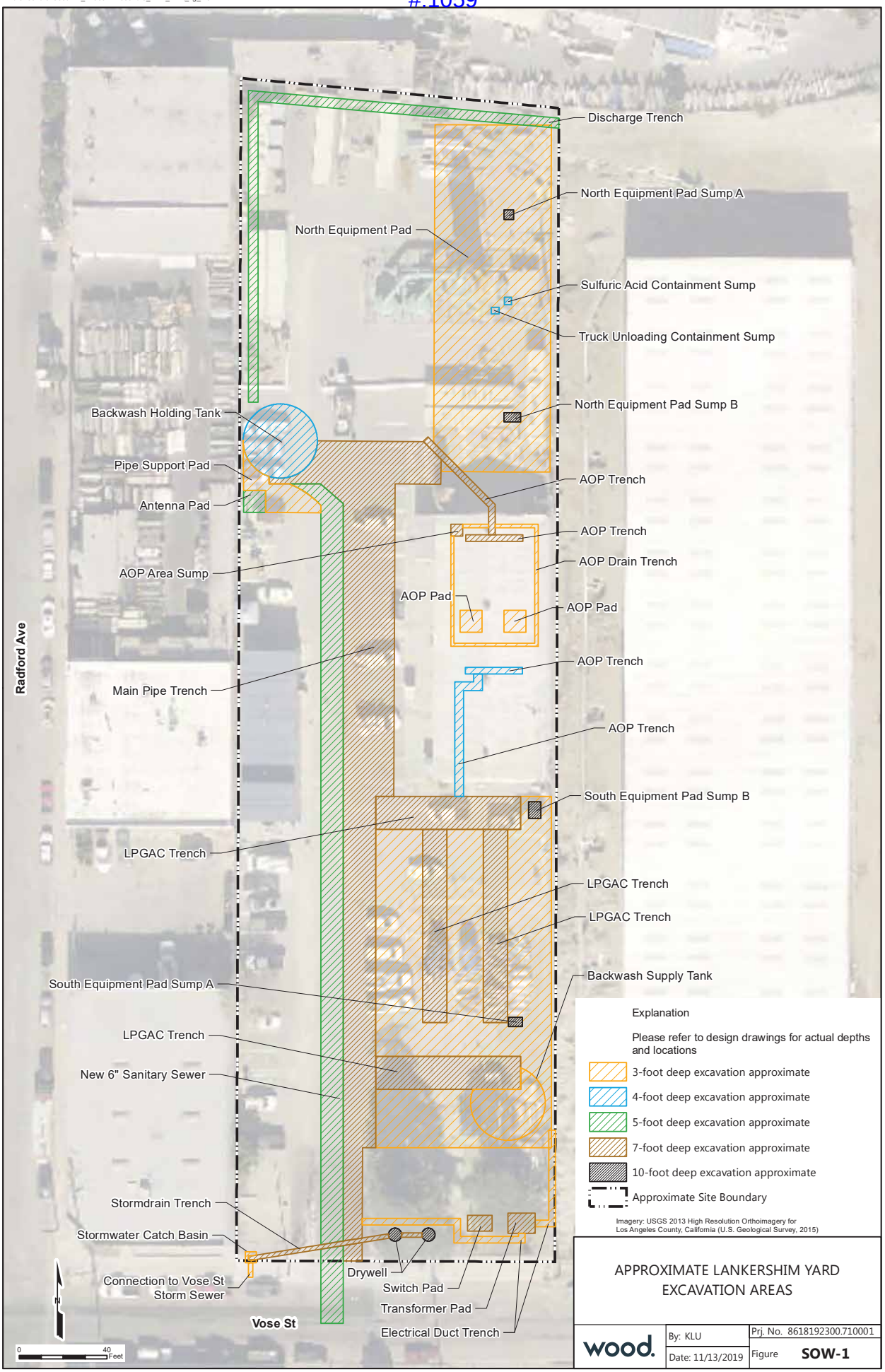
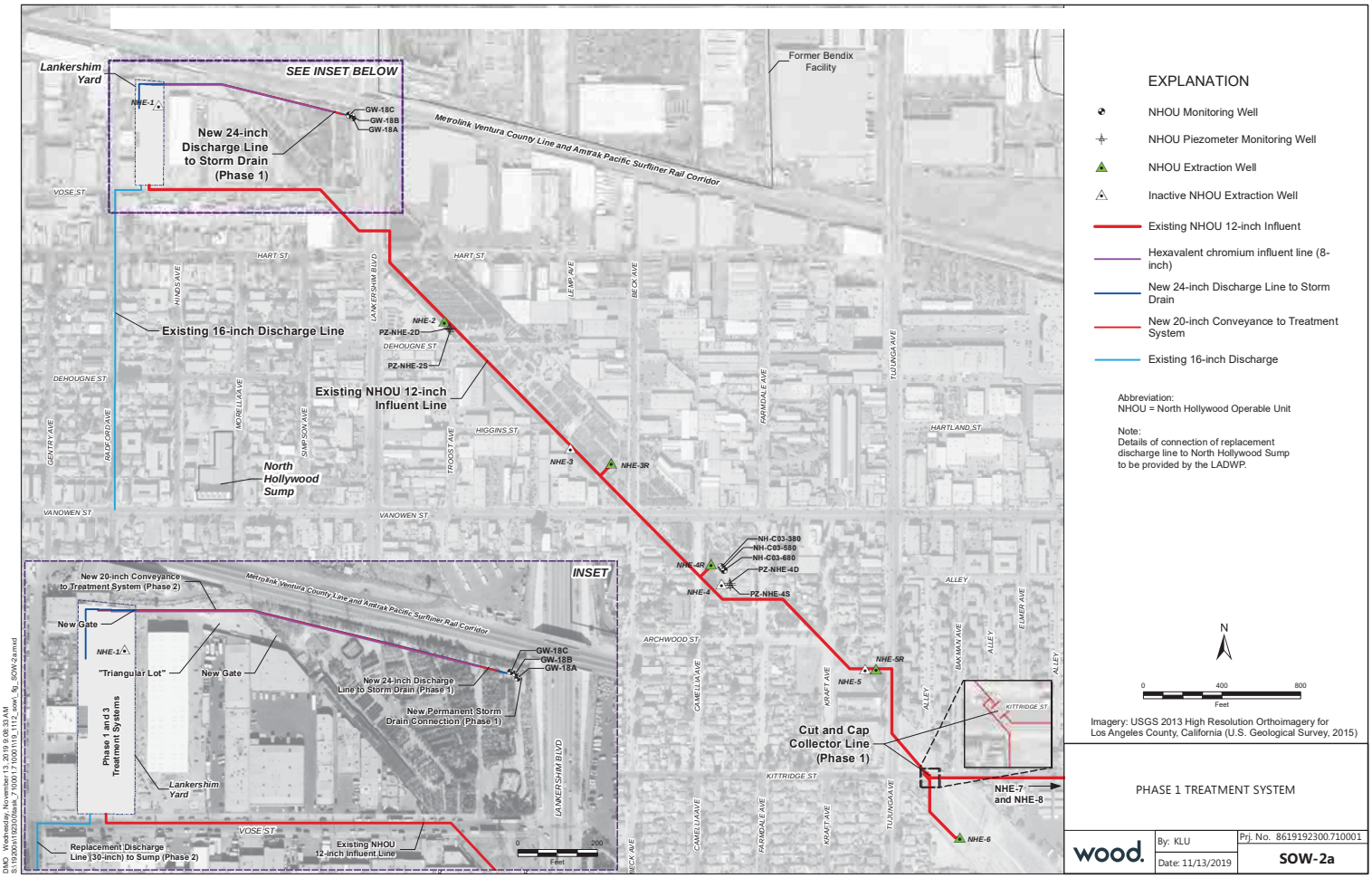
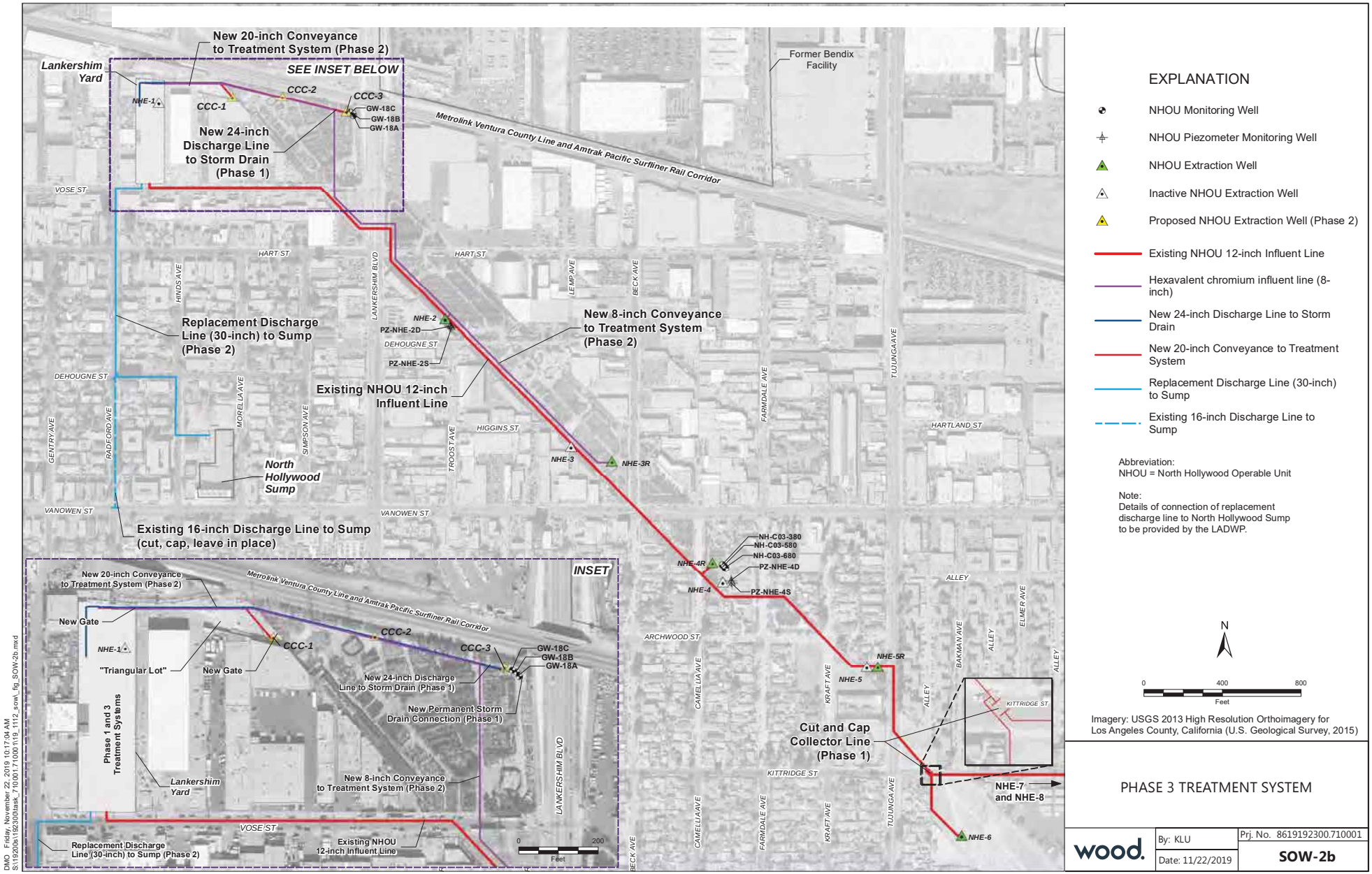


SCOPE OF WORK FIGURE 2A


Lankershim Yard
SEE INSET BELOW
NHE-1
GW-18C
GW-18B
GW-18A
New 24-inch Discharge Line to Storm Drain (Phase 1)
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
Former Bendix Facility
VOSE ST
HART ST
HINDS AVE
LANKERSHIM BLVD
LEMP AVE
BECK AVE
Existing 16-inch Discharge Line
NHE-2
PZ-NHE-2D
PZ-NHE-2S
DEHOUGNE ST
Existing NHOU 12-inch Influent Line
GENTRY AVE
RALPH ORD AVE
MCBELLA AVE
SIMPSON AVE
TROOST AVE
HIGGINS ST
NHE-3
NHE-3R
North Hollywood Sump
VANOWEN ST
FARMDALE AVE
TUJUNGA AVE
HARTLAND ST
NH-C03-380
NH-C03-580
NH-C03-680
PZ-NHE-4D
NHE-4R
NHE-4
PZ-NHE-4S
ALLEY
ARCHWOOD ST
NHE-5R
NHE-5
KRAFT AVE
BAKMAN AVE
ELMER AVE
CAMELLIA AVE
KITTRIDGE ST
Cut and Cap Collector Line (Phase 1)
NHE-7 and NHE-8
NHE-6
INSET
New 20-inch Conveyance to Treatment System (Phase 2)
New Gate
"Trianguiar Lot"
Phase 1 and 3 Treatment Systems
New Permanent Storm Drain Connection (Phase 1)
Lankershim Yard
Replacement Discharge Line (30-inch) to Sump (Phase 2)
Existing NHOU 12-inch Influent Line
Feet
EXPLANATION
NHOU Monitoring Well
NHOU Piezometer Monitoring Well
NHOU Extraction Well
Inactive NHOU Extraction Well
Existing NHOU 12-inch Influent
Hexavalent chromium influent line (8-inch)
New 24-inch Discharge Line to Storm Drain
New 20-inch Conveyance to Treatment System
Existing 16-inch Discharge
Abbreviation:
NHOU = North Hollywood Operable Unit
Note:
Details of connection of replacement discharge line to North Hollywood Sump to be provided by the LADWP.
N
0
400
800
Feet
Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)
PHASE 1 TREATMENT SYSTEM
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8619192300.710001
SOW-2a

SCOPE OF WORK FIGURE 2B


New 20-inch Conveyance to Treatment System (Phase 2)
Lankershim Yard
SEE INSET BELOW
NHE-1
CCC-1
CCC-2
CCC-3
GW-18C
GW-18B
GW-18A
New 24-inch Discharge Line to Storm Drain (Phase 1)
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
Former Bendix Facility
VOSE ST
HART ST
HINDS AVE
LANKERSHIM BLVD
LEMP AVE
BECK AVE
Replacement Discharge Line (30-inch) to Sump (Phase 2)
NHE-2
PZ-NHE-2D
PZ-NHE-2S
DEHOUGNE ST
New 8-inch Conveyance to Treatment System (Phase 2)
Existing NHOU 12-inch Influent Line
FARMDALE AVE
TUJUNGA AVE
HARTLAND ST
GENTRY AVE
RADFORD AVE
MORELLA AVE
SIMPSON AVE
TROOST AVE
HIGGINS ST
NHE-3
NHE-3R
North Hollywood Sump
VANOWEN ST
Existing 16-inch Discharge Line to Sump (cut, cap, leave in place)
NH-C03-380
NH-C03-580
NH-C03-680
PZ-NHE-4D
NHE-4R
NHE-4
PZ-NHE-4S
ALLEY
ARCHWOOD ST
NHE-5R
NHE-5
BAKMAN AVE
ELMER AVE
CAMELLIA AVE
KRAFT AVE
KITTRIDGE ST
Cut and Cap Collector Line (Phase 1)
NHE-7 and NHE-8
NHE-6
INSET
New 20-inch Conveyance to Treatment System (Phase 2)
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
New Gate
"Triangular Lot"
New 24-inch Discharge Line to Storm Drain (Phase 1)
New Permanent Storm Drain Connection (Phase 1)
Phase 1 and 3 Treatment Systems
Lankershim Yard
New 8-inch Conveyance to Treatment System (Phase 2)
Replacement Discharge Line (30-inch) to Sump (Phase 2)
Existing NHOU 12-inch Influent Line
0 200 Feet
EXPLANATION
NHOU Monitoring Well
NHOU Piezometer Monitoring Well
NHOU Extraction Well
Inactive NHOU Extraction Well
Proposed NHOU Extraction Well (Phase 2)
Existing NHOU 12-inch Influent Line
Hexavalent chromium influent line (8-inch)
New 24-inch Discharge Line to Storm Drain
New 20-inch Conveyance to Treatment System
Replacement Discharge Line (30-inch) to Sump
Existing 16-inch Discharge Line to Sump
Abbreviation:
NHOU = North Hollywood Operable Unit
Note:
Details of connection of replacement discharge line to North Hollywood Sump to be provided by the LADWP.
N
0 400 800 Feet
Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)
PHASE 3 TREATMENT SYSTEM
wood.
By: KLU
Date: 11/22/2019
Prj. No. 8619192300.710001
SOW-2b
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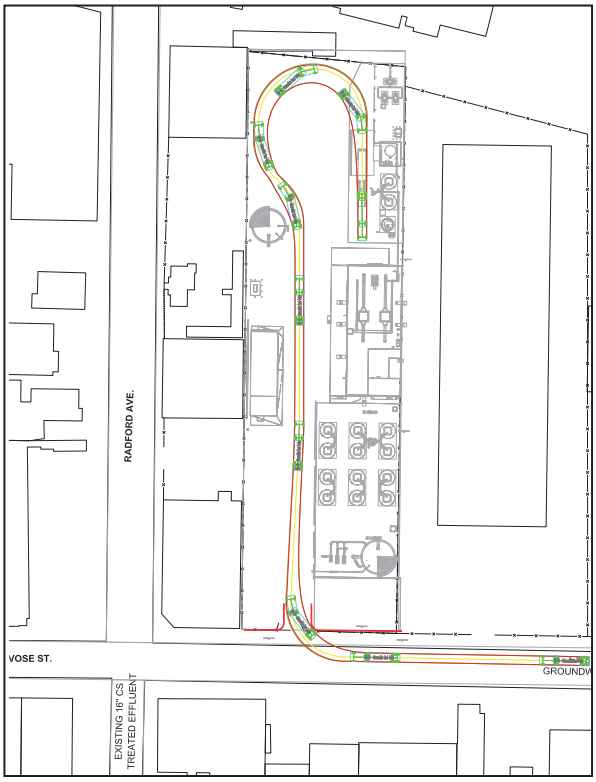
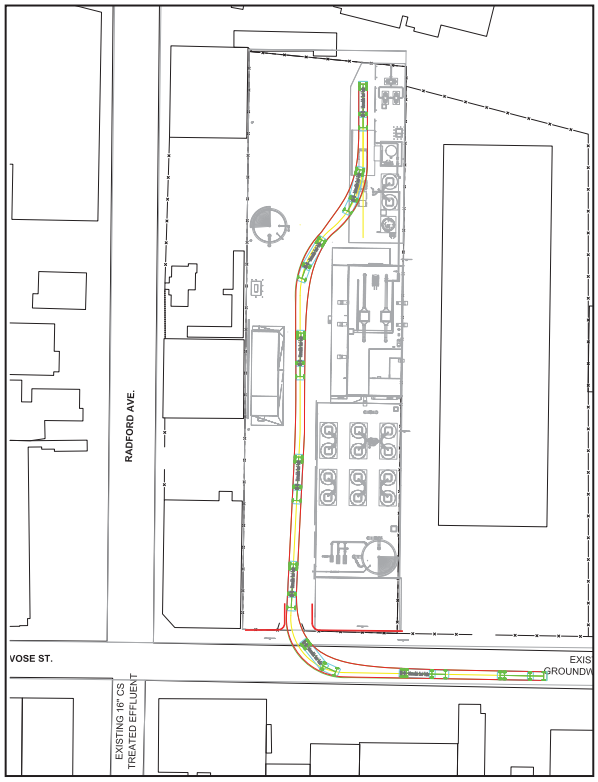
SCOPE OF WORK FIGURE 3



INGRESS ROUTE



EGRESS ROUTE

DELIVERY TRUCK ROUTE

wood.

By: KLU

Date: 11/13/2019

Proj. No. 8619192300.710001

Figure SOW-3

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DO NOT RECORD

LICENSE AGREEMENT BETWEEN

THE LOS ANGELES DEPARTMENT OF WATER AND POWER

AND

HONEYWELL INTERNATIONAL INC.

EXHIBIT 4

FORM OF LICENSE AGREEMENT

THE CITY OF LOS ANGELES, acting by and through its DEPARTMENT OF WATER AND POWER (hereinafter referred to as the "LADWP"), for and in consideration of (i) the commitments made in that certain agreement entitled "SETTLEMENT AGREEMENT BETWEEN THE LOS ANGELES DEPARTMENT OF WATER AND POWER AND HONEYWELL INTERNATIONAL INC." (the "NHOU SETTLEMENT AGREEMENT") and (ii) the keeping and performance of the terms and conditions in this License Agreement (the "License"), gives permission to HONEYWELL INTERNATIONAL INC. and its sub-licensees (jointly, severally, and collectively referred to herein as "Licensee"), to enter upon certain real property that is owned by the CITY and/or under the control and jurisdiction of LADWP (the "Licensed Areas") for the purpose of facilitating the construction, operation, and maintenance of groundwater treatment facilities and their associated wells, conveyance, and other necessary infrastructure for the benefit of LADWP, as contemplated by the NHOU SETTLEMENT AGREEMENT and referenced in PARAGRAPH 38 of this License (the "Activities"). Licensee and LADWP (collectively referred to herein as the "Parties" and individually as a "Party") acknowledge that the Activities will implement a portion of the "SECOND INTERIM REMEDY" for the North Hollywood Operable Unit of the San Fernando Valley Area 1 Superfund Site and are required by and subject to the United States Environmental Protection Agency's ("EPA") regulatory authority pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). Terms in all capitalized letters not otherwise defined herein shall have the meaning assigned in the NHOU SETTLEMENT AGREEMENT, which is attached hereto as Attachment A.

The Licensed Areas are shown on Figures LA-1, LA-2, and LA-3 and described as follows:

(a) That real property owned by LADWP, located at 11845 Vose Street, Los Angeles, California (Assessor Parcel Number ("APN") 2321004900), and which is commonly referred to as the "Lankershim Yard" (the "Yard"), as illustrated on Figures LA-1 and LA-2, incorporated herein by this reference.

(b) That real property owned by LADWP located in Los Angeles, California (APN 2321003902), and which is also referred to as "Parcel C" or the "Triangular Lot", as illustrated on Figure LA-1. Collectively, the Yard, Parcel C, and the Triangular Lot are referred to herein this License as the "YARD."

(c) That real property owned by LADWP, located in Los Angeles, California, associated with the following APNs, as illustrated on Figure LA-1:

(i) APN 2320008904 (NHE-2, PZ-NHE-2D, and PZ-NHE-2S): northwest of the intersection between Dehougne Street and Troost Avenue;

(ii) APN 2320006907 (NHE-3 and NHE-3R): northwest of the intersection between Vanowen Street and Beck Avenue;

(iii) APN 2320017901 (NHE-4, NHE-4R, PZ-NHE-4D, PZ-NHE-4S, NH-C03-380, NH-C03-580, and NH-C03-680): south of Vanowen Street, east of Camellia Street;

(iv) APN 2320020900 (NHE-5 and NHE-5R): southwest of the intersection between Archwood Street and Tujunga Avenue;

(v) APN 2336010901 (NHE-6): southeast of the intersection between Kittridge Street and Tujunga Avenue;

(vi) APN 2321003902 (GW-18A, GW-18B, and GW-18C): southwest of the intersection of Lankershim Boulevard and the Metrolink Ventura County Line and Amtrak Pacific Surfline Rail Corridor;

(vii) APN 2321004900 (NHE-1): inactive NHOU extraction well on the YARD and APN 2321004901;

(viii) APN 2414029900 (PZ-NHE-7S and PZ-NHE-7D): at the intersection of Cleon Avenue and Kitteridge Street;

(ix) APN 2317010900 (4919D): within "power transmission corridor," north of Runnymede Street;

(x) APN 2336021904 (NH-VPB-08): within power transmission corridor, east of Debby Street (access from Vineland Avenue); and,

(xi) Certain other wells owned by LADWP that are located in public rights of way, including: 3811E (sidewalk on Troost Avenue) and 4918A (Strathern Street right of way).

(d) LADWP-owned real property associated with the following APNs to the extent needed to access the existing LADWP-owned water distribution conveyance lines from the CCC production wells to the CCC treatment plant at the YARD and from the treatment plant at the YARD to the SUMP: APNs 2321004900, 2321007901, 2320001902, 2320008904, 2320009902, 2320010900, 2320006907, 2320016903, 2320017901, 2320017900, 2320018902, 2320020900, 2319008900, and 2336010901, as illustrated on Figures LA-1 and LA-3.

(e) That LADWP-owned real property (APN 2321020900), which is associated with the LADWP-owned "North Hollywood Sump" or "SUMP", to the extent needed to complete the installation of the discharge conveyance, as described in the SCOPE OF WORK, which is set forth in EXHIBIT 3 of the NHOU SETTLEMENT AGREEMENT.

(f) On the above-referenced real property, Licensee shall not have access to LADWP infrastructure and fixtures other than existing conveyance lines to convey water from the CCC wells to the YARD and from the YARD to the SUMP, as applicable, and the wells identified in (a) through (e), above.

LADWP finds that, at this time: (i) the Licensed Areas, other than their present use, are not presently needed for other LADWP departmental purposes; (ii) the grant of the License will not interfere with LADWP departmental purposes; and (iii) the grant of the License is necessary for Licensee and the LADWP to facilitate the NHOU SETTLEMENT AGREEMENT.

THE FOREGOING PERMISSION is given upon and subject to the following terms and conditions:

1. The right and permission of Licensee is subordinate to the prior and paramount right of LADWP to use said Licensed Areas for the public purposes to which they now are and may be, at the option of LADWP, devoted. Licensee undertakes and agrees to use said Licensed Areas solely in the exercise of this License and solely for the purposes set forth herein and in the NHOU SETTLEMENT AGREEMENT, and will at all times exercise the permission herein given in such manner consistent with this License and the NHOU SETTLEMENT AGREEMENT.

LADWP shall provide Licensee with all information that is known or readily accessible to LADWP and not otherwise privileged or protected, which may be reasonable and/or necessary for completion of the Activities. Information provided by LADWP is solely determined by LADWP, including the location of all utility lines and subterranean structures within the property lines of the Site; *provided*, *however*, that Licensee may request information Licensee considers to be reasonable and/or necessary for completion of the Activities, and that provision of such information shall not be unreasonably withheld by LADWP. However, LADWP maintains the right to require Licensee to agree to certain reasonable conditions to keep certain information confidential for reasons of security, including, if necessary, the execution of a confidentiality agreement. LADWP makes no representation, warranty, or guarantee regarding the accuracy and completeness of the information provided pursuant to this PARAGRAPH 1, and Licensee assumes full responsibility for investigating the completeness and accuracy of such information.

Licensee hereby acknowledges title in the CITY, a municipal corporation, and LADWP in said real property, and agrees never to assail or resist the same, and further agrees that Licensee's right to use and occupancy of said Licensed Areas arises solely from the permission given herein.

2. Term.

A. This License shall commence following execution by both Parties and shall remain in force for a term of fifty (50) years or until the Activities have been completed consistent with the obligations set forth in the NHOU SETTLEMENT AGREEMENT, whichever occurs first. Licensee hereby acknowledges LADWP's

ability to execute this License and enter into this transaction is subject to approval by the Board of Water and Power Commissioners of the Department of Water and Power of the CITY and subsequent action and review by the CITY COUNCIL pursuant to the CHARTER. Licensee further acknowledges that it cannot rely upon the representations of anyone acting on behalf of, or claiming to act on behalf of, LADWP or as LADWP's agent relating to the probability of the License being approved and that this transaction may or may not be consummated.

B. In the event the Activities have not been completed consistent with the NHOU SETTLEMENT AGREEMENT within one hundred eighty (180) DAYS of the expiration of the License, the Parties shall meet and confer to discuss whether good cause exists to enter into a new license.

C. In the event that the NHOU SETTLEMENT AGREEMENT becomes null and void due to the failure of the condition subsequent pursuant to SECTION 28 of the NHOU SETTLEMENT AGREEMENT, this License shall terminate a reasonable time following the failure of such condition (in order to allow Licensee time to meet its wind-up obligations hereunder) or the then-applicable termination date, whichever is sooner.

3. Licensee shall remove all construction-derived waste, investigation-derived waste, and drilling wastes within ninety (90) DAYS after the wastes are placed in containers, and Licensee will act diligently in removing the waste as quickly as possible and, in any event, before the expiration of this License and in accordance with applicable law.

4. Response to Introduction of Contamination.

A. To the extent any discharge, release, or spillage of material, which is or becomes defined as any CONTAMINATION, is caused by Licensee, or if CONTAMINATION is introduced by the Licensee onto the Licensed Areas during the term of this License as a result of the use of the Licensed Areas by Licensee pursuant to this License, Licensee shall be responsible for all cleanup, remediation and/or removal and all associated costs and expenses, including but not limited to

any fines, penalties, judgments, litigation costs, and attorneys' fees incurred in connection with such CONTAMINATION to the extent required by any and all applicable local, state, and federal laws, regulations, rules, and permits ("Licensee-induced Response Costs").

B. The contractual obligation for Licensee-induced Response Costs in this PARAGRAPH 4 shall have the following duration:

i. For Licensee-induced Response Costs that are caused by Licensee prior to the end of CCC transition period pursuant to SECTION 5.3.5 of the NHOU SETTLEMENT AGREEMENT ("CCC Transition Period"), the obligations set forth under this PARAGRAPH 4.B.i shall not apply to claims made against Licensee by LADWP more than five (5) years after the termination of the CCC Transition Period.

ii. For Licensee-induced Response Costs that are caused by Licensee associated with the design, construction or operation of the PRIMARY SSC TREATMENT SYSTEM until the end of the SSC transition period pursuant to SECTION 11.3.4 of the NHOU SETTLEMENT AGREEMENT ("SSC Transition Period"), the obligations set forth in this PARAGRAPH 4 shall not apply to claims made against Licensee by LADWP more than five (5) years after the termination of the SSC Transition Period.

iii. For Licensee-induced Response Costs that are caused by Licensee other than those addressed in PARAGRAPHS 4.B.i and 4.B.ii, the obligations set forth in this PARAGRAPH 4.B.iii shall not apply to claims made against Licensee by LADWP more than five (5) years after the discharge, release, spillage or introduction of material, which is or becomes defined as any CONTAMINATION. This obligation shall survive the termination of this License.

C. Notwithstanding PARAGRAPHS 4.B.i, 4.B.ii, and 4.B.iii, no time limit shall apply to the obligations set forth in this PARAGRAPH 4 for claims made by LADWP

against Licensee arising from or related to the off-site disposal or transshipment of any materials by the Licensee or Licensee's agents. This obligation shall survive the expiration or termination of this License.

D. The Parties do not intend for this PARAGRAPH 4 to impose any additional obligation for PRE-EXISTING ENVIRONMENTAL CONDITIONS, beyond those expressly set forth in the NHOU SETTLEMENT AGREEMENT.

E. The obligations set forth in this PARAGRAPH 4 shall be in addition to any other rights or remedies that LADWP has under law, the NHOU SETTLEMENT AGREEMENT, and this License. The Parties agree that the expiration of any contractual obligations set forth in this PARAGRAPH 4 do not alter the allocation or apportionment of Licensee-induced Response Costs that would otherwise exist in the absence of such contractual obligation.

5. The Licensee shall, at no cost to LADWP, provide electronic copies of any and all tests, studies, reports, or data that are in any way obtained by Licensee or its agents and contractors or derived from the Activities to LADWP, to the attention of: Director of Water Quality, 111 N. Hope Street, Room 1213, Los Angeles, CA 90051-0100. At a minimum, such data shall be provided in a format identical to that provided to EPA, the Los Angeles Regional Water Quality Control Board, or other relevant regulatory agency and provided within the time frame established in the NHOU SETTLEMENT AGREEMENT. At the request of LADWP, Licensee shall, at no cost to LADWP, provide two (2) hard copies of such tests, studies, reports, or data.

6. Nothing contained in this License shall be construed as consent by LADWP to any holding over by Licensee. LADWP expressly reserves the right to require Licensee to surrender possession of the Licensed Areas to LADWP as provided in this License upon the expiration or other termination of this License. In all other respects, the use of the Licensed Areas shall be governed by the provisions of this License.

7. Notices. Except as otherwise expressly provided in this License, all notices pursuant to this License shall be in writing and shall be sent or delivered to the following:

To LADWP:

Director of Water Quality
Department of Water and Power
111 N. Hope Street, Room 1213
Los Angeles, CA 90012

With copies to:

Michelle Lyman, Esq.
Deputy City Attorney
Los Angeles City Attorney, Department of Water and Power
221 N. Figueroa, 10th Floor
Los Angeles, CA 90012

and

Thomas A. Bloomfield, Esq.
Kaplan Kirsch & Rockwell LLP
1675 Broadway, Suite 2300
Denver, CO 80202

To Licensee:

Benny Dehghi, Director, Major Projects
Honeywell International Inc.
2525 W. 190th Street, MS 23/35-1-A
Torrance, CA 90504-6099

With copies to:

Gene A. Lucero, Esq.
1462 Claridge Drive
Beverly Hills, CA 90210

and

John C. Heintz, Esq.
Latham & Watkins LLP
355 S. Grand Ave., Suite 100
Los Angeles, CA 90071

Any notice or demand required shall be given (i) personally, (ii) by certified or registered mail, postage prepaid or return receipt requested, or (iii) by reliable messenger or overnight courier to the addresses of the respective Parties set forth above. Any notice served personally shall be deemed delivered on the date of delivery, and any notice served by certified or registered mail or

by reliable messenger or overnight courier shall be deemed delivered on the date of receipt as shown on the addressee's registry or certification of receipt or on the date receipt is refused as shown on the records or manifest of the U.S. Postal Service or such courier, or five (5) business days after deposit in the United States Mail. LADWP and/or Licensee may from time-to-time designate any other address or addressee or additional addresses for this purpose by written notice to the other Party.

8. Upon the expiration or other termination of this License, unless otherwise provided for in a new license entered following the meet and confer contemplated in PARAGRAPH 2.B of this License, Licensee shall surrender the Licensed Areas in a neat and clean condition, meaning that, pursuant to this PARAGRAPH 8, Licensee will make reasonable efforts to remove any equipment, vehicles, trailers, containers, signs, litter, and/or debris, if any, brought on to the Licensed Areas by Licensee during the term of this License; *provided*, *however*, certain equipment and fixtures can remain to become the property of LADWP, at the election of LADWP. Unless otherwise agreed by LADWP and Licensee, Licensee shall complete restoration of the Licensed Areas to their original condition or better prior to the expiration or other termination of this License. Restoration of the Licensed Areas shall include, but not be limited to, removal of all of the Licensee's equipment, signs, litter, and debris. Licensee shall remove or, in the case of wells and conveyance infrastructure, appropriately and consistent with applicable laws, abandon in place all improvements unless otherwise agreed to in writing by mutual agreement of the Parties. Any and all improvements agreed to remain shall become the property of LADWP unless otherwise provided by mutual agreement of the Parties. This obligation shall survive the expiration or other termination of this License. Licensee shall contact LADWP and make arrangements for a field inspection of the Licensed Areas prior to the expiration or other termination of this License and surrender of the Licensed Areas by Licensee. If LADWP reasonably and in good faith determines that restoration has not been completed pursuant to this PARAGRAPH 8 upon expiration or other termination of this License, LADWP may, following notice and an opportunity to meet and confer, restore said Licensed Areas entirely at the risk and expense of Licensee. LADWP will bill Licensee for the full cost of said restoration and the Licensee shall promptly pay LADWP for the restoration costs.

9. All Activities performed pursuant to the terms of this License shall be done in accordance with the terms and conditions specified in the NHOU SETTLEMENT AGREEMENT and applicable ordinances, statutes, permits, and regulations governing such instances, and the provisions of such NHOU SETTLEMENT AGREEMENT and applicable ordinances, statutes, permits, and regulations are, by reference, made a part hereof as though incorporated verbatim herein.

10. Defense and Indemnity.

A. Licensee has inspected the Licensed Areas, knows the condition thereof, and, except as otherwise provided in the NHOU SETTLEMENT AGREEMENT, on behalf of itself and its successors, assigns, and sub-licensees, undertakes and agrees to indemnify, defend, and hold LADWP, the CITY, and its successors and assigns, directors, officers, commissioners, boards, employees, parents, subsidiaries, affiliates, contractors, and agents (individually and collectively "Indemnitees") harmless, and at the option of the LADWP, defend by counsel satisfactory to the LADWP, for any claims made against Indemnitees and all liens and claims of liens, suits, causes of action, claims, administrative proceedings, charges, damages, demands, judgments, civil fines, penalties, or losses that are incurred by or asserted against the Indemnitees, for:

i. death, bodily injury or personal injury to any person, including but not limited to Licensee's agents (including but not limited to Licensee's officers, invitees, employees, contractors, sub-licensees of any tier, sub-contractors of any tier, and customers, collectively, "Licensee's Agents"), or persons who enter onto the Licensed Areas;

ii. damage to or destruction or loss of use of any property of either Party hereto, or third persons in any manner arising by reason of, Licensee's presence on the License Areas and the Activities performed pursuant to this License; or

iii. in addition to, and without limiting, PARAGRAPH 4 hereof, environmental investigations, monitoring, containment, abatement, removal, repair,

cleanup, restoration, remediation, penalties and fines arising from the violation of any local, regional, state or federal law, or regulation, disbursements, and other environmental response costs relating directly or indirectly to the release or spill of any CONTAMINATION onto the License Areas by Licensee or Licensee's Agents.

Together or individually, the acts and/or omissions resulting in a claim pursuant to PARAGRAPHS 10.A.i - 10.A.iii above shall be referred to as "Claim Events" or a "Claim Event."

B. Licensee's indemnity and defense obligation pursuant to this provision shall not extend to that portion of any claim(s) that arises from the gross negligence or willful misconduct of Indemnitees.

C. Termination or continuation of defense and indemnity obligation:

i. For Claim Events completed prior to the end of the CCC Transition Period, the defense and indemnity obligations set forth in this PARAGRAPH 10 shall not apply to claims made against Indemnitees more than five (5) years after the termination of the CCC Transition Period.

ii. For Claim Events associated with the construction or operation of the PRIMARY SSC TREATMENT SYSTEM until the end of the SSC Transition Period, the defense and indemnity obligations set forth in this PARAGRAPH 10 shall not apply to claims made against Indemnitees more than five (5) years after the termination of the SSC Transition Period.

iii. For Claim Events other than those addressed in PARAGRAPHS 10.C.i and 10.C.ii, the defense and indemnity obligations set forth in this PARAGRAPH 10 shall not apply to claims made against Indemnitees more than five (5) years after the Claim Event(s). This obligation shall survive the expiration or other termination of this License.

iv. Notwithstanding PARAGRAPHS 10.C.i - 10.C.iii, no time limit shall apply to the defense and indemnity obligation for claims arising from or related to the off-site disposal or transshipment of any materials by the Licensee, by Licensee's Agents, or by LADWP. This obligation shall survive the expiration or other termination of this License.

D. Notwithstanding this PARAGRAPH 10, Licensee shall have no defense or indemnity obligations for claims arising from PRE-EXISTING ENVIRONMENTAL CONDITIONS, except to the extent that Licensee exacerbates PRE-EXISTING ENVIRONMENTAL CONDITIONS.

E. The obligations set forth in this PARAGRAPH 10 shall be in addition to any other rights and remedies that the Parties have under the law, the NHOU SETTLEMENT AGREEMENT, and this License. The Parties agree that the expiration of any indemnity and defense obligation under this PARAGRAPH 10 does not alter the allocation or apportionment of liability or costs that would otherwise exist in the absence of such contractual indemnity and obligation.

11. Except as otherwise expressly provided in the NHOU SETTLEMENT AGREEMENT, Licensee shall pay for all materials placed upon, joined, or affixed to said Licensed Areas by or at the request or direction of Licensee, and shall pay in full all persons who perform labor upon said Licensed Areas at the request or direction of Licensee, and shall not cause or permit any liens of any kind or nature to be levied against said Licensed Areas for any work done or materials furnished thereon at the request or direction of Licensee. Licensee shall provide LADWP notice in writing of any liens levied against the Licensed Areas. Licensee shall have fifteen (15) DAYS to cause the removal of any such liens, and if such liens are not removed, LADWP may pay any amount owed and cause their removal. LADWP may bill the Licensee for the amount paid out by LADWP in removing such liens. Licensee shall have thirty (30) DAYS to repay the funds expended by LADWP necessary to remove such lien. Failure to comply with the requirements of this PARAGRAPH 11 shall be considered a default, and LADWP shall have the right but not the obligation to terminate this License. The exercise by LADWP of its right to

terminate under this PARAGRAPH 11 shall not be construed as a waiver of any of its rights to any other remedy or lawful action to recover funds paid by LADWP.

12. This License and permission herein given is personal to Licensee, including sub-licensees it designates, which may include, among others, a legal entity or entities established to facilitate and/or undertake the Activities, and is not otherwise assignable, and any attempt to do so shall be void and shall confer no right on any third party.

13. Licensee acknowledges that Licensee is not entitled to relocation assistance or any other benefits under the Uniform Relocation Assistance Act or any other provisions of law upon the expiration or other termination of this License.

14. Licensee hereby acknowledges that this License is a license only and does not constitute a lease of, invitation or obligation to lease, or any present or future interest in real property.

15. While not anticipated, Licensee, by executing this License and accepting the benefits hereof, understands that a property right pursuant to applicable ordinances and codes under tax law (known as "possessory interest") may be created and may be subject to property taxation. Licensee will be responsible for payment of any property taxes associated with the Licensed Areas' APNs, if applicable. Licensee herewith acknowledges that it is Licensee's responsibility to comply with all applicable tax requirements.

16. Licensee is hereby notified that this License is non-exclusive. Licensee acknowledges the Activities on the Licensed Areas pursuant to this License must occur alongside other uses of the Licensed Areas, such as existing use by LADWP and the CITY for conveyance, power, and water disinfection and uses by other subtenants and licensees. However, LADWP agrees that Licensee's Activities taken pursuant to this License shall take precedence over those of all other subtenants and licensees, and that, upon notice to LADWP and in accordance with the provisions herein, including but not limited to PARAGRAPHS 37 – 40, this License provides exclusive use of discrete portions of the Licensed Areas during such periods of time exclusive use is necessary for Licensee to accomplish the Activities. In the event disagreements arise regarding whether Licensee's non-exclusive access to discrete portions of the Licensed Areas is necessary

to accomplish the Activities, either Party may invoke the dispute resolution provisions in SECTION 36 of the NHOU SETTLEMENT AGREEMENT. Following the termination of the CCC Transition Period and, if necessary, the SSC Transition Period, Licensee's access pursuant to this License shall be limited to that access necessary to comply with the NHOU SETTLEMENT AGREEMENT. Notwithstanding the foregoing:

A. Tenant Removal for CCC. As reasonably required for the CCC TREATMENT SYSTEM, LADWP shall determine how and where to remove existing tenants, including licensees, presently using the YARD and other LADWP-owned property reasonably necessary for the construction of the CCC TREATMENT SYSTEM, following receipt of written notice from Licensee. LADWP shall remove such tenants and/or licensees no later than one hundred and twenty (120) DAYS after receipt of such notice from Licensee. If judicial proceedings are necessary to remove tenants, access will be provided following such proceedings.

B. Tenant Removal for SSC. As reasonably required for the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM, LADWP shall determine how and where to remove the tenants, including licensees, using the YARD and other LADWP-owned property necessary for the construction of such SSC TREATMENT SYSTEM, following receipt of written notice from Licensee. LADWP shall remove such tenants and/or licensees no later than one hundred and eighty (180) DAYS after receipt of such notice from Licensee. If judicial proceedings are necessary to remove tenants, access will be provided following such proceedings.

17. Training. Licensee shall be responsible for the training of Licensee's personnel in compliance with all applicable laws, including but not limited to work under and adjacent to energized high-voltage transmission lines and training with regards to the operation of equipment and the handling and disposal of CONTAMINATION.

18. Insurance. Licensee shall obtain and keep in force during the term of this License the insurance coverage outlined below and specified in greater detail in the "Contract Insurance Requirements – Department of Water and Power," attached hereto as Attachment B and

incorporated herein by this reference. On an annual basis, Licensee shall provide LADWP with evidence of insurance from insurers that have procured a Certificate of Authority from the State Department of Insurance pursuant to the California Insurance Code or in a form acceptable to LADWP. Licensee acknowledges that it has been provided with insurance endorsement forms for use in showing evidence of the required coverage. Instructions for completing, executing and submitting evidence of insurance are attached thereto. LADWP may from time-to-time reasonably require Licensee to secure and maintain additional insurance coverage not specified in Attachment B, and/or increase the coverage amount required therein. Licensee may from time-to-time reasonably request that LADWP reduce or adjust the coverage amount required therein. LADWP will not unreasonably withhold approval of such requests. In the event disagreements arise regarding a request by Licensee for adjustment of the insurance coverage amount required, either Party may invoke the dispute resolution provisions in SECTION 36 of the NHOU SETTLEMENT AGREEMENT.

19. Compensation Review and Adjustment. The Licensee compensation for this License shall be the consideration of the NHOU SETTLEMENT AGREEMENT. The Parties recognize that the NHOU SETTLEMENT AGREEMENT provides ongoing consideration to LADWP in the form of 8,500 AFY of water and that the infrastructure Licensee is installing pursuant to this License will be operated by LADWP for LADWP's benefit. The CHARTER requires licenses like the License to include a procedure to adjust compensation periodically. Such compensation shall be subject to adjustment as set forth in this PARAGRAPH 19.

Beginning on the fifth (5th) anniversary of the effective date of this License, and on each fifth (5th) anniversary of the effective date thereafter, LADWP shall review the compensation to determine whether adjustments shall be made. Six (6) months prior to each fifth (5th) year anniversary of the effective date. LADWP and Licensee shall meet and confer to review the compensation and determine whether any adjustments shall be made. Such compensation shall be mutually agreed upon between LADWP and Licensee within thirty (30) DAYS, and shall be authorized on behalf of LADWP by the General Manager or designee. No compensation change shall be made absent mutual agreement of the Parties and a dispute over such change shall not be subject to the dispute resolution provisions in SECTION 36 of the NHOU SETTLEMENT AGREEMENT. If for any reason said compensation shall not be finally determined until after the

beginning of any period for which the rent is to be adjusted, Licensee shall continue to pay at the former rate as a credit against the amount of the new compensation when fixed; *provided, however*, that the amount fixed as new compensation shall accrue from the beginning of said period, and proper adjustment shall be made for any payments made by Licensee at the former rates in the interim.

20. Equal Benefits Ordinance. This License is subject to Section 10.8.2.1, Article 1, Chapter 1, Division 10 of the Los Angeles Administrative Code related to equal benefits to employees ("Equal Employment Benefits Provisions"). To the extent required by law, Licensee agrees to comply with the provisions of Section 10.8.2.1. By way of specification but not limitation, pursuant to Section 10.8.2.1.c and 10.8.2.1.f of the Los Angeles Administrative Code, the failure of Licensee to comply with the Equal Employment Benefits Provisions of this License may be deemed to be a material breach of this License. No such finding shall be made or penalties assessed except upon a full and fair hearing after notice and an opportunity to be heard have been given to Licensee. Upon a finding duly made that Licensee has failed to comply with the Equal Employment Benefits Provisions of this License, this License may be forthwith terminated.

21. Equal Employment Practices Provisions. Licensee agrees and obligates itself in the performance of this License not to discriminate against any employee or applicant for employment because of the employee's or applicant's race, religion, national origin, ancestry, sex, sexual orientation, age, physical handicap, marital status, domestic partner status, or medical condition. This License is a contract with or on behalf of the CITY for which the consideration is one thousand dollars ($1,000.00) or more. Accordingly, during the performance of this License, Licensee further agrees to comply with Section 10.8.3 of the Los Angeles Administrative Code ("Equal Employment Practices"). By way of specification but not limitation, pursuant to Sections 10.8.3E and 10.8.3F of the Los Angeles Administrative Code, the failure of Licensee to comply with the Equal Employment Practices provisions of this License may be deemed to be a material breach of this License. No such finding shall be made or penalties assessed except upon a full and fair hearing after notice and an opportunity to be heard have been given to Licensee. Upon a finding duly made that Licensee has failed to comply with the Equal Employment Practices provisions of this License, the License may be terminated forthwith.

22. Slavery Disclosure Ordinance. To the extent required by law, Licensee shall comply with the applicable provisions of the Slavery Disclosure Ordinance ("SDO") (Section 10.41, *et seq.*, of the Los Angeles Administrative Code). Unless otherwise exempt in accordance with the provisions of the SDO, Licensee certifies that it has complied with the applicable provisions of the SDO. Under the provisions of Section 10.41.2(b) of the Los Angeles Administrative Code, LADWP has the authority, under appropriate circumstances, to terminate this License and otherwise pursue legal remedies that may be available to LADWP if LADWP determines that Licensee failed to fully and accurately complete the SDO affidavit or otherwise violated any provision of the SDO.

23. Child Support Assignment Orders Ordinance. To the extent required by law, Licensee shall comply with Section 10.10, Article 1, Chapter 1, Division 10 of the Los Angeles Administrative Code related to Child Support Assignment Orders. Said ordinance is incorporated by reference as though fully set forth herein. Failure to comply with this ordinance shall constitute a default of the License subjecting the License to termination where such failure shall continue for more than ninety (90) DAYS after notice of such failure to Licensee by LADWP or the CITY.

24. Campaign Contributions. To the extent required by law, the Licensee, sub-licensees, and their principals (if any) are obligated to fully comply with CHARTER Section 470(c)(12) and related ordinances, regarding limitations on campaign contributions and fundraising for certain elected CITY officials or candidates for elected CITY office if the License is valued at $100,000 or more and requires approval of a CITY elected official. Additionally, the Licensee is required to provide and update certain information to the CITY as specified by law. Any Licensee subject to CHARTER Section 470(c)(12), shall include the following notice in any contract with a subcontractor or sublicensee expected to pay at least $100,000 in rent under this License:

> Notice Regarding Los Angeles Campaign Contribution and Fundraising Restrictions
>
> As provided in Charter Section 470(c)(12) and related ordinances, you are a sublicensee on LADWP License Agreement _____. Pursuant to City Charter Section 470(c)(12), sublicensee and its principals are prohibited from making campaign contributions and fundraising for certain elected City officials or candidates for elected City office for 12 months after the LADWP License is signed. Sublicensee is required to provide to

> Licensee names and addresses of the sublicensee's principals and contact information and shall update that information if it changes during the 12-month time period. Sublicensee's information included must be provided to Licensee within five business days. Failure to comply may result in termination of the License or any other available legal remedies including fines. Information about the restrictions may be found at the City Ethics Commission's website at http://ethics.lacity.org or by calling (213) 978-1960.

Licensee, sublicensees, and their principals shall comply with these requirements and limitations. Violation of this provision shall entitle LADWP or the CITY to terminate this License and pursue any and all legal remedies that may be available.

25. Tax Registration. This PARAGRAPH 25 is applicable where Licensee is engaged in business within the CITY and Licensee is required to obtain a Tax Registration Certificate ("TRC") pursuant to one or more of the following articles (collectively "Tax Ordinances") of Chapter II of the Los Angeles Municipal Code: Article 1 (Business Tax Ordinance) [Section 21.00, *et seq.*], Article 1.3 (Commercial Tenant's Occupancy Tax) [Section 21.3.1, *et seq.*], Article 1.7 (Transient Occupancy Tax) [Section 21.7.1, *et seq.*], Article 1.11 (Payroll Expense Tax) [Section 21.11.1, *et seq.*], or Article 1.15 (Parking Occupancy Tax) [Section 21.15.1, *et seq.*]. Prior to the execution of this License or the effective date of any extension of the term or renewal of this License, Licensee shall provide to LADWP proof satisfactory to LADWP's Real Estate Section that Licensee has the required TRCs and that Licensee is not then currently delinquent in any tax payment required under the Tax Ordinances. LADWP may terminate this License if LADWP determines that Licensee failed to have the required TRCs or was delinquent in any tax payments required under the Tax Ordinances at the time of entering into, extending the term of, or renewing this License. LADWP may also terminate this License at any time during the term of this License if Licensee fails to maintain required TRCs or becomes delinquent in tax payments required under the Tax Ordinances and Licensee fails to cure such deficiencies within the thirty (30) day period.

26. Tax Registration Certificate. To the extent required by law, the Licensee shall obtain and keep in full force and effect during the term of the License all Business Tax Registration Certificates required by the CITY Business Tax Ordinance, Article 1, Chapter II, Section 21.00 of the Los Angeles Municipal Code. For additional information regarding applicability of the CITY Business Tax Registration, contact the Office of Finance at (844) 663-4411.

27. Living Wage Ordinance. To the extent required by law, Licensee shall comply with the applicable provisions of the Living Wage Ordinance ("LWO"); Section 10.37 *et seq*. of the Los Angeles Administrative Code as amended. The Ordinance requires that, unless specific exemptions apply, all employers (as defined) under contracts primarily for the furnishing of services to or for the CITY and that involve an expenditure or receipt in excess of $25,000 and a contract term of at least three months; Licensee or certain recipients of CITY financial assistance, generally, shall provide the following:

A. Payment of a minimum initial wage rate to employees as defined in the LWO.

B. Provision of compensated days off annually for sick leave, vacation, or personal necessity at the employee's request, and additional days annually of uncompensated time off for sick leave as prescribed in the LWO.

Under the provisions of Section 10.37.6(c) of the Los Angeles Administrative Code, the CITY shall have the authority, under appropriate circumstances, to terminate this contract and otherwise pursue legal remedies that may be available if the CITY determines that the subject Licensee or financial assistance recipient violated the provisions of the referenced Code Sections. For additional information, please contact the Office of the CITY Administrative Officer at (213) 473-7500.

28. Prevailing Wage. To the extent required by applicable law, Licensee shall pay or cause to be paid to all workers employed in connection with the work on the Licensed Areas not less than the prevailing rates of wages, as provided in the statutes applicable to CITY public work contracts, including, without limitation, by Sections 1770–1780 of the California Labor Code.

A. If federal funds were at any time used in the acquisition of this land or will be used in connection with the work on the Licensed Areas, to the extent required by applicable law, Licensee shall, or cause its general contractor and all subcontractors to, comply with the requirements of the Davis-Bacon Act (40 U.S.C. § 276 *et seq*.). The Davis-Bacon Act requires the payment of wages to all laborers and mechanics at a rate not less than the minimum wage specified by the Secretary of Labor in periodic wage rate determinations as described in the Federal Labor Standards

Provisions (HUD-4010). In the event both STATE prevailing wages and Davis-Bacon Act wages will be required, all work shall be paid at the higher of the two wages.

B. If prevailing wages are required to be paid by applicable law, prior to the commencement of work or construction, and as soon as practicable in accordance with the applicable schedule of performance, Licensee shall contact LADWP to schedule a preconstruction orientation meeting with Licensee and the subcontractor to explain such matters as the specific rates of wages to be paid to workers in connection with the work on the Licensed Areas, preconstruction conference requirements, record keeping, and reporting requirements necessary for the evaluation of Licensee's compliance with this PARAGRAPH 28.

C. If prevailing wages are required to be paid by applicable law, Licensee shall monitor and enforce all applicable prevailing wage requirements imposed on its contractors and subcontractors, including withholding payments to those contractors or subcontractors who violate these requirements. In the event that Licensee fails to monitor or enforce these requirements against any contractor or subcontractor, Licensee shall be liable for the full amount of any underpayment of wages, plus costs and attorneys' fees, as if Licensee was the actual employer, and the CITY or the STATE Department of Industrial Relations may withhold monies owed to Licensee, may impose penalties on Licensee as permitted by law, may take action directly against the contractor or subcontractor as permitted by law, and/or may declare Licensee in default of the License and thereafter pursue any of the remedies available at law or in equity.

D. Licensee agrees to include, or cause to be included, the above provisions in all bid specifications for work covered under this License.

E. Notwithstanding any other provisions in this License, Licensee shall indemnify, hold harmless, and defend (with counsel reasonably acceptable to LADWP) LADWP against any claim for damages, compensation, fines, penalties, or other amounts arising out of the failure or alleged failure of any person or entity

(including LADWP, its contractors, and subcontractors) to pay prevailing wages as determined pursuant to California Labor Code Sections 1720 *et seq*. and implementing regulations of the Department of Industrial Relations or comply with the other applicable provisions of California Labor Code Sections 1720 *et seq*. and implementing regulations of the Department of Industrial Relations in connection with construction of the improvements or any other work undertaken or in connection with the Licensed Areas ("Prevailing Wage Claims"). This indemnity, hold-harmless, and defense obligation shall only apply to claims initiated (either to an administrative agency or in court) within three (3) years of the completion of the CCC Transition Period; *except*, *however*, for those claims arising from Activities associated with the construction or operation of the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM, the indemnity, hold-harmless, and defense obligation shall only apply to claims initiated (either to an administrative agency or in court) within three (3) years of the completion of the SSC Transition Period. Notwithstanding the three (3)-year limitations in the prior sentence, the indemnity and hold harmless, and defense obligation for Prevailing Wage Claims shall apply to Prevailing Wage Claims arising from or related to any other Activities undertaken by Licensee or Licensee Agents in connection with the Licensed Areas, *provided* the claim is brought within (3) years of the completion of such activity.

F. The obligations set forth in this PARAGRAPH 28 shall be in addition to any other rights and remedies that the Parties have under the law, the NHOU SETTLEMENT AGREEMENT, and this License.

29. Ordinance and Los Angeles Administrative Code. The obligation to comply with any Ordinances or Codes which have been incorporated into this License by reference, shall extend to any amendments which may be made to those Ordinances and Codes during the term of this License.

30. Licensee shall not use the Licensed Areas to satisfy any zoning demands, zoning variances, open space or parking requirements, or any other governmentally imposed conditions

for building plans and permits, except as provided for in the NHOU SETTLEMENT AGREEMENT.

31. Except if caused by the gross negligence, willful misconduct, or as otherwise provided for in the NHOU SETTLEMENT AGREEMENT, LADWP shall not be liable for any damage to vehicles or improvements resulting from LADWP's operation and maintenance and from any construction or reconstruction of LADWP's facilities or transmission line right-of-way.

32. During any period that Licensee is conducting construction activities at the Licensed Areas (including the CCC SYSTEM construction through the PHASE 1 or PHASE 3 STARTUP AND SHAKEDOWN PERIODS, the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM construction through the respective STARTUP AND SHAKEDOWN PERIOD, and any other construction by Licensee pursuant to the NHOU SETTLEMENT AGREEMENT), Licensee shall use reasonable measures to minimize disturbances to neighboring businesses or nearby residences and shall assume the responsibility of resolving any complaints or disputes from adjacent property owners or the public arising out of Licensee's use of the Licensed Areas. Any inquiries or complaints brought to the attention of LADWP shall be directed to the Licensee's representative identified in SECTION 24 of the NHOU SETTLEMENT AGREEMENT. For other Activities carried out by Licensee, Licensee shall take reasonable measures to minimize disturbances to neighboring businesses or nearby residences and shall assume the responsibility of resolving any complaints or disputes from adjacent property owners or the public arising out of Licensee's use of the Licensed Areas. Any inquiries or complaints brought to the attention of LADWP shall be directed to the Licensee's representative identified in SECTION 24 of the NHOU SETTLEMENT AGREEMENT.

33. During any period that Licensee is conducting construction activities at the Licensed Areas (including the CCC SYSTEM construction through the PHASE 1 or PHASE 3 START-UP AND SHAKEDOWN PERIODS, the PRIMARY SSC TREATMENT SYSTEM or SECONDARY SSC TREATMENT SYSTEM construction through the respective STARTUP AND SHAKEDOWN PERIOD, and any other construction by Licensee pursuant to the NHOU SETTLEMENT AGREEMENT), Licensee must post and maintain onsite the required signage,

which includes, but is not limited to, the following information, at a designated location approved by LADWP:

A. Licensee's 24-hour contact name;

B. Licensee's 24-hour phone number; and

C. Licensee's License number.

34. Licensee shall access the Licensed Areas by conforming to LADWP security and operational procedures and, until the completion of the respective STARTUP and SHAKEDOWN PERIODS, shall take reasonable precautions to prevent unauthorized ingress and egress to the License Areas.

35. Licensee agrees that this License will not be recorded.

36. During and for the five (5) years following any period that Licensee is conducting construction or operational activities at the Licensed Areas (including the CCC SYSTEM construction) through the CCC Transition Period, the SSC Transition Period, and any other construction or operation period by Licensee per the NHOU SETTLEMENT AGREEMENT, respectively, and without limiting the obligations set forth in PARAGRAPHS 4 and 10 herein, the Licensee shall, unless otherwise provided in the NHOU SETTLEMENT AGREEMENT, be responsible, to the extent caused by and introduced onto the Licensed Areas as a result of the use of the Licensed Areas by Licensee pursuant to this License, for all cleanup costs and expenses, including but not limited to any fines, penalties, judgments, litigation costs, and attorneys' fees incurred as a result of any and all discharge, leakage, spillage, and emission of CONTAMINATION onto the License Areas. Said cleanup shall be accomplished to the satisfaction of LADWP and any governmental body having jurisdiction thereover.

37. Licensee shall manage any transportation, storage, and/or disposal of CONTAMINATION according to any and all applicable local, state, and federal laws, regulations, rules, and permits.

38. A summary of the work anticipated to be undertaken pursuant to this License is described in the SCOPE OF WORK, EXHIBIT 3 to the NHOU SETTLEMENT AGREEMENT, which is hereby incorporated by reference. The Parties recognize that this work may change or be modified in response to, among other things, the regulatory approval processes under CERCLA.

39. LADWP's Water Operation Division ("WOD") Requirements. Licensee shall comply with LADWP's WOD requirements as follows:

A. Licensee shall purchase and install a lock into the daisy chain to gain access for the License duration, as appropriate. A duplicate key shall be provided to LADWP. The lock shall be removed upon expiration or other termination of License.

B. Licensee shall not block access to any existing equipment so as to prevent access by WOD staff.

C. Licensee shall specify the construction materials stockpile and laydown area in the design drawings. Licensee shall restrict construction material stockpiles and laydown to the specified area during construction and clear upon completion.

D. Any lighting to be used shall not impact neighboring properties to the Licensed Areas.

E. Information of the project duration and contact information shall be provided to the neighbors in the vicinity of Licensed Areas through signage or other means.

F. Licensee shall provide temporary fencing for the duration of construction, pursuant to this License, as appropriate. Any changes to the fencing or equipment shall be restored by Licensee to the original fence layout at the expiration or other termination of the License.

G. Once construction of the new extraction wells is complete, Licensee shall install a permanent perimeter fence, of a design approved by LADWP, around the newly installed extraction wells, located no less than fifty (50) feet from each pylon, unless

approved in writing by LADWP. The location and orientation of fencing around each well will be determined with input from LADWP.

H. Licensee shall have in place the appropriate equipment and plans to prevent spillage of any hazardous materials onto LADWP property or the public street and sidewalks according to local jurisdiction, state, and federal standards.

I. Licensee shall install appropriate fencing around the treatment systems.

J. Licensee shall ensure that any contractor that performs any work on the wells shall possess an active State of California C-57 license.

K. Licensee shall notify WOD Transmissions Operations Sr. Water Utility Supervisor at (213) 367-8184 at least four (4) business days before removal of any well pump and motor, so that the unit can be electrically locked and tagged out.

L. Licensee shall notify the WOD Property Management Group at (213) 367-1057 at least four (4) business days before performing any maintenance, clearing, redeveloping, or rehabilitation of a well, or any major repair or reconstruction of the CCC SYSTEM, the PRIMARY SSC TREATMENT SYSTEM, or SECONDARY SSC TREATMENT SYSTEM.

M. Any activities associated with the clearing, redeveloping, or rehabilitation of a well shall need prior approval by WOD before start of work.

N. Licensee shall be responsible for repairing any damages caused by Licensee activity pursuant to this License.

40. LADWP's Right-of-Way and Power Transmission System ("ROWPT") Requirements. A portion of the Activities will occur near three (3) electrical transmission lines, including the Rinaldi-Toluca lines (230 kv), Valley-Hollywood lines (230 kv), and Adelanto-Toluca lines (500 kv), which are located along the west, central, and eastern portions of the ROWPT transmission lines right-of-way. Where the Activities are located within or in the vicinity

of the Power Transmission and/or Distribution Line right-of-way, Licensee shall comply with ROWPT requirements, as follows:

A. Activities conducted in ROWPT transmission lines right-of-way shall adhere to the following criteria:

i. Energized transmission lines can produce electrical effects, including but not limited to induced voltages and currents in persons and objects. Licensee hereby acknowledges a duty to conduct Activities in such manner that will not expose persons to injury or property to damage from such effects.

ii. Licensee shall ensure that the Activities, at all times, are in compliance with General Order No. 95 (Rules for Overhead Electric Line Construction, California Public Utilities Commission) and State of California Code of Regulations, Title 8, Industrial Relations, Chapter 4, Division Industrial Safety, Subchapter 5, Electrical Safety Orders.

iii. The extraction well sites shall be at least fifty (50) feet from transmission line towers, unless otherwise permitted in writing by LADWP.

iv. Except as otherwise permitted in writing by LADWP, the drilling rig tower location at each extraction well site shall be located a minimum of ten (10) feet horizontally from the conductor drip lines. Licensee shall be responsible for maintaining safe CalOSHA working clearances when working near and around energized wires.

B. Notwithstanding any other notices given by Licensee required herein, Licensee shall notify LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5031 or (818) 771-5076, no earlier than fourteen (14) DAYS and no later than two (2) DAYS prior to the start of any grading, paving, construction work, drilling, well construction, testing, or monitoring activities. All

activities shall be coordinated with LADWP's Transmission Construction and Maintenance Business Group.

C. Prior to initiating the Activities associated with this License, Licensee shall ensure clearance that meets the State of California, Public Utilities Commission, General Order No. 95, Conductor Clearances. A power outage will not be necessary for work to proceed, unless it is determined that the conductor clearances during the equipment staging phases are not adequately met. If, however, while working below or near an active power line, equipment that has a higher reach than fourteen (14) feet is deemed necessary by Licensee, the Power System Transmission Engineer shall determine whether permitted operations shall require a power outage of the transmission line, which will have to be coordinated. Licensee shall acknowledge that if an outage is scheduled, it will have to assume the risk that it may have to be cancelled and rescheduled due to Power System operational obligations. If such a planned power outage is required by Licensee pursuant to this PARAGRAPH 40.C, all expenses associated with such power outage shall be borne by Licensee.

D. Except otherwise permitted in writing by ROWPT, rigs with cranes shall be located a minimum of fifteen (15) feet from the conductor drip lines. Licensee shall be responsible for maintaining CalOSHA safe working clearances when working near and around energized wires.

E. All manhole covers, paving, driveways, bridges, crossings, and substructures located within the right-of-way shall be designed to withstand the American Association of State Highway and Transportation Officials' vehicular loading H20-44 (M18) or HL-93 design standards.

F. No grading, including soil storage, shall be conducted within LADWP's transmission line right-of-way without prior written approval by LADWP, which shall not be unreasonably withheld or delayed if required to complete the Activities.

G. No structures shall be constructed within LADWP's transmission line right-of-way without prior written approval by LADWP, which shall not be unreasonably withheld or delayed if required to complete the Activities.

H. Licensee shall maintain the permanent, unobstructed roadway (patrol road), which shall be accessible at all times by LADWP maintenance personnel. Licensee shall ensure that the roadway remains open and unobstructed, excluded from any watering, and kept as dry as possible at all times. Notwithstanding the foregoing, Licensee's obligations under this PARAGRAPH 40.H shall not apply during those periods of time the Activities require temporary obstruction of the roadway.

I. Licensee is hereby notified that facilities of other licensees or easement holders of LADWP may exist on the Licensed Areas. Licensee shall take reasonable precautions and actions to avoid infringement, interference, or damage to all installations or rights. Notwithstanding the foregoing, LADWP agrees that Licensee's Activities taken pursuant to this License shall take precedence over all other licensees or easement holders of LADWP, and that LADWP will provide exclusive use of the Licensed Areas during such periods of time Licensee reasonably determines that such exclusive use is necessary for Licensee to accomplish the Activities. Such exclusive use does not preclude existing use by LADWP for conveyance of water or transmission of power and other utilities.

J. Condition Nos. 1–7, 9, 11A, 12–16, 20, 21, 22C, 23A, 24, 25, and 31A of the Standard Conditions for Construction, attached hereto as Attachment C and incorporated herein by this reference, shall apply. If any excavations are required, utility agencies within the excavation sites shall be notified of impending work. Licensee shall be responsible, financially and otherwise, for coordinating relocation of utilities, if any, within the project boundaries. Before commencing any excavations, Licensee shall contact Underground Service Alert of Southern California (a.k.a. DigAlert).

41. Other Requirements.

A. Licensee shall comply with the following measures to mitigate potential noise impacts:

i. Except as otherwise provided by the Los Angeles Police Department ("LAPD"), Licensee shall limit work hours to comply with LAPD construction noise restrictions, posted on lapdonline.org, to minimize impact to residents in the vicinity of the Licensed Areas.

ii. Where necessary to comply with applicable ordinances, noisy equipment shall be subject to appropriate noise reduction measures.

iii. Unless otherwise approved, for construction activities with the potential to impact noise- or vibration-sensitive land uses, construction activities shall not occur between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, 6:00 p.m. and 8:00 a.m. on Saturday, or on Sundays or national holidays.

iv. Pumps and associated equipment (e.g., portable generators) shall be shielded from sensitive uses using local temporary noise barriers or enclosures, or shall otherwise be designed or configured so as to minimize noise at nearby noise-sensitive receivers.

v. Staging of construction equipment shall not occur within twenty (20) feet of any noise- or vibration-sensitive land uses.

vi. All noise-producing equipment and vehicles using internal combustion engines shall be equipped with mufflers; air-inlet silencers where appropriate; and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.

vii. All mobile or fixed noise-producing equipment used on the project facilities that are regulated for noise output by a local, state, or federal agency shall comply with such regulation while in the course of project activity.

viii. Idling equipment shall be kept to a minimum and moved as far as practicable from noise-sensitive land uses.

ix. Electrically-powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.

x. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

xi. The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

xii. Notification at Sensitive Receptors

a) Effective communication with local residents shall be maintained during construction, including keeping them informed of the schedule, duration, and progress of the construction to minimize public complaints regarding noise and vibration levels.

