EPA San Fernando Valley Area 1, North Hollywood Operable Unit

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • May 2013

Request Comment on Proposed Plan to Amend Groundwater Remedy

The United States Environmental Protection Agency (EPA) is requesting public comments on this **Proposed Plan** (Plan) to amend the 2009 Interim Action **Record of Decision** (2009 **ROD**), which selected a second **interim remedy** for the North Hollywood **Operable Unit** (NH**OU**) of the San Fernando Valley (SFV) Area 1 **Superfund** Site (Second **Interim Remedy**). (words in **bold** are defined in the Glossary at the end of this fact sheet). The proposed amendment will add an alternate end use to the Second Interim Remedy that allows for re-injection of treated groundwater in the event that delivery of the treated groundwater to the Los Angeles Department of Water and Power (LADWP) for use in its domestic water supply is not possible.

The purpose of this Plan is to describe and obtain public input on the proposed amendment to the 2009 **ROD**. EPA is issuing this Plan as part of its public participation responsibilities under Section 300.435(c)(2)(ii) and 300.825(a)(2) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**. This Plan identifies the proposed amendment to the 2009 ROD and provides the rationale for and information supporting the proposal. The final decision to amend the ROD will not be made until after EPA considers public comments received on the proposal.

The public is invited to attend an availability session and public meeting on June 5, 2013. The availability session is an informal chance for the public to talk with EPA about SFV groundwater contamination issues and the proposed cleanup. During the public meeting, EPA will make a formal presentation of the Proposed Plan and the public will have an opportunity to ask questions and provide oral comments about this Plan as part of the public record. **You may also submit written comments at any time during the 30-day comment period which begins on May 13, 2013, and ends on June 13, 2013.** In the box to the right, you will find the time and place for the public meeting, as well as information on how the public can submit comments in writing.

This Plan highlights key information about the first interim NHOU groundwater remedy, the Second Interim Remedy selected in the 2009 ROD, the contamination present in the NHOU, and the proposed amendment to the 2009 ROD. The proposed amendment is supported by the evaluation of alternatives in EPA's 2009 NHOU **Focused Feasibility Study** (FFS). The FFS and other supporting information are available to the public as part of the **Administrative Record** file at the **Information Repositories** or online (see Page 11 for locations, hours and web site).

How You Can Comment

The EPA encourages the public to comment on this proposed groundwater cleanup action at the North Hollywood Operable Unit. The comment period is **May 13 through June 13, 2013.** You can comment in person at the public meeting or in writing to the remedial project manager. **Please send comments, postmarked no later than June 13, 2013, by mail, fax, or email to:**

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Public Meeting

Wednesday
June 5, 2013

Availability Session	Public Meeting
6 – 6:30pm	6:30 – 8pm

Valley Plaza Library
12311Vanowen St.
North Hollywood, CA 91605

The EPA is the lead agency, and prepared this Plan in consultation with the California Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB), Los Angeles Region.

EPA is proposing to amend the Second Interim Remedy by adding the option to re-inject groundwater extracted from NHOU extraction wells. The end use selected in the 2009 ROD calls for delivery of treated groundwater to the Los Angeles Department of Water and Power (LADWP) for use in its domestic water supply system. EPA has concluded that re-injection of all extracted groundwater might be necessary if LADWP and the NHOU **potentially responsible parties** (**PRPs**) are unable, despite their best efforts, to reach agreement regarding terms/criteria for delivery and acceptance of the treated water. Adding an option to the Second Interim Remedy to re-inject extracted 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 if LADWP and the NHOU PRPs are unable to agree on terms/criteria for delivery and acceptance of treated water. Because EPA is proposing the re-injection end use as an additional option in the remedy selected in the 2009 ROD, both end uses are considered part of EPA's Preferred Alternative.

Site Background

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 (also referred to as perchloroethylene, or PCE). These are **volatile organic compounds** (VOCs), commonly used as industrial solvents.

To address the widespread groundwater contamination in the San Fernando Valley, 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 North Hollywood Operable Unit (OU) and the Burbank OU; SFV Area 2 - Crystal Springs, which includes the Glendale North OU, the Glendale South OU, and the Glendale Chromium OU; SFV Area 3 - Verdugo; and 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 **Record of Decision** (**ROD**) for the NHOU 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. Concentrations of the **contaminants of concern (COC)** in shallow groundwater of the eastern SFV are shown on Figure 1, which illustrates the extent of VOC and hexavalent chromium contamination.

