FIFTH FIVE-YEAR REVIEW REPORT FOR COAST WOOD PRESERVING SUPERFUND SITE MENDOCINO COUNTY, CALIFORNIA

PREPARED BY

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Region IX

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Executive Summary

This is the fifth Five-Year Review (FYR) of the Coast Wood Preserving Superfund Site (Site) located in Ukiah, Mendocino County, California. The purpose of this FYR is to review information to determine if the remedy is and will continue to be protective of human health and the environment.

The Site covers approximately 8 acres and is located at the southwest corner of Taylor Drive and Plant Roads on the southern side of Ukiah, California. The facility is bordered by open fields to the south, and southeast, industrial properties to the north and east, and U.S. Highway 101 to the west. Prior to 1989, past operations and a lack of engineering controls, caused a release of chromium and arsenic into the Site soil and aquifer.

In the September 29, 1989 Record of Decision, the U.S. Environmental Protection Agency selected remedies for soil and contaminated groundwater, in order to protect long-term human health and the environment. The following were the remedies implemented:

- Surface runoff management and control to prevent potentially contaminated water from entering surface water drainage features
- Control and remediation of contaminated soil
- Plume control and aquifer remediation
- Electrochemical treatment of groundwater
- In situ treatment of groundwater using calcium polysulfide reductant
- Water recycling/discharge to Ukiah sewage treatment plant or reinjection
- Monitoring

Hydraulic control and groundwater remediation (electrochemical treatment) through the use of a pump and treat system and a slurry wall was conducted on site from 1983 to 1999. In 1999, the pump and treat method was replaced with in situ reductant injection and continued pumping and recirculation within infiltration trenches on site. Injection of reductant ceased in 2010 with the concurrence of the California Department of Toxic Substances Control (DTSC) due to significant reduction in chromium concentrations on site. Remedial actions have continued by infiltration of reductant with the use of infiltration trenches up gradient of the slurry wall. Infiltration of reductant occurred January of 2015 and February 2016.

Hexavalent chromium and total chromium contamination in groundwater currently remain above their respective clean up levels in a few isolated areas, and have fluctuated in concentration during this review period, possibly associated with seasonal variation in groundwater levels. Only two wells have had arsenic concentrations exceeding cleanup levels during this review period. These wells are located near the most recent injection which occurred in 2010, and are expected to decline and not migrate off site as arsenic re-precipitates. Concentrations of contaminants are expected to decline over time as arsenic precipitates and as total chromium and hexavalent chromium continue to reduce from past injections. Groundwater data located along the downgradient perimeter of the Site are below the current MCLs (as discussed within, current MCLs for arsenic and hexavalent chromium are different than the selected clean up levels) which indicate that contamination is not migrating off site.

The remedy for the Site is functioning as intended. The remedial actions of surface runoff management, control, remediation of contaminated soil, and of monitoring groundwater are ongoing and operating as expected. Operations on the Site maintain and ensure the protectiveness of the remedy. A land use covenant ensures that the current and future land use stays non-residential, eliminates possible future exposure pathways, and protects the existing remedy. Toxicity factors and applicable or relevant and appropriate requirement have changed, but no exposure pathways to receptors exist; therefore, changes in the toxicity factors do not affect the protectiveness of the remedy. There have been changes to both the State and federal Maximum Contaminant Level (MCL) for arsenic and the State MCL for hexavalent chromium in recent years but the changes do not impact the protectiveness of the remedy because there is no exposure pathways exists for the groundwater. No human health or ecological routes of exposure to receptors have been identified or changed in a way that could affect the protectiveness of the remedy. The remedy is progressing as expected towards meeting remedial action objectives. No new information has come to light that would affect the protectiveness of the remedy at the Site.

The remedy at the Coast Wood Preserving Superfund Site currently protects human health and the environment because the remedy is functioning as intended and no exposure pathways to contaminated media exists. However, in order for the remedy to be protective in the long term, this Five Year Review recommends assessing the current remedy considering site-specific risk for hexavalent chromium and consider whether it is appropriate to modify the remedy to include the new MCL.

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List of Abbreviations

µg/L	micrograms per liter
ARAR	applicable or relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	contaminant of concern
CWP	Coast Wood Preserving, Inc. and well site designations
DTSC	California Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
IC	institutional control
IRIS	EPA's Integrated Risk Information System
MAROS	Monitoring and remediation Optimization System
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
MWH	MWH Global, Inc.
O&M	operation and maintenance
OU	operable unit
ppb	parts per billion
RAP	remedial action plan
ROD	Record of Decision
RSL	regional screening levels
RWQCB	California Regional Water Quality Control Board
Site	Coast Wood Preserving Superfund Site
USACE	United States Army Corps of Engineers
UU/UE	unlimited use and unrestricted exposure

1. Introduction

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, 40 Code of Federal Regulation Section 300.430(f)(4)(ii) of the National Contingency Plan and EPA policy.

This is the fifth FYR for the Coast Wood Preserving (CWP) Superfund Site (Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site FYR was led by Tu Nguyen of EPA Region IX. Participants included Blair Kinser, technical lead from Seattle District, United States Army Corp of Engineers (USACE); Tom Lanphar from DTSC, Miriam Gilmer, project manager from Seattle District, USACE; and Cynthia Wetmore, technical support from EPA Region IX. The review began on November 3, 2015.

Table 1: Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Coast Wood Preserving Superfund Site		
EPA ID: CAD063015887		
Region: 9	**State:** Ca	**City/County:** Ukiah/Mendocino
SITE STATUS		
National Priorities Listing Status: Final		
Multiple OUs? No	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: State ***[If "Other Federal Agency", enter Agency name]*:**		
Author name (Federal or State Project Manager): Tu Nguyen		
Author affiliation: EPA Region IX		
Review period: 11/3/2015 - 9/22/2016		

Date of site inspection: 2/4/2016
Type of review: Statutory
Review number: 5
Triggering action date: 9/22/2011
Due date *(five years after triggering action date)*: 9/22/2016

1.1. Background

1.2. Physical Characteristics

The Site occupies 8 acres and is located at the southwest corner of Taylor Drive and Plant Roads on the southern side of Ukiah, California (Figure 1). Currently, the Site is being used as a wood treating facility. The Site is bordered by The Mendocino Solid Waste Management Authority to the south, and industrial properties to the north and east, and U.S. Highway 101 to the west. A few residential homes do exist within a quarter mile of the Site. The nearest buildings to the Site are non-residential.

The only environmentally sensitive area identified in this FYR is the Russian River which is approximately 2,000 feet away from the Site.

Residents and businesses in the unincorporated area south of Ukiah get their water from the Willow County Water District which draws its supplies predominately from Lake Mendocino. The Willow County Water District has five supply wells, which are only used during dry months. Three of the five supply wells are located within one-half mile north of the Site and up gradient of groundwater flow.

The current and projected land use for the area surrounding the Site is non-residential. The closest residential homes are approximately 1,000 feet to the northwest and 900 feet south of the Site. Agriculture fields are noted approximately 300 feet directly to the west of the Site. It is assumed that the current land use in the surrounding area will be the same in the future.

Institutional controls (ICs) exist to restrict earthwork, and, therefore, the development of groundwater wells on site. No known groundwater restrictions exist off site.

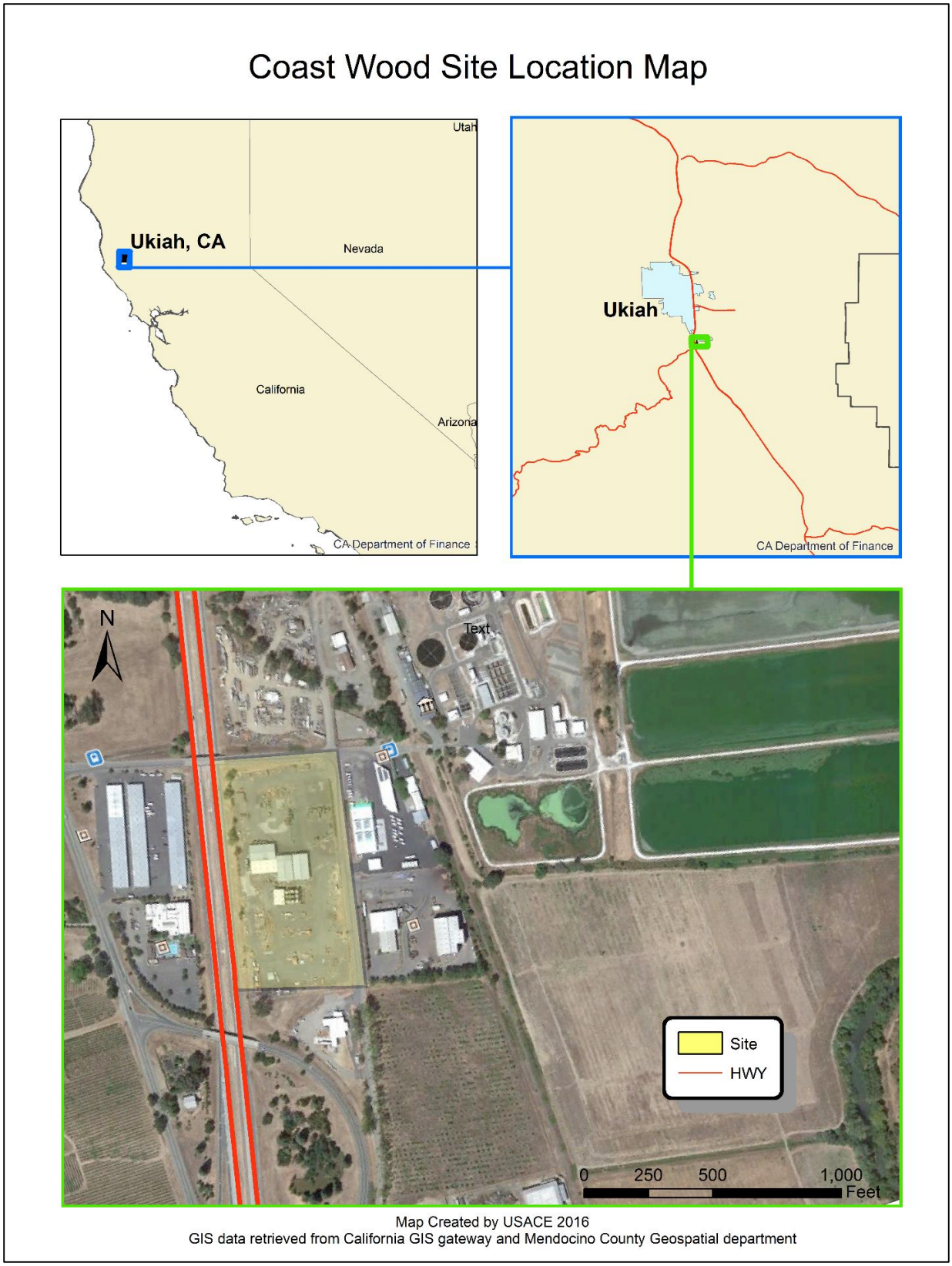

Figure 1: Location Map for the Coast Wood Preserving Superfund Site

1.3. Hydrology

The Russian River, which originates in Central Mendocino County and flows south to Sonoma Coast State Beach, is the most important surface drainage system in the area. At its closest point, the Russian river flows approximately 2,000 feet to the east of the Site.

Groundwater beneath the Site is recharged by the infiltration of precipitation and flows to the southeast. The saturated zone is comprised of unconsolidated material ranging from clay to gravel. The unconsolidated material in the subsurface under the Site is divided into four zones.

Zone 1, extending from the surface to a depth of approximately 20 feet, consists primarily of silty clay, clayey silt, and clayey sand, with more permeable stringers and lenses of sand and gravel. The lower boundary of Zone 1 was considered to be a very stiff blue silty clay to clayey silt layer, typically 4 to 5 feet thick. The blue clay was absent in some locales. Subsequent drilling also failed to encounter the blue clay at the anticipated depths in several borings, indicating it was not as laterally consistent as earlier believed.

Zone 2 consists of a sand and gravel layer approximately 5 to 10 feet in thickness. Zone 2 decreases in thickness to the southeast, and is discontinuous off site. Minor contamination has been noted in Zone 2. Zone 3 is a stiff olive brown clayey silt at the lower boundary of Zone 2. This zone was considered by Geosystems to be 4 to 6 feet in thickness. Zone 4 is a clayey sand and gravel stratum that underlies Zone 3.

2. Remedial Actions Summary

2.1. Basis for Taking Action

At the Site, the compounds identified in the 1989 ROD as contaminants of concern were chromium, copper and arsenic in the soil and in the groundwater. Residents of homes located within a quarter mile of the Site were identified as potential receptors of the contamination. In addition, nearby vegetation, birds, and fish were possible ecological receptors. The identified pathways of exposure were: inhalation and direct contact with the contaminated soil, ingestion of contaminated groundwater, and ecological exposures to surface water.

2.2. Remedy Selection

In 1989, remedial actions were formally proposed for the Site in the Remedial Action Plan (RAP). The RAP was prepared for and was approved by the California Department of Toxic Substances Control (DTSC) in August 1989. EPA signed a ROD in September 1989 selecting the remedial actions in the RAP as the remedy for the Site. From the RAP and ROD, the following general remedial action objectives were ascertained (EPA, 1989, p. 6-7):

- Prevention of offsite migration of contaminants
- Cleanup of onsite soils and groundwater

To address these objectives, the RAP and ROD specified the following remedial action components (EPA, 1989, p. 6):

- Surface runoff management
- Control and remediation of contaminated soil
- Plume control and aquifer remediation
- Electrochemical treatment of groundwater
- Water recycling/discharge to Ukiah Sewage Treatment Plant or reinjection
- Monitoring

In 1999, CWP, Inc. submitted the RAP Amendment, which proposed enhancements to the groundwater remedial program at the Site, based on technological advancements since the original RAP was approved. These enhancements involved the use of an innovative in situ reduction and fixation approach for hexavalent chromium, replacing the electrochemical treatment of groundwater. The RAP Amendment was approved by DTSC in July 1999. EPA concurred with the RAP Amendment in a letter dated August 25, 1999.

2.2.1. ESD (2003)

In August 2003, DTSC prepared an Explanation of Significant Differences (ESD) to revise the cleanup goals for both hexavalent chromium and arsenic in soil and to modify the scope and timing of the soil cleanup. The 1989 RAP established soil cleanup goals for arsenic and total chromium of 15 milligrams per kilogram (mg/kg) and 100 mg/kg, respectively. However, the cleanup goals were based on limited background soil sampling. DTSC subsequently approved soil cleanup levels of 27 mg/kg for arsenic and 42 mg/kg for hexavalent chromium. The arsenic goal was established on the basis of a commercial or industrial setting and on an excess cancer risk of 10^{-5}. This risk value assumes a direct exposure pathway for onsite workers. The cleanup goal for hexavalent chromium in soil was based on protection of groundwater and was established to prevent exceedances of the California MCL in groundwater through the potential leaching of chromium from soil.

