

Explanation of Significant Differences For the Final Record of Decision

**Stead Solvent Site--Operable Unit 1
Stead, Washoe County, Nevada
NDEP Facility ID# D-001280**

**Prepared by
Nevada Division of Environmental Protection**

May 2024

Executive Summary

This Explanation of Significant Differences has been prepared by the Nevada Division of Environmental Protection for the Stead Solvent Site (NDEP Facility ID# D-001280) located on properties at and adjacent to the Reno-Stead Airport in Washoe County, Nevada. The Stead Solvent Site encompasses an area previously used as a military training facility, light aircraft airport, and for light industrial and manufacturing activities. As a result of past site uses, releases of chlorinated solvents resulted in contamination of groundwater above state and federal standards for protection of human health and the environment. The assessment and cleanup of the groundwater contamination was the subject of a Consent Decree in January 2000 between the Nevada Division of Environmental Protection and potentially responsible parties.

As required by the Consent Decree, and consistent with the state and federal regulations governing the site, the Nevada Division of Environmental Protection issued the final Record of Decision for the Site on July 21, 2000. The Record of Decision describes the selected remedy for groundwater contamination at the Site. The selected remedy involves multiple elements, including active treatment of groundwater using air sparge/vapor extraction technology. The Record of Decision acknowledges that the selected remedy might not achieve drinking water standards throughout the site and that achievement of drinking water standards may not be technologically practicable or feasible. The Record of Decision did not include mechanisms or numeric standards for final site closure decisions but stipulated that closure decisions would be made in accordance with the appropriate regulations after remediation activities were completed.

An Explanation of Significant Differences is intended to document a change in a remedy or components of a remedy after a Record of Decision is finalized, when the change is considered significant but does not fundamentally alter the remedy or cleanup approach with respect to its scope, performance, and/or cost. This Explanation of Significant Differences is intended to 1) clarify the site closure criteria for the Stead Solvent Site, 2) incorporate state regulations adopted after the Record of Decision was finalized and which provide more stringent analysis and requirements for closure of sites where contamination remains above action levels, and 3) provide relevant context for the changes to the Record of Decision.

I. Introduction

I.A. Site Name and Location

The Stead Solvent Site (“Site”) is located in the northwest portion of the former Stead Air Force Base (AFB). The base was constructed in the early 1940s. Prior to its construction, the area was primarily utilized for ranching. The site was operated as a military aviation facility until 1958. After 1958, the area was used as a military training facility, light aircraft airport, and for light industrial and manufacturing activities. Acreage from the original Stead AFB was gradually sold or deeded to various parties between 1958 and the present. The general location of the Site is at the intersection of Alpha Ave and Mt. Anderson Street in Stead, Washoe County, Nevada and is shown on Figure 1: Site Location Map and Figure 2: Stead Solvent Site OU1 Boundary.

The Site is identified as Nevada Facility ID# D-001280. The Site was identified as Operable Unit 1 (OU1), frequently referred to as the Stead Solvent Plume, in a Consent Decree entered and served by the US District Court, District of Nevada on January 31, 2000 (Case No. CV-N-98-34-DWH).

I.B. Identification of Consent Decree Agencies

The January 31, 2000 Consent Decree identifies and defines the Parties’ roles and responsibilities related to Site Response Actions. Under the Consent Decree, the “Appropriate Parties” are entities that “share in the responsibility for carrying out a Response Action at a particular Operable Unit or Area of Concern.” In the years following entry of the Consent Decree, certain Settling Defendants have entered into agreements which have caused the City of Reno and the Airport Authority of Washoe County to be the only remaining “Appropriate Parties” under the Consent Decree.

This Explanation of Significant Difference (ESD) for the July 21, 2000, Final Record of Decision (ROD) has been developed by the Nevada Division of Environmental Protection (NDEP) as the lead regulatory agency. Input and agreement have been obtained by the “Appropriate Parties” currently defined as the City of Reno and the Airport Authority of Washoe County. Input and agreement have been obtained by the Settling Federal Agencies of the Consent Decree, who are not defined as an “Appropriate Party” responsible for the implementation of response actions but are identified as a Funding Party for the Stead Solvent Site in the July 21, 2000 Final ROD.