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. 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 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 an 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.

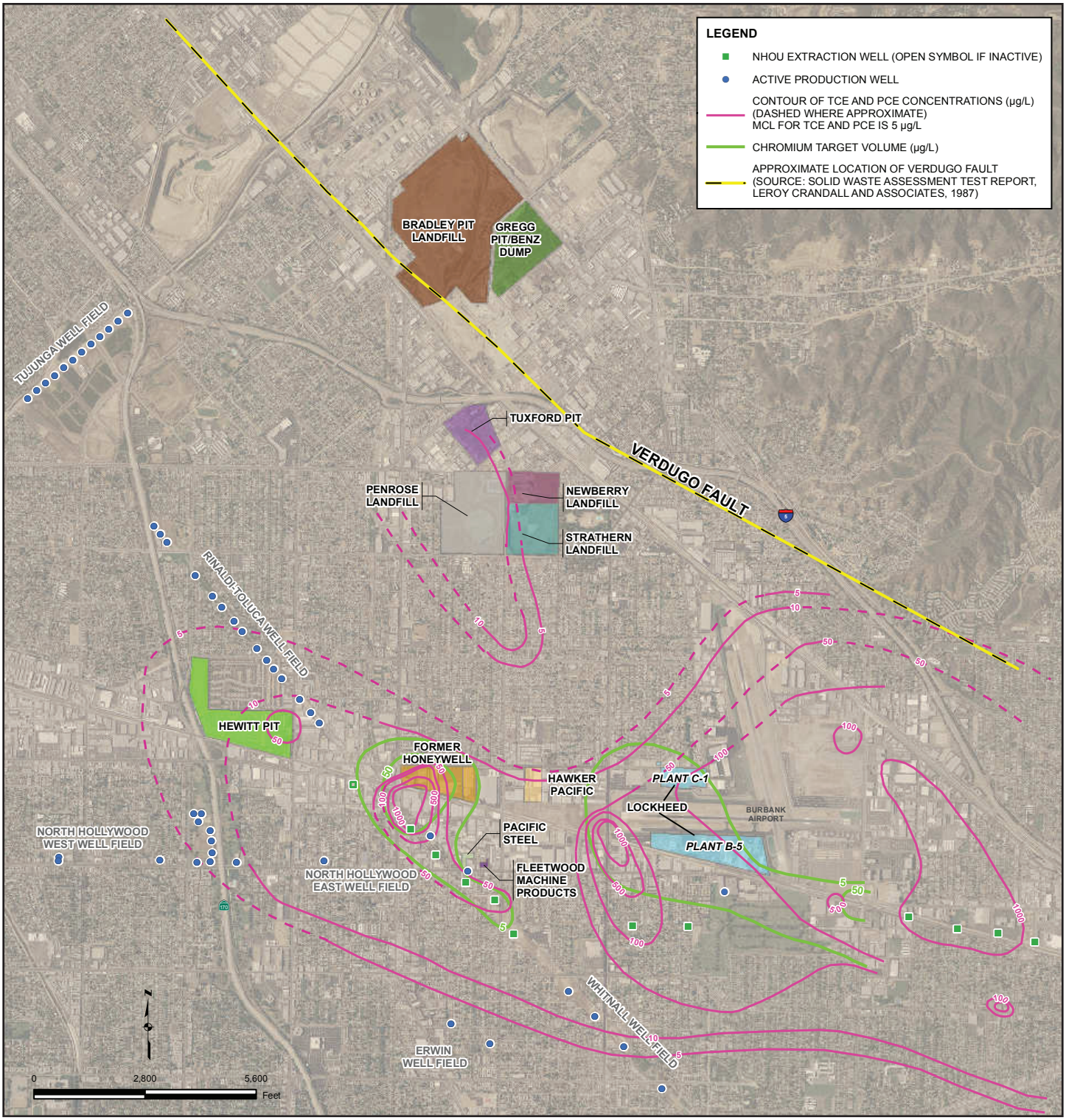

Figure 1. San Fernando Valley Area 1 Superfund Site, North Hollywood Operable Unit

Since issuance of the 2009 ROD, EPA has engaged in negotiations with both the NHOU PRPs and LADWP regarding implementation of the Second Interim Remedy. In the course of those negotiations, EPA has concluded that despite their best efforts, LADWP and the NHOU PRPs may be unable reach agreement on terms/criteria related to the delivery and acceptance of treated groundwater for use in LADWP's drinking water supply system. If an 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.