The 2003 ESD also states that soil cleanup would not be undertaken until the cessation of wood preservation activities at the Site, but CWP, Inc. has proposed that some accessible contaminated soil can be remediated while the plant is operational. This has occurred as noted under Section 2.3.

Table 2: Soil and groundwater cleanup goals for the Site.

Soil Cleanup Goals		Groundwater Cleanup Goals	
Total Chromium	100 mg/kg[1]	Total Chromium	50 [3]
Hexavalent Chromium	42 mg/kg[2]	Hexavalent Chromium	50 µg/L[4]
Arsenic	27 mg/kg[2]	Arsenic	50 µg/L[4]
[1] applicable or relevant and appropriate requirement (ARARs) as shown in the 2003 ESD page 4. [2]ARARs as shown in the 2003 ESD Page 3.		[3]ARARs as shown in the 1989 ROD (Section 6.3.1, p. 30, and Table 10, p. 56). [4]ARARs as shown in the 1989 ROD (Table 10, p. 56). µg/L = micrograms per liter	

2.3. Remedy Implementation

Prior to the 1989 RAP and ROD, interim measures were implemented by the CWP, Inc. to prevent and control surface runoff. This was done by constructing berms, and paving the Site to minimize contaminated runoff, eliminate infiltration, and reduce leaching of COCs into groundwater during plant operations. In addition, roofs were constructed over the retort area. In October of 1983, CWP, Inc. constructed a 300-foot-long slurry cutoff wall along the eastern Site boundary to a depth of 20 feet to stop contaminated groundwater from flowing off site. An extraction trench (HL-7, also designated HL-07 on some figures) was also placed upgradient of the slurry wall where contaminated water could be pumped and treated. Infiltration trenches on site were constructed in 1985.

From 1983 until September 1999, when the RAP Amendment was approved, groundwater was captured through the use of a trench (HL-7) and well pump (CWP-18) and was treated via an electrochemical unit on site.

Between 1999 and 2010, the remedy changed to an in-situ technology. Injections of calcium polysulfide targeted dissolved chromium concentrations to meet the current California MCL of 50 µg/L for total chromium. A total of eight injection events occurred during this time period. In addition, groundwater within the trench was recirculated with calcium polysulfide reductant to increase the contact time of the reductant. In 2004, a bi-level infiltration trench gallery was constructed at the northern storm water tank farm and south of the drip pad to allow flexibility for infiltration depths at that location. Infiltration events occurred in 2001, 2003, 2005 (MWH, 2006). Infiltration events, for this review period, occurred in January 2015 and in February 2016 upgradient approximately 30 feet west of the extraction trench and slurry wall (Figure B-2).

Between 2004 and 2006, a total of 6,183 tons of accessible impacted soil and surface cover materials were removed from the Site and disposed of at a permitted land fill. Several areas of known soil contamination remain on site under structures and impervious layers, such as concrete pads and asphalt pavements, along the northern boundary and in small 20 foot by 20 foot footprints in the southern portion of the site. A breakdown of the six areas of soil contamination are as follows:

1) the drip pad under the two canopies east of the retort tanks;
2) the drip pad under the canopies north of the retort tanks;
3) the retort sump and drip pad beneath the newly installed canopy;
4) beneath the retort tanks, electric building and hazardous waste storage area;
5) the work tank farm; and
6) the remaining soil from the Phase 2 and 3 soil removals.

An asphalt cap covers the majority of the Site. The total estimated volume of soil contamination remaining on site is approximately 1,448 cubic yards. In 2015, an additional 42 cubic yards of contaminated material was excavated and removed from the Site. Additional soil removal is not expected to occur until the plant is closed.

A land use covenant between DTSC and CWP, Inc. was recorded on November 29, 1989 to ensure non-residential use of the property (Table 3).

Table 3: Summary of Planned and/or Implemented ICs

Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or Planned)
Groundwater/Soil	Yes	No	Coast Wood Preserving Superfund Site	Impose a limitation on the Site specifying non-residential use only. Eliminate the possible use of groundwater for residential purposes (i.e., drinking and bathing). Restriction on any proposed earth work or other activities that may disturb the asphalt cap, including the development of groundwater wells.	Land use covenant recorded November 29, 1989.

2.4. Operation and Maintenance

No significant operation and maintenance (O&M) occurs at the Site. Operations include monitoring of groundwater through the sampling and analysis of water from groundwater in wells. The current groundwater monitoring program for the Site involves the semi-annual sampling of 21 wells and annual sampling of hexavalent chromium for 8 wells. Site groundwater monitoring is ongoing.

Continued remedial operations include the running of pumps within extraction wells on site to allow for continued recirculation of contaminated water with reductant near the slurry wall. Recirculation occurs after infiltration events for limited periods of time.

3. Progress Since the Last Five-Year Review

3.1. Previous Five-Year Review Protectiveness Statement and Issues

The protectiveness statement from the 2011 FYR for the Coast Wood Preserving Superfund Site (Site) stated the following:

> *The remedy at the CWP site currently protects human health and the environment. An asphalt/concrete cap covers the entire site, eliminating direct contact exposure to arsenic- and chromium-contaminated soils and preventing leaching of contaminants into groundwater. A Land Use Covenant, which was filed and recorded with the County of Mendocino in 1989, requires the maintenance of an asphalt or concrete cap over the Site and restricts the use of the property to non-residential purposes. However, in order to be protective in the long-term, the cleanup goals for hexavalent chromium need to be re-evaluated. Injection of reductant solution has decreased groundwater dissolved chromium concentrations and has prevented off-site plume migration.*

The 2011 FYR included no issues and two recommendations. Each recommendation and the current status is discussed below in Table 4.

Table 4: Status of Recommendations from the 2011 FYR

Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
Revise the groundwater monitoring and sampling program to reduce the sampling frequency and abandon selected wells. The RWQCB[1] is currently working on a revised waste discharge requirement that will address this recommendation. In addition, the waste discharge requirement will also address changes to the laboratory methodology in response to the final public health goal of 0.02 µg/L for hexavalent chromium.	Completed	RWQCB approved[2] well abandonment and revisions to monitoring were approved due to significant reductions in concentration of total dissolved chromium in wells on site. Ten wells were decommissioned by October 2013. In addition, sampling in remaining wells has been reduced to semi-annually or annually. No revision to the waste discharge requirement was needed.	10/31/2013
Continue direct injection as required along transects downgradient of the drip pad area and source areas with the highest residual chromium concentrations.	Completed	No further direct injections have occurred since 2010 due to lower chromium concentrations. Discontinuing injections was allowed with DTSC approval.[3] However, infiltration of reductant at the infiltration trenches and recirculation of the reductant at the extraction trench did occur in January of 2015 and February 2016.[4]	2/21/2012

Notes: 1. RWQCB = California Regional Water Quality Control Board.
2. A letter written in April 3, 2012 from RWQCB to CWP, Inc. approving abandonment of wells and revisions to monitoring.
3. A letter written in February 21, 2012 recommended no further injections of calcium polysulfide reductant.
4. A letter written in April 1, 2015, detailing how calcium polysulfide is infiltrated immediately upgradient of trench HL-7 and was then recirculated to increase contact time with contaminated soil.

3.2. Work Completed at the Site During this Five-Year Review Period

A total of ten wells were abandoned at the Site: five wells in December of 2012 and five in October of 2013. The analysis of samples from these wells consistently indicated COC concentrations below cleanup goals.

No additional injections have been conducted since March of 2010. In the 2011 Annual Groundwater Monitoring Report letter dated February 21, 2012, DTSC recommended that no additional injection of calcium polysulfide reductant occur because, in the majority of wells with total chromium concentrations, chromium is primarily in its trivalent form. In addition, all but one of the wells had concentrations below the cleanup goal of 50 µg/L.

In April 2014, samples collected from trench HL-7 contained a concentration of 242 µg/L hexavalent chromium believed to be related to seasonally high groundwater contacting contaminated soils in the vadose zone and prompting the recommendation in the February 2014 annual groundwater monitoring report for an additional round of reductant infiltration. As was the case for prior infiltration activities, the purpose of the January 2015 infiltration event was to deliver a dilute solution of calcium polysulfide reductant into both the vadose and saturated zoned into the trenches upgradient of HL-7, with groundwater extraction from HL-7 and re-infiltration of the extracted groundwater into the upgradient trenches. Immediate results after the infiltration and recirculation of the reductant indicated that dissolved chromium and arsenic were below levels of detection.

4. Five-Year Review Process

4.1. Community Notification and Site Interviews

A public notice was made available in the *Ukiah Daily Journal* on March 18, 2016, stating that a FYR was scheduled and inviting the public to submit any comments to the EPA. No one contacted EPA. The results of the review and the report will be made available at the Site information repository located at Mendocino County Library, 105 North Main Street, Ukiah, California 95482.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. The results of these interviews are summarized below.

An interview was conducted with Gene Peitila, Manager and Bob Schmidt, Project Coordinator, both with CWP, Inc. The interviewees indicated that the Site was meeting cleanup goals and that onsite groundwater monitoring is being performed efficiently. Overall, the project is going well and there is good cooperation between CWP, Inc. and both State and Federal regulatory agencies. The transcript of the interview can be seen in Appendix G, Interview Forms.

4.2. Data Review

The following documents were reviewed to complete the data review for the Site:

- DTSC, *Coast Wood Preserving Ukiah, California Fourth Five-Year Review*, September 28, 2011.
- MWH Global, Inc. (MWH), *Coast Wood Preserving Site, Ukiah, California, First Quarter 2011 Groundwater Monitoring Report*, April 15, 2011.
- MWH, *Coast Wood Preserving Site, Ukiah, California, Fourth Quarter and 2011 Annual Groundwater Monitoring Report*, January 15, 2012.
- MWH, *Coast Wood Preserving Site, Ukiah, California, 2012 Annual Groundwater Monitoring Report*, February 28, 2013.
- MWH. *Coast Wood Preserving Site, Ukiah, California, 2013 Annual Groundwater Monitoring Report*, February 28, 2013.
- MWH, *Coast Wood Preserving Site, Ukiah, California, 2014 Annual Groundwater Monitoring Report*, February 28, 2015.

4.2.1. Groundwater

Groundwater elevation data indicates little to no changes between years but does indicate significant elevation fluctuations between seasons. Groundwater elevations on site have ranged between 565.96 and 575.09 feet (mean sea level) in October to November 2014, and between 571.39 and 579.96 feet in April 2014 – typically a rise of 4 to 6 feet occurs between fall and spring. No significant elevation changes for annual ground water elevation data were noted for the years of 2011 to 2015. Groundwater flows to the southeast with the greatest groundwater gradient in 2014 being approximately 0.021 feet per foot.

Currently, a total of 21 groundwater monitoring wells are being sampled either semi-annually or annually. Analysis of the groundwater is conducted on the contaminants of concern (COCs)—total chromium, arsenic, and hexavalent chromium. Since 2011, 14 wells had at least one result with concentrations above the current maximum contaminant levels (MCLs). Trend analysis on the groundwater concentration data found that the concentrations have been either stable or decreasing indicating that the remedy is performing as intended.

For purposes of assessing progress of the remedy, wells of interests were divided into three categories by area: the Dry Drip Area, the Infiltration Trench Area, and the Perimeter Wells Area. These areas are located in the central, central southeast, and east/southeast locations, respectively.

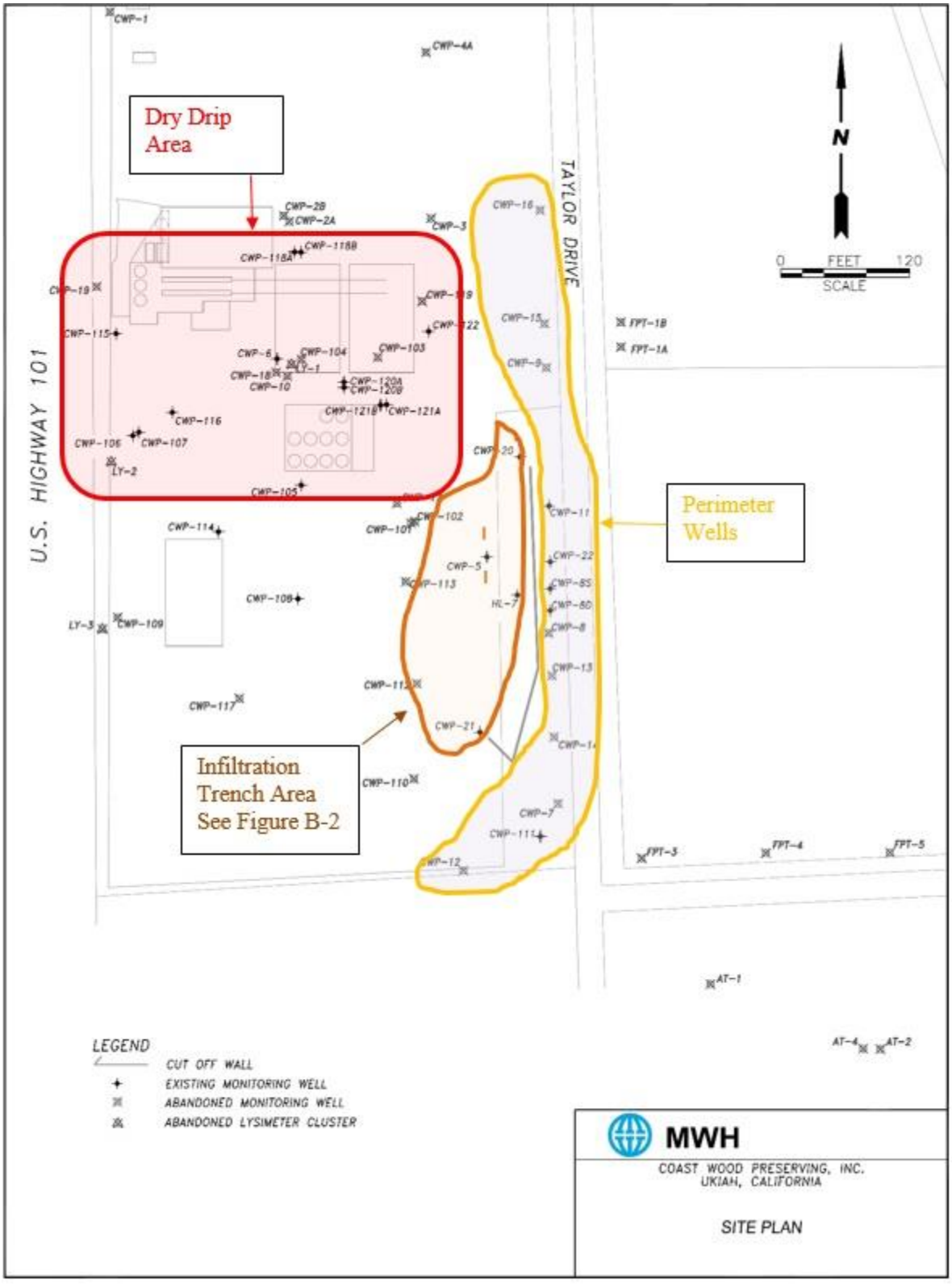

Figure 2: Well Location Map

The Dry Drip Area contains one total chromium plume centered at the southeast area of the Former Tank Farm Area (CWP-116) and one hexavalent chromium plume located near the canopies east of the retort tanks (CWP-118B). Statistical analysis indicate that these plumes are stable in size; however, the concentrations in these wells have fluctuation over the past five years. There are no exceedances above the cleanup level for arsenic in this area within the past five years. However, there were results from several wells with arsenic concentrations above the new MCL (see Table B-1). In the area just south of canopies (CWP-120a), elevated concentrations of arsenic have been noted in the past. Typically, wells with elevated arsenic have been within 20 feet of an injection transect, which most likely has contributed to the elevated concentrations of arsenic. Well CWP-120A is located near the most recent injection which occurred in 2010. It is expected that, in the next 5 years, the concentrations of arsenic will decline and not migrate off site as arsenic precipitates.