I.C. Statement of Purpose

This document sets forth the basis for issuing an ESD and explains changes made to the July 21, 2000 Final ROD, for the Site in Washoe County, Nevada that support and integrate regulations and remedial objectives. Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Sections 300.435(c)(2)(i) and 300.825(a)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establish procedures for explaining, documenting, and informing the public of significant changes to components of the remedy or other provisions of the ROD after it is signed but do not result in a fundamental alteration to the selected remedy with respect to its scope, performance, and/or cost.

This ESD addresses the incorporation of applicable regulations that were adopted by the NDEP and Nevada's State Environmental Commission after the finalization of the ROD. Specifically, the NDEP intends to clarify that the provisions of Nevada Administrative Code (NAC) 445A.226 to 445A.22755 "Action Levels For Contaminated Sites" as they currently exist shall be used for site decision making rather than in accordance with those sections as they existed as of the date of the ROD.

I.D. Statutory Basis for Issuance of the ESD

This document sets forth the basis for the determination to issue an ESD to the July 21, 2000 Final ROD for the Site. Section 117(c) of CERCLA [42 United States Code Sec. 9617(c)] and 40 Code of Federal Regulations (CFR) 300.435(c)(2)(i) and 300.825(a)(2) of the NCP state that the lead regulatory agency shall write and publish an ESD when the remedy to be implemented differs significantly from the remedy selected in the ROD. The federal Environmental Protection Agency (EPA) policy and regulations (EPA Office of Solid Waste and Emergency Response Directive 9355.3-02) indicate that an ESD, rather than a ROD Amendment, is appropriate where the changes being made to the ROD are significant but do not fundamentally alter the overall remedy with respect to scope, performance, or cost.

I.E. Summary of Circumstances Necessitating this ESD

After NDEP adopted the final ROD on July 21, 2000 the State of Nevada amended its regulations and standards for groundwater cleanup and site closure for instances where contamination at the time of closure exceeds State action levels. To close the Site under the regulations and standards that existed on July 21, 2000 and for approximately eight years thereafter, the Division had to demonstrate that active remediation was no longer effective at reducing contaminant concentrations in the groundwater contamination plume. See, Final ROD at page 47 (stating that "the groundwater extraction system will operate until either the groundwater action level is achieved or asymptotic contaminant levels are achieved in accordance with NAC 445A.22745"). In 2009, the State Environmental Commission revised and amended the regulation to provide a new pathway for closure of groundwater contamination sites. The amended regulations are more effective and protective than the regulatory requirements that existed at the time the NDEP adopted the final ROD. The prior regulatory closure requirements allowed for closure of the Site based solely on a demonstration that an installed remediation system had reached the limits of its effectiveness.

This closure approach did not consider the concentrations of contaminants remaining in site groundwater or potential impacts to current or future groundwater users. While current regulations allow for the NDEP to consider treatability in its closure analysis, they specifically require the NDEP to consider the concentrations of contaminants remaining in site groundwater, the trajectory of those contaminant concentrations without further treatment, and the potential impacts to current or future groundwater users while the contaminant concentrations remain above action levels. NAC 445A.22725. The NDEP considers the new closure criteria more protective of human health and the environment. This ESD adopts current groundwater cleanup and closure regulations and will apply the regulations to the site and remedy as described in the ROD.

I.F. Agency Determination

The NDEP, in consultation with the Consent Decree parties, determined that incorporation of existing corrective action regulations to the July 21, 2000 ROD is a significant change to the ROD but does not rise to the level of a fundamental alteration to the overall remedial action approach for the Site with respect to its scope, performance, and/or cost. The incorporation of current, relevant regulations complies with the NCP and the statutory requirements of CERCLA and remains protective of human health and the environment. Thus, it is appropriate to issue an ESD to document the changes resulting in the modification to Site remediation and closure standards.

I.G. Administrative Record

As required by 40 CFR 300.435(c) and 300.825(a)(2), this ESD and supporting documentation will become part of the administrative record for the Site.

The administrative record is available for public review. The public may schedule a time to access the file by contacting the NDEP Bureau of Corrective Actions (BCA) Officer through email at ndepbca@ndep.nv.gov and referencing NDEP Facility ID# D-001280.