B. Licensee shall utilize appropriate best management practices to minimize the generation of dust during construction.

C. In the event that archaeological resources (sites, features, or artifacts) are discovered during construction activities for the proposed project, all construction work occurring within one hundred (100) feet of the find shall immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find and determine whether or not additional study is warranted. Construction activities may continue on other parts of the construction site while evaluation and treatment at the

discovery site take place. Depending on the significance of the find, the archaeologist may simply record the find and allow work to continue. If the discovery proves significant, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. Work in the area may resume once evaluation and treatment of the resource is completed or the resource is recovered and removed from the site.

D. In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are discovered, the County Coroner shall be immediately notified of the discovery. No further excavation or disturbance of the project site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two (2) working days of notification of the discovery, the appropriate treatment and disposition of the human remains. Construction activities may continue on other parts of the construction site while evaluation and treatment at the discovery site take place. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the Native American Heritage Commission ("NAHC") in Sacramento within twenty-four (24) hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete their inspection within forty-eight (48) hours of being granted access to the site. The designated Native American representative would then determine, in consultation with LADWP, the disposition of the human remains. Work at the discovery site may resume after consultation with the most likely descendant and treatment of the remains and any associated resources has been concluded.

E. In the event that cultural resources are inadvertently discovered, all construction work occurring within one hundred (100) feet of the find shall immediately stop. Construction activities may continue on other parts of the construction site while evaluation and treatment at the discovery site take place. If LADWP determines that the resources may potentially be tribal cultural resources (as defined by Public

Resources Code Section 21074), it shall notify any Native American tribes that have informed LADWP that they are traditionally and culturally affiliated with the geographic area of the proposed project. LADWP would provide any affected tribe a reasonable period of time to conduct a site visit and make the treatment and disposition of any discovered tribal cultural resources as well as recommendations regarding monitoring of future ground disturbance activities. Construction in the area of the discovery may resume once evaluation and treatment of the resource is completed and/or the resource is recovered and removed from the site.

42. This License shall be interpreted, governed by, and construed under the laws of the State of California or the laws of the United States, as applicable, as if executed and to be performed wholly in the State of California.

43. To the extent there is a conflict between the terms of this License and the terms of the NHOU SETTLEMENT AGREEMENT, the terms of the NHOU SETTLEMENT AGREEMENT shall apply and control.

44. Except as otherwise expressly provided in this License, the Parties to this License do not intend to create rights in or grant remedies to any third party as a beneficiary of this License or of any duty, covenant, obligation, or undertaking established under this License.

45. Any waiver at any time by either Party of its rights with respect to a default under this License, or with respect to any other matter arising in connection with this License, shall not be deemed a waiver with respect to any subsequent default or other matter arising in connection therewith. Any delay in assessing or enforcing any right shall not be deemed to be a waiver of such right; *provided*, *that*, unless otherwise specified in the NHOU SETTLEMENT AGREEMENT, all applicable statutory periods of limitation shall apply.

46. Licensee and LADWP and their respective legal counsel have participated fully in the review and preparation of this License. Any rule of construction to the effect that ambiguities are to be resolved against the drafting Party shall not apply in interpreting this License. The language in this License shall be interpreted as to its fair meaning and not strictly for or against either Party.

47. This License may be executed at different times in one or more counterparts, each of which shall be regarded as an original and all of which, taken together, shall constitute the same License.

48. Each Party to this License shall bear its own attorney's fees and costs in the event of a dispute as to this License.

49. While on the Licensed Areas, Licensee shall comply with all of LADWP's posted safety rules and requirements without exception.

The signatories below represent that they have been appropriately authorized to enter into this License on behalf of the Party for which they sign. This License is hereby executed as of _____ and effective as of _____.

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES

By: _____
MARTIN L. ADAMS
General Manager and Chief Engineer
LADWP

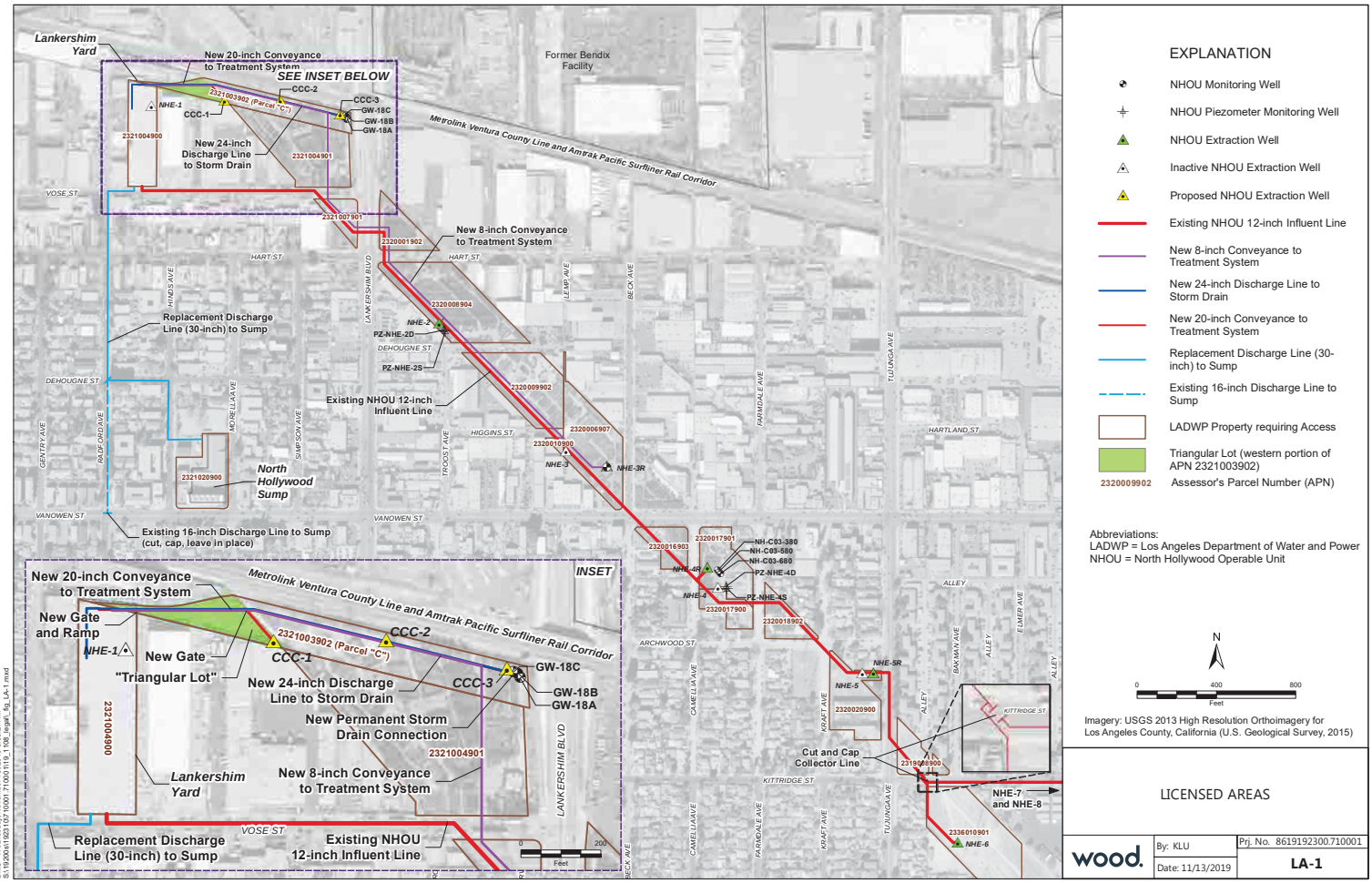
APPROVED:

By: _____
RICHARD F. HARASICK
Senior Assistant General Manager –
Water System

HONEYWELL INTERNATIONAL INC.

By:_____
BENNY DEHGHI
Director, Major Projects
LICENSEE

FORM OF LICENSE AGREEMENT – FIGURE LA-1


Lankershim Yard
New 20-inch Conveyance to Treatment System
SEE INSET BELOW
Former Bendix Facility
Metrolink Ventura County Line and Amtrak Pacific Surfliner Rail Corridor
NHE-1
CCC-1
CCC-2
CCC-3
GW-18C
GW-18B
GW-18A
2321003902 (Parcel "C")
2321004900
2321004901
2321007901
2320001902
New 24-inch Discharge Line to Storm Drain
New 8-inch Conveyance to Treatment System
Replacement Discharge Line (30-inch) to Sump
Existing NHOU 12-inch Influent Line
Existing 16-inch Discharge Line to Sump (cut, cap, leave in place)
North Hollywood Sump
2321020900
2320008904
NHE-2
PZ-NHE-2D
PZ-NHE-2S
2320009902
2320006907
2320010900
NHE-3
NHE-3R
2320016903
2320017901
NH-C03-380
NH-C03-580
NH-C03-680
NHE-4R
PZ-NHE-4D
NHE-4
PZ-NHE-4S
2320017900
2320018902
NHE-5R
NHE-5
2320020900
2319008900
2336010901
NHE-6
Cut and Cap Collector Line
NHE-7 and NHE-8
VOSE ST
HART ST
DEHOUGNE ST
VANOWEN ST
HIGGINS ST
ARCHWOOD ST
KITTRIDGE ST
ALLEY
HARTLAND ST
HINDS AVE
LAKERSHIM BLVD
LEMP AVE
BECK AVE
GENTRY AVE
RADFORD AVE
MORELLA AVE
SIMPSON AVE
TROOST AVE
FARMDALE AVE
TUJUNGA AVE
CAMELIA AVE
KRAFT AVE
BAKMAN AVE
ELMER AVE
INSET
New Gate and Ramp
New Gate
"Triangular Lot"
New Permanent Storm Drain Connection
Lankershim Yard
Replacement Discharge Line (30-inch) to Sump
Existing NHOU 12-inch Influent Line
0
200
Feet
EXPLANATION
NHOU Monitoring Well
NHOU Piezometer Monitoring Well
NHOU Extraction Well
Inactive NHOU Extraction Well
Proposed NHOU Extraction Well
Existing NHOU 12-inch Influent Line
New 8-inch Conveyance to Treatment System
New 24-inch Discharge Line to Storm Drain
New 20-inch Conveyance to Treatment System
Replacement Discharge Line (30-inch) to Sump
Existing 16-inch Discharge Line to Sump
LADWP Property requiring Access
Triangular Lot (western portion of APN 2321003902)
2320009902 Assessor's Parcel Number (APN)
Abbreviations:
LADWP = Los Angeles Department of Water and Power
NHOU = North Hollywood Operable Unit
N
0
400
800
Feet
Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)
LICENSED AREAS
wood.
By: KLU
Date: 11/13/2019
Prj. No. 8619192300.710001
LA-1

FORM OF LICENSE AGREEMENT – FIGURE LA-2

Explanation

Approximate Site Boundary

Access Area

2321004900 Assessor's Parcel Number (APN)

LANKERSHIM YARD LICENSED AREA

wood.

By: KLU

Date: 11/13/2019

Prj. No. 8619192300.710001

LA-2

Wednesday, November 13, 2019 8:48:41 AM
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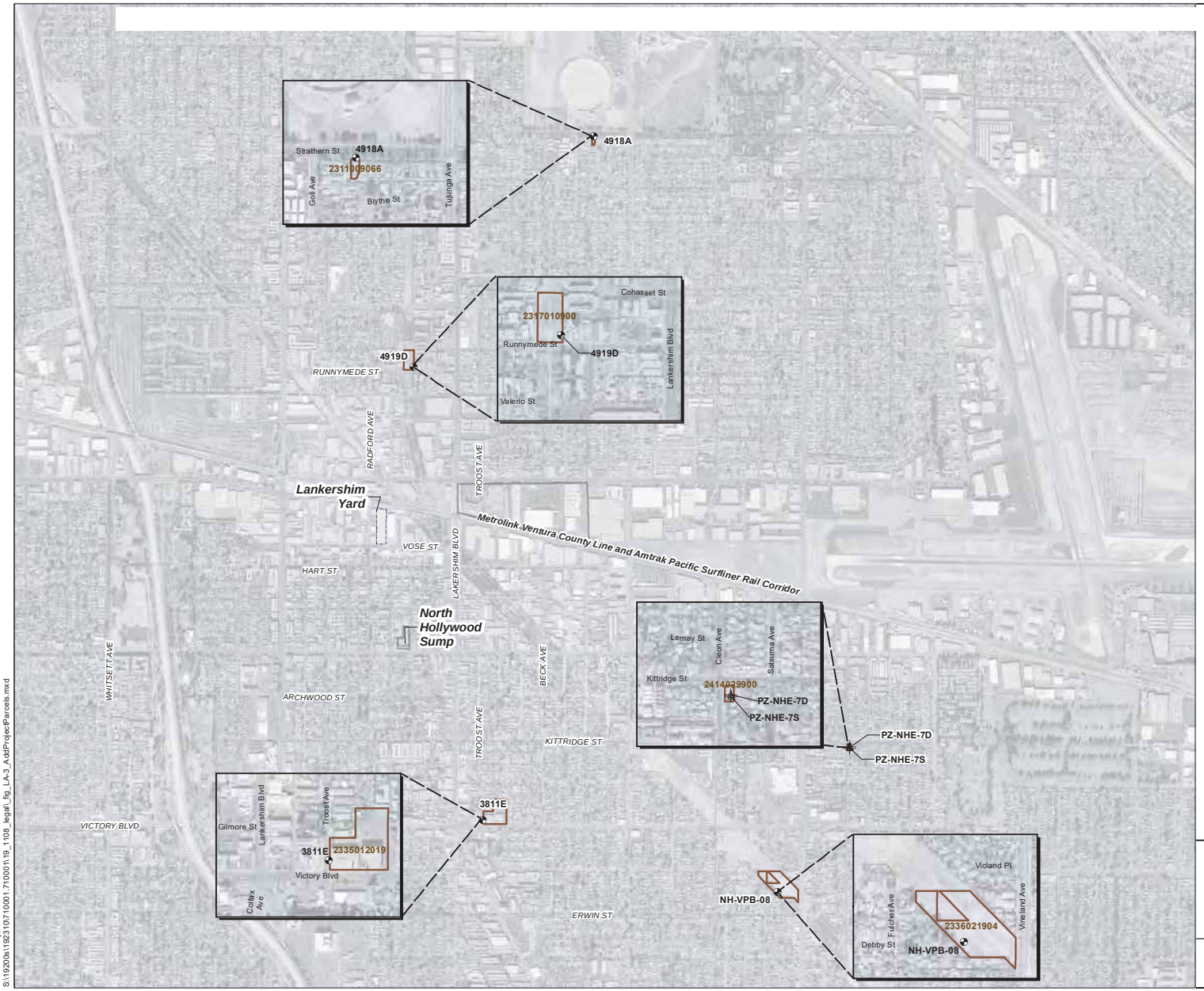
FORM OF LICENSE AGREEMENT – FIGURE LA-3



EXPLANATION

- NHOU Monitoring Well
- NHOU Piezometer Monitoring Well
- LADWP Property requiring Access
- 2320009902 Assessor's Parcel Number (APN)

Abbreviation:
LADWP = Los Angeles Department of Water and Power

N

0 1,500
Feet

Imagery: USGS 2013 High Resolution Orthoimagery for Los Angeles County, California (U.S. Geological Survey, 2015)

ADDITIONAL LICENSED AREAS

wood.

By: KLU	Prj. No. 8619192300.710001
Date: 11/25/2019	LA-3

DMO Monday, November 25, 2019 7:19:48 AM
S:\19200s\19231\07\10001.710001\19_1108_legal_fig_LA-3_AddProjectParcels.mxd

FORM OF LICENSE AGREEMENT – ATTACHMENT A

FORM OF LICENSE AGREEMENT – ATTACHMENT B

CONTRACT INSURANCE REQUIREMENTS -- DEPARTMENT OF WATER AND POWER

For Contractors, Service Providers, Vendors, and Tenants

Agreement/Activity/Operation: See Scope of Work for NHOU Settlement Agreement

Reference/Agreement: NHOU Settlement Agreement - CERTIFICATE ACCEPTABLE (w/proper endorsements)

Term of Agreement: _____

Contract Administrator and Phone: Vahe Dabbaghian (213) 367-3543

Buyer and Phone Number: _____

Contract-required types and amounts of insurance as indicated below by checkmark are the minimum which must be maintained. All limits are Combined Single Limit (Bodily Injury/Property Damage) unless otherwise indicated. Firm 30 day Notice of Cancellation required by Receipted Delivery.

PER OCCURRENCE LIMITS

(✓) WORKERS' COMPENSATION(Stat. Limits)/Employer's Liability: ($1,000,000.00)
- (✓) Broad Form All States Endorsement
- ( ) US L&H (Longshore and Harbor Workers)
- ( ) Jones Act (Maritime Employment)
- ( ) Outer Continental Shelf
- (✓) Waiver of Subrogation
- ( ) Black Lung (Coal Mine Health and Safety)
- ( ) Other: _____
- ( ) Other: _____

(✓) AUTOMOBILE LIABILITY: ($1,000,000.00)
- (✓) Owned Autos
- ( ) Any Auto
- (✓) Hired Autos
- (✓) Non-Owned Auto
- ( ) Contractual Liability
- (✓) Additional Insured
- ( ) MCS-90 (US DOT)
- ( ) Trucker's Form
- ( ) Waiver of Subrogation
- ( ) Other: _____

(✓) GENERAL LIABILITY: ( ) Limit Specific to Project ( ) Per Project Aggregate ($10,000,000.00)
- (✓) Broad Form Property Damage
- (✓) Contractual Liability
- (✓) Personal Injury
- (✓) Premises and Operations
- (✓) Products/Completed Ops.
- ( ) Independent Contractors
- ( ) Fire Legal Liability
- ( ) Garagekeepers Legal Liab.
- ( ) Child Abuse/Molestation
- ( ) Corporal Punishment
- (✓) Collapse/Underground
- (✓) Explosion Hazard
- ( ) Watercraft Liability
- ( ) Pollution
- (✓) Additional Insured Status
- ( ) Waiver of Subrogation
- ( ) Airport Premises
- ( )Hangarkeepers Legal Liab.
- ( ) Marine Contractors Liability
- ( ) Other: _____
- ( ) Other: _____

(✓) PROFESSIONAL LIABILITY: ($1,000,000.00)
- (✓) Contractual Liability
- (✓) Waiver of Subrogation
- (✓) 3 Year Discovery Tail
- (✓) Additional Insured
- (✓) Vicarious Liability Endt.
- ( ) Other: _____

( ) AIRCRAFT LIABILITY: ( )
- ( ) Passenger Per Seat Liability
- ( ) Contractual Liability
- ( ) Hull Waiver of Subrogation
- ( ) Pollution
- ( ) Additional Insured
- ( ) Other: _____

( ) PROPERTY DAMAGE: ( ) Loss Payable Status (AOIMA) ( )
- ( ) Replacement Value
- ( ) Actual Cash Value
- ( ) Agreed Amount
- ( ) All Risk Form
- ( ) Named Perils Form
- ( ) Earthquake: _____
- ( ) Builder's Risk:$_____
- ( ) Boiler and Machinery
- ( ) Flood: _____
- ( ) Transportation Floater:$_____
- ( ) Contractors Equipment$_ ___ _
- ( ) Loss of Rental Income: _____
- ( ) Scheduled Locations/Propt.
- ( ) Other: _____
- ( ) Other: _____

( ) WATERCRAFT: ( )
- ( ) Protection and Indemnity
- ( ) Pollution
- ( ) Additional Insured
- ( ) Waiver of Subrogation
- ( ) Other: _____
- ( ) Other: _____

( ) POLLUTION: ($5,000,000.00)
- (✓) Incipient/Long Term
- ( ) Sudden and Accidental
- (✓) Additional Insured
- ( ) Waiver of Subrogation
- ( ) Contractor's Pollution
- ( ) Other: _____

( ) CRIME: ( ) Joint Loss Payable Status ( ) Additional Insured ( )
- ( ) Fidelity Bond
- ( ) Financial Institution Bond
- ( ) Loss of Monies/Securities
- ( ) Employee Dishonesty
- ( ) In Transit Coverage
- ( ) Wire Transfer Fraud
- ( ) Computer Fraud
- ( ) Commercial Crime
- ( ) Forgery/Alteration of Docs.
- ( ) Other: _____
- ( ) Other: _____

( ) ASBESTOS LIABILITY: ( ) Additional Insured ( )

FORM OF LICENSE AGREEMENT – ATTACHMENT C

STANDARD CONDITIONS FOR CONSTRUCTION

1. Energized transmission lines can produce electrical effects including, but not limited to, induced voltages and currents in persons and objects. Licensee hereby acknowledges a duty to conduct activities in such manner that will not expose persons to injury or property to damage from such effects.

2. The Los Angeles Department of Water and Power (LADWP) personnel shall have access to the right of way at all times.

3. Unauthorized parking of vehicles or equipment shall not be allowed on the right of way at any time.

4. Unauthorized storage of equipment or material shall not be allowed on the right of way at any time.

5. Fueling of vehicles or equipment shall not be allowed on the right of way at any time.

6. Patrol roads and/or the ground surfaces of the right of way shall be restored by the Licensee to original conditions, or better.

7. All trash, debris, waste, and excess earth shall be removed from the right of way upon completion of the project, or the LADWP may do so at the sole risk and expense of the Licensee.

~~8. All cut and fill slopes within the right of way shall contain adequate berms, benches, and interceptor terraces. Revegetation measures shall also be provided for dust and erosion control protection of the right of way.~~

9. All paving, driveways, bridges, crossings, and substructures located within the right of way shall be designed to withstand the American Association of State Highway and Transportation Officials' vehicular loading H20-44 or HL-93. The design shall also comply with applicable design standards.

~~10. The location of underground pipelines and conduits shall be marked at all points where they cross the boundaries of the right of way and at all locations where they change direction within the right of way. The markings shall be visible and identifiable metal post markers for underground pipelines. Utility markers flush with surface may be used on pavement.~~

11A. General Grounding Condition

All aboveground metal structures including, but not limited to, pipes, drainage devices, fences, and bridge structures located within or adjoining the right of way shall be properly grounded, and shall be insulated from any fencing or other conductive materials located outside of the right of way. For safety of personnel and equipment, all equipment and structures shall be grounded in accordance with State of California Code of Regulations, Title 8, Section 2941, and National Electric Code, Article 250.

~~11B. Grounding Condition for Cellular Facilities on Towers~~

~~All aboveground metal structures including, but not limited to, pipes, drainage devices, fences, and bridge structures located within or adjoining the right of way shall be properly grounded, and shall be insulated from any fencing or other conductive materials located outside of the right of way. For safety of personnel and equipment, all equipment and structures shall be grounded in accordance with American National Standards Institute of Electrical and Electronics Engineers Standard 487 latest edition, IEEE Guide for Safety in AC Substation Grounding.~~

12. Licensee shall neither hold the LADWP liable for nor seek indemnity from the LADWP for any damage to the Licensee's project due to future construction or reconstruction by the LADWP within the right of way.

13. Fires and burning of materials is not allowed on the right of way.

14. Licensee shall control dust by dust-abatement procedures approved by the LADWP, such as the application of a dust palliative or water.

15. The right of way contains high-voltage electrical conductors; therefore, the Licensee shall utilize only such equipment, material, and construction techniques that are permitted under applicable safety ordinances and statutes, including the following: State of California Code of Regulations, Title 8, Industrial Relations, Chapter 4, Division of Industrial Safety, Subchapter 5, Electrical Safety Orders; and California Public Utilities Commission, General Order No. 95, Rules for Overhead Electric Line Construction.

16. Licensee is hereby notified that grounding wires may be buried in the right of way; therefore, the Licensee shall notify the LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5014, or (818) 771-5076, at least 48 hours prior to the start of any construction activities in the right of way.

~~17A. Vehicle Parking~~

~~An area within 50 feet around the base of each tower must remain open and unobstructed for maintenance and emergencies, including periodic washing of insulators by high-pressure water spray. Clearances of 100 feet may be required under circumstances where access is limited.~~

~~17B. Trucking Operations and Storage Operations~~

~~An area within 50 feet around the base of each tower must remain open and unobstructed for maintenance and emergencies, including periodic washing of insulators by high-pressure water spray. Clearances of 100 feet may be required under circumstances where access is limited.~~

~~17C. Permanent Structures~~

~~An area within 100 feet on all sides of each tower shall remain open and unobstructed for maintenance and emergencies, including periodic washing of insulators by high-pressure water spray.~~

~~18. Detailed plans for any grading, paving, and construction work within the right of way~~

~~shall be submitted for approval to the Real Estate Services, 221 N. Figueroa St., Suite 1600, Los Angeles, California 90012, no later than 45 days prior to the start of any grading, paving, or construction work. Notwithstanding any other notices given by Licensee required herein, Licensee shall notify the LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5014, or (818) 771-5076, no earlier than 14 days and no later than two days prior to the start of any grading, paving, or construction work.~~

~~19. "As Constructed" drawings showing all plans and profiles of the Licensee's project shall be furnished to the Real Estate Services, 221 N. Figueroa St., Suite 1600, Los Angeles, California 90012, within five days after completion of Licensee's project.~~

20. In the event that construction within the right of way is determined upon inspection by the LADWP to be unsafe or hazardous to the LADWP facilities, the LADWP may assign a line patrol mechanic at the Licensee's expense.

21. If the LADWP determines at any time during construction that the Licensee's efforts are hazardous or detrimental to the LADWP facilities, the LADWP shall have the right to immediately terminate said construction.

~~22A. All concentrated surface water which is draining away from the permitted activity shall be directed to an approved storm drain system where accessible, or otherwise restored to sheet flow before being released within or from the right of way.~~

~~22B. Drainage from the paved portions of the right of way shall not enter the unpaved area under the towers. Drainage diversions such as curbs shall be used on three sides of each tower. The open side of each tower shall be the lowest elevation side to allow storm water which falls under the tower to drain. The area under the towers shall be manually graded to sheet flow out from under the towers.~~

22C. Ponding or flooding conditions within the right of way shall not be allowed, especially around the transmission towers. All drainage shall flow off of the right of way.

~~22D. Licensee shall comply with all Los Angeles County Municipal Storm Water Permit and Standard Urban Storm Water Mitigation Plan requirements.~~

23A. Fills, including backfills, shall be in horizontal, uniform layers not to exceed six inches in thickness before compaction, then compacted to 90 percent relative compaction in accordance with the American Society for Testing and Materials D1557.

~~23B. The top two inches to six inches of the concrete footings of the towers shall remain exposed and not covered over by any fill from grading operations.~~

~~23C. Licensee shall provide the LADWP with one copy each of the compaction report and a Certificate of Compacted Fill, for clean fill compaction within the LADWP's right of way in accordance with the American Society for Testing and Materials D1557, approved by a geotechnical engineer licensed in the State of California.~~

24. A surety bond in the amount to be determined by the LADWP shall be supplied by the Licensee to assure restoration of the LADWP's right of way and facilities, and compliance with all conditions herein.

25. The Licensee shall obtain and pay for all permits and licenses required for performance of the work and shall comply with all laws, ordinances, rules, orders, or regulations

including, but not limited to, those of any agencies, departments, districts, or commissions of the State, County, or City having jurisdiction thereover.

~~26. The term "construction", as used herein, refers only to that construction incidental to the maintenance or repair of the existing (requested facility) and shall not be construed to mean permission to construct any additional (requested facility).~~

~~27. Signs shall not exceed four feet wide by eight feet long, shall not exceed a height of 12 feet, shall be constructed of noncombustible materials, and shall be installed manually at, and parallel with, the right of way boundary.~~

~~28. Remote-controlled gates, or lock boxes containing the device or key for opening the remote-controlled gates, shall be capable of being interlocked with an LADWP padlock to allow access to the right of way by the LADWP. Licensee shall contact LADWP's Transmission Construction and Maintenance Business Group at (818) 771-5014, or (818) 771-5076, to coordinate the installation of an LADWP padlock.~~

~~29. Licensee's cathodic protection system, if any, shall have a design that does not cause corrosion to LADWP facilities. A detailed design of the Licensee's cathodic protection system shall be submitted for approval to the Real Estate Services, 221 N. Figueroa St., Suite 1600, Los Angeles, California 90012, no later than 45 days prior to the start of construction or installation of the cathodic protection system.~~

~~30A. Licensee shall install K-rails at a distance of ten feet from each side of the tower base for protection of towers. A distance of five feet from the tower base may be acceptable in locations where the patrol roads would be obstructed.~~

~~30B. Licensee shall install removable pipe bollards, spaced four feet apart, and at a distance of ten feet from each side of the tower base for protection of towers. A distance of five feet from the tower base may be acceptable in locations where the patrol roads would be obstructed.~~

31A Licensee shall provide and maintain a minimum 20-foot wide transition ramp for the patrol roads from the pavement to the ground surface. The ramp shall not exceed a slope of ten percent.

~~31B. Licensee shall provide and maintain a minimum 20-foot wide driveway and gate at all locations where the (road/street) crosses the LADWP's patrol roads. The designed gates must be capable of being interlocked with an LADWP padlock to allow access to the right of way by the LADWP.~~

~~32. Licensee shall post a sign on the entrance gate to the right of way, or in a visible location inside the entrance gate, identifying the contact person's name and telephone number for the prompt moving of (vehicles/trucks/trailers/containers) at times of LADWP maintenance or emergency activities, or any other event that (vehicles/trucks/trailers/containers) must be moved. In emergency conditions, the LADWP reserves all rights at any time to move or tow (vehicles/trucks/trailers/containers) out of specific areas for any transmission operation or maintenance purposes.~~

EXHIBIT 5

RECORD OF DECISION

EPA Superfund

Interim Action Record of Decision

North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

09/30/2009

Interim Action Record of Decision

For the

North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

September 30, 2009

United States Environmental Protection Agency

Region IX – San Francisco, California

Table of Contents

List of Tables

List of Figures

List of Appendices

Acronyms and Abbreviations

µg/L	micrograms per liter
AOP	advanced oxidation process
ARAR	Applicable or Relevant and Appropriate Requirements
BAC	biologically activated carbon
bgs	below ground surface
BOU	Burbank Operable Unit
CAO	Cleanup and Abatement Order
CCR	California Code of Regulations
CDI	chronic daily intake
CDPH	California Department of Public Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
COPC	chemicals of potential concern
DTSC	State of California Department of Toxic Substances Control
DWR	Department of Water Resources
EPA	U.S. Environmental Protection Agency
FFS	Focused Feasibility Study
FS	Feasibility Study
GOU	Glendale Operable Unit
gpm	gallons per minute
HI	hazard index
HHRA	human health risk assessment
HQ	hazard quotient
ID	identifier
LADWP	Los Angeles Department of Water and Power
lbs	pounds
LPGAC	liquid phase granular activated carbon
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
msl	mean sea level
NAPLs	non-aqueous phase liquids
NDMA	N-Nitrosodimethylamine
NHE	North Hollywood Extraction
NHOU	North Hollywood Operable Unit
NPV	net present value
O&M	operation and maintenance

OU	Operable Unit
PCE	tetrachloroethylene, also known as perchloroethylene
PRP	Potentially Responsible Party
RfD	reference dose
RI	remedial investigation
RME	reasonable maximum exposure
ROD	Record of Decision
RSL	regional screening level
RWQCB	Los Angeles Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SDWA	Safe Drinking Water Act
SF	slope factor
SFV	San Fernando Valley
State	State of California
TCA	1,1,1-trichloroethane
TCE	trichloroethylene
TCP	1,2,3-trichloropropane
ULARA	Upper Los Angeles River Area
VOC	volatile organic compound
VPGAC	vapor-phase granular activated carbon

Part 1
Declaration

Part 1 – Declaration

1.1 Site Name and Location

The North Hollywood Operable Unit (NHOU) of the San Fernando Valley (Area 1) Superfund Site (Site) is located in Los Angeles County, California (CERCLIS ID No. CAD980894893).

1.2 Statement of Basis and Purpose

This Interim Action Record of Decision (ROD) selects a new interim remedy for the North Hollywood/Burbank Well Field area of the San Fernando Valley (Area 1) Superfund Site, and presents the selected interim remedy for the NHOU (Second Interim Remedy).[1] The Second Interim Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the administrative record for the Site. The State of California (State) concurs with this Second Interim Remedy.

The selection and implementation of a new remedy for the NHOU is necessary because the interim remedy selected in the Record of Decision for a Remedial Action for Area 1 of the San Fernando Valley Superfund Sites, dated September 23, 1987 (Existing NHOU Extraction and Treatment System), is no longer capable of fully containing the groundwater plume, and because new contaminants have been discovered in the aquifer. Selection and implementation of the Second Interim Remedy is intended to address the continued presence of significant dissolved-phase volatile organic compound (VOC) contamination in groundwater in exceedance of the Maximum Contaminant Levels (MCLs) or state notification levels, the presence of chromium and other emerging chemicals in groundwater in exceedance of the MCLs or state notification levels, and the need to achieve more complete capture of the VOC plume. Changing groundwater conditions in the aquifer and the discovery of VOC contamination in new areas have made it impossible for the Existing NHOU Extraction and Treatment System to fully contain the VOC plume. In addition, the Existing NHOU Extraction and Treatment System was not designed to treat chromium or the emerging chemicals that have been detected in the groundwater since its construction. The presence of elevated concentrations of chromium in the aquifer, as well as the lack of chromium treatment in the treatment system, resulted in the extended shutdown, in 2007, of one NHOU remedy (extraction) well, NHE-2, which serves an important plume containment function.

[1] The Selected Interim Remedy addresses groundwater contamination in the same geographic area as the interim remedy selected in the *Record of Decision for a Remedial Action for Area 1 of the San Fernando Valley Superfund Sites*, dated September 23, 1987 ("1987 ROD"). Because the interim remedy selected in the 1987 ROD was intended only to be the first phase in the response to groundwater contamination in the vicinity of the Los Angeles Department of Water and Power's North Hollywood well field, consistent with the NCP, EPA created a new OU, OU4, to manage the second phase of the response, which will be conducted pursuant to the Selected Interim Remedy. Despite the fact that EPA has created a new OU, it continues to refer to the response action in the vicinity of the North Hollywood well field as the "NHOU" in this document and elsewhere.

The scope of the remedy does not include restoration of the aquifer (i.e., removal of all manmade contaminants), in part because additional data are needed in some areas of the aquifer where the extent of contamination must be better defined before the U.S. Environmental Protection Agency (EPA) can determine what additional actions, if any, are needed to address these other areas of groundwater contamination. In the meantime, EPA considers it important to implement this remedy for groundwater as soon as practicable to prevent further migration of the known high-concentration contaminant plumes, as described above, and to collect additional data to evaluate the need for (and scope of) further action.

To ensure that the groundwater cleanup achieved by this remedy is sustained over the long term, EPA will continue to work closely with the State to ensure that contaminant source areas at individual facilities within the NHOU have been addressed.

1.3 Assessment of the Site

EPA has determined that hazardous chemicals have been released into groundwater within the NHOU, and that a substantial threat of release to groundwater still exists. The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

1.4 Description of the Second Interim Remedy

The Second Interim Remedy for the NHOU addresses contaminated groundwater by containing and remediating the groundwater using an extraction well network and above-ground water treatment system. The Second Interim Remedy is a containment remedy for groundwater contaminated with VOCs and chromium in the shallow and deep zone in the NHOU and is intended to prevent further migration of existing groundwater contamination.

The eastern region of the San Fernando Valley (SFV) is characterized by a continuous plume of VOC contamination that starts in the Area 1 Site and continues downgradient in a generally southeast direction through the Area 2 and Area 4 Sites. The NHOU comprises the western portion of the SFV Area 1 Superfund Site; to the east of the NHOU is the Burbank OU, where an interim pump-and-treat remedy has been in place and operating since 1996. By improving the capture of the contaminant plume within the NHOU, the Second Interim Remedy will minimize the migration of contaminants from the NHOU to the Burbank OU and to the downgradient SFV Area 2 Superfund Site. In the future, following additional plume characterization, evaluation of the performance of the Second Interim Remedy and an evaluation of the existing Burbank remedy, EPA will select a final remedy for the SFV Area 1 Site.

The Second Interim Remedy includes performance criteria that will require extraction and treatment of contaminated groundwater at certain locations within the plume, expanded treatment for VOCs, and additional treatment for chromium and 1,4-dioxane. The selected remedy also includes institutional controls (in the form of a groundwater management plan) to insure that changes in groundwater pumping from nearby water supply well fields do not have a negative impact on the NHOU remedy performance.

Components of the Second Interim Remedy for the North Hollywood Operable Unit include the following:

- Repair and/or modification (deepening) of existing extraction wells NHE-1 through NHE-8;
- Construction of approximately 3 new extraction wells and associated piping;
- Addition of the new VOC air stripper treatment process, and installation of a liquid phase granular activated carbon (LPGAC) treatment system;
- Wellhead treatment at existing extraction well NHE-2 to remove chromium and 1,4-dioxane;
- Ex situ chromium treatment for the combined inflow from existing extraction well NHE-1 and two of the new groundwater;
- Delivery of treated water to the Los Angeles Department of Water and Power ("LADWP") drinking water system;
- Institutional controls (ICs) in the form of a groundwater management plan; and,
- Installation of approximately 37 new groundwater monitoring wells.

1.5 Statutory Determinations

The Second Interim Remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is cost effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

This remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment).

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-Site (i.e., in groundwater) above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

1.6 ROD Certification Checklist

The following information is presented in the Decision Summary section (Part 2 of this ROD). Additional information can be found in the administrative record file for the NHOU.

- Contaminants of concern (COCs) and their respective concentrations (see Sections 2.5 and 2.8)
- Baseline risk represented by the COCs (see Section 2.7)
- Cleanup levels established for the COCs and the basis for these levels (see Section 2.8)

- Current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD (see Sections 2.6 and 2.7)
- Potential groundwater use that will be available at the Site as a result of the selected remedy (see Section 2.12)
- Estimated capital, operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (see Section 2.12)
- Key factors that led to selecting the remedy (i.e., how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria) (see Section 2.12)

1.7 Authorizing Signature

This ROD documents the Second Interim Remedy for contaminated groundwater at the North Hollywood Operable Unit of the San Fernando Valley (Area 1) Superfund Site. This remedy was selected with the concurrence of State of California Department of Toxic Substances Control. The Assistant Director of the Superfund Division (EPA, Region 9) has been delegated the authority to approve and sign this ROD.

Kathleen Salyer

9/30/09

Kathleen Salyer
Assistant Director, Superfund Division
California Site Cleanup Branch

Date

Part 2
Decision Summary

Part 2 – Decision Summary

2.1 Site Name, Location, and Description

The NHOU is one of two geographically-defined operable units within the San Fernando Valley (Area 1) Superfund Site. The NHOU comprises approximately 4 square miles of contaminated groundwater underlying an area of mixed industrial, commercial, and residential land use in the community of North Hollywood (a district of the City of Los Angeles). The NHOU is approximately 15 miles north of downtown Los Angeles and immediately west of the City of Burbank, and has approximate Site boundaries of Sun Valley and Interstate 5 to the north, State Highway 170 and Lankershim Boulevard to the west, the Burbank Airport to the east, and Burbank Boulevard to the south (see Figure 1).

The EPA is the lead agency for the current and planned future groundwater remedial activities at the NHOU. The EPA's response activities at the NHOU are and have been conducted under the authority established in the federal Superfund law, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. Section 9601 et seq. The lead state agency is the California Department of Toxic Substances Control (DTSC). The Los Angeles Regional Water Quality Control Board (RWQCB) has provided and continues to provide substantial support, particularly with the investigation and cleanup of sources of contamination in the SFV. The expected source of cleanup monies for the NHOU is an enforcement settlement with the Potentially Responsible Parties (PRPs).

2.2 Site History and Enforcement Activities

2.2.1 Site History

Prior to World War II, most land in the SFV was occupied by farms, orchards, and ranchland. By 1949, after the war, nearly all the land in Burbank and North Hollywood was occupied by housing developments, industrial facilities, retail establishments, and the Burbank Airport. Accompanying these land use changes in the 1940s was a substantial increase in population and groundwater withdrawals from the SFV. In the 1950s, the North Hollywood, Erwin, Whitnall, and Verdugo Well Fields were constructed by the LADWP in the North Hollywood area to meet the increasing demand for water. In 1968, groundwater withdrawals from the SFV were reduced to achieve "safe yield" from the basin, and more surface water was imported to the basin from external sources.

In 1979, industrial contamination was found in groundwater in the San Gabriel Valley (to the east of the SFV), prompting the California Department of Public Health (CDPH; formerly the California Department of Health Services) to request that all major water providers in the region, including those in the SFV, sample and analyze groundwater for potential industrial contaminants. Trichloroethylene (TCE) and tetrachloroethylene (PCE) were consistently detected in a large number of production wells in the SFV at concentrations greater than Federal and State MCLs for drinking water.

TCE and PCE were widely used in the San Fernando Valley starting in the 1940s for dry cleaning and for degreasing machinery. Disposal was not well regulated at that time, and releases

from a large number of facilities throughout the eastern SFV have resulted in the large plume of VOC-contaminated groundwater that extends from the NHOU to the southeast (see Figure 2). To replace wells within the NHOU area contaminated by TCE and PCE, and to provide more operational flexibility for groundwater recharge and pumping in the SFV, LADWP constructed the Rinaldi-Toluca Well Field in 1988 and 1989, and the Tujunga Well Field in 1993 (see Figure 1).

2.2.2 Federal, State, and Local Site Investigations and Remedial Actions

Based on the significant levels of groundwater contamination present in the SFV and the impact of that contamination on numerous municipal water supply wells, EPA added four SFV Sites to the NPL in 1986 and defined them as areas of regional groundwater contamination. Three of the four Sites (Areas 1, 2 and 4) are contiguous areas within whose boundaries are well fields that serve the water supply systems for the cities of Los Angeles, Burbank and Glendale. There is a large, continuous plume of groundwater contamination that runs through these three Sites. The fourth Site, Area 3, lies in the Verdugo basin, a geographically separate area of the eastern San Fernando Valley (see Figure 1).

In the SFV Area 1 Site, located at the upgradient end of the contaminated groundwater plume, the selection and implementation of the initial interim remedy – the Existing NHOU Extraction and Treatment System – for the LADWP's North Hollywood well field was given fast-track status because of the potential for contamination to spread to other well fields and areas of uncontaminated groundwater. In 1986, LADWP completed the *Operable Unit Feasibility Study for the North Hollywood Well Field Area of the North Hollywood-Burbank NPL Site* (LADWP, 1986), which was the basis for selection and implementation of the Existing NHOU Extraction and Treatment System. The 1987 ROD for the Site selected the Existing NHOU Extraction and Treatment System as an interim groundwater containment remedy.

In 1989, LADWP constructed the Existing NHOU Extraction and Treatment System with financial support from EPA. The Existing NHOU Extraction and Treatment System consists of eight groundwater extraction wells (NHE-1 through NHE-8), an air-stripping treatment system to remove VOCs from the extracted groundwater, activated carbon filters to remove VOCs from the air stream, and ancillary equipment. The treated groundwater is discharged into an LADWP blending facility where it is combined with water from other sources before entering the LADWP water supply system. The Existing NHOU Extraction and Treatment System commenced operation in December 1989 and remains in operation today.

In 1989, EPA issued a ROD for the Burbank OU (BOU) of the SFV Area 1 Site. That ROD also selected an interim remedy (containment) for the VOC-contaminated groundwater within the Burbank area, where ten of the city's water supply wells had been shut down due to contamination. The BOU remedy, which provides treated water for the City of Burbank's water supply system, began operation in 1996 and remains in operation to this day.

In December 1992, a remedial investigation (RI) for the SFV groundwater basin, including installation and subsequent regular monitoring of 84 groundwater wells, was completed under a cooperative agreement between EPA and the LADWP. The RI was conducted to evaluate the groundwater quality throughout the SFV basin and assist in identifying the best treatment method(s) and optimal locations to install groundwater treatment systems to address the SFV groundwater contamination.

EPA listed the SFV Sites as groundwater only, with the intent to focus on addressing the regional groundwater contamination, with an agreement with the state agencies to address the sources. From the late 1980s to late 1990s, EPA provided funds to RWQCB to conduct assessments of facilities in the SFV to determine the extent of solvent usage and to assess past and current chemical handling, storage, and disposal practices. These investigations were conducted pursuant to RWQCB's Well Investigation Program and resulted in source remediation activities under RWQCB oversight at several facilities within the SFV, including two within the NHOU. Source investigations and remediation activities are currently in progress under the lead of RWQCB and DTSC.

In 1993, 1998, 2003, and 2008, EPA conducted five-year reviews (as required by CERCLA) to evaluate the protectiveness of the NHOU interim remedy. The *Third NHOU Five-Year Review (*EPA, 2003) reported that the TCE and PCE groundwater plume that the remedy was designed to capture was migrating vertically and laterally beyond the remedy's zone of hydraulic control. This conclusion was based largely on EPA's evaluation of the current NHOU groundwater conditions and LADWP findings in the *Draft Evaluation of the North Hollywood Operable Unit and Options to Enhance Its Effectiveness* (LADWP, 2002). The *Final Evaluation of the North Hollywood Operable Unit and Options to Enhance Its Effectiveness* (LADWP, 2003) also raised concerns regarding detections of total chromium and hexavalent chromium in extraction well NHE-2 of the NHOU interim remedy. Well NHE-2 is located just a short distance from the former Bendix facility, one of the major VOC sources in the NHOU.

In July 2006, after a year of unusually high rainfall and rising groundwater levels in the SFV, the total chromium concentration detected at NHOU extraction well NHE-2 began to increase. Chromium was used in the metal plating and aerospace industry (metal fabrication), as well as for corrosion inhibition in industrial cooling towers, from the 1940s through the 1980s. It was also used extensively at the former Bendix facility. In 2007, the elevated concentrations of chromium at well NHE-2 caused total chromium concentrations in the combined NHOU treatment system effluent to exceed 30 micrograms per liter (µg/L) (60 percent of the state MCL). As a result, CDPH advised LADWP to shut down well NHE-2 or divert the water produced by the well to a nonpotable use. Chromium concentrations at this well have subsequently ranged from approximately 280 to 440 µg/L. In addition, 1,4-dioxane was detected at well NHE-2 during 2007 and 2008 at concentrations ranging from 4 to 7 µg/L. There is no MCL for 1,4-dioxane, but the CDPH notification level for 1,4-dioxane is 3 µg/L.

Extraction well NHE-2 remained shut down until September 2008, when the installation of a wellhead VOC treatment unit and modification of the discharge piping were completed, which allowed this well to return to service. The NHE-2 effluent, which still contains elevated levels of chromium, is currently discharged to the Los Angeles Bureau of Sanitation sewer system. This work was conducted by Honeywell International (a corporate successor to Bendix) as an interim measure, pursuant to a Cleanup and Abatement Order (CAO) from RWQCB that requires Honeywell to clean up the chromium contamination and to restore lost water caused by the shut down of well NHE-2. A long-term wellhead treatment system for well NHE-2, including treatment for chromium and, if necessary, 1,4-dioxane, to meet drinking water standards is expected to be implemented pursuant to the RWQCB CAO prior to the implementation of the NHOU Second Interim Remedy.

2.2.3 History of CERCLA and State Enforcement Actions

Following construction and start up of the Existing NHOU Extraction and Treatment System, EPA issued general and special notice letters to PRPs. In 1996 and 1997, EPA reached two separate settlements with PRPs in which the settling parties agreed to pay EPA's past costs and fund operation of the Existing NHOU Extraction and Treatment System for the remainder of its fifteen-year term. In 2008, when the funds collected pursuant to the 1996 and 1997 settlements were close to being exhausted, EPA entered into an administrative order on consent with a number of parties from 1996 and 1997 settlements and issued a unilateral administrative order to the remaining viable parties in order to secure funding to continue operating the Existing NHOU Extraction and Treatment System until the Second Interim Remedy is constructed and operational. In preparation for the selection and implementation of the Second Interim Remedy, EPA has conducted additional PRP search activity.

The RWQCB has issued CAOs to two parties in the NHOU. In December 1987, Lockheed was issued a CAO (No. 87-161) directing it to remediate contaminated soil and groundwater at Plant B-1 (in the BOU) and to complete a comprehensive Site assessment at all of Lockheed's other Burbank Airport facilities, including Plants B5 and C1 (in the NHOU), to determine the sources and extent of soil and groundwater contamination. The RWQCB issued a CAO in February 2003 (No. R4-2003-037) to Honeywell International, Inc., for VOC and chromium contamination in groundwater at the former Bendix facility in North Hollywood. This CAO was amended in April 2007 to include investigation and mitigation of emerging contaminants at the former Bendix facility and to address elevated chromium concentrations at NHOU extraction well NHE-2.

2.3 Community Participation

After listing the SFV Area 1 Superfund Site on the NPL, EPA developed a Community Involvement Plan that outlined the types of activities envisioned to keep the local community informed. Throughout its involvement in the SFV, EPA has kept State agencies, cities, businesses, residents and property owners in and near the Site informed of its activities and the results of its studies via periodic newsletters. These newsletters and other documents referred to in this ROD are available to the public as part of the administrative record file at the EPA Region 9 Superfund Records Center in San Francisco, California. The administrative record is also available for public review at the following information repositories:

- City of Los Angeles Central Library, Science & Technical Department: 630 West 5th Street, Los Angeles, CA, 90071
- North Hollywood Regional Branch Library, 5211 Tujunga Avenue, North Hollywood, CA, 91601
- Burbank Public Library, Central Library, 110 North Glen Oaks Blvd., Burbank, CA, 91502
- Glendale Public Library, 222 East Harvard St., Glendale, CA, 91205

The Focused Feasibility Study (FFS) report and Proposed Plan for the NHOU Second Interim Remedy were made available to the public in July 2009. The notice of the availability of the FFS

and Proposed Plan for NHOU was published in the Daily Breeze on July 8, 2009. EPA held a public meeting in Burbank on July 21, 2009, to present the Proposed Plan to the community and other NHOU stakeholders. At this meeting, EPA representatives were also available during an open house session to answer questions about the NHOU and the remedial alternatives evaluated in the FFS.

The original public comment period on the Proposed Plan was set for July 13 to August 10, 2009. An extension to the public comment period was requested shortly after the public meeting and, as a result, it was extended to September 10, 2009. The public was notified of this extension through a public notice published in the Daily Breeze on August 8, 2009, a flyer sent to the NHOU mailing list, and an email notice sent to state and local agencies, elected officials, PRPs and other stakeholders. EPA's responses to the comments received during this period are included in the Responsiveness Summary, which is Part 3 of this ROD.

2.4 Scope and Role of Operable Unit

2.4.1 Role of Operable Unit

This section briefly describes the NPL Sites in the eastern SFV, to provide context for the role of the selected NHOU remedy and how it relates to the response actions underway in the nearby Burbank and Glendale OUs.

As noted earlier, there are four NPL Sites in the eastern SFV:

- Area 1 – North Hollywood: made up of the NHOU and the Burbank Operable Unit (BOU)
- Area 2 – Crystal Springs: includes the Glendale North and Glendale South Operable Units (referred to collectively as the Glendale OU or GOU)
- Area 3 – Verdugo
- Area 4 – Pollock

All of these Sites were listed on the NPL as "groundwater only" Sites, i.e., only the regional groundwater contamination was intended to be addressed by EPA's Superfund program. Due to the vast size of each of these Sites, it was agreed with the State that it would address the vadose zone contamination from sources, and EPA would address the groundwater contamination.

EPA has issued RODs for the NHOU (1987) and the BOU (1989) in the Area 1 NPL Site, the Glendale OUs (1993) in the Area 2 NPL Site, and the Area 3 (Verdugo) NPL Site. In the cases of the Area 1 and Area 2 Sites, EPA selected interim pump-and-treat remedies to "slow down or arrest" the migration of VOC-contaminated groundwater and remove contaminant mass. The purpose of these interim remedies was to stop the further spread of contamination as much as possible and begin to remove contaminant mass from the aquifer while the state worked on source identification and cleanup. EPA also planned to further characterize the regional groundwater contamination and aquifer characteristics to provide the basis for evaluating and selecting additional response actions leading to a final remedy at each Site.

In 2004, EPA issued a no-action ROD for the SFV Area 3 (Verdugo) Site, which was subsequently deleted from the NPL in October 2004. No Superfund remedy has been selected by

EPA for the Area 4 Site. However, in 1998, LADWP completed construction of the Pollock Wells Treatment Plant, which enabled LADWP to reactivate the Pollock well field. LADWP continues to operate the Pollock treatment plant to remove VOCs from groundwater, which is then used as part of the City's water supply system.

The Existing NHOU Extraction and Treatment System has been operating since 1989, and the BOU interim remedy has been operating since 1996. The GOU interim remedy, which consists of two extraction well fields and one treatment plant, began limited operations in August 2000 and achieved full operational capacity in June 2002. The treated water from the BOU and GOU remedies is delivered to the cities of Burbank and Glendale, respectively, for use in their municipal water supply systems.

The Second Interim Remedy addresses groundwater contamination in that part of the eastern SFV at the upgradient end of a continuous plume of VOC-contaminated groundwater that extends from the North Hollywood area down through Burbank and Glendale and into the Pollock area (see Figure 2). The primary role of the Second Interim Remedy for the NHOU is to improve containment of contaminated groundwater in the North Hollywood area (including the areas of highest contamination) in order to limit its migration downgradient and to prevent further contamination of LADWP production (water-supply) wells.

The direction of regional groundwater movement in the eastern SFV is generally south and southeast; therefore, groundwater contamination that escapes capture in the NHOU will tend to migrate towards the BOU and GOU. The primary roles of the BOU and GOU remedies are to contain groundwater contamination in the Burbank and Glendale areas, respectively. Secondary roles for each of the remedies in these OUs (NHOU, BOU, and GOU) include reduction of contaminant mass in groundwater through treatment.

2.4.2 Scope of Response Action

Selection and implementation of the Second Interim Remedy in the NHOU is intended to address the continued presence of contaminated groundwater in the vicinity of the LADWP production well fields within and adjacent to the North Hollywood area as well as uncertainties about lateral and vertical extent of the VOC plume in certain parts of the NHOU. The NHOU plume contains significant VOC contamination, along with the localized areas where chromium and other emerging chemicals exceed the MCLs or state notification levels. The Existing NHOU Extraction and Treatment System is not designed to remove chromium or the other emerging contaminants, and it is unable to achieve adequate capture of the VOC plume.

The scope of the Second Interim Remedy is:

1. Containment of the contaminant plume in the NHOU to the extent practicable, including containment of the highest-concentration VOC, chromium, and emerging contaminant plumes in groundwater in the immediate vicinity of the Existing NHOU Extraction and Treatment System. This will prevent the further migration of contaminated groundwater to the nearby Rinaldi-Toluca and North Hollywood West production wells and to areas of the aquifer with significantly lower contaminant concentrations.
2. Expansion of the NHOU groundwater monitoring well network to adequately monitor performance of the Second Interim Remedy and provide data required to optimize future system performance.

The scope of the Second Interim Remedy does not include restoration of the aquifer (i.e., attainment of MCLs and other groundwater cleanup goals in the aquifer) within the NHOU. This is because additional data are needed in some areas of the aquifer where the extent of contamination is not completely delineated before EPA can determine what additional remedial actions, if any, are needed to address these other areas of groundwater contamination. Additional data obtained during design and implementation of the Second Interim Remedy is expected to provide the basis for EPA's development of a final remedy for the NHOU. In the meantime, EPA considers it important to implement the Second Interim Remedy as soon as practicable to prevent further migration of the contaminant plumes, as described above, as well as to collect additional data to evaluate the need for (and scope of) further action within the NHOU. The Second Interim Remedy will be consistent with implementation of the final remedy for the NHOU and the SFV Area 1 Site, including any additional response actions for the Burbank OU.

2.5 Site Characteristics

2.5.1 Conceptual Site Model

For the San Fernando Valley (Area 1) Site, the conceptual Site model consists of past spills, leaks, or other releases of hazardous contaminants that have occurred at several sources within the NHOU, which has resulted in significant groundwater contamination that poses a potential risk to human health via the use of contaminated groundwater for potable water supply.

Significant releases of VOCs (primarily TCE and PCE) and other contaminants have occurred at several sources within the NHOU, including the former Bendix facility in North Hollywood and the Lockheed facilities near the western end of the Burbank Airport, resulting in contamination of underlying soil and groundwater. Two hot spots of VOC contamination, where concentrations are greater than 1,000 µg/L, are present in shallow groundwater in the immediate vicinity of these facilities (Figure 3). In deeper groundwater, localized areas of high VOC concentrations also exist, although concentrations are lower than those found in the shallow groundwater hot spots (Figure 4).

High concentrations of hexavalent and total chromium (see Figure 5), together with elevated levels of other emerging contaminants (most notably 1,4-dioxane) have also been detected in groundwater below the former Bendix facility. Other facilities may have discharged chromium and other emerging contaminants that impacted groundwater quality within NHOU; however, the highest concentrations detected to date (by three orders of magnitude for chromium) occur at, and downgradient from, the former Bendix facility.

Groundwater in the NHOU generally flows south and southeast, approximately parallel to the axis of the Existing NHOU Extraction and Treatment well field. Much of the contaminated groundwater present near the extraction well field is "captured" by the extraction wells and pumped from the aquifer. Groundwater that is not captured by the Existing NHOU Extraction and Treatment System, including groundwater in areas of the aquifer outside of the capture zone for the NHOU extraction wells, is withdrawn by LADWP water supply wells in and near the NHOU, or by the extraction well fields of the Burbank and Glendale OU remedies to the east and southeast (Figure 2).

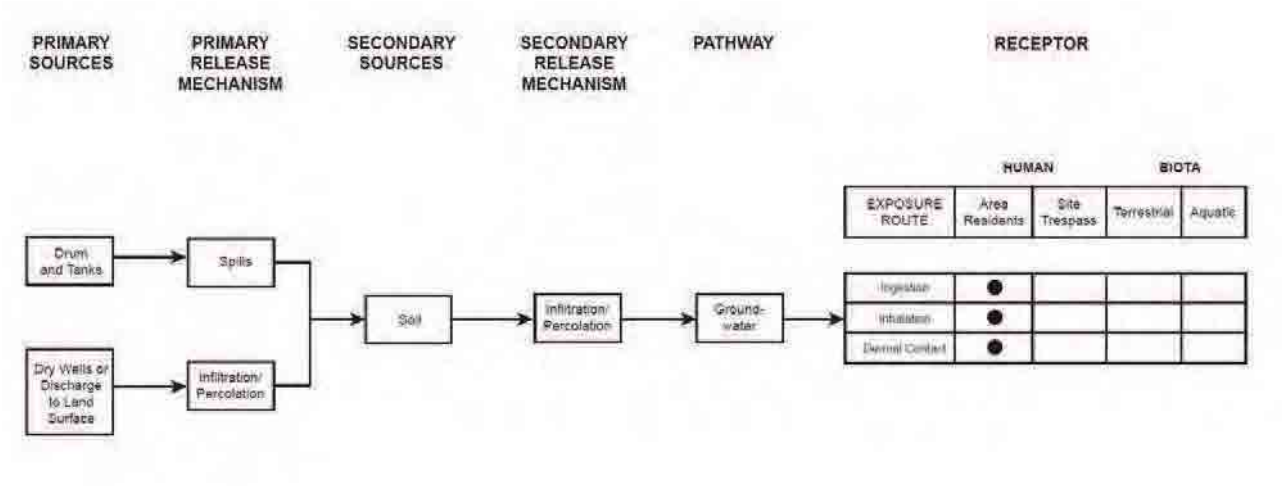
Some of the VOCs, chromium, and emerging contaminants that have spilled or leaked in the NHOU remain in the vadose zone. In 2006, a rising water table in the NHOU apparently intersected a substantial mass of VOCs and chromium in the vadose zone at the former Bendix facility (at an elevation that had not been saturated for several years), causing concentrations to increase an order of magnitude or more at downgradient wells, including NHOU extraction well NHE-2. Honeywell International, which has assumed responsibility for the former Bendix facility by virtue of a corporate merger, is currently conducting *in situ* remediation of hexavalent chromium in the vadose zone and groundwater at the former Bendix facility to mitigate this contaminant threat to groundwater.

The Existing NHOU Extraction and Treatment System was designed to remove VOC contaminant mass and contain the groundwater plume in the most contaminated portions of the NHOU, which are primarily located downgradient from the former Bendix facility and the Lockheed facilities. For several reasons, the design flow rate of 2,000 gallons per minute (gpm) for the first interim remedy has not been met, and as a result, the degree of plume containment has been less than intended. A key factor is that extraction well NHE-1 was shut down before the system became operational because of changes in groundwater conditions resulting in insufficient groundwater yield, and it has not been pumped since the system began operations in December 1989. Additional factors include declining groundwater levels, maintenance problems, and periodic shutdowns of extraction well NHE-2 due to excessive chromium concentrations.

The Existing NHOU Extraction and Treatment System's effectiveness is also currently limited because it was designed to extract and treat groundwater primarily from Depth Region 1, where groundwater contamination was known to exist in the 1980s. However, in the intervening years, substantial TCE and PCE concentrations have been detected in Depth Regions 2 and 3 in the NHOU. With the exception of extraction well NHE-6, the NHOU extraction wells are screened in Depth Region 1 and the upper part of Depth Region 2 to maximum depths ranging from 270 to 300 feet below ground surface (bgs). Elevated concentrations of TCE and PCE have now been detected in the lower part of Depth Region 2 and in Depth Region 3 in areas north of extraction well NHE-2 and south of extraction wells NHE-7 and NHE-8, and the extraction system is incapable of completely containing these deeper contaminant plumes. This has allowed migration of TCE and PCE contamination to nearby LADWP well fields including the Rinaldi-Toluca well field and the North Hollywood West well field.

Because the San Fernando Valley (Area 1) Site is considered a groundwater-only Site and the SFV groundwater is used by LADWP, Burbank, and Glendale for municipal drinking water supply, the exposure pathway considered in the human health risk assessment was residential use of groundwater for potable water supply (with exposure occurring via ingestion and inhalation). The conceptual Site model is graphically illustrated in Figure 6. Groundwater/surface water interactions do not occur within the NHOU, and as a result, the ecological risk posed by contaminants in groundwater is negligible.

Figure 6: Conceptual Site Model



2.5.2 Overview of the Site

The NHOU lies within the San Fernando Valley, which is an alluvial basin in the south-central portion of the Transverse Ranges of Southern California. The SFV is bordered on the east by the Verdugo Mountains, on the west by the Simi Hills, on the north by the Santa Susana and San Gabriel Mountains, and on the south by the Santa Monica Mountains. Average annual precipitation in the SFV (valley floor) is 16.48 inches. The San Fernando Valley is extensively developed, dominated by residential, retail, and industrial land use in the area of the NHOU.

The area of the NHOU is approximately 4 square miles, and is characterized by a relatively flat topographic surface that slopes gently to the south-southeast from approximately 800 feet above mean sea level (msl) in the north, to approximately 600 feet msl in the south. A concrete-lined flood control channel, the Central Branch of Tujunga Wash, is present along the western edge of the NHOU. The Los Angeles River, also concrete-lined in the vicinity of North Hollywood, is present south of the NHOU and drains stormwater runoff from most of the SFV, including North Hollywood (see Figure 1).

The NHOU is situated in the eastern half of the San Fernando Valley basin, which is underlain by alluvial deposits consisting of coarse materials, such as sands and gravels, interbedded with localized lenses of clays and silts. This portion of the basin has some of the best aquifer characteristics (from a water production perspective), and the well fields within the vicinity of the NHOU provide a large proportion of the groundwater produced from the basin. Locally, groundwater flow is influenced by well field pumping and by groundwater recharge at the Hansen, Branford, and Tujunga spreading grounds, which are located north of the NHOU. These spreading grounds are used by LADWP to increase infiltration of storm water runoff from streams issuing from the San Gabriel Mountains, rather than allowing most of this water to flow out of the basin as surface water.

The depth to groundwater in nonpumping wells near the NHOU extraction well field is approximately 240 to 250 feet bgs. Groundwater levels measured at most NHOU monitoring wells declined approximately 20 to 50 feet from the mid-1990s to 2004, which corresponds to increases in groundwater production and declines in recharge in the SFV. Pumping groundwater

levels at the NHOU extraction wells reportedly approached the depths of the pump intakes in 2003 to 2004, near the bottom of the screened intervals, in the range of approximately 260 to 290 feet bgs. This condition limited extraction well pumping rates.

Horizontal hydraulic gradients in the eastern SFV are generally south and east, toward the Los Angeles River Narrows, where essentially all groundwater and surface water outflow from the SFV occurs. In the NHOU, horizontal hydraulic gradients range from south to southeast, with the active LADWP production well fields having localized effects on groundwater flow. Since the original ROD for this Site, the groundwater flow direction near the NHOU extraction system has changed in response to seasonal and annual variations in pumping rates at the nearby Rinaldi-Toluca Well Field (to the northwest), the western portion of the North Hollywood Well Field (to the west), and the Whitnall Well Field (to the south). Pumping in the BOU (to the east) and more distant well fields in the NHOU has also affected hydraulic gradients and groundwater flow directions, although to a lesser extent.

Groundwater flow velocities in the NHOU were estimated during the RI to range from approximately 290 to 1,000 feet per year, depending on location. Estimated groundwater flow velocities are generally highest in the area of the NHOU extraction system where aquifer hydraulic conductivities are highest.

2.5.3 Sampling Strategy

In 1985, groundwater contamination by VOCs was detected in water supply wells in the SFV, including the areas that later became the four NPL Sites. By 1992, EPA had constructed and begun monitoring a network of 84 groundwater monitoring wells in the eastern SFV (referred to as “RI monitoring wells”), including the NHOU. Additional monitoring wells were constructed by others at several industrial facilities in and near the NHOU during the 1980s and 1990s. More recently (since 2003), Honeywell has constructed several new monitoring wells to delineate the extent and direction of contaminant migration from the former Bendix facility in North Hollywood. Most of the RI and other monitoring wells in the NHOU are sampled and analyzed periodically (typical sampling frequency ranges from quarterly to annually) for chemicals of potential concern (COPCs).

In addition to groundwater sampling, many of the facility-specific investigations directed by RWQCB and DTSC also included collection and analysis of soil samples and/or soil vapor samples to delineate contamination in near-surface and deep soils at facilities suspected as source areas for COPCs.

2.5.4 Contaminant Source Areas

While EPA is the lead agency for addressing groundwater contamination at the SFV NPL Sites, investigation and cleanup at the source areas have been managed by the RWQCB. From the late 1980s to late 1990s, EPA provided funds to the RWQCB to conduct facility assessments in the SFV. These investigations were conducted pursuant to the RWQCB’s Well Investigation Program and resulted in source remediation activities at facilities within the SFV. Many of these investigations and source remediation activities are still in progress and will continue because they are important to ensure that the groundwater remedy is maximally effective and the groundwater quality improvements gained by the NHOU remedy are sustained over time.

Of the many facilities investigated by DTSC and RWQCB, approximately 25 have been ordered to sample for contaminated soils. Of these 25 facilities, the former Bendix facility (for which

Honeywell International, Inc. has assumed responsibility) and Plants C-1 and B-5 at the former Lockheed Martin Corporation facility have been identified as the largest contributors of VOCs and chromium to the NHOU. Both Honeywell and Lockheed have taken steps to remove or otherwise address contaminated soil on these properties.

At its facilities in the San Fernando Valley, Lockheed used a variety of solvents, thinners, sealants, adhesives, oils, cleaners, lubricants, and paints from approximately 1936 – 1991. Soon after the San Fernando Valley NPL sites were identified, the RWQCB issued Lockheed a CAO requiring groundwater quality assessments and soil cleanup at the contaminated sites. Soil investigations conducted from 1986-1993 revealed that Plant C-1, located in the western portion the Burbank airport, was contaminated with PCBs, VOCs, and petroleum hydrocarbons. In response, Lockheed installed 62 groundwater-monitoring wells and ordered soil removal where appropriate. By 1994, sampling showed that excavated areas had attained the cleanup goals set by the RWQCB, and Lockheed was issued a No Further Action (NFA) letter for VOC clean up in this area.

Soil gas samples and groundwater monitoring data suggested that Lockheed plant B-5, also located on the western end of the Burbank airport, was another source of VOC contamination in the NHOU, and groundwater and soil gas were continuously monitored at Plant B-5 from 1989-1998. In 1998, the RWQCB determined that the site was not contributing to further VOC contamination and issued a NFA letter. The RWQCB and the EPA are currently working with Lockheed to re-assess sites as potential chromium sources.

Through corporate mergers, Honeywell is now responsible for cleanup actions at three adjacent NHOU properties where Allied Signal-Aerospace Co. and Bendix Aviation, Ltd conducted operations from 1941-1992. Operations at these facilities involved the use of heavy metals, acids, cyanide, petroleum, chlorinated cleaning solvents, motor fuels, and hydraulic test oils. Honeywell began working with the RWQCB to investigate and remediate the three facilities in 1984. Honeywell's cleanup activities included installation of groundwater monitoring wells and multiple soil excavations. In 2003 the RWQCB issued Honeywell a CAO requiring additional groundwater quality assessments and soil removal at the three sites. Since the issuance of the CAO, Honeywell has installed additional groundwater monitoring wells, injection borings, and a soil vapor extraction remedy.

In 2007, the RWQB issued a General Waste Discharge Requirement permit to Honeywell that allows for the *in-situ* remediation of soil contaminated with hexavalent chromium. Once a complete model is developed, the RWQCB expects Honeywell to conduct further excavation and cleanup of its respective properties.