The Infiltration Trench Area has the greatest fluctuations of concentrations on site. Seasonal fluctuations in groundwater levels have caused increased concentrations of total chromium and hexavalent chromium in the middle of the Infiltration Trench Area (CWP-5 and HL-07)[1]. In April 2014, samples collected from trench HL-7 contained a concentration of 242 µg/L hexavalent chromium believed to be related to seasonally high groundwater contacting contaminated soils in the vadose zone and prompting the recommendation in the February 2014 annual groundwater monitoring report for an additional round of reductant infiltration. As was the case for prior infiltration activities, the purpose of the January 2015 infiltration event was to deliver a dilute solution of calcium polysulfide reductant into both the vadose and saturated zoned into the trenches upgradient of HL-7, with groundwater extraction from HL-7 and infiltration of the extracted groundwater into the upgradient trenches. Immediate results after the infiltration and recirculation of the reductant indicated that hexavalent chromium and arsenic were below levels of detection at CWP-05 µg/L. The concentrations rebounded at CWP-05 to approximately 45 µg/L hexavalent chromium due to another seasonal fluctuation in groundwater levels. In February 2016, another infiltration of reductant occurred. Data regarding the effects of this event have not been collected as of yet. The area with the greatest occurrences of arsenic above current MCLs in the Infiltration Trench Area is at the northern end of the slurry wall (CWP-20)[2]. In 2015, the concentration of arsenic in water from this well was below detection levels.

[1] Though not enough data was available to conduct a trends analysis on hexavalent chromium, graphs of concentrations over time were generated and indicate the wells that have been above cleanup goals during this FYR (Figure B-6 through Figure B-9). These graphs indicate a possible pulse of untreated hexavalent chromium above cleanup goals. This may have been a result from seasonal precipitation and higher groundwater levels in April of 2014 at the extraction trench (HL-7). To remedy this pulse of hexavalent chromium, infiltration of a reductant solution was conducted into the upgradient infiltration trenches where the most significant increase of hexavalent chromium was noted (see Section 3.2).

[2] In all three area arsenic in groundwater has been mobilized due to the reducing conditions created by the injection of calcium polysulfide which began in 1999 and ended in 2010. Wells noted to have had elevated arsenic concentrations were within 20 feet of the injections. In addition, two wells of concern (CWP-20 and CWP-120a) with the most consistent concentrations above cleanup levels were located near the most recent injections from 2010. It is expected that in the next 5 years the concentrations of arsenic will decline and will not migrate off site as arsenic will precipitate as seen in the past at this Site and similar sites. Other wells evaluated for arsenic had 50 percent or less of an occurrence of concentration of arsenic above the current MCL

Data from the wells in the Perimeter Wells Area indicate that contamination is not migrating off site. There have been no exceedances of the new MCLs in the past two years and only one slight exceedance of the current MCL of arsenic occurred in the past 5 years (11 µg/L). There has been no detections of total chromium (detection limit is reported at 10 µg/L). It is expected that the water from the wells in this area will continue to indicate levels below MCLs and that migration of COCs is not occurring at CWP.

Hexavalent chromium and total chromium concentrations in groundwater currently remain above their respective clean up levels in a few isolated areas, and have fluctuated in concentration during this review period, possibly due to seasonal variation in groundwater levels. Only two wells have had arsenic concentrations exceeding cleanup levels during this review period. These wells are located near the most recent injection which occurred in 2010, and are expected to decline and not migrate off site as arsenic re-precipitates. Concentrations of contaminants are expected to decline over time as arsenic precipitates and as total chromium and hexavalent chromium continue to reduce from past injections.

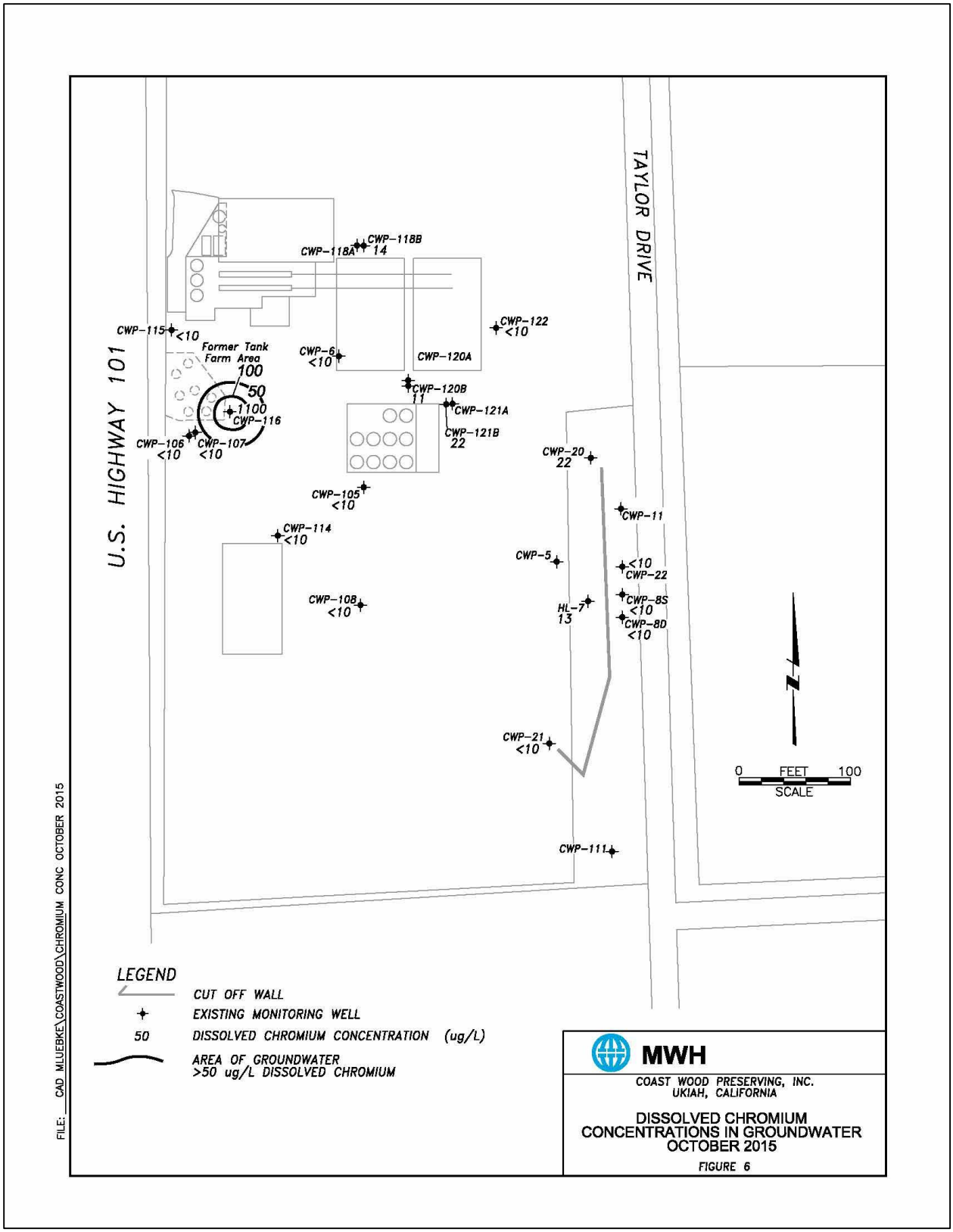

Figure 3 : Total Chromium Plume Map from October 2015

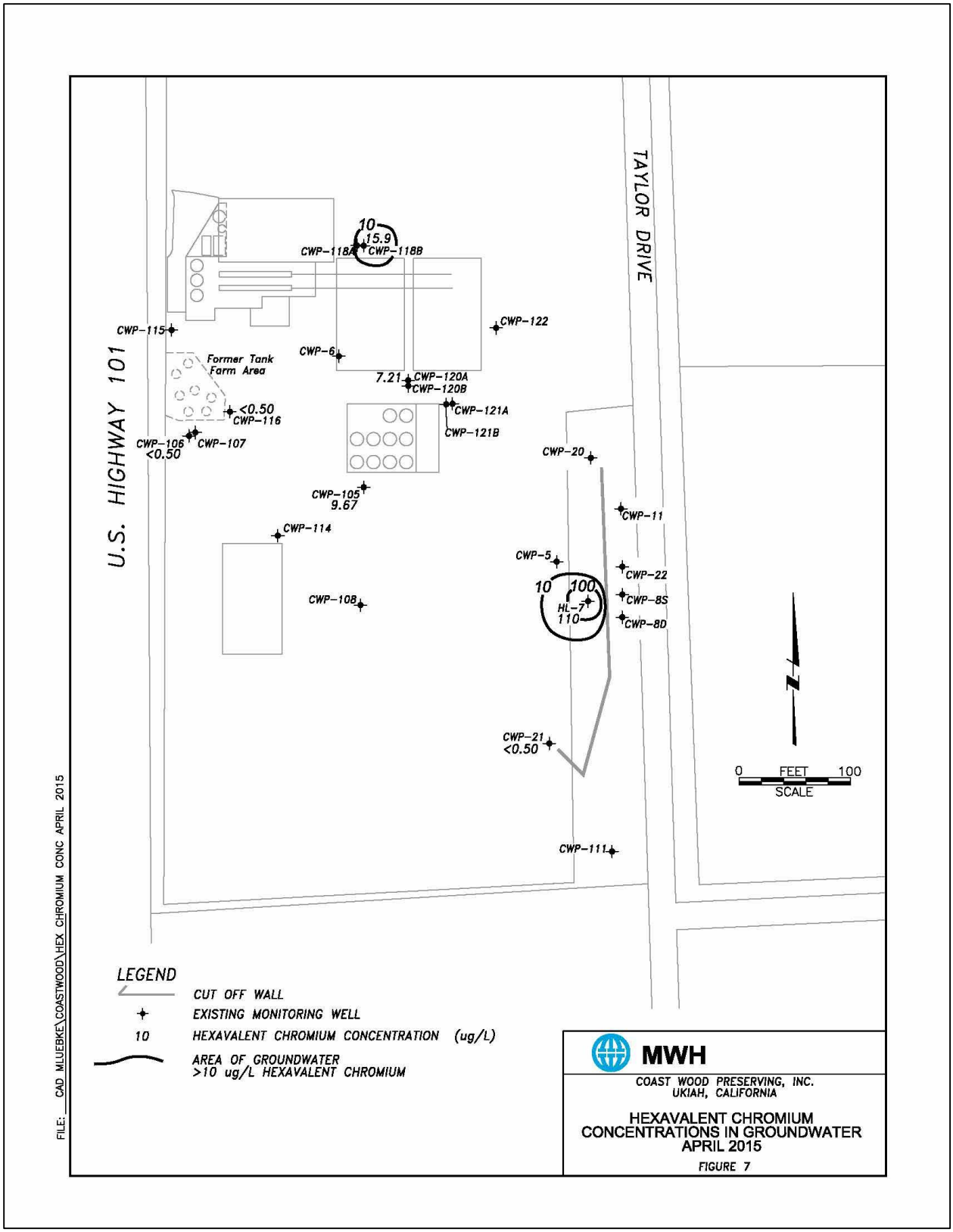

Figure 4: Hexavalent Chromium Plume Map from April 2015

More detail regarding groundwater data can be found in Appendix B.

4.3. Site Inspection

The inspection of the Site was conducted on February 4, 2016. In attendance were Tu Nguyen, EPA Region IX (who conducted the inspection); Tom Lanphar, DTSC; Gene Pietila, Manager, and Bob Schmidt, Project Coordinator, CWP, Inc.; and Keith Baldanza and Craig Hunt with the North Coast Regional Water Quality Control Board. The purpose of the inspection was to assess the protectiveness of the remedy.

A full perimeter inspection of the Site was conducted. Various components of the remedy were inspected (wells, infiltration trench, and asphalt cap) and were noted to be in good condition. After the inspection, interviews with the CWP, Inc. manager and project coordinator and State regulatory agencies generated positive comments regarding the overall status of the project (see Section 4.1). No issues regarding the remedy were identified during the Site inspection.

Further details regarding the Site inspection and interviews can be located in Appendices G, H, and I.

5. Technical Assessment

5.1. Question A: Is the Remedy Functioning as Intended by the Decision Documents?

The remedy is functioning as intended. The remedial actions of surface runoff management, control, and remediation of contaminated soil, and of groundwater monitoring are ongoing and operating as expected. Electrochemical treatment was replaced with in situ reductant injection, which has not occurred since 2010, with DTSC concurrence. Discontinuing reductant injection was due to significant reduction in chromium concentrations on site. However, when needed, reductant infiltration has occurred.

Hexavalent chromium and total chromium contamination in groundwater currently remain above their respective clean up levels in a few isolated areas, and have fluctuated in concentration during this review period, possibly associated with seasonal variation in groundwater levels. Only two wells have had arsenic concentrations exceeding cleanup levels during this review period. These wells are located near the most recent injection which occurred in 2010, and are expected to decline and not migrate off site as arsenic re-precipitates. Concentrations of contaminants are expected to decline over time as arsenic precipitates and as total chromium and hexavalent chromium continue to reduce from past injections. Groundwater data located along the downgradient perimeter of the Site are below the current MCLs (as discussed within, current MCLs for arsenic and hexavalent chromium are different than the selected clean up levels) which indicate that contamination is not migrating off site.