Files in electronic format will be made available via NDEP's online secure file transfer site. A BCA File Review and Records Release Form will be provided and must be returned to a BCA Records Officer at ndepbca@ndep.nv.gov prior to release of electronic documents. Upon receipt, access notification will be provided to the requestor within a reasonable amount of time, with online file availability for five business days from the date of notification.

Files in physical format may be reviewed by appointment at NDEP's Carson City office, 901 S Stewart St, Carson City, NV 89701. During an appointment, digital photos of public records may be taken by the requestor with their smart device or camera. The BCA Records Officer may also copy up to 50 double sided pages of unbound documents on behalf of the requestor, as staff time allows. BCA reserves the right to provide requested copies via NDEP's online secure file transfer site within a reasonable amount of time.

II. Site History, Contaminants, and Selected Remedy

II.A. Site History

The Site is located in the northwest portion of the former Stead AFB in Washoe County, Nevada. The Stead AFB was constructed in the early 1940s. Prior to its construction, the area was primarily utilized for ranching. The site was operated as a military aviation facility until 1958. After 1958, the area was used as a military training facility, light aircraft airport, and for light industrial and manufacturing activities. Acreage from the original Stead AFB was gradually sold or deeded to various parties between 1958 and the present. The general location of the Stead Solvent Site is shown on Figure 1: Site Location Map.

Solvent use on the site could extend back to 1944 when the Stead AFB was constructed and used as a military facility. Bulk solvents were reportedly stored at the former military fuel depot structure located southwest of the intersection of Mt. Anderson Street and Alpha Avenue. In addition, small quantities of solvents were reportedly used at the two hangars in the north

portion of the site. Lear Fan, one of the post-military base industrial tenants with several facilities, may have used solvents in plating operations. Precision Rolled Products on Cocoa Avenue was cited by the NDEP for mishandling sludge containing solvents on their property. Other facilities within the area may also have used solvents in their operations.

Starting in 1994, in response to the discovery of chlorinated solvents in the groundwater and the potential for impacts to drinking water supplied from deep aquifers in the area, certain potentially responsible parties established a cooperative effort to perform site investigations of suspected soil and groundwater contamination. The investigations identified multiple, distinct plumes of chlorinated solvent impact and their potential source area soils that were closely collocated. Those identified areas became the focus of the legal framework for remedial actions including a January 31, 2000 Consent Decree and the July 21, 2000 ROD. The areas of identified solvent impact were defined as OU1 in the Consent Decree, which included multiple parcels and property owners. Since the time that the OU1 boundary was originally defined, parcel numbers and areas have changed. Although parcel numbers and areas have changed, the OU1 boundary has not changed. Reasons for parcel number and/or area change include sale of properties and boundary line adjustments.

II.B. Contaminants of Concern

Fuel-related and chlorinated solvent constituents have been detected in the groundwater beneath and in the vicinity of the Site. Fuel-related constituents that have been detected include benzene, toluene, ethylbenzene, xylenes, ethylene dibromide, and various tentatively identified compounds, some of which are indicative of weathered or degrading fuel products. Several chlorinated solvents have been detected beneath the site, some of which are related to one another by biological and abiotic degradation.

Contaminants of potential concern (COPC) at the Stead Solvent Site are those chemicals that have been detected at some point in the site's history above respective Maximum Contaminant Limits (MCLs). Chlorinated solvents that are COPCs include tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1,2-trichloroethane (1,1,2-TCA), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), and 1,1-dichloroethene (1,1-DCE). Petroleum related compounds that are COPCs include benzene and ethylene dibromide (EDB).

Based on its historic prevalence and concentrations, TCE has been the primary risk driver at the Site.

II.C. Selected Remedy

The selected remedy for the site involved a groundwater remediation system, which was designed, installed, and operated to satisfy the following Remedial Action Objectives:

- Prevent ingestion and/or inhalation exposure from the use of or exposure to contaminated groundwater in excess of a 10^{-5} cancer risk;
- Prevent the distribution of groundwater for public water supply containing constituent concentrations above MCL as required by the Safe Drinking Water Act; and
- Prevent the distribution of groundwater for irrigation or watering of livestock containing constituent concentrations in excess of toxic material standards listed in NAC Part 445A.144.