Site Characteristics

The 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 11 percent of the City of Los Angeles' drinking water supply, with the North Hollywood treatment system contributing between 1-2 percent of this amount. 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.

The NHOU is one of two operable units within the San Fernando Valley (Area 1) Superfund Site. The NHOU comprises approximately 4 square miles of contaminated groundwater underlying a highly developed 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 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.

TCE (Federal and California MCL of 5 ug/L) has been detected at levels as high as 2,900 ug/L, although the higher concentrations have primarily been confined to localized "hot spots", and the majority of the contaminated area is in excess of 50 ug/L. PCE (Federal and California MCL of 5 ug/L) has been detected at levels as high as 28 ug/L. Chromium (Federal MCL of 100 ug/L and California MCL of 50 ug/L) has been detected at levels as high as 48,000 ug/L for total chromium. See Figure 1 for map showing distribution of VOC and chromium contamination in the NHOU.

The primary contaminants of concern (COCs) at the NHOU have historically been TCE and PCE. 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 numerous facilities throughout the eastern SFV have resulted in the large plume of groundwater contaminated with volatile organic compounds ("VOCs") that extends from the NHOU to the southeast. 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. There are approximately ten facilities that have been identified as significant sources of this contamination. These VOCs are effectively removed by the existing NHOU treatment system to below drinking water standards, and often to non-detectable levels.

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 only addressing groundwater and NAPL has not been detected in groundwater in the NHOU, principal threat wastes are not considered present for this proposed plan.

After the First Interim Remedy became operational, it became apparent that additional contaminants, including chromium and 1,4-dioxane, were also present in the Basin in concentrations exceeding drinking water standards and/or **notification levels**. Industrial uses for chromium include metal plating operations, and aviation and aerospace parts manufacturing, and all of these operations are found within the NHOU. 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, as is the case for the NHOU. 1,4-Dioxane is also commonly found in some paint strippers, dyes, greases, varnishes, waxes, antifreeze, and aircraft deicing fluids, all of which are commonly found throughout the NHOU.

Summary of Risks from Contaminated Groundwater

A **Remedial Investigation (RI)** was conducted for the SFV Superfund sites in 1992. As part of the RI, a baseline **human health risk assessment** was conducted and reported in the original RI report for the SFV in 1992, in accordance with EPA's *Risk Assessment Guidance for Superfund*. The major transport pathway considered in the risk assessment was use of contaminated groundwater. Residential use of groundwater for potable supply was identified as the most significant exposure pathway (via ingestion and inhalation) because the SFV groundwater is used by LADWP for municipal drinking water supply.

The baseline risk assessment identified VOCs, in particular TCE and PCE, as the primary risk drivers for the SFV Superfund sites, which includes the NHOU. TCE and PCE are classified as probable human carcinogens based on laboratory studies performed on animals. The total excess cancer risk from all the COCs, including TCE and PCE, in the groundwater was evaluated to be 2 out of 100, for drinking untreated groundwater for 30 years. However, the drinking water served in the area is carefully sampled, treated, and monitored to ensure that it is safe. Among the metals considered in the RI risk assessment, chromium had the highest **hazard index** (5.8).

Because the VOCs in groundwater were significantly greater than the MCLs at the time of the original NHOU FS, the original NHOU risk evaluation consisted of a comparison of the VOCs concentrations in groundwater with the groundwater MCLs. Since then, Region 9 has periodically compared the VOC concentrations in groundwater with the MCLs and has determined that the original approach and evaluation of risk remains valid.

It is EPA's judgment that the amendment of the 2009 ROD is necessary to ensure the effective and timely implementation of the Second Interim Remedy and is therefore necessary to protect public health or welfare, or the environment from actual or threatened releases of hazardous substances into the environment.

Table 1 lists the cleanup levels for the contaminants of concern (COCs) that pose the primary health risks in groundwater in the NHOU and for the two most significant emerging contaminants, chromium (both total and hexavalent) and 1,4-dioxane.