Cleanup goals are expected to be achieved in a reasonable time, given the current geochemical and geohydrological condition of the Site. Containment is effective as no known COCs for the Site are migrating off site within the groundwater. Contaminated soil left on site has been capped with asphalt.

Currently, no opportunities exist to optimize the O&M or sampling efforts. However, as noted in Section 4.2 and Section 6, additional sampling is needed to provide a more detailed picture of the hexavalent contamination in the groundwater. Furthermore annual groundwater reports should include concentration contour maps of arsenic and hexavalent chromium until such contaminants are below cleanup levels.

A land use covenant was placed on the Site in 1989 to protect the current remedy and ensure that the Site will not be used in a residential manner. The IC restricts earthwork limiting the construction of groundwater wells, and therefore eliminates future exposure pathways to groundwater. All actions conducted so far on site have eliminated any immediate threats to human health and the environment.

5.2. Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives Used at the Time of Remedy Selection Still Valid?

The exposure assumptions made at the time of the ROD are still valid at the Site. . EPA lowered its MCL for arsenic from 50 µg/L to 10 µg/L effective in February 2002 and in November 2008 California also

lowered its MCL for arsenic from 50 µg/L to 10 µg/L. During the October 2015 sampling event, none of the 18 wells sampled yielded a result that was above the arsenic clean up goal of 10 ug/L. The State of California established an MCL of 10 µg/L for hexavalent chromium in 2014. However, this change does not affect protectiveness because exposure pathways to receptors do not exist.

Toxicity factors have changed, and the cleanup standard is above the protective risk range and regional screening levels (RSL) for non-cancer hazards for hexavalent chromium and arsenic in groundwater. However, due to the fact that no exposure pathways to receptors exist, the toxicity factors for the COCs listed above do not affect the protectiveness of the remedy. No other contaminant characteristics have changed in a way that could affect the protectiveness of the remedy. No significant changes to toxicity factors were noted for the COCs in the soil.

No standardized risk assessment methodologies have changed during the review period for this FYR that would affect the protectiveness of the remedy.

Land use on or near the Site has not changed and is not expected to change in the near future. No human health or ecological routes of exposure or receptors have been identified or changed in a way that could affect the protectiveness of the remedy. No newly identified contaminant, contaminate source, physical Site condition, or unanticipated toxic byproduct of the remedy have been identified during the review period of this FYR.

The remedy is progressing as expected towards meeting remedial action objectives.

5.3. Question C: Has Any Other Information Come to Light That Could Call Into Question the Protectiveness of the Remedy?

No other information has come to light that could call into question the protectiveness of the remedy at the Site.

6. Issues/Recommendations

<table>
<tr><th colspan="5">Issues and Recommendations Identified in the Five-Year Review: #1</th></tr>
<tr><td rowspan="3">OU(s): 1</td><td colspan="4">Issue Category: Other</td></tr>
<tr><td colspan="4">Issue: The groundwater cleanup goal for hexavalent chromium is listed as 50 µg/L; however, the current California MCL is 10 µg/L.</td></tr>
<tr><td colspan="4">Recommendation: Evaluate current remedy considering site-specific risk for Cr+6 and consider whether it is appropriate to modify the remedy to include the new MCL.</td></tr>
<tr><th>Affect Current Protectiveness</th><th>Affect Future Protectiveness</th><th>Party Responsible</th><th>Oversight Party</th><th>Milestone Date</th></tr>
<tr><td>No</td><td>Yes</td><td>PRP</td><td>EPA/State</td><td>9/1/2017</td></tr>
</table>

6.1. *Other Findings*

The following are additional recommendation to improve the remedy at Coast Wood Preserving:

- Include arsenic and hexavalent chromium concentration maps for annual monitoring and, if possible, semi-annual monitoring maps (spring and fall). Prior to 2015 groundwater monitoring reports didn't include these figures.

- Increase monitoring for all non-decommissioned wells in the Perimeter Wells Area and the wells that have shown consistent concentrations of hexavalent chromium above MCLs. Increased monitoring will provide data to conduct a trends analysis on this COC in upcoming FYRs. This would allow for a better determination of whether the remedy is operating as intended. Additional samples and analysis of hexavalent or total chromium should also occur in well CWP-11 to fill the data gap in the Perimeter Wells Area, as suggested in the 2015 *Annual Groundwater Monitoring Report*.

The above finding does not affect current and/or future protectiveness.

7. Protectiveness Statement

Table 5: Protectiveness Statement

Protectiveness Statement(s)	
Operable Unit: 1	*Protectiveness Determination:* Short-term Protective
Protectiveness Statement: The remedy at the Coast Wood Preserving Superfund Site currently protects human health and the environment because the remedy is functioning as intended and no exposure pathways to contaminated media exists. However, in order for the remedy to be protective in the long term, an assessment of the current remedy should occur considering site-specific risk for hexavalent chromium and a determination made for whether it is appropriate to modify the remedy to include the new MCL.	

8. Next Review

The next FYR report for the Coast Wood Preserving Superfund Site is required 5 years from the completion date of this review.

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Appendix A: List of Documents Reviewed

DTSC (California Toxic Substances Control) 1996. *Coast Wood Preserving Superfund Site Ukiah, California, Third Five-Year Review (Type IA).* January 26.

DTSC. 2003. *Explanation of Significant Differences for the Remedial Action Plan, Coast Wood Preserving Site*. August.

DTSC. 2006. *Coast Wood Preserving Third Five-Year Review*. September 26.

DTSC. 2011. *Coast Wood Preserving Ukiah, California Fourth Five-Year Review.* September 28.

DTSC. 2012a. Fourth Quarter and 2011 Annual Groundwater Monitoring Report, Coast Wood Preserving, Ukiah, California Dated January 15, 2012. Letter from Thomas P. Lanphar (DTSC) to Gene Pietila (CWP). February 21.

DTSC. 2012b. *Groundwater Monitoring Reporting Schedule, Coast Wood Preserving, Ukiah, California*. May 22.

EPA (U.S. Environmental Protection Agency) 1989. *EPA Superfund Record of Decision: Coast Wood Preserving*. September 29.

Geosystems Consultants, Inc. 1989. *Coast Wood Preserving, Inc. Final Remedial Action Plan*. September 29.

Montgomery Watson, 1999. *Final proposed RAP Amendment, Coast Wood Preserving, Ukiah California, Prepared for Coast Wood Preserving*. June 4.

MWH. 2001. *Coast Wood Preserving Ukiah, California Second 5-Year Review*. August 15.

MWH. 2011. *Coast Wood Preserving Site, Ukiah, California, First Quarter 2011 Groundwater Monitoring Report*. April 15.

MWH. 2012a. *Coast Wood Preserving Site, Ukiah, California, Fourth Quarter and 2011 Annual Groundwater Monitoring Report*. January 15.

MWH. 2012b. *Work Plan to Abandon Groundwater Monitoring Wells, Coast Wood Preserving Site, Ukiah, California*. May 7.

MQH. 2012c. Work Plan to Abandon Groundwater Monitoring Wells Coast Wood Preserving Site, Ukiah, California. Letter from Richard M. Thomasser (MWH) to Thomas P. Lanphar (DTSC). May 7, 2012.

MWH. 2013. *Coast Wood Preserving Site, Ukiah, California, 2012 Annual Groundwater Monitoring Report*. February 28.

MWH. 2014. *Coast Wood Preserving Site, Ukiah, California, 2013 Annual Groundwater Monitoring Report*. February 28.

MWH. 2015a. *Coast Wood Preserving Site, Ukiah, California, 2014 Annual Groundwater Monitoring Report*. February 28.

MWH. 2015b. Infiltration of Calcium Polysulfide Reductant Solution at HL-07, Coast Wood Preserving Facility in Ukiah, California, January 2015. Letter from Richard M. Thomasser (MWH) to Thomas P. Lanphar (DTSC). April 1.

MWH. 2016. *Coast Wood Preserving Site, Ukiah, California, 2015 Annual Groundwater Monitoring Report*. February 28.

RWQCB (California Regional Water Quality Control Board, North Coast Region). 2012. *Monitoring and Reporting Program Order No. R1-2012-005*. April 10.

Appendix B: Data Review

B.1. Groundwater

Data utilized to determine the environmental condition of the groundwater at the Coast Wood Preserving (CWP) Superfund Site (Site) was retrieved from the CWP's 2015 *Annual Groundwater Monitoring Report* (MWH, 2015), older annual groundwater reports, and previous Five-Year Reviews (FYRs). Groundwater monitoring well locations can be viewed in Figure B-1. To add precision to the Site concept, the wells were divided into three categories by area: the Dry Drip Area, the Infiltration Trench Area (Figure B-2), and the Perimeter Wells Area.

B.1.1. Site Hydrology

Groundwater elevations on site have ranged between 565.96 and 575.09 feet (mean sea level) in October to November 2014, and between 571.39 and 579.96 feet in April 2014 (Figure B-3 and Figure B-4). The greatest groundwater elevation gradient in 2014 was approximately 0.021 feet per foot, resulting in groundwater flow in the southeast direction. When reviewing groundwater monitoring data of water elevations in the wells at the Site, as seen in CWP's 2015 *Annual Groundwater Monitoring Report* (MWH, 2016), no significant elevation changes were noted from one year to the next. The data indicate that the groundwater in the area of the Site has not been significantly impacted by the most recent drought, nor is it impacted by human use in the area.

B.1.2. Groundwater Quality

Currently, a total of 21 groundwater monitoring wells are being sampled either semi-annually or annually. Analysis of the groundwater is conducted on the contaminants of concern (COCs)—total chromium, arsenic, and hexavalent chromium.

Since 2011, 14 wells had at least one result with concentrations above current maximum contaminant levels (MCLs). Mann-Kendall analysis of water from the wells was utilized in determining the trend of concentrations of COCs in the 14 wells. (Mann-Kendal is a type of statistical analysis test that provides an indication of whether a trend exists and whether the trend is positive or negative.) Mann-Kendall analysis was not completed on hexavalent chromium due to lack of data, but graphs of hexavalent chromium concentrations were generated (see below). Table B-1 indicates the trends of each well above current MCLs. At the end of Section B.2 of this appendix, the Monitoring and remediation Optimization System (MAROS) trend analysis output has been provided. (MAROS is a public-domain data evaluation tool specifically designed to improve long-term groundwater monitoring programs. For the Site, MAROS was used to provide Mann-Kendall statistics.) Data utilized to complete the trend analysis can be seen in Table B-2.

Table B-1: Short-term (5-Year) Mann-Kendall Trend Analysis of Data from CWP Wells with Detections above MCLs Since 2011

Well ID	Constituent	Confidence in Trend	Concentration Trend	Number of Samples/ Detections above MCL Since 2011
Dry Drip Area Wells				
CWP-6	Arsenic	97.0%	Decreasing	11/1
CWP-115	Arsenic	68.7%	No Trend	15/6
CWP-116	Arsenic	84.7%	No Trend	13/6
CWP-120A*	**Arsenic**	**93.4%**	**Probably Decreasing**	**10/10**
CWP-120B	Arsenic	50.0%	No Trend	13/1
CWP-121B	Arsenic	59.4%	No Trend	13/1
CWP-116	***Total, Chromium***	***81.0%***	***Stable***	***15/14***
CWP-120B	Total, Chromium	92.7	Probably Increasing	13/4
CWP-118B	***Hexavalent Chromium***	***N/A***	***N/A***	***5/4***
CWP-120A	Hexavalent Chromium	N/A	N/A	5/1
Infiltration Trench Area Wells				
CWP-20	**Arsenic**	**52.7%**	**No Trend**	**12/10**
CWP-108	Arsenic	70.5%	Stable	11/2
CWP-5	Arsenic	72.5%	No Trend	9/1
CWP-21	Total, Chromium	70.4%	No Trend	13/1
CWP-106	Total, Chromium	74.9%	No Trend	12/3
CWP-5*	**Total, Chromium**	**84.6%**	**No Trend**	**7/4**
HL-7	Total, Chromium	56.4%	No Trend	14/3
CWP-5	***Hexavalent Chromium***	***N/A***	***N/A***	***3/2***
HL-7	***Hexavalent Chromium***	***N/A***	***N/A***	***6/4***
Perimeter Wells				
CWP-08S	Arsenic	80.1%	No Trend	8/1

Bold text indicates well with 50% or greater samples above MCLs.

Italics indicate groundwater locations that would benefit from additional in situ remediation as determined by the consistent concentrations above the MCLs for total chromium and hexavalent chromium.

*Indicates wells were dry in 2015

The trends of wells as shown above have mostly either been stable or have had no trends as of 2011. The groundwater in wells CWP-120A, CWP-20, CWP-116, and CWP-118B have had either stable concentrations or no trends consistently above cleanup levels during this FYR period, as shown in Table B-1 and Figure B-1. Wells CWP-120A, CWP-116, CWP-118B are located in the Dry Drip Area where COCs migrated from the surface soils to the groundwater via vertical migration. Well CWP-20 is located in the Infiltration Trench Area. Only well CWP-08S, in the Perimeter Wells Area, has had analysis

indicating a concentration of arsenic above the MCL one time. All other wells in the Perimeter Wells Area have had analysis indicating that concentrations of Site COCs are below MCLs.

Generation of reducing conditions by the injection of calcium polysulfide beginning in 1999 and ending in 2010 led to the temporary leaching of arsenic from Site soils. This condition has been noted at other sites and was anticipated at the time of the amendment to the remedial action plan. Locations of injections at the Site can be seen in Figure B-5.

Experience at other sites, and the indications at this Site, are that the arsenic mobilization is attenuated by natural geochemical conditions and that the arsenic will not migrate outside the zone of reduced conditions, but rather will reprecipitate with time. Nine wells were noted to have concentrations of arsenic above cleanup levels during this FYR period. Of the nine wells, seven were within 20 feet of an injection transect, which most likely has contributed to the elevated concentrations of arsenic within the water of these wells. The two wells of concern with regard to arsenic (CWP-20 and CWP-120A) were located near the most recent injection which occurred in 2010. This may be why, during the last 5 years, these two wells have shown a consistent concentration of arsenic above cleanup levels. It is expected that, in the next 5 years, the concentrations of arsenic will decline and not migrate off site as arsenic re-precipitates.