These objectives were addressed through a combination of dual-phase extraction (DPE), hydraulic containment, soil vapor extraction (SVE), and phytoremediation. Phytoremediation was abandoned early on due to increased depths to groundwater.

Three “source areas” were identified based on distinct areas of elevated groundwater contamination. Source Area 1 contains six DPE and six SVE wells. Source Area 2 contains one DPE and one SVE well. Source Area 3 contains two DPE and two SVE wells. The SVE wells were installed to target vadose zone soils above the water table, which are present at a depth of approximately 25 feet below ground surface in the vicinity of the three source areas. The DPE wells were installed to target source area soils beneath the naturally occurring water table by dewatering and drawing vapors through the dewatered soils in the vicinity of the DPE wells. Six groundwater extraction wells were installed for hydraulic control in the plume areas which exist immediately downgradient (westward) of the three Source Areas. Natural attenuation of contamination outside the Source Areas was monitored through an approved site sampling plan.

Remediation activities began at the site in March 2005. Remediation equipment was deactivated in December 2015 as a part of a Non-Operation Test. The objective of the test was to determine if continued remedial action was necessary or if system operations could be optimized to manage the plumes more efficiently while progressing toward site closure. A post-remedial phase began in 2019 to continue data collection to assess the possibility of termination of remediation and consideration of site closure.

III. Basis for ESD

The July 21, 2000 Final ROD acknowledged that a selected remedy for the Stead Solvent Site may not achieve attainment of MCLs in groundwater given site conditions and the nature of the contaminants. As a result, the ROD set forth an Alternative Concentration Limit (ACL) of 37.5 µg/L for the principal contaminant of concern, TCE, since the use of 5 µg/L MCL as a cleanup level might not be technically feasible and/or be cost-prohibitive to attain. The establishment of an ACL for the Stead Solvent Site was consistent with waiver mechanisms in state and federal regulations.

The 37.5 µg/L ACL in the July 21, 2000 Final ROD was used in remedy selection to define the “plume area” at the Site and to establish the footprint for remedy consideration beyond the three “source areas.” In **Section 3.14 Declaration of Statutory Determinations, Other Considerations** of the ROD it states: *“The final clean-up standards have not been established at this time but will be determined in accordance with NAC 445A Section 445A.225 through 445A.22755 at an appropriate time in the future once remedial actions have been implemented.”* To date, the NDEP and Appropriate Parties have defined the plume area based on the ACL, but the final clean-up standards for the Site have not been established.

NAC Chapter 445A sets forth, among other requirements, the “Action Levels for Contaminated Sites.” The regulations were initially adopted by the State Environmental Commission on October 3, 1996, and include requirements and procedures for establishing action levels and directing corrective action for sites where soil, groundwater, or surface water have been affected by the release of regulated substance, hazardous substance, or hazardous waste.

The cleanup regulations in NAC Chapter 445A as they existed at the time of the July 21, 2000 Final ROD include three distinct mechanisms for closing a groundwater site with concentrations of contamination remaining above MCLs. The closure approaches included: 1) exempting a site from corrective action because the groundwater is not a source of drinking water; 2) determining that cleanup is technologically infeasible or cost prohibitive to achieve a remediation standard; or 3) terminating cleanup because concentrations of contaminants in groundwater have reached asymptotic conditions.

In 2008, NDEP initiated a rulemaking process to amend the groundwater corrective action regulations to address the protectiveness of closure decisions for sites that didn't meet MCLs as a cleanup goal. These regulation changes were adopted by the State Environmental Commission on August 25, 2009.

The regulations, as amended, require that a site meets protectiveness criteria to be considered for closure even after remediation is terminated and post-remediation monitoring shows no significant rebound of contaminant concentrations. The property owner or operator must demonstrate the following conditions for an exemption from groundwater cleanup requirements:

- 1) the source of the contamination is understood and controlled to prevent further contributions to groundwater;
- 2) the extent and magnitude of groundwater contamination is characterized and understood;
- 3) concentrations of contamination in the body of the plume are stable or decreasing;
- 4) natural attenuation, which may include biological degradation if demonstrated, is sufficient to prevent migration of contamination to any current receptors or a compliance point above health protective standards; and
- 5) controls are in place to prevent use of contaminated groundwater by future receptors.