Table 1. Cleanup Levels for the Contaminants of Concern

Contaminant of Concern	Cleanup Levels [a,b] (µg/L)	Basis for Cleanup Level
Trichloroethylene (TCE)	5	Federal and California MCL
Tetrachloroethylene (PCE)	5	Federal and California MCL
Total Chromium	50 [c]	California MCL
Hexavalent Chromium	5	See discussion in text
1,4-Dioxane	3	CDPH Notification Level

[a] The California Department of Public Health permitting process may require lower concentrations in the treated effluent.

[b] Cleanup levels for the re-injection end use option will be determined during remedial design based on the injection locations.

[c] The planned treatment process for hexavalent chromium will also reduce total chromium concentrations to 5 µg/L.

Remedial Action Objectives

The amendment to the Second Interim ROD does not change any of the **Remedial Action Objectives** (RAOs) 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.

Performance Standards for Re-injection End Use

For the re-injection end use option, removal of all the contaminants, including VOCs and hexavalent chromium will be needed to comply with the State of California's anti-degradation policy, which establishes performance standards for re-injection into the aquifer. The anti-degradation policy allows for injection of treated groundwater at concentrations less than or equal to the groundwater quality at the injection location(s). Accordingly, the treated groundwater performance standards for the re-injection end use option will be established during remedial design based on the COC concentrations in the groundwater at the injection well location(s). Once the standards are determined, EPA will document changes to the remedy appropriately.

In the scenario where the 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: 1) present at lower levels than the MCL, then the re-injected water must be treated in a manner consistent with the California anti-degradation policy requirements; or, 2) if it is not present in the aquifer (e.g., at ND levels) then the specific constituents must be treated to ND levels before re-injection.

Remedial 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 in the 2009 FFS, including remedial alternatives (Alternatives 1 through 5b) that incorporated different combinations of technologies and process options (described in detail in the FFS).

As a baseline against which to compare other alternatives, Alternative 1 assumed continued operation of the existing NHOU extraction and treatment system and delivery of treated groundwater to LADWP, with few modifications. Alternatives 2a through 5b included significant improvements to the NHOU extraction and treatment system, as well as two options for reuse of treated groundwater: delivery to LADWP (defined in the FFS as option "a") or re-injection to the aquifer (option "b"). EPA's Preferred Alternative was Alternative 4a, which required delivery to LADWP of the extracted water. EPA selected this alternative as the Second Interim Remedy in the 2009 ROD.

Because the only change to the selected remedy proposed in this Plan relates to the end use of groundwater, the analysis of remedial alternatives below does not revisit the evaluation of alternatives from the 2009 FFS and 2009 ROD that are unrelated to the end use.

Components of the Second Interim Remedy Selected in the 2009 ROD (Excluding End Use)

Excluding the end use, the components of the Second Interim Remedy, as selected in the 2009 ROD, are:

- **Institutional controls** in the form of a groundwater management plan (i.e., a written agreement between EPA and LADWP regarding extraction rates for the NHOU Second Interim Remedy and the production well fields) to mitigate the potential negative impacts to the NHOU system performance that could result from unexpected groundwater withdrawal by water purveyors (e.g., LADWP) in and near the NHOU.
- Groundwater and treatment system monitoring, including approximately 37 new groundwater monitoring wells.
- Wellhead treatment at extraction well NHE-2 using an advanced oxidation process (AOP) to remove 1,4-dioxane and a secondary treatment process to remove byproducts resulting from AOP.
- Chromium treatment for groundwater extracted by well NHE-2.
- Repair and/or modify (deepen) existing extraction wells NHE-1 through NHE-8 to improve capture of the VOC plume.
- Construct new extraction wells and associated pipelines to improve hydraulic containment of highly contaminated groundwater south of LADWP's southern Rinaldi-Toluca wells and east of LADWP's North Hollywood West Well Field.
- Refurbish the existing air stripper and add a second air stripper to provide sufficient primary VOC treatment capacity to handle the increased volume of groundwater from the extraction wells.
- Chromium treatment for groundwater extraction wells (in addition to NHE-2) where chromium concentrations are expected to be highest.