The total chromium plumes at the Site have shrunk, and the concentrations of COCs have decreased significantly—compare first mapped concentrations from January 2001 (Figure B-10) to the more recent map of April 2014 (Figure B-11). Overall, the total chromium plume sizes are currently covering less than approximately 10,000 square feet, as shown in the figures. The plumes of concentrations greater than the cleanup level are less than 100 feet in length and 60 feet in width. The most noticeable differences between the two plume maps from 2011 and 2014 (Figure B-10 and Figure B-11) are:

- The disappearance of the well CWP-103 as a data point and its associated total chromium plume;
- The reduction of size and concentration of the plume around well CWP-116, in the Dry Dip Area; and
- The increase in size and concentration of the plume at HL-7 located in the Infiltration Trench Area.

These changes occurred as shown from 2011 to 2014. No total chromium above cleanup levels have been detected in wells located in the Perimeter Wells Area, indicating that total chromium is not migrating off site.

Data from October 2015 indicates that the total chromium plume at HL-7 had reduced below detection, as seen in Figure B-14, leaving only one area of concern for total chromium on site at CWP-116. However, until all contaminated soils have been removed, it is assumed that a pulse of untreated contaminated groundwater will be detected around the Infiltration Well Area again in the future as described in proceeding paragraphs.

Though not enough data was available to conduct a trends analysis on hexavalent chromium, graphs of concentrations over time were generated (Figure B-6 through Figure B-9). Note that no data of hexavalent chromium exists for CWP prior to 2011. These graphs were generated for wells where sampling results showed hexavalent chromium concentrations above MCLs. The graphs indicate a possible pulse of untreated hexavalent chromium resulting from seasonal precipitation and higher groundwater levels in April of 2014. The concentrations then dip in 2015 due to the infiltration of reductant at the infiltration

trenches upgradient of the slurry wall. Hexavalent chromium analysis continues only for those wells that have had detections of hexavalent chromium, and sampling/monitoring is conducted on an annual basis.

In January 2015, due to the pulse of untreated hexavalent chromium, infiltration of the reductant solution was conducted using the infiltration trenches located in the Infiltration Trench Area upgradient of HL-7 (Figure B-2), The 2015 *Annual Groundwater Monitoring Report* (MWH, 2016) noted that the reductant solution injected into the infiltration trench upgradient of HL-7 was effective at reducing hexavalent chromium in HL-7, but concentrations increased during the 1 year time span between sampling events. Additional infiltration began on February 2, 2016, while water levels remain elevated from winter rainfall. In the future, sampling of the wells will be positioned around the cutoff wall to evaluate the presence or absence of potential leakage under or around the cutoff wall. Data generated from such sampling will be presented in the next annual report in 2017.

In regard to hexavalent chromium, it is recommended that all non-decommissioned wells in the Perimeter Wells Area and the wells that have shown consistent concentrations of hexavalent chromium above MCLs, have an increased monitoring frequency for this COC. Increased monitoring will provide data to conduct a trends analysis on this COC in upcoming FYRs. Additional samples and analysis of hexavalent or total chromium should also occur in well CWP-11 to fill the data gap in the Perimeter Wells Area, as suggested in the 2015 *Annual Groundwater Monitoring Report*.

Furthermore, arsenic data is not and has not been displayed on a map in past annual groundwater monitoring reports and hexavalent chromium has only been mapped in the most recent annual report (Figure B-15). This data would be helpful in determining the success of the remedy and should be displayed in future annual groundwater monitoring reports. These issues are included in Sections 5 and 6 of this FYR.

Currently, the groundwater at the Site is not being used for any purpose, and the arsenic and total chromium above MCLs are not migrating off site, as indicated by data from wells at the boundaries of the Site. There is uncertainty whether hexavalent chromium is migrating off site due to the limited data available regarding this COC. Beyond the trench, concentrations of total chromium are below cleanup levels in wells sampled. Concentration of contaminates are expected to decline over time as arsenic re-precipitates and total chromium and hexavalent chromium reduce (from past injection and current infiltration activities), disperse, and migrate to lower concentrations. Contamination of groundwater is above cleanup levels on site; however, since there is no exposure pathway, the Site is protective to human health and the environment in the short term.

B.2. Soil

In 2015, approximately 42 cubic yards of contaminated soil was removed from the Site during the demolition of a concrete pedestal that once held a lumber incisor (Figure B-16 and Figure B-17). The soil was excavated to soil cleanup goals established for the Site as detailed in the 2003 Explanation of Significant Differences (DTSC, 2003).

Data from past FYRs have documented the nature and extent of COC contamination in the soil. It is estimated that currently 1,448 cubic yards of contaminated soil resides on site and will be excavated during the closeout of the Site. Figure B-18 and Figure B-19 present data on soil cleanup.

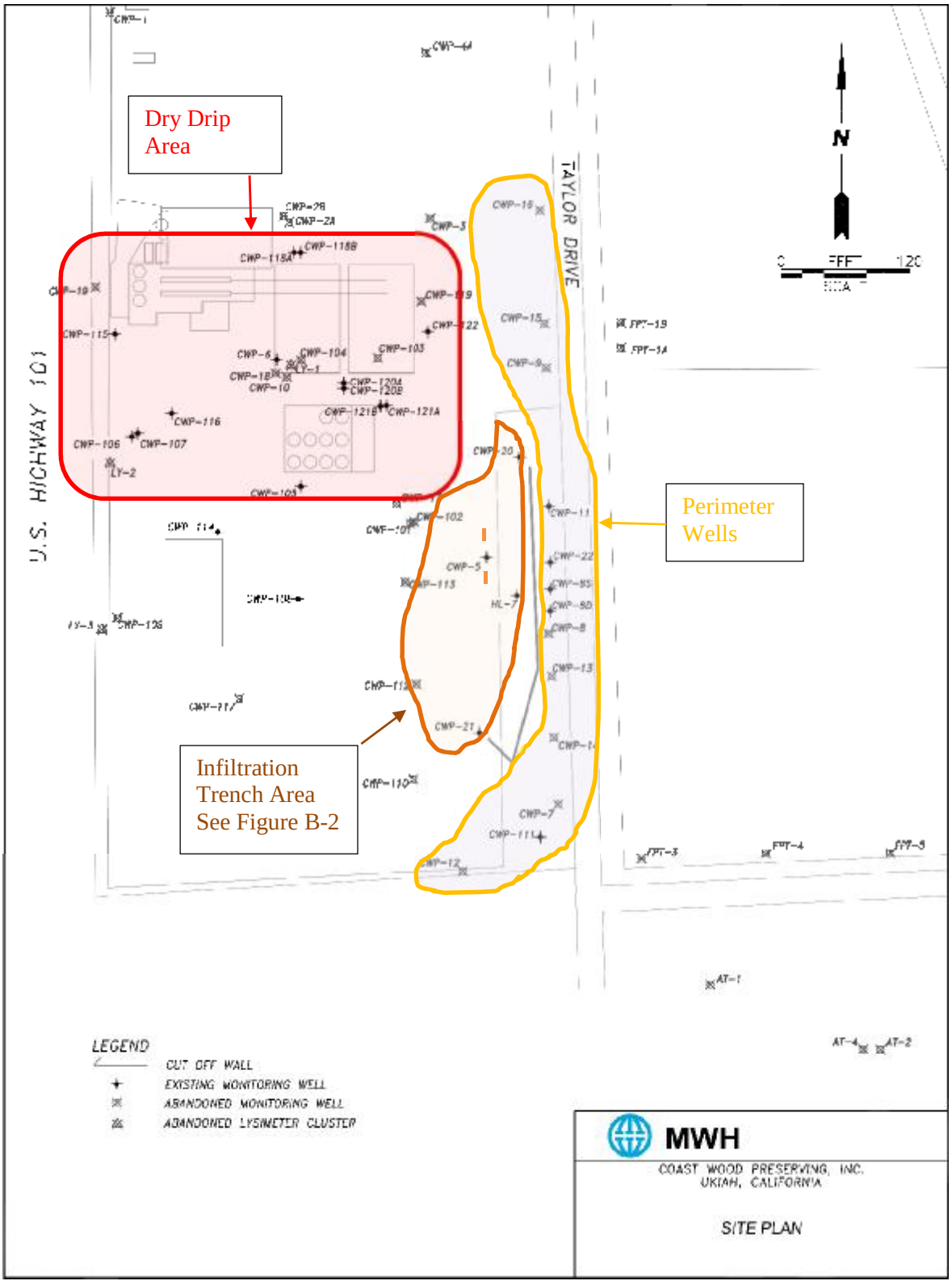

Figure B-1: Well Location Map

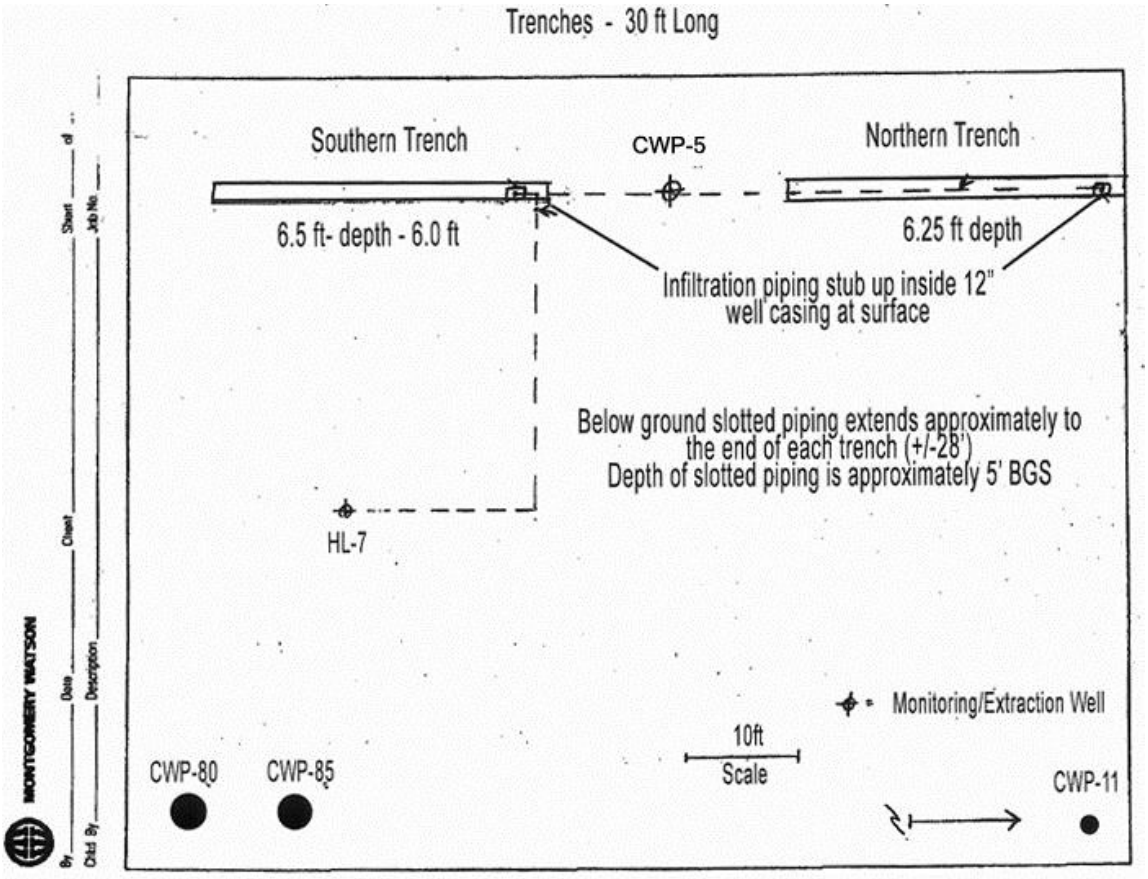

Figure B-2: Location of Infiltration Trenches Used in January 2015

*Due to an error, CWP-80 and CWP-85 should be read as CWP-8D and CWP-8S.