The NDEP believes that regulations, as amended, should be considered the appropriate, relevant, and applicable regulations for making closure decisions for the Site because they require the NDEP to consider a comprehensive risk-based analysis to determine whether the current site conditions and reasonably foreseeable future conditions indicate that cleanup actions have been and will continue to be protective of human health and the environment [NAC 445A.22725(2)]. The analysis under the regulations, as amended, is more restrictive and protective than determining remedial action has achieved asymptotic plume conditions.

IV. Significant Differences from the Stead Solvent, Consent Decree OU-1 Record of Decision

This ESD is intended to clearly establish the final closure determinations for the Site. Once implemented, the NDEP will require the Appropriate Parties to conduct a closure analysis consistent with NAC 445A Sections 445A.226 through 445A.22755, as amended, and the Remedial Action Objectives in the ROD. This ESD shall only apply to all sections of the July 21, 2000 Final ROD where final cleanup standards are discussed. All remaining sections of the ROD shall remain unchanged.

V. Agency Comments

A draft of this ESD was supplied to the unreleased signatory parties of the January 31, 2000 Consent Decree including the appropriate parties and federal agencies as identified in that document. Their comments were received by the NDEP.

VI. Statutory Determinations

The July 21, 2000 Final ROD as changed by this ESD is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate, utilizes permanent solutions to the maximum extent possible, and is cost efficient. The selected remedy meets the protectiveness requirements of CERCLA, Section 121.

VII. Public Participation Compliance

NDEP shall publish a brief description of this ESD in the local newspaper as required by the NCP at 40 CFR Section 300.435(c)(2)(i)(B). This ESD will also be placed in the administrative record files at the Nevada Division of Environmental Protection, 901 S Stewart Street, Carson City, Nevada. Files are available for review and electronic copies are made available in accordance with file request procedures published by the NDEP online at <https://ndep.nv.gov/environmental-cleanup/all-appropriate-inquiry>.

VIII. Declaration

The NDEP has determined that the modifications to the July 21, 2000 Final ROD, Stead Solvent Site in Washoe County, Nevada documented in this ESD are significant but do not fundamentally alter the overall site remedial action with respect to scope, performance, or cost. I therefore approve the issuance of this ESD for the Stead Solvent Site and the changes to the Record of Decision stated herein.