End Use Selected in the 2009 ROD

The end use for the Second Interim Remedy that was selected in the 2009 ROD requires that the groundwater extracted by the remedy be treated at the wellhead for hexavalent chromium and 1,4 dioxane, and at the NHOU treatment plant for VOCs, before being blended with other sources of municipal drinking water and delivered to the City of Los Angeles for introduction into its drinking water supply. In order to meet CDPH requirements that apply to provision of drinking water from severely impaired sources, the treatment for the selected end use requires redundant VOC treatment: liquid phase granular activated carbon (LPGAC) treatment system installed downstream from the air strippers to provide double barrier VOC treatment. In addition, the selected end use requires treatment to reduce total and hexavalent chromium concentrations and 1,4-dioxane concentrations in the combined effluent from the NHOU treatment system in order to meet drinking water standards.

Proposed Alternate End Use – Re-injecting all Extracted Water

Re-injection of water extracted from all wells was evaluated in the 2009 FFS and 2009 ROD, but not selected as part of the Second Interim Remedy because re-injection costs were calculated to be significantly higher than the cost to deliver the water to LADWP, and because EPA assumed there would be no need to re-inject. A re-injection system for all wells would require an estimated six injection wells and associated pipeline, as well as an estimated nine additional monitoring wells. The configuration of the injection wells, treatment system components, and ancillary equipment are discussed in the 2009 FFS. The injection wells would most likely be located north (up gradient) 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 plumes, and 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. Given the age of the existing VOC treatment system EPA expects that some or all of the existing treatment system will have to be replaced, including the extraction wells (NHE-1 through NHE-8) and the pipeline from the extraction wells to the treatment plant site.

Evaluation Criteria

The proposed amendment to the 2009 ROD must be evaluated against EPA's nine evaluation criteria (see Figure on next page). Those criteria are:

1. Protection of Human Health & the Environment
2. Compliance with Applicable or Relevant and Appropriate Requirements
3. Long-term Effectiveness & Permanence
4. Reduction of Toxicity, Mobility, or Volume through Treatment
5. Short-term Effectiveness
6. Implementability
7. Cost
8. State Agency Acceptance
9. Community Acceptance

The first two criteria are considered "threshold criteria" because any alternative selected as the remedy must meet these criteria. The next five are the primary balancing criteria, which are used to weigh major trade-offs among alternatives. The last two criteria, state agency and community acceptance, will be evaluated based on comments EPA receives during the public comment period for the Proposed Plan. A detailed analysis of all of the alternatives considered for selection of the Second Interim Remedy can be found in Section 5 of the FFS.

Evaluation of Alternatives

The evaluation of the proposed amendment to the 2009 ROD using the nine criteria is discussed below.

Overall Protection of Human Health and the Environment

As set forth in the 2009 FFS and 2009 ROD, the Second Interim 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 implementation of the Second Interim Remedy and, therefore, to protection of human health and the environment.

Compliance with ARARs

As set forth in the 2009 FFS and 2009 ROD, both the drinking water delivery end use selected in the 2009 ROD and the alternate end use, whereby all extracted water is re-injected, comply with ARARs. The primary ARARs identified included the Safe Drinking Water Act (underground injection, and MCLs), the Resource Conservation and Recovery Act (disposal of spent treatment residuals), California Domestic Water Quality and Monitoring Regulations (state MCLs and monitoring requirements), and the state Los Angeles RWQCB Water Quality Control Plan (anti-degradation).

Long-term Effectiveness and Permanence

As set forth in the 2009 FFS and 2009 ROD, EPA considers both the drinking water delivery end use selected in the 2009 ROD and the alternate end use where by all extracted water is re-injected to be protective over the long term.

Reduction of Toxicity, Mobility, or Volume through Treatment

As set forth in the 2009 FFS and 2009 ROD, EPA considers both the drinking water delivery end use selected in the 2009 ROD and the alternate end use where by all extracted water is re-injected to be consistent with EPA's mandate to reduce toxicity, mobility or volume through treatment. The rate of extraction is not changed from the 2009 ROD, so there is expected to be no change in the rate of removal of contaminants from the groundwater. Therefore, the assessment for this criteria is unaffected.