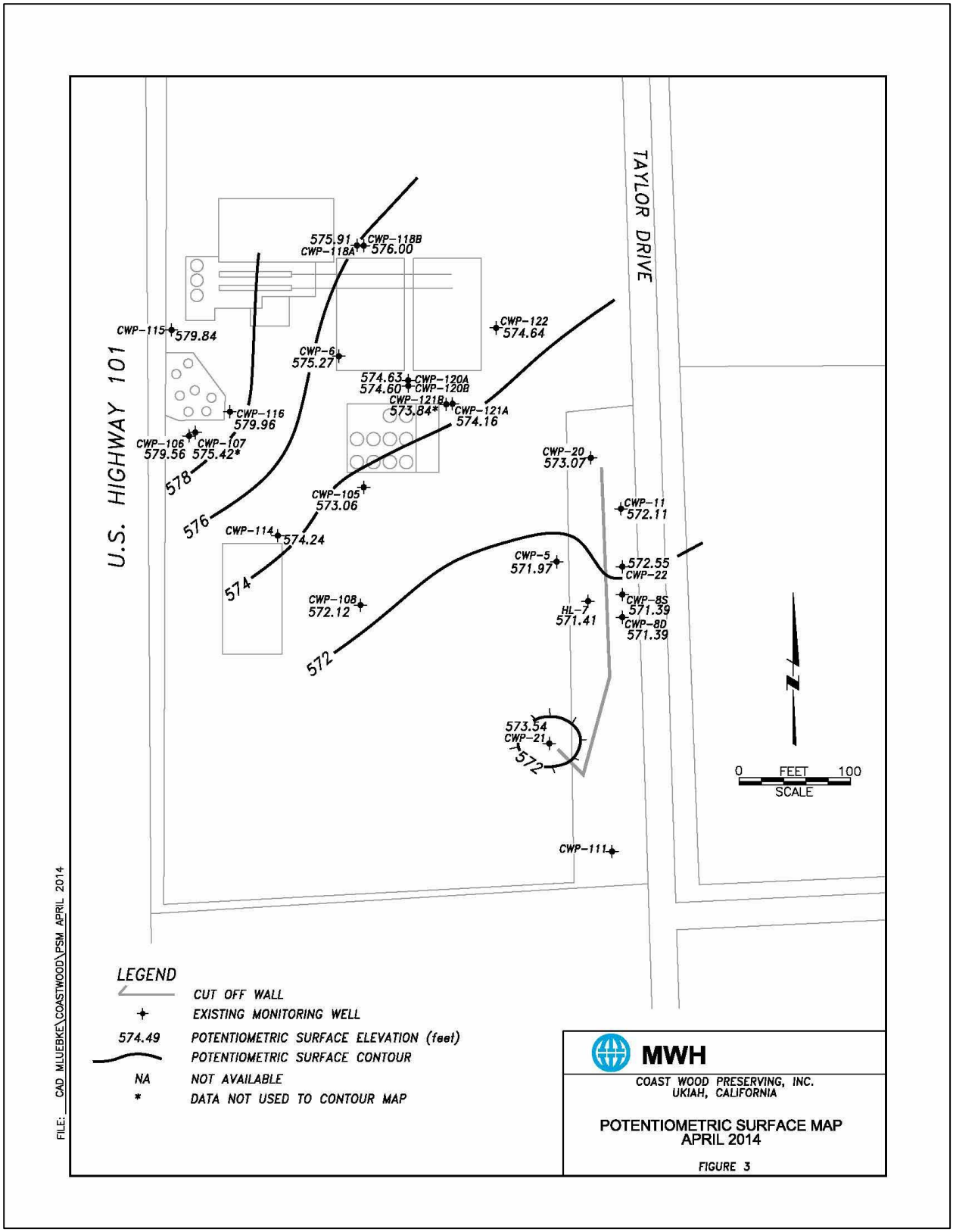

Figure B-3: Potentiometric Surface Map, April 2014

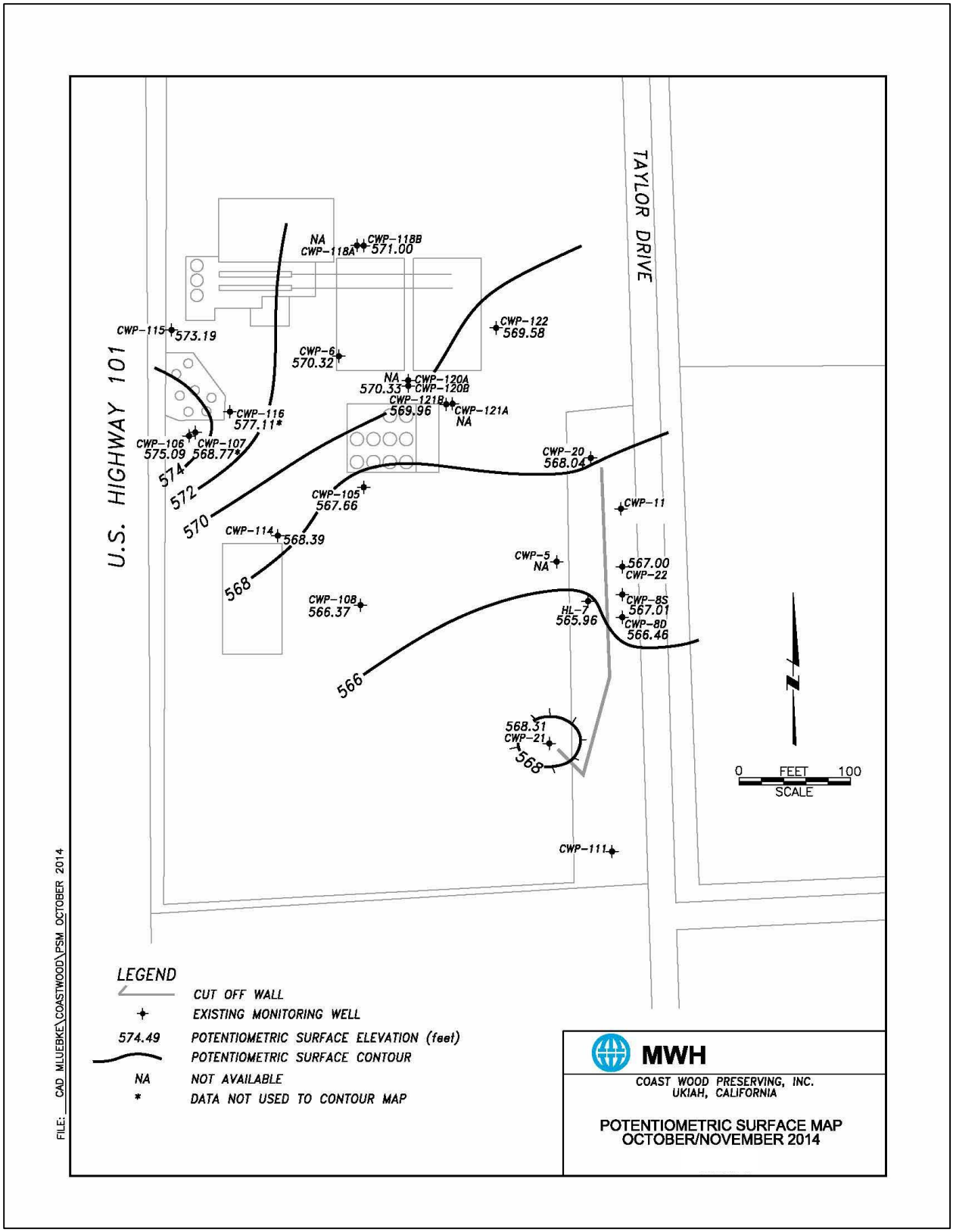

Figure B-4: Potentiometric Surface Map, October/November 2014

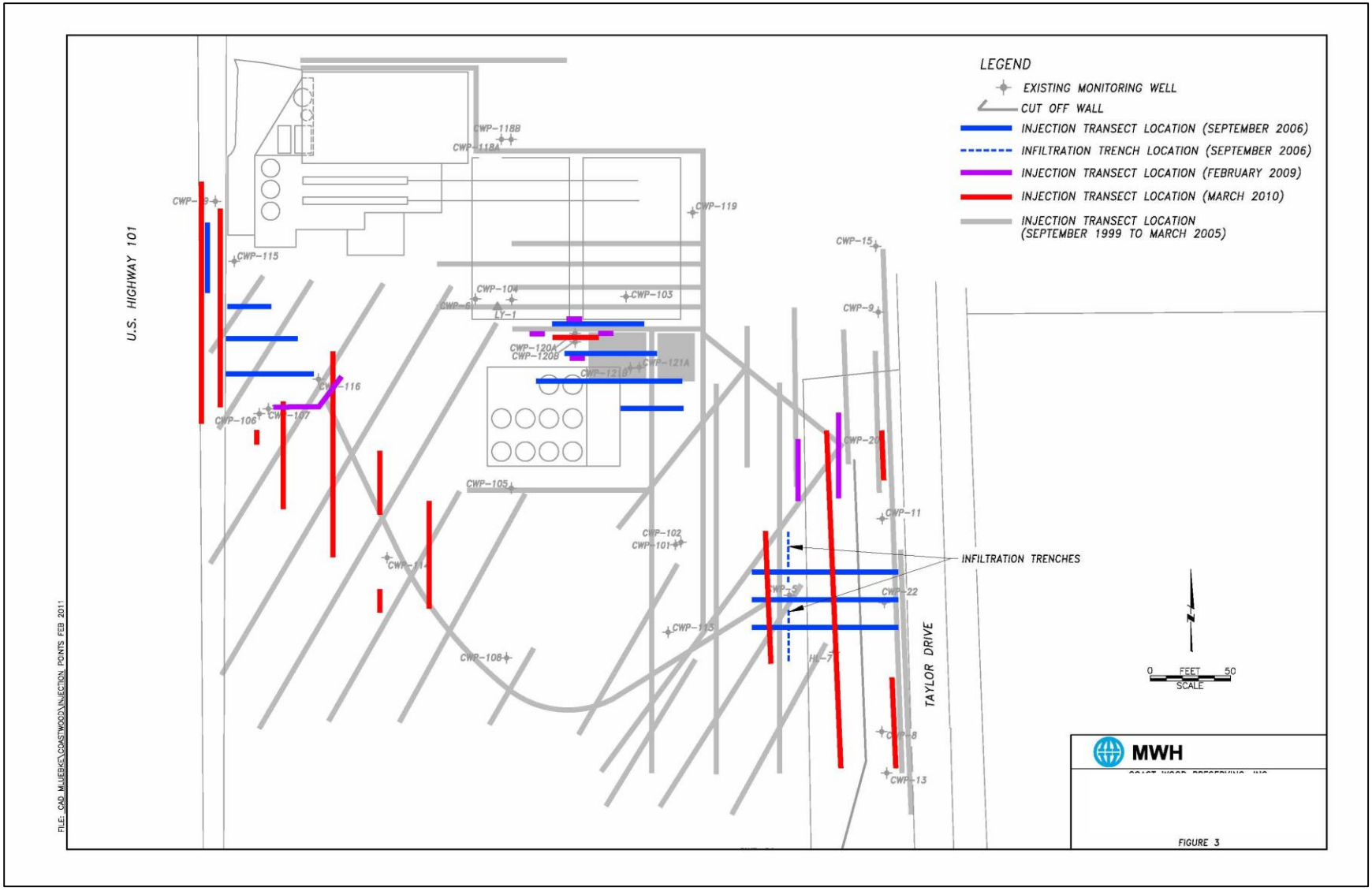

Figure B-5: In Situ Reduction Program Injection Transect Location from 1999-2010

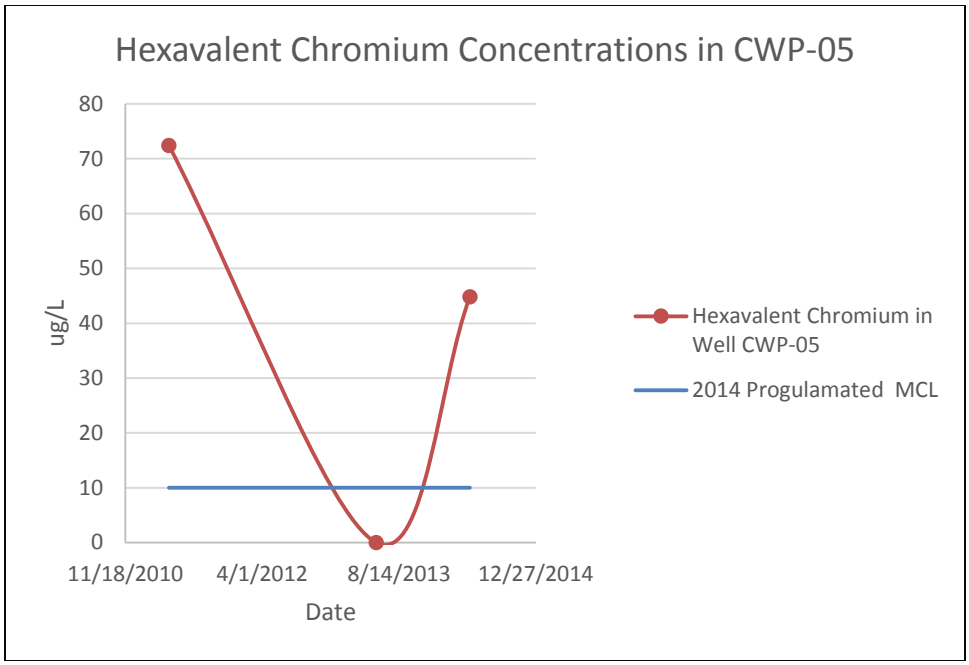

Figure B-6: Hexavalent Chromium Concentrations at CWP-5 during the Review Period
(Note: No additional data is provided in 2015 because CWP-5 was dry; CWP-05 = CWP-5)

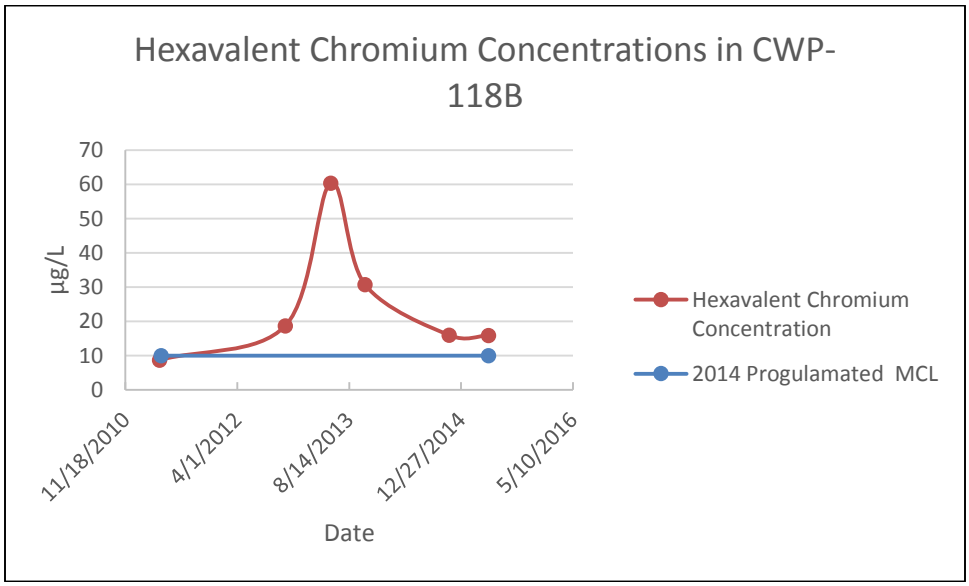

Figure B-7: Hexavalent Chromium Concentrations at CWP-118B during the Review Period

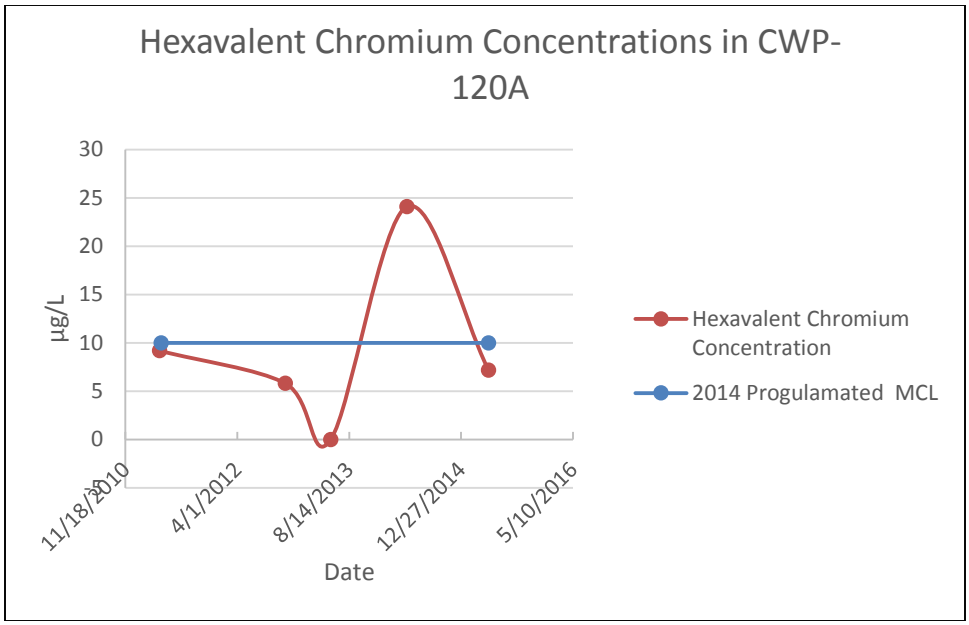

Figure B-8: Hexavalent Chromium Concentrations at CWP-120A during the Review Period