The EPA, DTSC, and RWQCB are in the process of evaluating additional sites where releases of contaminants may have occurred. As part of this effort, the State and EPA have launched several efforts aimed at identifying additional sources of VOCs and emerging contaminants, including a basin-wide (NHOU, BOU, and GOU) sampling effort aimed at locating additional sources of chromium. As potential sources are identified, the agencies will work cooperatively to identify the appropriate lead agency for oversight of investigation and cleanup work.

2.5.5 Types of Contamination and Affected Media

Operations at several industrial facilities in the NHOU have resulted in the discharge of COCs and COPCs to the vadose zone and the underlying groundwater. The primary COCs at the NHOU have historically been TCE and PCE. TCE and PCE are solvents that have been widely used as industrial cleaning and degreasing agents, are mobile in groundwater, and are known to have both carcinogenic and non-carcinogenic impacts on human health. Carbon tetrachloride, 1,1,1-trichloroethane (TCA), and several other chlorinated VOCs have also been detected in NHOU extraction wells, typically at lower concentrations than TCE and PCE.

Two emerging contaminants of concern, hexavalent chromium and 1,4-dioxane, have been detected in the last few years in one of the NHOU extraction wells at concentrations that exceed the MCL for chromium and the state's notification level for 1,4-dioxane. Both of these contaminants are mobile in groundwater and have both probable carcinogenic and non-carcinogenic impacts on human health. Chromium's industrial uses include metal plating operations and aviation and aerospace parts manufacturing. Hexavalent chromium was also used to inhibit corrosion in industrial cooling towers. 1,4-dioxane is a stabilizing agent that was added to chlorinated solvents such as TCE and TCA, and is often associated with VOC contamination in groundwater. 1,4-dioxane is also commonly found in some paint strippers, dyes, greases, varnishes, waxes, antifreeze, and aircraft deicing fluids.

The target medium for the EPA's Second Interim Remedy in the NHOU is groundwater. The uppermost layer of the aquifer contains the highest known concentrations and masses of VOC and chromium contamination, which are the primary targets of the Second Interim Remedy. Some contamination "hot spots" have been detected in deeper layers and will be further investigated by EPA so that appropriate action can be implemented for this deeper groundwater contamination.

2.5.6 Location of Contamination and Potential Routes of Migration

Groundwater contamination within the NHOU is present from the water table to depths exceeding 500 feet bgs, although certain contaminants (such as hexavalent chromium) are present primarily in the upper layer of the aquifer and/or only in localized areas. Since 1996, EPA has been defining aquifer zones in the NHOU by four depth regions and has used these depth regions as the basis for mapping the extent of contamination. All four depth regions are below the water table and correspond to common screened intervals (typically placed in more permeable strata) for monitoring and production wells in the NHOU. The depths and thicknesses of the depth regions can vary depending on location within the NHOU. Following are descriptions of the four depth regions:

- **Depth Region 1.** This depth interval occurs from approximately 200 to 280 feet bgs, with a typical thickness of 75 feet; it includes the screened intervals for most shallow monitoring wells and some older production wells.
- **Depth Region 2.** This depth interval ranges from approximately 280 to 420 feet bgs, with a typical thickness of 140 feet; it includes highly permeable deposits that are penetrated by most production wells in the NHOU.

- **Depth Region 3.** This depth interval occurs from approximately 420 to 660 feet bgs, with a typical thickness of 240 feet; it can be very permeable and includes the screened intervals for many of the newer LADWP production wells in the NHOU.
- **Depth Region 4.** This depth interval includes all of the basin-fill alluvial deposits deeper than 660 feet bgs, with a typical thickness ranging from 100 feet to more than 500 feet; few wells have penetrated this depth region.

The lateral and vertical extent of the primary COCs (TCE, PCE and hexavalent chromium) are shown on Figures 3 through 5 and discussed in more detail below.

TCE and PCE

Figure 3 shows the TCE and PCE concentration contours in Depth Region 1, which are based on the constituent with the higher concentration at each data point from January 2003 through December 2007. This period was selected as being representative of recent conditions in the NHOU, which are most relevant to the selection of a groundwater remedy.

The data shown on Figures 3 and 4 indicate that TCE and PCE concentrations exceeding 5 µg/L are present in a wide area of the NHOU and continue into the BOU, to the east. With few exceptions, TCE concentrations are greater than PCE concentrations within the NHOU, and TCE "hot spots," with concentrations ranging from 50 to 2,900 µg/L, occur within Depth Region 1 of the NHOU.

An area of particularly high TCE concentrations (ranging from 50 to greater than 1,000 µg/L) is centered near the southern boundary of the former Bendix facility. Another area of high TCE concentrations is centered on a Lockheed facility monitoring well near the western end of the Burbank airport runway, with a recent peak concentration of 1,200 µg/L.

In Depth Regions 2 through 4, TCE and PCE concentrations in excess of the MCL are also distributed over a substantial area of the NHOU (see Figure 4), although concentrations are much lower than in Depth Region 1. Notable areas with elevated concentrations include the following:

- Northeast of the Rinaldi-Toluca Well Field
- Immediately south of the former Bendix facility
- East of the Whitnall Well Field

Chromium

Reported total chromium concentrations in the NHOU are highly variable at some wells partly because of differing analytical methods used by the various laboratories and variations in sample collection, filtration, and preservation during different investigations. These investigations were performed by various state and federal agencies and property owners or operators. Over time, analytical methods, sample collection and management processes, and regulatory guidance have been developed or updated to enhance the quality of chromium sampling and data results.

Total and hexavalent chromium detections in excess of the state MCL for total chromium of 50 µg/L are located at, or south (downgradient) of, the former Bendix facility. Total chromium concentrations have ranged as high as 48,000 µg/L in this area. Total chromium levels in the active NHOU extraction wells have reached maximum concentrations ranging from 2 µg/L at

NHE-8 to 440 µg/L at NHE-2. Historically (1990 through 2002), well NHE-2 has had the highest total and hexavalent chromium concentrations of all the extraction wells.

Concentrations of total and hexavalent chromium in Depth Regions 2 through 4 have been as high as 2,010 µg/L and 2,000 µg/L, respectively in the vicinity of the former Bendix facility. However, in most of the SFV, total and hexavalent chromium concentrations are typically elevated in only the uppermost aquifer zones.

Trace background concentrations of chromium occur in SFV groundwater, typically at levels below 3 µg/L, as a result of naturally occurring chromium in the soils comprising the aquifer material.

Emerging Chemicals

Available recent data (January 2003 to December 2007) for several of the emerging chemicals of potential concern, including 1,2,3-trichloropropane (TCP), 1,4-dioxane, N-Nitrosodimethylamine (NDMA), and perchlorate, were reviewed as part of the FFS for the NHOU. In general, the concentrations of TCP, NDMA, and perchlorate in the extraction wells are not expected to exceed the respective MCLs, and therefore will not require treatment. The results for 1,4-dioxane are summarized below.

1,4-dioxane: The state established a drinking water notification level of 3 µg/L for 1,4-dioxane in 1998. Neither CDPH nor EPA has established an MCL for 1,4-dioxane in drinking water. 1,4-dioxane, a semivolatile organic compound, is commonly associated with TCA and TCE contamination in groundwater. In Depth Region 1, 1,4-dioxane has recently been detected in groundwater samples from 20 monitoring wells in or adjacent to NHOU at concentrations that exceed the state drinking water notification level. The highest concentrations of 1,4-dioxane in the NHOU were detected at the former Bendix facility. 1,4-dioxane was also detected at concentrations exceeding the notification level at NHOU extraction wells NHE-2 and NHE-4 at concentrations of 7 and 3.2 µg/L, respectively. In Depth Regions 2 through 4, 1,4-dioxane has been detected above the notification level at former Bendix facility monitoring wells.

All NHOU groundwater contaminants are present in the dissolved phase and will continue to migrate with the regional hydraulic gradient to the south and southeast via advective flow. If nearby LADWP water-supply well fields are pumped at sufficiently high rates, groundwater contamination may be drawn west and northwest toward these well fields. Dispersion, retardation, and biological degradation will affect contaminant migration to some degree. In certain parts of the eastern SFV (primarily Glendale), high groundwater levels can result in the discharge of groundwater in the unlined portions of the Los Angeles River.

There is no evidence to suggest that non-aqueous phase liquids (NAPLs) are present within the NHOU, either in the vadose zone or in groundwater.

2.6 Current and Potential Future Land and Water Uses

The land use in the SFV Area 1 Site, including the NHOU, consists of mixed residential, industrial, and commercial use. The SFV is fully developed and land uses in the NHOU are not expected to change significantly in the next 20 years or longer.

The SFV groundwater basin is an important source of drinking water for the Los Angeles metropolitan area, including the cities of Los Angeles, Glendale, Burbank, and San Fernando. The SFV is located in the Upper Los Angeles River Area (ULARA), which is under adjudicated water rights regulated by the ULARA Watermaster. Through court action in 1975, the City of Los Angeles was granted rights to all groundwater in the San Fernando Basin that is derived from precipitation within ULARA.

There are a number of production well fields in the eastern SFV, including six LADWP well fields located in or near the NHOU. The output from the existing NHOU remedy accounts for approximately 1 to 2 percent of LADWP's total extraction from the SFV groundwater basin. The need for drinking water development in the eastern SFV, including the NHOU, is expected to increase over the next 20 years as restrictions on importing water to Southern California increase and imported water becomes more expensive.

2.7 Summary of Site Risks

Because groundwater is the primary contaminated medium at the Site, and groundwater/surface water interactions do not occur within the NHOU, there are no potentially significant complete exposure pathways for ecological receptors. Therefore, this section focuses on human-health risks.

As part of the RI for the SFV in 1992, a baseline human-health risk assessment (1992 HHRA) was conducted. The baseline risk assessment estimates what risks the Site poses if no action were taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action.

2.7.1 Identification of Chemicals of Concern

In the 1992 HHRA, the preliminary screening of compounds based on magnitude and toxicity was conducted to develop a list of potential chemicals of concern in the groundwater for the Upper Zone and the Lower Zone of the San Fernando Basin for the baseline risk assessment. This screening considered all of the compounds detected during the most current sampling of groundwater from all wells in the basin (September 1990 through May 1991). Table 1 summarizes the occurrence of selected COCs for the NHOU. The COCs for which EPA has selected a performance standard under this ROD are found in Table 6.

Table 1. Occurrence, Distribution, and Selection of Selected Chemicals of Concern

Exposure Medium: Groundwater

Chemical of Potential Concern	Minimum Concentration[a] (µg/L)	Maximum Concentration[a] (µg/L)	Regional Screening Level (µg/L)[b]
Benzene	0.19	1.3	0.41
Carbon Tetrachloride	0.089	13.1	0.20
Chloroform	0.059	31	0.19
1,1-Dichloroethane	0.066	30	2.4
1,2-Dichloroethane	0.1	3.7	0.15
Tetrachloroethylene	0.073	200	0.11
Trichloroethylene	0.057	3,900	1.7
Arsenic	0.08	83	0.045
Chromium (total)	0.005	48,000	110

Key:
µg/L = micrograms per liter
ND = not detected
N/A = not applicable

Notes:
[a]Min/max detected concentration above the minimum detection limit from January 2003 to December 2007.
[b]From EPA's April 2009 Regional Screening Level table; values shown are screening levels for tap water.
[c]Hazard quotient is defined as (maximum concentration)/(screening toxicity value).

2.7.2 Exposure Assessment

The major exposure pathways considered in the human-health risk assessment for the SFV NPL Sites, which includes the NHOU, were those associated with use of contaminated groundwater. Groundwater within the NHOU is used as a source of potable and non-potable water, and the pathway for human exposure is potentially complete if there is no treatment of the contaminated groundwater or monitoring to remove the contaminated drinking water wells from service.

Residential use of groundwater for potable supply was identified as the most significant exposure pathway (via ingestion and inhalation) because the NHOU treated water is delivered to LADWP for municipal drinking water supply. Dermal exposure was considered in the baseline risk assessment, but was not considered significant compared to exposure via ingestion and inhalation. No impacts to indoor air (via the vapor intrusion pathway) or inhalation exposures for construction workers are likely due to the depth of contaminated groundwater (approximately 250 feet bgs).

2.7.3 Toxicity Assessment

Many of the VOCs found in the San Fernando Basin are or have been commonly used as industrial solvents. For the most part, they can be further characterized as belonging to one of two groups: chlorinated straight chain molecules and nonchlorinated aromatic ring compounds. The presence of the chlorine causes some health effects that are not caused by the benzene ring compounds (nonchlorinated). Similarly, the benzene ring causes biological effects unlike those caused by the chlorinated chain compounds.

Chronic exposure to VOCs can affect one or more of the following organs: the central nervous system (CNS), liver, kidney, bone marrow, and the blood or hematological system. The bone marrow is affected by benzene such that blood composition is altered. Red and white blood cell counts may also be depressed.

2.7.4 Health Risk Characterization

The baseline risk assessment conducted for the SFV RI in 1992 identified VOCs, in particular TCE and PCE, as the primary risk drivers for the SFV Superfund Sites, including the NHOU. TCE and PCE are classified as probable human carcinogens based on laboratory studies performed on animals. For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen. Excess lifetime cancer risk is calculated from the following equation:

Risk = CDI x SF

Where: risk = a unitless probability (e.g., $2x10^{-5}$) of an individual developing cancer
CDI = chronic daily intake averaged over 70 years (mg/kg-day)
SF = slope factor, expressed as $(mg/kg\text{-}day)^{-1}$

These risks are probabilities that usually are expressed in scientific notation (e.g., $1x10^{-6}$). An excess lifetime cancer risk of $1x10^{-6}$ indicates that an individual experiencing the reasonable maximum exposure (RME) estimate has a 1 in 1,000,000 chance of developing cancer as a result of Site-related exposure. This is referred to as an "excess lifetime cancer risk" because it would be in addition to the risks of cancer individuals face from other causes such as smoking or exposure to too much sun. The chance of an individual developing cancer from all other causes has been estimated to be as high as one in three. EPA's generally acceptable risk range for Site-related exposures is 10^{-4} to 10^{-6}.

The potential for noncarcinogenic adverse health effects is evaluated by comparing an exposure level over a specified period (e.g., life-time) with a reference dose (RfD) derived for a similar exposure period. An RfD represents a level that an individual may be exposed to that is not expected to cause any deleterious effects. The ratio of exposure to toxicity is called a hazard quotient (HQ). An HQ less than 1 indicates that a receptor's dose of a single contaminant is less than the RfD, and that toxic noncarcinogenic effects from that chemical are unlikely. The Hazard Index (HI) is generated by adding the HQs for all chemicals of concern that affect the same target organ (e.g., liver) or that act through the same mechanism of action within a medium or across all media to which a given individual may reasonably be exposed. An HI less than 1 indicates that, based on the sum of all HQs from different contaminants and exposure routes, toxic noncarcinogenic effects from all contaminants are unlikely. An HI greater than 1 indicates that Site-related exposures may present a risk to human health.

The HQ is calculated as follows:

Non-cancer HQ = CDI/RfD

Where: CDI = chronic daily intake
RfD = reference dose

The CDI and RfD are expressed in the same units and represent the same exposure period.

The exposure point concentration used in the RME scenario in the SFV human health risk assessment was developed using concentrations of VOCs detected in the Upper and Lower aquifer zones (corresponding approximately with Depth Region 1 and Depth Regions 2 through 4, respectively) during sampling of groundwater monitoring wells in 1990 and 1991. The 95 percent upper confidence limit of the arithmetic mean concentration that a single receptor is

likely to encounter was considered to be the exposure point concentration for the RME scenario. The 95 percent upper confidence limits were calculated using regional data from the SFV, rather than data specifically from the NHOU. Results from the baseline risk assessment indicated that if groundwater from the Upper Zone in the SFV was to be used as a source of drinking water without treatment for VOCs, it would exceed acceptable carcinogenic and chronic (non-carcinogenic) risk levels for exposure either by ingestion or by inhalation of vapors during showering. If groundwater from the Lower Zone was to be used as a source of drinking water without treatment for VOCs, the carcinogenic and chronic risk levels for both exposure pathways were calculated to be within the acceptable range as defined by the NCP.

The primary contributors to carcinogenic risk from exposure to Upper Zone groundwater included TCE, carbon tetrachloride, PCE, 1,2-DCA, and arsenic. The total (combined) excess lifetime cancer risk for COCs and exposure scenarios calculated in the SFV RI for the Upper Zone ranged from $1x10^{-3}$ (arithmetic mean) to $2x10^{-2}$ (maximum).

For noncarcinogenic health effects, the hazard index for the RME scenario (ingestion and inhalation pathways combined) for contaminants in the Upper Zone was 5.4, with TCE being the primary contributor. Using the maximum exposure concentration, the HI for the Upper Zone was 34. Among the metals considered in the RI risk assessment, chromium had the highest hazard quotient, although the HQ for each of the metals in the Upper Zone was less than 1. For the Lower Zone, the hazard index was less than 1 for the RME scenario.

2.7.5 Basis for Action

Since the 1992 RI, much higher concentrations of total and hexavalent chromium, TCE, PCE, and other VOCs have been detected in the NHOU, particularly at the former Bendix facility. Recent concentrations of TCE detected in the NHOU have been up to 500 times greater than the MCL, and recent peak concentrations of total chromium have exceeded the state MCL by a factor of nearly 1,000. EPA regional screening levels (RSLs) for TCE and PCE in tap water, representing concentrations calculated to cause an excess lifetime cancer risk of 1 in 1,000,000, are 1.7 µg/L and 0.11 µg/L, respectively. The maximum recent TCE and PCE concentrations detected in groundwater in the NHOU were 2,900 µg/L and 170 µg/L, respectively.

Two RSLs for hexavalent chromium, as a chromic acid mist and as an aerosol mist, exist for tap water, representing the concentration calculated to result in exceeding a hazard index of 1. The RSL for hexavalent chromium as a chromic acid mist is 110 µg/L, and the RSL for hexavalent chromium as an aerosol mist is 730 µg/L. The maximum recent concentration of hexavalent chromium detected in the NHOU was 39,000 µg/L. An EPA RSL has not been developed for total chromium in tap water; however, the federal MCL is 100 µg/L, and the state MCL is 50 µg/L. The maximum recent concentration of total chromium detected in the NHOU was 48,000 µg/L. These maximum total and hexavalent chromium concentrations occurred in the immediate vicinity of the former Bendix facility.

These high concentrations of TCE, PCE, and chromium (both total and hexavalent) in groundwater represent a significant risk to human health if not treated prior to potable use.

The response actions selected in this ROD are necessary to protect public health or welfare or the environment from actual or threatened releases of pollutants or contaminants to groundwater which may present an imminent and substantial endangerment to public health or welfare.

2.8 Remedial Action Objectives

The Second Interim Remedy for the NHOU is intended to achieve the following Remedial Action Objectives (RAOs):

- Prevent exposure to contaminated groundwater, above acceptable risk levels.
- Contain areas of contaminated groundwater that exceed the MCLs and notification levels to the maximum extent practicable.
- Prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production wells by preventing the migration toward these well fields of the more highly contaminated areas of the VOC plume located to the east/southeast.
- Achieve improved hydraulic containment to inhibit horizontal and vertical contaminant migration in groundwater from the more highly contaminated areas and depths of the aquifer to the less contaminated areas and depths of the aquifer, including the southeast portion of the NHOU in the vicinity of the Erwin and Whitnall production well fields.
- Remove contaminant mass from the aquifer.

The improved containment of the contaminant plume called for in these RAOs can be achieved by increasing the number of extraction wells and the volume of contaminated groundwater that is extracted by the NHOU remedy. However, in some areas of the NHOU, high volume LADWP production wells currently capture part of the VOC plume (i.e., groundwater with VOC concentrations of 5 µg/L or greater). LADWP relies on these wells (particularly those in the Rinaldi-Toluca and North Hollywood West well fields) to meet its water supply needs and manages their use so as to ensure that drinking water standards are always met. Because these wells will continue to be used, it is not possible for the NHOU system to capture and contain all of the contaminated groundwater. Consequently, one of EPA's objectives is to improve containment of the high concentration areas of the plume to ensure that no further degradation of groundwater quality occurs in the vicinity of the Rinaldi-Toluca and North Hollywood West well fields.

Groundwater in the NHOU is known to be spreading into less contaminated portions of the aquifer and posing a threat to water supply wells because of the Existing NHOU Extraction and Treatment System's inability to completely capture the plume. Delaying action could result in the following:

- Continued contaminant migration, necessitating additional treatment, increasing costs, and complicating the operation of existing or planned treatment facilities.
- Increased likelihood that additional water supply wells in the SFV would have to be modified, removed from service, or operated intermittently, or that groundwater produced by additional wells would require treatment to remove contaminants.
- Increased cost, difficulty, and time required for containment of contaminant plumes or restoration of the aquifer because continued contaminant migration would increase the volume, contaminant concentrations, and potential COCs in that contaminated groundwater.

2.9 Description of Alternatives

In developing the remedial alternatives for the Site, EPA considered several organic and inorganic contaminants that have been identified in the NHOU since the mid-1990s. Hexavalent chromium is the emerging chemical of greatest concern. For this reason, options to treat dissolved total and hexavalent chromium were part of all alternatives considered for the Second Interim Remedy. In addition, wellhead treatment for 1,4-dioxane is expected to be implemented at well NHE-2 pursuant to an existing CAO issued by the RWQCB and such treatment was assumed to remain in place under all alternatives.

Based on the available information about the current nature and extent of groundwater contamination in the NHOU, the past performance of the existing remedy, and projections for future water withdrawals and recharge by LADWP, EPA developed a range of remedial action alternatives for achieving the RAOs described above. Nine remedial alternatives that incorporate different combinations of technologies, process options, and end uses of treated water have been developed.

2.9.1 Description of Remedy Components

Table 2 summarizes the major components of each alternative. Several of these components are common to all of the remedial alternatives, including Alternative 1, and several are common to Alternatives 2a through 5b. The principal differences between the remedial alternatives are the scale and approach taken for chromium treatment in the extracted groundwater, and the method for reuse of extracted and treated groundwater.

2.9.1.1 Remedy Components Common to All Alternatives

The following components are common to all the alternatives:

1. Develop and implement institutional controls that consist of a groundwater management plan to protect the effectiveness and integrity of the NHOU remedy from adverse impacts caused by LADWP's operation of drinking water production wells;
2. Install and add to the monitoring program approximately 37 new wells (see Figure 9 for proposed locations of monitoring wells) (However, approximately 25 wells have already been installed by Honeywell);
3. Implement well-head treatment for chromium at well NHE-2, with a capacity of at least 300 gpm. A wellhead treatment system is assumed to be implemented in 2009 or 2010 by Honeywell pursuant to the CAO issued by RWQCB. This system, however, is expected to be designed for a pumping rate of 140 gpm, which is the current NHE-2 pumping rate;
4. Implement well-head treatment for 1,4-dioxane at extraction well NHE-2, with a capacity of at least 300 gpm. The wellhead treatment system is assumed to be implemented in 2009 or 2010 by Honeywell under the CAO issued by the RWQCB; and,
5. Monitor the performance of the extraction wells and the treatment systems to ensure attainment of performance standards and evaluate the need to modify operations in response to changes in contaminant concentrations, aquifer conditions or other factors.

Table 2. Summary of Remedial Alternative Components

Remedial Alternative Component	Alternative 1	Alternative 2a	Alternative 2b	Alternative 3a	Alternative 3b	Alternative 4a	Alternative 4b	Alternative 5a	Alternative 5b
Institutional Controls (GW mgt plan to balance long-term effectiveness of remedy with public drinking water needs)	Yes (same for all alternatives)								
Groundwater Monitoring (continue existing monitoring and install new monitoring wells)	Yes (same for all alternatives)								
Groundwater Extraction	Continue existing 7 extraction wells at current pumping rates	Expand extraction well field to 11 wells							
Primary VOC Treatment	Continue existing air stripper	Refurbish existing air stripper and install a second air stripper							
Secondary VOC Treatment	None	LPGAC following each air stripper	None	LPGAC following each air stripper	None	LPGAC following each air stripper	None	LPGAC following each air stripper	None
End Use of Treated Groundwater	Continue delivery to LADWP	Continue delivery to LADWP	Reinjection	Continue delivery to LADWP	Reinjection	Continue delivery to LADWP	Reinjection	Continue delivery to LADWP	Reinjection
1,4-dioxane Treatment (wellhead treatment at NHE-2)	Yes								
Chromium Treatment	Wellhead treatment at NHE-2	Wellhead treatment at NHE-1 and NHE-2		*Ex situ* treatment for combined flow from NHE-1 and NHE-2		Wellhead treatment at NHE-2 & *ex situ* treatment at NHOU plant for combined flow from NHE-1 & 2 new extraction wells		*Ex situ* treatment at the NHOU plant for the combined flow from all extraction wells	

2.9.1.2 Remedy Components Common to "Action" Alternatives (Alternatives 2a through 5b)

The primary objective of Alternatives 2a through 5b (the "action" alternatives) is to improve hydraulic containment, particularly for highly contaminated groundwater in the NHOU. The major differences between the alternatives are the scale of chromium treatment and the end use of the water.

In addition to the components described above in section 2.9.1.1, the following components are common to Alternatives 2a through 5b, as follows:

1. Drill a new deeper well to replace NHE-1 to improve capture of the 5 µg/L VOC plume, to the extent possible. It is assumed that a new well will be required in order to achieve the necessary target pumping rate of 250 gpm; however, modification of the existing well may also be an option, and should be evaluated in the design;
2. Drill new deeper wells, or repair and/or modify existing extraction wells NHE-2, 4, and 5 to improve capture of the 5 µg/L VOC plume, to the extent possible;
3. Implement routine O&M for existing extraction wells NHE-3, 6, 7, and 8;
4. Construct new extraction wells (FFS modeling predicted that three new wells are needed) to improve hydraulic containment of highly contaminated groundwater present south of LADWP's southern Rinaldi-Toluca wells and east of LADWP's North Hollywood West Well Field;
5. Construct a new pipeline to connect the new extraction wells to the NHOU treatment plant; and,
6. Expand air stripping treatment capacity at the NHOU treatment plant Site, for primary VOC treatment. It is assumed that the existing air stripper would be refurbished and a second air stripper, similar in capacity to the original, would be installed and operated in parallel with the existing system.

End Use Options for Treated Water:

Alternatives 1, 2a, 3a, 4a, and 5a assume that the groundwater treated by the NHOU treatment plant and delivered to LADWP would continue to be blended by LADWP with water from other sources, and used in the drinking water system of the City of Los Angeles. Reinjection of treated groundwater into the aquifer using injection wells is assumed under Alternatives 2b, 3b, 4b, and 5b.

All of the "a" alternatives include delivery of the treated water to LADWP as the end use option for treated groundwater. All of the "a" alternatives, therefore, include:

- A secondary treatment system installed downstream from the air strippers to provide "double barrier" VOC treatment, as required by CDPH for domestic use of an extremely impaired water source.

Under the "b" alternatives, the treated water would be reinjected into the aquifer. Reinjection of the treated water would supplement recharge to the aquifer, making the water available for future pumping and use by LADWP. It is assumed that the injection wells would be located north (upgradient) of the NHOU extraction wells. In this configuration, the treated groundwater would

be reinjected into the aquifer at the northern boundary of the VOC and chromium plumes, and supplement the hydraulic gradient driving contaminated groundwater toward the extraction wells. The "b" alternatives include:

- Construction of new injection wells, a pipeline from the NHOU treatment plant to the injection wells, and new monitoring wells in the vicinity of the injection wells; and,
- Construction of a new VOC treatment facility to replace the existing system (LADWP owns the existing system, so a new system will have to be constructed to implement these alternatives).

2.9.1.3 Description of Alternatives

Alternative 1 – Existing NHOU Extraction and Treatment System

A no-action alternative, which is required by the NCP to provide a baseline for comparison to other alternatives, was evaluated in the 1987 ROD for the NHOU. The no-action alternative was eliminated from consideration in the 1987 ROD because "the contamination plumes (in the groundwater) would continue to migrate downgradient, rendering additional wells unusable." Hydraulic gradients and contaminant plume locations in the aquifer system at the NHOU at present remain similar to the conditions in 1987, and although significant VOC mass has been removed by the existing NHOU system, contaminant concentrations in the aquifer remain significantly elevated relative to drinking water standards. Shutting down the existing NHOU treatment system now would result in the same outcome as the 1987 no-action alternative (i.e., further migration of contamination to water supply wells that renders those wells unusable and potential exposure of the public to contaminants in drinking water at unacceptable levels. Therefore, rather than reconsidering the no-action alternative, Alternative 1 consists of continued use of the Existing NHOU Extraction and Treatment System, with minor modification and increased monitoring. It includes all the common elements described above in Section 2.9.1.1.

Alternatives 2a and 2b – Expand Extraction Well System and Operate Chromium Wellhead Treatment Systems at Extraction Wells NHE-1 and NHE-2

Under Alternatives 2a and 2b, separate wellhead chromium treatment systems would be installed at NHE-1 and NHE-2.

In addition to the common components listed above in sections 2.9.1.1 and 2.9.1.2, Alternative 2a includes the following specific actions:

- Addition of wellhead chromium treatment at well NHE-1.
- Expansion of wellhead chromium treatment at well NHE-2 to accommodate a larger peak flow rate of approximately 300 gpm.
- Expansion of wellhead treatment for 1,4-dioxane at well NHE-2 to accommodate a larger peak flow rate of approximately 300 gpm.

Alternative 2b is nearly identical to Alternative 2a, but assumes reinjection of the treated groundwater into the aquifer rather than delivery to LADWP (and thus does not require the secondary VOC treatment system).

Alternatives 3a and 3b – Expand Extraction Well System and Operate Chromium Treatment System for Combined Effluent from Extraction Wells NHE-1 and NHE-2

Alternatives 3a and 3b were developed to evaluate the cost-effectiveness of operating a single chromium treatment system for the combined flow from wells NHE-1 and NHE-2, compared with operation of two individual wellhead chromium treatment systems at these wells.

Alternative 3a is nearly identical to Alternative 2a, except that *ex situ* treatment of chromium would be implemented at the NHOU groundwater treatment facility for the combined discharge of groundwater extracted from wells NHE-1 and NHE-2 instead of using individual wellhead treatment systems at these wells.

Alternative 3b is nearly identical to 3a, but assumes reinjection of treated water rather than delivery to LADWP(and thus does not require the secondary VOC treatment system).

Alternatives 4a and 4b – Expand Extraction Well System and Operate *Ex Situ* Chromium Treatment System for Multiple Extraction Wells

Groundwater modeling results conducted for the FFS indicate that under expected future SFV well field pumping scenarios, new extraction wells NEW-2 and NEW-3 would intercept groundwater containing high concentrations of chromium at levels similar to NHE-1 and NHE-2. Alternatives 4a and 4b include additional chromium treatment for both of these new extraction wells.

Alternative 4a includes the components common to all alternatives listed above in section 2.9.1.1 and 2.9.1.2, with the following specific actions:

- Expansion of wellhead treatment for chromium in the extracted groundwater from NHE-2 to accommodate a larger peak flow rate of approximately 300 gpm.
- Expansion of wellhead treatment for 1,4-dioxane at well NHE-2 to accommodate a larger peak flow rate of approximately 300 gpm.
- *Ex situ* treatment of chromium at the NHOU groundwater treatment facility for the combined influent from extraction well NHE-1 and two new extraction wells.

Alternative 4b is nearly identical to 4a, except for reinjection of treated water, rather than delivery to LADWP(and thus does not require the secondary VOC treatment system).

Alternatives 5a and 5b – Expand Extraction Well System and Operate *Ex Situ* Chromium Treatment System for All Extraction Wells

Alternatives 5a and 5b incorporate chromium treatment of influent from all the extraction wells, which would enable the NHOU system to achieve a hexavalent chromium concentration of less than 2 µg/L in the treated water leaving the plant. These alternatives were originally developed in anticipation of the State adopting a PHG for hexavalent chromium that might lead to an MCL significantly less than 5 µg/L. In August 2009, the State issued a proposed PHG of 0.02 µg/L, but it is too soon to know what the final PHG and eventual MCL might be.

Alternative 5a includes components common to all alternatives (see Section 2.9.1.1 and 2.9.1.2), with the following specific action:

- *Ex situ* treatment of chromium at the NHOU groundwater treatment facility for the combined influent from all of the extraction wells.

Alternative 5b is nearly identical to 5a, except for reinjection of treated water, rather than delivery to LADWP(and thus does not require the secondary VOC treatment system).

2.9.2 Common Elements and Distinguishing Features of Each Alternative

As noted in Section 2.9.1.1 and 2.9.1.2, several potential components of the Second Interim Remedy are shared by all of the remedial alternatives evaluated.

2.9.2.1 Applicable or Relevant and Appropriate Requirements

The following are the principal Applicable or Relevant and Appropriate Requirements (ARARs) that would apply to the proposed alternatives; more details for these and other ARARs are provided in Tables 7, 8, and 9:

- **Safe Drinking Water Act (SDWA).** Established MCLs for COCs in groundwater under the SDWA are: TCE (5 µg/L), PCE (5 µg/L), total chromium (100 µg/L), and vinyl chloride (2 µg/L).
- **State of California Domestic Water Quality and Monitoring Regulations.** Established MCLs for COCs in groundwater under the California Domestic Water Quality and Monitoring Regulations are: TCE (5 µg/L); PCE (5 µg/L); total chromium (50 µg/L); vinyl chloride (0.5 µg/L); and perchlorate (6 µg/L).
- **Clean Air Act**. The permit currently held by DWP for the VOC treatment system at NHOU requires 90 percent removal efficiency for TCE and PCE air emissions and a not-to-exceed level of 2 pounds per day of total VOCs. If the VOC treatment system is modified significantly as part of the selected remedy, then the substantive provisions of SCAQMD Rule 1401 (which limits air emissions of identified toxics from new or modified sources) would apply.
- **State of California Antidegradation Policy.** Prohibits the degradation of groundwater quality. This would apply to all the "b" alternatives (reinjection of treated groundwater) only.

In addition, the other criteria that EPA considered in setting performance standards for the proposed alternatives include:

- **CDPH Drinking Water Notification Levels.** The following notification levels may apply with respect to the off-Site delivery of water to the public: 0.005 µg/L for TCP, 3 µg/L for 1,4-dioxane, and 0.01 µg/L for NDMA.
- **California Public Health Goals (PHGs).** Developed by the Office of Environmental Health Hazard Assessment (OEHHA).

In the absence of MCLs, the state PHGs adopted by OEHHA have been considered during selection of performance standards for extracted groundwater. In the absence of both MCLs and PHGs, the drinking water notification levels established by CDPH have been considered during selection of performance standards for extracted groundwater.

No location-specific ARARs were identified for the Site during the 1987 ROD, and none have been identified for the alternatives presented in this FFS.

2.9.2.2 Distinguishing Features of Alternatives

As discussed above, the primary distinguishing features between the alternatives is the extent of the treatment for chromium, and the disposition of the treated water.

Alternative 1: The time required to implement Alternative 1 is negligible, as the primary treatment processes (the NHOU air stripper and vapor-phase granular activated carbon [VPGAC] unit) are already constructed and operating, and wellhead treatment at NHE-2 can be installed in 6 months or less. Under Alternative 1, approximately 420 million gallons of groundwater would be extracted and treated per year (assuming an 800 gpm average long-term pumping rate). Based on historical performance of the Existing NHOU Extraction and Treatment System, approximately 330 pounds (lbs) of VOCs (including TCE and PCE) would continue to be extracted and treated per year under Alternative 1. In addition, approximately 180 lbs of hexavalent chromium would be extracted and treated at well NHE-2 per year under Alternative 1.

Alternatives 2a and 2b: Repairs and modifications to the existing NHOU extraction wells, along with construction of new wells and treatment system components, would likely require 1 to 3 years. Approximately 1.6 billion gallons of groundwater would be extracted and treated per year, resulting in the projected removal of approximately 1,300 lbs of VOCs (including TCE and PCE) per year. In addition, approximately 380 lbs of hexavalent chromium are projected to be removed per year by the wellhead treatment systems at wells NHE-1 and NHE-2.

Alternatives 3a and 3b: Projected design and construction times, and removal rates for VOCs and hexavalent chromium under Alternatives 3a and 3b are identical to Alternatives 2a and 2b.

Alternatives 4a and 4b: Projected design and construction times, and removal rates for VOCs under Alternatives 4a and 4b are identical to Alternatives 2a through 3b, above. Approximately 540 lbs of hexavalent chromium are projected to be removed per year by the wellhead treatment system at well NHE-2 and the combined treatment system for three other extraction wells.

Alternatives 5a and 5b: Projected design and construction times, and removal rates for VOCs are identical to Alternatives 2a through 4b, above. Approximately 590 lbs of hexavalent chromium are projected to be removed per year by the combined chromium treatment system for all extraction wells.

Estimated Costs for Remedial Alternatives

A summary of the capital, annual O&M, and net present value (NPV) cost for each alternative is presented in Table 3. These cost estimates are based on a 7 percent discount rate and 30-year O&M period. Numerous assumptions have been made in estimating these costs. Details of the cost estimates for each alternative are provided in Appendix D of the FFS.

Table 3. Summary of Estimated Costs for Remedial Alternatives

Alternative	Capital Costs ($)	Annual O&M Costs ($)	Total Estimated NPV ($)
1 – Existing Remedy w/LADWP delivery	12,000,000	2,300,000	40,100,000
2a – Expand Extraction Well System plus Cr wellhead Treatment at Wells NHE-1 & NHE-2 w/LADWP delivery	31,000,000	5,600,000	91,700,000
2b – Expand Extraction Well System plus Cr Wellhead Treatment at Wells NHE-1 & NHE-2 w/reinjection	60,300,000	5,400,000	118,100,000
3a – Expand Extraction Well System plus Cr Treatment for Combined Flow from Wells NHE-1 & NHE-2 w/LADWP delivery	29,900,000	5,000,000	82,600,000
3b – Expand Extraction Well System plus Cr Treatment for Combined Flow from Wells NHE-1 & NHE-2 w/reinjection	59,100,000	4,700,000	109,000,000
4a – Expand Extraction Well System plus *Ex Situ* Cr Treatment for Wells NHE-1 and -2 and NEW-2 and -3 w/LADWP delivery	36,900,000	6,400,000	107,800,000
4b – Expand Extraction Well System plus *Ex Situ* Cr Treatment for Wells NHE-1 and -2 and NEW-2 and -3 w/reinjection	66,100,000	6,200,000	134,200,000
5a – Expand Extraction Well System plus *Ex Situ* Cr Treatment for All Extraction Wells w/LADWP delivery	46,200,000	6,700,000	119,900,000
5b – Expand Extraction Well System plus *Ex Situ* Cr Treatment for All Extraction Wells w/reinjection	75,500,000	6,400,000	146,300,000

Notes: Capital costs and NPV have been rounded to the nearest $100,000. Annual O&M costs have been rounded to the nearest $1,000. NPV calculations assumed 30 years of O&M at 7% Discount Rate

2.9.3 Expected Outcomes of Each Alternative

As noted previously, the scope of the Second Interim Remedy does not include restoration of the aquifer. Furthermore, additional data are needed before EPA can determine what additional remedial actions, if any, are needed to address certain other areas of groundwater contamination. Therefore, none of the remedial alternatives considered are expected to result in unrestricted use of groundwater underlying the NHOU for drinking water, and timeframes for achieving aquifer restoration are not estimated.

Alternative 1

As a result of the diminished pumping rates and periodic shutdowns of extraction wells, a significant portion of the groundwater contaminated with VOCs exceeding the MCLs, as well as groundwater with high levels (greater than 50 µg/L) of VOCs, would not be hydraulically contained and would continue to migrate south and southeast under the regional gradient toward the BOU, GOU, and water-supply wells in the Erwin and Whitnall well fields. In addition, groundwater contaminated with chromium and 1,4-dioxane would likely migrate to the south and southeast from the vicinity of the former Bendix facility and well NHE-2 toward extraction wells

NHE-3 through NHE-5, potentially impacting their future operation. Under the expected future maximum pumping scenario for production wells in the vicinity of the NHOU, groundwater near the former Bendix facility with high concentrations of VOCs, chromium, and emerging contaminants is expected to migrate to LADWP's southern Rinaldi-Toluca water-supply wells, potentially limiting their future use.

Alternatives 2a through 3b

Some areas of VOC contamination (mostly where concentrations are less than 50 µg/L) will continue migrating toward the BOU and some LADWP production wells. Under Alternative 2a, the lack of chromium treatment for the new extraction wells that are expected to capture groundwater with high levels of chromium contamination could result in future shutdown or reduced pumping from those wells. Under Alternatives 2b and 3b, reinjection of treated water could increase the rate of groundwater "flushing" through the most contaminated part of the aquifer in NHOU, which could result in a modest increase in the rate of groundwater remediation. However, reinjecting the treated water would result in it becoming contaminated again following reinjection by mixing with existing groundwater contaminants in the aquifer.

Alternatives 4a and 4b

Alternatives 4a and 4b achieve similar outcomes as Alternatives 2a, 2b, 3a, and 3b with the primary difference being that Alternatives 4a and 4b will achieve greater removal of chromium from treated groundwater. Therefore, Alternatives 4a and 4b will provide enhanced protection of human health and an increased likelihood that the Second Interim Remedy will meet the RAOs in the long term (by including chromium treatment where chromium is likely to occur in groundwater at high concentrations).

Alternatives 5a and 5b

Alternatives 5a and 5b achieve similar outcomes as Alternatives 4a and 4b, but with increased costs, energy use, and production of treatment residuals.

2.10 Comparative Analysis of Alternatives

The NCP (40 CFR Section 300.430(e)(9)(iii)) describes the nine CERCLA criteria used to evaluate the alternatives under consideration. The comparative analysis provides the basis for determining which alternatives are most responsive to the criteria. The NCP categorizes the nine CERCLA evaluation criteria into three groups: (1) threshold criteria; (2) primary balancing criteria; and (3) modifying criteria. Each category of criteria has its own weight when applied to the evaluation of alternatives.

1. Threshold criteria are requirements that each alternative must meet to be eligible for selection as the preferred alternative. Threshold criteria include the overall protection of human health and the environment, and compliance with ARARs (unless a waiver is obtained).
2. Primary balancing criteria weigh the effectiveness and cost trade-offs among alternatives. Primary balancing criteria include long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability;

and cost. The primary balancing criteria are the main technical criteria upon which the evaluation of alternatives is based.

3. Modifying criteria include state and community acceptance, which may be used to modify aspects of the selected alternative presented in the ROD.

A summary of the comparative analysis is presented in Table 4, below.

Table 4. Comparison of Remedial Alternatives

NCP Criteria	Alternative 1 Existing Remedy	Alternatives 2a and 2b Expand Extraction Well System plus Chromium Wellhead Treatment at Wells NHE-1 & NHE-2	Alternatives 3a and 3b Expand Extraction Well System plus Chromium Treatment for Combined Flow from Wells NHE-1 & NHE-2	Alternatives 4a and 4b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for Wells NHE-1 and -2 and NEW-2 and -3	Alternatives 5a and 5b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for All Extraction Wells
Threshold Criteria					
Overall Protection of Human Health and the Environment	Currently removes VOC contaminants in extracted groundwater to acceptable levels; however, does not provide adequate hydraulic containment of the most highly contaminated groundwater in the NHOU, nor does it provide double barrier protection for drinking water (the current beneficial use). Provides for chromium treatment only at well NHE-2.	Containment of the VOC plume is significantly improved compared to Alternative 1, including full containment of the high concentration areas. "Double barrier" protection from VOC contamination under Alternative 2a (delivery to LADWP). Provides for chromium treatment only at wells NHE-1 and NHE-2.	Similar level of protectiveness as Alternatives 2a and 2b.	Improved hydraulic containment compared to Alternative 1 (identical to Alternatives 2a through 3b); also includes chromium treatment for extraction wells NEW-2 and NEW-3.	Improved hydraulic containment compared to Alternative 1 (identical to Alternatives 2a through 4b); also includes chromium treatment for all extraction wells. However, chromium treatment is not expected to be required at all wells in order to meet the cleanup levels for either end use, and a larger quantity of treatment residuals would be produced by the chromium treatment system under Alternatives 5a and 5b.
Compliance with ARARs	Expected to comply with most ARARs. Treating only well NHE-2 for chromium may result in chromium concen-trations in the NHOU treated effluent exceeding the performance standard. Waiver required for cleanup of GW to MCLs.	Similar to Alternative 1, except 2b may require waiver from CA anti-degradation requirements.	Similar to Alternative 2a and 2b,	Expected to comply with the current MCLs and with most other ARARs. If reinjection is the end use of treated water, expected to comply with ARARs, including the State's anti-degradation policy. Waiver required for cleanup of GW to MCLs.	Similar to 4a and 4b.
Balancing Criteria					
Long-term Effectiveness and Permanence	Effective in removing contaminants from the water that it captures and treats, but its limited extraction system would allow VOC and	Improved extraction and treatment system will result in containment of the high concentration plumes and prevent further degradation of water quality in the vicinity	Identical long-term effectiveness and permanence as Alternatives 2a and 2b.	Chromium removal from new NHOU extraction wells NEW-2 and NEW-3 would provide an increased level of effectiveness and permanence compared to	Similar to Alternatives 4a and 4b, with the additional capability of treating chromium extracted from all NHOU extraction wells. However, chromium

Table 4. Comparison of Remedial Alternatives

NCP Criteria	Alternative 1 Existing Remedy	Alternatives 2a and 2b Expand Extraction Well System plus Chromium Wellhead Treatment at Wells NHE-1 & NHE-2	Alternatives 3a and 3b Expand Extraction Well System plus Chromium Treatment for Combined Flow from Wells NHE-1 & NHE-2	Alternatives 4a and 4b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for Wells NHE-1 and -2 and NEW-2 and -3	Alternatives 5a and 5b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for All Extraction Wells
	chromium contamination to migrate towards LADWP well fields and other NHOU extraction wells that lack chromium treatment.	of the LADWP well fields. However, reinjection of treated water under Alternative 2b would likely result in treated water becoming contaminated again following reinjection.		Alternatives 2a through 3b.	treatment is not presently required at all existing extraction wells, nor is it predicted to be needed in the future unless an MCL for hexavalent chromium is set at a level below 5 μg/L. Treatment of the combined discharge from all of the extraction wells under Alternatives 5a and 5b would require significantly more energy and result in production of greater volumes of treatment residuals than the other alternatives.
Reduction of Toxicity, Mobility, and Volume Through Treatment	Toxicity, mobility, and volume of contaminants in extracted groundwater will be permanently reduced by treatment. However, due to smaller groundwater extraction rates compared to the other alternatives, Alternative 1 will provide a lower degree of reduction of toxicity, mobility, and volume through treatment. Alternative 1 also provides less treatment for chromium in groundwater.	Will result in further reduction of the mobility and volume of VOCs and chromium in groundwater compared to Alternative 1, by increasing the volume of contaminated groundwater that is contained, extracted and treated in the NHOU. TCE, PCE, and other VOCs in groundwater will be removed with an expanded treatment system that traps VOCs and permanently destroys them at an off-Site carbon regeneration facility. Chromium will be removed from groundwater extracted by wells NHE-1 and NHE-2.	Identical reduction of toxicity, mobility, and volume of contaminants as Alternatives 2a and 2b.	Similar reduction of mobility of VOCs and chromium as Alternatives 2a through 3b. The combined chromium treatment system for extraction wells NHE-1, NEW-2, and NEW-3 would provide a greater degree of chromium mass removal from the extracted groundwater than Alternatives 2a through 3b, and also produce more treatment residuals.	Similar reduction of mobility of VOCs and chromium as Alternatives 2a through 4b. The combined chromium treatment system for all extraction wells would slightly increase chromium mass removal from the extracted groundwater than Alternatives 2a through 3b, and produce more treatment residuals.

Table 4. Comparison of Remedial Alternatives

NCP Criteria	Alternative 1 Existing Remedy	Alternatives 2a and 2b Expand Extraction Well System plus Chromium Wellhead Treatment at Wells NHE-1 & NHE-2	Alternatives 3a and 3b Expand Extraction Well System plus Chromium Treatment for Combined Flow from Wells NHE-1 & NHE-2	Alternatives 4a and 4b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for Wells NHE-1 and -2 and NEW-2 and -3	Alternatives 5a and 5b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for All Extraction Wells
Short-term Effectiveness	No substantial risks or environmental impacts would be posed to the community during the limited work involved in implementing this alternative.	No substantial risks or environmental impacts to the community or workers during construction or implementation of this alternative, beyond the general hazards associated with any construction project. Construction of new pipelines and wells may create a temporary nuisance to residents.	No substantial risks or environmental impacts (similar to Alternatives 2a and 2b). However, construction of an additional new pipeline from extraction well NHE-2 to the NHOU treatment plant Site may create an additional temporary nuisance to residents.	No substantial risks or environmental impacts (similar to Alternatives 2a and 2b). However, some nuisance to residents related to construction of new pipelines, wells, and a larger chromium treatment system.	No substantial risks or environmental impacts (similar to Alternatives 2a and 2b). However, some nuisance to residents related to construction of new pipelines, wells, and a larger chromium treatment system.
Implementability (technical)	Technically feasible to implement. No unusual technical difficulties are anticipated for design, construction, and operation of the additional extraction wells and more robust VOC treatment system. All the necessary services and materials are readily available.	Technically feasible to implement. Construction of the treatment system, injection wells, pipeline, and additional monitoring wells will add significantly to the time and effort required to implement Alternative 2b (reinjection).	Technically and administratively feasible to implement. Construction of the treatment system, injection wells, pipeline, and additional monitoring wells will add significantly to the time and effort required to implement Alternative 3b (reinjection).	Technically and administratively feasible to implement. Slightly more effort required to implement than Alternatives 2a through 3b (for design, construction, and operation of a chromium treatment system capable of handling the combined discharge from three extraction wells). Construction of the treatment system, injection wells, pipeline, and additional monitoring wells will add significantly to the time and effort required to implement Alternative 4b.	Alternatives 5a and 5b would require significantly more effort than Alternatives 4a and 4b for design, construction, and operation of a chromium treatment system capable of handling the combined discharge from all of the extraction wells.
Implementability (administrative)	Continued coordination would be required with the ULARA Watermaster and LAWDP to implement and maintain the ICs. The ability of Alternative 1 to achieve	Additional administrative issues (compared to Alternative 1) are anticipated regarding permitting and access requirements for the new extraction wells and pipelines, as well as	Identical administrative implementability issues as Alternatives 2a and 2b.	Additional administrative issues (compared to Alternative 1) are anticipated regarding permitting and access requirements for the new extraction wells and pipelines, as well as	Identical administrative issues as Alternatives 4a and 4b.

Table 4. Comparison of Remedial Alternatives

NCP Criteria	Alternative 1 Existing Remedy	Alternatives 2a and 2b Expand Extraction Well System plus Chromium Wellhead Treatment at Wells NHE-1 & NHE-2	Alternatives 3a and 3b Expand Extraction Well System plus Chromium Treatment for Combined Flow from Wells NHE-1 & NHE-2	Alternatives 4a and 4b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for Wells NHE-1 and -2 and NEW-2 and -3	Alternatives 5a and 5b Expand Extraction Well System plus *Ex Situ* Chromium Treatment for All Extraction Wells
	cleanup levels for chromium in the combined effluent from the NHOU treatment system under the expected pumping scenarios is uncertain. Because of this uncertainty, LADWP and/or State agencies may not accept the current end use for the treated water under this alternative.	completing the permit application process for either end use option (LADWP delivery or reinjection). The ability of Alternatives 2a and 2b to achieve cleanup levels for chromium in the combined effluent from the NHOU treatment system under the expected pumping scenarios is uncertain. Because of this uncertainty, LADWP and/or State agencies may not accept either of the planned end use options for the treated water under these alternatives.		completing the permit application process for either end use option (LADWP delivery or reinjection). However, expanded chromium treatment should improve the acceptability of the treated water for the end use options.	
Costs					
Estimated Total Net Present Value (NPV), Including Capital and O&M Costs for 30 Years, Assuming a 7 Percent Discount Rate	$40.1 million	Alternative 2a: $91.7 million Alternative 2b: $118.1 million	Alternative 3a: $82.6 million Alternative 3b: $109.0 million	Alternative 4a: $107.8 million Alternative 4b: $134.2 million	Alternative 5a: $119.9 million Alternative 5b: $146.3 million
Modifying Criteria					
State Acceptance	State agencies have indicated that Alternative 1 is not acceptable because of the continued migration of groundwater contamination and the potential for chromium contamination to migrate and further degrade the aquifer. The State has expressed its support for Alternative 4a, EPA's Preferred Alternative.				
Community Acceptance	LADWP has indicated that this alternative is not acceptable.	No comments were received on these alternatives		The PRPs do not support this alternative.	Preferred by LADWP and Representative Sherman. Not preferred by PRPs.

2.10.1 Overall Protection of Human Health and the Environment

This criterion addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, and/or institutional controls.

Alternative 1 does not provide adequate hydraulic containment of the contaminated groundwater in the NHOU, particularly the areas of highest contamination. Furthermore, although it is able to remove contaminants in extracted groundwater to currently acceptable levels, Alternative 1 does not provide double barrier protection for drinking water (the current beneficial use). Alternative 1 is considered to provide a relatively low level of protection of human health and the environment compared to Alternatives 2a through 5b.

Alternatives 2a through 5b would each achieve improved hydraulic containment of the groundwater exceeding the MCLs, including the most highly contaminated groundwater in the NHOU. Under Alternatives 2a, 3a, 4a, and 5a (providing treated groundwater to LADWP's water supply system), double barrier treatment for VOCs provides an added level of safety towards ensuring that treated water meets all drinking water standards and requirements.

Under expected future production pumping scenarios, new extraction wells NEW-2 and NEW-3 are forecasted to intercept groundwater contaminated with high levels of chromium, which will result in exceedance of the MCL for chromium in the discharge from those wells. Only Alternatives 4a through 5b include chromium treatment for groundwater extracted by these two extraction wells. Alternatives 2a through 3b provide for chromium treatment only from extraction wells NHE-1 and NHE-2, and would therefore not result in achieving the MCL for chromium in the discharge from two of the new extraction wells. However, under Alternatives 2a, 3a, 4a and 5a, chromium concentrations in treated water would meet the identified Performance Standards (Table 6) Alternatives 5a and 5b provide the greatest degree of chromium treatment and would achieve the lowest levels of chromium in the treated water.

2.10.2 Compliance with ARARs

Section 121(d) of CERCLA and NCP § 300.430(f)(1)(ii)(B) require that remedial action sat CERCLA Sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations which are collectively referred to as "ARARs", unless such ARARs are waived.

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA Site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA Site address problems or situations sufficiently similar to those encountered at the CERCLA Site that their use is well suited to the particular Site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

The "Compliance with ARARs" criteria addresses whether an alternative will meet all of the identified ARARs or other federal and state environmental statutes or provides a basis for a invoking waiver.

All alternatives had common ARARs, with the exception that each of the end-use options ("a"s and "b"s) had different requirements. Other than noted below, each alternative is expected to comply with all federal and state ARARs to the same extent.

Under certain circumstances, Alternatives 2b and 3b may fail to comply with the State's antidegradation policy ARAR because: (1) chromium concentrations could exceed the cleanup level in the NHOU treated effluent under certain pumping scenarios; or, (2) the current Honeywell effort to remediate hexavalent chromium in the vadose zone and aquifer in situ could be less effective than expected.

2.10.3 Long-Term Effectiveness and Permanence

This criterion assesses the extent to which each remedial alternative reduces risk after the remedial action objectives are met. Residual risk can result from exposure to untreated waste or treatment residuals. The magnitude of the risk depends on the quantity and concentration of the wastes and the adequacy and reliability of controls, if any, that are used to manage untreated waste and treatment residuals. For the alternatives described in this ROD, treatment residuals may include spent carbon, concentrated brines, or sludges.

Each alternative provides some degree of long-term protection. Alternative 1 would be effective in removing contaminants from the water that it captures and treats, but its limited extraction system would allow areas of high VOC and chromium contamination to migrate towards LADWP well fields, and the existing extraction system might allow hexavalent chromium to migrate to other NHOU extraction wells that lack chromium treatment.

Under Alternatives 2a through 5b, the improvements to the extraction and treatment system will result in containment of the high-concentration VOC and chromium plumes and prevent further degradation of water quality in the vicinity of the LADWP well fields. These alternatives will thus have a much higher degree of long-term protection than Alternative 1.

Alternatives 4a and 4b, which provide for chromium removal from two of the new NHOU extraction wells, would provide an increased level of effectiveness and permanence compared to Alternatives 2a through 3b. Alternatives 5a and 5b expand chromium treatment to include all of the existing and new NHOU extraction wells. However, chromium treatment is not presently required at all existing extraction wells, nor is it predicted to be needed in the future unless an MCL for hexavalent chromium is set at a level below 5 µg/L. Treatment of the combined discharge from all of the extraction wells under Alternatives 5a and 5b would require significantly more energy and result in production of greater volumes of treatment residuals than would be produced under Alternatives 2a through 4b.

2.10.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

This criterion addresses the preference, as stated in the NCP, for selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous substances as a principal element of the action. This preference is satisfied when treatment is used to reduce the principal threats at a Site through destruction of toxic contaminants, reduction of total mass of toxic contaminants, irreversible reduction in contaminant mobility, or reduction of total volume of contaminated media.

All alternatives provide for reduction of toxicity, mobility, or volume through extraction of contaminated groundwater and treatment of VOCs at the NHOU treatment plant. TCE, PCE, and other VOCs in groundwater extracted from the NHOU will be removed with a treatment system that traps VOCs in granular activated carbon and then permanently destroys them at an off-Site carbon regeneration facility. The overall rate of groundwater extraction for Alternative 1 is significantly less than the rates for Alternatives 2a through 5b, and thus Alternative 1 will provide a lower degree of reduction of toxicity, mobility, and volume through treatment.

Under Alternatives 2a through 3b, chromium will be removed by wellhead treatment at extraction wells NHE-1 and NHE-2. The combined chromium treatment system for additional extraction wells included in Alternatives 4a through 5b would provide a greater degree of chromium mass removal from the extracted groundwater than Alternatives 2a through 3b.

2.10.5 Short-Term Effectiveness

This criterion evaluates the effects of each remedial alternative on human health and the environment during construction and operation, as well as the time required to meet the RAOs.

The modifications to the Existing NHOU Extraction and Treatment System included in Alternative 1 are minor, and do not pose substantial risks to the community or construction workers during implementation. No adverse environmental impacts are anticipated in the areas where facilities would be constructed.

Similar to Alternative 1, no special worker-protection issues or environmental impacts are anticipated under Alternatives 2a through 5b. Construction of pipelines from the new extraction wells to the NHOU treatment plant may create a temporary nuisance to residents but should not pose any significant risks. Similarly, under Alternatives 2b, 3b, 4b, and 5b, construction of the injection wells, additional pipelines, and additional monitoring wells may create an additional nuisance to residents but do not pose any substantial risks to the community or construction workers.

Alternatives 2a through 5b would take longer to implement (approximately 3 years) than Alternative 1, which is largely in place already. During that time, the existing NHOU treatment system would continue to be operated in such a manner that the contaminant concentrations in the treatment plant effluent remain below the MCLs and notification levels. Therefore, Alternatives 2a through 5b are expected to be as equally protective of human health in the short term as Alternative 1.

2.10.6 Implementability

This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation.

All alternatives are considered to be technically feasible to implement, although implementation of Alternatives 2a through 5b will require substantially more effort than Alternative 1. Alternatives 5a and 5b are expected to be significantly more difficult to implement from a technical standpoint than Alternatives 2a through 4b, due to the relatively large chromium treatment system required.

As noted in the discussion of Compliance with ARARs, there is some uncertainty regarding the ability of Alternatives 1, 2a, 2b, 3a, and 3b to achieve performance standards for chromium in the combined effluent from the NHOU treatments system under the expected pumping scenarios. Because of this uncertainty, LADWP and/or the state agencies may choose not to accept the treated water for either of the planned end use options under these alternatives. Therefore, implementation of

Alternatives 1 – 3b is expected to be more difficult than Alternatives 4a and 4b from an administrative standpoint.

2.10.7 Cost

This criterion addresses the total cost of each alternative. This includes the capital costs (design, initial permitting, construction, startup, and contingencies), annual O&M costs (labor, materials, energy, laboratory analysis, and other services), and net present value (total cost in today's dollars for capital and O&M costs), assuming a discount rate of 7 percent and a period of operation of 30 years. The 30-year duration was chosen for cost estimating purposes only; a final ROD will be signed in the future that will comprehensively address the Site contamination. The cost estimates are considered order-of-magnitude level estimates, with an expected accuracy of +50 to -30 percent.

Alternative 1 is the lowest-cost alternative (see Table 5) over a 30-year period. Alternatives 2a and 3a, which are identical except for the individual versus combined chromium treatment units for extraction wells NHE-1 and NHE-2, are the next highest-cost alternatives. The difference between costs for these alternatives is within the range of uncertainty in the cost estimate, and should be considered approximately equal. Alternatives 4a and 5a have progressively higher costs, largely due to the higher flow volumes to be treated for chromium. Estimated costs for implementation of the reinjection option for end use of treated water (Alternatives 2b, 3b, 4b, and 5b), which includes construction of additional wells and pipelines, are substantially greater than the LADWP-delivery option (Alternatives 2a, 3a, 4a, and 5a).

2.10.8 State Acceptance

This criterion evaluates the technical and administrative issues and concerns the state may have regarding each alternative.

State agencies have indicated that Alternative 1 is not acceptable because of the continued migration of groundwater contamination and the potential for chromium contamination to migrate and further degrade the aquifer. The State has expressed its support for Alternative 4a, EPA's Preferred Alternative.

2.10.9 Community Acceptance

This criterion evaluates the issues and concerns the public may have regarding each alternative. EPA received comments on the Proposed Plan from nine parties. Seven of these parties were businesses, or parties acting on behalf of businesses or business property owners. These comments focused primarily on the need for more data before taking any action to select a new remedy, and on the lack of necessity for the extent of EPA's preferred alternative. One commenter proposed a sixth alternative. The others did not state a preference for alternatives.

EPA has addressed all of the significant comments received in the Responsiveness Summary section of this ROD. EPA does not believe that any of the issues raised in the comments warrants selection of a different interim remedy to address the groundwater contamination in the NHOU.

2.11 Principal Threat Wastes

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a Site wherever practicable. The "principal threat" concept is applied to the characterization of "source materials" at a Superfund Site. A source material is material that includes or contains

hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water or air, or acts as a source for direct exposure. Contaminated groundwater generally is not considered to be a source material; however, non-aqueous phase liquids (NAPLs) in groundwater may be viewed as source material. Because the NHOU is a groundwater-only Site and NAPL has not been detected in groundwater in the NHOU, principal threat wastes are not considered present for this ROD.

2.12 Selected Remedy

EPA's selected Second Interim Remedy for the NHOU is Alternative 4a, which includes: the construction of new extraction wells; the modification/rehabilitation of several existing extraction wells; expanded VOC treatment; chromium treatment for NHE-1, NHE-2 and two of the new extraction wells; installation of additional monitoring wells; institutional controls; and, use of the treated water in LADWP's water supply system.

2.12.1 Summary of the Rationale for the Second Interim Remedy

Based on the information currently available, EPA believes the Second Interim Remedy meets the threshold criteria and provides the best balance of trade-offs when compared to the other alternatives. The installation of additional extraction wells, the modification of existing extraction wells, and expansion of the VOC treatment system will significantly improve plume capture and prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West well fields. This alternative will also result in permanent and significant reduction in the mobility and volume of VOCs in groundwater in the NHOU. The addition of chromium treatment for four of the extraction wells will insure that the remedy meets all requirements for use of the treated water in LADWP's water supply system, and it will also significantly reduce the possibility that extraction wells would have to shut down or be throttled back as a result of increases in chromium concentrations. Delivery of treated water to LADWP provides the greatest beneficial use of the treated water and at a significantly lower cost than reinjection.

No comments were received from residents in the area of the NHOU. The comments from PRPs expressed their belief that the Selected Interim Remedy is not necessary. LADWP prefers alternative 5a because of its flexibility to adapt to possible future changes in aquifer conditions and/or drinking water standards. The State has concurred with EPA's Selected Interim Remedy.

2.12.2 Description of the Second Interim Remedy

The following is a description of the Second Interim Remedy; Figure 7 schematically illustrates the major components. Although the EPA does not expect significant changes to this remedy, there may be some level of modification during the remedial design and construction processes. Any changes to the remedy described in this ROD would be adopted and documented as appropriate and consistent with the applicable regulations.

Institutional Controls (ICs)

Governmental controls in place in the SFV act as effective institutional controls to prevent the public's exposure to contaminated groundwater. The primary governmental control is the 1979 Final Judgment in the Superior Court of California, County of Los Angeles, (Superior Court Case No. 650079) in the case titled The City of Los Angeles vs. City of San Fernando, et al. The final

judgment created the entity known as "Watermaster" with full authority to administer the adjudication of water rights, under the auspices of the Superior Court.

Under the final judgment, only the cities of Los Angeles, Burbank, and Glendale are permitted to extract groundwater from the Basin. Each of these municipalities administers a public drinking water system, which is regulated and subject to permits issued by the CDPH. These drinking water regulatory controls and the Watermaster's authority to regulate and allocate water resources ensure centralized control over area groundwater and its use as a drinking water source.

However, certain groundwater pumping scenarios acceptable to the Watermaster could interfere with the effectiveness of the Second Interim Remedy. In order to address this issue, an additional IC is necessary, wherein EPA and LADWP work together to develop and implement a groundwater management plan that would protect the effectiveness and integrity of the NHOU remedy while being consistent with LADWP's drinking water production requirements. The groundwater resources management program is expected to provide for regular sharing of relevant groundwater data and pumping rate projections, planning for groundwater use, and a decision-making process to address any potential conflicts between the LADWP's pumping plans and the performance of the remedy. To ensure that the groundwater management plan and the implementation mechanisms for that plan are an effective IC, EPA intends for it to be defined in a formal agreement between EPA and LADWP.

Groundwater and Treatment System Monitoring

Approximately 37 new monitoring wells will be installed; proposed locations are identified on Figure 9. Of these, Honeywell has already installed approximately 25 of these wells, in coordination with, and with oversight by, the EPA.

Monitoring of groundwater levels and groundwater quality from the new monitoring wells included in the Second Interim Remedy and selected existing wells will allow for evaluation of contaminant plume migration and the effectiveness of the selected remedial actions. The specific monitoring objectives that were used to develop a modified groundwater monitoring network as part of the Second Interim Remedy include the following:

- Fill key data gaps to adequately characterize the lateral and vertical extent of contaminant plumes and known hotspot areas and their relationship to known source areas;
- Provide information to monitor the progress of the remedy and to detect the migration of known COCs and emerging chemicals from known plume and hot spot areas; and,
- Develop the data necessary for evaluating and, as necessary, selecting future additional response actions for areas of the VOC plume that may not be captured by the Second Interim Remedy.

Under all alternatives, groundwater monitoring within the NHOU is expected to include continued sampling and analysis of the new and existing EPA monitoring wells in the NHOU, selected facility monitoring wells, LADWP production wells, and extraction wells in the North Hollywood area for VOCs, chromium, emerging chemicals, and parameters indicative of geochemical conditions that may affect chromium speciation and transport.

It is assumed that the future sampling regimen for the new and existing monitoring wells would be similar to the ongoing SFV Basin-wide sampling program, and would include:

- Monthly sampling at the extraction wells and quarterly or annual sampling at the selected monitoring and production wells for VOCs, hexavalent chromium, 1,4-dioxane, and TCP.

- Annual sampling of the extraction wells, selected monitoring wells, and selected production wells for dissolved metals (including total chromium), NDMA, perchlorate, nitrate, common anions, alkalinity, and total dissolved solids.

Depending on the analytical results for groundwater samples collected from the new monitoring wells, construction of additional monitoring wells may be required to further delineate contaminant plumes or determine the locations for continuing sources of groundwater contamination. After the first year of sampling results for all new wells have been evaluated, the frequency and analyte list for the monitoring program may be modified to optimize the efficiency and effectiveness of the NHOU monitoring program.

Wellhead 1,4-dioxane Treatment at Extraction Well NHE-2

Wellhead treatment for 1,4-dioxane will occur at well NHE-2, where concentrations ranging from 4 to 9 µg/L have been detected since 2006 (the CDPH notification level for 1,4-dioxane is 3 µg/L). The treatment technology to be applied is the ultraviolet light and hydrogen-peroxide AOP because it provides the most flexibility for future process modifications; however, during design, another treatment option may be selected. Even though Honeywell is currently under order with the RWQCB to install 1,4-dioxane treatment at NHE-2, EPA has determined that it is also a necessary component of the Second Interim Remedy and is selecting it in this ROD.

The 30-year O&M period for treatment of VOCs at the NHOU is assumed to also apply to wellhead 1,4-dioxane treatment at NHE-2. The estimated O&M duration will be re-evaluated if 1,4-dioxane concentrations change significantly during this period.

Replace Existing Extraction Well NHE-1

To achieve the required hydraulic containment under the Second Interim Remedy, replacement of existing extraction well NHE-1 with a deeper well of similar construction will be necessary. The target screened interval for a replacement for well NHE-1 is from 190 to 401 feet; however, the screened interval may be adjusted during the remedial design phase, depending on results of future groundwater level and quality data.

Replace or Repair and Modify Existing Extraction Wells NHE-2, NHE-4, and NHE-5

Replacement of wells NHE-2, NHE-4, and NHE-5 with deeper wells of similar construction will likely be necessary to achieve the required hydraulic containment under the Second Interim Remedy. Target screened intervals for these wells under Alternatives 2a through 5b are as follows:

- NHE-2: 190 to 390 feet bgs
- NHE-4: 180 to 400 feet bgs
- NHE-5: 180 to 415 feet bgs

Similar to extraction well NHE-1, the screened intervals for these wells may be adjusted during the remedial design phase. Alternatively, the existing wells could remain active in their present configuration, and wells with deeper screened intervals could be constructed adjacent to each existing well. These paired (deeper) wells would also be connected to the existing NHOU treatment plant. The pumping rates at each extraction well pair could be adjusted, depending on the depth to the water table, to maximize containment of the most contaminated aquifer zone, typically Depth Region 1.