Short-term Effectiveness

As set forth in the 2009 FFS and 2009 ROD, EPA considers both the drinking water delivery end use selected in the 2009 ROD and the alternate end use where by all extracted water is re-injected to be protective over the short term. The 2009 ROD required construction of pipelines from the new extraction wells to the NHOU treatment plant, which were evaluated to potentially create a temporary nuisance to residents but should not pose any significant risks. Similarly, construction of the injection wells, and additional pipelines to those wells, may create an additional nuisance to residents but do not pose any substantial risks to the community or construction workers.

EPA's Nine Evaluation Criteria For Superfund Remedial Alternatives

1. **Overall Protectiveness of Human Health and the Environment** determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

2. **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)** evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.

3. **Long-term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment.

4. **Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment** evaluates an 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.

5. **Short-term Effectiveness** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.

6. **Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

7. **Cost** includes estimated capital and annual operations and maintenance costs, which are expressed in terms of present worth. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

8. **State Acceptance** considers whether the State agrees with the EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.

9. **Community Acceptance** considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

Final Remedy

Implementability

As set forth in the 2009 FFS and 2009 ROD, EPA considers both the drinking water delivery end use selected in the 2009 ROD and the alternate end use where by all extracted water is re-injected to be implementable. Indeed, if delivery of treated water to LADWP is not possible, then re-injection may be the only implementable option.

Cost

A summary of the capital, annual Operation and Maintenance (O&M), and net present value (NPV) costs for each alternative is presented below. These cost estimates are based on a 7% discount rate and 30year O&M period. Details of the cost estimates for each alternative are provided in Appendix D of the 2009 FFS.

Although the costs are higher for re-injection, if the option of providing the extracted and treated water to LADWP is infeasible, then the remedy cannot be implemented without another end-use option. Therefore, the additional costs are justified in order to be able to implement a remedy.

Table 2. Summary of Estimated Costs for Remedial Alternatives

Alternative	Capital Costs	Annual O&M Costs	Total Estimated NPV (30 Years of O&M)
LADWP delivery option	$52,300,000	$9,148,000	$107,800,000
Re-injection option	$95,000,000	$8,345,000	$134,200,000

Note: Capital costs have been rounded to the nearest $100,000. Annual O&M costs have been rounded to the nearest $1,000. Total estimated NPV has been rounded to the nearest $100,000.

State Acceptance

The State has expressed its support for EPA's Preferred Alternative.

Community Acceptance

Acceptance from community members is currently unknown and will be assessed based on the input received during the public comment period.

Preferred Alternative

EPA's Preferred Alternative is to allow the re-injection of the treated water, if the option to deliver the water to LADWP is thoroughly explored and deemed impractical. All other components of the remedy, including increased extraction and treatment, will remain the same as for the selected remedy from the 2009 ROD. This includes the construction of an estimated three new extraction wells, the modification/rehabilitation of several existing extraction wells, expanded VOC treatment, and chromium treatment for NHE-1, NHE-2 and two of the new extraction wells. The exact number, location, and pumping rates for the groundwater extraction wells will be finalized during remedial design.

Based on the information currently available, EPA believes the Preferred Alternative meets the threshold criteria and provides the best balance of trade-offs among the alternatives.

Next Steps

The public comment period on this Proposed Plan will continue until June 13, 2013. At the end of the public comment period, EPA will review and consider all comments and make a final decision on the selected remedy for the NHOU. The EPA will document the remedy selection in a Record of Decision Amendment (RODA) that will include a responsiveness summary addressing comments submitted by the public. The RODA will be placed in the information repositories, and notice of its availability will be announced in the local newspaper.

Glossary of Terms

Administrative Record: The complete collection of supporting documents that EPA relies on to select a cleanup action.

Aquifer: An underground layer of soil, sand, or gravel that can store and supply groundwater to wells and springs.

Chromium: Chromium is a steel-gray, lustrous, hard metal that takes a high polish, and has a high melting point. The most common oxidation states of chromium are +2, +3, and +6, with +3 being the most stable. The +1, +4 and +5 oxidation states are rare. Chromium compounds of oxidation state 6 (see "hexavalent chromium" below) are powerful oxidants.

Contaminants of Concern (COC): Site-specific chemicals that exceed regulatory levels or pose a potentially significant risk to human health and the environment.

1,4-Dioxane: 1,4-Dioxane is a clear liquid that dissolves in water at all concentrations. It is used primarily as a solvent in the manufacture of chemicals and as a laboratory reagent. 1,4-dioxane also has various other uses that take advantage of its solvent properties. It is a trace contaminant of some chemicals used in cosmetics, detergents, and shampoos.