Jennifer L. Carr, PE, CPM, CEM

Administrator, Nevada Division of Environmental Protection



Date

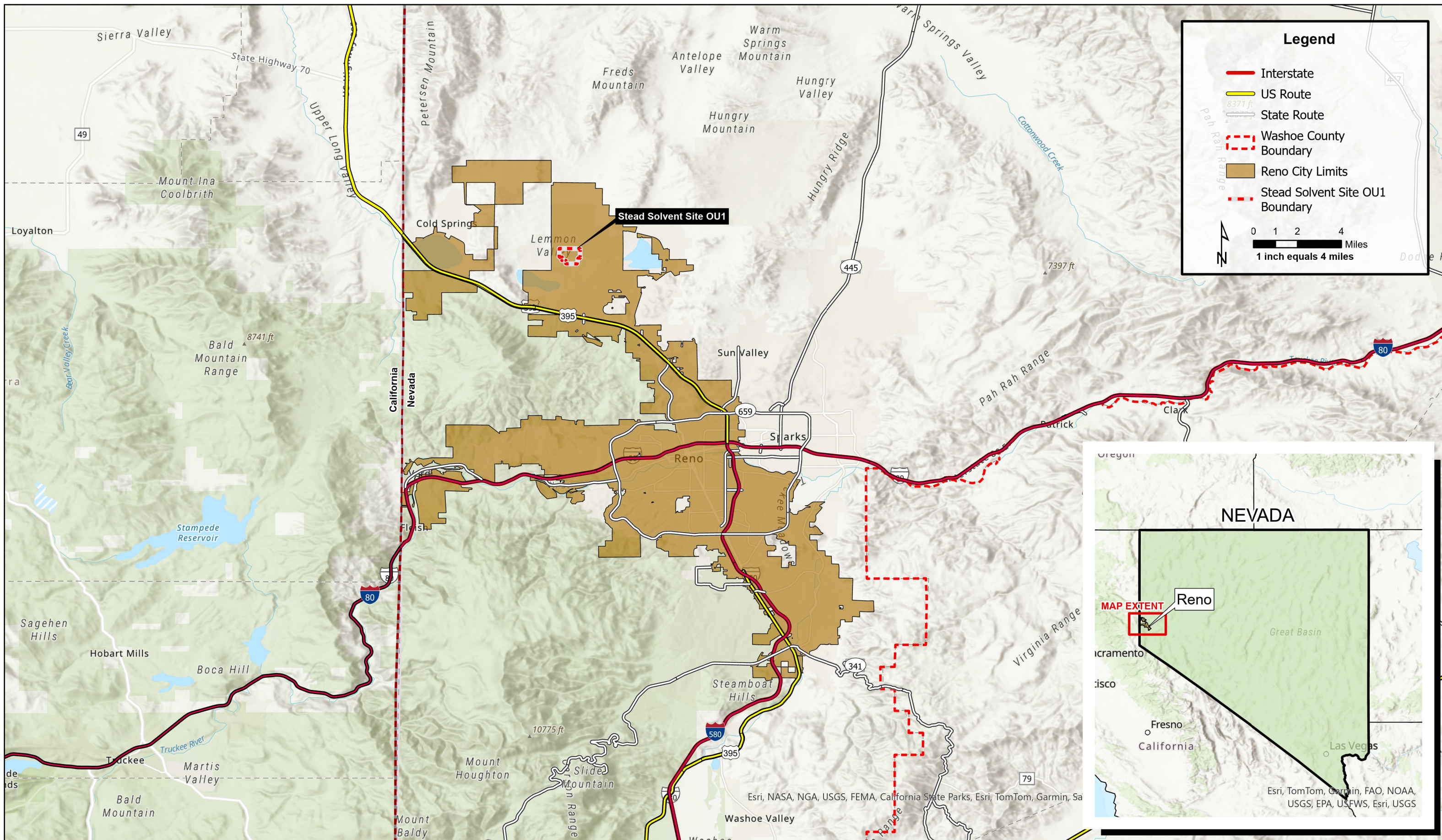
List of Acronyms

ACL	Alternative Concentration Limit
AFB	Air Force Base
BCA	Bureau of Corrective Actions
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COPC	Contaminant of Potential Concern
DCA	Dichloroethane
DCE	Dichloroethene
DPE	Dual-Phase Extraction
EDB	Ethylene dibromide
EPA	Environmental Protection Agency
ESD	Explanation of Significant Differences
MCL	Maximum Contaminant Limit
NAC	Nevada Administrative Code
NCP	National Contingency Plan
NDEP	Nevada Division of Environmental Protection
OU1	Operable Unit 1
PCE	Tetrachloroethene
ROD	Record of Decision
SVE	Soil Vapor Extraction
TCA	Trichloroethane
TCE	Trichloroethene

Site Figures

Figure 1: Site Location Map

Figure 2: Stead Solvent Site OU1 Boundary



**FIGURE 1
SITE LOCATION MAP**
EXPLANATION OF SIGNIFICANT DIFFERENCES FOR THE FINAL RECORD OF DECISION
STEAD SOLVENT SITE OPERABLE UNIT 1, RENO, NEVADA

Stead Solvent Site Operable Unit (OU)1 boundary notes:

1) The Stead Solvent Site OU1 boundary is described in the January 31, 2000 Consent Decree. The OU1 boundary was defined to include the following parcels:

- 9005047 (090-050-47)
- 9005058 (090-050-58)
- 9005059 (090-050-59)
- 9005052 (090-050-52)
- 9005053 (090-050-53)
- 8614506 (086-145-06)
- And portions of 8624009 (086-240-09) lying within the NE ¼ and the E ½ of the NW ¼ of section 30, T21N, R19E.

Parcel 086-145-06 is omitted from page one of the Consent Decree which provides a list of parcels included within the OU1 boundary, however, it is shown on Figure C-2 of the Consent Decree, which depicts the OU1 boundary and parcels included within.

2) Parcels within the OU1 boundary as of March 2021 are:

- A portion of 090-410-01
- A portion of 090-410-02
- 090-410-19
- 090-410-05
- 090-410-18
- 090-410-04
- A portion of 086-145-90
- A portion of 086-240-11

Stead Solvent Site
OU1 Boundary