Rehabilitate Existing Extraction Wells NHE-3, NHE-6, NHE-7, and NHE-8

Extraction wells NHE-3, NHE-6, NHE-7, and NHE-8 are screened at appropriate depths for plume containment and have been able to pump at or near their design pumping rates for most of the operational history of the NHOU treatment system. They are not expected to require replacement or modification at present. However, routine repair or replacement of pumps and ancillary equipment will be required as part of an ongoing O&M program to maintain design pumping rates. To ensure optimal long-term performance of these wells, it is assumed they will be rehabilitated using swabbing, surging, sand bailing, and over-pumping techniques. Additional rehabilitation efforts (e.g., acid-flushing or jetting) will also be considered on a case-by-case basis, depending on results of the initial rehabilitation efforts.

Construct New Extraction Wells

Preliminary computer modeling conducted during the FFS concluded that three new extraction wells are necessary to further limit contaminant migration and to improve contaminant mass removal. A new pipeline will be required to connect the new extraction wells to the NHOU treatment plant. The exact number, location, and pumping rates for these wells are estimated and will be finalized during remedial design. Based on computer modeling conducted as part of the FFS, these new wells (New Northwestern Wells) should be located northwest of the existing NHOU treatment system in locations (see Figure 8) selected to prevent VOC and chromium migration towards the Rinaldi-Toluca well field and the western portion of the North Hollywood well field. The modeling also suggested that each of the New Northwestern Wells should pump at a maximum rate of 420 gpm (350 gpm long-term average) in order to achieve the containment objective. Screened intervals for these wells are expected to be approximately 220 to 420 feet bgs, but actual intervals, as well as the number and location of the new extraction wells, may be revised during the remedial design phase. Pumping rates and schedules for these wells should be optimized periodically during implementation of the Second Interim Remedy to achieve the desired capture zones, in consideration of pumping rates and drawdown resulting from the southern production wells in the Rinaldi-Toluca well field. Pumping rates for the three New Northwestern Wells will be evaluated and modified, if necessary, to maximize effectiveness and efficiency of the Second Interim Remedy. Depending on groundwater conditions (e.g., hydraulic gradients) in the NHOU, which can change on a seasonal to annual basis, it may be beneficial to temporarily reduce or stop pumping from these wells periodically. A plan for optimizing pumping rates of the NHOU extraction wells will be developed as part of the remedial design process.

Treatment of VOCs in Extracted Groundwater

Expansion of VOC treatment capacity at the NHOU will be necessary to treat the volume of groundwater produced by the existing NHOU extraction wells and the proposed additional extraction wells. The existing NHOU treatment plant will be augmented to accommodate peak and average pumping rates of 3,600 and 3,050 gpm respectively, and for peak VOC concentrations up to 650 µg/L of TCE and 100 µg/L of PCE. The existing air stripper will be refurbished and a second air stripper, similar in capacity to the original, will be installed and operated in parallel with the existing system. The combined maximum capacity of the two parallel air strippers will be 4,800 gpm or more at the anticipated influent VOC concentrations, allowing expansion of the extraction well network or pumping rates in the future, if necessary. With air stripping as the primary VOC treatment process, the VOC treatment train should include the following major components:

- The air stream exiting the air stripper contains TCE and PCE and must be treated using vapor-phase granular activated carbon (VPGAC) vessels (or an alternative technology) to remove the TCE and PCE before the air is discharged to the atmosphere.
- Untreated influent, treated effluent, and air exiting the air stripper at the NHOU treatment plant must be monitored to ensure compliance with permit requirements, ARARs, and LADWP policies.
- A secondary VOC treatment system (such as LPGAC) is required downstream from the air strippers to meet the "double barrier" VOC treatment requirement of CDPH for discharge into a drinking water source. LPGAC would have the additional benefit of also removing VOCs that are not readily removed by the air stripping process, most notably TCP. TCP is not currently detected in the influent to the Existing NHOU Extraction and Treatment System, but has been detected in groundwater within the NHOU at concentrations exceeding the notification level of 0.005 µg/L.

Wellhead Chromium Treatment at Well NHE-2

Ex situ treatment of chromium will be required at well NHE-2. In the FFS, ferrous iron reduction with microfiltration was identified as the preferred technology for a wellhead treatment system (and used for the costing). Alternatively, an anion-exchange-based treatment process could be installed, if pilot test results expected from the GOU in 2010 demonstrate that the process is effective and does not produce excessive NDMA or other problematic organic compounds.

Ferrous iron reduction decreases total chromium concentrations by chemically reducing hexavalent chromium to trivalent chromium and co-precipitating the trivalent chromium with ferric iron. The ferric iron and trivalent chromium co-precipitate is flocculated and removed using a conventional clarifier and media filter polishing or a microfilter. The key components of a ferrous iron reduction and filtration system include a series of reactors for ferrous iron reduction of hexavalent chromium to trivalent chromium. A microfilter system coupled with a backwash system then removes the ferric iron and trivalent chromium precipitate (solids). A batch-thickening and dewatering system receives the resulting solids sludge. The residual sludge is expected to be disposed at an approved off-Site facility, either a RCRA-facility, or perhaps a reclamation facility.

Anion exchange decreases total chromium concentrations by exchanging hexavalent chromium oxy-anions for chloride anions using a bed of selective ion exchange resins. The ion exchange resin is regenerated off-Site by a vendor service. The major components of an anion exchange system for the NHOU plant would be three ion exchange adsorber vessels and a backwash system. The backwash system removes broken resin beads and trace suspended solids, and it recovers backwash water. Disposal of backwash solids as a wet sludge is assumed. Similar to the ferrous-iron reduction system for chromium treatment, an anion-exchange system could be scaled up or down in capacity to accommodate a changing number of extraction wells or concentrations requiring treatment.

A peak pumping rate of 300 gpm (250 gpm average long-term flow rate) was assumed in the FFS for chromium treatment at NHE-2. It is assumed the peak chromium concentration in the influent to the wellhead treatment system would be 600 µg/L (1.5 times the current concentration at NHE-2), and would require treatment to 5 µg/L or less. The 30-year O&M period for treatment of VOCs at the NHOU is assumed to also apply to wellhead chromium treatment at NHE-2. The estimated O&M duration will be reevaluated if chromium concentrations change significantly.

EPA is selecting the wellhead chromium treatment described above as part of the Second Interim Remedy despite the fact that Honeywell is currently under CAO with the RWQCB to install a treatment system at NHE-2 for chromium. Honeywell's chromium treatment system is not expected to be of sufficient capacity for the increased pumping rate that is expected from NHE-2 and EPA anticipates that Honeywell's system will either have to be expanded, or a new system installed.

***Ex Situ* Chromium Treatment for Wells NHE-1, NEW-2, and NEW-3**

Ex situ treatment of chromium using the ferrous iron reduction with microfiltration process described above was assumed to be implemented in the FFS for the combined flow from three extraction wells at the NHOU groundwater treatment facility (see previous section for details of this treatment method). It is assumed that this system would be sized to treat the combined influent from extraction well NHE-1 and new extraction wells NEW-2 and NEW-3 (a peak combined pumping rate of 1,100 gpm). Alternatively, an anion-exchange-based treatment process could be installed, similar to the above. A 30-year O&M period for treatment of VOCs at the NHOU is assumed to also apply to *ex situ* chromium treatment.

Delivery of Treated Groundwater to LADWP

The treated groundwater will be used by LADWP as part of their municipal supply (following blending with other water sources and further water treatment). Use of the NHOU treated water in LADWP's drinking water supply requires compliance with federal and state drinking water standards, including the San Fernando Basin Water Management Plan's *Policy Guidance for Direct Domestic Use of Extremely Impaired Sources,* CDPH Policy Memorandum 97-005 ("97-005"), which establishes a specific process for the evaluation of impaired water sources before they can be approved for use as drinking water.

Off-Site Requirements: All CDPH and LADWP treatment levels or standards, including those identified through the 97-005 process, that apply to COCs must be met by the Second Interim Remedy in order to deliver the NHOU treated water to LADWP for use in its domestic water supply. Because these treatment levels and standards are off-Site drinking water requirements, they are not ARARs. However, they must be met in order to comply with the Second Interim Remedy's end use, and therefore, are incorporated into this ROD as enforceable standards. Because they are not ARARs, offsite requirements that change over time must be met in order to comply with the Second Interim Remedy's selected end use. Currently, the concentrations of the NDMA, TCP, perchlorate, and 1,4-dioxane in the NHOU groundwater are sufficiently low that treatment is only needed for 1,4-dioxane at NHE-2. If, during the design process, concentrations are found to be increasing at any of the extraction wells, such that the cleanup level is exceeded at the compliance point, additional well-head treatment may be necessary.

2.12.3 Summary of the Estimated Remedy Costs

A summary of the estimated capital, O&M, and present worth costs of the major components of the Second Interim Remedy is included in Table 5. A detailed breakdown of these costs is provided in Appendix D of the FFS. The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the Second Interim Remedy. Major changes, if they were to occur, would be adopted and documented as appropriate. As is the practice at federal Superfund Sites, these cost estimates are based on an expected accuracy range of -30 to +50 percent of actual costs.

Table 5. Cost Estimate Summary for the Second Interim Remedy

	Component	Notes and Assumptions	Capital Cost[a]	Annual O&M Cost[b]	Net Present Value[c]
1	Groundwater monitoring	Install 37 new monitoring wells and periodically sample existing and planned monitoring wells, production wells, and extraction wells (includes quality assurance/quality control samples)	$6,980,000	$758,000	$16,379,200
2	Groundwater extraction from existing NHOU extraction wells	Deepen 4 existing extraction wells, rehabilitate 4 existing extraction wells, and operate all 8 extraction wells at design pumping rates (2,000 gpm combined average flow, 2,400 gpm peak)	$2,740,000	$527,000	$9,274,800
3	Groundwater extraction from new extraction wells	Install 3 new extraction wells and new pipeline to NHOU treatment plant, operate new extraction wells (1,050 gpm combined average flow, 1,200 gpm peak)	$3,770,000	$213,000	$6,411,200
4	Primary VOC treatment (air-stripping)	Construct and operate second air stripper, and use existing air stripper at design rate (includes refurbishment at year 15)	$1,908,140	$599,000	$9,335,740
5	Secondary VOC treatment (LPGAC)	Construct and operate two new LPGAC treatment units in parallel downstream from air strippers (redundant VOC treatment)	$2,870,000	$576,000	$10,012,400
6	Interim wellhead treatment for 1,4-dioxane and chromium at extraction well NHE-2	Performed prior to completion of Second Interim Remedy; operate at 190 gpm for 3 years	$4,130,000	$790,000	$6,199,800
7	Expand wellhead treatment for chromium at extraction well NHE-2	Expand interim wellhead treatment system for chromium at NHE-2 (to 250 gpm average flow, 300 gpm peak) following construction of Second Interim Remedy, operate for 30 years	$3,650,000	$861,000	$14,326,400
8	Chromium treatment for combined flow from NHE-1 and two new extraction wells	Single treatment unit designed for 950 gpm average flow, 1,100 gpm peak	$9,410,000	$1,691,000	$30,378,400
9	Expand wellhead treatment for 1,4-dioxane at extraction well NHE-2	Expand interim wellhead treatment system for 1,4-dioxane at NHE-2 (to 250 gpm average flow, 300 gpm peak) following completion of Second Interim Remedy, operate for 30 years	$640,000	$428,000	$4,708,080
10	CDPH 97-005 process	Required to use treated water from NHOU as part of LADWP's water-supply	$750,000	$0	$750,000
		TOTALS:	$36,848,140	$6,443,000	$107,776,020

Notes:

[a] Capital cost estimates are not discounted because the construction work will be performed in the first year.

[b] O&M costs include labor and expenses for repairs, energy for operation, and other costs that accrue on a continuous or periodic basis during an average year of system operation.

[c] Net present value estimates assume a 7% discount rate on annual O&M costs for a 30-year period for all remedial components.

Costs for monitoring the treatment system performance are included in each alternative above.

2.12.4 Expected Outcomes of the Second Interim Remedy

Improvements to the existing NHOU extraction wells and construction of new extraction wells will result in improved hydraulic containment under the expected future pumping scenarios for water supply in the eastern SFV. The goal of the remedy is to improve hydraulic containment and to control migration of the contaminated plume in excess of MCL's, The Selected Interim Remedy will prevent

groundwater with the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells and areas of the aquifer with significantly lower contaminant concentrations. As a result, water-supply wells screened in areas or depth intervals of the aquifer that contain small or no detectable concentrations of the COCs are expected to continue operating without further restrictions caused by increasing contaminant levels.

Because the Second Interim Remedy is for containment and not restoration, no final cleanup standards have been established for restoration of groundwater. This means that at least a portion of the shallow and deep zones upgradient of the compliance wells and any associated extraction systems will likely remain contaminated and unusable for a considerable length of time.

2.12.5 Applicable or Relevant and Appropriate Requirements

The Selected Interim Remedy is expected to comply with all federal and state ARARs except for 40 CFR § 300.430(e)(2)(i)(A), which requires that the contaminant levels of the groundwater that remains in the aquifer be reduced below MCLs. Because this is an interim action for containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater remaining on-Site. EPA is waiving this ARAR pursuant to CERCLA Section 121(d)(4)(A), 42 U.S.C. § 9621(d)(4)(A), and 40 CFR § 300.430(f)(1)(ii)(C), which allows EPA to select a remedy that does not achieve an ARAR when the remedial alternative selected is an interim measure that will become part of a total remedial action that will attain ARARs. EPA's waiver of the aquifer cleanup standard does not apply to water extracted from the aquifer and delivered to LADWP for use as drinking water; all extracted and treated water is expected to comply with MCL ARARs.

2.13 Statutory Determinations

Under CERCLA Section 121, EPA must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), consider the reasonableness of cost for the selected remedy, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ, as a principal element, treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes and a bias against off-Site disposal of untreated wastes. The following sections discuss how the Second Interim Remedy meets these statutory requirements.

2.13.1 Protection of Human Health and the Environment

Exposure to contaminated groundwater through the potable water supply is the area of potential human-health risk in the NHOU. There are no potentially complete exposure pathways for contaminated groundwater to reach ecological receptors.

The Second Interim Remedy will protect human health and the environment by achieving hydraulic containment, to the extent practicable, of groundwater exceeding the MCLs, including the most significant areas of groundwater contamination in the NHOU and thereby preventing the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells. The Selected Interim Remedy's double-barrier VOC treatment components will remove the VOCs that the existing NHOU treatment system was designed to remove, and other treatment components will remove emerging contaminants of potential concern (including hexavalent chromium and 1,4-dioxane) to the performance standards identified in this ROD. Water supply wells,

NHOU extraction wells, EPA (RI) monitoring wells, and facility monitoring wells will be monitored and access to contaminated groundwater will be restricted through institutional controls.

The remedy will not have detrimental cross-media impacts. The groundwater treatment system will comply with air quality requirements. Treated groundwater will be conveyed directly to LADWP's closed distribution system. There are no short-term threats associated with the Second Interim Remedy that cannot be readily controlled.

2.13.2 Compliance with Applicable or Relevant and Appropriate Requirements

The Second Interim Remedy shall comply with ARARs as described below. A complete list of all ARARs for the Second Interim Remedy is provided in Tables 7 and 8, below. Table 9 summarizes To-Be-Considered (TBC) criteria. Because this is an interim action for the containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater.

40 CFR § 300.430(e)(2)(i)(A) requires that the contaminant levels of the groundwater that remains in the aquifer are reduced below MCLs. EPA is waiving this ARAR pursuant to CERCLA Section 121(d)(4)(A), 42 U.S.C. § 9621(d)(4)(A), and 40 CFR § 300.430(f)(1)(ii)(C), which allows EPA to select a remedy that does not achieve an ARAR when the remedial alternative selected is an interim measure that will become part of a total remedial action that will attain ARARs. EPA's waiver of the aquifer cleanup standard does not apply to water extracted from the aquifer and delivered to LADWP for use as drinking water or re-injected; all extracted and treated water is expected to comply with MCL ARARs.

Performance Standards for treated groundwater are summarized in Table 6. The current regulatory standards for TCE, PCE, and the other VOC COCs are the state and federal MCLs. The current regulatory standard for total chromium is the state MCL of 50 µg/L. As of September 2009, there is no MCL for hexavalent chromium. However, LADWP has indicated that it will not accept water for use in its drinking water supply system with hexavalent chromium levels exceeding 5 ug/L. Therefore, EPA has chosen to use LADWP's 5 ug/L voluntary limit as a performance standard in the remedy. If a new MCL for hexavalent chromium is adopted a higher degree of chromium treatment may be required in order to ensure that the treated water continues to meet requirements for drinking water.

No state or federal MCLs have been promulgated for TCP, 1,4-dioxane, or NDMA. For these emerging chemicals that lack MCLs, EPA is treating the CDPH notification levels, which are health-based advisory levels for drinking water use, as criteria to be considered in setting alternative performance standards for extracted groundwater in the NHOU. Notification levels are established as precautionary measures for contaminants that may be considered candidates for establishment of MCLs.

For the purposes of determining compliance with the performance standards presented in Table 6, the point of compliance shall be the combined effluent from the NHOU treatment facility, just prior to its delivery to the end use, the LADWP drinking water system.

The ARARs are frozen at the time the ROD is signed, but off-site requirements, including requirements applicable to treated water delivered to the drinking water supply, must be met in order to comply with the Second Interim Remedy's selected end use regardless of whether those requirements change over time. As a result, if an offsite drinking water requirement changes, the

treatment system must meet whichever standard - the performance standard selected in the ROD or the offsite requirement - is lower.

Table 6. Performance Standards for COCs in Extracted and Treated Groundwater

Contaminant of Concern	Federal MCL (µg/L)	California MCL (µg/L)	CDPH Notification Level (µg/L)	Basis for Performance Standard	Performance Standard (µg/L)[a]
TCE	5	5	None	Federal MCL	5
PCE	5	5	None	Federal MCL	5
1,1-DCA	5	5	None	Federal MCL	5
1,2-DCA	0.5	0.5	None	Federal MCL	0.5
1,1-DCE	6	6	None	Federal MCL	6
cis-1,2-DCE	6	6	None	Federal MCL	6
1,1,2-TCA	5	5	None	Federal MCL	5
Carbon tetrachloride	0.5	0.5	None	Federal MCL	0.5
Methylene Chloride	5	5	None	Federal MCL	5
Total Chromium	100	50	None	California MCL	50
Hexavalent Chromium	None[b]	None[b,c]	None	See footnote "d"	5[d]
Perchlorate	None	6	None	California MCL	6
TCP	None	None	0.005	CDPH notification level	0.005
1,4-dioxane	None	None	3	CDPH notification level	3
NDMA	None	None	0.01	CDPH notification level	0.01

Notes:

[a]The CDPH permitting process may require lower concentrations in the treated effluent.

[b]Federal and state MCLs specific to hexavalent chromium have not been established; therefore, the state MCL for total chromium currently is applied to hexavalent chromium.

[c]A PHG for hexavalent chromium is currently under development by OEHHA. Following development of a PHG, a state MCL specific to hexavalent chromium may be established.

[d]Based on discussions with LADWP, it is EPA's understanding that LADWP will continue to use a voluntary cleanup level of 5 µg/L for hexavalent chromium for water it will accept for use in its water supply system. Consequently, under the drinking water end use option, chromium treatment at the NHOU will be needed so that LADWP's voluntary cleanup level of 5 µg/L can be met.

Table 7. Chemical-specific Applicable or Relevant and Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
SDWA (2 USC 300 et seq.)	National Primary Drinking Water Standards, including 40 CFR 141.61 and 40 CFR 141.62	Relevant and appropriate	Chemical-specific drinking water standards and MCLs have been promulgated under the SDWA; MCLGs above zero are considered chemical-specific ARARs under the NCP (40 CFR 300.430(e)(2)(i)(B)). When the MCLGs are equal to zero, which is generally the case for a chemical considered to be a carcinogen, the MCL is considered the chemical-specific ARAR instead of the MCLG (40 CFR 300.430(e)(2)(i)(C)). Established MCLs for COCs are listed in Table 3-4 of the FFS. Performance Standards for the SFV treated effluent were established in the 1987 ROD at 5 µg/L for TCE and 4 µg/L for PCE. However, the MCL and performance standard for PCE has since been changed to 5 µg/L. The MCL of 5 ug/L for TCE and PCE will apply to the effluent from the treatment plant. Performance Standards for groundwater in the aquifer are not established at this time in any of the alternatives.	The MCLs are ARARs for the purpose of establishing Performance Standards for the treated water from the NHOU treatment plant. 40 CFR 300.430(e)(2)(i)(B) and 40 CFR 300.430(e)(2)(i)(C) require that the remedy selected attain non-zero MCLGs or MCLs for each contaminant if the groundwater is a current or potential drinking water source.
SDWA (42 USC 300 et seq.)	National Primary Drinking Water Standards, 40 CFR 141, including 40 CFR 141.23 and 40 CFR 141.24	Relevant and appropriate	Requires monitoring to determine compliance with MCLs.	Substantive monitoring requirements in 40 CFR 141.23 and 40 CFR 141.24 are relevant and appropriate, to ensure that treated effluent is meeting performance standards.
State of California Domestic Water Quality and Monitoring Regulations	California Safe Drinking Water Regulations, including 22 CCR 64431 and 22 CCR 64444	Relevant and appropriate	Contains provision for California domestic water quality; establishes MCLs for primary drinking water chemicals.	The MCLs are ARARs for the purpose of establishing performance standards for COCs in the water extracted from the basin and treated at the treatment plant.

Notes:

CCR = California Code of Regulations
MCLG = maximum contaminant level goal
SDWA = Safe Drinking Water Act

Table 8. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
Clean Air Act SCAQMD	Air Pollution Control Equipment Permit 144890 was granted August 29, 1986.	Substantive require-ments of the permit are applicable	In California, the authority for enforcing the standards established under the Clean Air Act has been delegated to the state. The program is administered by the SCAQMD in Los Angeles. Permit 144890 (held by LADWP) requires 90 percent removal efficiency for TCE and PCE air emissions and a not-to-exceed level of 2 pounds per day of total VOCs.	The existing system includes use of air stripping technology to remove VOCs from the groundwater. Emissions from the air stripper must meet SCAQMD limits and the other substantive provisions established in this permit. Although a permit is not required for the air stripper pursuant to CERCLA § 121(d), LADWP obtained a permit in advance of construction in 1986. According to SCAQMD, the permit from the SCAQMD remains valid, and the emission limits and other substantive requirements in it are applicable. If the air stripping treatment system is modified significantly as part of the selected remedy, the substantive provisions of SCAQMD Rule 1401 (which limits air emissions of identified toxics from new or modified sources) may apply.
California Water Code and State Water Resources Control Board Model Well Standards Ordinance (1989)	Division 7, Chapter 10, Section 13700 et seq.	Applicable	The California Water Code requires the State Water Resources Control Board to adopt a model well ordinance implementing the standards for well construction, maintenance, and abandonment contained in the con-struction requirements for wells, in conformance with DWR Bulletin 74-81. DWR Bulletin 74-90 updates DWR Bulletin 74-81.	If the selected alternative involves well construction or maintenance, substan-tive provisions of this code will be applicable.

Table 8. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.10	Applicable	22 CCR 66262.10 lists the sections of California law with which a generator of hazardous waste must comply.	The selected remedy need only comply with the substantive provisions of the regulations listed in 22 CCR 66262.10. Each alternative considered in the FFS has the potential to generate hazardous waste. Examples of hazardous wastes generated on-Site include: (1) spent granular activated carbon filters from the air stripper, (2) purged water from new or modified wells that meets characteristic waste levels, and (3) well casing soils from new or modified wells that meet characteristic waste levels.
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.11	Applicable	Requires waste generators to determine if wastes are hazard-ous, and establishes procedures for such determinations.	The substantive requirements will be applicable to management of waste materials generated by a groundwater treatment plant and to any waste generated while installing new wells.
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.34(a)(1)(A)	Relevant and appropriate	Waste stored on-Site should be placed in containers or tanks that are in compliance with California Hazardous Waste Regulations.	Storage of hazardous waste accumulated on-Site must be in compliance with substantive requirements for interim status facilities.
California Hazardous Waste Regulations, Storage of Hazardous Waste	22 CCR 66265.170 et seq. (Article 9) 22 CCR 66265.190 et seq. (Article 10)	Applicable	Regulates use and management of containers, compatibility of wastes with containers, and special requirements for certain wastes.	Substantive provisions of Articles 9 and 10 will be applicable if hazardous waste is generated and accumulated on-Site.
California Land Disposal Restrictions, Requirements for Generators	22 CCR 66268.3, 22 CCR 66268.7, 22 CCR 66268.9, and 22 CCR 66268.50	Applicable	Compliance with land disposal regula-tion treatment standards is required if hazardous waste (e.g., contaminated soil) is placed on land. Soil treatability variance may be invoked, according to 40 CFR 268.44 (h)(3) and (4).	Hazardous waste hauled off-Site must meet “land-ban” requirements.

Table 8. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
California Land Disposal Restrictions, Requirements for Generators	22 CCR 66268.1 et seq. (Article 1)	Applicable	Prior to transporting for off-Site disposal, hazardous waste must be characterized to determine whether land disposal restriction treatment standards apply and whether the waste meets the treatment standards. This information must be provided to the off-Site facility with the first waste shipment.	The substantive requirements will be applicable to management of waste materials generated by a groundwater treatment plant and to any waste generated while installing new wells.
Spent Carbon Disposal	40 CFR 268.40	Applicable	Attain land disposal treatment standards before putting waste into landfill to comply with land disposal restriction.	Substantive requirements apply.

Notes:

NPDES = National Pollutant Discharge Elimination System
SCAQMD = South Coast Air Quality Management District
DWR = Department of Water Resources
CFR = Code of Federal Regulations
CCR = California Code of Regulations
RWQCB = Regional Water Quality Control Board

Table 9. To-Be-Considered Criteria

Source	Citation	Description	Findings and Comments
California PHGs, California Environmental Protection Agency, and OEHHA	California Calderon-Sher SDWA of 1996, California Health and Safety Code 116365	OEHHA has adopted PHGs for chemicals in drinking water. PHGs are levels of drinking water contaminants at or below which adverse health effects are not expected to occur from a lifetime of exposure.	In the absence of MCLs, the state PHGs adopted by OEHHA have been considered during selection of performance standards for extracted groundwater.
CDPH Drinking Water Notification Levels	California Health & Safety Code § 116455	CDPH has established drinking water notification levels (formerly known as action levels) based on health effects, but in some cases they are based on organoleptic (taste and odor) values for chemicals without MCLs.	In the absence of MCLs, the drinking water notification levels established by CDPH have been considered during selection of performance standards for extracted groundwater.

No location-specific ARARs were identified for the Site during the 1987 ROD, and none have been identified for the Second Interim Remedy.

This interim remedial action shall comply with all ARARs described in this section. Because this is an interim action for containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater remaining on-Site. These ARARs will be addressed in the Final ROD for the NHOU.

2.13.3 Cost-Effectiveness

In EPA's judgment, the Second Interim Remedy is cost-effective and represents a reasonable value for the money to be spent. Section 300.430(f)(ii)(D) of the NCP requires EPA to evaluate the cost of an alternative relative to its overall effectiveness. This was accomplished by evaluating "overall effectiveness" of those alternatives that satisfied the threshold criteria (i.e., Alternatives 2a through 5b, which are protective of human health and comply with all selected ARARs). Overall effectiveness was evaluated by assessing four of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; short-term effectiveness; and implementability). Overall effectiveness was then compared to costs to determine cost-effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs and hence this alternative represents a reasonable value for the money spent.

The estimated net present value of the Second Interim Remedy (Alternative 4a) is $108 million. Although Alternatives 2a and 3a were $16 million to $26 million less expensive, respectively, expected chromium migration to the new extraction wells was not addressed. EPA believes that the Second Interim Remedy's additional cost for expanded chromium treatment provides a significant increase in protection of human health and the environment, and increased likelihood that the remedy will remain in compliance with ARARs during its anticipated period of operation.

2.13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined that the Second Interim Remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the NHOU, until EPA obtains sufficient data to select a final remedy. EPA has also determined that the Second Interim Remedy provides the best balance of tradeoffs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and bias against off-Site treatment and disposal, as outlined below:

- Long-term Effectiveness and Permanence: By controlling (to the extent practicable) migration of the groundwater exceeding MCLs, including the most highly contaminated groundwater in the NHOU, the area for potential future residual contamination in groundwater and the vadose zone is limited.
- Reduction of Toxicity, Mobility, or Volume Through Treatment: Improved hydraulic containment and expanded groundwater treatment will reduce the mobility and volume of dissolved-phase VOC and emerging contaminant concentrations in groundwater, result in the permanent destruction of VOCs and 1,4-dioxane, and reduce the toxicity of chromium by converting it from the hexavalent to the trivalent form.
- Short-term Effectiveness: There are no special short-term effectiveness issues that set the Second Interim Remedy apart from the other alternatives evaluated.
- Implementability: The Second Interim Remedy is not significantly more complex to implement than the other remedial alternatives.

2.13.5 Preference for Treatment as a Principal Element

The Second Interim Remedy will treat VOCs, chromium, and other emerging contaminants in the extracted groundwater to achieve the cleanup levels. By utilizing treatment as a significant portion of the remedy, the statutory preference for remedies that employ treatment as a principal element is satisfied.

2.13.6 Five-Year Review Requirements

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-Site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

Part 3
Responsiveness Summary

Part 3 – Responsiveness Summary

The purpose of this Responsiveness Summary is to provide a summary of EPA's responses to comments received from stakeholders and the public on EPA's Proposed Plan for the North Hollywood Operable Unit (NHOU) Second Interim Remedy. During the Public Meeting (held on July 21, 2009), EPA provided verbal clarifications to questions about the NHOU Proposed Plan. The proceedings of the Public Meeting were transcribed by a court reporter and are included in the Administrative Record.

During the public comment period, EPA received nine letters from stakeholders with comments on the Proposed Plan. EPA is required to consider and address only those comments that are pertinent and significant to the remedial action being selected. EPA is not required to address comments which pertain to the allocation of liability for the remedial action, nor potential enforcement actions to implement the remedial action, as these are independent of the selection of the remedial action and EPA's Proposed Plan. EPA does have the discretion to address comments with limited pertinence if doing so would address the concern of a significant segment of the public.

A summary of the major issues raised by commenters is presented in the next section. Additional detail on the specific technical comments can be found in Appendix A.

FFS Errata

During EPA's review of the documents relied upon for this decision, an error was discovered in the summary-cost calculation in the *North Hollywood Operable Unit (NHOU) Focused Feasibility Study* (FFS) cost summary table D-1. This error led to incorrect capital and operations/maintenance (O&M) costs being tabulated in the FFS and Proposed Plan (PP). The 30-yr net present value (NPV) costs are all correct in the FFS and PP, and the more detailed cost table in the FFS (Table D-2) correctly lists the capital and O&M costs for each alternative.

The miscalculation consisted of double-counting some capital and O&M costs, but the NPV costs for each alternative were calculated separately (from the detailed cost summary in Table D-2), and therefore did not include the double-counting error. Therefore, where capital and O&M costs are summarized in the FFS and PP, they are about 35% higher than actual estimated costs. Following are the specific locations where the capital and O&M cost summaries listed in the FFS and PP are miscalculated:

- FFS: Table 5-2, Table D-1 (Appendix D), and Sections 5.2.1.7, 5.2.2.7, 5.2.3.7, 5.2.4.7, and 5.2.5.7
- PP: Table 3

Replacement tables and pages have been placed in the Administrative Record for this action.

3.1 Stakeholder Issues

EPA received limited community response regarding the FFS and Proposed Plan provided to EPA during the public comment period, but numerous stakeholder submitted comments. Most of these comments were submitted by potentially responsible parties (PRPs) or on behalf of the PRPs.

LADWP and Congressman Sherman also submitted comments expressing their preference for Alternative 5a, rather than EPA's Preferred Alternative (Alternative 4a). The primary difference between Alternatives 4a and 5a is that Alternative 4a includes chromium treatment only for the four extraction wells expected to be impacted by the highest concentrations of chromium, whereas Alternative 5a includes chromium treatment for the combined flow from all of the existing and new extraction wells, regardless of the chromium concentration detected at individual extraction wells.

3.2 Technical and Legal Issues

Several PRPs commented that insufficient groundwater data were available to adequately evaluate remedial alternatives in the FFS or select a Preferred Remedy in the Proposed Plan. EPA's review of available data indicates that although data gaps existed in some areas of NHOU, sufficient data were available to achieve the objectives of the FFS and prepare a Proposed Plan for the Second Interim Remedy. The next step, remedial design of the remedy identified in the ROD, will require that key data gaps be filled. Additional groundwater data are currently being collected in the NHOU, which will be incorporated into the remedial design process.

Some PRPs expressed concern that deepening existing extraction wells and installing new extraction wells could cause cross-contamination of different depth intervals of the aquifer underlying the NHOU. In response to this concern, EPA will require that during the remedial design stage specific drilling methods, well locations, and well depths will be selected to mitigate the possibility of cross contamination.

Some PRPs felt that new extraction wells were not necessary. However, modeling performed as part of the FFS indicates that under the maximum pumping scenario for water supply anticipated by LADWP, the capture zones for the Rinaldi-Toluca and North Hollywood (West Branch) water supply well fields are predicted to include groundwater in the vicinity of NHE-1 and NHE-2 with high concentrations of VOC and chromium contamination. The three proposed new extraction wells in the vicinity of NHE-1 are intended to intercept contaminated groundwater migrating toward these water supply well fields under the maximum pumping scenario, and to significantly expand contaminant plume capture under the average pumping scenario. Specific pumping rates, locations and pumping schedules for these wells will be further evaluated during remedial design to maximize their effectiveness and optimize their efficiency.

Use of a performance standard of 5 µg/L for hexavalent chromium was questioned by some PRPs. Although 5 ug/L is not an ARAR, the Selected Interim Remedy must meet this performance standard in order to deliver the treated water to LADWP (the selected end use), for use in its drinking water supply.

Appendix A

Detailed Response to Technical Comments

The following is EPA's more detailed response to the comments received on the proposed plan. The NCP requires EPA to summarize significant comments, criticisms, and relevant information submitted during the public comment period and to respond to each significant issue raised. Although EPA is not required to re-print the public comments verbatim, in many cases in this response summary EPA has included large segments of the original comments. Persons wishing to see the full text of all comments should refer to the commenters' submittals to EPA, which are included in the Administrative Record.

Specific comments (and responses by EPA) are numbered for convenient reference. The comments are numbered sequentially through the Response Summary, without reference to the specific commenter. Comments are shown in normal text, and EPA responses are shown in italics.

1. FFS and PP fail to meet standard for FS; lacks important data; fails to consider appropriate alternatives.

   Response: EPA believes that the Focused Feasibility Study (FFS), which is intended to focus on a limited number of critical issues for the development of an interim ROD, fully satisfies the requirements for such documents. Until a final remedy is developed for the Site, the goal of the interim remedy selected in this ROD is to contain plume migration, reduce contaminant mass, and address the emerging contaminants that currently pose a risk. The alternatives evaluated in the FFS are targeted to those goals.

2. EPA lacks sufficient GW data to Support the PP; The GW model is subject to significant uncertainty on the local scale and needs to be regarded with caution

   Response: The groundwater model was calibrated to 25 years of available head data in the vicinity of NHOU. While uncertainty is always a concern with groundwater modeling forecasts, the version of the San Fernando Valley model that was used for the FFS is adequate to illustrate the significant differences in forecasted containment between the remedial alternatives, and to evaluate effectiveness of each alternative in capturing both the source areas and more distal portions of the contaminant plumes.

3. EPA must gather more environmental data before adopting a deficient FFS.

   Response: The objective of the FFS was to: (1) identify, evaluate, and compare alternatives for plume containment, reduction of contaminant mass, and treatment of emerging contaminants that currently pose a risk; and, (2) identify a preferred alternative to present in the Proposed Plan. Although data gaps existed in some areas of NHOU, sufficient data were available to achieve the objective of the FFS. The next step, remedial design of the remedy identified in the ROD, will require that key data gaps be filled. Additional groundwater data are currently being collected in the NHOU and will be incorporated into the remedial design.

4. Drilling deeper wells and installing new wells will cause cross contamination and alter the existing contaminant plume

   Response: During the remedial design phase, specific drilling methods, well locations, and well depths will be selected to mitigate the possibility of cross contamination. One of the goals of the Second Interim Remedy is to "alter the existing contaminant plume" in a way that will improve capture and prevent further contamination of water-supply wells in the North Hollywood area.

5. EPA should consider the benefits of Alternative 5a as a means of adopting the most flexible and expansive remediation plan.

   Response: Although this would certainly be the most flexible in terms of potential long-term goals, it is not the alternative that best meets the nine criteria evaluation. Currently, there is no need for the additional treatment capacity specified in alternative 5a, and there is no certainty that there will be such a need in the future. Should the state ultimately promulgate an MCL for chromium that is lower than 5 µg/L, the remedy can be re-evaluated at that time, and changed if necessary to accommodate that revised standard. At this point, there is no added benefit of the additional treatment included in Alternative 5a.

6. Based on the anticipated concentrations of the potential byproducts created during the chromium treatment process, relative to any regulatory level, there is no need for BAC and no need for coagulation and filtration

   Response: The most important design requirement of the Second Interim Remedy is to be protective of human health. During development of the remedial alternatives presented in the FFS, treatment components required to meet expected process conditions were included. As noted in the comment, byproducts are formed in the advanced-oxidation process (AOP) for 1,4-dioxane, particularly partially oxidized organic carbon compounds such as aldehydes, ketones, carboxylic acids, and keto acids), and the effluent concentration of the partially oxidized byproducts cannot be precisely predicted. The oxidation treatment will partly or completely oxidize the target chemicals of concern (COCs), as well as other naturally occurring organic materials (also called naturally occurring carbon [NOC]). The NOC has not been characterized and the byproducts of the COCs or the NOC cannot be precisely predicted. During the remedial design phase, Site-specific bench-scale or pilot-scale tests with the selected oxidation technology can be conducted. Based on the results of those tests, the need for biologically activated carbon (BAC) can be evaluated. If BAC is included, coagulation and filtration, as well as disinfection, are required by CDPH.

7. The Summary of Estimated Costs may underestimate and unevenly weigh the costs for the different remedial alternatives because EPA uses too high a discount rate.

   Response: The federal Office of Management and Budget has set forth guidelines on acceptable discount rates to be used, which EPA has adopted. That rate is 7%, which was applied in the FFS.

8. The proposed installation of three extraction wells in the vicinity of NHE-1 is not supported by the current data.

   Response: Under the maximum pumping scenario for water supply anticipated by LADWP, the Rinaldi-Toluca and North Hollywood (West Branch) water supply well fields are forecasted to withdraw contaminated groundwater from the western area of the VOC plume in Depth Regions 1 and 2 (within the 50 µg/L contours), and potentially from the chromium plume, as described in the FFS. The three proposed new extraction wells in the vicinity of NHE-1 are forecasted to intercept contaminated groundwater migrating toward these water supply well fields under the maximum pumping scenario, and to significantly expand contaminant plume capture under the average pumping scenario. Specific pumping rates and pumping schedules for these wells will be further evaluated during remedial design to maximize their effectiveness and optimize their efficiency.

9. Containment areas were based on data collected between 2003- 2007. Current data should be included in the analysis where possible.

   Response: Use of current data only to define target volumes for plume containment in NHOU would not adequately delineate areas where high concentrations of contaminants are expected in the future. Contaminant concentrations have fluctuated by one to two orders of magnitude over periods of several years at monitoring, extraction, and production wells in the NHOU. This is partly due to horizontal migration of contaminant plumes, and partly due to contaminant mass remaining in the vadose zone above the water table, which has been remobilized when groundwater levels increased in the past 5 years. Therefore, contaminant concentrations in groundwater are likely to increase substantially in the future at wells where high concentrations were detected in the recent past.

   In addition, the Focused Feasibility Study was begun in 2008, and so the most current, fully available, data was used in the development of the model. It is not anticipated that the more recent data would substantially change the decision. The most up-to-date data will be used in during the design process, to refine the proposed remedy.

10. The FFS appears to be considering two different GW remediation strategies simultaneously: removal of existing VOCs from the overall GW plume and removal of emerging contaminants in specific locations.

    Response: The EPA is required to address contamination that exists in the groundwater, and this includes all the contaminants. There is no separate "strategy", and the removal of all contaminants to levels that do not pose a human health threat is the goal of addressing both VOCs and emerging contaminants.

11. There were several questions relating to the end point of this remedy, the choice of it being an "interim" remedy, and how long it will take to complete the remedy.

    Response: As is indicated, this is an interim remedy, and the final remedy will be proposed and selected at a future date. The EPA believes that there are still some significant data gaps which prohibit the selection of a final remedy at this time. The

end point of the remediation will be when the cleanup has met the objectives specified in the final remedy.

12. Have the mitigation aspects of "natural attenuation" been considered as a part of the "leave in place" treatment option for VOCs?

Response: The focus of the Second Interim Remedy is containment of the VOC plume exceeding MCLs, including the highest-concentration VOC, chromium, and emerging contaminant plumes in groundwater in the immediate vicinity of the Existing NHOU Extraction and Treatment System. Natural attenuation would not be expected to significantly affect concentrations of VOCs or emerging contaminants over the relatively short distances considered for containment in the Proposed Plan. One of the objectives of the additional data collection described in the Proposed Plan is to improve delineation of groundwater contamination beyond the immediate vicinity of the Existing NHOU Extraction and Treatment System to determine whether additional remedial actions are necessary. Natural attenuation would be considered when making such a determination in the future, following collection of the additional data.

13. Has *in situ* biological remediation been considered for the existing VOC concentrations?

Response: The FFS focused on technologies for plume containment as a first priority, and also evaluated technologies and alternatives for reduction of contaminant mass, and treatment of emerging contaminants that currently pose a risk. The FFS did not include in situ bioremediation of the VOC plumes as one of the technologies due to the large plume areas, significant depth to groundwater, diffuse nature of the VOC plumes, and the need for rapid containment. In situ bioremediation is not a viable remedial option under such conditions due to its high cost, incomplete effectiveness, and the time required for remediation to acceptable levels. In situ treatment methods, possibly including bioremediation, can be effective at small, highly concentrated source areas, and may be considered as part of a final remedy for NHOU.

14. To deepen the wells to 425 feet will draw down contamination deeper into the aquifer; The FFS alternative 4 plan will result in the horizontal and vertical spreading of the plume contamination.

Response: During the remedial design phase, specific drilling methods, well locations, and well depths will be selected to mitigate the potential for cross contamination. Groundwater modeling results presented in the FFS indicate that Alternatives 4a and 4b will improve hydraulic containment and limit spreading of contamination. Further evaluation of specific pumping rates and extraction well locations will be performed during remedial design to ensure that implementation of the Second Interim Remedy will not cause additional degradation of the aquifer.

15. FFS alternative 4 does not address other wellfields besides Rinaldi – Toluca.

Response: Alternative 4a (the preferred alternative in the FFS and Proposed Plan) addresses contamination currently impacting, or expected to impact, the North Hollywood (East and West Branches), Whitnall, and Erwin well fields, in the same manner as the Rinaldi-Toluca well field. The improved containment of highly contaminated groundwater in the vicinity of the existing NHOU extraction and

treatment system, as well as the additional investigation planned in the NHOU, are expected to reduce impacts to these well fields or provide sufficient data to plan future remedial measures, if necessary, to protect these well fields.

16. EPA's FFS does not take into account the natural chrome already in existence at the NHOU.

Response: The target volumes described in the FFS for containment of chromium contamination include areas and depths where chromium concentrations exceed naturally occurring concentrations in the vicinity of the NHOU. Chromium concentrations detected in monitoring wells located upgradient from known areas of anthropogenic chromium contamination are typically less than 5 µg/L in Depth Region 1, and are generally less than 1 µg/L where detected in Depth Regions 2, 3, and 4. The remedial alternatives presented in the FFS do not target chromium treatment for areas of the aquifer where concentrations of chromium are lower than these levels, nor is the performance standard less than background levels.

17. The number of wells needed and the rationale for these wells has not been established.

Response: The number of extraction wells to be installed was estimated based on the results of modeling that was performed over the last several years and considered a range of pumping and recharge scenarios. The number of wells, their location and pumping rates will be refined during the remedial design process. The rationale is to meet the RAOs as presented in the FFS.

18. How does alternative 4 assist LADWP in producing more water from the San Fernando Valley?

Response: This is not the goal of the remedy. The goal of this remedy is to meet the RAOs specified in this ROD. However, one of the RAOs is to prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production fields, and the Second Interim Remedy achieves this RAO by improving the capture and containment of groundwater contamination in excess of MCLs through the installation of the new extraction wells.

19. How does alternative 4 comply with LADWP 97.005 regulations [sic]?

Response: The alternative itself cannot "comply", but in order for the treated water to by utilized by LADWP in its drinking water (the selected end use), the process set forth by the CA Department of Public Health (not the LADWP), and delineated in their 97.005 policy, will need to be implemented.

20. The costs for the proposed remedy are not broken down sufficiently despite its being 85 pages long.

Response: Estimated costs for all significant components for each remedial alternative, including the Second Interim Remedy, are detailed in Appendix D of the FFS, which is available in the Administrative Record. The level of detail provided is consistent with EPA policy and guidance regarding cost estimates developed in a feasibility study.

21. The FFS gives alternative 1a, a meets criteria best grade for compliance with applicable or relevant and appropriate requirements and short term effectiveness. Based on the flaws and costs of alternative 4a and 4b, how does EPA justify not employing 1a?

    Response: The EPA chose the remedy that best met all the nine criteria, not simply the one that best met the two criteria cited. This is a complex Site, with complex hydrogeological conditions; there is no remedy that is not without limitations, but Alternative 4a was chosen as the remedy that best meets the objectives and RAOs.

22. The TCE/PCE 5 µg/l concentration contour is inaccurately placed with regard to Penrose Well MW-4927. Figure 2-2 (of the FFS) shows the well to be within the 5 µg/l contour line when the concentration shown on the figure indicates that the concentration is 1.8 µg/l PCE. Figure 2-2 should be revised to reflect these data.

    Response: EPA concurs that well 4927 incorrectly appears inside the 5 µg/L TCE/PCE contour. This contour should have been placed approximately 1/10th of an inch to the left on this figure, representing a real shift of approximately 200 feet to the west. However, this minor graphical issue does not affect the analysis or results of the FFS, Proposed Plan, or ROD. In future versions of this map, the contour will be adjusted appropriately.

23. The plume drawings for the extent of the contamination are not supported by the number of sampling points and are only a "best guess" estimation by the computer program used to draw the plume maps.

    As shown on Figure 2-2, Hewitt monitoring wells 4909F and 4909C are very close to one another. However, the contours drawn to the north, northeast, west and south are based on only two data points more than 2,000 and 3,000 feet away.

    The 1,4-dioxane concentration line on Figure 2-8 for the Landfills is shown as a long, narrow, elongated rectangle which never occurs in the natural environment. This concentration line cannot be supported by the data, is not technically defensible and should be removed from the figure.

    A disclaimer should be added to the figures stating that the plumes are computer generated and may not reflect the actual extent of TCE/PCE concentrations in the subsurface.

    Response: The FFS figures referenced in the comment portray maximum concentrations detected from January 2003 through December 2007, and were drawn for the purpose of developing target volumes for remediation, not to map the geometry of contaminant plumes in the NHOU at any particular period, current or past. The concentration contours in the areas of concern noted in the comment are dashed on the figures. These dashed lines represent areas where the contour lines are approximate. Improved delineation of contaminant plumes in the NHOU is a goal of this ROD.

    Regarding the "narrow, elongated" 5 µg/L concentration contour for 1,4-dioxane shown on Figure 2-8, EPA disagrees with the statement that such a geometry "never occurs in the natural environment." In areas of relatively high groundwater velocity (where the hydraulic gradient or hydraulic conductivity of the aquifer is high), long

and narrow contaminant plumes are common, especially where laterally constrained by less permeable materials, as in this situation.

24. EPA's "Double Barrier" for treatment of VOCs is not needed. Since the existing air stripper system delivers water with satisfactory VOC concentrations to the LADWP, it is not necessary to treat all the pumped ground water a second time by passing treated water through granular activated charcoal (the so-called "double barrier"). EPA's Alternatives 2, 3, 4 and 5 all contemplate adding additional air strippers to improve the removal of VOCs. EPAs proposal to add further treatment by liquid-phase granular activated charcoal is redundant and very expensive. The "double barrier" for treatment is not identified as an ARAR in the discussion of ARARs in the FFS.

Response: The added treatment is a requirement of the CDPH for the use of extremely impaired water as a source of water supply. The "Double Barrier" treatment is an "off-Site" requirement, and therefore, not an ARAR, but it is a requirement that must be met in order to comply with the end use for the Second Interim Remedy, which is delivery of treated water to LADWP for domestic use.

25. The 5 µg/l Target for Chromium is Not an ARAR. Page ES-9 of the Executive Summary states "For this FFS, a target concentration for capture and treatment of hexavalent and total chromium of 5 µg/l is assumed in anticipation of the issuance of a significantly lower state MCL for hexavalent chromium." An MCL that might be issued someday and then again might not be issued does not have the status of an Applicable or Relevant and Appropriate Requirement under CERCLA. Given the difference in toxicity of trivalent and hexavalent chromium, the FFS provides inadequate justification for targeting ground water with a total chromium concentration of 5 µg/l as if it was all hexavalent chromium. Even if the MCL for hexavalent chromium actually was 5 µg/l, adopting as a goal the containment of the ground water plume using a target concentration of 5 µg/l for total chromium would likely result in an overestimate of the volume of ground water requiring treatment. An overestimate of the volume of contaminated ground water directly affects EPAs estimate of the cost of remedial alternatives since a significant fraction of the cost, such as that for LPGAC treatment, is proportional to the amount of contaminated ground water to be treated.

Response: EPA agrees that the 5 µg/l target for hexavalent chromium is not an ARAR; it is, however, required in order for the end use selected as part of this remedy, which is provision of the treated water to the LA DWP to be used in its drinking water.

Most of the dissolved chromium detected in groundwater in the NHOU is present in the more toxic hexavalent state (chromium-6), rather than the trivalent state (chromium-3). Therefore, most of the total chromium detected in groundwater samples consists of hexavalent chromium. Regarding volumes of groundwater targeted for extraction and treatment, the FFS notes that the volume of groundwater within the NHOU that is contaminated with VOCs is significantly greater than the volume contaminated with hexavalent chromium. The chromium target volumes (5 and 50 µg/L) are mostly encompassed by the 50 µg/L VOC contour. Therefore, treatment volumes and associated costs are controlled by the VOC plume dimensions, not the chromium (either total or hexavalent) plume dimensions.

26. One commenter suggested an alternative approach for the Second Interim Remedy, which it claims reduces the risk of exacerbating contaminant plume migration while improving plume containment where data are sufficient to support such actions. Under the commenters proposed alternative, EPA would move forward with the following elements of the Proposed Plan:

- Remediation of chromium at NHE-2, with consideration of treating NHE-2 water with equipment located at the former Bendix facility to achieve better efficiency and cost savings;
- Improving groundwater containment in the area of NHE-4 and NHE-5, either through the installation of new wells or the rehabilitation of NHE-4 and NHE-5 in a manner that minimizes downward contaminant migration;
- Refurbishment of the existing air stripper and the addition of carbon polishing (granular activated carbon or "GAC") at the NHOU Central Treatment Facility; and,
- Implementation of source control under RWQCB oversight and orders.

An analysis would be made of the following elements of EPA's Proposed Plan after more data has been collected to substantiate whether these measures will be effective in remediating the aquifer for drinking water purposes:

- Installation of three NEW pumping wells and deepening of NHE-1, which are not technically justified based on available data, and which may exacerbate contaminant plume migration;
- Deepening of NHE-2, as investigation at the former Bendix facility indicated that NHE-2 is of sufficient depth to capture the high concentration contaminant mass;
- Deployment of remediation for 1,4-dioxane at NHE-2, which requires further information to determine its necessity, and
- Elimination of a second carbon stripping tower and carbon polish at the NHOU Central Treatment Facility which is not necessary in terms of throughput to the system.

Honeywell concludes that this alternative best meets the nine CERCLA criteria for an effective remedy.

Response: EPA disagrees that this proposed alternative would be protective, and it does not meet the RAOs specified in this ROD. It does not address the 1,4-dioxane in NHE-2, which results in the treated water being unusable by LA DWP, and is too slow in implementation. EPA modeling has determined that NHE-2 is not of sufficient depth and needs to be deepened to capture the high concentration contaminant mass.

EPA modeling has also indicated that additional extraction wells are needed to provide sufficient containment. Results over the last 10 years have clearly indicated that the existing extraction well network is not sufficient to contain the plume. With the increased groundwater volume extraction that will result from the additional wells, a second carbon stripping tower is necessary. The need for the LPGAC has been addressed elsewhere in this appendix.

27. Currently, there is no data indicating the presence of chromium in groundwater between the former Bendix facility and the Rinaldi-Toluca wellfield. NHE-1 has not been tested for chromium or hexavalent chromium. There is only one monitoring well in this area (NH-VPB-06), which has a chromium concentration of 2.4 µg/L. Production wells along the southeast end of the Rinaldi-Toluca well field have chromium levels of <2 µg/L. A groundwater sample from newly-installed groundwater monitoring well R-2, located near the southeastern edge of the Rinaldi-Toluca wellfield, indicates only 0.83 ug/L hexavalent chromium. Field screening during the installation of monitoring well T-1, located southeast of the wellfield, indicates less than 0.27 ug/L hexavalent chromium. The cost estimate of $30 million for these new extraction wells and ex situ chromium treatment is too much to commit for a contingency that may or may not happen.

    Protection of the Rinaldi-Toluca wellfield should be addressed in the Groundwater Management Plan, not by $30 million in remedy costs. The Groundwater Management Plan could include monitoring of NHOU T-1 and T-2 as sentinel wells. There will be ample time to evaluate the most cost-effective response if chromium is observed in these wells. The ROD could include a contingency in the event that monitoring and sampling of these wells indicates chromium migration toward the Rinaldi-Toluca well field. The contingency should consider other potential more effective and less costly alternatives such as Rinaldi-Toluca wellhead treatment or a transportable treatment unit. In the absence of data, EPA's approach, as presented in this FFS, could result in expensive and inefficient remedial action with the outcome being additional production well shutdown, resulting in diminished drinking water supplies.

    Response: Regarding the comment that the ROD could include a contingency in the event that chromium migration toward the Rinaldi-Toluca well field is detected, contamination by VOCs and emerging contaminants is also a concern for these water supply wells. The three proposed new extraction wells in the vicinity of NHE-1 are intended to intercept contaminated groundwater migrating toward these water supply well fields under the maximum pumping scenario anticipated by LADWP, and to significantly expand contaminant plume capture under the average pumping scenario. If new data collected prior to, or during, remedial design indicates that a different configuration of extraction wells is more effective and cost efficient than the configuration described in the Proposed Plan, then that different configuration will be considered for implementation as part of the Second Interim Remedy. Similarly, if new data collected prior to completion of the remedial design indicate that chromium treatment as set forth in Alternative 4a is not needed to meet performance standards over the life of the Selected Interim Remedy, then a lesser degree of chromium treatment will be considered. The converse condition is also true for both issues (i.e., if more extraction wells/treatment than predicted is needed to achieve the RAOs, then those features will be added).

28. The FFS states or implies that Honeywell owns or operates the former Bendix facility. The correct term for the facility is "former Bendix facility." These references should be corrected in the FFS and in future documents or presentations so that the Site is referred to as the "former Bendix facility," and when Honeywell's role is described, that it be made clear that Honeywell is the corporate successor to the previous Site owners and operators, Bendix Corporation and AlliedSignal, Inc.

Response: In the reports and work plans received by EPA from Honeywell and its consultants through 2009, the facility is labeled "the Honeywell North Hollywood Site" in report titles, text, and figures, rather than "the former Bendix facility." Therefore, the FFS simply follows the Site naming convention used by Honeywell for many years. EPA does not believe that the comment requires issuing a correction to the FFS and Proposed Plan. However, the Site will be referred to as "the former Bendix facility" in the ROD and future EPA documents.

29. The Chronology of North Hollywood Operable Unit Events (Table 1-1) should include more key dates for significant milestones and events.

Response: The Focused Feasibility Study included the key dates that EPA felt were relevant for a document of this nature.

30. Per the text, the plume maps (Figures 1-3 to 1-7) are based on 2007 data, where available, and historical data where few recent data are available. The plume to the northwest of the NHOU Central Treatment Facility in Figure 1-3 indicates trichloroethene (TCE) concentrations exceeding 100 µg/L. This data is not presented in either Figure 2-3 or Appendix A – Summary of Recent Analytical Data (January 2003 through December 2007). The source of this data should be provided or the plume maps refined.

Response: Figures 1-3 through 1-7 are intended to provide an overview of the distribution of selected contaminants throughout the basin, and Figures 2-2 through 2-13 are used for target volume development. The TCE, PCE, and chromium distribution maps shown on Figures 1-3 through 1-7 are adapted from the annual monitoring reports prepared by EPA for the San Fernando Valley basin, and represent different time frames and aquifer depth intervals than were used in Figures 2-2 through 2-13. Therefore, the contours shown on these different sets of maps are somewhat different. Data for Figures 1-3 through 1-7 are provided in the San Fernando Valley Superfund Sites Groundwater Monitoring Program report for 2007, prepared in July 2009.

31. Figure 1-8 of the In-Situ Chromium Treatment is not correct.

Response: Figure 1-8 of the FFS consists of an exact copy of the schematic diagram for in situ chromium treatment as shown on Figure 7 of the "Soil and Interim Groundwater Remedial Action Plan for Reduction of Hexavalent Chromium—Former Honeywell North Hollywood Site," prepared by MWH Americas on behalf of Honeywell on July 30, 2004. The updated version of this figure submitted by the commenter is helpful, but does not change the analysis or conclusions of the FFS or Proposed Plan.

32. Per the fourth paragraph of this section, it is noted that recent peak concentrations of total chromium have exceeded the California maximum contaminant level (MCL) by a factor of nearly 1000 (50 µg/L x 1000 = 50,000). These peak concentrations were present in fourth quarter 2006 under the former Bendix facility when the groundwater elevation was higher than it had been since prior to 2000. As presented in the Groundwater Monitoring Report, Second Quarter 2009, Honeywell North Hollywood Site, the maximum detected hexavalent chromium concentration in groundwater at the Site is 1,500 µg/L, not 50,000 µg/L.

Response: The comment notes that the maximum detected hexavalent chromium concentration at the former Bendix facility was 1,500 µg/L in the second quarter of 2009, and was nearly 50,000 µg/L in the fourth quarter of 2006. It should also be noted that the maximum hexavalent chromium concentration was 9,100 µg/L in 2005, 15,000 µg/L in 2004, and 27,000 µg/L in 2003. These concentrations illustrate the variability in hexavalent chromium concentrations (similar to total chromium concentrations) in wells at the former Bendix facility. Based on historical concentrations, it is reasonable to assume that total and hexavalent chromium concentrations at the facility will again exceed 10,000 µg/L at or downgradient from the former Bendix facility.

33. The FFS incorrectly states that groundwater flow velocities are greatest where hydraulic conductivities are highest (p. 2-5). In fact, groundwater velocities are a function of both the hydraulic gradient and hydraulic conductivity. Hydraulic gradients within much of the NHOU area are relatively flat.

    Section 2.3 of the FFS does not acknowledge any uncertainty in the hydrogeologic conceptual model of the NHOU area, nor does it anticipate potential improvements in the hydrogeologic conceptual model as a result of new data obtained from the 33 groundwater monitoring wells. These data may significantly alter the conceptual model and improve the predictive capability of groundwater modeling.

    Response: The groundwater velocity discussion on page 2-5 of the FFS summarizes conclusions of the 1992 Remedial Investigation (RI) for the SFV Superfund Sites (including NHOU) and states that "Groundwater flow velocities in the NHOU were estimated during the RI to range from approximately 290 to 1,000 feet per year, depending on location. Estimated groundwater flow velocities are generally highest in the area of the NHOU extraction system where aquifer hydraulic conductivities are highest." EPA understands that groundwater velocities are a function of hydraulic gradient and hydraulic conductivity, as well as effective porosity. Hydraulic conductivity can vary by orders of magnitude in an aquifer, whereas hydraulic gradient and effective porosity typically are much less variable. Therefore, groundwater velocities are commonly highest in areas of an aquifer with the highest hydraulic conductivity. However, EPA recognizes that steep hydraulic gradients can develop around active production and extraction well fields, which can result in high groundwater velocities in the immediate vicinity of the well fields, primarily a result of gradient rather than hydraulic conductivity.

    Horizontal hydraulic gradients in many alluvial basin-fill aquifers, such as the SFV Basin aquifer, are "relatively flat" (commonly in the range from 1 foot of head change per 1,000 feet of horizontal distance to 1 foot head change per 100 feet of horizontal distance). Groundwater still moves under these "relatively flat" gradients, and is capable of transporting dissolved constituents such as naturally occurring minerals or anthropogenic contaminants significant distances.

    Regarding the last part of the comment (uncertainty in the conceptual Site model), please see the response to Comment 2. EPA plans to continue updating the conceptual model and the numerical models for groundwater flow in the SFV Superfund Sites as

new data are received that indicate that model improvements and revisions would be appropriate.

34. The FFS's distinction between shallow and deep contaminated zones may be misleading in areas where Depth Region 1 is periodically dry. In these areas, plotted values for Depth Region 2 may represent the top of the saturated zone at the time of sampling, rather than evidence of downward contaminant migration.

Response: It is correct that in areas where Depth Region 1 is periodically dry (the north part of NHOU) "plotted values for Depth Region 2 may represent the top of the saturated zone at the time of sampling." However, EPA disagrees with the suggestion that such an occurrence would not be "evidence of downward contaminant migration." If contamination is transported from Depth Region 1 to Depth Region 2 due to declining water levels, that represents downward contaminant migration.

35. It should be noted that there are discrepancies between the EPA database and the data presented in the FFS. The following examples include 1,4-dioxane concentrations that are presented in the database but are not discussed in Section 2.6.2 or presented in Appendix A:

Detected Concentration	Monitoring Well	Sampling Date
20 µg/L	NH-C01-324	3/14/07
20 µg/L	NH-C02-325	3/12/07
20 µg/L	NH-VPB-02	3/12/07
20 µg/L	NH-VPB-05	3/12/07
20 µg/L	NH-VPB-06	3/12/07
100 µg/L	NH-C05-460	3/14/07
100 µg/L	NH-C06-285	3/13/07

The concentrations and dates suggest the data may be subject to further scrutiny and the FFS should not exclude it without explanation. This is an important issue because the FFS currently focuses on 1,4-dioxane only in the vicinity of extraction well NHE-2 and the data above suggest that 1,4-dioxane concentrations could be more widespread within the NHOU.

Response: There are not substantial discrepancies between the SFV database and the data reported in the FFS. The 1,4-dioxane values tabulated in the comment above appear to have been obtained from the March 2008 update of the SFV database shared with the public. The values were flagged as "rejected" in that database update, and were removed from subsequent database updates (December 2008, April 2009). These 1,4-dioxane values were flagged as rejected, and later removed, because the laboratory mistakenly listed the reporting limits as detected concentrations (note that six of the referenced concentrations are precisely 20 µg/L and the remaining two are precisely 100 µg/L); this error was noticed immediately during data validation, resulting in

rejection of the data. 1,4-dioxane concentrations in previous (and subsequent) groundwater samples from these wells were either non-detectable (most samples) or below the notification level of 3 µg/L. It is recommended that the commenter use one of the more recent updates of the SFV database for tabulation of data; the updates contain data obtained in late 2008 and early 2009, and have removed rejected data (e.g., the 1,4-dioxane values listed above).

The FFS focuses on 1,4-dioxane primarily (but not exclusively) in the vicinity of extraction well NHE-2 because that it is where 1,4-dioxane concentrations are most likely to have a significant negative impact on operation of the existing or proposed remedy. Furthermore, concentrations of 1,4-dioxane at several monitoring wells immediately upgradient from NHE-2 at the former Bendix facility have exceeded the state notification level by a factor of 10 or more. These are the highest levels of 1,4-dioxane detected in the vicinity of the NHOU. These high levels of 1,4-dioxane would have a significant negative impact on groundwater treatment at the NHOU if they reached the existing or proposed NHOU treatment system, unless it included treatment for 1,4-dioxane.

36. In summarizing the rationale for additional monitoring wells (p. 2-13), the first bullet should be revised as follows:

    Adequately characterize the lateral and vertical extent of contaminant plumes and known hotspot areas and their relationship to known *and potential* source areas.

    The logic behind the labeling and grouping of EPA's proposed additional monitoring wells is unclear (Figure 2-14). The rationale provided in Table 2-1 for each proposed cluster of monitoring wells consists largely of redundant verbiage and lacks adequate detailed explanations. The FFS should link each proposed well to one or more upcoming critical decisions and describe how the information obtained from these wells will successfully contribute to the decision-making process (i.e., EPA's Data Quality Objectives process).

    Detailed comments on the proposed monitoring wells are as follows:

    - Location A: The well proposed at Location A is intended to define the hydraulic gradient between the Rinaldi-Toluca well field and the former Bendix facility. Because there will be groundwater depressions around each of the pumping systems, at least two wells will be necessary to understand the hydraulic gradient and whether a hydraulic divide already exists.

    - Location C: The rationale for installing four monitoring wells east of Vineland Avenue and Vanowen Street warrants further discussion. Existing wells 3830Q and 3830S may negate the need for at least one of these monitoring wells.

      Furthermore, this section should address the 33 new groundwater monitoring wells and ongoing investigation activities that Honeywell has proactively agreed to complete under the AOC. These new wells should also be addressed in Sections 4.2.2 and 4.3.1.2. The resultant data from these wells should be considered in the analysis and evaluation of the Second Interim Remedy.

Response: Development of a detailed set of data quality objectives and specific monitoring well locations or rationale is more appropriate for the remedial design effort. At the feasibility study level, determination of the approximate number and locations for new monitoring wells required to monitor the proposed remedy and provide additional delineation of groundwater plumes was performed for cost estimating purposes only. Construction of 33 new groundwater monitoring wells by Honeywell's consultants began at approximately the same time that the FFS was released, and the work plan for monitoring well construction was not finalized until a month after FFS release. The resultant data from the new monitoring wells, when provided to EPA (expected in December 2009), will be used in remedial design.

37. The FFS does not state the point of compliance with the cleanup levels. The third paragraph in this section indirectly states that drinking water standards should not be exceeded in the treated water from the NHOU treatment system. We assume that wellhead treatment systems will need to reduce contaminant levels to allow for drinking water standards to be met at the NHOU treatment system.

    Response: The point of compliance has been clarified in this ROD, and is specifically the point where the treated water leaves the NHOU treatment plant, after going through the "double barrier" treatment system, and just before it enters the LADWP blending facility.

38. Summary Table 4.3 for the conceptual anion exchange treatment system defines the type of resin proposed as Duolite™ A7, which is a weak based resin. No rationale is presented for proposing a weak based resin versus a strong based resin. We recommend that the FFS does not stipulate a specific resin since selection of the resin is a design issue.

    Response: The ROD does not specify the resin. It is agreed that this is a design issue.

39. If treatment for 1,4-dioxane is required, other advanced oxidation process (AOP) treatment technologies should be considered and tested.

    Response: The ROD allows flexibility during the design on the specific treatment technology for 1,4-dioxane.

40. The 1,4-dioxane data for NHE-2 identified in this section indicates that concentrations have ranged from 4 µg/L to 9 µg/L. Data available to Honeywell indicate that results at NHE-2 have ranged from 2.4 µg/L to 7 µg/L. The maximum detected concentration of 1,4-dioxane identified in Appendix A for the time period January 2003 through December 2007 is also 7 µg/L. Please identify the sample specifics justifying the 9 µg/L maximum or revise the range identified in this section.

    The FFS cites that 1,4-dioxane has ranged from 4 µg/L to 7 µg/l between 2007 and 2008. In the first quarter of 2009, the 1,4-dioxane level was 2.4 µg/L. 1,4-dioxane concentrations in the NHE-2 influent have ranged from 2.4 µg/L to 5 µg/L since 2008 and the CDPH Notification Level is 3 µg/L. The marginal detections of 1,4-dioxane above a CDPH Notification Level of 3 µg/L should not immediately trigger the need for an AOP at the NHE-2 wellhead. A broader set of more recent groundwater sampling results, as well as the flow rates from other extraction wells and the NHOU Central Treatment Facility influent concentrations, should be used along with modeling to evaluate the toxicological risk

associated with 1,4-dioxane treatment at the NHE-2 wellhead versus no treatment. The results of these analyses, in conjunction with the 97-005 process, should be used to determine the need for treatment.

Response: The reference to 9 µg/L in Section 4.3.1.2 is a typographical error. However, concentrations of 1,4-dioxane as high as 90 µg/L have been detected at the former Bendix facility, within ¼ mile upgradient from extraction well NHE-2. Therefore, it is prudent to plan for wellhead treatment for 1,4-dioxane at extraction well NHE-2 (see response to Comment 35). In addition, it is anticipated that this will be a CDPH requirement for the end use chosen in this ROD under the 97-005 process.