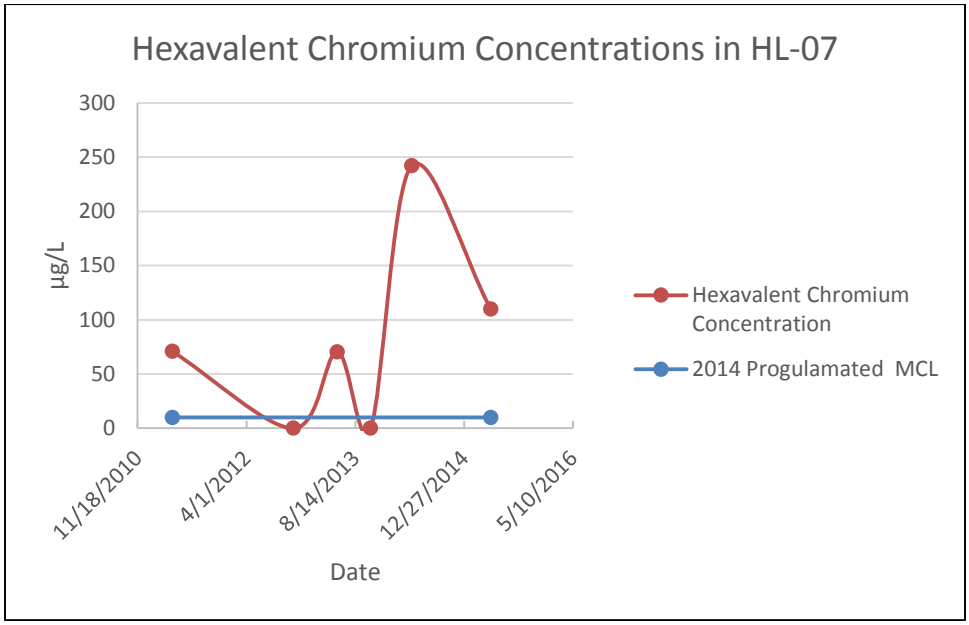

Figure B-9: Hexavalent Chromium Concentrations at HL-7 during the Review Period
(Note: HL-07 = HL-7)