Emerging contaminant: An "emerging contaminant" is a chemical or material that is characterized by a perceived, potential or real threat to human health or the environment or lack of published health standards. A contaminant may also be "emerging" because of the discovery of a new source or a new pathway to humans, or a new detection method or treatment technology has been developed.

Focused Feasibility Study: A study that evaluates options to clean up environmental contamination at a Superfund site.

Groundwater: The supply of water found below the ground surface, usually in an aquifer (see "Aquifer" above).

Hazard Index: For non-cancer health effects, U.S. EPA calculates a "hazard index" (HI). This index is a comparison of the concentration present at the site and the concentration below which non-cancer health effects are no longer expected.

Hexavalent chromium: Hexavalent chromium or Cr(VI) compounds are those which contain the element chromium in the +6 oxidation state. Chromium compounds are often used as pigments for photography, and in pyrotechnics, dyes, paints, inks, and plastics. Hexavalent chromium is recognized as a human carcinogen.

Human Health Risk Assessment: Qualitative and quantitative evaluation of the risk posed to human health by the specific pollutants found at the site.

Information Repository: A location accessible to community members (such as a local library) that houses documents, reports and other site-related information, general information about Superfund, newspaper notices and the Administrative Record for the site. EPA also maintains an information repository for all Superfund sites at its offices in San Francisco.

Institutional Controls (ICs): Administrative or legal mechanisms such as permits, zoning, and/or deed restrictions that protect property users and the public from existing contamination.

Interim Remedy: A remedy that is implemented to address contamination until a final remedy is implemented.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the level of a contaminant in drinking water below which there is no known or expected risk to health as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): A federal regulation that provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances.

Glossary of Terms *(Continued)*

National Priorities List (NPL): EPA's list of the most serious uncontrolled or abandoned hazardous waste sites in the United States identified for possible long-term cleanup.

Notification Level: A notification level is established by the California Department of Public Health (CDPH) (formerly the California Department of Health Services) "to provide information to public water systems, regulatory agencies, and the public about certain nonregulated chemicals in drinking water that lack MCLs. When chemicals are found at concentrations greater than these levels, certain requirements and recommendations apply." Prior to 2005, the notification levels were referred to as "action levels."

Operable Unit (OU): An OU is an area that is defined so that EPA may take action on a distinct area or type of contamination, as part of an overall site cleanup.

Proposed Plan: A document that summarizes the cleanup alternatives evaluated as part of the Feasibility Study process and identifies the preferred cleanup alternative.

Potentially Responsible Parties (PRPs): Parties who have been identified by EPA as potentially having caused the contamination, and to be potentially liable for the costs of cleaning up the contamination.

Record of Decision (ROD): The document that formalizes EPA's decision to implement a specific remedial action.

Remedial Action Objectives: The cleanup levels established by EPA when implementing a remedial action.

Remedial Investigation: The study that determines the nature and extent of contamination that is present at a site.

Superfund: The common name for the process established by CERCLA to investigate and clean up abandoned or uncontrolled hazardous waste sites [see "Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)" above].

Volatile Organic Compounds: Carbon-containing chemical compounds that evaporate readily at room temperature.

For More Information

Information Repositories

EPA maintains site information at the following repositories. These repositories contain the Administrative Record, project documents, fact sheets, and reference materials. EPA encourages you to review these documents to gain a more complete understanding of the site.

U.S. EPA Superfund Records Center
95 Hawthorne Street, Room 403
San Francisco, CA 94105
(415) 820-4700
Hours:
Mon. – Fri. 8:00 am – 5:00 pm

City of Los Angeles Central Library
Science and Technical Department
630 West 5th Street
Los Angeles, CA 90071
(213) 228-7216
Hours:
Mon. – Thur. 10:00 am – 8:00 pm
Fri. – Sat. 10:00 am – 6:00 pm
Sun. 1:00 pm – 6:00 pm

EPA also has a site information web page at
www.epa.gov/region09/SanFernandoNorthHollywood

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EPA Toll-Free Line
(800) 231-3075

United States Environmental Protection Agency, Region 9
75 Hawthorne Street (SFD-6-3)
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