41. After reviewing Section 4.3.4 of the FFS, it appears that an evaluation will need to be conducted to determine which wells require treatment and to what concentrations in order to "decrease total chromium concentrations in the NHOU central treatment plant effluent to 5 ug /L." Cleanup goals need to balance toxicological risk with, consideration of the appropriate point of compliance and the use of blending when appropriate. A broader set of more recent groundwater sampling results from nearby monitoring wells and the concentrations from other extraction wells should be used along with modeling to evaluate the need for treatment.

    Note that Honeywell would like the FFS/Proposed Plan to consider evaluating use of the existing equipment at the former Bendix facility for treatment of the chromium from NHE-2. It may be possible to secure access agreements allowing the extracted groundwater to be conveyed to the former Bendix facility where the existing ion exchange vessels could be used for chromium treatment.

    Response: Evaluation of recent chromium trends at the extraction wells and at upgradient monitoring wells was conducted by EPA to determine which extraction wells will likely require chromium treatment in the future. The remedial design can consider use of the existing equipment at the former Bendix facility for chromium treatment.

42. Figures 4-15 and 4-16 illustrate simulated flowlines generated from groundwater modeling of the proposed pumping rates for the extraction wells under Alternative 4a (the selected alternative). For forward particle tracking, the flowlines represent the path that will be taken by particles released at specific points at a specified time. However, if the particles are released when the flow field changes substantially, the flowlines will follow different paths. Therefore, in a groundwater basin such as the San Fernando Valley, where pumping from water supply wells changes significantly, flowline information needs to be interpreted with caution. When pumping changes significantly with time, contaminant transport simulation will provide a better interpretation of plume movement because, unlike particle tracking, the entire plume does not instantaneously leave its starting location. A portion of the plume still lingers at the starting location and can react to the changing flow field.

    The discussion regarding the maximum production scenario seems to suggest flow from Depth Region 1 (DR-1) at the former Bendix facility to the Rinaldi-Toluca well field. Because DR-1 is likely to be dewatered at the former Bendix facility under this pumping condition, there can be no saturated flow and consequently, no chemical migration in that

depth region from the former Bendix facility to the Rinaldi-Toluca well field. There will, however, be flow in DR-2 from the former Bendix facility to the Rinaldi-Toluca well field.

The pumping/flow rates may be overly conservative. The proposed flow rate of over 3,000 gallons per minute (gpm), in combination with the Maximum Pumping Scenario, is likely to dewater DR-1 and, therefore, is not feasible given the Watermaster's safe yield. Balancing regulatory storage requirement/safe yield for the San Fernando Basin versus the Maximum Pumping Scenario used to justify the addition of the three new wells needs to be addressed, along with concerns regarding contaminant plume migration and production well shutdown.

Response: The flowlines on Figures 4-15 and 4-16 were projected in the model-forecast NHOU flow field including both extraction well pumping and LADWP's anticipated future average pumping scenario in the San Fernando Valley. The uncertainty that is inherent in those pumping forecasts makes analysis of every possible future pumping scenario impractical. Such exhaustive modeling is unnecessary to assess the relative merits of the remedial alternatives at the feasibility study level. Addition of flowlines in subsequent model years in the predictive simulations would be expected to follow similar paths to those shown on Figures 4-15 and 4-16.

For the maximum pumping scenario for water supply in the San Fernando Valley, the same flowline starting locations were used in the flow field that resulted from planned extraction well pumping and LADWP forecasts of future maximum pumping scenario. As shown on Figures 4-17 and 4-18 and discussed in the FFS text, the modeling indicates that while the increased production "significantly influences the extent of hydraulic containment," Alternatives 2a through 5b are still forecasted to "provide complete containment of the main body of the western 50 µg/L VOC target volume despite a strong hydraulic gradient to the northwest." Therefore, the FFS modeling effort forecasts that the Second Interim Remedy includes robust hydraulic containment of the key source zone in the vicinity.

Depth Region 1 is forecasted to become unsaturated in some areas due in part to the additional groundwater extraction assumed in the remedial alternatives. However, the statement "there can be no saturated flow and consequently, no chemical migration in that depth region from the former Bendix facility to the Rinaldi-Toluca well field" is mistaken. Groundwater recharge, for example, will allow contaminant transport to the saturated zone if mobile contaminants are present in the vadose zone. Moreover, the Rinaldi-Toluca well field is screened in Depth Regions 2 and 3, and if water levels in the vicinity of the former Bendix facility decline, it can be assumed that dissolved contaminants, particularly VOCs, will migrate downward with the groundwater. Therefore, even if Depth Region 1 becomes desaturated, contaminants can still migrate from the former Bendix facility to the Rinaldi-Toluca well field.

The quantity of sustainable pumping in the San Fernando Valley basin depends not only on pumping rates, but also on the amount of spreading basin recharge that is applied. As noted above, the maximum pumping scenario modeled in the FFS is considered to be on the upper end of the range of possible future pumping rates, and was used in the FFS primarily to illustrate that the hydraulics of Alternatives 2a

through 5b are hydraulically robust enough to capture the groundwater under the former Bendix facility source area even under these extreme conditions.

43. Extraction well NHE-1 is dry and has never been operational. Deepening NHE-1 requires further evaluation. Since NHE-1 has never operated, the orientation of the plume from the former Bendix facility has been determined by the groundwater flow direction and the extraction rates of LADWP's pumping of the NHOU extraction wells. Rehabilitating NHE-1 may alter this flow direction, causing chromium and VOC migration to the northwest.

    If the purpose of the Second Interim Remedy is to contain the high concentration contaminant plumes, it may be premature to deepen NHE-2. Geologic cross-sections provided as ***Attachments 7a and 7b*** (extracted from the *Groundwater Monitoring Report, Second Quarter 2009, Honeywell North Hollywood Site)* indicate that VOCs and hexavalent chromium extend to a depth of approximately 330 feet below ground surface (bgs) and the high concentration portion is above 300 feet bgs. The NHE-2 well is screened between 190 and 300 feet bgs. When vertical flow fields are considered, the wells current configuration may be acceptable to achieve the performance goal. The need for a deeper well may depend upon the lateral extent of the plume and the subsequent pumping rate need for capture. The results of the ongoing NHOU 33 groundwater monitoring well installation should provide the information necessary to make this determination.

    NHE-4 has not been operated since February 2008 and NHE-5 has not operated since December 2005. While we recognize that deepening of these wells may be necessary to obtain the desired hydraulic capture for Depth Region 1, the well design must, nevertheless, minimize plume smearing. The well design should either include separate shallow and deep wells, or a packer system in the well to hydraulically isolate the Depth Zones.

    To the extent that deepening of these wells is part of a water supply strategy, this is not a 'necessary' remedial measure or response cost under CERCLA. (See, City of Moses Lake v. United States, 458 F. Supp. 2nd 1198 (E.D. Wash. 2006); *Santa Clara Valley Water District v. Olin Corp.*, N.D. Cal., No. 07-3756, 2009 WL 2581290 Aug. 19, 2009.). Costs that are principally for water supply or provision of municipal services cannot be passed to PRPs as part of a putative "remedy"; they remain the responsibility of the water supply agency or municipality.

    Response: EPA agrees that details regarding the depths and approach to deepening the extraction wells should be further evaluated, and is best considered during remedial design. The possibility of constructing separate shallow/deep well pairs or using packers, rather than simply deepening existing wells, is suggested as an option in the FFS. Deepening the wells is proposed in the FFS to allow sufficient long-term pumping rates to achieve hydraulic containment; deepening of the wells is not part of a water-supply strategy.

44. The number and size of the air stripping and carbon treatment equipment at the NHOU Central Treatment Facility will need to be re-evaluated once the target cleanup area has been further identified and the location and pumping rates of wells has been determined. It is possible that the design of the Second Interim Remedy will show that only one air stripper and carbon treatment unit will be adequate or that other treatment trains may be necessary (i.e., 1,4-dioxane or chromium treatment).

Response: EPA agrees that details of the treatment system should be further evaluated during the remedial design effort. However, when sizing treatment units, long-term average pumping rates required to meet RAOs must be considered together with estimates of treatment system downtime for maintenance and repairs. For example, if only one treatment train is constructed, and it is anticipated to be operational 80% of the time (20% downtime assumed for maintenance and repairs), then the extraction wells should be designed to operate at 125% of the design long-term average discharge rate (because the wells will only operate 80% of the time). Two smaller, parallel treatment trains may be somewhat more costly to construct than a single large-capacity treatment train, but their presence will provide more options for keeping the treatment system partly operational when individual components require maintenance or replacement. Such redundancy would have the potential to reduce overall system downtime and improve performance and efficiency of the system.

45. Section B.2.2 of the FSS states that recalibration of the model was improved by increasing vertical and horizontal hydraulic conductivity by 50%. It is not clear why this was considered appropriate. Before such drastic changes are undertaken, it would seem that the hydrogeologic Conceptual Site Model should be re-evaluated, since increasing hydraulic conductivity significantly affects flow rates. Discrepancies in the calibration of the numerical model, as shown on Figure 7 of Appendix B of the FFS, may be caused by the use of inaccurate hydraulic parameters, such as hydraulic conductivity (see Figures 3, 4, 5 and 6), effective porosity, storage coefficient, anisotropy, and dispersivities. Spatial variability of hydraulic parameters should be treated geostatistically to determine expected values, spatial correlation, and estimated uncertainties. Once the ongoing NHOU groundwater characterization activities have been completed, the groundwater model should be re-calibrated and sensitivity analyses conducted to refine the number, location, and pumping rates of the extraction wells.

Response: As is standard practice in model calibration, the aquifer parameters in the SFV model used for the FFS modeling were modified to adjust the "goodness of fit" to the calibration. The hydraulic conductivities that were ultimately selected in the model are consistent with the presence of coarse sand and gravel aquifer materials that were observed as drill cuttings during installation of the Remedial Investigation wells in the early 1990s.

The principal hydraulic goal of the proposed remedial alternatives is containment of contaminants over the long term. Of the specific parameters mentioned in this comment, hydraulic conductivity and aquifer anisotropy are the most important in the design of a pump-and-treat system that operates at a relatively steady pumping rate. These parameters will be reconsidered following the current additional groundwater investigation of the NHOU. Transport modeling that includes dispersivity (and perhaps other contaminant transport parameters) should be considered for the remedial design effort.

Geostatistical analysis proposed in the comment would not necessarily mitigate modeling uncertainty (unless a system is so robust that the aquifer parameters input to the model have little effect on the model outcome), but instead provides a basis for

describing the uncertainty in detail. Geostatistical analysis can be considered in the remedial design phase, but was unnecessary at the feasibility study level.

For these reasons, the parameters chosen for the FFS modeling are considered by EPA to be conservative and appropriate for the required level of analysis and comparison of the FFS remedial alternatives.

46. In the comparison spreadsheet of EPA's alternative vs. Honeywell's proposed alternative for 1-4 dioxane treatment, the capital cost and operations and maintenance (O&M) cost are the same. However, while calculating the net present value (NPV) for 26 years at 7%, there is a discrepancy between EPA's and our calculations. The NPV for Honeywell's alternative was calculated using the following formula:

PV(0.07,26,H24,0,0)+G24

where:

H 24 = O&M cost

G 24 = capital cost.

Even though Honeywell's approach is the same as EPA's, Honeywell's NPV 7% value, based on the formula above, is $5.7 million vs. EPA's value of $4.7 million. Please verify the basis for EPA's calculation. Also, note that in ***Attachment 2*** of this letter, we did not change the NPV for EPA's alternative.

Response: Based on the information presented in the comment the Honeywell NPV calculation assumes a 26-year discount period for this component starting the first year of construction. The NPV calculated in the FFS assumed a 27-year discount period that starts three years after construction of the rest of the extraction and treatment system. In other words, the NPV of the 1,4-dioxane treatment system is further discounted due to the delay in its construction.

47. Appendix E of the FFS and Figure 2-1 both identified selected "Facility Locations" (i.e., potential sources). The listed locations tend to be Sites where a known release has occurred (i.e., soil or groundwater data exists confirming a release) but the list appears to be incomplete. Lockheed Building 528 and Hangar 22 are not mentioned. Also, several of the smaller degreaser/plating operations identified by MWH Americas, Inc. (MWH) were not included (i.e., Skipower Plating, AAA Plating, Caravan Fashions, F&H Plating, Nickel Solutions Recycling, Electromatic, etc.). Honeywell has also identified other entities that are known to have impacted the subsurface. These entities are provided in ***Attachment 4***.

Response: The source areas were mentioned only as a reference. The EPA acknowledges that there is ongoing work for source identification, and the intent is to identify and address as many sources as possible in the NHOU.

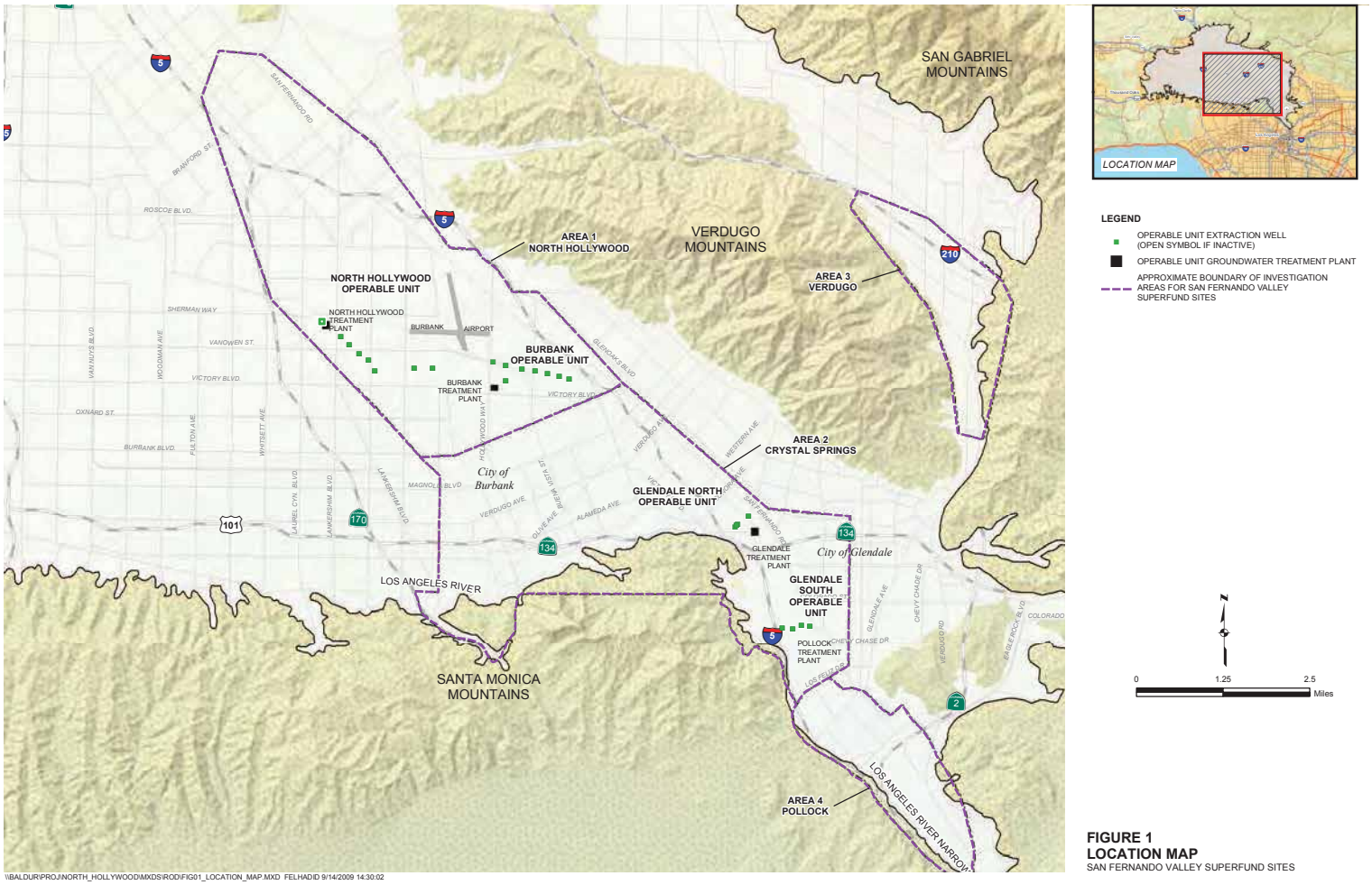


FIGURE 1
LOCATION MAP
SAN FERNANDO VALLEY SUPERFUND SITES

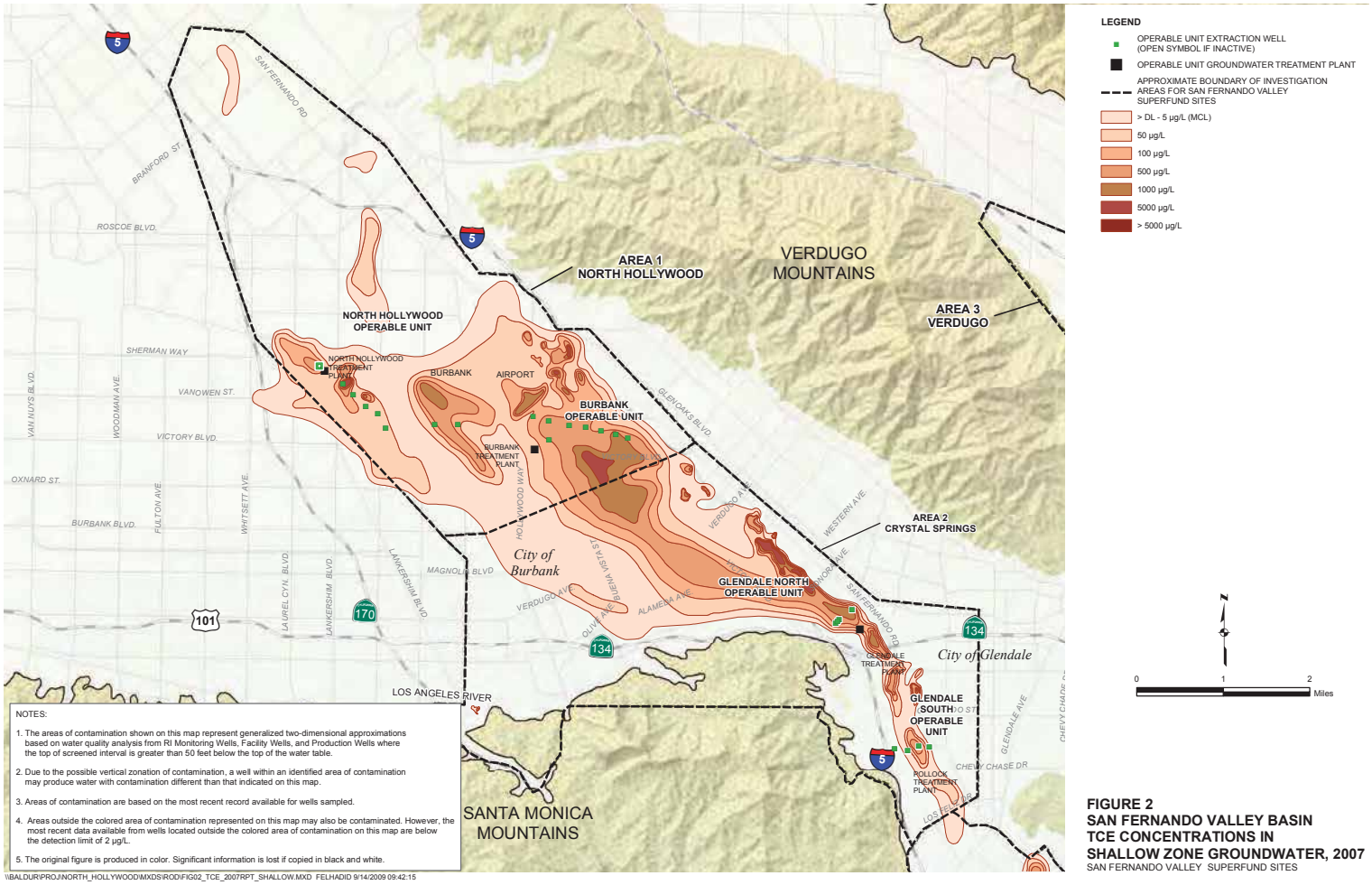
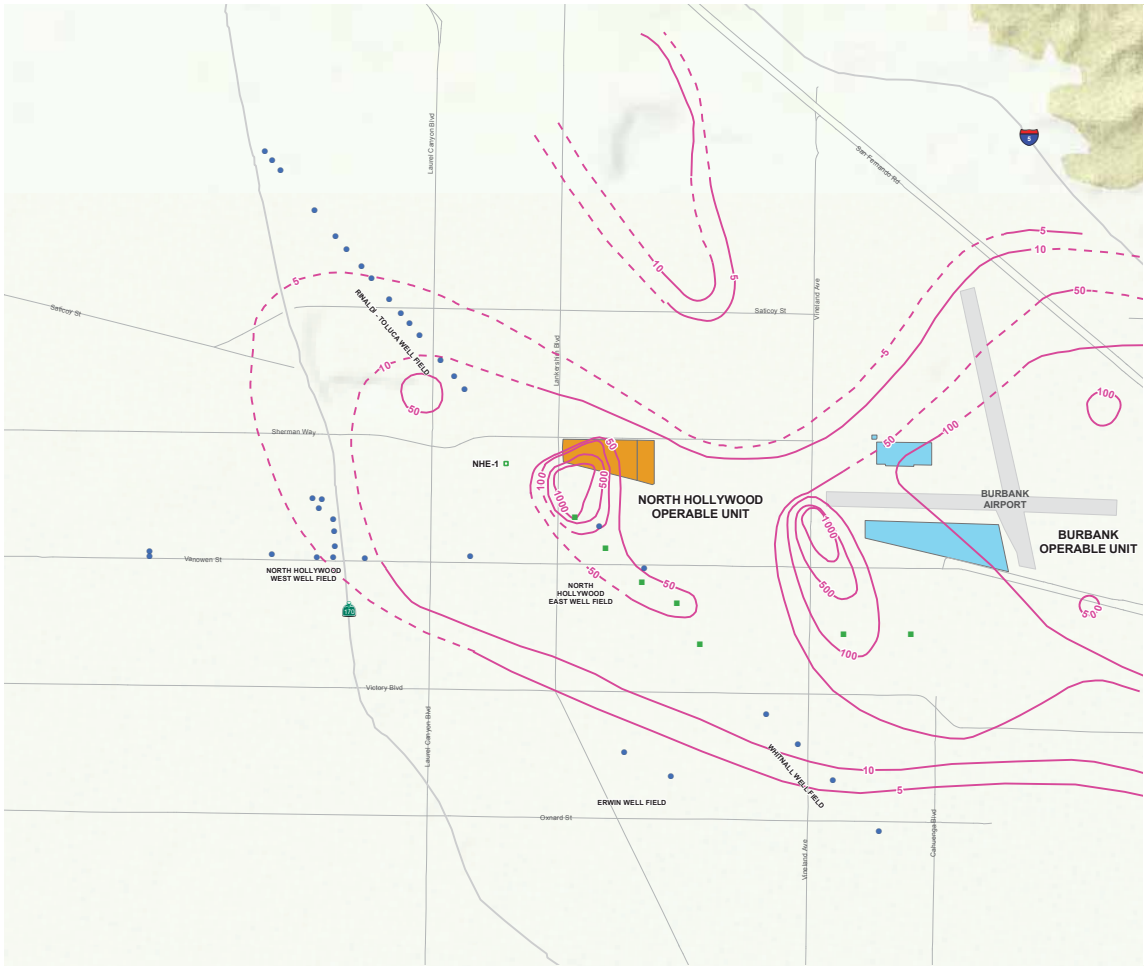


FIGURE 2
SAN FERNANDO VALLEY BASIN TCE CONCENTRATIONS IN SHALLOW ZONE GROUNDWATER, 2007
SAN FERNANDO VALLEY SUPERFUND SITES



\\BALDUR\PROJ\NORTH_HOLLYWOOD\MXDS\ROD\FIG03_MAX_TCEPCE_DEPTH1.MXD FELHADID 9/14/2009 09:49:07

LEGEND

- NHOU EXTRACTION WELL (OPEN SYMBOL IF INACTIVE)
- PRODUCTION WELL

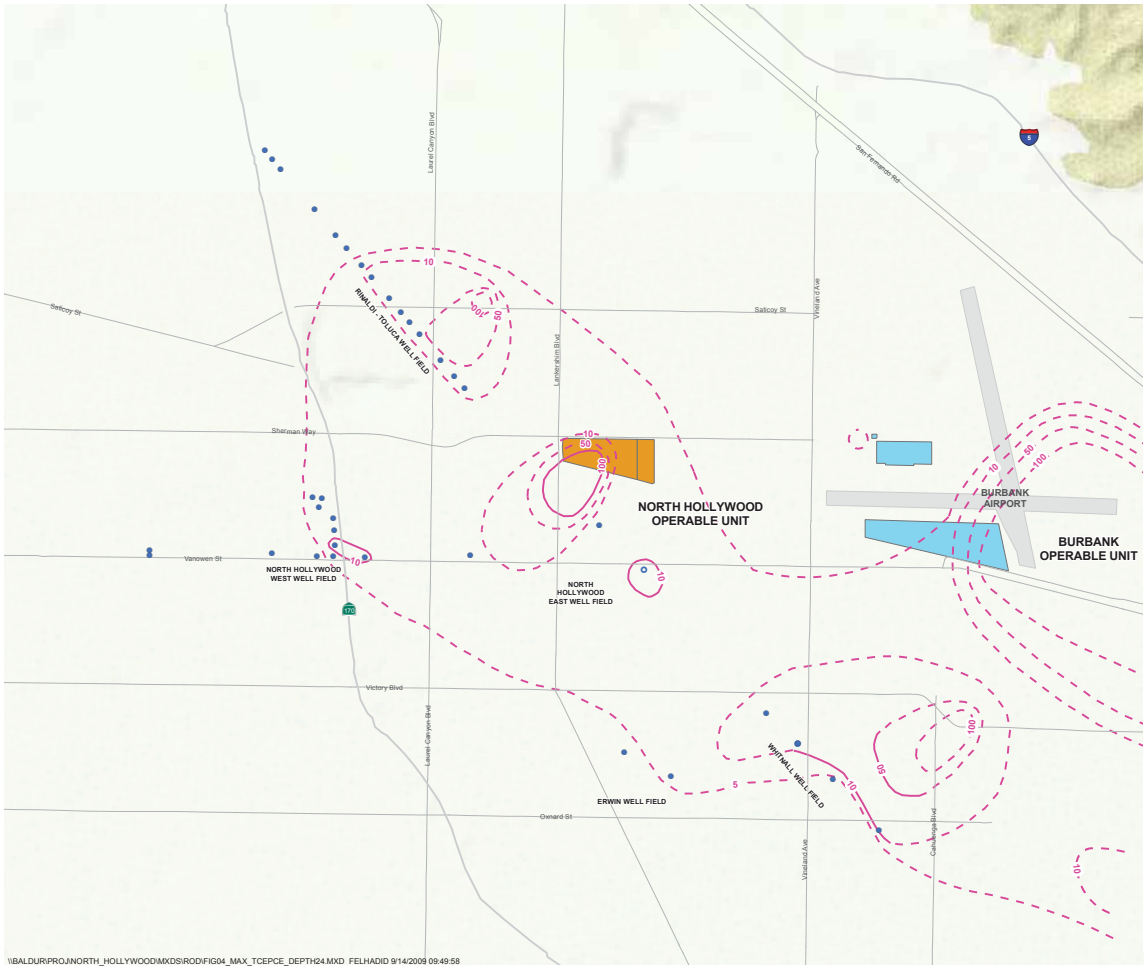
LOCATION OF SELECTED FACILITY

- FORMER BENDIX FACILITY
- LOCKHEED
- 10 — CONTOUR OF TCE AND PCE CONCENTRATIONS (µg/L) (DASHED WHERE APPROXIMATE) MCL FOR TCE AND PCE IS 5 µg/L
- MAJOR ROADS
- HIGHWAYS

NOTES:

1. THE MAXIMUM RESULTS SHOWN ARE FROM SAMPLES COLLECTED JANUARY 2003 THROUGH DECEMBER 2007.
2. THE MAXIMUM OF EITHER TCE OR PCE AT EACH LOCATION WAS USED TO GENERATE THE CONTOURS.

FIGURE 3
MAXIMUM CONCENTRATION OF TCE AND PCE IN GROUNDWATER, DEPTH REGION 1
SAN FERNANDO VALLEY SUPERFUND SITES



LEGEND

- PRODUCTION WELL (OPEN SYMBOL IF INACTIVE)

LOCATION OF SELECTED FACILITY

- FORMER BENDIX FACILITY
- LOCKHEED
- 10 — CONTOUR OF TCE AND PCE CONCENTRATIONS (µg/L) (DASHED WHERE APPROXIMATE) MCL FOR TCE AND PCE IS 5 µg/L
- MAJOR ROADS
- HIGHWAYS

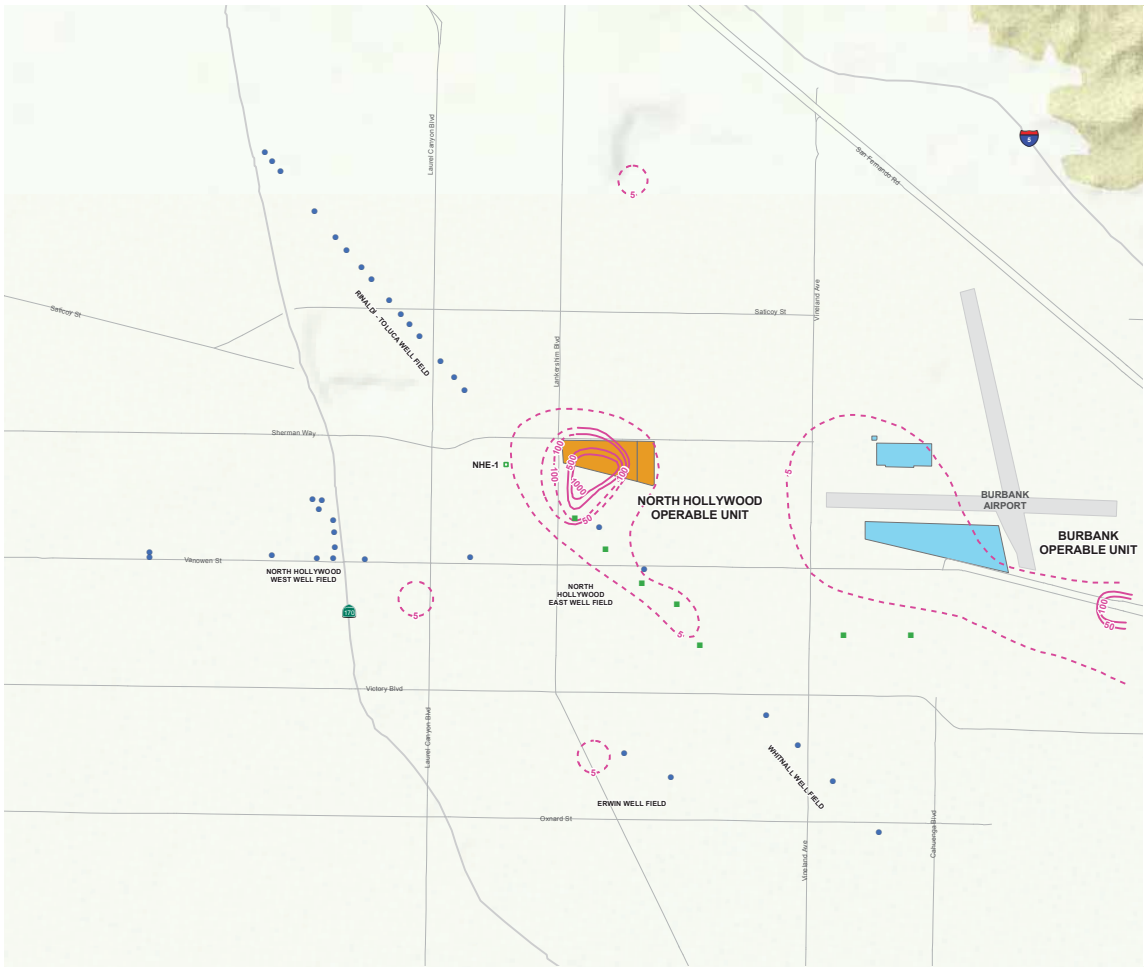
NOTES:

1. THE MAXIMUM RESULTS SHOWN ARE FROM SAMPLES COLLECTED JANUARY 2003 THROUG DECEMBER 2007.
2. THE MAXIMUM OF EITHER TCE OR PCE AT EACH LOCATION WAS USED TO GENERATE THE CONTOURS.

0 2,000 4,000 Feet

N

FIGURE 4
MAXIMUM CONCENTRATION OF TCE AND PCE IN GROUNDWATER, DEPTH REGIONS 2 THROUGH 4
SAN FERNANDO VALLEY SUPERFUND SITES



RDD \\BALDUR\PROJ\NORTH_HOLLYWOOD\MXDS\ROD\FIG05_MAX_CRCR6_DEPTH1.MXD MSCHROCK 9/8/2009 16:36:21

FIGURE 5
MAXIMUM CONCENTRATION OF CHROMIUM IN GROUNDWATER, DEPTH REGION 1
SAN FERNANDO VALLEY SUPERFUND SITES

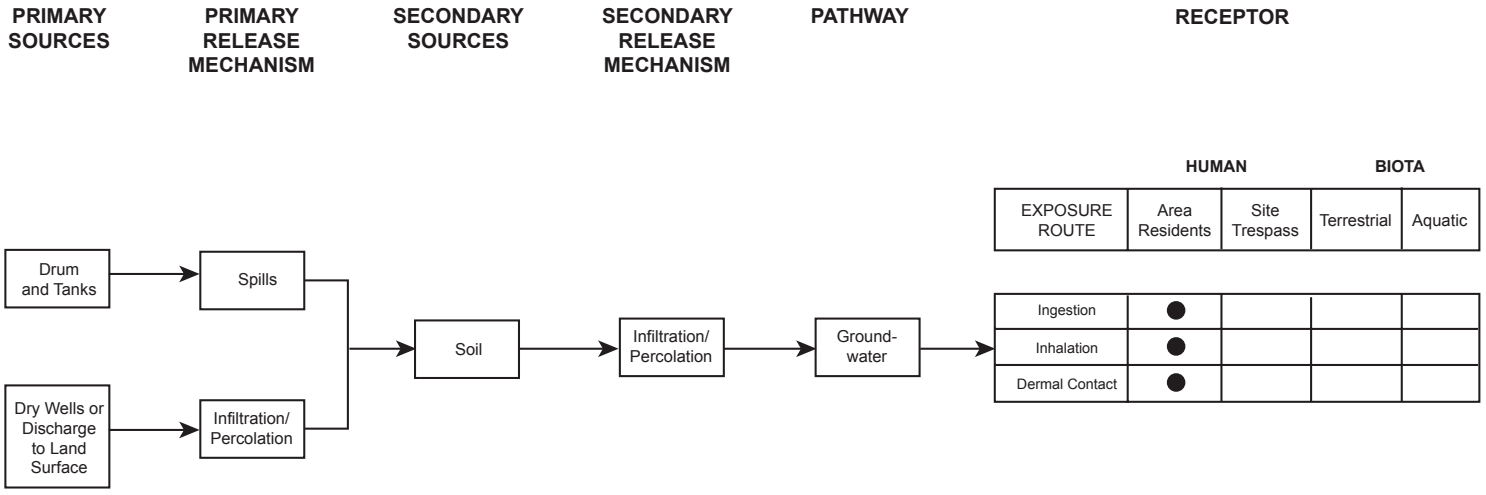
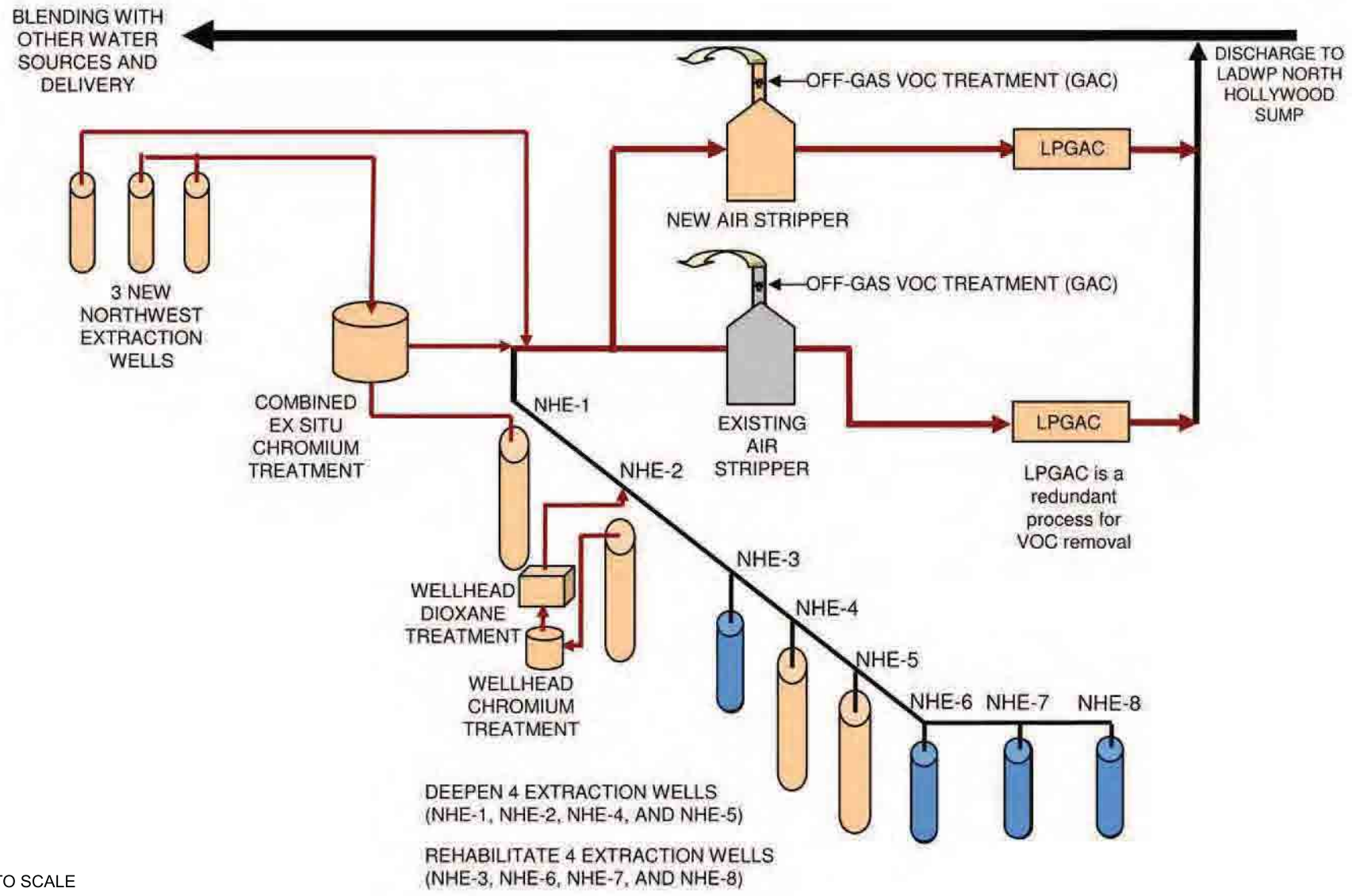


FIGURE 6
CONCEPTUAL SITE MODEL
SAN FERNANDO VALLEY SUPERFUND SITES

ES092209222300_05 (9/22/09)



NOT TO SCALE

FIGURE 7
SCEHMATIC LAYOUT OF SELECTED REMEDY (ALTERNATIVE 4a)
SAN FERNANDO VALLEY SUPERFUND SITES

FIG16_ALT4ASCHEMATIC.PSD

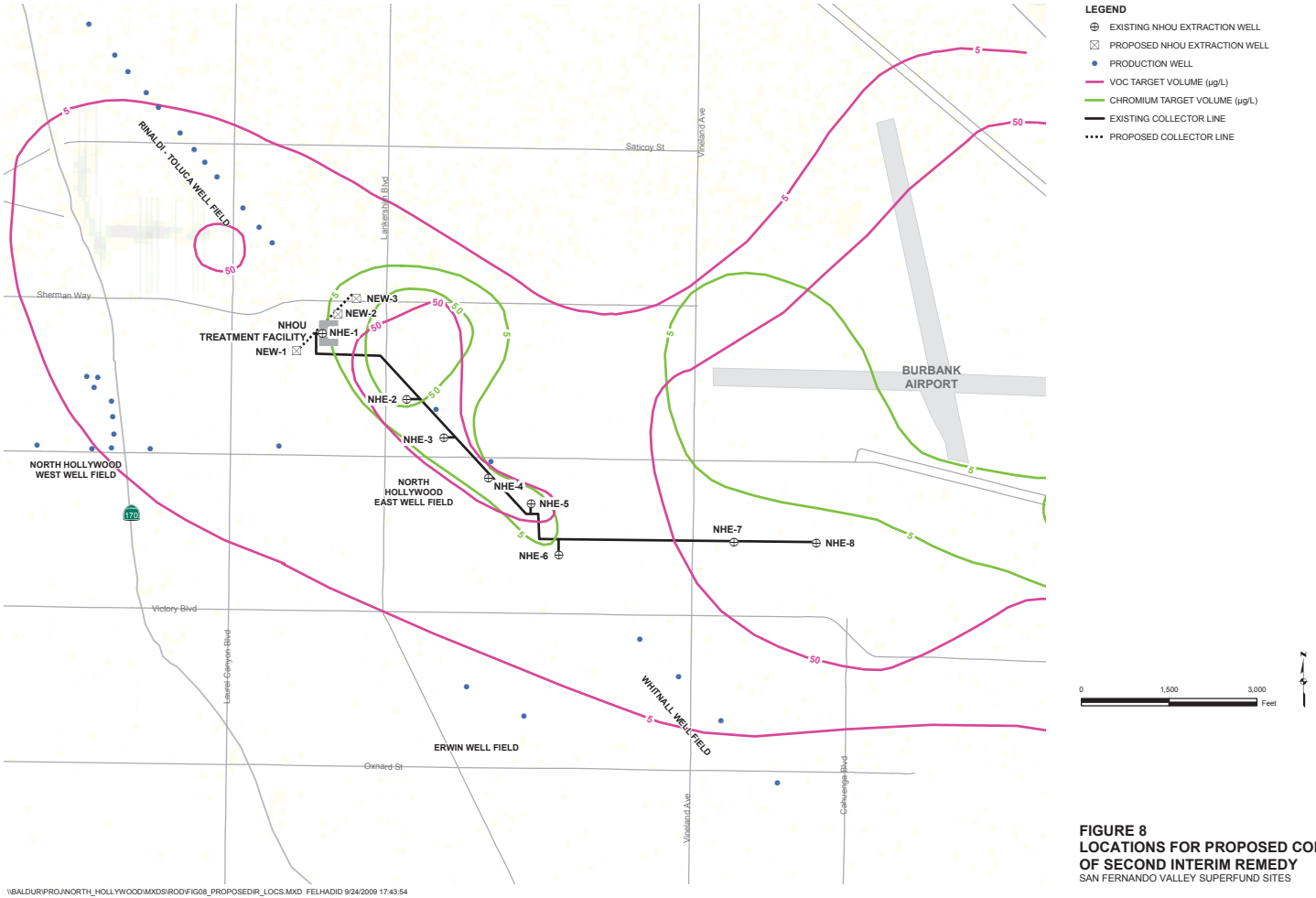


FIGURE 8
LOCATIONS FOR PROPOSED COMPONENTS OF SECOND INTERIM REMEDY
SAN FERNANDO VALLEY SUPERFUND SITES

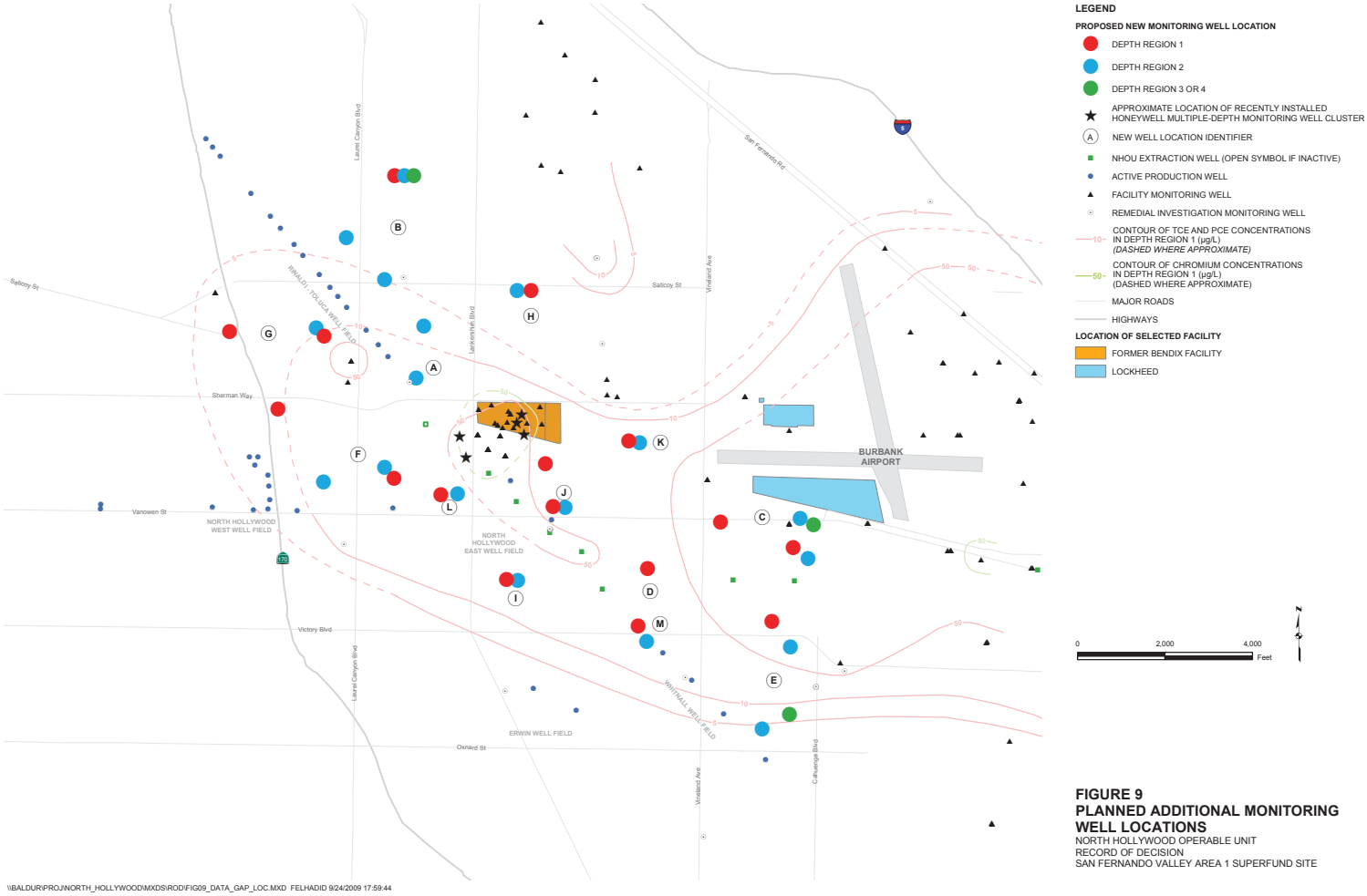


FIGURE 9
PLANNED ADDITIONAL MONITORING WELL LOCATIONS
NORTH HOLLYWOOD OPERABLE UNIT
RECORD OF DECISION
SAN FERNANDO VALLEY AREA 1 SUPERFUND SITE

EPA Superfund

Amendment to the 2009 Interim Action Record of Decision

North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

January 10, 2014

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Amendment to the
2009 Interim Action Record of Decision
for the
North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

January 10, 2014

United States Environmental Protection Agency

Region IX – San Francisco, California

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Table of Contents

List of Tables

List of Figures

List of Appendices

Acronyms and Abbreviations

1987 ROD	Record of Decision for a Remedial Action for Area 1 of the San Fernando Valley Superfund sites
2009 ROD	EPA Superfund Interim Action Record of Decision: North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, Los Angeles, California
µg/L	micrograms per liter
ARAR	Applicable or Relevant and Appropriate Requirements
Basin Plan	Water Quality Control Plan, Los Angeles Region
bgs	below ground surface
BOU	Burbank Operable Unit
CCR	California Code of Regulations
CDPH	California Department of Public Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
DTSC	State of California Department of Toxic Substances Control
DWR	Department of Water Resources
EPA	U.S. Environmental Protection Agency
FFS	Focused Feasibility Study, North Hollywood Operable Unit, San Fernando Valley Area 1 Superfund Site, Los Angeles County, California
First Interim Remedy	the existing NHOU interim remedy
gpm	gallons per minute
Honeywell	Honeywell International Inc.
IC	institutional controls
LADWP	Los Angeles Department of Water and Power
LPGAC	liquid phase granular activated carbon
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NDMA	n-nitrosodimethylamine
NHOU	North Hollywood Operable Unit
NL	notification level
NPDES	National Pollutant Discharge Elimination System
NPV	net present value
O&M	operation and maintenance
OEHHA	Office of Environmental Health Hazard Assessment

OU	Operable Unit(s)
PCE	tetrachloroethylene (also known as perchloroethylene)
PHG	California Public Health Goal
PRP	Potentially Responsible Party
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RD	remedial design
ROD	Record of Decision
RODA	Amendment to the 2009 Interim Action Record of Decision
RWQCB	Los Angeles Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SDWA	Safe Drinking Water Act
SFV	San Fernando Valley
Site	North Hollywood Operable Unit (NHOU) of the San Fernando Valley (SFV) (Area 1) Superfund Site
State	State of California
TBC	To-Be-Considered
TCE	trichloroethylene
TCP	1,2,3-trichloropropane
ULARA	Upper Los Angeles River Area
U.S.C.	United States Code
VOC	volatile organic compound.

Part 1
Declaration

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Part 1 – Declaration

1.1 Site Name and Location

The North Hollywood Operable Unit ("NHOU") of the San Fernando Valley ("SFV") (Area 1) Superfund Site ("Site") is located in Los Angeles County, California (CERCLIS ID No. CAD980894893).

1.2 Statement of Basis and Purpose

On September 30, 2009, the United States Environmental Protection Agency ("EPA") issued an Interim Action Record of Decision ("2009 ROD"), selecting a second interim remedy for the NHOU ("2009 Remedy" or "Second Interim Remedy"). This document, the Amendment to the 2009 Interim Action Record of Decision ("RODA"), amends the 2009 ROD. In doing so, it leaves the groundwater extraction and treatment system selected in the 2009 ROD unchanged, but adds a second end-use option (re-injection), which will allow for remedy implementation with an end use that either delivers the treated water to the Los Angeles Department of Water and Power ("LADWP") for use in its domestic water supply system (as selected in the 2009 ROD) or re-injects it back into the aquifer.

The 2009 Remedy, in combination with the RODA that adds a second end-use option (together referred to as the "Amended Remedy"), was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), as amended by the Superfund Amendments and Reauthorization Act, and in a manner that is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"). The decision to amend the 2009 Remedy is based on the information available in the administrative record for the Site. The RODA has been prepared following the procedures specified in CERCLA Section 117 and Section 300.435(c)(2)(ii) of the NCP. In accordance with Section 300.825(a)(2) of the NCP, this RODA will become part of the administrative record for the site. The State of California ("State") concurs with the Amended Remedy.

The 2009 ROD specified that the end use for groundwater treated by the Second Interim Remedy would consist of delivery to LADWP for use in its domestic water supply system. EPA has concluded that re-injection of the treated groundwater might be necessary if LADWP and the NHOU potentially responsible parties ("PRPs") are unable to reach an agreement that is acceptable to EPA regarding terms for delivery and acceptance of the treated water. The Amended Remedy, which allows re-injection of treated groundwater back into the SFV groundwater aquifer, ensures that EPA has the flexibility to design the most effective remedy and implement that remedy without significant delay in the event that LADWP and the NHOU PRPs are unable to reach agreement. Although this RODA allows re-injection as an additional end-use option, it does not specify which end use will be implemented. Consequently, both the drinking water and the re-injection end uses are considered part of EPA's Preferred Alternative in the Amended Remedy.

Consistent with the Second Interim Remedy, the scope of the Amended Remedy does not include restoration of the aquifer (i.e., removal of all manmade contaminants), in part because additional data are needed in some areas of the aquifer where the extent of contamination must be better defined before EPA can determine what additional actions, if any, are needed to address these other areas of groundwater contamination. In the meantime, EPA considers it important to implement the Amended Remedy as soon as practicable in order to prevent further migration of the known high-concentration contaminant plumes, as described above, and to collect additional data to evaluate the need for (and scope of) further action.

1.3 Assessment of the Site

EPA has determined that hazardous chemicals have been released into groundwater within the NHOU, and that a substantial threat of release to groundwater still exists. The response action selected in this RODA is necessary to ensure that the groundwater extraction and treatment components of the 2009 Remedy can be implemented and that the public health or welfare or the environment can be protected from actual or threatened releases of hazardous substances into the environment.

1.4 Description of the Amended Remedy

The Amended Remedy includes the groundwater extraction and treatment technology, institutional controls ("ICs"), and groundwater monitoring selected in the 2009 Remedy, and provides an additional end-use option (re-injection) that will allow for the remedy to be implemented by either delivering the treated water to LADWP for use in its domestic water supply system (as selected in the 2009 ROD) or re-injecting it back into the aquifer.

The eastern region of the SFV is characterized by a continuous plume of volatile organic compound ("VOC") contamination that starts in the SFV (Area 1) Superfund Site, and continues downgradient in a generally southeast direction through the SFV (Area 2 and Area 4) Superfund Sites. The NHOU comprises the western portion of Area 1; to the east of the NHOU, still within Area 1, is the Burbank Operable Unit ("BOU"), where an interim pump-and-treat remedy has been in place and operating since 1996. In the future, following additional plume characterization, evaluation of the performance of the Amended Remedy, and an evaluation of the existing BOU remedy, EPA will select a final remedy for the SFV (Area 1) Superfund Site.

1.5 Statutory Determinations

The Amended Remedy, implementing either end-use option, is protective of human health and the environment, complies with federal and State requirements that are applicable or relevant and appropriate to the remedial action, is cost effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

The Amended Remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment), in accordance with CERCLA §121.

Because hazardous substances, pollutants, or contaminants have continued to be present on-site (i.e., in groundwater) above levels that allow for unlimited use and unrestricted exposure since the NHOU First Interim Remedy was implemented in 1989, EPA has conducted five statutory five-year reviews at the NHOU pursuant to CERCLA §121. Because the Amended Remedy will also result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the Amended Remedy to ensure that it is, or will be, protective of human health and the environment.

1.6 ROD Certification Checklist

The following information is presented in the Decision Summary section (Part 2 of this RODA). Additional information can be found in the administrative record file for the NHOU.

- Contaminants of concern ("COCs") and their respective concentrations (see Section 2.5.5)
- Baseline risk represented by the COCs (see Section 2.7 in the 2009 ROD)
- Performance standards established for the COCs and the basis for these levels (see Section 2.5.9)
- Current and potential future beneficial uses of groundwater used in the baseline risk assessment and RODA (see Sections 2.6 and 2.7 in the 2009 ROD and Section 2.5.4 in the RODA)
- Potential groundwater use that will be available at the Site as a result of the selected remedy (see Section 2.5)
- Estimated capital, operation and maintenance ("O&M"), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (see Section 2.5.6)
- Key factors that led to selecting the amended remedy (i.e., how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria) (see Section 2.6)

1.7 Authorizing Signature

This RODA documents an amendment of the Second Interim Remedy, which addresses contaminated groundwater at the North Hollywood Operable Unit of the San Fernando Valley (Area 1) Superfund Site. The Amended Remedy was selected with the concurrence of the California Department of Toxic Substances Control ("DTSC"). The Assistant Director of the Superfund Division (EPA, Region 9) has been delegated the authority to approve and sign this RODA.

Kathleen Salyer
Assistant Director, Superfund Division
California Site Cleanup Branch

1/10/14
Date

Part 2
Decision Summary

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Part 2 – Decision Summary

2.1 Site Name, Location, and Description

The NHOU is one of two geographically defined operable units ("OUs") within the SFV (Area 1) Superfund Site. The NHOU comprises approximately 4 square miles of contaminated groundwater underlying an area of mixed industrial, commercial, and residential land uses in the community of North Hollywood (a district of the City of Los Angeles). The NHOU is approximately 15 miles north of downtown Los Angeles and immediately west of the City of Burbank, and has approximate site boundaries of Sun Valley and Interstate 5 to the north, State Highway 170 and Lankershim Boulevard to the west, the Burbank Airport to the east, and Burbank Boulevard to the south (see Figure 1).

The EPA is the lead agency for the current and planned future groundwater remedial activities at the NHOU. The EPA's response activities at the NHOU are and have been conducted under the authority established in the federal Superfund law, CERCLA, as amended, 42 United States Code ("U.S.C.") §9601 et seq. The lead State agency is the DTSC. The Los Angeles Regional Water Quality Control Board ("RWQCB") has provided and continues to provide substantial support, particularly with the investigation and cleanup of sources of contamination in the SFV. The expected source of cleanup monies for the NHOU is an enforcement settlement with the PRPs.

2.2 Site Background

This section provides a brief summary of the background of the 2009 Remedy. More details regarding site history, characteristics, risks, remedial action objectives, and alternatives considered are provided in the 2009 ROD.

EPA and LADWP have been involved in addressing groundwater contamination in the NHOU since 1981, when LADWP and the Southern California Association of Governments, funded by EPA, performed a study titled *Groundwater Management Plan—San Fernando Valley Basin,* to investigate widespread groundwater contamination in the SFV. The primary groundwater contaminants of concern in the SFV at that time were trichloroethylene ("TCE") and tetrachloroethylene ("PCE"; also known as perchloroethylene). These VOCs are commonly used as industrial solvents.

To address the widespread groundwater contamination in the SFV, EPA placed four SFV sites (or Areas) on the National Priorities List in 1986. These four Superfund sites are referred to as:

- SFV Area 1 - North Hollywood, which includes the NHOU and the BOU;
- SFV Area 2 - Crystal Springs, which includes the Glendale North OU, the Glendale South OU, and the Glendale Chromium OU;
- SFV Area 3 - Verdugo;

- SFV Area 4 - Pollock.

EPA has focused its resources on addressing the regional groundwater contamination, while the State (primarily through the RWQCB) has had the primary role for soil cleanup work at the numerous VOC sources that caused the groundwater contamination.

The first interim Record of Decision for the NHOU ("1987 ROD") was signed in September 1987. The 1987 ROD selected an interim remedy to address VOC-contaminated groundwater in the North Hollywood area ("First Interim Remedy"). The objective of the selected remedy was to slow down or arrest the migration of the contaminant plume at the North Hollywood-Burbank well field and remove contaminant mass.

Under the First Interim Remedy, the movement of groundwater in the aquifer is controlled by utilizing a series of extraction wells that pump contaminated groundwater from the SFV aquifer. After the water is extracted from the SFV aquifer, it is treated to remove contamination. The NHOU treatment plant removes VOCs from the extracted groundwater using air stripping, with granular activated carbon filters used to remove VOCs from the process air before it is discharged to the atmosphere. The treated water meets drinking water standards for COCs and is delivered via pipeline to the LADWP water supply system, where it is blended with water from other sources and distributed through the water supply system for the City of Los Angeles.

The First Interim Remedy has limited contaminant migration and removed contaminant mass from groundwater in the NHOU. However, changing groundwater conditions in the aquifer and the discovery of VOC contamination in new areas of the aquifer beneath North Hollywood limit the ability of the First Interim Remedy to fully contain the VOC plume. In addition, emerging contaminants, including hexavalent chromium and 1,4-dioxane, in excess of the State maximum contaminant level ("MCL") for total chromium and the California Department of Public Health ("CDPH") notification level ("NL") for 1,4-dioxane impacted or threatened to impact a number of NHOU extraction wells. Chromium contamination in the NHOU is shown in Figure 1. In response to the continued migration of VOC-contaminated groundwater and the presence of chromium and other emerging contaminants in the NHOU, EPA conducted a Focused Feasibility Study ("FFS"), completed in 2009, to evaluate alternatives for improving the groundwater remedy. The FFS presented a range of alternatives for addressing the contaminants in groundwater, as well as options for the end use of the treated water.

The Second Interim Remedy, selected in the 2009 ROD, includes construction of new extraction wells, chromium and 1-4 dioxane treatment, expanded VOC treatment, and continued delivery of the treated water to LADWP's municipal water supply system.

2.3 Community Participation

After listing the SFV Area 1 Superfund Site on the NPL, EPA developed a Community Involvement Plan that outlined the types of activities envisioned to keep the local community informed. Throughout its involvement in the SFV, EPA has kept State agencies, cities, businesses, residents, and property owners in and near the SFV Superfund sites informed of its activities and the results of its studies via periodic newsletters. These newsletters and other

documents referred to in this RODA are available to the public as part of the Administrative Record file at the EPA Region 9 Superfund Records Center in San Francisco, California. The Administrative Record is also available for public review at the following information repositories:

- City of Los Angeles Central Library, Science & Technical Department: 630 West 5th Street, Los Angeles, CA, 90071
- North Hollywood Regional Branch Library, 5211 Tujunga Avenue, North Hollywood, CA, 91601
- Burbank Public Library, Central Library, 110 North Glen Oaks Boulevard, Burbank, CA, 91502
- Glendale Public Library, 222 East Harvard Street, Glendale, CA, 91205

The Proposed Plan for the RODA was made available to the public on May 1, 2013, in accordance with 40 Code of Federal Regulations ("CFR") §300.435(c)(2)(ii). EPA held a public meeting in North Hollywood on June 5, 2013, to present the Proposed Plan for the RODA to the community and other NHOU stakeholders. The public was notified of this meeting through a public notice published in the Los Angeles Daily News on May 15, 2013, a flyer sent to the NHOU mailing list, and an email notice sent to State and local agencies, elected officials, PRPs and other stakeholders. The original public comment period on the Proposed Plan for the RODA was from May 13 to June 13, 2013. An extension to the public comment period was requested by the PRPs shortly after the Proposed Plan was made available, to provide sufficient time for review and preparation of comments; as a result, the public comment period was extended to July 11, 2013. The public was notified of this extension through a public notice published in the Los Angeles Daily News on June 3, 2013, a flyer sent to the NHOU mailing list, and an email notice sent to State and local agencies, elected officials, PRPs and other stakeholders. EPA's responses to the comments received during this period are included in the Responsiveness Summary, which is Part 3 of this RODA.

2.4 Remedial Action Objectives

The remedial action objectives ("RAOs") for the Amended Remedy are unchanged from those set forth in the 2009 ROD:

- Contain areas of contaminated groundwater that exceed the MCLs and notification levels to the maximum extent practicable.
- Prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production wells by preventing the migration toward these well fields of the more highly contaminated areas of the VOC plume located to the east/southeast.
- Achieve improved hydraulic containment to inhibit horizontal and vertical contaminant migration in groundwater from the more highly contaminated areas and depths of the aquifer to the less contaminated areas and depths of the aquifer, including the southeast portion of

the NHOU in the vicinity of the Erwin and Whitnall production well fields.

- Remove contaminant mass from the aquifer.

2.5 Amended Remedy

2.5.1 Summary of 2009 Remedy

EPA's selected remedy in the 2009 ROD was FFS Alternative 4a, which included: construction of new extraction wells; modification/rehabilitation of several existing extraction wells; expanded VOC treatment; chromium treatment for extraction wells NHE-1, NHE-2, and two new extraction wells; installation of additional monitoring wells; ICs; and use of the treated water in LADWP's water supply system.

2.5.2 Summary of the Amended Remedy

The Amended Remedy is very limited in its scope; the only component of the 2009 Remedy that is impacted by the RODA is the end use of the groundwater following treatment. Otherwise, the 2009 Remedy is unchanged, including construction of an estimated three new extraction wells; modification/rehabilitation of several existing extraction wells; and expanded VOC and chromium treatment for extraction wells NHE-1, NHE-2, and two of the new extraction wells. Rather than limiting the end use to delivery of water to LADWP following the treatment process selected in the 2009 Remedy, the RODA adds to the remedy the option of re-injecting the treated water back into the aquifer. The exact number, locations, and pumping rates for the groundwater injection wells will be finalized during remedial design ("RD").

2.5.3 Rationale for Amending the 2009 Remedy

Since issuance of the 2009 ROD, EPA has engaged in negotiations with both the NHOU PRPs and LADWP regarding implementation of the 2009 Remedy. As these negotiations have progressed, EPA realized that LADWP and the NHOU PRPs may be unable to reach an agreement that is acceptable to EPA regarding the terms and criteria for delivery and acceptance of treated groundwater for use in LADWP's drinking water supply system. If an acceptable agreement is not reached between LADWP and the PRPs and the treated water cannot be reliably delivered to LADWP, water extracted from all remedy wells will have to be re-injected in order to ensure that the Second Interim Remedy can effectively operate.

2.5.4 Summary Evaluation of the Nine Criteria for the Amended Remedy

Based on the information currently available, EPA believes that the Amended Remedy, incorporating either proposed end-use option, meets the NCP's threshold criteria and provides the best balance of trade-offs when compared to the other alternatives evaluated in the 2009 ROD. The installation of additional extraction wells, modification of existing extraction wells, and expansion of the VOC treatment system will significantly improve plume capture and prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production well fields. Regardless of which end use is implemented, the Amended Remedy will result in permanent and significant reduction in the mobility and volume of VOCs in groundwater in the NHOU. The addition of chromium and 1,4-dioxane treatment at selected

extraction wells will ensure that the Amended Remedy meets all requirements for use of the treated water in LADWP's water supply system or for re-injection, and it will also significantly reduce the possibility that extraction wells would have to shut down or be pumped at decreased rates as a result of increases in chromium concentrations. Delivery of treated water to LADWP would result in significantly lower cost than re-injection. However, if delivery of treated water to LADWP is not possible, then re-injection would be a viable option to meet the RAOs for the Amended Remedy.

If LADWP and the NHOU PRPs, after negotiating in good faith, (1) have not come to an agreement on the terms for the delivery and acceptance of treated groundwater satisfying EPA that the remedy will be able to operate reliably and effectively and (2) such an agreement has not been reached sufficiently far in advance of remedial design completion so that the end use to be implemented can be incorporated into a final design, EPA will make the decision to proceed with re-injection as the end use so that the remedy can be implemented in a timely manner.

2.5.5 Description of the Amended Remedy

The following is a description of the Amended Remedy. Other than the addition of the option to re-inject treated water as an end use, the major components of the Amended Remedy are identical to the 2009 Remedy. All differences between the Amended Remedy and the 2009 Remedy (which are limited to the alternate end-use option) are identified in **bold text**. Figure 2 schematically illustrates the major components assuming implementation of delivery of the treated water to LADWP as the end-use option. Figure 3 schematically illustrates the major components assuming implementation of re-injection as the end-use option. Although the EPA does not expect significant changes to this remedy, there may be some level of modification during the RD and construction processes if implemented under either end-use option. RD and construction of the Amended Remedy is expected to be completed in 2017. Achievement of the RAOs for the Amended Remedy is expected to occur shortly after system operation commences. Because the RAOs are focused primarily on hydraulic containment, the Amended Remedy is expected to continue operating until a final remedy for the NHOU is selected and implemented. For cost estimating purposes, the Second Interim Remedy was assumed in the FFS to operate for 30 years. Any changes to the remedy described in this RODA would be adopted and documented as appropriate and consistent with the applicable regulations.

Institutional Controls

Governmental controls in place in the SFV act as effective ICs to prevent the public's exposure to contaminated groundwater. The primary governmental control is the 1979 Final Judgment in the Superior Court of California, County of Los Angeles, (Superior Court Case No. 650079) in the case titled The City of Los Angeles vs. City of San Fernando, et al. The final judgment created the entity known as "Watermaster" with full authority to administer the adjudication of water rights, under the auspices of the Superior Court.

Under the final judgment, only the cities of Los Angeles, Burbank, and Glendale are permitted to extract groundwater from the SFV Basin ("Basin"). Each of these municipalities administers a public drinking water system, which is regulated and subject to permits issued by the CDPH. These drinking water regulatory controls and the Watermaster's authority to regulate and allocate

water resources ensure centralized control over area groundwater and its use as a drinking water source.

However, certain municipal groundwater-supply pumping scenarios could interfere with the effectiveness of the Amended Remedy under either end-use option. In order to address this issue, an additional IC is necessary, wherein EPA, LADWP, and the NHOU PRPs work together to develop and implement a groundwater management plan that would protect the effectiveness and integrity of the NHOU remedy while being consistent with LADWP's drinking water production requirements. The groundwater management plan is expected to provide for regular sharing of relevant groundwater data and pumping rate projections, planning for groundwater use, and a decision-making process to address any potential conflicts between the LADWP's pumping plans and the performance of the remedy. To ensure that the groundwater management plan and the implementation mechanisms for that plan are an effective IC, a formal agreement is currently being developed between EPA and LADWP.

Groundwater and Treatment System Monitoring

Regardless of which end-use option is implemented, approximately 37 new monitoring wells will be installed. Honeywell International Inc. ("Honeywell") has already installed most of these wells, in coordination with the EPA. **If the re-injection end-use option is implemented, an estimated nine additional monitoring wells will be required in order to monitor impacts on groundwater levels and quality around and downgradient from the injection wells.** Details regarding number and location of additional monitoring wells required for the re-injection end-use option will be developed during the RD process.

Monitoring of groundwater levels and groundwater quality in the monitoring wells will allow for evaluation of contaminant plume migration and the effectiveness of the selected remedial actions. The specific monitoring objectives that were used to develop a modified groundwater monitoring network as part of the Amended Remedy include the following:

- Fill key data gaps to adequately characterize the lateral and vertical extent of contaminant plumes and known hotspot areas and their relationship to known source areas.
- Provide information to monitor the progress of the remedy and to detect the migration of known COCs and emerging chemicals from known plume and hot spot areas.
- Develop the data necessary for evaluating and, as necessary, selecting future additional response actions for areas of the VOC plume that may not be captured by the Amended Remedy.

Groundwater monitoring within the NHOU is expected to include continued sampling and analysis of the new and existing EPA monitoring wells in the NHOU, selected facility monitoring wells, LADWP production wells, and extraction wells in the North Hollywood area for VOCs, chromium, emerging chemicals, and parameters indicative of geochemical conditions that may affect chromium speciation and transport.

The future sampling regimen for the new and existing monitoring wells will be determined during testing. The ongoing Basin-wide sampling program includes:

- Monthly sampling at the extraction wells and quarterly or annual sampling at the selected monitoring and production wells for VOCs, hexavalent chromium, 1,4-dioxane, and 1,2,3-trichloropropane ("TCP").
- Annual sampling of the extraction wells, selected monitoring wells, and selected production wells for dissolved metals (including total chromium), n-nitrosodimethylamine ("NDMA"), perchlorate, nitrate, common anions, alkalinity, and total dissolved solids.

Depending on the analytical results for groundwater samples collected from the new monitoring wells, construction of additional monitoring wells may be required to further delineate contaminant plumes or determine the locations for continuing sources of groundwater contamination.

Wellhead 1,4-Dioxane Treatment at Extraction Well NHE-2

Wellhead treatment for 1,4-dioxane will occur at extraction well NHE-2, where concentrations ranging from 4 to 9 micrograms per liter ("µg/L") have been detected since 2006 (the CDPH notification level for 1,4-dioxane is 1 µg/L). The treatment technology selected is the ultraviolet light and hydrogen-peroxide advanced oxidation process because it provides the most flexibility for future process modifications; however, during design, another treatment option may be selected. The 30-year O&M period for treatment of VOCs at the NHOU is assumed to also apply to wellhead 1,4-dioxane treatment at extraction well NHE-2. The estimated O&M duration will be re-evaluated if 1,4-dioxane concentrations change significantly during this period.

Replace Existing Extraction Well NHE-1

To achieve the required hydraulic containment under the Amended Remedy, replacement of existing extraction well NHE-1 with a deeper well of similar construction will be necessary. The target screened interval for a replacement for extraction well NHE-1 is from 190 to 401 feet; however, the screened interval may be adjusted during the RD phase, depending on results of future groundwater level and quality monitoring.

Replace or Repair and Modify Existing Extraction Wells NHE-2, NHE-4, and NHE-5

Replacement of extraction wells NHE-2, NHE-4, and NHE-5 with deeper wells of similar construction will likely be necessary to achieve the required hydraulic containment under the Amended Remedy. Target screened intervals for these wells are as follows:

- NHE-2: 190 to 390 feet below ground surface ("bgs")
- NHE-4: 180 to 400 feet bgs
- NHE-5: 180 to 415 feet bgs

Similar to extraction well NHE-1, the screened intervals for these wells may be adjusted during the RD phase. Alternatively, the existing wells could remain active in their present configuration, and wells with deeper screened intervals could be constructed adjacent to each existing well. These paired (deeper) wells would also be connected to the NHOU treatment plant. The pumping rates at each extraction well pair could be adjusted, depending on the depth to the water table, to maximize containment of the most contaminated aquifer zone.

Rehabilitate Existing Extraction Wells NHE-3, NHE-6, NHE-7, and NHE-8

Extraction wells NHE-3, NHE-6, NHE-7, and NHE-8 are screened at appropriate depths for plume containment and have been able to pump at or near their design pumping rates for most of the operational history of the NHOU treatment system. They are not expected to require replacement or modification at present. However, routine repair or replacement of pumps and ancillary equipment will be required as part of an ongoing O&M program to maintain design pumping rates. To ensure optimal long-term performance of these wells, it is assumed they will be rehabilitated using swabbing, surging, sand bailing, and over-pumping techniques. Additional rehabilitation efforts (e.g., acid flushing or jetting) will also be considered on a case-by-case basis, depending on results of the initial rehabilitation efforts.

Construct New Extraction Wells

Preliminary computer modeling conducted during the FFS concluded that three new extraction wells are necessary to further limit contaminant migration and to improve contaminant mass removal. A new pipeline will be required to connect the new extraction wells to the NHOU treatment plant. The exact number, location, and pumping rates for these wells are estimated and will be finalized during RD. Based on the preliminary computer modeling, these new wells ("New Northwestern Wells") should be located northwest of the existing NHOU treatment system in locations (see Figure 4) selected to prevent VOC and chromium migration toward the Rinaldi-Toluca well field and the western portion of the North Hollywood well field. The modeling also suggested that each of the New Northwestern Wells should pump at a maximum rate of 420 gallons per minute ("gpm") (350 gpm long-term average) in order to achieve the containment objective. Screened intervals for these wells are expected to be approximately 220 to 420 feet bgs, but actual intervals, as well as the number and location of the New Northwest Extraction wells, may be revised during the RD phase. Pumping rates and schedules for these wells should be optimized periodically during implementation of the Amended Remedy to achieve the desired capture zones, in consideration of pumping rates and drawdown resulting from the southern production wells in the Rinaldi-Toluca well field. Pumping rates for the three New Northwestern Wells will be evaluated and modified, if necessary, to maximize effectiveness and efficiency of the Amended Remedy. Depending on groundwater conditions (e.g., hydraulic gradients) in the NHOU, which can change on a seasonal to annual basis, it may be beneficial to temporarily reduce or stop pumping from these wells periodically. A plan for optimizing pumping rates of the NHOU extraction wells will be developed as part of the RD process.

Treatment of VOCs in Extracted Groundwater

Expansion of VOC treatment capacity at the NHOU will be necessary to treat the volume of groundwater produced by the existing NHOU extraction wells and the proposed additional extraction wells. The existing NHOU treatment plant will be augmented to accommodate peak and average pumping rates of 3,600 and 3,050 gpm respectively, and for peak VOC concentrations up to 650 µg/L of TCE and 100 µg/L of PCE. The existing air stripper will be refurbished and a second air stripper, similar in capacity to the original, will be installed and operated in parallel with the existing system. The combined maximum capacity of the two parallel air strippers will be 4,800 gpm or more at the anticipated influent VOC concentrations, allowing expansion of the extraction well network or pumping rates in the future, if necessary.

With air stripping as the primary VOC treatment process, the VOC treatment train should include the following major components:

- The air stream exiting the air stripper contains TCE and PCE and must be treated using vapor-phase granular activated carbon vessels (or an alternative technology) to remove the TCE and PCE before the air is discharged to the atmosphere.
- Untreated influent, treated effluent, and air exiting the air stripper at the NHOU treatment plant must be monitored to ensure compliance with permit requirements, ARARs, and LADWP policies.
- If delivery of treated water to the LADWP is implemented as the end-use option, a secondary VOC treatment system (such as liquid phase granular activated carbon ["LPGAC"]) is required downstream from the air strippers to meet the "double barrier" VOC treatment requirement of CDPH for delivery to a drinking water supply. LPGAC would have the additional benefit of also removing VOCs that are not readily removed by the air stripping process, most notably TCP. TCP is not currently detected in the influent to the existing NHOU extraction and treatment system, but has been detected in groundwater within the NHOU at concentrations exceeding the notification level of 0.005 µg/L. **"Double-barrier" treatment would not be necessary if the re-injection end-use option is implemented.**

Wellhead Chromium Treatment at Extraction Well NHE-2

Ex situ treatment of chromium will be required at extraction well NHE-2. In the FFS, ferrous iron reduction with microfiltration was identified as the preferred technology for a wellhead treatment system (and used for the costing). Alternatively, an anion-exchange-based treatment process could be installed, if it can be demonstrated during RD that the process is effective and does not produce excessive NDMA or other problematic organic compounds.

Ferrous iron reduction decreases total chromium concentrations by chemically reducing hexavalent chromium to trivalent chromium and co-precipitating the trivalent chromium with ferric iron. The ferric iron and trivalent chromium co-precipitate is flocculated and removed using a conventional clarifier and media filter polishing or a microfilter. The key components of a ferrous iron reduction and filtration system include:

1. A series of reactors for ferrous iron reduction of hexavalent chromium to trivalent chromium.
2. A microfilter system coupled with a backwash system that removes the ferric iron and trivalent chromium precipitate (solids).
3. A batch-thickening and dewatering system that receives the resulting solids sludge.

The residual sludge is expected to be disposed of at an approved off-site facility, either a Resource Conservation and Recovery Act ("RCRA")-permitted facility or perhaps a reclamation facility.

Anion exchange decreases total chromium concentrations by exchanging hexavalent chromium oxy-anions for chloride anions using a bed of selective ion exchange resins. The ion exchange resin is regenerated off-site by a vendor service. The major components of an anion exchange system

for the NHOU plant would be three ion exchange adsorber vessels and a backwash system. The backwash system would remove broken resin beads and trace suspended solids and it recovers backwash water. Disposal of backwash solids as a wet sludge is assumed. Similar to the ferrous-iron reduction system for chromium treatment, an anion-exchange system could be scaled up or down in capacity to accommodate a changing number of extraction wells or concentrations requiring treatment.

A peak pumping rate of 300 gpm (250 gpm average long-term flow rate) was assumed in the FFS for chromium treatment at extraction well NHE-2. It is assumed the peak chromium concentration in the influent to the wellhead treatment system would be 600 µg/L (1.5 times the peak concentration detected at extraction well NHE-2) and would require treatment to 5 µg/L or less. The 30-year O&M period for treatment of VOCs at the NHOU is assumed to also apply to wellhead chromium treatment at extraction well NHE-2. The estimated O&M duration will be re-evaluated if chromium concentrations change significantly.

Honeywell is currently designing both the chromium treatment for extraction well NHE-2 that was selected in the 2009 ROD as well as an alternative treatment system for chromium at extraction well NHE-2 pursuant to an administrative order on consent with EPA (Docket No. EPA- 2012-04). If EPA approves Honeywell's alternate design for chromium treatment at well NHE-2, it will be incorporated into the Amended Remedy and it, rather than the treatment selected for well NHE-2 in the 2009 ROD, is likely to be implemented as part of the final design.

Ex Situ Chromium Treatment for Extraction Wells NHE-1, NEW-2, and NEW-3

Ex situ treatment of chromium using the ferrous iron reduction with microfiltration process described above was assumed to be implemented in the FFS for the combined flow from three extraction wells at the NHOU groundwater treatment facility (see previous section for details of this treatment method). This system would be sized to treat the combined influent from extraction well NHE-1 and new extraction wells NEW-2 and NEW-3 (a peak combined pumping rate of 1,100 gpm). Alternatively, an anion-exchange-based treatment process could be installed, similar to the option assumed for wellhead treatment at extraction well NHE-2, as described above. The 30-year O&M period for treatment of VOCs at the NHOU also applies to *ex situ* chromium treatment.

End-Use Option 1: Delivery of Treated Groundwater to LADWP

Use of the NHOU treated water in LADWP's drinking water supply requires compliance with federal and State drinking water standards, including the *Policy Guidance for Direct Domestic Use of Extremely Impaired Sources,* CDPH Policy Memorandum 97-005 ("97-005"), which establishes a specific process for the evaluation of impaired water sources before they can be approved for use as drinking water.

Off-site Requirements: All CDPH and LADWP treatment levels or standards, including those identified through the 97-005 process, that apply to COCs must be met by the Amended Remedy in order to deliver the NHOU treated water to LADWP for use in its domestic water supply. Because these treatment levels and standards are off-site drinking water requirements, they are not ARARs. However, they must be met in order to comply with this end-use option, and therefore, are incorporated into this ROD as enforceable standards. Because they are not ARARs,

off-site requirements that change over time must be met in order to comply with the LADWP-delivery end–use option. Currently, the concentrations of NDMA, TCP, perchlorate, and 1,4-dioxane in NHOU groundwater are sufficiently low that treatment is only needed for 1,4-dioxane at extraction well NHE-2. If, during RD, concentrations are found to be increasing at any of the extraction wells, such that the performance standard is exceeded at the compliance point, additional well-head treatment may be necessary.

End-Use Option 2: Re-injection of Treated Groundwater

Re-injection of treated groundwater from the existing and planned new NHOU extraction wells would require an estimated six injection wells and associated pipelines, in addition to the nine additional new monitoring wells discussed above. The potential configuration of the injection wells, treatment system components, and ancillary equipment are discussed in the FFS, and are shown schematically on Figure 3. The injection wells would most likely be located north (upgradient) of the NHOU extraction wells, as shown on Figure 4. In this configuration, the treated groundwater would be re-injected into the aquifer at the northern boundary of the VOC and chromium plumes, which would supplement the hydraulic gradient driving contaminated groundwater toward the extraction wells. Because extracted groundwater would still be treated to remove contaminants (VOCs, chromium, and 1,4-dioxane) under this alternate end use scenario, both wellhead treatment and a central VOC treatment system will still be necessary, although redundant VOC treatment would no longer be required.

Performance standards for the re-injection end-use option would be established during RD, based on the injection locations and discussions with the RWQCB, which regulates groundwater injection. Treatment would need to comply with the California Antidegradation Policy. The treatment levels would be dependent on the location(s) ultimately selected for re-injection, and would be selected such that re-injection would not degrade groundwater quality at the injection location(s).

Because the extracted and treated groundwater would no longer be delivered to LADWP for blending and municipal use under the re-injection option, existing remedy components constructed on LADWP property may need to be replaced with new components constructed elsewhere by the PRPs. Alternatively, the land containing the existing components could potentially be purchased or leased from LADWP. For the purpose of estimating costs in the FFS, EPA assumed that the following existing remedy components would be replaced with new, equivalent components:

- **The eight existing NHOU extraction wells (NHE-1 through NHE-8)**
- **The pipeline that conveys groundwater extracted by the eight existing NHOU extraction wells to the existing NHOU treatment system**
- **The existing NHOU treatment system**

2.5.6 Summary of the Estimated Remedy Costs

Table 1 summarizes the estimated capital, O&M, and present worth costs of the major components of the Amended Remedy, including costs for the two distinct end-use options. These cost estimates were developed for the FFS. A detailed breakdown of these costs is provided in Appendix D of the FFS. The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during RD of the Amended Remedy. Major changes, if they were to occur, would be adopted and documented as appropriate. As is the practice at Superfund sites, these cost estimates are based on an expected accuracy range of -30 to +50 percent of actual costs.

2.5.7 Expected Outcomes of the Amended Remedy

The expected outcomes of the Amended Remedy would be identical under either end-use option and have not changed from the expected outcomes listed in the 2009 ROD. Improvements to the existing NHOU extraction wells and construction of new extraction wells will result in improved hydraulic containment under the expected future pumping scenarios for water supply in the eastern SFV. The goal of the remedy is to improve hydraulic containment and to control migration of the contaminated plume in excess of MCLs. The Amended Remedy will prevent groundwater with the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells and areas of the aquifer with significantly lower contaminant concentrations. As a result, water-supply wells screened in areas or depth intervals of the aquifer that contain small or no detectable concentrations of the COCs are expected to continue operating without further restrictions caused by increasing contaminant levels.

Because the Amended Remedy is for containment and not restoration, no final cleanup standards have been established for restoration of groundwater. This means that at least a portion of the shallow and deep zones upgradient of the compliance wells and any associated extraction systems will likely remain contaminated and unusable for a considerable length of time.

Table 1. Cost Estimate Summary for the Amended Remedy

	Component	Notes and Assumptions	LADWP-Delivery End-Use Option (Alt. 4a)			Re-injection End-Use Option (Alt. 4b)		
			Capital Cost[a]	Annual O&M Cost[b]	NPV[c]	Capital Cost[a]	Annual O&M Cost[b]	NPV[c]
1a	Groundwater monitoring—hydraulic containment (both end-use options)	Install 37 new monitoring wells and periodically sample existing and planned monitoring wells, production wells, and extraction wells (includes quality assurance/quality control samples)	$6,980,000	$758,000	$16,379,200	$6,980,000	$758,000	$16,379,200
1b	Groundwater monitoring—re-injection impacts (re-injection option)	Install and periodically sample nine additional new monitoring wells specifically for effects of re-injection	N/A	N/A	N/A	$1,740,000	$86,000	$2,806,400
2a	Groundwater extraction from eight existing NHOU extraction wells (LADWP-delivery option)	Deepen four existing extraction wells, rehabilitate four existing extraction wells, and operate all eight extraction wells at design pumping rates (2,000 gpm combined average flow, 2,400 gpm peak)	$2,740,000	$527,000	$9,274,800	N/A	N/A	N/A
2b	Groundwater extraction from eight replacement NHOU extraction wells (re-injection option)	Purchase or replace eight existing extraction wells and operate at design pumping rates	N/A	N/A	N/A	$13,470,000	$527,000	$20,004,800
3	Groundwater extraction from three new extraction wells (both end-use options)	Install three new extraction wells and new pipeline to NHOU treatment plant, operate new extraction wells (1,050 gpm combined average flow, 1,200 gpm peak)	$3,770,000	$213,000	$6,411,200	$3,770,000	$213,000	$6,411,200
4a	Primary VOC treatment—air-stripping (LADWP-delivery option)	Construct and operate second air stripper, and use existing air stripper at design rate (includes refurbishment at year 15)	$1,908,140	$599,000	$9,335,740	N/A	N/A	N/A

Table 1. Cost Estimate Summary for the Amended Remedy

	Component	Notes and Assumptions	LADWP-Delivery End-Use Option (Alt. 4a)			Re-injection End-Use Option (Alt. 4b)		
			Capital Cost[a]	Annual O&M Cost[b]	NPV[c]	Capital Cost[a]	Annual O&M Cost[b]	NPV[c]
4b	Primary VOC treatment—air stripping (re-injection option)	Construct and operate two new air strippers (assume existing air-stripper on LADWP property must be replaced, and new air strippers constructed on purchased property)	N/A	N/A	N/A	$7,598,140	$599,000	$15,025,740
5	Secondary VOC treatment—LPGAC (LADWP-delivery option)	Construct and operate two new LPGAC treatment units in parallel downstream from air strippers (redundant VOC treatment)	$2,870,000	$576,000	$10,012,400	N/A	N/A	N/A
6	Interim wellhead treatment for 1,4-dioxane and chromium at extraction well NHE-2 (both end-use options)	Performed prior to completion of Amended Remedy; operate at 190 gpm for 3 years	$4,130,000	$790,000	$6,199,800	$4,130,000	$790,000	$6,199,800
7	Expand wellhead treatment for chromium at extraction well NHE-2 (both end-use options)	Expand interim wellhead treatment system for chromium at extraction well NHE-2 (to 250 gpm average flow, 300 gpm peak) following construction of Amended Remedy; operate for 30 years	$3,650,000	$861,000	$14,326,400	$3,650,000	$861,000	$14,326,400
8	Chromium treatment for combined flow from NHE-1 and two new extraction wells (both end-use options)	Single treatment unit designed for 950 gpm average flow, 1,100 gpm peak	$9,410,000	$1,691,000	$30,378,400	$9,410,000	$1,691,000	$30,378,400
9	Expand wellhead treatment for 1,4-dioxane at extraction well NHE-2 (both end-use	Expand interim wellhead treatment system for 1,4-dioxane at NHE-2 (to 250 gpm average flow, 300 gpm peak) following completion of Amended	$640,000	$428,000	$4,708,080	$640,000	$428,000	$4,708,080

Table 1. Cost Estimate Summary for the Amended Remedy

	Component	Notes and Assumptions	LADWP-Delivery End-Use Option (Alt. 4a)			Re-injection End-Use Option (Alt. 4b)		
			Capital Cost[a]	Annual O&M Cost[b]	NPV[c]	Capital Cost[a]	Annual O&M Cost[b]	NPV[c]
	options)	Remedy; operate for 30 years						
10	CDPH 97-005 process (LADWP-delivery option)	Required to use treated water from NHOU as part of LADWP's water supply	$750,000	$0	$750,000	N/A	N/A	N/A
11	Groundwater injection (re-injection option)	Install and operate six new injection wells, construct and maintain 9,000-foot-long pipeline from NHOU treatment plant to new injection wells	N/A	N/A	N/A	$14,680,000	$263,000	$17,941,200
		TOTALS:	**$36,848,140**	**$6,443,000**	**$107,776,020**	**$66,068,140**	**$6,216,000**	**$134,181,220**

[a] Capital cost estimates are not discounted because the construction work will be performed in the first year.
[b] O&M costs include labor and expenses for repairs, energy for operation, and other costs that accrue on a continuous or periodic basis during an average year of system operation.
[c] Net present value estimates assume a 7% discount rate on annual O&M costs for a 30-year period for all remedial components.
Notes:
Alt. = Alternative
N/A = Not applicable
Costs for monitoring the treatment system performance are included in each alternative above.

2.5.8 Applicable or Relevant and Appropriate Requirements

The Amended Remedy is expected to comply with all federal and State Applicable or Relevant and Appropriate Requirements ("ARARs") except for 40 CFR §300.430(e)(2)(i)(A), which requires that the contaminant levels of the groundwater that remains in the aquifer be reduced below the selected applicable or relevant and appropriate cleanup standard, which generally is the MCL for drinking water. Because this is an interim action for containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater remaining on-site. EPA is waiving this ARAR pursuant to CERCLA §121(d)(4)(A), 42 U.S.C. §9621(d)(4)(A), and 40 CFR §300.430(f)(1)(ii)(C), which allows EPA to select a remedy that does not achieve an ARAR when the remedial alternative selected is an interim measure that will become part of a total remedial action that will attain ARARs. EPA's waiver of the aquifer cleanup standard does not apply to water extracted from the aquifer and either delivered to LADWP for use as drinking water or re-injected back into the aquifer; all extracted and treated water is expected to comply with ARARs, including the MCLs for drinking water.

2.5.9 Amended Remedy Performance Standards

Performance standards for treated groundwater under both end-use options are summarized in Table 2.

For the LADWP-delivery end-use option, the current regulatory standards for TCE, PCE, and the other VOC COCs are the State and federal MCLs. Similarly, the current regulatory standard for total chromium is the State MCL of 50 µg/L. Although there is currently no promulgated State or federal MCL for hexavalent chromium, in August 2013, CDPH proposed a draft MCL for hexavalent chromium of 10 µg/L. LADWP has indicated that it will not accept water with hexavalent chromium levels exceeding 5 µg/L for use in its drinking water supply system. Until the MCL is final and/or until LADWP agrees to accept water with hexavalent chromium concentrations up to 10 µg/L, EPA will use LADWP's 5 µg/L voluntary limit as a performance standard for the drinking water end-use option. If delivery of the treated water to LADWP is implemented as the end-use option, when California finalizes its MCL for hexavalent chromium, a different level of chromium treatment may be required in order to ensure that the treated water continues to meet requirements for drinking water. No State or federal MCLs have been promulgated for TCP, 1,4-dioxane, or NDMA. For these emerging chemicals, which lack MCLs, EPA is treating the CDPH notification levels, which are health-based advisory levels for drinking water use, as criteria to be considered in setting alternative performance standards for extracted groundwater in the NHOU for the drinking water end-use option. Notification levels are established as precautionary measures for contaminants that may be considered candidates for establishment of MCLs.

Under the re-injection end-use option for treated water, the performance standard for COCs will be the lower of the MCL or a level that will comply with the California Anitdegradation Policy for groundwater. The performance standard for non-COCs and for contaminants that do not have MCLs is the level that will comply with the California Anitdegradation Policy for groundwater. The levels will be determined through discussion with the RWQCB during RD, if the re-injection end-use option is implemented. The treatment levels will be dependent on the location(s) ultimately selected for re-injection, and will be selected such that re-injection would

not degrade groundwater quality at the injection location(s). Compliance with the California Antidegradation Policy is assumed to be achieved by meeting the substantive requirements of the RWQCB's *"Order No. R4-2007-0019, Revised General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites"* (Order No. R4-2007-0019), which applies to re-injection of groundwater extracted and treated by the Amended Remedy.

Table 2. Performance Standards for COCs in Extracted and Treated Groundwater

COC	Federal MCL (µg/L)	State MCL (µg/L)	CDPH NL (µg/L)	LADWP-Delivery End-Use Option		Re-injection End-Use Option	
				Basis for Performance Standard	Performance Standard[a] (µg/L)	Basis for Performance Standard	Performance Standard[b] (µg/L)
TCE	5	5	None	Federal MCL	5	Federal MCL and California Anti-Degradation Policy	TBD (5 or less)
PCE	5	5	None	Federal MCL	5	Federal MCL and California Anti-Degradation Policy	TBD (5 or less)
1,1-Dichloroethane	5	5	None	Federal MCL	5	Federal MCL and California Anti-Degradation Policy	TBD (5 or less)
1,2-Dichloroethane	0.5	0.5	None	Federal MCL	0.5	Federal MCL and California Anti-Degradation Policy	TBD (0.5 or less)
1,1-Dichloroethene	6	6	None	Federal MCL	6	Federal MCL and California Anti-Degradation Policy	TBD (6 or less)
cis-1,2-Dichloroethene	6	6	None	Federal MCL	6	Federal MCL and California Anti-Degradation Policy	TBD (6 or less)
1,1,2-Trichloroethane	5	5	None	Federal MCL	5	Federal MCL and California Anti-Degradation Policy	TBD (5 or less)
Carbon Tetrachloride	0.5	0.5	None	Federal MCL	0.5	Federal MCL and California Anti-Degradation Policy	TBD (0.5 or less)
Methylene Chloride	5	5	None	Federal MCL	5	Federal MCL and California Anti-Degradation Policy	TBD (5 or less)
Total Chromium	100	50	None	State MCL	50	California MCL and California Anti-Degradation Policy	TBD (50 or less)
Hexavalent Chromium	None	None[c]	None	See footnote "d"	5[d]	California Anti-Degradation Policy	TBD
Perchlorate	None	6	None	State MCL	6	State MCL and California Anti-Degradation Policy	TBD (6 or less)
TCP	None	None	0.005	CDPH NL	0.005	California Anti-Degradation Policy	TBD

Table 2. Performance Standards for COCs in Extracted and Treated Groundwater

COC	Federal MCL (µg/L)	State MCL (µg/L)	CDPH NL (µg/L)	LADWP-Delivery End-Use Option		Re-injection End-Use Option	
				Basis for Performance Standard	Performance Standard[a] (µg/L)	Basis for Performance Standard	Performance Standard[b] (µg/L)
1,4-Dioxane	None	None	1	CDPH NL	1	California Anti-Degradation Policy	TBD
NDMA	None	None	0.01	CDPH NL	0.01	California Anti-Degradation Policy	TBD

[a]Under the LADWP-delivery end-use option for treated water, the CDPH permitting process may require lower concentrations in the treated effluent.

[b] Under the re-injection end-use option for treated water, the performance standard for COCs will be the lower of the MCL or a level that will comply with the California Anitdegradation Policy for groundwater. The performance standard for non-COCs and for contaminants that do not have MCLs is the level that will comply with the California Anitdegradation Policy for groundwater. The levels will be determined through discussion with the RWQCB during RD, if the re-injection end-use option is implemented. "TBD" in this column indicates that the performance standard has yet to be determined.

[c]In August 2013, CDPH announced the availability of the proposed 0.010-milligram per liter (10 µg/L) draft MCL for hexavalent chromium for public comment. The final MCL will be adopted after the public review and comment process.

[d]Based on discussions with LADWP, it is EPA's understanding that in the absence of a final federal or State MCL for hexavalent chromium, LADWP will continue to use a voluntary cleanup level of 5 µg/L for hexavalent chromium for water it will accept for use in its water supply system. Consequently, under the drinking water end-use option, chromium treatment at the NHOU will be needed so that LADWP's voluntary cleanup level of 5 µg/L can be met.

Note:

TBD = To be determined

For the purposes of determining compliance with the performance standards presented in Table 2, the point of compliance shall be the combined effluent from the NHOU treatment facility, immediately prior to its delivery to the selected end use—the LADWP drinking water system or re-injection system.

2.6 Evaluation of the Nine Criteria/Comparative Analysis of End Uses

The NCP (40 CFR §300.430(e)(9)(iii)) describes the nine CERCLA criteria used to evaluate the alternatives under consideration. The NCP categorizes the nine CERCLA evaluation criteria into three groups: (1) threshold criteria; (2) primary balancing criteria; and (3) modifying criteria. Each category has its own weight when applied to the evaluation of alternatives:

1. Threshold criteria are requirements that each alternative must meet to be eligible for selection as the preferred alternative. Threshold criteria include the overall protection of human health and the environment and compliance with ARARs (unless a waiver is obtained).

2. Primary balancing criteria weigh the effectiveness and cost trade-offs among alternatives. Primary balancing criteria include long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; and cost. The primary balancing criteria are the main technical criteria upon which the evaluation of alternatives is based.

3. Modifying criteria include State and community acceptance, which may be used to modify aspects of the selected alternative presented in the ROD or RODA.

This section provides a comparative analysis of the two end-use options for treated water currently under consideration—delivery to LADWP (the selected end-use option in the 2009 ROD), versus re-injection (the alternative end-use option added to the 2009 Remedy by this RODA)—to evaluate the extent to which each is responsive to the nine CERCLA criteria. A comparative analysis of all the remedial alternatives considered in the FFS can be found in the 2009 ROD.

2.6.1 Overall Protection of Human Health and the Environment

Exposure to contaminated groundwater through the potable water supply is the area of potential human health risk in the NHOU. There are no potentially complete exposure pathways for contaminated groundwater to reach ecological receptors. The Amended Remedy will protect human health and the environment by achieving hydraulic containment, to the extent practicable, of groundwater exceeding the MCLs, including the most significant areas of groundwater contamination in the NHOU, and thereby preventing the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells. Water supply wells, NHOU extraction wells, EPA (remedial investigation) monitoring wells, and facility monitoring wells will be monitored and access to contaminated groundwater will be restricted through ICs. Performance standards for treated groundwater are summarized in Table 2. As set forth in the FFS and 2009 ROD, the Amended Remedy provides the same level of protection to human health and the environment whether the end use for extracted water is

delivery to LADWP for drinking water supply purposes or re-injection of all extracted water into the aquifer.

2.6.2 Compliance with ARARs

As set forth in the FFS and 2009 ROD, both the drinking water delivery end use selected in the 2009 ROD and the alternate re-injection end–use option comply with ARARs. A complete list of all ARARs for the Amended Remedy is provided in Tables 3 and 4. Table 5 summarizes To-Be-Considered ("TBC") criteria. The primary ARARs identified include the Safe Drinking Water Act (underground injection and MCLs), the RCRA (disposal of spent treatment residuals), California Domestic Water Quality and Monitoring Regulations (State MCLs and monitoring requirements), and the RWQCB Water Quality Control Plan (California Antidegradation Policy).

Because this is an interim action for the containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater. 40 CFR §300.430(e)(2)(i)(A) requires that the contaminant levels in the groundwater that remains in the aquifer be reduced below MCLs. EPA is waiving this ARAR pursuant to CERCLA §121(d)(4)(A), 42 U.S.C. §9621(d)(4)(A), and 40 CFR §300.430(f)(1)(ii)(C), which allow EPA to select a remedy that does not achieve an ARAR when the remedial alternative selected is an interim measure that will become part of a total remedial action that will attain ARARs. EPA's waiver of the aquifer cleanup standard does not apply to water extracted from the aquifer and delivered to LADWP for use as drinking water or re-injected; all extracted and treated water is expected to comply with MCL ARARs.

2.6.3 Long-term Effectiveness and Permanence

By controlling (to the extent practicable) migration of the groundwater exceeding MCLs, including the most highly contaminated groundwater in the NHOU, the improvements to the extraction and treatment system will prevent the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells. In addition, the treatment system will be effective in removing contaminants from the extracted water. Differences in hydraulic containment and treatment levels under the two end-use options allowed by the Amended Remedy are expected to be small and have an insignificant impact on the long-term effectiveness and permanence of the Amended Remedy. EPA considers both the drinking water delivery end use selected in the 2009 ROD and the alternate end use whereby all extracted water is re-injected to be protective over the long term.

2.6.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Expanded groundwater treatment will reduce the mobility and volume of dissolved-phase VOCs and emerging contaminant concentrations in groundwater, result in the permanent destruction of VOCs and 1,4-dioxane, and reduce the toxicity of chromium by converting it from the hexavalent to the trivalent form. Differences in the treatment levels under the two end-use options allowed by the Amended Remedy are expected to be small and have an insignificant impact on the overall reduction in toxicity, mobility, or volume of contaminants. EPA considers both the drinking water delivery end use selected in the 2009 ROD and the alternate re-injection end-use option to be consistent with EPA's mandate to reduce toxicity, mobility, or volume through treatment.

Table 3. Chemical-specific Applicable or Relevant and Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
SDWA (2 U.S.C. 300 et seq.)	National Primary Drinking Water Standards, including 40 CFR 141.61 and 40 CFR 141.62	Relevant and appropriate	Chemical-specific drinking water standards and MCLs have been promulgated under the SDWA; MCLGs above zero are considered chemical-specific ARARs under the NCP (40 CFR 300.430(e)(2)(i)(B)). When the MCLGs are equal to zero, which is generally the case for a chemical considered to be a carcinogen, the MCL is considered the chemical-specific ARAR instead of the MCLG (40 CFR 300.430(e)(2)(i)(C)). Established MCLs for COCs are listed in Table 3-4 of the FFS. Performance standards for the SFV treated effluent were established in the 1987 ROD at 5 µg/L for TCE and 4 µg/L for PCE. However, the MCL and performance standard for PCE has since been changed to 5 µg/L. The MCL of 5 µg/L for TCE and PCE will apply to the effluent from the treatment plant. Performance standards for groundwater in the aquifer are not established at this time in any of the alternatives.	Applies to both end uses of treated water—delivery to LADWP and re-injection. The MCLs are ARARs for the purpose of establishing performance standards for the treated water from the NHOU treatment plant, whether it is delivered to LADWP for municipal use or re-injected to the aquifer underlying the SFV. 40 CFR 300.430(e)(2)(i)(B) and 40 CFR 300.430(e)(2)(i)(C) require that the remedy selected attain non-zero MCLGs or MCLs for each contaminant if the groundwater is a current or potential drinking water source.
SDWA (42 USC 300 et seq.)	National Primary Drinking Water Standards, 40 CFR 141, including 40 CFR 141.23 and 40 CFR 141.24	Relevant and appropriate	Requires monitoring to determine compliance with MCLs.	Applies to both end uses of treated water—delivery to LADWP and re-injection. Substantive monitoring requirements in 40 CFR 141.23 and 40 CFR 141.24 are relevant and appropriate, to ensure that treated effluent meets performance standards.
State of California Domestic Water Quality and Monitoring Regulations	California Safe Drinking Water Regulations, including 22 CCR 64431 and 22 CCR 64444	Relevant and appropriate	Contains provision for California domestic water quality; establishes MCLs for primary drinking water chemicals.	Applies to both end uses of treated water—delivery to LADWP and re-injection. The MCLs are ARARs for the purpose of establishing performance standards for COCs in the water extracted from the Basin and treated at the treatment plant.

Table 3. Chemical-specific Applicable or Relevant and Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments

Notes:
CCR = California Code of Regulations
MCLG = maximum contaminant level goal
SDWA = Safe Drinking Water Act

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
Clean Air Act SCAQMD	Air Pollution Control Equipment Permit 144890 (granted August 29, 1986)	Substantive requirements of the permit are applicable	In California, the authority for enforcing the standards established under the Clean Air Act has been delegated to the State. The program is administered by the SCAQMD in Los Angeles. Permit 144890 (held by LADWP) requires 90 percent removal efficiency for TCE and PCE air emissions and a not-to-exceed level of 2 pounds per day of total VOCs.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** The existing system includes use of air stripping technology to remove VOCs from the groundwater. Emissions from the air stripper must meet SCAQMD limits and the other substantive provisions established in the permit. Although a permit is not required for the air stripper pursuant to CERCLA §121(d), LADWP obtained a permit in advance of construction in 1986. According to SCAQMD, the permit from the SCAQMD remains valid, and the emission limits and other substantive requirements in it are applicable. If the air stripping treatment system is modified significantly as part of the selected remedy, the substantive provisions of SCAQMD Rule 1401 (which limits air emissions of identified toxics from new or modified sources) may apply.

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
California Water Code and State Water Resources Control Board Model Well Standards Ordinance (1989)	Division 7, Chapter 10, Section 13700 et seq.	Applicable	The California Water Code requires the State Water Resources Control Board to adopt a model well ordinance implementing the standards for well construction, maintenance, and abandonment contained in the construction requirements for wells, in conformance with DWR Bulletin 74-81. DWR Bulletin 74-90 updates DWR Bulletin 74-81.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** If the selected alternative involves well construction or maintenance, substantive provisions of this code will be applicable.
SDWA (42 USC 300 et seq.)	Federal Underground Injection Control Plan, 40 CFR 144, including 40 CFR 144.12, 40 CFR 144.13, and 40 CFR 146.10	Applicable	Prohibits injection wells from (1) causing a violation of primary MCLs in the receiving waters and (2) adversely affecting the health of persons. Provides that contaminated groundwater that has been treated may be re-injected into the formation that it was withdrawn from if such injection is conducted pursuant to a CERCLA cleanup and is approved by EPA.	***Applies to re-injection end-use option only.***
RCRA	RCRA Sections 3020 (a) and (b)	Applicable	RCRA §3020(a) bans hazardous waste disposal by underground injection into a drinking water aquifer (within 0.25 mile of a well) or above such a formation. However, §3020(b) exempts from this ban on re-injection of treated contaminated groundwater if the following criteria are met: (1) the re-injection is part of a response action under CERCLA; (2) the water is treated to substantially reduce	***Applies to re-injection end-use option only.*** The substantive requirements will apply if the extracted groundwater meets the definition of hazardous waste and is re-injected into the aquifer.

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
			hazardous constituents prior to re-injection, and (3) the response action is sufficient to protect human health and the environment upon completion.	
RWQCB Basin Plan	Basin Plan, Chapters 2 and 3	Relevant and Appropriate	The Basin Plan incorporates State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California." Resolution No. 68-16 requires maintenance of existing State water quality unless it is demonstrated that a change will benefit the people of California, will not unreasonably affect present or potential uses, and will not result in water quality less than that prescribed by other State policies.	***Applies to re-injection end-use option only.***

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
RWQCB	Order No. R4-2007-0019	Relevant and Appropriate	Describes the circumstances and waste discharge requirements under which groundwater extracted and remediated at petroleum hydrocarbon fuel, VOC, or hexavalent chromium sites in the Los Angeles region can be reinjected into the aquifer, to comply with the California Antidegradation Policy.	***Applies to reinjection end-use option only.*** The selected remedy need only comply with the substantive provisions of the regulations listed in Order No. R4-2007-0019.
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.10	Applicable	Lists the sections of California law with which a generator of hazardous waste must comply.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** The selected remedy need only comply with the substantive provisions of the regulations listed in 22 CCR 66262.10. Each alternative considered in the FFS has the potential to generate hazardous waste. Examples of hazardous wastes generated on-site include: (1) spent granular activated carbon filters from the air stripper, (2) purged water from new or modified wells that meets characteristic waste levels, and (3) well casing soils from new or modified wells that meet characteristic waste levels.
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.11	Applicable	Requires waste generators to determine if wastes are hazardous and establishes procedures for such determinations.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** The substantive requirements will be applicable to management of waste materials generated by a groundwater treatment plant and to any waste

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
				generated while installing new wells.
California Hazardous Waste Regulations, Generator Requirements	22 CCR 66262.34(a)(1)(A)	Relevant and appropriate	Waste stored on-site should be placed in containers or tanks that are in compliance with California Hazardous Waste Regulations.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** Storage of hazardous waste accumulated on-site must be in compliance with substantive requirements for interim status facilities.
California Hazardous Waste Regulations, Storage of Hazardous Waste	22 CCR 66265.170 et seq. (Article 9) 22 CCR 66265.190 et seq. (Article 10)	Applicable	Regulates use and management of containers, compatibility of wastes with containers, and special requirements for certain wastes.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** Substantive provisions of Articles 9 and 10 will be applicable if hazardous waste is generated and accumulated on-site.
California Land Disposal Restrictions, Requirements for Generators	22 CCR 66268.3, 22 CCR 66268.7, 22 CCR 66268.9, and 22 CCR 66268.50	Applicable	Compliance with land disposal regulation treatment standards is required if hazardous waste (e.g., contaminated soil) is placed on land. Soil treatability variance may be invoked, in accordance with 40 CFR 268.44 (h)(3) and (4).	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** Hazardous waste hauled off-site must meet "land-ban" requirements.
California Land Disposal Restrictions, Requirements for Generators	22 CCR 66268.1 et seq. (Article 1)	Applicable	Prior to transporting for off-site disposal, hazardous waste must be characterized to determine whether land disposal restriction treatment standards apply and whether the waste meets the treatment standards. This information must be provided to the off-site facility with the first waste shipment.	***Applies to both end uses of treated water—delivery to LADWP and re-injection.*** The substantive requirements will be applicable to management of waste materials generated by a groundwater treatment plant and to any waste generated while installing new wells.
Spent Carbon	40 CFR 268.40	Applicable	Attain land disposal treatment	***Applies to both end uses of treated***

Table 4. Action-Specific Applicable or Relevant And Appropriate Requirements

Source	Citation	Applicable or Relevant and Appropriate	Description	Findings and Comments
Disposal			standards before putting waste into landfill to comply with land disposal restriction.	***water—delivery to LADWP and re-injection.*** Substantive requirements apply.

Notes:
Basin Plan = Water Quality Control Plan, Los Angeles Region
DWR = Department of Water Resources
NPDES = National Pollutant Discharge Elimination System
SCAQMD = South Coast Air Quality Management District

Table 5. TBC Criteria

Source	Citation	Description	Findings and Comments
California PHGs, California Environmental Protection Agency, and OEHHA	California Calderon-Sher SDWA of 1996, California Health and Safety Code §116365	OEHHA has adopted PHGs for chemicals in drinking water. PHGs are levels of drinking water contaminants at or below which adverse health effects are not expected to occur from a lifetime of exposure.	***Applies to LADWP-delivery end-use option only.*** In the absence of MCLs, the State PHGs adopted by OEHHA have been considered during selection of performance standards for extracted groundwater delivered to LADWP following treatment.
CDPH Drinking Water Notification Levels	California Health and Safety Code §116455	CDPH has established drinking water notification levels (formerly known as action levels) based on health effects, but in some cases they are based on organoleptic (taste and odor) values for chemicals without MCLs.	***Applies to LADWP-delivery end-use option only.*** In the absence of MCLs, the drinking water notification levels established by CDPH have been considered during selection of performance standards for extracted groundwater delivered to LADWP following treatment.

Notes:
PHG = California Public Health Goal
OEHHA = Office of Environmental Health Hazard Assessment

2.6.5 Short-term Effectiveness

The Amended Remedy requires construction of pipelines from the new extraction wells to the NHOU treatment plant and if the re-injection end-use option is implemented, construction of the injection wells and additional pipelines to those wells. No special worker-protection issues or environmental impacts are anticipated as a result of pipeline construction activities nor are any additional risks to the community or construction workers. Construction of the injection wells and additional pipelines for the re-injection end use may require an additional 12 months compared to the LADWP-delivery option. Regardless of which end-use option is implemented, the existing NHOU treatment system will have to be shut down at some point during construction of the Amended Remedy. Following shut down, there is not expected to be any extraction or treatment of groundwater by remedy wells until the Amended Remedy is implemented. Until the existing NHOU extraction and treatment system is shut down, it is expected that the contaminant concentrations in the treatment plant effluent will remain below the MCLs and notification levels. As a result, EPA considers both the end-use options in the Amended Remedy to be equally protective of human health in the short term.

2.6.6 Implementability

Permitting, construction, and operation of the injection wells and new pipelines required if re-injection is selected as the end-use option may add to the complexity of implementing the Amended Remedy compared to implementation of the LADWP-delivery end-use option. However, if delivery of the water to LADWP for use as drinking water is not possible, the alternate end use will be essential to successful remedy implementation. If the re-injection end-use option is implemented, analysis of the administrative details will be conducted during RD. However, significant administrative constraints that would impact implementability are not expected. EPA considers both end-use options to be implementable. However, if LADWP and the PRPs are not able to reach an acceptable agreement in a timely manner, then re-injection may be the only implementable option.

2.6.7 Cost

A summary of the capital, annual O&M, and net present value ("NPV") costs for each alternative is presented in Table 1. These cost estimates are based on a 7% discount rate and 30 year O&M period. Details of the cost estimates for each alternative are provided in Appendix D of the FFS. Although the costs are higher for re-injection, if the option of providing the extracted and treated water to LADWP proves to be infeasible, then the remedy cannot be implemented without another end-use option, and the additional costs will be justified in order to be able to implement a remedy.

2.6.8 State Acceptance

The State has expressed its support for EPA's Preferred Alternative in a concurrence letter dated October 25, 2013.

2.6.9 Community Acceptance

EPA received comments on the Proposed Plan for the RODA from five parties; three of the parties were local community members, one was the LADWP, and one was the engineering firm

conducting the RD on behalf of Honeywell and Lockheed-Martin Corporation. Issues raised by the community members during the public comment period included a question about performance standards for the re-injection end-use option, a concern that air-stripping treatment might discharge chromium into the atmosphere, a preference that groundwater contamination be cleaned quickly, and a preference for implementing the re-injection option to store groundwater for future use.

EPA has addressed all of the significant comments received in Section 3 – Responsiveness Summary. EPA does not believe that any of the issues raised in the comments would result in rejection of the re-injection end-use option for treated water from the Amended Remedy.

2.7 Statutory Determinations

Under CERCLA §121, EPA must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), consider the reasonableness of cost for the selected remedy, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ, as a principal element, treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes and a bias against off-site disposal of untreated wastes. The following sections discuss how the Amended Remedy meets these statutory requirements.

2.7.1 Protection of Human Health and the Environment

Exposure to contaminated groundwater through the potable water supply is the area of potential human-health risk in the NHOU. There are no potentially complete exposure pathways for contaminated groundwater to reach ecological receptors. The Amended Remedy is protective of human health and the environment, whether the end use for extracted and treated water is delivery to LADWP for drinking water supply purposes or re-injection of all extracted and treated water into the Basin.

2.7.2 Compliance with Applicable or Relevant and Appropriate Requirements

Both the drinking water delivery end use selected in the 2009 ROD and the re-injection end use added by this RODA comply with ARARs. A complete list of all ARARs for the Amended Remedy is provided in Tables 3 and 4. Table 5 summarizes TBC criteria. Because this is an interim action for the containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater.

The ARARs are "frozen" at the time the RODA is signed, but off-site requirements, including requirements applicable to treated water delivered to the drinking water supply, may have to be met in order to deliver the treated water to LADWP (if implemented as the end-use option), regardless of whether those requirements change over time. As a result, if an off-site drinking water requirement changes, the treatment system must meet whichever standard is lower (the performance standard selected in the ROD or the off-site requirement).

No location-specific ARARs were identified for the Site for the 1987 ROD, and none have been identified for the 2009 Remedy or the Amended Remedy.

2.7.3 Cost Effectiveness

In EPA's judgment, the Amended Remedy (under either end-use option) is cost effective and represents a reasonable value for the money to be spent. Section 300.430(f)(ii)(D) of the NCP requires EPA to evaluate the cost of an alternative relative to its overall effectiveness. This was accomplished by evaluating the "overall effectiveness" of the Amended Remedy using either end-use option. Overall effectiveness was evaluated by assessing four of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; short-term effectiveness; and implementability). Overall effectiveness was then compared to costs to determine cost-effectiveness. The relationship of the overall effectiveness of the Amended Remedy was determined to be proportional to its costs; hence, this alternative represents a reasonable value for the money spent.

The estimated NPV of the Amended Remedy with delivery of treated water to LADWP as the end-use option is $108 million. The estimated NPV of the Amended Remedy with re-injection of treated water as the end-use option is $134 million. Although the costs are higher for re-injection, if the option of providing the extracted and treated water to LADWP is infeasible, the remedy cannot be implemented without another end-use option. Therefore, the additional costs will be justified in order to be able to implement a remedy.

2.7.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined that the Amended Remedy, including either of the end-use options described in this RODA, represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the NHOU, until EPA obtains sufficient data to select a final remedy. EPA has also determined that, compared to the other alternatives considered in the FFS or 2009 ROD, implementation of either end-use option under the Amended Remedy will provide the best balance of tradeoffs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and bias against off-site treatment and disposal, as outlined below:

- Long-Term Effectiveness and Permanence: By controlling (to the extent practicable) migration of the groundwater exceeding MCLs, including the most highly contaminated groundwater in the NHOU, the area for potential future residual contamination in groundwater and the vadose zone is limited.
- Reduction of Toxicity, Mobility, or Volume through Treatment: Expanded groundwater treatment will reduce the mobility and volume of dissolved-phase VOCs and emerging contaminant concentrations in groundwater, result in the permanent destruction of VOCs and 1,4-dioxane, and reduce the toxicity of chromium by converting it from the hexavalent to the trivalent form.
- Short-term Effectiveness: Construction of the injection wells and additional pipelines for the re-injection end use may require an additional 12 months compared to the LADWP-delivery option. Regardless of which end-use option is implemented, the existing NHOU treatment system will have to be shut down at some point during construction of the Amended

Remedy. Until the existing NHOU extraction and treatment system is shut down, it is expected that the contaminant concentrations in the treatment plant effluent will remain below the MCLs and notification levels. As a result, EPA considers both the end-use options in the Amended Remedy to be equally protective of human health in the short term.

- Implementability: Implementation of the re-injection end-use option under the Amended Remedy would be somewhat more complex than delivery of the treated water to LADWP. However, if delivery of the water to LADWP for use as drinking water is not possible, the re-injection end use will be essential to the successful remedy implementation.

2.7.5 Preference for Treatment as a Principal Element

Under either end-use option, the Amended Remedy will treat VOCs, chromium, and other emerging contaminants in the extracted groundwater. By utilizing treatment as a significant element of the remedy, the statutory preference for remedies that employ treatment as a principal element is satisfied.

2.7.6 Five-Year Review Requirements

Under either end-use option, the Amended Remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure. Therefore, a statutory review will be conducted within 5 years after initiation of remedial action to ensure that the Amended Remedy is, or will be, protective of human health and the environment.

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Part 3
Responsiveness Summary

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Part 3 – Responsiveness Summary

The purpose of this Responsiveness Summary is to provide a summary of EPA's responses to comments received from stakeholders and the public on EPA's "*North Hollywood OU Proposed Plan to Amend Groundwater Record of Decision*" dated May 1, 2013. During the public meeting held on June 5, 2013, EPA provided verbal clarifications to questions about the Proposed Plan. The proceedings of the public meeting were transcribed by a court reporter and are included in the Administrative Record.

During the public meeting, EPA received comments from three members of the audience. During the public comment period, EPA received one e-mail from a community member and two letters from stakeholders with comments on the Proposed Plan. EPA is required to consider and address only those comments that are pertinent and significant to the remedial action being selected. EPA is not required to address comments which pertain to the allocation of liability for the remedial action, nor potential enforcement actions to implement the remedial action, as these are independent of the selection of the remedial action and EPA's Proposed Plan. EPA does have the discretion to address comments with limited pertinence if doing so would address the concern of a significant segment of the public.

A summary of the major issues raised by commenters is presented in the following subsections of this Responsiveness Summary. Each comment received by EPA during the comment period, together with EPA's responses, can be found in Appendix A.

3.1 Stakeholder Issues

Issues raised by community members during the public comment period included a question about performance standards for the re-injection end-use option, a concern that air-stripping treatment might discharge chromium into the atmosphere, a preference that groundwater contamination be cleaned quickly, and a preference for implementing the re-injection option to store groundwater for future use.

The engineering consultants performing RD activities for the NHOU PRP group submitted three comments on behalf of the PRPs. The comments included support of re-injection as an alternative end-use option for the Amended Remedy, a request for further clarification of when the re-injection option would be acceptable to implement, and a statement in support of selecting the specific configuration of injection wells and other infrastructure during the RD process.

LADWP submitted 23 comments, many of which consisted of requests for additional details regarding how the re-injection option would be evaluated, implemented, operated, and monitored. Most of those details are presented in the FFS, the 2009 ROD, and this RODA, or will be provided during the RD process. Similar to the PRP group's consultants, LADWP requested clarification of when the re-injection option would be acceptable to implement. LADWP also requested more information regarding the performance standards that would apply to the re-injection option (more details regarding performance standards are presented in this RODA).

Figures

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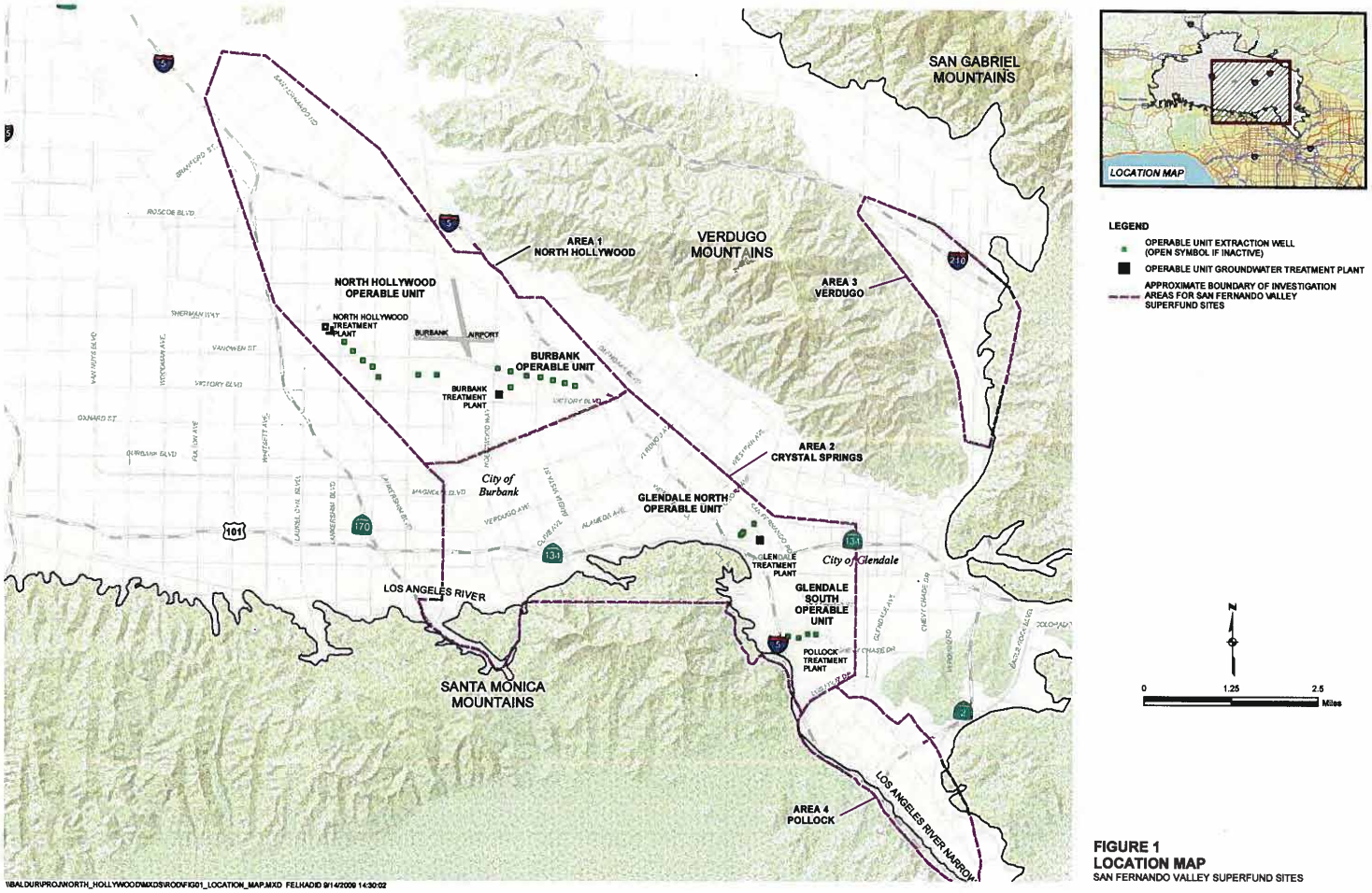

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FIGURE 1
LOCATION MAP
SAN FERNANDO VALLEY SUPERFUND SITES

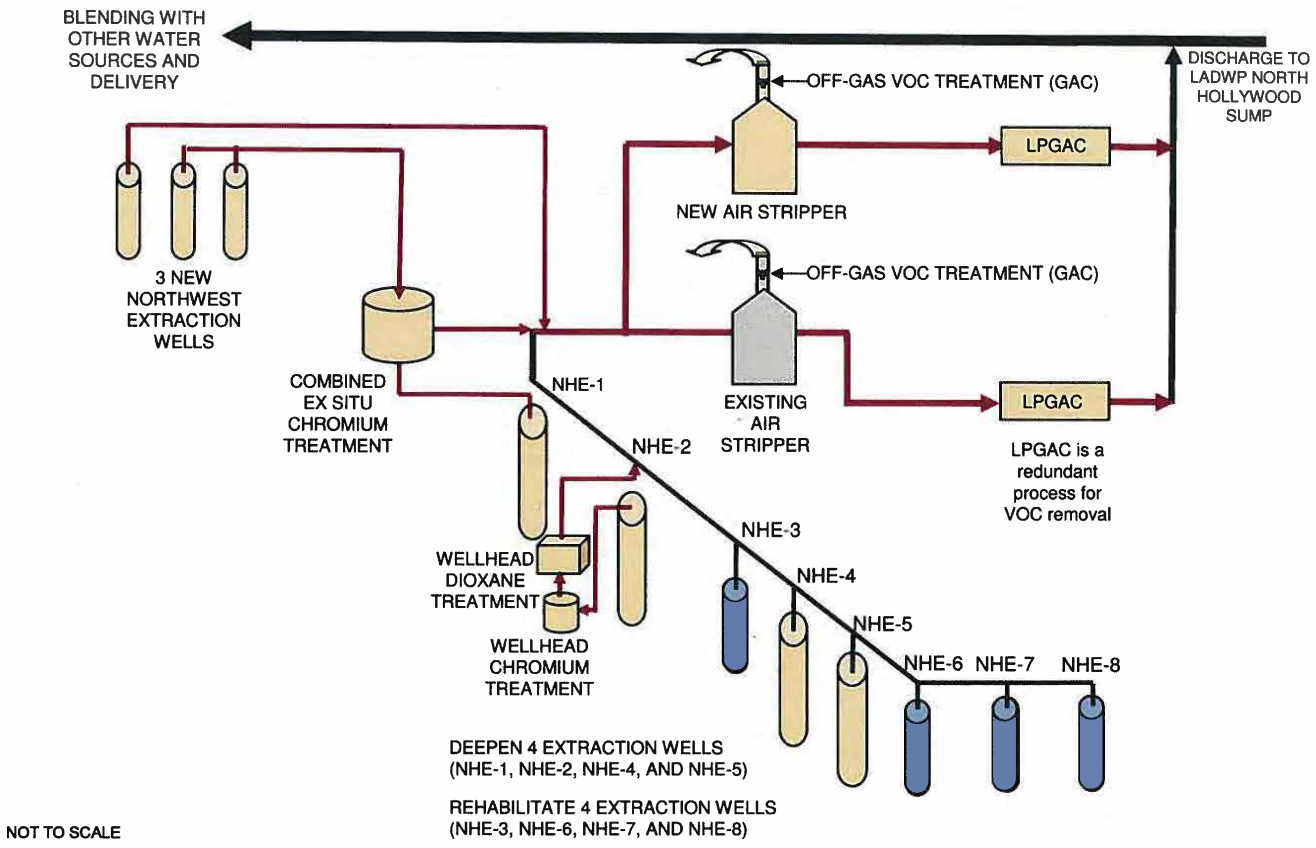

FIG2_ALT4ASCHEMATIC.PSD

FIGURE 2
SCHEMATIC LAYOUT OF SELECTED REMEDY WITH LADWP DELIVERY END-USE OPTION (ALTERNATIVE 4a)
SAN FERNANDO VALLEY SUPERFUND SITES

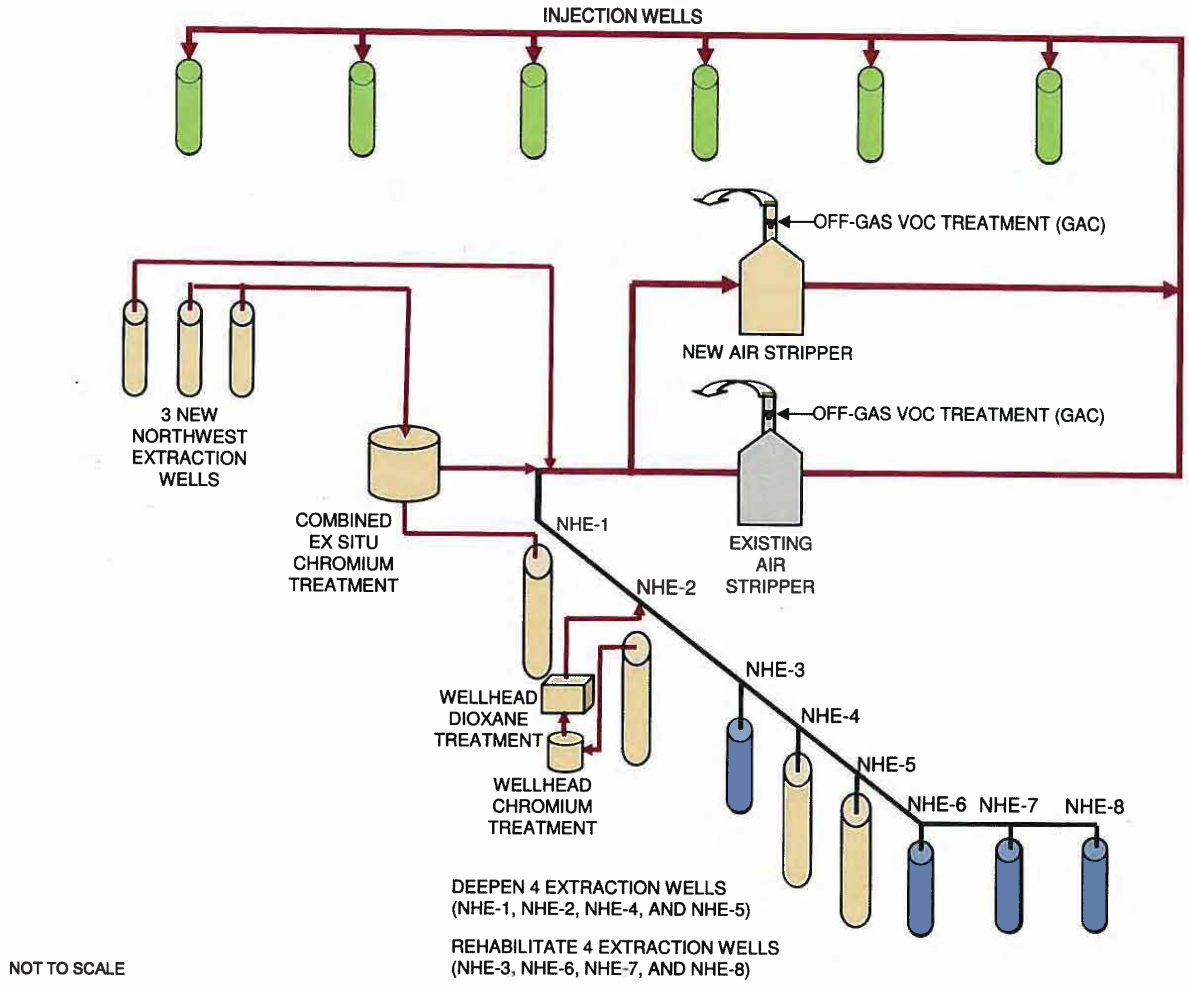

FIG3_ALT4ASCHEMATIC.PSD

FIGURE 3
SCHEMATIC LAYOUT OF SELECTED REMEDY WITH REINJECTION END-USE OPTION (ALTERNATIVE 4b)
SAN FERNANDO VALLEY SUPERFUND SITES

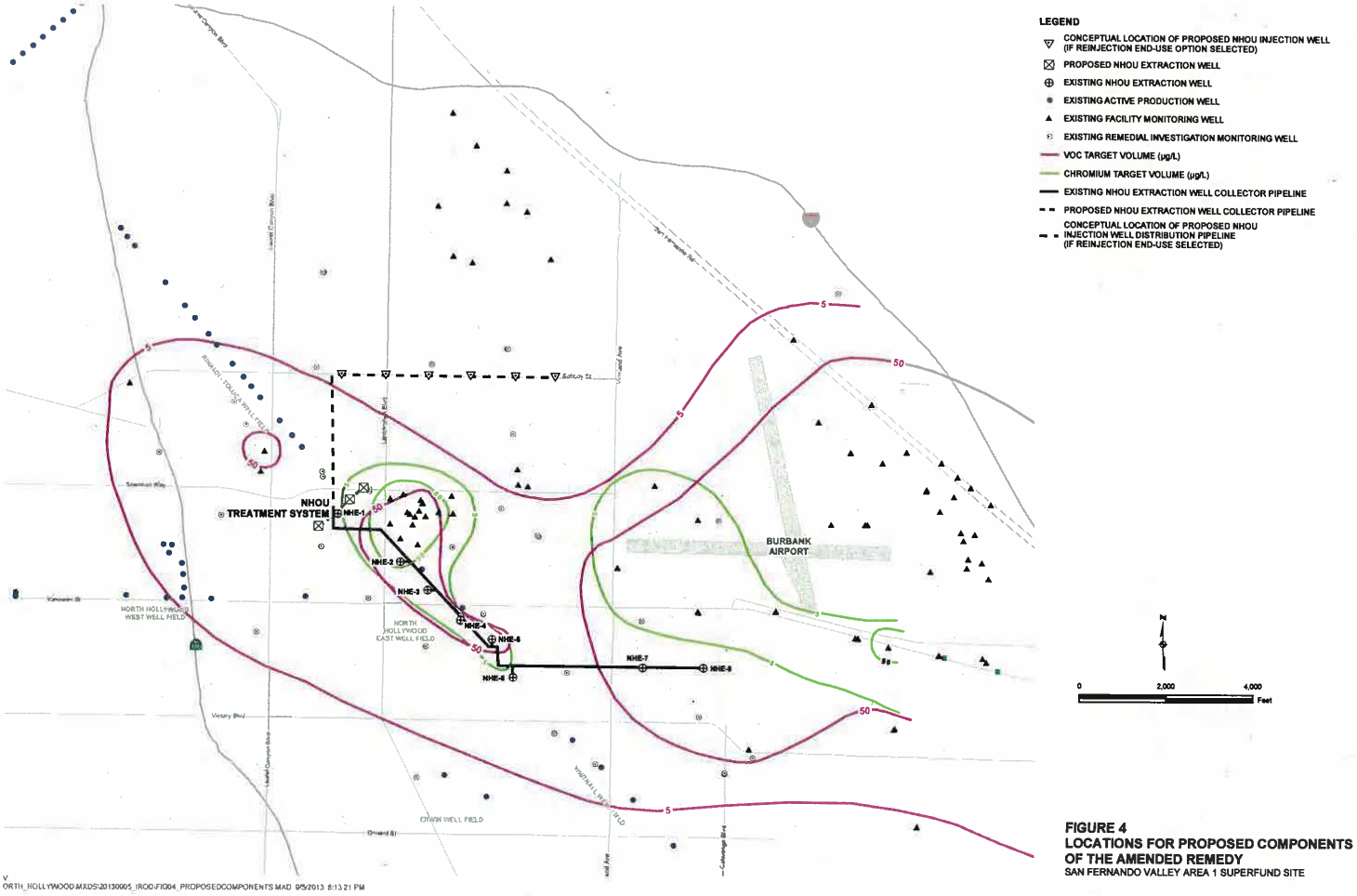

FIGURE 4
LOCATIONS FOR PROPOSED COMPONENTS OF THE AMENDED REMEDY
SAN FERNANDO VALLEY AREA 1 SUPERFUND SITE

Appendix A

Detailed Response to Technical Comments

Following is the EPA response to the comments received on the Proposed Plan ("Plan") to amend the 2009 Interim Action Record of Decision ("2009 ROD"). The NCP requires EPA to summarize significant comments, criticisms, and relevant information submitted during the public comment period and to respond to each significant issue raised. Although EPA is not required to re-print the public comments verbatim, in many cases in this response summary EPA has included large segments of the original comments. Persons wishing to see the full text of all comments should refer to the commenters' submittals to EPA, which are included in the Administrative Record.

Specific comments (and responses by EPA) are numbered for convenient reference. The comments are numbered sequentially through the Response Summary, without reference to the specific commenter. Comments are shown in normal text, and EPA responses are shown in italics.

Verbal comments received by EPA during June 5, 2013, public meeting

Note: the following verbal comments, which were provided during the public meeting, were transcribed by a court reporter.

1. For re-injection, how will the treatment levels be set for the constituents that have only state notification levels?

   Response: As discussed in EPA's 2009 Focused Feasibility Study ("FFS") for the NHOU Second Interim Remedy and the 2009 ROD, cleanup levels for the re-injection end-use option would be established during remedial design ("RD") based on the injection locations. Under the re-injection end-use option, removal of constituents that only have notification levels would need to comply with the California Antidegradation Policy. The treatment levels would be dependent on the location(s) ultimately selected for re-injection, and the locations would be selected such that re-injection would not degrade groundwater quality at the injection location(s).

2. I am aware that the utilities or clean water producing systems, they try to go to the lower zone because the lower zone is not contaminated. So they don't use the -- they don't use – your goal is different from their goal. Your goal is to take the contaminants and clean the underground source. Your goal is different. But their goal is different from yours. Their goal is to go deeper; find cleaner, less caustic treatment of water. That's clear, right? But -- you do not -- with the facilities that we have, with the computer that we have and all this, you can't generate the plume containment. How is it progressed this year from the year before? Is this containment? So spending so much money up to now, what's the result of our spending so much money? So to make it short, that this -- this project should be looked over with more experts, people who know how to do it, what to do it. And the goal is not having good

quality, good water. Shortage of water in this valley. You know about that. There is shortage of water. One drop of water is very important. But the goal is not that. The goal is to clean the underground. That's it. It's not clean.

Response: The Remedial Action Objectives ("RAOs"), or goals, of the Amended Remedy are stated in the Proposed Plan, and include:

- ***Contain areas of contaminated groundwater that exceed the MCLs and notification levels to the maximum extent practicable.***
- ***Prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production wells by preventing the migration toward these well fields of the more highly contaminated areas of the VOC plume located to the east/southeast.***
- ***Achieve improved hydraulic containment to inhibit horizontal and vertical contaminant migration in groundwater from the more highly contaminated areas and depths of the aquifer to the less contaminated areas and depths of the aquifer, including the southeast portion of the NHOU in the vicinity of the Erwin and Whitnall production well fields.***
- ***Remove contaminant mass from the aquifer.***

As noted in the Proposed Plan, The First Interim Remedy (designed in 1986) has limited contaminant migration and removed contaminant mass from groundwater in the NHOU. However, new contaminants of concern have been identified in the NHOU, primarily hexavalent chromium and 1,4-dioxane, and changing groundwater conditions in the aquifer and the discovery of VOC contamination in new areas of the aquifer beneath North Hollywood limit the ability of the First Interim Remedy to fully contain the VOC plume. RD of the Second Interim Remedy is currently underway, as required by the 2009 ROD, and is being conducted by experts in the fields of hydrogeology and engineering, under the oversight of EPA. EPA fully expects the Amended Remedy to improve plume containment, as well as achieve the other RAOs. System startup and operations will be monitored by EPA, and reviews of the effectiveness of the Amended Remedy will be periodically conducted until all RAOs have been met.

3. To me, it appears that you're converting a contaminated system in the liquid state into an air pollution problem. You're drawing contaminants and putting it into the air. Presently, I am not affected by the water -- contaminants in the water. But being in this region, and if you put it into the air, I am affected. Let me point out that with respect to chromium, it's in the water phase. And if you're air stripping, the air that strips the VOC out becomes saturated with the very water that contains it. The chromium becomes a vapor. You're not doing -- you're not stopping the chromium from leaving the air stripper.

Response: As noted in the Proposed Plan, the Amendment to the 2009 Interim Action Record of Decision ("RODA") (which contains identical treatment components as the selected remedy in the 2009 ROD) includes treatment processes to remove chromium from groundwater withdrawn by extraction wells with elevated chromium concentrations before that water is treated for VOCs. Therefore, most of the chromium would be removed before entering an air stripper. To expand on the comment above, the air stripping process transfers VOCs from the aqueous phase (dissolved in water) to the vapor phase (as a gas

mixed with the passing air stream). The target VOCs in solution (such as trichloroethylene ("TCE") and tetrachloroethylene ["PCE"]) have relatively high Henry's Law constants, indicating that they are readily removed from water by the air-stripping process. In the First Interim Remedy and the Amended Remedy, the "stripped" VOCs are captured by granular activated carbon filters before the air is discharged to the atmosphere. Chromium is not a VOC—rather, it is a metal, which occurs in the dissolved phase as a cation or, more commonly in groundwater, as an oxyanion (combined with oxygen). At standard temperature and pressure, chromium cannot form a vapor phase like TCE or PCE, and its Henry's Law constant is effectively zero, meaning that it remains dissolved in liquid water. Therefore, the limited quantities of chromium that would reach the air stripper in the Amended Remedy would not volatilize and enter the air stream as a vapor.

E-mailed comment received by EPA during public comment period

1. Even though it will cost more money I am in favor of re-injecting water into the East Valley aquifer to help dilute the pollutants that now exist so that the aquifer can be used as a water reserve for LA's future. This last part is most important.

   Response: As noted in the Proposed Plan, the RODA allows two end-use options for the treated water from the Amended Remedy: (1) delivery to LADWP to meet its municipal supply needs, or (2) re-injection to the aquifer. If the treated water is delivered to LADWP, less pumping may be required by LADWP at other production well fields in the eastern SFV to meet its water-supply needs, resulting in an equal impact on the future water supply in Los Angeles compared to the re-injection option.

Comments received by EPA via letter during public comment period

1. The proposed amendment of the Second Interim Remedy to add the option to re-inject groundwater extracted from the North Hollywood Operable Unit ("NHOU") extraction wells is important and should be incorporated into the Record of Decision ("ROD"). As EPA notes, it is a necessary option because it may not be possible to achieve a drinking water end use. Moreover, re-injection of treated groundwater for aquifer recharge or as a component of a recirculating treatment system constitutes beneficial use of such treated water. Having a re-injection option for managing extracted groundwater will provide additional flexibility to design a remediation system that can meet the ROD and stakeholder interests in a manner that will achieve the remedial action objectives ("RAOs") efficiently and cost-effectively. The re-injection option does not prevent full consideration of using the treated water in the end as a drinking water supply for the Los Angeles Department of Water and Power ("LADWP") in the remedial design process. Indeed, the proposed configuration of the Second Interim Remedy, including extraction and/or injection wells and transfer of treated water to the LADWP, as appropriate, will be considered as part of the Groundwater Modeling Memorandum and subsequent design packages.

Response: As noted in the Proposed Plan, the RODA will allow the re-injection of the treated water if EPA determines that delivery of the water to LADWP is unachievable. Based on the information currently available, EPA believes the Amended Remedy meets the threshold criteria and balances the trade-offs between competing interests at the NHOU.

2. The Proposed Plan states that re-injection of the treated water would be the preferred option if the option to deliver the water to LADWP is thoroughly explored and deemed impractical. While the Proposed Plan does not specify what conditions would deem the drinking water end use impracticable, an option that involves injection or a combination of injection and drinking water end use that achieve the RAOs in a manner that is more easily and effectively implemented than a drinking water end option should be acceptable. We recommend that EPA clarify its standard for when the re-injection option will be acceptable.

   Response: EPA believes that delivery of treated groundwater to LADWP makes the most sense from a resource perspective. If LADWP and the NHOU Potentially Responsible Parties ("PRPs"), after negotiating in good faith, (1) have not come to an agreement on the terms for the delivery/acceptance of treated groundwater that satisfies EPA that the remedy will be able to operate reliably and effectively and (2) such an agreement has not been reached sufficiently far in advance of completion of design so that it can be incorporated into a final design, EPA will make the decision to proceed with re-injection as the end use so that the remedy can be implemented.

3. The Proposed Plan refers to the re-injection scenario presented in the 2009 Focused Feasibility Study, which included an estimated six injection wells and nine additional monitoring wells, noting that the injection wells would most likely be located north (up gradient) of the NHOU extraction wells. The 2011 Agreement and Order on Consent ("AOC") accounts for flexibility within the Record of Decision ("ROD"), which acknowledges that "further evaluation of specific pumping rates and extraction well locations will be performed during Remedial Design ("RD") to ensure that implementation of the Second Interim Remedy will not cause additional degradation of the aquifer." Additionally, the ROD states that "if new data collected prior to or during RD indicates that a different configuration of extraction wells is more effective and cost effective than the configuration described in the Proposed Plan, then that different configuration will be considered for implementation as part of the Second Interim Remedy." Given that re-injection would be an integral component of the Second Interim Remedy that could have a significant influence of the hydraulics of groundwater in the containment zone, we anticipate that the actual re-injection configuration will be determined during development of the RD.

   Response: EPA concurs that the actual re-injection configuration will be determined during the RD phase of implementation of the Amended Remedy.

4. LADWP's comments only focus on the proposed amendment of allowing re-injection of treated water back into the San Fernando Basin ("SFB") groundwater as a preferred alternative, and it is not intended to modify LADWP's prior comments submitted as part of the 2009 ROD review and approval process.

   Response: Comment noted—LADWP's comments on the 2009 ROD, together with EPA's responses, are included in Appendix A of the 2009 ROD.

5. The USEPA has indicated previously that re-injection is not the preferred end use, but rather that remediation of the groundwater and delivery to LADWP is preferred.

   Response: As noted in the Proposed Plan, EPA has concluded that re-injection of all extracted groundwater might be necessary if LADWP and the NHOU PRPs are unable to reach an agreement that is acceptable to EPA regarding terms/criteria for delivery and acceptance of the treated water. EPA believes that delivery of treated groundwater to LADWP makes the most sense from a resources perspective, but recognizes that water delivery requires a complex agreement between LADWP and the NHOU PRPs that is acceptable to EPA. In the absence of such an agreement, the remedy can only be successfully implemented if the treated groundwater is re-injected into the aquifer.

6. After thorough review of the referenced and provided information, LADWP was unable to determine the implementability and effectiveness of the proposed re-injection alternative. Summarized in this letter is additional information that is needed to determine the viability of the proposed re-injection in order to consider it as a viable alternative for containment, remediation, and removal of contaminants from the SFB (San Fernando Basin) groundwater. To be considered viable and effective, this option should also be able to prevent the continuing escape and migration of contaminants into other areas of the SFB aquifer.

   Response: As set forth in the FFS and 2009 ROD, the Amended Remedy provides the same level of protection to human health and the environment whether the end use for extracted water is delivery to LADWP for drinking water supply purposes or re-injection of all extracted water into the Basin. If delivery of the water to LADWP for use as drinking water is not possible, the alternate end use will be essential to the successful remedy implementation and, therefore, to protect human health and the environment.

7. The USEPA has not provided a defined process which may be used for deciding to exercise the re-injection option. The USEPA should provide information about its decision process, including, but not limited to, information about the following considerations:

   - What are the criteria for deciding that LADWP and the Potentially Responsible Parties ("PRPs") are unable to reach an agreement in good faith?
   - What is the recommended process and objective criteria for evaluating the reasonableness of the "terms/criteria" being negotiated?

   Response: EPA believes that delivery of treated groundwater to LADWP makes the most sense from a resource perspective. If LADWP and the NHOU PRPs, after negotiating in good faith, (1) have not come to an agreement on the terms for the delivery/acceptance of treated groundwater that satisfies EPA that the remedy will be able to operate reliably and effectively, and (2) such an agreement has not been reached sufficiently far in advance of completion of design so that it can be incorporated into a final design, EPA will make the decision to proceed with re-injection as the end use so that the remedy can be implemented.

8. The USEPA has not provided information that will ensure the re-injection end use satisfies all primary objectives for a preferred alternative as defined in the 2009 Focused Feasibility Study ("FFS") and 2009 ROD, such as but not limited to:

- Vertical and horizontal containment of contaminant concentrations which exceed the federal and state Maximum Contaminant Levels ("MCLs") and Notification Levels (NLs) for all constituents of concern ("COCs") which have been detected within the groundwater proximal to the NHOU and LADWP's various groundwater production wellfields,
- Groundwater extraction and re-injection flow rates of approximately 5,000 acre feet per year ("AF/Y"), and
- The deepening of existing wells and establishing of new extraction and re-injection wells.

Response: As set forth in the FFS and 2009 ROD, the Amended Remedy provides the same level of protection to human health and the environment whether the end use for extracted water is delivery to LADWP for drinking water supply purposes or re-injection of all extracted water into the Basin. The actual configuration of extraction and re-injection wells will be determined during the RD phase of implementation of the Amended Remedy.

9. The USEPA has not provided the Performance Standards for the re-injection end use option. The proposed amendment states that such standards will be established later, during the remedial design process based on the COC concentrations in the groundwater at the injection well location(s). What process will the USEPA use for establishing these Performance Standards?

Response: As described in the Proposed Plan, in the scenario where the contaminant of concern ("COC") is already at levels higher than MCLs in the aquifer, then the basis for a performance standard will be (at a minimum) MCLs (federal or State). In the scenario in which a given constituent is present at lower levels than the MCL, then the re-injected water must be treated in a manner consistent with the California Antidegradation Policy requirements.

10. The USEPA has not provided any requirements for how PRP's will demonstrate compliance with California's Anti-degradation Policy. In question are:

- How will re-injection of contaminated groundwater back into the aquifer be prevented in the event of malfunction with the treatment plant?
- What monitoring processes and frequencies will be in place to ensure full compliance?
- What enforcement mechanisms will be imposed for any violations which may occur?
- How will the USEPA respond to and recover any contaminants which may have been re-injected into the aquifer?

Response: The RD effort will include development of a Pre-Achievement Operations and Maintenance ("O&M") Plan describing actions to be taken to avoid re-injection of contaminated water and response actions in case of a plant failure. The Pre-Achievement O&M Plan will also include a Compliance Monitoring Sampling and Analysis Plan.

11. The USEPA has not provided proposed locations for any re-injection wells. How will the USEPA identify candidate sites, and what process will be used to evaluate and screen for appropriate and suitable locations for re-injecting the treated groundwater?

Response: As described in the FFS, six injection wells were assumed to be located north (upgradient) of the NHOU extraction wells. In this configuration, the treated groundwater would be re-injected into the aquifer at the northern boundary of the VOC and chromium plume, and supplement the hydraulic gradient driving contaminated groundwater toward the extraction wells. The actual re-injection configuration will be determined during the RD phase of implementation of the Amended Remedy, considering effects that the injection wells are forecast to have on groundwater quality at the re-injection location, as well as forecast hydraulic containment of contaminated groundwater in the NHOU.

12. In this proposed amendment, the USEPA has not provided its evaluation of the potential adverse effects caused by re-injection to the aquifer.

    - Groundwater mounding as a result of re-injection may liberate unknown contaminants which are currently trapped within the unsaturated zone of the soil matrix. Raising the water table as a result of re-injection would saturate the lower vadose zone, potentially leaching Volatile Organic Compounds ("VOCs") and other contaminants into the shallow groundwater.

    - The re-injection of treated groundwater may also potentially cause spreading of the contaminant plume to other parts of the SFB where extraction and treatment systems are not in place.

    - How will the USEPA identify the potential for these situations at each re-injection; what analytical process will be utilized (such as groundwater modeling), and how will these situations be evaluated, monitored, and prevented during the implementation phase?

    Response: A detailed analysis of effects of re-injection will be conducted during the RD effort. The RD effort includes pre-design groundwater modeling, which will be used by EPA to identify potential issues with re-injection and to modify the re-injection configuration as necessary before and during the RD process. If re-injection is selected as the end-use option, the Pre-Achievement O&M Plan will be developed during the RD process and will include a Compliance Monitoring Sampling and Analysis Plan that will incorporate monitoring of impacts of re-injection. Implementation of the Amended Remedy will be required to meet performance standards and RAOs.

13. The USEPA should disclose more information and details about the plans for the re-injection alternative before concluding that this end use provides for the Overall Protectiveness of Human Health and the Environment.

    Response: As noted in the FFS and 2009 ROD, the Second Interim Remedy (and Amended Remedy) will protect human health and the environment by achieving, to the extent practicable, hydraulic containment of groundwater exceeding the MCLs, including the most significant areas of groundwater contamination in the NHOU, thereby preventing the highest contaminant concentrations from migrating to the nearby Rinaldi-Toluca and North Hollywood West production wells. The Amended Remedy's VOC treatment components will remove the VOCs and other treatment components will remove emerging contaminants of concern (including hexavalent chromium and 1,4-dioxane) to the performance standards identified in this RODA. Water supply wells, NHOU extraction wells, EPA remedial investigation monitoring wells, and facility monitoring wells will be

monitored, and access to contaminated groundwater will be restricted through institutional controls ("ICs"). These goals will be achieved under either end-use option included in the Amended Remedy.

14. The USEPA has not provided its identification and evaluation of any risks which may remain after the long-term implementation of the re-injection alternative. There may be risks associated with remaining sources of contamination in the extraction areas or contaminant residuals which pass through the treatment process and back into the aquifer by way of re-injection.

    Response: The plans for groundwater extraction under both the LADWP-delivery and the re-injection end-use options are identical; therefore, risks associated with remaining sources of contamination in the extraction areas are expected to be identical (see previous response to comment for more detail). As discussed in the FFS for the NHOU Second Interim Remedy and the 2009 ROD, cleanup levels for the re-injection end-use option would be established during the RD phase based on the injection locations. As described in the Proposed Plan, in the scenario where the contaminant of concern ("COC") is already at levels higher than MCLs in the aquifer, then the basis for a performance standard will be (at a minimum) MCLs (federal or State). In the scenario in which a given constituent is present at lower levels than the MCL, then the re-injected water must be treated in a manner consistent with the California Antidegradation Policy requirements.

15. The USEPA has not provided any evaluation for adequacy and reliability of critical technology controls. This should address the degree of confidence that such vital controls may fail and uncertainties with re-injection water that may still contain wastes. Risks and difficulties associated with the long-term management and maintenance strategies should be discussed to ensure the re-injection alternative remains viable and effective over the life of the remedy. This would include reviewing the potential need for replacement re-injection wells or moving the re-injection to new locations.

    Response: The RD effort will include development of a Pre-Achievement O&M Plan describing system controls and equipment, routine operating activities, routine maintenance activities, well rehabilitation requirements, emergency operating activities, and other procedures required to keep the Amended Remedy, including the re-injection components (if necessary), operating effectively for the long term.

16. The USEPA must disclose more information about the risks associated with plans for the re-injection alternative before concluding that this end use provides for the Long-term Effectiveness and Permanence.

    Response: As discussed in EPA's FFS for the NHOU Second Interim Remedy and the 2009 ROD, the Second Interim Remedy (and the Amended Remedy) will permanently remove VOCs, 1,4-dioxane, and chromium from extracted groundwater under either end-use option. Implementation of the ICs is intended to ensure that this alternative prevents the continued migration of contaminants and remains protective in the long term.

17. The determination of whether the proposed amendment considers the ability of the alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present cannot be

properly evaluated. Significantly more information about details of the re-injection alternative end use must be disclosed and certain analysis must be completed before concluding that the proposed amendment provides for a Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment. The proposed amendment must layout some acceptable parameters for an appropriate evaluation. Such disclosure should provide for, at a minimum, the same information requested in our general comments above.

Response: As discussed in the FFS for the NHOU Second Interim Remedy and the 2009 ROD, the Second Interim Remedy (and Amended Remedy) will permanently remove VOCs, 1,4-dioxane, and chromium from extracted groundwater under either end-use option.

18. The USEPA has not provided a full analysis of the time needed to implement the re-injection alternative, in light of the various concerns and information needed to adequately define the project, evaluate the effectiveness, implementability, and associated risks and impacts related to the re-injection end use.

Response: The FFS and 2009 ROD included evaluation of the short-term effectiveness of the re-injection end-use option under the Preferred Alternative (Alternative 4b). Construction of the injection wells, additional pipelines, and additional monitoring wells required for the re-injection option may require an additional 6 to 12 months to implement. Ultimately, if re-injection is implemented as the end-use option, a new schedule for implementation will be developed as part of the RD process.

19. In evaluating implementability, the USEPA must address both the technical and administrative feasibility of implementing a technology process or remedy from design through construction and operation, including the availability of services and materials needed to implement a particular option and the need for coordination with other governmental entities. Significantly more information about details of the re-injection alternative end use must be disclosed and certain analysis must be completed before the alternative end use is declared as a preferred alternative. The proposed amendment must layout some acceptable parameters for an appropriate evaluation. Such disclosure must provide for, at a minimum, the following to determine both technical implementability and administrative implementability:

- Given that sites have not yet been identified, it is difficult to fully assess the relevant issues affecting construction and operation of the re-injection end-use option. The installation of conveyance pipelines between the Second Interim Remedy treatment plant and each of the re-injection wells will require PRPs to secure pipeline franchises from the City of Los Angeles. PRPs would need to obtain all necessary easements, right of ways, water rights, and real property identified for accommodating the pipeline alignments, booster pump stations, electrical power services and controls infrastructure, and space to be utilized during the operations and maintenance phase. None of this is discussed in the proposed amendment.

Response: The FFS and 2009 ROD included evaluation of the implementability of the re-injection end-use option under the Preferred Alternative (Alternative 4b). The injection wells required under Alternative 4b can be difficult and costly to operate and maintain, and the time required for planning, permitting, and construction of the re-injection

infrastructure would likely be greater than the time required for implementation of delivery of the water to LADWP (the existing end-use). However, if delivery of the water to LADWP for use as drinking water is not possible, the alternate end use will be essential to the successful remedy implementation and, therefore, to its implementability. If re-injection is implemented as the end-use option, additional information regarding planning, permitting, and construction requirements will be included in the RD documents.

20. The USEPA has not provided any criteria or information that discusses the technical aspects of the re-injection end use, such as:

    - What technical reliability issues are being considered as part of evaluating the re-injection end-use option?
    - Are the potential failure modes and risks known, and how will system operations respond if there was a sudden failure with one or more re-injection wells, a treatment plant component, or a pipeline break?

    Response: The RD documents will discuss technical reliability concerns and ways to mitigate them. The Pre-Achievement O&M Plan will include emergency operating activities, an assessment of potential equipment or control failures, and a compliance monitoring sampling and analysis plan.

21. The USEPA must outline its requirements and mitigation for the consequence of re-injection water picking up contaminants due to groundwater flow and gradients.

    Response: If re-injection is selected as the end-use option, additional evaluation of groundwater quality and potential source areas in the vicinity and downgradient of the planned injection wells will be conducted to reduce the potential risk of raising contaminant levels in previously uncontaminated areas of the aquifer.

22. Based on the information provided, it is not possible to determine whether migration or exposure pathways can be adequately monitored since the proposed locations of the re-injection wells were not specified.

    Response: It was assumed in the FFS that nine additional monitoring wells would be installed in the area of the injection wells to monitor groundwater levels and water quality in the vicinity of the new injection wells. More than nine additional monitoring wells will be installed if deemed necessary during the RD process, in order to adequately monitor the re-injection option. The locations for the injection wells and associated monitoring wells will be selected during the RD process.

23. The USEPA has not provided any information which describes the basic administrative issues such as, but not limited to:

    - How will PRPs be required to demonstrate to the Los Angeles Regional Water Quality Control Board and California Department of Public Health their continuing compliance with the California Anti-degradation Policy (State Water Resources Control Board Resolution No. 68-16) and other Performance Standards, which are yet to be determined, so that the issue of implementability can be tested?

- What will be the USEPA's process for oversight, compliance, and enforcement, and how will it coordinate with LADWP and California's environmental regulators to participate in these functions, so that the issue of implementability can be tested?
- There is no indication as to what will be the process for involving the Upper Los Angeles River Area ("ULARA") Watermaster in the review and evaluation of the re-injection end-use option, including evaluation of appropriate re-injection locations and depths, review of modeling and analysis of effects on existing contaminant plumes, and agreement on systems and processes to allow for accurate accounting of operational losses of groundwater.
- There is no indication as to whether or not the PRPs can obtain the pipeline franchise agreements from the City of Los Angeles.
- In the 2009 ROD, the USEPA anticipated "additional administrative issues" for either end use (drinking water or re-injection) in regards to permitting and access requirements for new infrastructure. With the increased focus on re-injection as a preferred end use, it now seems the USEPA should update its analysis of the administrative challenges with more specifics. This will allow for a more detailed comparison of the challenges with permitting and access requirements, and to more appropriately weigh the major trade-offs between these two options.

Response: A Pre-Achievement O&M Plan will be developed during the RD process, which will include reporting requirements to demonstrate compliance of either end-use option with the RAOs for the Amended Remedy and ARARs established in the 2009 ROD and ROD Amendment.

The ULARA Watermaster will be provided with relevant RD documents and given an opportunity to review and comment, consistent with past practice at the NHOU.

As noted in the FFS and 2009 ROD, new pipelines are required for extraction wells and (if re-injection is selected as the end-use option) injection wells under the selected remedy. Compliance with the substantive requirements of any applicable permitting process (including "franchise agreements") was anticipated by EPA under either end-use option and will be investigated in more detail during RD.

The re-injection end-use option was already considered and evaluated during the FFS as a potentially equally viable alternative to delivery of the water to LADWP as an end-use option. Alternative 4a (delivery to LADWP as the end-use option) was selected instead of Alternative 4b (re-injection as the end-use option) in the 2009 ROD as the Second Interim Remedy, primarily based on cost. The net present value ("NPV") of the re-injection option was estimated to be approximately $26 million greater than the NPV of the LADWP-delivery option. However, if delivery of the water to LADWP for use as drinking water is not possible, the alternate end use will be essential to the successful remedy implementation. If the re-injection end-use option is implemented, analysis of the administrative details will be conducted during RD.

24. Availability of services and materials need to be considered as part of concluding whether the re-injection end-use option is feasible and can be implemented. The USEPA has not provided

any indication as to considerations for availability of treatment, storage capacity, and disposal services which will be dependent on the resources of the PRP operators.

- How were these components of the re-injection end-use option identified and evaluated?
- Can this evaluation component be provided for our additional review and comment?
- Have the necessary specialists, operations staff, and equipment required for implementing the re-injection end- use option been identified and evaluated?
- Has the availability of the prospective technologies been considered with regard to whether there are multiple vendors available to offer the required services and provide competitive bids, or whether technology is available to provide re-injection in the expected volume and flow rate of approximately 5,000 AF/Y?

Response: Identification and evaluation of the basic components of the re-injection end-use option were presented in the FFS. Design and cost assumptions are presented in Appendices C and D of the FFS. Although implementation of the re-injection end-use option would entail greater administrative and technical challenges than delivery to LADWP, re-injection of treated groundwater is not a new science or technology, and has been successfully implemented as an end-use technology at many other Superfund sites. EPA does not anticipate encountering difficulty finding appropriate staff and equipment or multiple vendors to implement the re-injection option, if it becomes necessary.

25. This evaluation includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Given that expected costs for the re-injection end use are nearly $27 million more costly than the drinking water end use, the drinking water end use alternative is vastly superior to the option for re-injection end use.

Response: Alternative 4a (delivery to LADWP as the end-use option) was selected instead of Alternative 4b (re-injection as the end-use option) in the 2009 ROD for the Second Interim Remedy, primarily based on cost. The NPV of the re-injection option was estimated to be approximately $26 million greater than the NPV of the LADWP-delivery option (NPV of $134.2 million versus $107.8 million). However, if LADWP and the NHOU PRPs are unable to reach an agreement that is acceptable to EPA regarding terms/criteria for delivery and acceptance of the treated water, implementation of the alternate end use will be essential to the successful remedy implementation, despite the cost difference.

26. The USEPA indicated that the California agencies have expressed their support for the USEPA's preferred alternative. LADWP appreciates the continued support and partnerships which have been developed over the recent decades with our environmental regulatory agencies at the federal and state levels. However, LADWP was not made aware of such support being provided by the California environmental regulators for the re-injection end-use option. Please provide any relevant documentation which has indicated the state's support for this proposed amendment and the information and criteria that were relied upon as a basis for providing support.

Response: In 2009, DTSC (the State lead agency for the NHOU) expressed support for EPA's Preferred Remedy in the FFS, which became the Selected Remedy in the 2009

ROD. A letter of support from DTSC for the Amended Remedy is included in the Administrative Record for the NHOU.

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EPA Superfund

Explanation of Significant Differences to the 2009 Interim Action Record of Decision

North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

February 22, 2018

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Explanation of Significant Differences to the 2009 Interim Action Record of Decision for the North Hollywood Operable Unit

San Fernando Valley (Area 1) Superfund Site

Los Angeles County, California

EPA ID: CAD980894893

February 22, 2018

United States Environmental Protection Agency

Region IX - San Francisco, California

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TABLE OF CONTENTS

FIGURES

ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

1987 ROD	Record of Decision for a Remedial Action for Area 1 of the San Fernando Valley Superfund sites
2009 ROD	EPA Superfund Interim Action Record of Decision: North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, September 29, 2009
2014 RODA	EPA Superfund Amendment to the Interim Action Record of Decision: North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, January 10, 2014
2016 MOF	EPA Memorandum to File, Addition of Groundwater Extraction Wells West of Hewitt Pit to the NHOU Second Interim Remedy; June 20, 2016
µg/L	microgram per liter
ARARs	Applicable or Relevant and Appropriate Requirements
BOU	Burbank Operable Unit of the San Fernando Valley Area 1 Superfund Site
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DDW	CA Department of Drinking Water
DTSC	California Department of Toxic Substances Control
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FFS	Focused Feasibility Study, North Hollywood Operable Unit, San Fernando Valley Area 1 Superfund Site, (2009)
GAC	granular activated carbon
gpm	gallons per minute
LADWP	Los Angeles Department of Water and Power
LPGAC	liquid phase granular activated carbon
MCLs	Maximum Contaminant Levels
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NHOU	North Hollywood Operable Unit, San Fernando Valley Area 1 Superfund Site
NHOU2IR	NHOU Second Interim Remedy
PRP	potentially responsible party
RAO	Remedial Action Objective
RWQCB	Regional Water Quality Control Board
State	State of California
VOCs	volatile organic compounds

1.0 INTRODUCTION

1.1 SITE LOCATION

The North Hollywood Operable Unit (NHOU) of the San Fernando Valley (SFV) Area 1 Superfund Site (Site) is located in Los Angeles County, California (CERCLIS ID No. CAD980894893). The NHOU comprises approximately four (4) square miles of contaminated groundwater underlying an area of mixed industrial, commercial, and residential land use in the community of North Hollywood (a district of the City of Los Angeles). The NHOU is approximately 15 miles north of downtown Los Angeles and immediately west of the City of Burbank (see Figure 1).

1.2 PURPOSE

This Explanation of Significant Differences (ESD) documents significant changes to the cleanup remedy in the NHOU. The significant changes include: increased groundwater extraction; expanded treatment plant capacity to treat the additional extracted water; and transfer of some of the extracted groundwater to the SFV Area 1 Burbank Operable Unit (BOU) treatment plant.

The United States Environmental Protection Agency (EPA) signed an Interim Action Record of Decision for the NHOU on September 30, 2009 (2009 ROD). The remedy selected in the 2009 ROD is intended to contain contaminated groundwater in the SFV and remove contaminant mass. The 2009 ROD requires extraction and treatment of approximately 3,600 gallons per minute (gpm) of contaminated groundwater, with delivery of the treated water to the Los Angeles Department of Water and Power (LADWP) for use in its domestic water supply system. EPA selected the remedy in the 2009 ROD in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). EPA amended the 2009 ROD in 2014 to add re-injection of the treated water as an alternate end use, and EPA confirmed the need for additional extraction wells in a 2016 Memorandum to the File. The remedy selected in the 2009 ROD and modified by the subsequent amendment, memorandum to file, and this explanation of significant differences are collectively referred to as the NHOU Second Interim Remedy (NHOU2IR).

EPA prepared this ESD based on the information available in the administrative record for the Site, the public comments received, and consistent with CERCLA Section 117(c) and Section 300.435(c)(2)(i) of the NCP. In accordance with Section 300.825(a)(2) of the NCP, this ESD will become part of the administrative record for the Site. This ESD does not fundamentally alter the overall cleanup approach of the NHOU2IR, remains

protective, and continues to meet Applicable or Relevant and Appropriate Requirements (ARARs) per NCP Section 300.430(f)(1)(ii)(B)(1) and (2).

1.3 Lead and Support Agencies

The EPA is the lead agency for the current and planned future groundwater remedial activities at the NHOU. The EPA's response activities at the NHOU are and have been conducted under the authority established in the federal Superfund law, CERCLA, as amended, 42 United States Code ("U.S.C.") §9601 et seq. The lead State agency is the California Department of Toxic Substances Control. The Los Angeles Regional Water Quality Control Board ("RWQCB") has provided and continues to provide substantial support, particularly with the investigation and cleanup of sources of contamination.

1.4 Location of Administrative Record File

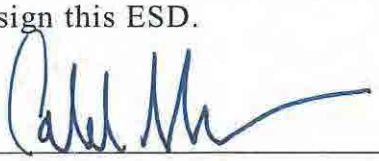
The Administrative Record file is available to the public at the EPA Region 9 Superfund Records Center, 75 Hawthorne Street, San Francisco, California, 94105 (415) 536-2000. The Administrative Record is also available for public review at the following information repositories:

- City of Los Angeles Central Library, Science & Technical Department: 630 West 5th Street, Los Angeles, CA, 90071, (213) 228-7216;
- North Hollywood Regional Branch Library, 5211 Tujunga Avenue, North Hollywood, CA, 91601; and,
- Burbank Public Library, Central Library, 110 North Glen Oaks Boulevard, Burbank, CA, 91502.

EPA also maintains a Site information web page at:
http://www.epa.gov/superfund/sanfernandonorthhollywood

1.5 Authorizing Signature

This ESD documents changes to the Second Interim Remedy for contaminated groundwater at the North Hollywood Operable Unit of the San Fernando Valley Area 1 Superfund Site. The California DTSC concurs with this ESD. The Assistant Director of the Superfund Division (EPA, Region 9) has been delegated the authority to approve and sign this ESD.



2/22/18

Caleb Shaffer — Date

Acting Assistant Director, Superfund Division

California Site Cleanup Branch

2.0 SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

The San Fernando Valley Basin (Basin) is an important source of drinking water for the Los Angeles metropolitan area. On average, groundwater in the vicinity of the NHOU accounts for approximately 15 percent of the City of Los Angeles' drinking water supply. For many reasons, including the recent drought, groundwater is an increasingly important source of drinking water for the City of Los Angeles. Extraction and management of the groundwater is closely regulated by an adjudication, which is overseen by a court-appointed special master, the Upper Los Angeles River Area Watermaster.

2.1 SITE HISTORY

EPA signed the first ROD for the NHOU in September 1987, selecting an interim remedy to address contaminated groundwater in the North Hollywood area (First Interim Remedy). The objective of the First Interim Remedy was to slow down or stop the movement of the contaminant plume and remove contaminant mass. The First Interim Remedy began operation in 1989, and LADWP continued to operate the treatment plant and many of the extraction wells until November 2017, when the system was shut down in preparation for construction of the Second Interim Remedy. The First Interim Remedy controlled the movement of groundwater by using a series of extraction wells that pumped contaminated groundwater from the San Fernando Valley aquifer. After the water was extracted from the aquifer, LADWP treated it using an air stripper, and then used carbon filters to remove contaminants. The treated water was then sent to a blending station, where it was further treated, blended with water from other sources, and then distributed through the water supply system for the City of Los Angeles.

Changing groundwater conditions and the discovery of VOC contamination in new areas of the aquifer beneath North Hollywood limited the ability of the First Interim Remedy to fully contain the VOC plume in the NHOU. In addition, LADWP shut down two of the First Interim Remedy's extraction wells, as well as a number of its own municipal drinking supply water wells, after emerging contaminants, including hexavalent chromium and 1,4-dioxane, were detected above state standards.

In response to these issues, the EPA conducted a Focused Feasibility Study (FFS) in 2007-2008 to evaluate alternatives for a Second Interim Remedy. The results of the FFS, including the comparative analysis of alternatives and identification of a preferred alternative, are summarized in the July 2009 Proposed Plan, and the preferred remedy was documented in the 2009 ROD. The remedy that EPA selected in the 2009 ROD included: installation of well-head treatment for hexavalent chromium and 1,4-dioxane;

expansion of the treatment system; installation of additional monitoring wells; installation and operation of up to three additional groundwater extraction wells; and, continued provision of the treated water to the LADWP.

EPA amended the 2009 ROD on January 10, 2014 (2014 RODA), in order to add re-injection as an alternative end use for the treated water. In addition, EPA signed a Memorandum to the File on June 20, 2016, confirming that additional extraction wells were needed in order to protect LADWP's North Hollywood West (NHW) Wellfield from 1,4-dioxane contamination (2016 MOF).

2.2 Remedial Action Objectives

The remedial action objectives (RAOs) for the NHOU2IR are unchanged from those set forth in the 2009 ROD:

- Prevent exposure to contaminated groundwater, above acceptable risk levels;
- Contain areas of contaminated groundwater that exceed the Maximum Contaminant Levels (MCLs) and notification levels to the maximum extent practicable;
- Prevent further degradation of water quality at the Rinaldi-Toluca and North Hollywood West production wells by preventing the migration toward these well fields of the more highly contaminated areas of the VOC plume located to the east/southeast;
- Achieve improved hydraulic containment to inhibit horizontal and vertical contaminant migration in groundwater from the more highly contaminated areas and depths of the aquifer to the less contaminated areas and depths of the aquifer, including the southeast portion of the NHOU in the vicinity of the Erwin and Whitnall production well fields; and,
- Remove contaminant mass from the aquifer.

The EPA inadvertently left out the first RAO (Prevent exposure to contaminated groundwater, above acceptable risk levels) from the final published 2014 ROD Amendment. This ESD clarifies that all five of the RAOs listed in the 2009 ROD continue to apply to the NHOU2IR.

The scope of the NHOU2IR does not include restoration of the aquifer (i.e., removal of all manmade contaminants), in part because additional data are needed in some areas of the aquifer where the extent of contamination and potential sources must be better defined before EPA can determine what additional actions, if any, are needed to address these other areas, and possible sources, of groundwater contamination.

2.3 DESCRIPTION OF REVISED REMEDY

The NHOU2IR includes the components listed below in Sections 2.3.1 through 2.3.6, and incorporates the modifications to the 2009 ROD as set forth in the 2014 RODA, the 2016 MOF, and this ESD. Section 4.0 presents a comparison of the changes.

This ESD does not change the RAOs, the contaminants addressed, nor the NHOU2IR's approach to containment and mass removal, and it does not fundamentally change the scope, performance, or cost of the NHOU2IR. Accordingly, EPA has determined that, consistent with EPA's *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*, the changes to the remedy in this ESD are best characterized as "significant" rather than "fundamental," as further described below.

2.3.1 Groundwater Extraction

The 2009 ROD requires hydraulic containment of the most contaminated areas of the NHOU plume "to the maximum extent practicable." In the 2009 FFS, EPA estimated that the minimum extraction rate necessary to achieve the containment RAO was 3,600 gpm. After reviewing additional groundwater data collected since 2009 and securing LADWP's cooperation regarding its planned groundwater extraction rates and possible use of out-of-service LADWP extraction wells, EPA determined that the NHOU2IR was capable of achieving greater levels of containment in the NHOU. With the changes in this ESD, EPA estimates that the NHOU2IR can achieve an annual average pumping rate of 6,500 gallons per minute (gpm), improving both hydraulic containment and contaminant mass removal.

Incorporating the changes in this ESD, the NHOU2IR groundwater extraction system will include the following components:

- Replace existing extraction wells NHE-3, NHE-4 and NHE-5 with deeper wells (NHE-3R, NHE-4R, and NHE-5R, respectively)
- Continue operation of the existing extraction wells NHE-2 and NHE-6, as currently constructed;
- Abandon existing well NHE-1, and remove it from the extraction well network;
- Continue operation of extraction wells NHE-7 and NHE-8;
- Add approximately seven additional extraction wells in the NHOU plume area to improve hydraulic containment and treatment of the plume. These wells may be unused LADWP production wells or newly installed, as determined during the

design. At least two of the wells shall be installed in the eastern plume area, around NHE-7 and NHE-8.

2.3.2 Groundwater Treatment Levels

The 2009 ROD establishes performance standards for the contaminants of concern at the NHOU, and requires that the treated water meet all applicable drinking water standards and treatment levels that apply to these contaminants in order to ensure successful implementation of the drinking water end use selected in the remedy. The performance standards selected in the 2009 ROD are unchanged by this ESD with the exception of hexavalent chromium.

At the time EPA signed the 2009 ROD, the Maximum Contaminant Level (MCL) for total chromium was 50 micrograms per liter (ug/L) and there was no MCL for hexavalent chromium. LADWP, however, refused to accept delivery of treated water to its municipal water supply system that exceeded 5 ug/L for hexavalent chromium. Although EPA did not consider LADWP's 5 ug/L limit for hexavalent chromium to be an ARAR, EPA identified it as an offsite requirement that must be satisfied in order for the Second Interim Remedy to be successfully implemented. Accordingly, EPA included the 5 ug/L limit for hexavalent chromium as a performance standard that must be met by the Second Interim Remedy.

On July 1, 2014, an MCL of 10 ug/L for hexavalent chromium went into effect in the State of California. On May 31, 2017, the Superior Court of Sacramento County issued a judgment invalidating the hexavalent chromium MCL, and as of September 11, 2017, the MCL for hexavalent chromium is no longer in effect. As a result, the California MCL of 50 ug/L for total chromium, which was identified as a relevant and appropriate requirement in the 2009 ROD and is unchanged by this ESD, is currently the only ARAR for chromium.

Since the 2009 ROD, LADWP has revised its position and will no longer require that water delivered to it from the NHOU2IR be treated to 5 ug/L for hexavalent chromium. Both LADWP and the City of Burbank will accept treated water from the NHOU2IR that meets the treatment levels specified in their respective drinking water permits issued by the CA Department of Drinking Water (DDW). Because the treatment level for hexavalent chromium in LADWP's and the City of Burbank's drinking water permits may change over time, particularly if the State of California promulgates a new hexavalent chromium MCL, EPA is not specifying a numeric performance standard for hexavalent chromium in this ESD. Instead, if the end use for the treated water is municipal water supply, the NHOU2IR's performance standard for hexavalent chromium will be the lower of the MCL or the treatment level that appears in city's

drinking water permit.[1] Because drinking water permit levels are offsite requirements, the NHOU2IR performance standard will change if the treatment level specified in the drinking water permit changes.[2] If the end use for the treated water is re-injection, the performance standard for hexavalent chromium is unchanged by this ESD.[3]

2.3.3 Groundwater Treatment Location

Consistent with the 2009 ROD, water extracted from NHE-2, NHE-3, NHE-4, NHE-5, and NHE-6 will be treated at the NHOU treatment plant located on Lankershim Boulevard. With the exception of the approximately two new extraction wells installed in the vicinity of NHE-7 and NHE-8, the water extracted from the new wells required by this ESD will also be treated at the NHOU treatment plant located on Lankershim Boulevard.

Pursuant to this ESD, water extracted by wells NHE-7 and NHE-8 and by the new wells installed in the vicinity of NHE-7 and NHE-8 (together, the "Eastern NHOU Wells") will be diverted to the treatment plant for the Burbank Operable Unit (BOU) of the San Fernando Valley Area 1 Superfund Site, located at 2030 North Hollywood Way, Burbank, California, for treatment. The BOU remedy will be updated to include this additional groundwater stream, via a Memorandum to File.

The BOU treatment plant is physically closer to the Eastern NHOU Wells than the NHOU treatment plant and it has both the treatment technology and the capacity to accommodate the water from Eastern NHOU Wells. Because chromium and 1,4-dioxane levels are much lower in the eastern area of the NHOU, the water extracted by the Eastern NHOU Wells will be treated only for VOCs. The primary contaminants of concern at the BOU and the NHOU are the same, TCE and PCE, and the treatment technology and goals in the BOU remedy are equivalent to the NHOU2IR for these contaminants.

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[1] In the event that the hexavalent chromium treatment levels are different in LADWP's and the City of Burbank's drinking water permits, the treated water in LADWP's system must meet the applicable offsite requirement for LADWP's drinking water permit, and the treated water in the City of Burbank's system must meet the City of Burbank's drinking water permit.

[2] If California promulgates a new MCL for hexavalent chromium, EPA will evaluate whether it is necessary to further revise the ROD and change the ARARs for the NHOU2IR in order to ensure that the remedy is protective of human health.

[3] As stated in the 2014 RODA, performance standards for the re-injection end-use option would be established during remedial design based on the injection locations and discussions with the RWQCB, which regulates groundwater injection.

Lockheed Martin Corporation is currently conducting a focused feasibility study (FFS) in the BOU to: identify, collect, and evaluate updated BOU site data; evaluate the effectiveness of the existing BOU interim remedy in achieving the RAOs set forth in the 1989 BOU ROD; and, evaluate containment and treatment options to improve remedy performance. As part of this effort, Lockheed will evaluate the impacts of managing the Eastern NHOU Wells as part of the BOU remedy rather than the NHOU remedy. Following completion of the FFS, EPA expects to issue a second interim record of decision for the BOU (BOU2IR).

2.3.4 Groundwater Treatment System

In order to accommodate the additional volume of water extracted pursuant to this ESD, the capacity of the NHOU2IR groundwater treatment system will be expanded to accommodate at least 4,800 gallons per minute. The components of the treatment system located on Lankershim Boulevard are unchanged by this ESD:

- VOC treatment by air stripping, followed by GAC;
- Treatment for hexavalent chromium by ferrous iron reduction with microfiltration, or an anion-exchange-based treatment process; and,
- Treatment for 1,4-dioxane by ultraviolet light and hydrogen-peroxide AOP.

As in the 2009 ROD, treatment technologies for hexavalent chromium and 1,4-dioxane at the Lankershim Boulevard treatment plant may be changed during design if another technology is demonstrated to be equally effective and more cost-effective, and/or if required by the DDW permit.

Water extracted from the Eastern NHOU Wells, approximately 1,700 gallons per minute, will be delivered to the BOU treatment plant for VOC treatment. The components of the BOU treatment plant, as selected in the 1989 BOU ROD, are:

- VOC treatment by air stripping followed by vapor phase GAC.

2.3.5 End-Use of Extracted and Treated Water for the Eastern NHOU Wells

The end-use options for the treated water from the NHOU2IR are:

Eastern NHOU Wells

- **Option 1:** Water from the Eastern NHOU Wells that is treated at the BOU plant will be used by the City of Burbank for its municipal drinking water supply or conveyed to LADWP for use in its municipal drinking water supply.

- **Option 2:** Any water not used in the City of Burbank's or LADWP's municipal drinking water supply will be re-injected back into the ground.

All other NHOU Wells

- **Option 1:** Water treated at the Lankershim Boulevard treatment plant will be delivered to LADWP for use in its municipal drinking water supply.
- **Option 2:** Any water not used in LADWP's municipal drinking water supply will be re-injected back into the ground.

2.3.6 Other Requirements

The following components of the NHOU2IR are unchanged by this ESD:

- **Prevent Migration of 1,4-Dioxane to the North Hollywood West Wellfield.** As previously determined in the 2016 MOF, at least two extraction wells located to the southwest of the Hewitt Pit Landfill shall be installed to capture contamination migrating from the Hewitt Pit towards the North Hollywood West Wellfield. The final location of the treatment system for these wells shall be determined during design.
- **Groundwater Monitoring.** Install, and add to the investigation and monitoring program, approximately 12 new wells (approximately 25 wells have previously been installed, of the 37 specified in the 2009 ROD).
- **Institutional Controls.** In addition to the groundwater pumping restrictions imposed by the Watermaster under the auspices of the California Superior Court, the primary institutional control for the NHOU2IR is a groundwater management plan whereby the EPA, LADWP, and the NHOU Potentially Responsible Parties (PRPs) will develop a plan to coordinate groundwater pumping activities in order to protect the effectiveness and integrity of the NHOU2IR while accommodating, to the greatest extent possible, LADWP's drinking water production.

2.4 Management of the Eastern NHOU Wells as part of the BOU

If, in the BOU2IR ROD, EPA elects to shift management of the Eastern NHOU Wells from the NHOU2IR to the BOU2IR, as is currently being evaluated in the BOU FFS, the Eastern NHOU Wells will cease to be a part of the NHOU2IR and, from that point forward, will be incorporated into and managed as part of the BOU2IR.

3.0 BASIS FOR THE DOCUMENT

After reviewing additional groundwater data collected since 2009 and securing LADWP's cooperation regarding its planned groundwater extraction rates and potential use of LADWP extraction and conveyance infrastructure, EPA determined that increased groundwater extraction in the NHOU could practicably achieve greater containment than the remedy selected in the 2009 ROD. The NHOU PRPs prepared two documents analyzing the effects of an expanded extraction well network: *Groundwater Modeling Technical Memorandum* (July 21, 2015), and *Treatment Options Memorandum* (December 9, 2016). Both documents support the conclusions that increased groundwater extraction pursuant to this ESD improves the performance of the NHOU2IR and better achieves RAOs. Additionally, the expansion of groundwater extraction in the NHOU and LADWP's contributions to the remedy improve the reliability of the drinking water end use.

The risk information contained in the 2009 ROD is still accurate. High concentrations of TCE, PCE, 1,4-dioxane, and chromium (both total and hexavalent) in groundwater represent a significant risk to human health if not treated prior to potable use. This ESD offers an improved interim remedy, improved protection of human health, and better achievement of the RAOs.

4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES

4.1 SUMMARY COMPARISON OF ORIGINAL AND CHANGED REMEDY

A comparison of the differences between the 2009 ROD, as modified, and this ESD is summarized in Table 1, below.

Table 1 – Comparison of 2009 ROD, as modified, and ESD components

ROD Component	Description	ESD Modifications
Institutional Controls	EPA, LADWP, and the NHOU PRPs develop and implement a groundwater management plan to protect the effectiveness and integrity of the NHOU remedy while accommodating, to the greatest extent possible, LADWP's drinking water production.	Unchanged
Groundwater Monitoring	Install approximately 37 new groundwater-monitoring wells to further define the nature and extent of the NHOU contamination.	Unchanged; however, approximately 25 of the 37 monitoring wells have been installed.
Extraction well Network	Replace NHE-1	NHE-1 will be abandoned.
	Replace NHE-2, NHE-4, and NHE-5 with deeper wells to achieve required hydraulic containment.	Unchanged
	Rehabilitate NHE-3, NHE-6, NHE-7 and NHE-8 as required to maintain design pumping rates.	Unchanged; Except, NHE-8 has failed, and must now be replaced.
	Install approximately three (3) new extraction wells in the area south of the Rinaldi-Toluca wellfield. The exact number, location, and pumping rates for these wells will be finalized during remedial design.	Install approximately seven (7) new extraction wells. Approximately two of the wells will be installed in the NHOU eastern area, with delivery of water to the BOU treatment system. The exact number, location, and pumping rates for these wells will be finalized during remedial design.
2016 MOF: Extraction and Treatment for 1,4-dioxane	Install at least two new wells southwest of the Hewitt Pit Landfill to contain contaminated groundwater from the landfill.	Unchanged

ROD Component	Description	ESD Modifications
Treatment for Hexavalent Chromium and 1,4-dioxane	Treatment required at NHE-2 at peak flow rate of approximately 300 gpm.	NHE-2 wellhead treatment will not be performed; groundwater extracted from NHE-2 will be treated at the Lankershim Boulevard treatment plant.
Treatment of VOCs in extracted groundwater	Air-stripping for VOCs with GAC treatment of the air stream before discharge to the environment; "double-barrier" treatment for VOCs using LPGAC.	Unchanged
End-Use Options	2009 ROD: Deliver Treated Groundwater to LADWP	Unchanged
	2014 RODA: Optionally reinject Treated Groundwater back into the basin.	Unchanged
	2016 MOF: Treated water from additional Hewitt Pit wells may be either delivered to LADWP or reinjected.	Unchanged[4]
		The water extracted from the Eastern NHOU wells will be delivered to the Burbank Operable Unit Treatment system.

The following table summarizes the changes in the scope, anticipated performance, and costs of the expanded remedy.

Table 2 – Comparison of Scope, Performance, and Cost Changes

Remedy Element	NHOU2IR as Modified	ESD Modifications
Scope	The selected remedy is a groundwater extraction and treatment remedy with either a drinking-water end use or re-injection into the aquifer.	Unchanged, except expanded extraction capacity.

[4] The end use for the water treated from the Hewitt Pit extraction wells may be different than the end-use selected for the water extracted from other extraction wells for this remedy.

Remedy Element	NHOU2IR as Modified	ESD Modifications
Performance/ Pumping Rates	The 2009 ROD as modified does not recommend a specific pumping rate for the NHOU2IR; rather, the RAO for hydraulic containment must be met by the remedial design. The 2009 FFS estimated a total pumping rate of 3,600 gpm with a long-term average of 3,050 gpm.	This ESD does not change the ROD requirement for hydraulic containment. The modeling performed during the design phase since the 2009 ROD and 2014 RODA indicates an increased pumping capacity is possible by integration of deeper LADWP production wells into the final remedy design. The estimated long-term average total pumping rate is 6,500 gpm for all anticipated wells.
Cost	The Alternative 4a remedy cost was estimated to be $107.8 million in the 2009 FFS. Alternative 4b remedy cost was estimated to be $134.1 million in the 2009 FFS.	Estimated costs for this revised remedy are not expected to be significantly greater. This is due to savings that will be realized by a phased approach, as well as the increased cooperation with LADWP, including use of existing LADWP infrastructure.
Expected outcomes	Meets RAOs "Contains to maximum extent practicable" assuming limited LADWP participation in remedy implementation.	Will more effectively meet RAO for hydraulic containment due to the higher pumping rates of the extraction wells.

4.2 EXPECTED OUTCOMES

EPA anticipates that the expanded NHOU2IR will more effectively and completely meet the RAOs than the original 2009 ROD as amended. In particular, EPA expects that the increased pumping rates will improve hydraulic containment of contaminated groundwater. Groundwater flow modeling performed by the PRPs predicts a high probability of complete plume capture in the central and eastern portions of the plume under the expanded remedy within 30 years.

5.0 SUPPORT AGENCY COMMENTS

The Department of Toxic Substances Control, which is the primary lead agency for the State of California, supports this ESD.

The Regional Water Quality Control Board, Los Angeles Region, which has been heavily involved in cleanup of SFV groundwater contamination, also supports this ESD.

6.0 STATUTORY DETERMINATIONS

In accordance with CERCLA Section 121, the EPA believes that the NHOU2IR, as modified by this ESD, remains protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to this interim remedial action, and is cost effective. In addition, this remedy satisfies the statutory preference for remedies that employ treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances as a principal element. It also complies with the statutory preference for remedies that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The changes and clarifications contained in this ESD are significant but do not fundamentally change the remedy.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-Site (i.e., in groundwater) above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

7.0 PUBLIC PARTICIPATION ACTIVITIES

EPA has presented these changes to the remedy in the form of an Explanation of Significant Differences because the changes are of a significant, but not fundamental, nature. The basic groundwater extraction and treatment concepts presented in this ESD are essentially the same as the concepts presented in the 2009 ROD.

EPA provided an opportunity for public comment on this ESD from February 27, 2017 to March 28, 2017. A notice of the opportunity to comment was sent to potentially responsible parties, LADWP, surrounding cities, and interested community members on February 21, 2017, and published on EPA's NHOU Site Overview webpage. The public comment period was subsequently extended by request to April 18, 2017.

The comments received, and the responses to those comments, are summarized in Attachment A. In general, the comments received were all supportive of this revised decision.

In accordance with 40 CFR 300.435(c)(2)(i), and EPA's San Fernando Valley Superfund Site Community Involvement Plan (September 2016), EPA will conduct the following additional public participation activities:

- A notice of availability of this ESD and a brief description of this ESD will be published in a prominent local newspaper, the *Reel World Post*, as required by 40 CFR Section 300.435 (c)(2)(i)(B); and,
- The ESD and supporting information will be made available to the public in the administrative records established under 40 CFR 300.815 and the information repositories (locations listed in Section 1.4).

8.0 REFERENCES

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EPA Superfund. 2009. *Interim Action Record of Decision, North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, Los Angeles County, California.* EPA ID: CAD980894893. September 30.

EPA Superfund. 2014. *Amendment to the 2009 Interim Action Record of Decision, North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, Los Angeles County, California*. EPA ID: CAD980894893. January 10.

EPA Superfund. 2016. Memorandum to File, Addition of Extraction Wells Near Hewitt Pit Landfill As Part of Second Interim Remedy, North Hollywood Operable Unit, San Fernando Valley (Area 1) Superfund Site, Los Angeles County, California. June 20.

ATTACHMENT A

EPA Response to Public Comments

Comment provided by Los Angeles Department of Water and Power (Correspondence dated March 6, 2017)	
Comment	**EPA Response to Comments**
LADWP has always called for the implementation of a comprehensive remediation plan at the NHOU. We believe that the proposed changes are essential in meeting EPA's Remedial Action Objectives, which include increasing the extraction rate, adding more extraction wells, and designing a more efficient treatment system that will treat for emerging contaminants. This is a step forward toward achieving a more effective and reliable remedy that will allow a full containment, prevent further plume migration, and expedite the mass removal of contamination in SFB. As such, LADWP understands the benefit and the urgency of the proposed modifications to the ROD and thus fully supports its implementation.	Comment acknowledged.
Comments provided by Gene A. Lucero on behalf of Honeywell International Inc. (Correspondence dated April 18, 2017)	
Comment	**EPA Response to Comments**
For the last several years, Honeywell has worked hand-in-hand with EPA, the Los Angeles Department of Water and Power ("LADWP"), and other stakeholders to advance the groundwater remedy outlined in the ROD. While Honeywell believes that Alternative 4B (reinjection) as adopted in the 2014 amendment to the ROD (the "RODA") will meet the NHOU remedial action objectives ("RAOs"), Honeywell supports the proposed changes in the Fact Sheet and the inclusion of an additional option (while retaining Alternative 4B as currently adopted) to the "Preferred Alternative" because such an option enhances the implementability and likelihood of state acceptance of a drinking water end-use option, and it helps facilitate a beneficial end-use for the treated water from the contemplated extraction wells.	Comment acknowledged.

Honeywell comments (continued)	**EPA Response to Comments (continued)**
Preservation of ROD Alternative 4B: When EPA adopted an amendment to the ROD in 2014 (the "RODA") to add reinjection as part of its Preferred Alternative for the NHOU remedy, it noted that "LADWP and the NHOU PRPs may be unable to reach an agreement that is acceptable to EPA regarding the terms and criteria for delivery and acceptance of treated groundwater for use in LADWP's drinking water supply system." Based on the extensive efforts of EPA, LADWP, Honeywell, and other NHOU stakeholders since the adoption of the RODA, Honeywell is confident that the parties will find an acceptable construct. Nevertheless, at this time Honeywell recommends preserving Alternative 4B (as currently adopted) as part of the ROD's Preferred Alternative.	The ESD does not change the selected remedy end-use alternatives; both Alternative 4A and Alternative 4B remain as options.
Clarification of the ROD Treatment Standards: Honeywell requests that the ESD recognize that for the remedy option where the end-use of the extracted and treated groundwater is drinking water, there are overlapping statutory authorities that apply to this scenario. The State Water Resources Control Board's Division of Drinking Water ("DDW") ultimately holds responsibility for setting and enforcing drinking water quality standards for any extracted and treated groundwater that will be offered as a supply source for drinking water (e.g., primary and secondary MCLs, notification levels, etc.). By contrast, CERCLA requires the treatment of extracted water to the standards established by the Applicable or Relevant and Appropriate Requirements. Given DDW's statutory mandate and the contemplated remedy construct, making DDW requirements enforceable CERCLA standards is not warranted in this instance, is an unnecessary step for successful implementation of the modified groundwater remedy, and creates confusion and potential conflict as the treatment remains a Superfund project under CERCLA and not a DDW-driven program.	If the end use of the treated water is provision to LADWP and the City of Burbank for use in their drinking water systems, DDW's drinking water permit requirements must be met in order to successfully implement the remedy.

Honeywell comments (continued)	**EPA Response to Comments (continued)**
Accounting for the New Hexavalent Chromium MCL: The ESD should update the ROD to reflect that fact that the State of California promulgated a 10 micrograms per liter MCL for hexavalent chromium after the 2009 ROD was released. The ESD should make it clear that the treatment required under Superfund must meet this new standard.	In the intervening time since the comment was written, the MCL for Hexavalent Chromium was challenged in court. The State of California lost the challenge and the MCL was voided.
We encourage that the ESD describe potential options available to deliver the water extracted and treated to prevent further degradation of the Rinaldi-Toluca and North Hollywood West production wells to LADWP for eventual use in its drinking water supply.	The ROD as amended and ESD state that details on how best to achieve the RAOs will be developed during the Remedial Design (RD) phase.
Comment provided by Carolyn S. Monteith for Lockheed Martin Corporation (Correspondence dated April 17, 2017)	
Comment	**EPA Response to Comments**
As a party participating in implementation of the Second Interim Remedy, Lockheed Martin supports the proposed modification as a means of increasing the effectiveness and sustainability of the remedy.	Comment acknowledged.

EXHIBIT 6

TRIGGER WELLS

EXPLANATION

- Proposed Extraction Well
- LA DWP Rinaldi-Toluca Wellfield Well
- A Zone Trigger Well
- B Zone Trigger Well
- Approximate Boundary San Fernando Valley Investigation Area 1

TRIGGER WELL LOCATIONS
North Hollywood Operable Unit
Los Angeles County, California

wood.

By: KLU	Project No. 8617190370.1.1
Date: 11/25/2019	**Exhibit 6**

Monday, November 25, 2019 4:05:33 PM
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EXHIBIT 7

FORM OF TOLLING AGREEMENT

WHEREAS, LOS ANGELES DEPARTMENT OF WATER AND POWER and HONEYWELL INTERNATIONAL, INC. entered into a SETTLEMENT AGREEMENT BETWEEN THE LOS ANGELES DEPARTMENT OF WATER AND POWER AND HONEYWELL INTERNATIONAL, INC. on the EFFECTIVE DATE of _____ ("NHOU SETTLEMENT AGREEMENT").

WHEREAS, in the NHOU SETTLEMENT AGREEMENT, the PARTIES mutually covenanted and agreed therein, not to sue or take administrative action against each other on any RESERVED CLAIMS for a period of fifteen (15) years from the EFFECTIVE DATE of the NHOU SETTLEMENT AGREEMENT and further agreed to toll the running of all limitations applicable to their RESERVED CLAIMS for a period of fifteen (15) years.

WHEREAS, the PARTIES previously entered into agreements tolling the claims against each other, with respect to any and all rights, claims, causes of action, counter-claims, third-party claims, cross-claims or defenses that could or might be asserted by the PARTIES against each other that are based on, or arise out of, actual or alleged CONTAMINATION at the NHOU, which include but are not limited to the claims tolled by this Tolling and Standstill Agreement ("Tolling Agreement").

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants and agreements herein, and contained in the NHOU SETTLEMENT AGREEMENT attached hereto, the PARTIES hereby agree in this Tolling Agreement as follows:

1. Definitions: Terms in all capital letters and not otherwise defined herein shall have the meaning as set forth in the NHOU SETTLEMENT AGREEMENT.

2. To effectuate the covenants set forth in SECTION 26.3.1 of the NHOU SETTLEMENT AGREEMENT, the PARTIES hereby agree to continue to toll the running of any statutes of limitation, any statutes of repose, and any other statute, law, rule or principle of equity with similar effect (collectively, "Limitations") applicable to their RESERVED CLAIMS from the

EFFECTIVE DATE through four (4) years from the EFFECTIVE DATE. The PARTIES further agree to enter into subsequent tolling agreements to ensure the running of all limitations applicable to the RESERVED CLAIMS for a period of fifteen (15) years from the EFFECTIVE DATE.

3. The PARTIES, and each of them, shall not assert, plead or raise in any fashion, whether by answer, motion, or otherwise, any defense of laches, estoppel, or waiver, or other equitable defense based on the running of any statute of limitations or the passage of time during the tolling period for any of the RESERVED CLAIMS.

4. This Tolling Agreement does not constitute any admission or acknowledgment of any fact, conclusion of law, or liability by any PARTY to this Tolling Agreement. Nor does this Tolling Agreement constitute any admission or acknowledgement on the part of either PARTY that any statute of limitations, or defense based upon the timeliness of commencing a civil action, is applicable to the RESERVED CLAIMS. The PARTIES reserve the right to assert that no statute of limitations applies to any of the RESERVED CLAIMS and that no other defense based upon the timeliness of commencing a civil action is applicable.

5. This Tolling Agreement may not be modified except in a writing signed by all the PARTIES.

6. This Tolling Agreement may be executed in counterparts with the same force and effect as if executed in one complete document by all PARTIES. Signatures by facsimile or delivered electronically shall be binding and treated as though they were originals.

7. No term, recital, and/or provision in this Tolling Agreement shall be construed as having any bearing on any allocation of liability relating to the NHOU to any PARTY.

8. This Tolling Agreement shall inure to the benefit of, and be binding upon, each PARTY and its successors in interest, and cannot be assigned by any PARTY without the consent of the other PARTY. With the exception of successors, no other persons or entities shall be bound by, or deemed to be beneficiaries of, this Tolling Agreement.

9. If any term or provision in this Tolling Agreement is determined to be illegal or unenforceable, all other terms and provisions in this Tolling Agreement shall remain effective and shall be enforced to the full extent permitted by law.

10. Each of the PARTIES has participated in the drafting of this Tolling Agreement. Therefore, the language of this Tolling Agreement shall not be presumptively construed in favor of or against any of the PARTIES.

11. The PARTIES and undersigned hereby represent and warrant that: (a) the person executing this Tolling Agreement on behalf of each PARTY is fully authorized to execute this Tolling Agreement on behalf of such PARTY; (b) they have not previously assigned or transferred in any manner, or purported to have assigned or transferred in any manner, any of the RESERVED CLAIMS described or set forth in the NHOU SETTLEMENT AGREEMENT to any third party or entity; and (c) this Tolling Agreement is the product of arms' length negotiations between and among the PARTIES, and that the PARTIES have been advised by competent counsel.

12. This Tolling Agreement shall, in all respects, be interpreted, enforced, and governed by and under the laws of the state of California applicable to instruments, persons, and transactions which have legal contacts and relationships within the state of California, without regard to conflict of laws provisions.

DEPARTMENT OF WATER AND POWER OF
THE CITY OF LOS ANGELES
APPROVED:

By: _____
MARTIN L. ADAMS
General Manager and Chief Engineer

HONEYWELL INTERNATIONAL INC.
APPROVED:

By: _____
D. EVAN VAN HOOK
Corporate V.P., Health, Safety, Environment, Product Stewardship & Sustainability

EXHIBIT 8

HONEYWELL IDENTIFIED PERSON WITH KNOWLEDGE

- Benny Dehghi, Director, Major Projects, Honeywell International Inc.

EXHIBIT 9

FORM OF LADWP BUDGET

Form of Annual Budget

Operating Budget Estimate - Calendar Year 2022

Budget Estimate Summary

	CCC				SSC	
	Phase 1		Phase 3			
	On the Ground	O&M	On the Ground	O&M	On the Ground	O&M
Total Labor Costs (see detailed labor cost estimate)	$ -	$ -	$ -	$ -	$ -	$ -
Total Direct Costs (see detailed direct cost estimate)	$ -	$ -	$ -	$ -	$ -	$ -
Total Capital Costs (see detailed capital cost estimate)	$ -	$ -	$ -	$ -	$ -	$ -

SUBTOTAL ANNUAL BUDGET:	$ -	
CONTINGENCY:	$ -	10%
TOTAL ANNUAL BUDGET:	$ -	

Form of Annual Budget

Operating Budget Estimate - Calendar Year 2022

Labor Cost Estimate Worksheet

CCC

Phase 1 - On the Ground Labor

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Labor
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
			Summary Labor - Phase 1 On the Ground:		**$ -**

Phase 1 - Operations & Maintenance Labor

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Budget
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
			Summary Labor - Phase 1 O&M:		**$ -**

Phase 3 - On the Ground Labor

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Budget
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
			Summary Labor - Phase 3 On the Ground:		**$ -**

Phase 3 - Operations & Maintenance Labor

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Budget
Wastewater Treatment Plant Manager	-	$ -	$ -	$ -	$ -
Building Operating Engineer (Central Control Room Operator)	-	$ -	$ -	$ -	$ -
Wastewater Treatment Plant Operator	-	$ -	$ -	$ -	$ -
Wastewater Treatment Mechanic	-	$ -	$ -	$ -	$ -
Wastewater Treatment Electrician	-	$ -	$ -	$ -	$ -
Maintenance Laborer (Building)	-	$ -	$ -	$ -	$ -
Instrument Mechanic	-	$ -	$ -	$ -	$ -
Mechanical Repairer	-	$ -	$ -	$ -	$ -
Electrical Pump Plant Operator	-	$ -	$ -	$ -	$ -
Maintenance Laborer (Media Changeouts)	-	$ -	$ -	$ -	$ -
Storekeeper (Warehouse Management, Procurement, Tracking)	-	$ -	$ -	$ -	$ -
Plant Equipment Trainee (training)	-	$ -	$ -	$ -	$ -
Mechanical Engineering Associate	-	$ -	$ -	$ -	$ -
Information Systems Operations Manager (Systems Programmer)	-	$ -	$ -	$ -	$ -
Sample Collection	-	$ -	$ -	$ -	$ -
Laboratory Technician (Sample Analysis)	-	$ -	$ -	$ -	$ -
			Summary Labor - Phase 3 O&M:		**$ -**

Form of Annual Budget

Operating Budget Estimate - Calendar Year 2022

Labor Cost Estimate Worksheet

SSC

SSC - On the Ground Expenses

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Budget
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
Title	-	$ -	$ -	$ -	$ -
			Summary Labor - SSC On the Ground:		**$ -**

SSC - Operations & Maintenance

Labor	Regular Hours/yr	Annual Raw Salary Rate	LADWP's Fiscal Year OH Rates* 0%	Regular Hourly Rate	Total Budget
Building Operating Engineer (Central Control Room Operator)	-	$ -	$ -	$ -	$ -
Wastewater Treatment Plant Operator	-	$ -	$ -	$ -	$ -
Wastewater Treatment Mechanic	-	$ -	$ -	$ -	$ -
Instrument Mechanic	-	$ -	$ -	$ -	$ -
Maintenance Laborer (Media Changeouts)	-	$ -	$ -	$ -	$ -
Mechanical Engineering Associate	-	$ -	$ -	$ -	$ -
			Summary Labor - SSC O&M:		**$ -**

NOTES:

* As published by LADWP (July to June). Rates to be adjusted mid calendar year

Form of Annual Budget
Operating Budget Estimate - Calendar Year 2022
Direct Cost Worksheet

CCC

Phase 1 - On the Ground Direct Costs

Direct Cost	Total Budget
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - Phase 1 On the Ground: $ -

Phase 1 - Operations & Maintenance Direct Costs

Direct Cost	Total Budget
Expense Item 1	$ -
Expense Item 2	$ -
Expense Item 3	$ -
Expense Item 4	$ -
Laboratory Costs	$ -
Processing Chemicals and Materials	$ -
LPGAC Replacement	$ -
UV Bulbs Replacements	$ -
Sulfuric Acid	$ -
Hydrogen Peroxide	$ -
Electric	$ -
Field instrument replacement	$ -
Lamp replacement	$ -
Resin Replacement	$ -
Replacement Bag filters	$ -
Misc spare parts and maintenance	$ -
Other Utilities (natural gas, city water, internet)	$ -
Disposal Costs	$ -
LABOS Annual Permit Fee	$ -
BOE and Manifest Fees on Waste	$ -
Permitting/agency Fees	$ -
Waste management and disposal	$ -
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - Phase 1 Operations & Maintenance $ -

Form of Annual Budget
Operating Budget Estimate - Calendar Year 2022
Direct Cost Worksheet

CCC

Phase 3 - On the Ground Direct Costs

Direct Cost	Total Budget
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - Phase 3 On the Ground: $ -

Phase 3 - Operations & Maintenance Direct Costs

Direct Cost	Total Budget
Expense Item 1	$ -
Expense Item 2	$ -
Expense Item 3	$ -
Expense Item 4	$ -
Laboratory Costs	$ -
Processing Chemicals and Materials	$ -
LPGAC Replacement	$ -
UV Bulbs Replacements	$ -
Sulfuric Acid	$ -
Hydrogen Peroxide	$ -
Electric	$ -
Field instrument replacement	$ -
Lamp replacement	$ -
Resin Replacement	$ -
Replacement Bag filters	$ -
Misc spare parts and maintenance	$ -
Other Utilities (natural gas, city water, internet)	$ -
Disposal Costs	$ -
LABOS Annual Permit Fee	$ -
BOE and Manifest Fees on Waste	$ -
Permitting/agency Fees	$ -
Waste management and disposal	$ -
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - Phase 3 Operations & Maintenance $ -

Form of Annual Budget
Operating Budget Estimate - Calendar Year 2022
Direct Cost Worksheet

SSC

SSC - On the Ground Expenses

Direct Cost	Total Budget
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - SSC On the Ground: $ -

SSC - Operations & Maintenance

Direct Cost	Total Budget
Expense Item 1	$ -
Expense Item 2	$ -
Expense Item 3	$ -
Expense Item 4	$ -
Laboratory Costs	$ -
Processing Chemicals and Materials	$ -
LPGAC Replacement	$ -
UV Bulbs Replacements	$ -
Sulfuric Acid	$ -
Hydrogen Peroxide	$ -
Electric	$ -
Field instrument replacement	$ -
Lamp replacement	$ -
Resin Replacement	$ -
Replacement Bag filters	$ -
Misc spare parts and maintenance	$ -
Other Utilities (natural gas, city water, internet)	$ -
Disposal Costs	$ -
LABOS Annual Permit Fee	$ -
BOE and Manifest Fees on Waste	$ -
Permitting/agency Fees	$ -
Waste management and disposal	$ -
LADWP Direct Reimbursables Costs	$ -
Item 1	$ -
Item 2	$ -
Item 3	$ -
Item 4	$ -

Summary Direct Costs - SSC Operations & Maintenance $ -

Form of Annual Budget

Operating Budget Estimate - Calendar Year 2022

Capital Cost Estimate Worksheet

CCC

Phase 1 - On the Ground Capial Costs

Capital Cost	Total Budget
Capital Project Ph. 1-OTG.1	$ -
Capital Project Ph. 1-OTG.2	$ -
Capital Project Ph. 1-OTG.3	$ -
Capital Project Ph. 1-OTG.4	$ -

Summary Capital Costs - Phase 1 On the Ground: $ -

Phase 1 - Operations & Maintenance Capital Costs

Capital Cost	Total Budget
Capital Project Ph. 1-OM.1	$ -
Capital Project Ph. 1-OM.2	$ -
Capital Project Ph. 1-OM.3	$ -
Capital Project Ph. 1-OM.4	$ -

Summary Capital Costs - Phase 1 Operations & Maintenance $ -

Phase 3 - On the Ground Capital Costs

Capital Cost	Total Budget
Capital Project Ph. 3-OTG.1	$ -
Capital Project Ph. 3-OTG.2	$ -
Capital Project Ph. 3-OTG.3	$ -
Capital Project Ph. 3-OTG.4	$ -

Summary Capital Costs - Phase 3 On the Ground: $ -

Phase 3 - Operations & Maintenance Capital Costs

Capital Cost	Total Budget
Capital Project Ph. 3-OM.1	$ -
Capital Project Ph. 3-OM.2	$ -
Capital Project Ph. 3-OM.3	$ -
Capital Project Ph. 3-OM.4	$ -

Summary Capital Costs - Phase 3 Operations & Maintenance $ -

SSC

SSC - On the Ground Expenses

Capital Cost	Total Budget
Capital Project SSC-OTG.1	$ -
Capital Project SSC-OTG.2	$ -
Capital Project SSC-OTG.3	$ -
Capital Project SSC-OTG.4	$ -

Summary Captial Costs - SSC On the Ground: $ -

SSC - Operations & Maintenance

Capital Cost	Total Budget
Capital Project SSC-OM.1	$ -
Capital Project SSC-OM.2	$ -
Capital Project SSC-OM.3	$ -
Capital Project SSC-OM.4	$ -

Summary Capital Costs - SSC Operations & Maintenance: $ -

EXHIBIT 10

ROLLING ANNUAL AVERAGE CALCULATION

This EXHIBIT 10 sets forth the formula and method to calculate the ROLLING ANNUAL AVERAGE as defined in the NHOU SETTLEMENT AGREEMENT, which is intended to be a 5-year rolling average for production rates of treated water via CCC SYSTEM and SSC SYSTEM. These calculations are solely for purposes of the NHOU SETTLEMENT AGREEMENT, and are not intended to be used by EPA or any other third party for any purpose. Terms in all capital letters not otherwise defined in this EXHIBIT 10 shall have the meaning set forth in the NHOU SETTLEMENT AGREEMENT.

The calculations provided herein account for a partial year of operation, which is anticipated to be most important for the first five-year period of operation due to the planned shutdown of the PHASE 1 TREATMENT SYSTEM to upgrade it to the PHASE 3 TREATMENT SYSTEM. However, for subsequent five-year periods, it may be desirable to calculate the five-year rolling average with a start date of either October 1 (i.e., the beginning of the water year) or January 1 (i.e., the beginning of the calendar year). If so, the second five-year period would slightly overlap with the first five-year period, which would maintain accounting for all treated water provided to the LADWP by the CCC SYSTEM.

The programmable logic controller (PLC) will receive data from field devices and the historian will pull data from the PLC. This data may be exported to a spreadsheet, which will have the formulas described herein incorporated into the spreadsheet. Manual entry will be required to account for downtime or to determine if reduced flows that occurred each month were due to **Factors Beyond Operator Control at Site** (defined in Section 1.e., below). When either plant is out of service or operating at a reduced capacity, the operator shall prepare a backup incident report that includes information about the cause of the shutdown, its duration, and the estimated impact on capacity. The number of hours comprising such downtime and flow reduction factors are anticipated to be discussed and agreed upon on a quarterly basis by the STEERING COMMITTEE due to the subjective nature of those determinations.

1. The 5-year CCC period Average Annual Requirement (**AAR**) and Rolling Production Average (**RPA)** for the CCC during CCC PHASE 1 and CCC PHASE 3 shall be calculated as follows:

a. The NHOU 2IR is anticipated to operate 328.7 days per year (90% up-time), and produce an average of 1,500 acre-feet per year (AFY), or 4.56 acre-feet (AF) per day (1,500 AFY ÷ 328.7 days/year = 4.56 AF/day), during CCC PHASE 1 (pilot scale facility); and an average of 8,500 AFY, or 25.86 AF per day (8,500 AFY ÷ 328.7 days/year = 25.86 AF/day), during CCC PHASE 3 (full scale facility).

b. The Average Annual Requirement for NHOU 2IR (**AAR**, in AFY; see formula below) shall be calculated as the sum of 1,500 AF per year times the number of years (**x**; which can include a partial year) that the PHASE 1 TREATMENT SYSTEM is in operation during the most recent 5-year CCC period of NHOU 2IR operation, plus 8,500 AF per year times the number of years (**5-x**) that the PHASE 3 TREATMENT SYSTEM is in operation during the most recent 5-year CCC period of NHOU 2IR operation, divided by 5.

c. The **AAR** shall exclude process water flow that is not discharged to the conveyance to the SUMP (e.g., routine backwash water discharged to the sanitary sewer) unless non-process water (i.e., municipal water) was used to perform the backwashing operation. Typical backwash operations anticipate using process water and, as such, the monthly production volume shall be determined by summing the totalizers associated with each pair of LPGAC tanks, less the volume of process water used for routine backwash operations. The volume of process water used for backwash operations shall be determined by summing the totalizers associated with the LPGAC and ion exchange backwash pumps. Totalizer calculations shall be performed via the treatment system PLC. In the event that non-process water is used to perform backwash operations, all process water shall be accounted for in rolling average calculations during that month.

d. The 5-year CCC periods do not include the downtime of the NHOU 2IR system between the shutdown of the PHASE 1 TREATMENT SYSTEM and start-up of the PHASE 3 TREATMENT SYSTEM, which will be necessary to construct the PHASE 3 TREATMENT SYSTEM.

e. The CCC Period Pumping Credit (**CPPC** in AF; see formula below) shall be calculated based on the total volume of water in AF (**b + c**, see formulas below) that would have been produced (not to exceed the maximum monthly capacity) during the most recent 5-year CCC period of NHOU 2IR operation but during which the NHOU 2IR was shut down due to **Factors Beyond Operator Control at Site**, as defined below. Additionally, a "d" factor (as defined below) is added to the CPPC to account for the variance (in AF) of water below the monthly production goal that could not be produced by the NHOU 2IR system during the most recent 5-year CCC period due to lowered pumping rates due to **Factors Beyond Operator Control at Site**.

As used in this Attachment B, the term "**Factors Beyond Operator Control at Site**" means:

(i) the lowering of groundwater elevations;

(ii) intermittent or long-term curtailment or interruption of electrical energy supplies to the CCC;

(iii) long-term reorganization and bulk permeability reduction of aquifer sediment or strata resulting from seismic shaking following a very large, regional seismic event(s);

(iv) inability of LADWP to accept water into its distribution system due to system upsets or planned or unplanned water distribution system maintenance; or

(v) any event that qualifies as a FORCE MAJEURE.

f. The monthly credit (in AF) received for a system shutdown due to **Factors Beyond Operator Control at Site** will result in a concomitant reduced production goal ("corrected goal") during that month that shall be factored into the pumping credit (**CPPC**; see formula below).

g. The 5-year Rolling Production Average for NHOU 2IR (**RPA** in AFY; see formula below) shall be calculated as the sum of water production in AF (V_i) during the most recent 5-year CCC period of NHOU 2IR operation, plus the 5-year CCC period pumping credit (**CPPC**; see formula below), divided by 5.

h. The 5-year **RPA** (units of AFY) shall be compared to the 5-year **AAR** (unit of AFY) to determine if the 5-year rolling production average NHOU 2IR water production requirement has been met for each 5-year CCC period.

$$Average\ Annual\ Requirement\ (in\ AFY) = \boldsymbol{AAR} = \frac{\left(1{,}500\ AFY \times (x\ years) + 8{,}500\ AFY \times (5 - x\ years)\right)}{5\ years}$$

i. The 5-year **CPPC** (units of AF) shall be calculated using the following formula:

$$CCC\ Period\ Pumping\ Credit\ (in\ AF) = \boldsymbol{CPPC} = \boldsymbol{b} + \boldsymbol{c} + \boldsymbol{d}$$

Where,

x = number of years (range is 0 to 5, but need not be an integer) that the PHASE 1 TREATMENT SYSTEM was in operation during the most recent 5-year CCC period of the NHOU 2IR.

b = total volume of water (in AF) during **x** years of operation in the most recent 5-year CCC period that could not be produced by the PHASE 1 TREATMENT SYSTEM due to monthly downtime of the system due to **Factors Beyond Operator Control at Site**, per Section 1.e, corrected for reduced average production rates in each month and for 90% of the system downtime hours (assuming a 90% uptime overall). Additionally, if a system shutdown occurs while the treatment system was operating at an above-average water production rate, the monthly corrected downtime credit is limited to the average treatment system capacity (i.e. limited to the downtime times 0.19 AF/hr). This value **b** does not include any water from the PHASE 3 TREATMENT SYSTEM.

$$\boldsymbol{b} = \sum_{0}^{x} \left(Corrected\ downtime\ credit\ during\ Phase\ 1B\ month\ \left[\frac{AF}{month}\right]\right)$$

Where, if:

$$\left[90\%\ \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right)\right.$$
$$\times (1\ + fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control)$$
$$\left.\times \frac{Actual\ Phase\ 1B\ Month\ Production\ \left(\frac{AF}{month}\right)}{657.5\frac{hrs}{month} - 90\%\ \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right)}\right]$$
$$> \left[\left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right) \times 0.19\ \left[\frac{AF}{hr}\right]\right]$$

Then,

$$Corrected\ downtime\ credit\ during\ Phase\ 1B\ month\ \left[\frac{AF}{month}\right]$$
$$= \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right) \times 0.19\ \left[\frac{AF}{hr}\right]$$

Otherwise,

$$Corrected\ downtime\ credit\ during\ Phase\ 1B\ month\ \left[\frac{AF}{month}\right]$$
$$= 90\%\ \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right)$$
$$\times (1\ + fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control)$$
$$\times \frac{Actual\ Phase\ 1B\ Month\ Production\ \left(\frac{AF}{month}\right)}{657.5\frac{hrs}{month} - 90\%\ \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right)}$$

c = total volume of water (in AF) during **5-x** years of operation in the most recent 5-year CCC period that could not be produced by the PHASE 3 TREATMENT SYSTEM due to monthly downtime of the system due to **Factors Beyond Operator Control at Site**,

per Section 1.e, corrected for reduced average production rates in each month and for 90% of the system downtime hours (assuming a 90% uptime overall). Additionally, if a system shutdown occurs while the treatment system was operating at an above-average rate, this value **c** is limited to the average treatment system capacity. This value **c** does not include any water from the PHASE 1 TREATMENT SYSTEM.

$$\boldsymbol{c} = \sum_{x}^{5} \left(Corrected\ downtime\ credit\ during\ Phase\ 3\ month\ \left[\frac{AF}{month}\right]\right)$$

Where, if:

$$\left[90\% \left(downtime\ during\ Phase\ 3\ month\ \left[\frac{hrs}{month}\right]\right) \times (1 + fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control) \times \frac{Actual\ Phase\ 3\ Month\ Production\ \left(\frac{AF}{month}\right)}{657.5\frac{hrs}{month} - 90\% \left(downtime\ during\ Phase\ 3\ month\ \left[\frac{hrs}{month}\right]\right)}\right] > \left[\left(downtime\ during\ Phase\ 3\ month\ \left[\frac{hrs}{month}\right]\right) \times 1.08\left[\frac{AF}{hr}\right]\right]$$

Then,

$$Corrected\ downtime\ credit\ during\ Phase\ 3\ month\ \left[\frac{AF}{month}\right] = \left(downtime\ during\ Phase\ 1B\ month\ \left[\frac{hrs}{month}\right]\right) \times 1.08\ \left[\frac{AF}{hr}\right]$$

Otherwise,

$$Corrected\ downtime\ credit\ during\ Phase\ 3\ month\ \left[\frac{AF}{month}\right]$$
$$= 90\%\ \left(downtime\ during\ Phase\ 3\ month\ \left[\frac{hrs}{month}\right]\right)$$
$$\times\ (1\ +\ fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control)$$
$$\times\ \frac{Actual\ Phase\ 3\ Month\ Production\ (\frac{AF}{month})}{657.5\frac{hrs}{month} - 90\%\ (downtime\ during\ Phase\ 3\ month\ [\frac{hrs}{month}])}$$

and,

d = total volume of water (in AF) in the most recent 5-year CCC period below the 5-year goal that could not be produced due to **Factors Beyond Operator Control at Site**, per Section 1.e. Reduced monthly production rates (e.g., due to lowered groundwater elevations) are accounted for each year by summing the product of the difference in the corrected monthly production goals and the actual monthly production by that fraction (ranging from 0 to 1) of the monthly production volume difference during months with a production deficit that was caused by **Factors Beyond Operator Control at Site**. The corrected monthly production goal is calculated by subtracting the corrected monthly credit for system downtime (i.e., the monthly **b** or **c** values) that occurs due to **Factors Beyond Operator Control at Site** (see Section 1.f) from the regular monthly goal. In this way, this value **d** excludes the value of reduced flow that is caused by a system shutdown, which is accounted for by the values **b** and **c**.

$$\boldsymbol{d}$$
$$= \sum_{x}^{5} \left(Variance\ from\ corrected\ monthly\ goal\ during\ Phase\ 1B\ or\ 3\ month\ \left[\frac{AF}{month}\right]\right)$$

Where, if:

$$(Delta\ \times Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control$$
$$< 0\ \left[\frac{AF}{month}\right])$$

$$Delta = (Corrected\ monthly\ goal - Actual\ monthly\ production)\left[\frac{AF}{month}\right]$$

$$Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control =$$
$$manually\ entered\ value\ ranging\ from\ 0\ to\ 1,$$
$$with\ 0\ meaning\ fully\ within\ operator\ control\ and\ 1\ meaning\ fully\ beyond\ operator\ control$$

Then:

$$Variance\ from\ corrected\ monthly\ goal\ during\ Phase\ 1B\ or\ 3\ month\left[\frac{AF}{month}\right] = 0$$

(i.e., goal has been met or exceeded, and no variance is added)

Otherwise:

$$Variance\ from\ corrected\ monthly\ goal\ during\ Phase\ 1B\ or\ 3\ month\left[\frac{AF}{month}\right]$$
$$= Delta \times Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control$$

j. The 5-year RPA (units of AFY) shall be calculated using the following formula:

$$5\text{-}year\ CCC\ Period\ Rolling\ Production\ Average\ for\ NHOU\ 2IR\ Phases\ 1B\ and\ 3\ (in\ AFY)$$

$$= \boldsymbol{RPA} = \frac{(V_i + V_{i+1} + V_{i+2} + V_{i+3} + V_{i+4} + CPPC)}{5\ years}$$

Where,

$$\boldsymbol{V_i} = acre\ feet\ of\ water\ produced\ by\ the\ NHOU\ 2IR\ system\ (either\ Phase\ 1B\ or\ 3)$$

$$in\ year\ \boldsymbol{i}\ (the\ first\ year\ of\ the\ most\ recent\ 5\text{-}year\ CCC\ period)$$

k. A tracking spreadsheet was prepared to facilitate calculation and comparison of the **AAR** and **RPA**, based on user inputs of monthly water production and backwash volume (obtained from totalizer readings), number of hours of downtime each month (due to

Factors Beyond Operator Control at Site, per Section 1.e), and fraction (ranging from 0 to 1) of any month's delta (i.e., actual monthly production not meeting corrected monthly goal, separate from the downtime factor) that was due to **Factors Beyond Operator Control at Site**. The tracking spreadsheet can be used to track progress of the PHASE 1 TREATMENT SYSTEM and/or PHASE 3 TREATMENT SYSTEM before the full 5-year CCC period is satisfied by inputting expected average monthly production rates for all months past the current month of operation. However, it is anticipated that the formulas contained in the spreadsheet will be integrated into the treatment system PLC, which will be used in conjunction with the SCADA system to calculate the ROLLING ANNUAL AVERAGE, with the exception of calculating the **CPPC**, which will require manual entry of downtime hours and the fraction of reduced flows that occurred due to **Factors Beyond Operator Control at Site** (discussed in 1.h).

2. The 5-year period Average Annual Requirement and Rolling Production Average for the SSC shall be calculated as follows:

a. The SSC is anticipated to operate 328.7 days per year (90% up-time), and produce an average of 6,500 AFY, or 19.70 AF per day (6,500 AFY ÷ 328.7 days/year = 19.77 AF/day).

b. The Average Annual Requirement for SSC (**SAAR,** in AFY**)** shall be 6,500 AFY.

c. The first 5-year SSC period starts with the start of SSC operation, and does not roll over from the NHOU 2IR operation period.

d. The SSC Period Pumping Credit (**SPPC** in AF; see formula below) shall be calculated based on the total volume of water in AF (**e**, see formula below) that would have been produced during the most recent 5-year SSC period operation but during which the SSC was shut down due to **SSC Production Impact**. Additionally, an "**f**" factor (as defined below) is added to the SPPC to account for the variance (in AF) of water below the monthly production goal that could not be produced by the SSC system during the most recent 5-year SSC period due to lowered pumping rates due to **SSC Production Impact**. The term **SSC Production Impact** means:

1. **Factors Beyond Operator Control at Site** or

2. A decision by LADWP to voluntarily curtail production at the SSC.

e. The monthly credit (in AF) received for a system shut down due to **SSC Production Impact** will result in a concomitant reduced production goal ("corrected goal") during that month that shall be factored into the pumping credit (**SPPC**; see formula below).

f. The 5-year Rolling Production Average for SSC (**SRPA**, unit of AFY; see formula below) shall be calculated as the sum of water production in AF (V_i) during the most recent 5-year SSC period, plus the 5-year SSC period pumping credit (**SPPC**; see formula below), divided by 5.

g. The 5-year **SRPA** (unit of AFY) shall be compared to the 5-year **SAAR** (6,500 AFY) to determine if the 5-year rolling production average SSC water production requirement has been met for each 5-year SSC period.

h. The 5-year **SPPC** (units of AF) shall be calculated using the following formula:

$$SSC\ Period\ Pumping\ Credit\ (in\ AF) = \boldsymbol{SPPC} = \boldsymbol{e} + \boldsymbol{f}$$

Where,

e = total volume of water (in AF) in the most recent 5-year SSC period that could not be produced by the SSC system due to monthly downtime of the system due to **SSC**

Production Impact, per Section 2.d, corrected for reduced average production rates in each month and for 90% of the downtime hours (assuming a 90% uptime overall). Additionally, if a system shutdown occurs while the treatment system was operating at an above-average rate, this value **e** is limited to the average treatment system capacity.

$$\boldsymbol{e} = \sum_{0}^{5} \left(Corrected\ downtime\ credit\ during\ SSC\ month\ \left[\frac{AF}{month}\right]\right)$$

Where, if:

$$\left[90\%\ \left(downtime\ during\ SSC\ month\ \left[\frac{hrs}{month}\right]\right)\right.$$
$$\times (1\ + fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control)$$
$$\left.\times \frac{Actual\ SSC\ Month\ Production\ \left(\frac{AF}{month}\right)}{657.5\frac{hrs}{month} - 90\%\ \left(downtime\ during\ SSC\ month\ \left[\frac{hrs}{month}\right]\right)}\right]$$
$$> \left[\left(downtime\ during\ SSC\ month\ \left[\frac{hrs}{month}\right]\right) \times 0.82\ \left[\frac{AF}{hr}\right]\right]$$

Then,

$$Corrected\ downtime\ credit\ during\ SSC\ month\ \left[\frac{AF}{month}\right]$$
$$= \left(downtime\ during\ SSC\ month\ \left[\frac{hrs}{month}\right]\right) \times 0.82\ \left[\frac{AF}{hr}\right]$$

Otherwise,

$$\begin{aligned} &Corrected\ downtime\ credit\ during\ SSC\ month\ \left[\frac{AF}{month}\right] \\ &\quad = 90\%\ \left(downtime\ during\ SSC\ month\ \left[\frac{hrs}{month}\right]\right) \\ &\quad \times (1 \\ &\quad + fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control) \\ &\quad \times \frac{Actual\ SSC\ Month\ Production\ (\frac{AF}{month})}{657.5\frac{hrs}{month} - 90\%\ (downtime\ during\ SSC\ month\ [\frac{hrs}{month}])} \end{aligned}$$

and,

f = total volume of water (in AF) in the most recent 5-year SSC period below the 5-year goal that could not be produced due to **SSC Production Impact**, per Section 2.d. Reduced monthly production rates (e.g., due to lowered groundwater elevations) are accounted for each year by summing the product of the difference in the corrected monthly production goals and the actual monthly production by that fraction (ranging from 0 to 1) of the monthly production volume difference during months with a production deficit that was caused by **SSC Production Impact**. The corrected monthly production goal is calculated by subtracting the corrected monthly credit for system downtime (i.e., the monthly **e** values) that occurs due to **SSC Production Impact** (see Section 2.d.) from the regular monthly goal. In this way, this value **f** excludes the value of reduced flow that is caused by a system shutdown, which is accounted for by the value **e**.

$$\boldsymbol{f} = \sum_{x}^{5} \left(Variance\ from\ corrected\ monthly\ goal\ during\ SSC\ month\ \left[\frac{AF}{month}\right]\right)$$

Where, if:

$$\begin{aligned} &(Delta\ \times Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control \\ &\quad < 0\ \left[\frac{AF}{month}\right] \end{aligned}$$

$$Delta = (Corrected\ monthly\ goal - Actual\ monthly\ production)\left[\frac{AF}{month}\right]$$

$$Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control =$$
$$manually\ entered\ value\ ranging\ from\ 0\ to\ 1,$$
$$with\ 0\ meaning\ fully\ within\ operator\ control\ and\ 1\ meaning\ fully\ beyond\ operator\ control$$

Then:

$$Variance\ from\ corrected\ monthly\ goal\ during\ SSC\ month\left[\frac{AF}{month}\right] = 0$$

(i.e., goal has been met or exceeded, and no variance is added)

Otherwise:

$$Variance\ from\ corrected\ monthly\ goal\ during\ SSC\ month\left[\frac{AF}{month}\right]$$
$$= Delta$$
$$\times Fraction\ of\ Delta\ due\ to\ Factors\ Beyond\ Operator\ Control$$

i. The 5-year **SRPA** (units of AF) shall be calculated using the following formula:

$$5\text{-}year\ Compliance\ Period\ Rolling\ Production\ Average\ for\ SSC\ (in\ AFY)$$

$$= \boldsymbol{SRPA} = \frac{(V_i + V_{i+1} + V_{i+2} + V_{i+3} + V_{i+4} + SPPC)}{5\ years}$$

Where,

$$\boldsymbol{V_i} = acre\ feet\ of\ water\ produced\ by\ the\ SSC\ system\ in\ year\ \boldsymbol{i}$$

$$(the\ first\ year\ of\ the\ most\ recent\ 5 - year\ compliance\ period)$$

Appendix F

Consent Decree Figures 1 - 9

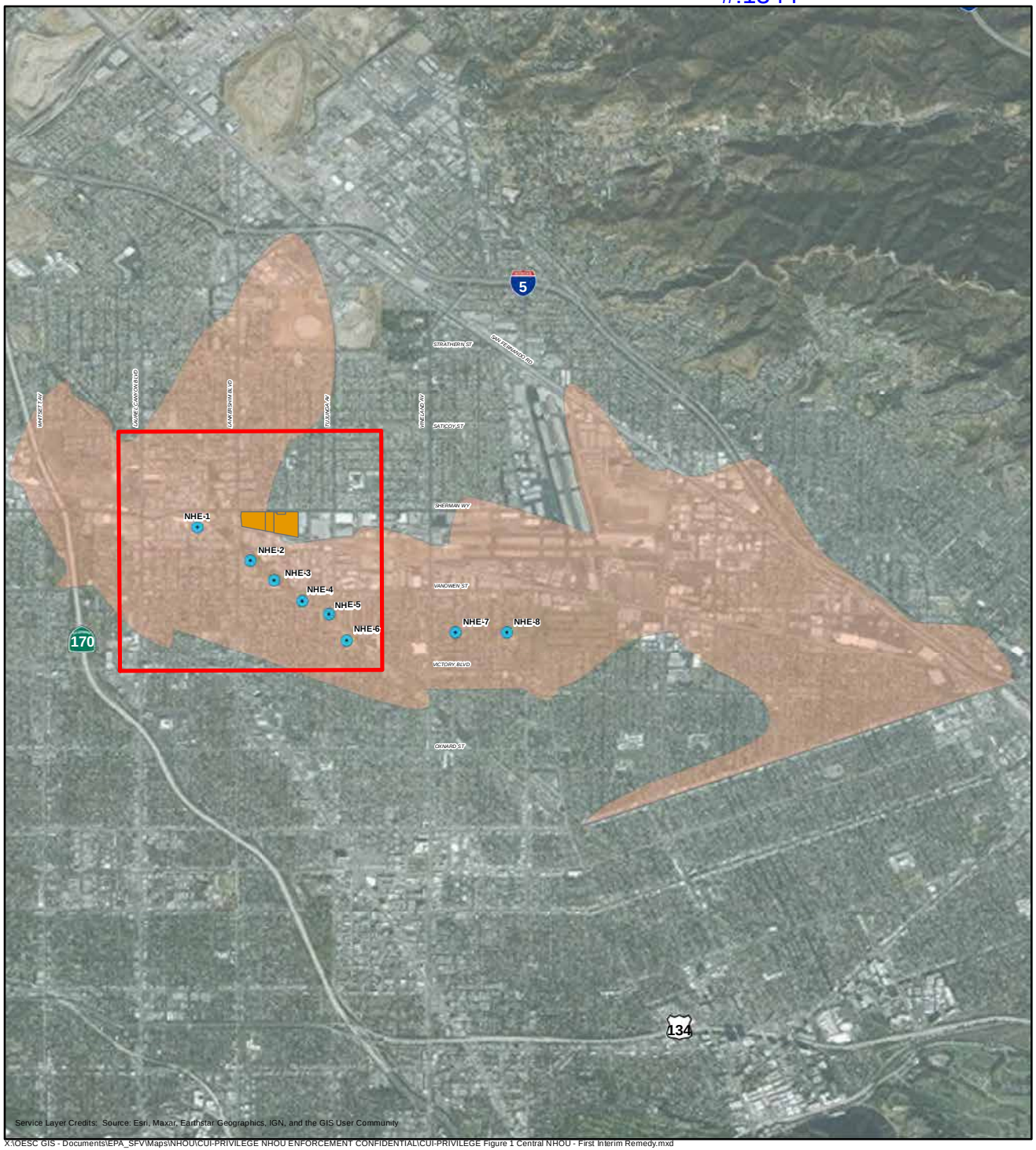


Figure 1: Area 1 Site

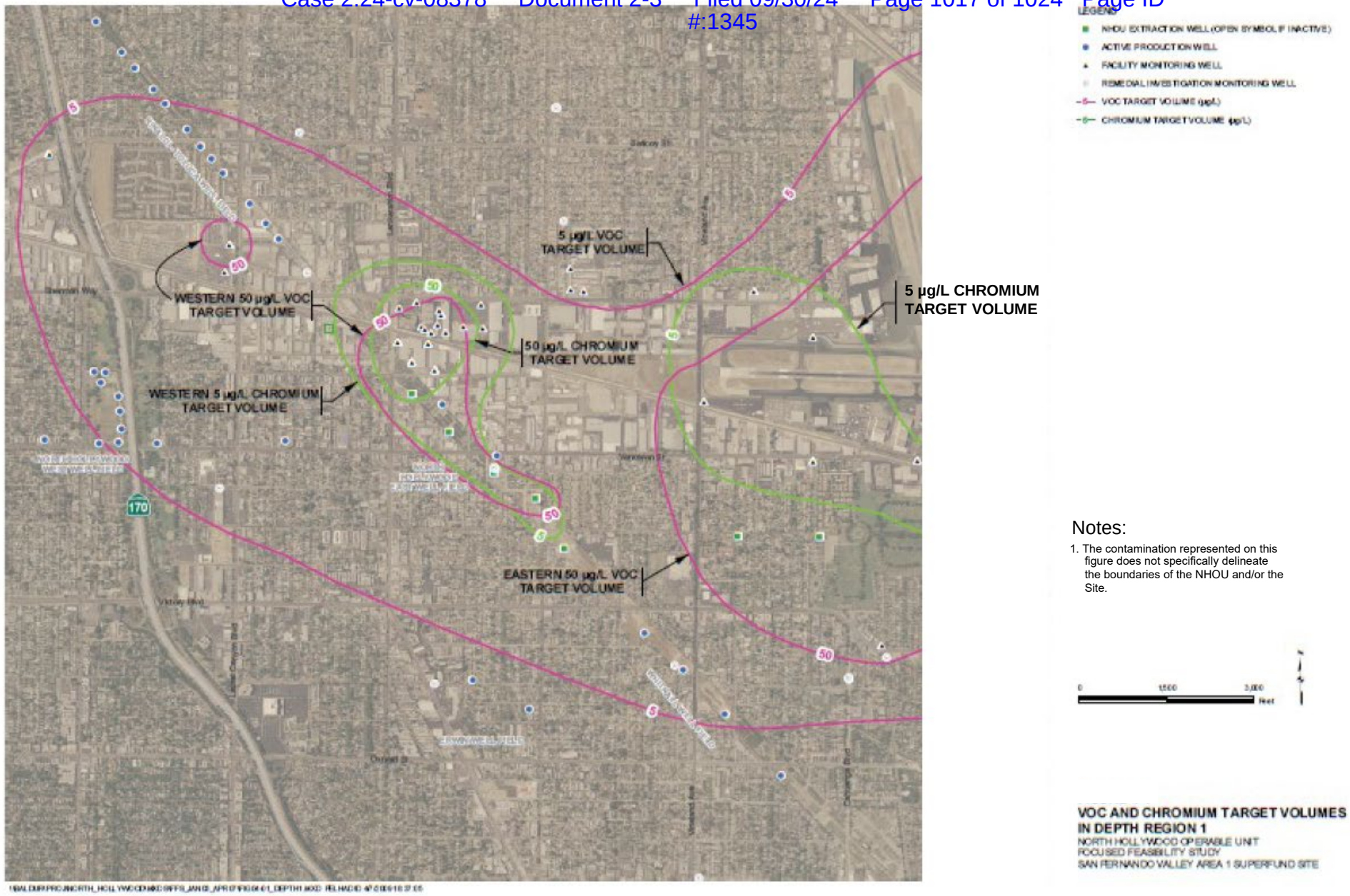


Figure 2: NHOU Targeted Contamination in Shallow Groundwater as modeled in 2008 FFS

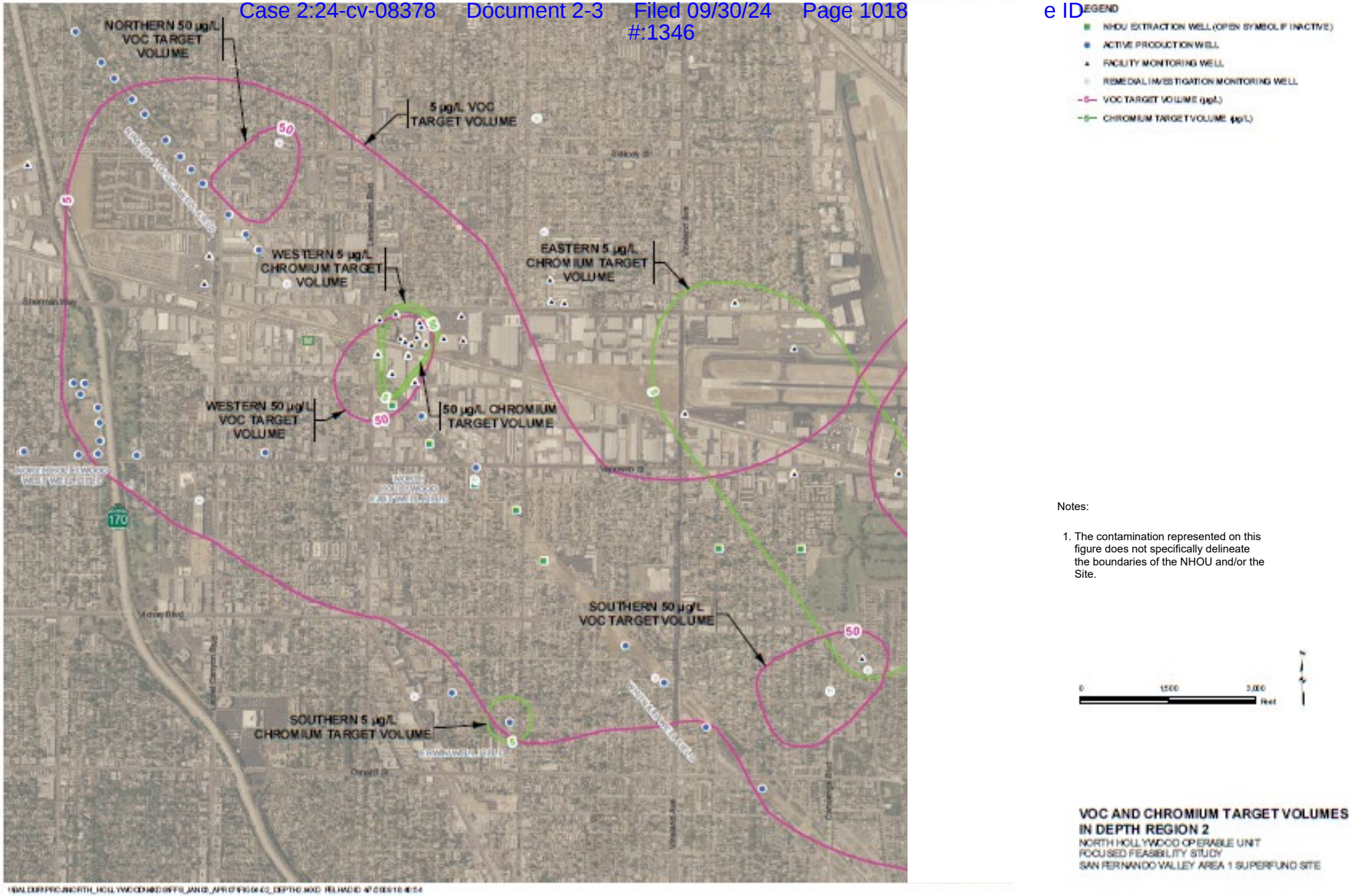
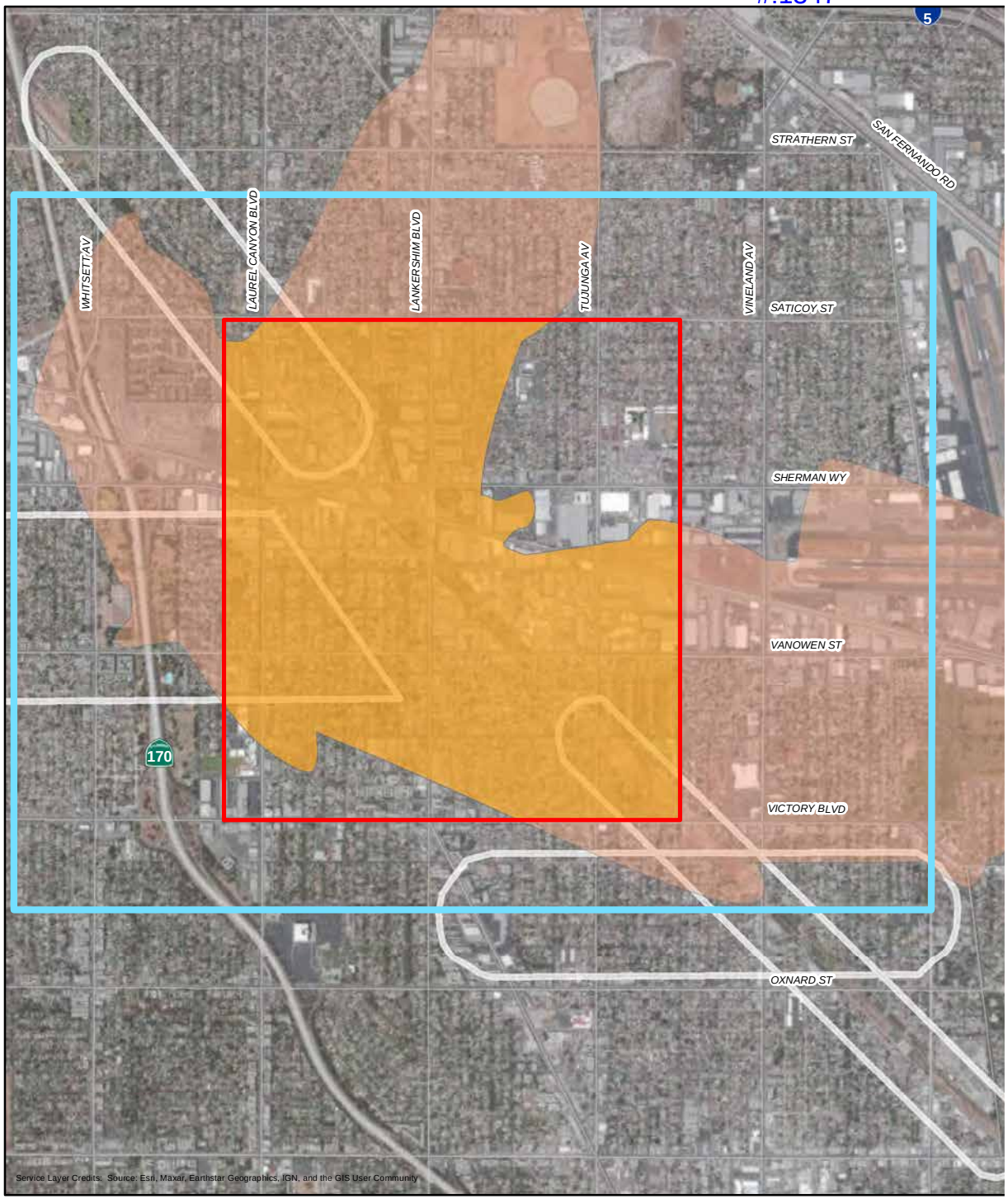


Figure 3: NHOU Targeted Contamination in Deep Groundwater as modeled in 2008 FFS



Legend

- Central NHOU Area
- Central NHOU Monitoring Area
- Central NHOU Targeted Contamination
- NHOU Targeted Contamination (EPA 2021)
- LADWP Wellfield

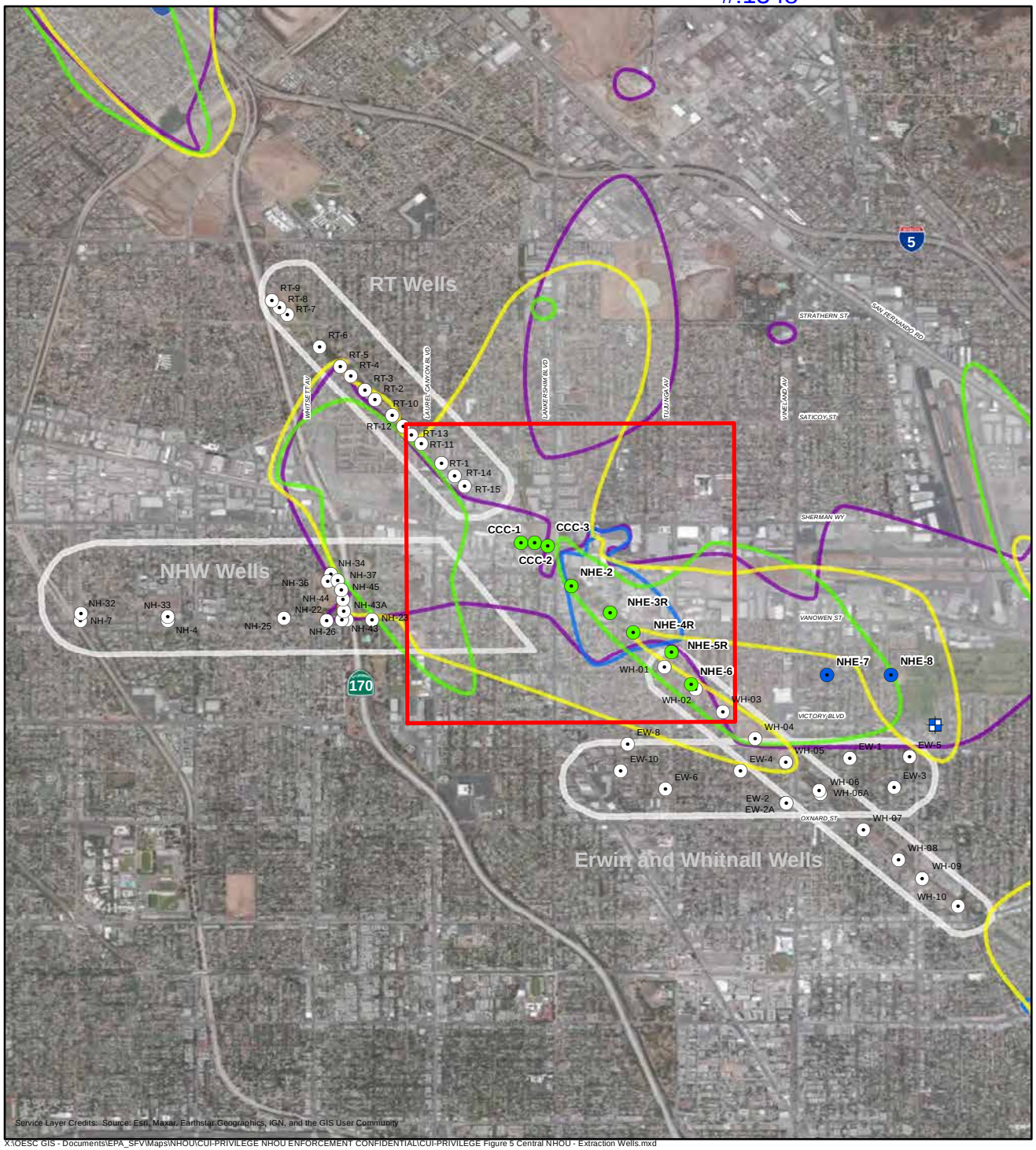
Notes:

1. Central NHOU Targeted Contamination consists of the combined plumes for:
   TCE at/above 5 µg/L,
   PCE at/above 5 µg/L,
   1,4-Dioxane at/above 1 µg/L, and
   Cr6 at/above 10 µg/L.
2. Plume extents are dynamic based on changes in modeled plume extents updated with periodic analytical sampling
3. The contamination represented on this figure does not specifically delineate the boundaries of the NHOU and/or the Site.

0 1,500 3,000 6,000 Feet

N

Figure 4: Map of NHOU Targeted Contamination in Shallow and Deep Groundwater depicting Central NHOU Area and Central NHOU Targeted Contamination



Legend

- Central NHOU Area
- Eastern NHOU Wells
- Central NHOU Expanded Well Network
- LADWP Production Well
- Proposed Eastern NHOU ESD Well Location
- TCE Plume[1] (EPA 2021)
- PCE Plume[2] (EPA 2021)
- Cr6 Plume[4] (EPA 2021)
- 1,4-Dioxane Plume[3] (EPA 2021)
- LADWP Well field

Notes:

1. Groundwater with TCE concentrations at/above the MCL of 5 µg/L.
2. Groundwater with PCE concentrations at/above the MCL of 5 µg/L.
3. Groundwater with 1,4-Dioxane concentrations at/above the NL of 1 µg/L.
4. Groundwater with Cr6 concentrations at/above the proposed MCL of 10 µg/L.
5. Plume extents are dynamic based on changes in modeled plume extents updated with periodic analytical sampling.
6. NHW - North Hollywood West.
7. RT - Rinaldi-Toluca.
8. The contamination represented on this figure does not specifically delineate the boundaries of the OU and/or the Site.

0 2,000 4,000 8,000 Feet

N

Figure 5: Central NHOU Area and Extraction Wells

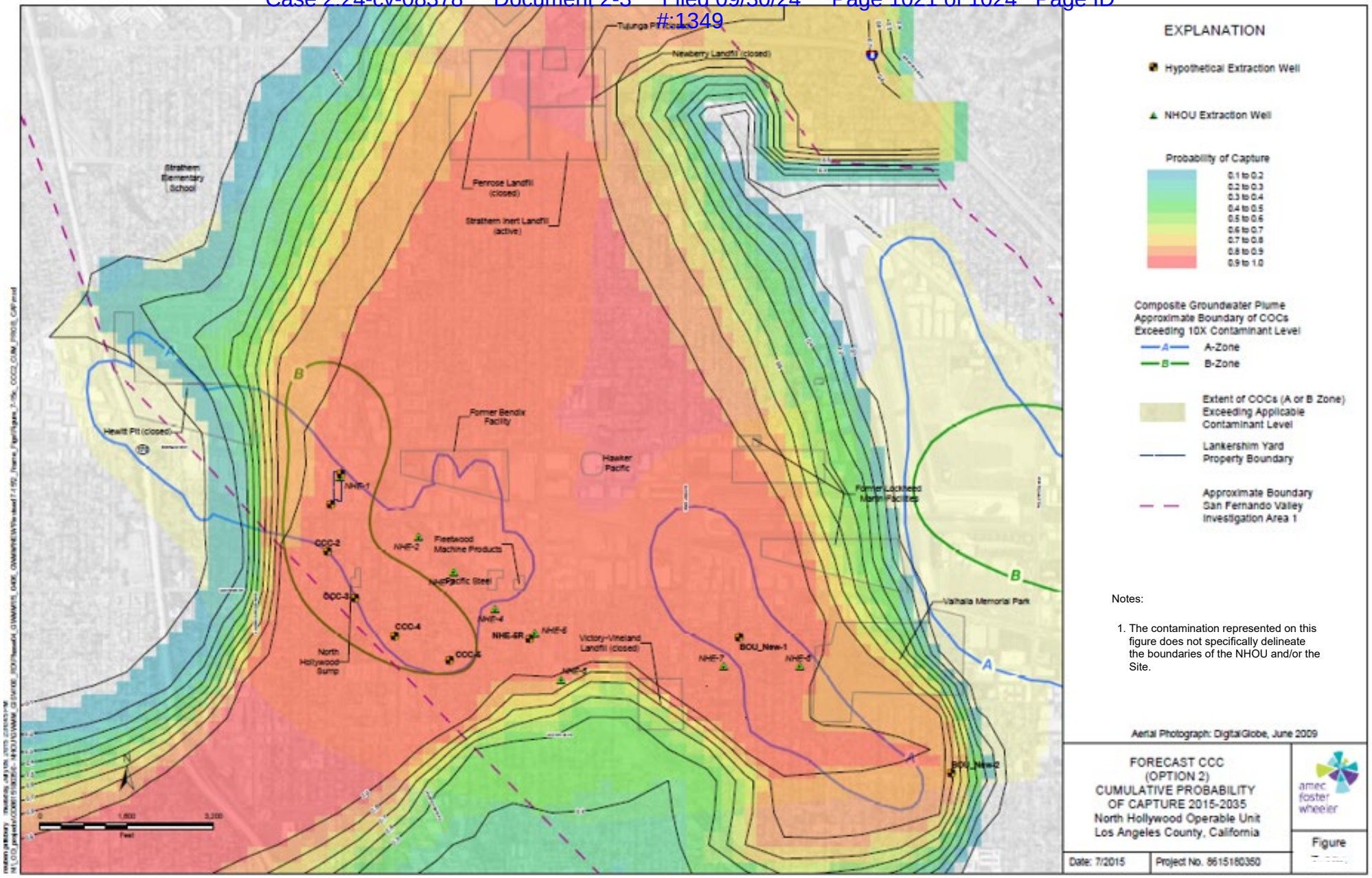
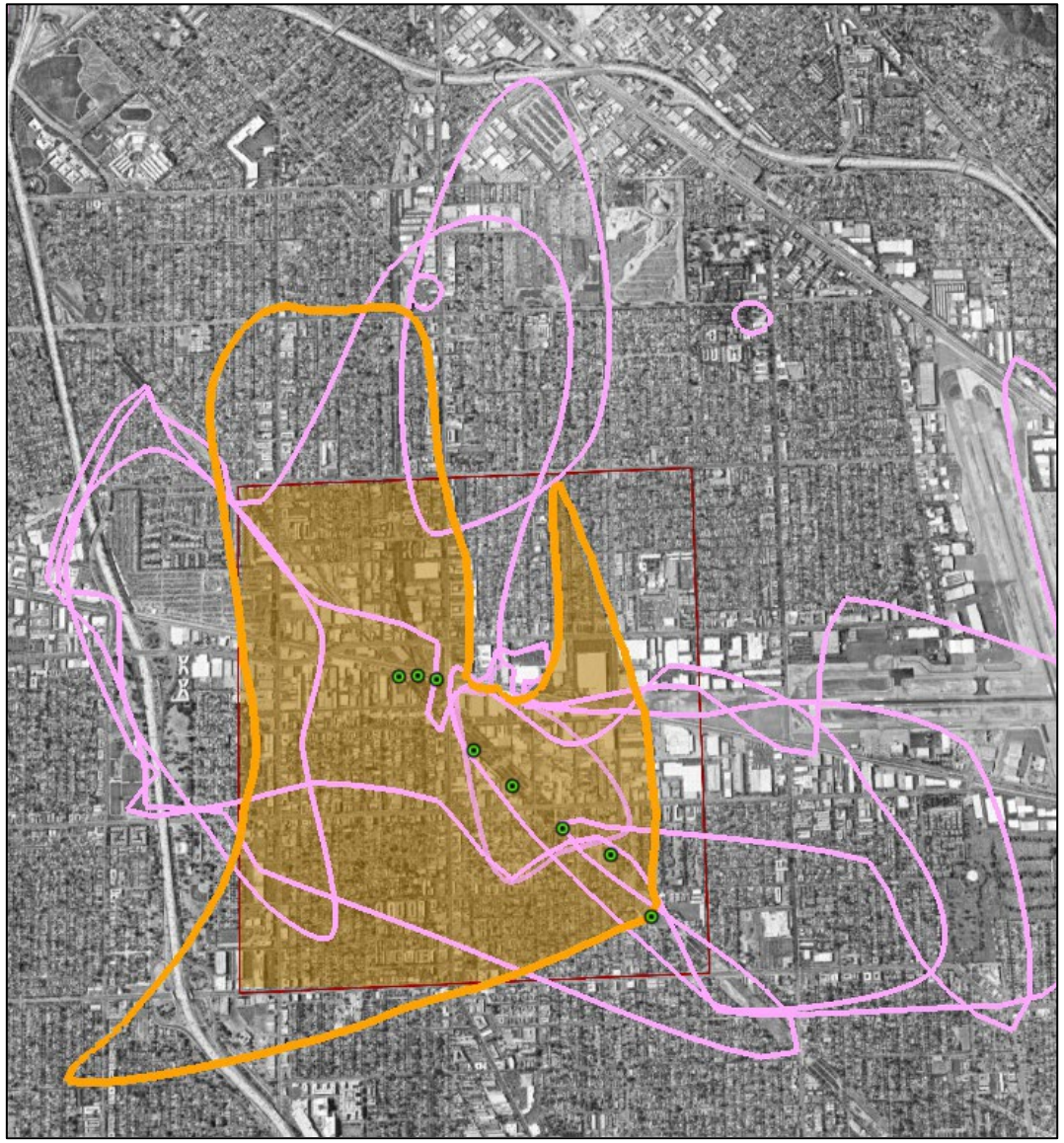


Figure 6: Probability of Capture modeled for the NHOU2IR, prior to final design, using hypothetical extraction well locations (Wood, 2015)



NHOU Targeted Contamination (EPA 2021)

90% Probability of Capture Contour by Central NHOU Expanded Well Network Contour (Wood 2022)

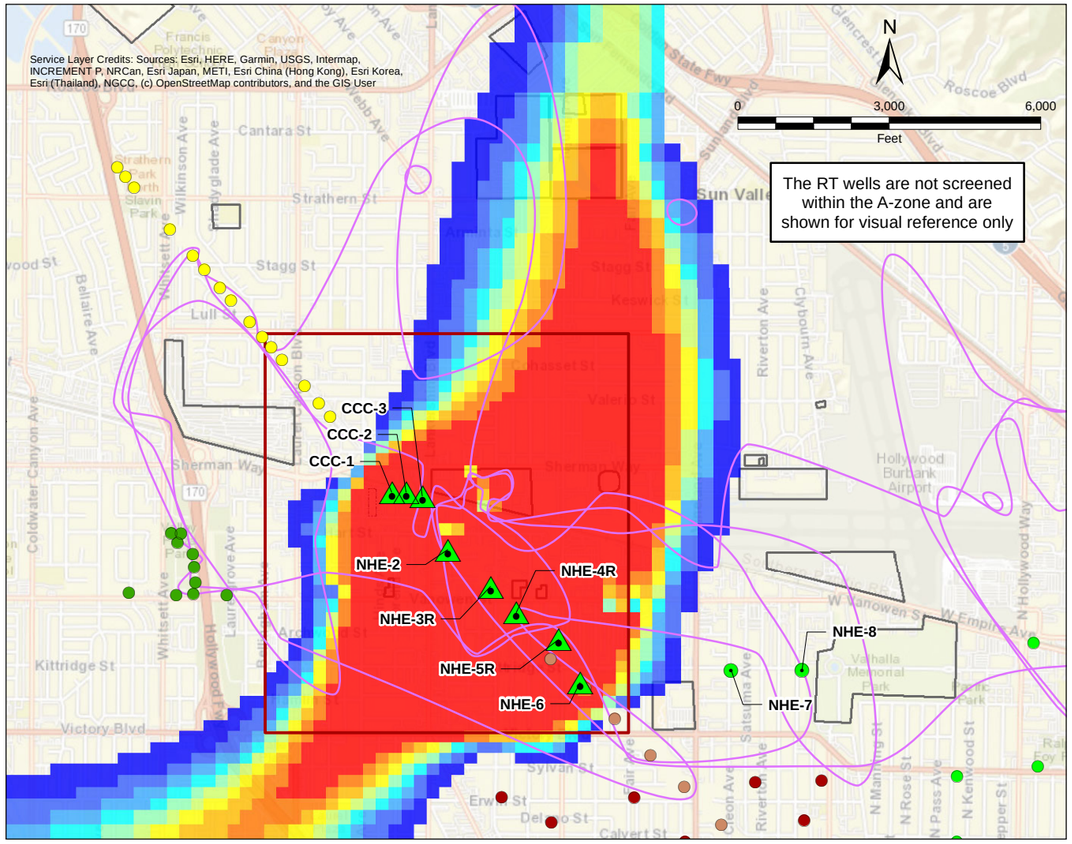
Central NHOU Area

Central NHOU Expanded Well Network Well

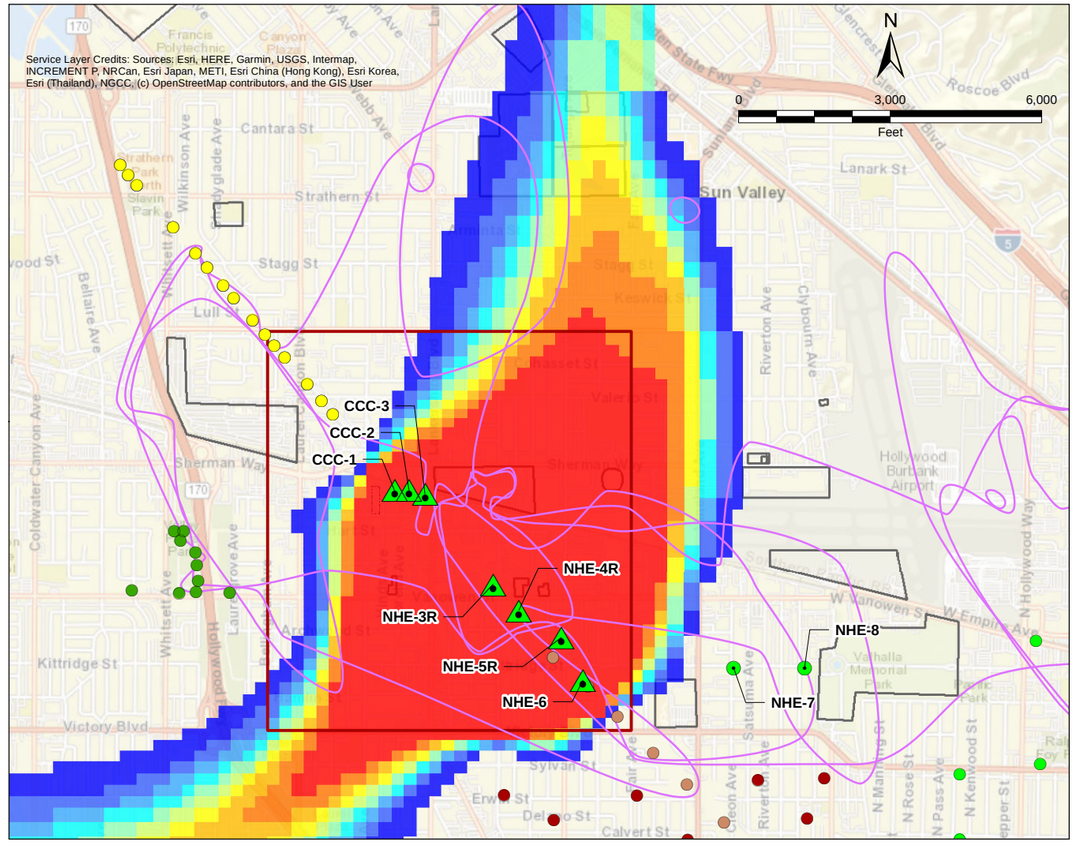
Notes:

1. The contamination represented on this figure does not specifically delineate the boundaries of the NHOU and/or the Site.

Figure 7: 2022 Capture Zone Analysis; Central NHOU Expanded Well Network 5-Yr Projected Hydraulic Containment



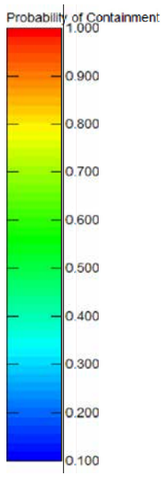
LOWER A-ZONE (LAYER 2)



MIDDLE B-ZONE (LAYER 4)

EXPLANATION

- Central NHOU Expanded Well Network
- Eastern NHOU Well
- Burbank Well
- Erwin Well (LADWP)
- NHW Well (LADWP)
- RT Well (LADWP)
- Whitnall Well (LADWP) EPA
- Composite COC Plume
- Central NHOU Area



Notes:

1. The contamination represented on this figure does not specifically delineate the boundaries of the NHOU and/or the Site

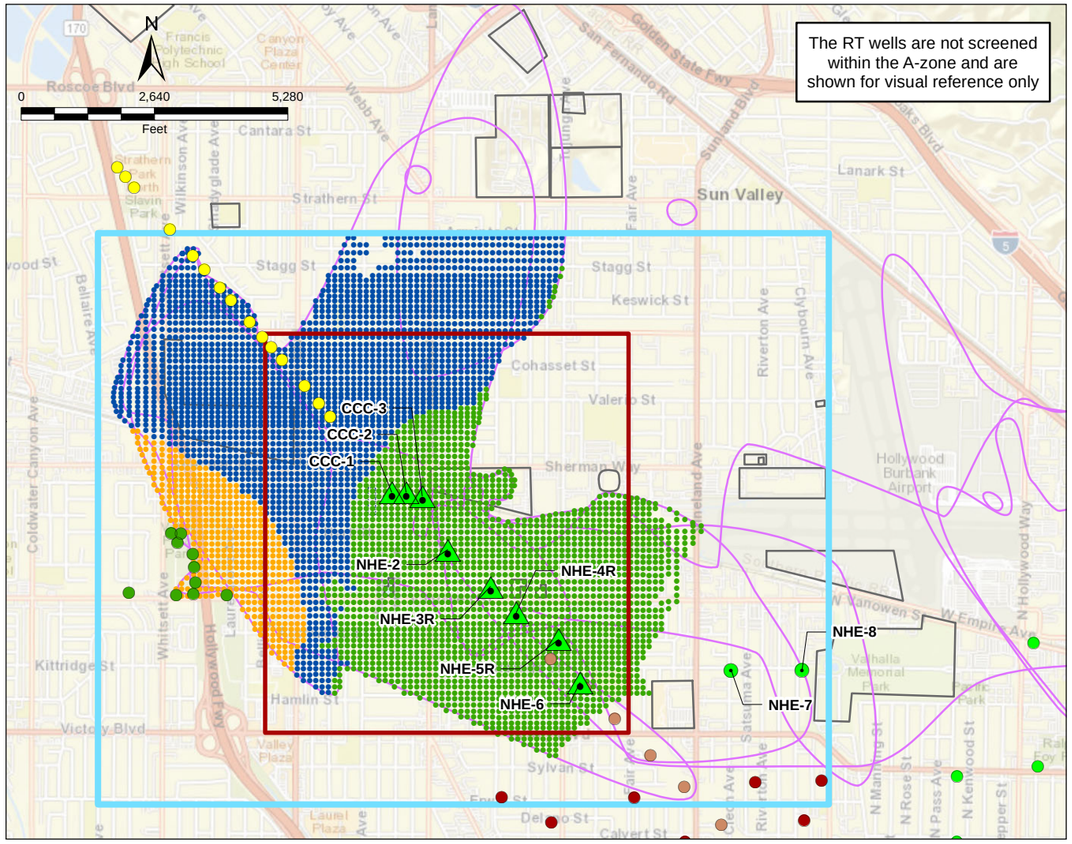
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

PHASE 3 FORECAST SIMULATED PROBABILITY OF CONTAINMENT AFTER 5-YEARS PUMPING
North Hollywood Operable Unit
Los Angeles County, California

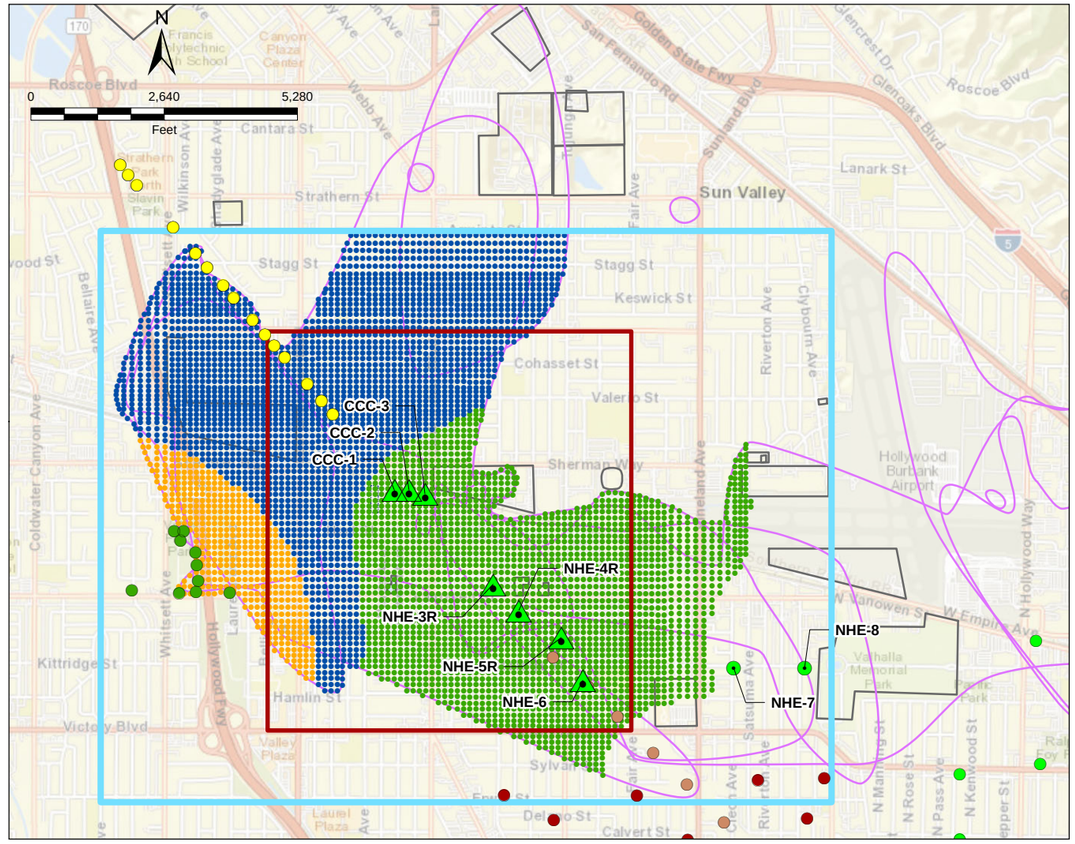
wsp | By: KLU | Date: 06/21/2024 | Project No. 8622201110 | Figure 8

C:\Users\USKU720333\WSP O365\WDS-Bay Area Graphics - Documents\NHOU\8622201110\41000\24_0529_cd_fig_07_P3_forecast_spoc_5yr.mxd

Figure 8: 2024 Capture Zone Analysis; Central NHOU Expanded Well Network 5-Yr Projected Hydraulic Containment with Increased LADWP Pumping at RT Wells and NHW Wells



LOWER A-ZONE (LAYER 2)



MIDDLE B-ZONE (LAYER 4)

EXPLANATION

- Central NHOU Extraction Well Network
- Eastern NHOU Well
- Burbank Well
- Erwin Well (LADWP)
- NHW Well (LADWP)
- RT Well (LADWP)
- Whitnall Well (LADWP)
- Particles Captured by Central NHOU Extraction Well Network
- Particles Captured by NHW well
- Particles Captured by RT well
- EPA Composite COC Plume
- Central NHOU Area
- Central NHOU Monitoring Area

Notes:

1. Capture by the Eastern NHOU expanded well network and source control efforts not shown.

2. The contamination represented on this figure does not specifically delineate the boundaries of the NHOU and/or the Site.

PHASE 3 FORECAST SIMULATED ENDPOINT ANALYSIS AFTER 25-YEARS PUMPING
North Hollywood Operable Unit
Los Angeles County, California

wsp	By: KLU	Project No. 8622201110
	Date: 08/02/2024	Figure 9

Figure 9: 2024 Capture Zone Analysis; Central NHOU Expanded Well Network Hydraulic Containment by Well Field with Increased LADWP Pumping at RT and NHW