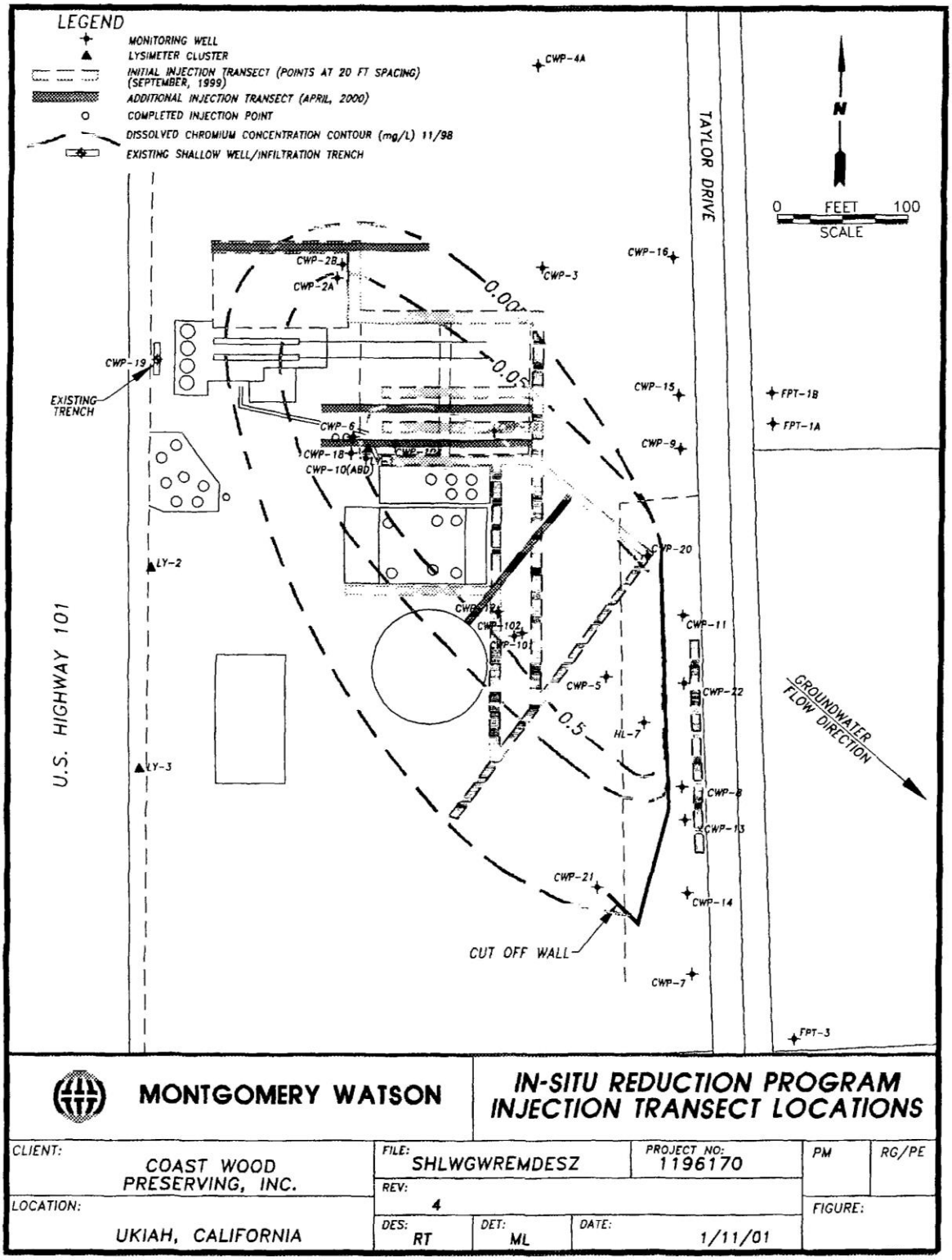

Figure B-10: Total Chromium Plume Map from 2001

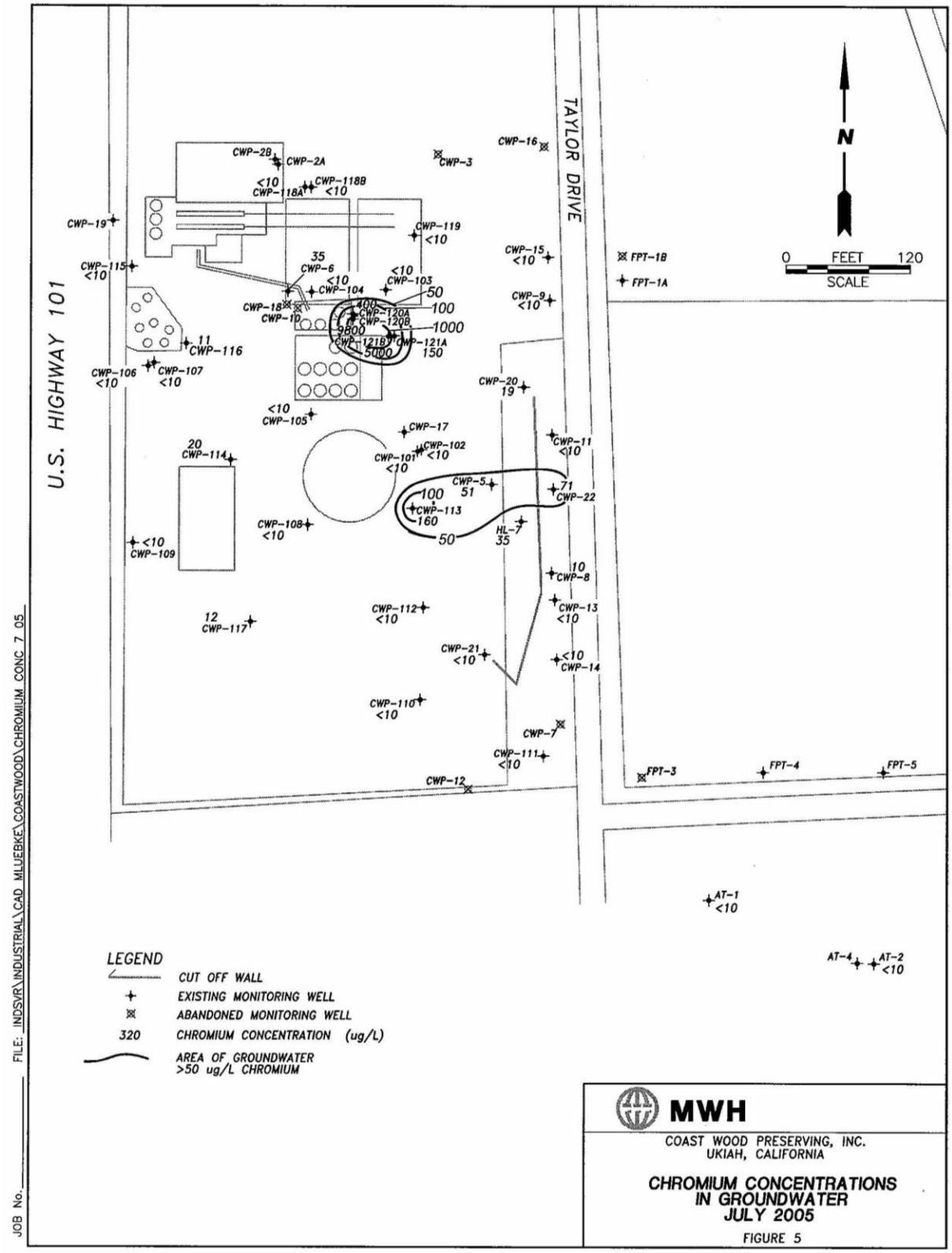

Figure B-11: Total Chromium Plume Map from 2005

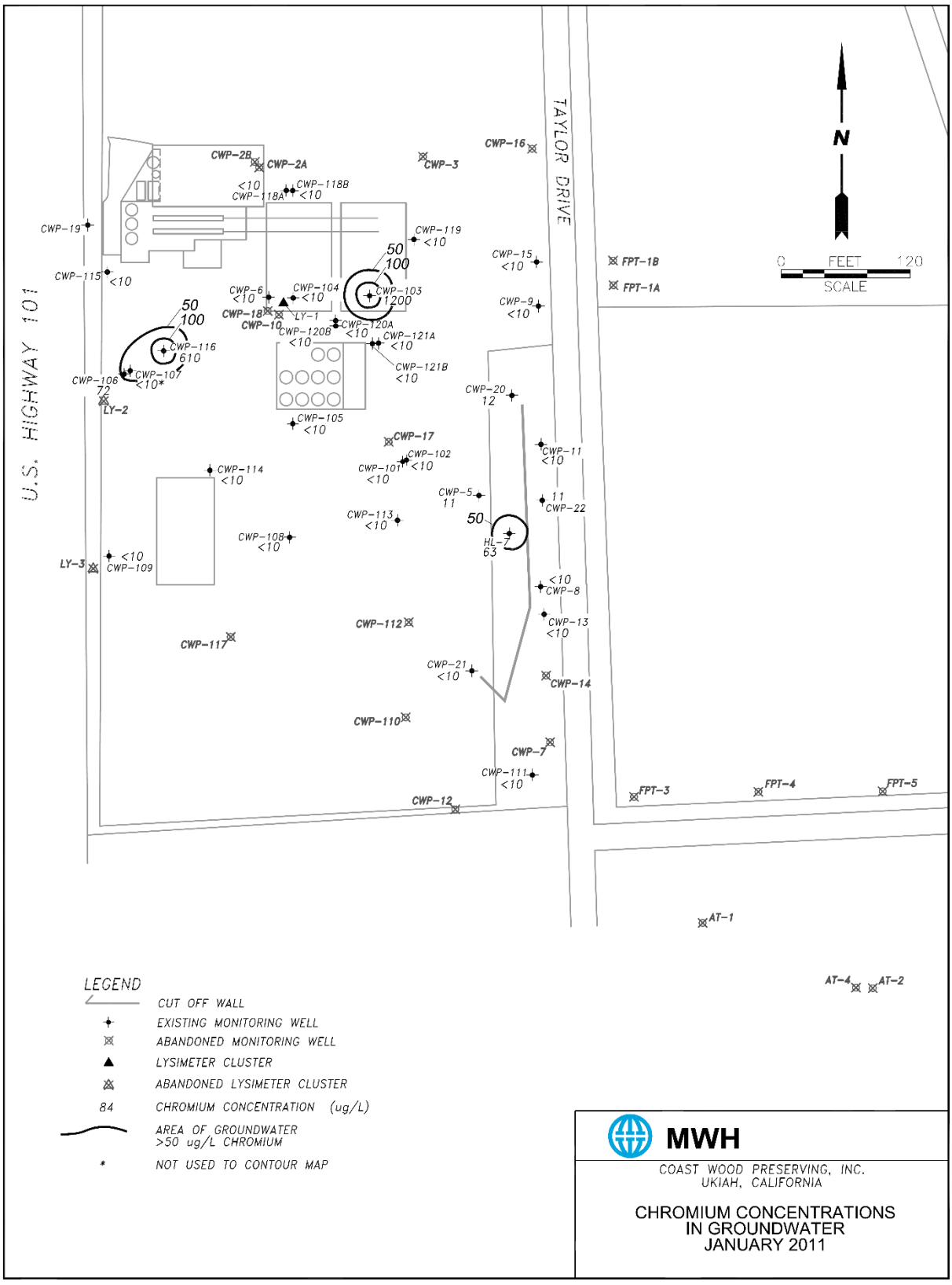

Figure B-12: Total Chromium Plume Map from January 2011

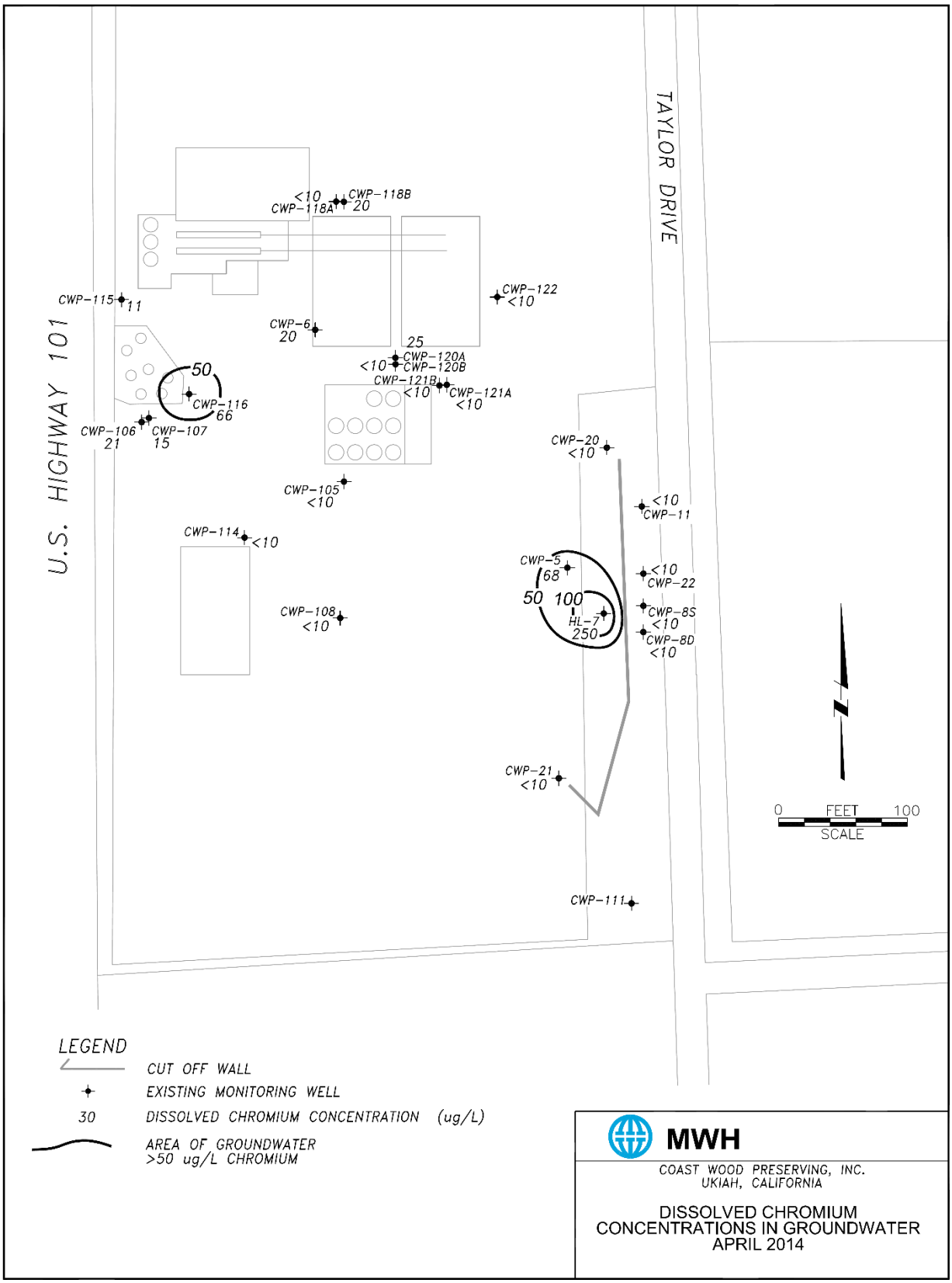

Figure B-13: Total Chromium Plume Map from April 2014

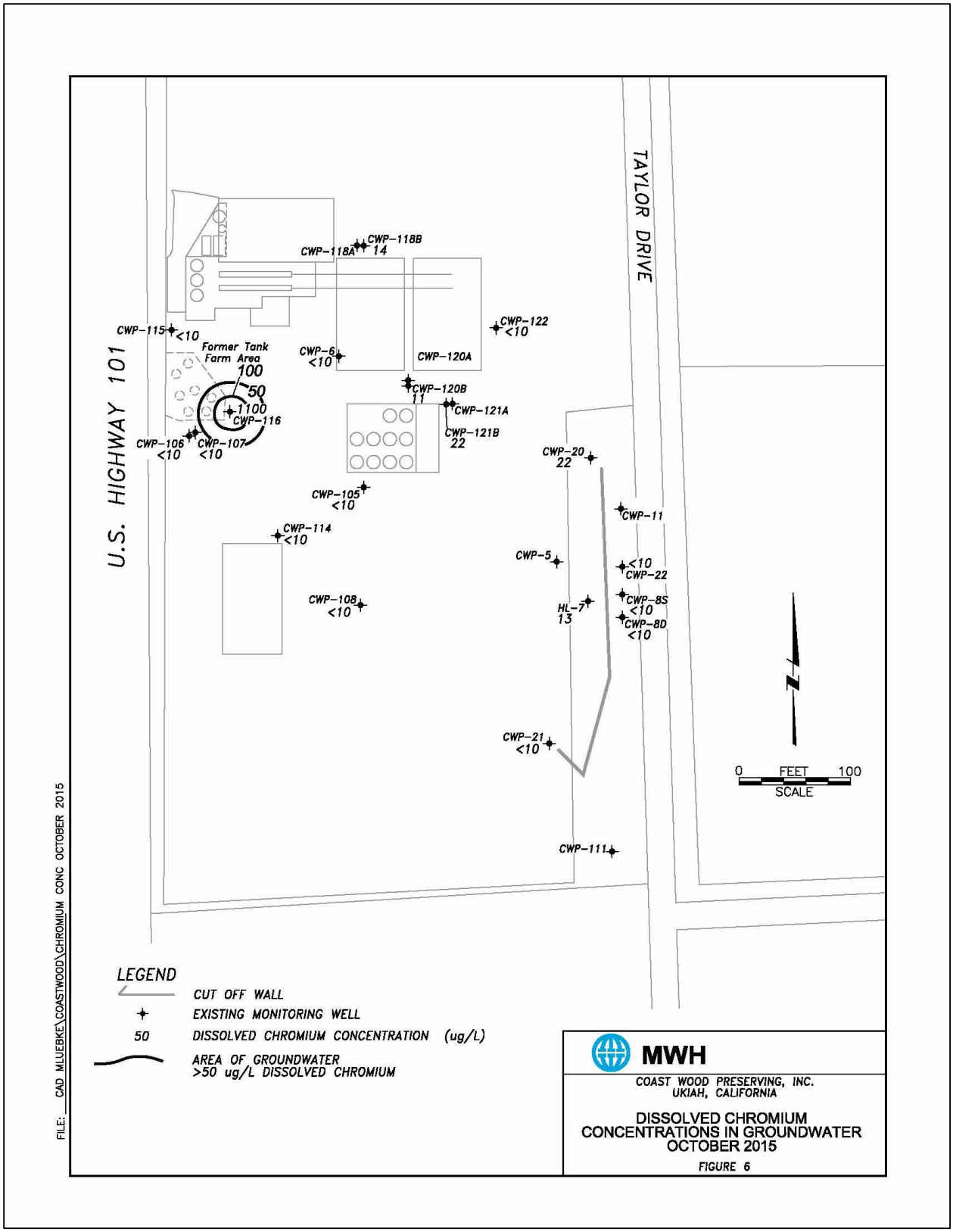

Figure B-14: Total Chromium Plume Map from October 2015

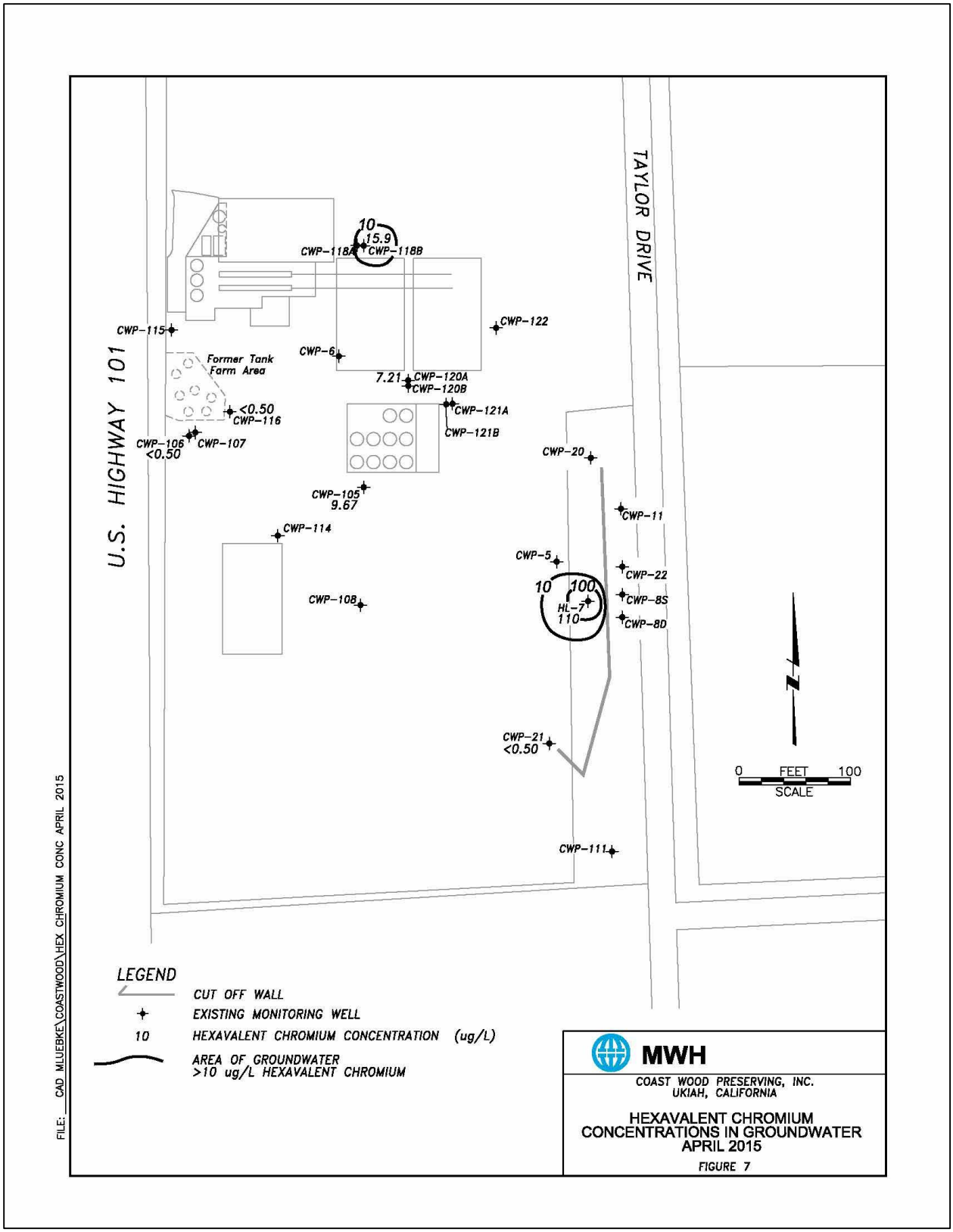

Figure B-15: Hexavalent Chromium Plume Map from April 2015

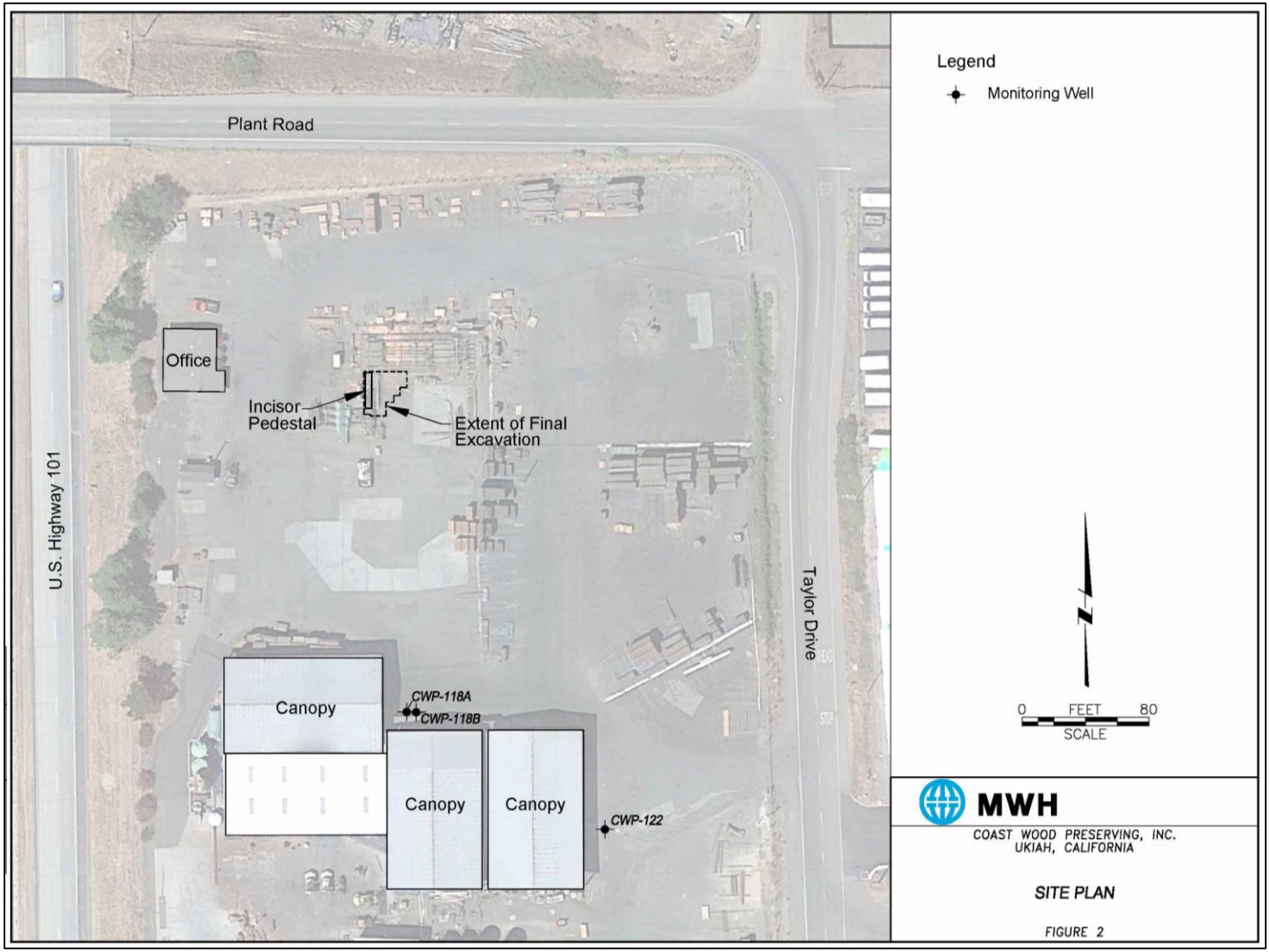

Figure B-16: Location of 2015 Incisor Pedestal Demolition and Soil Excavation at CWP

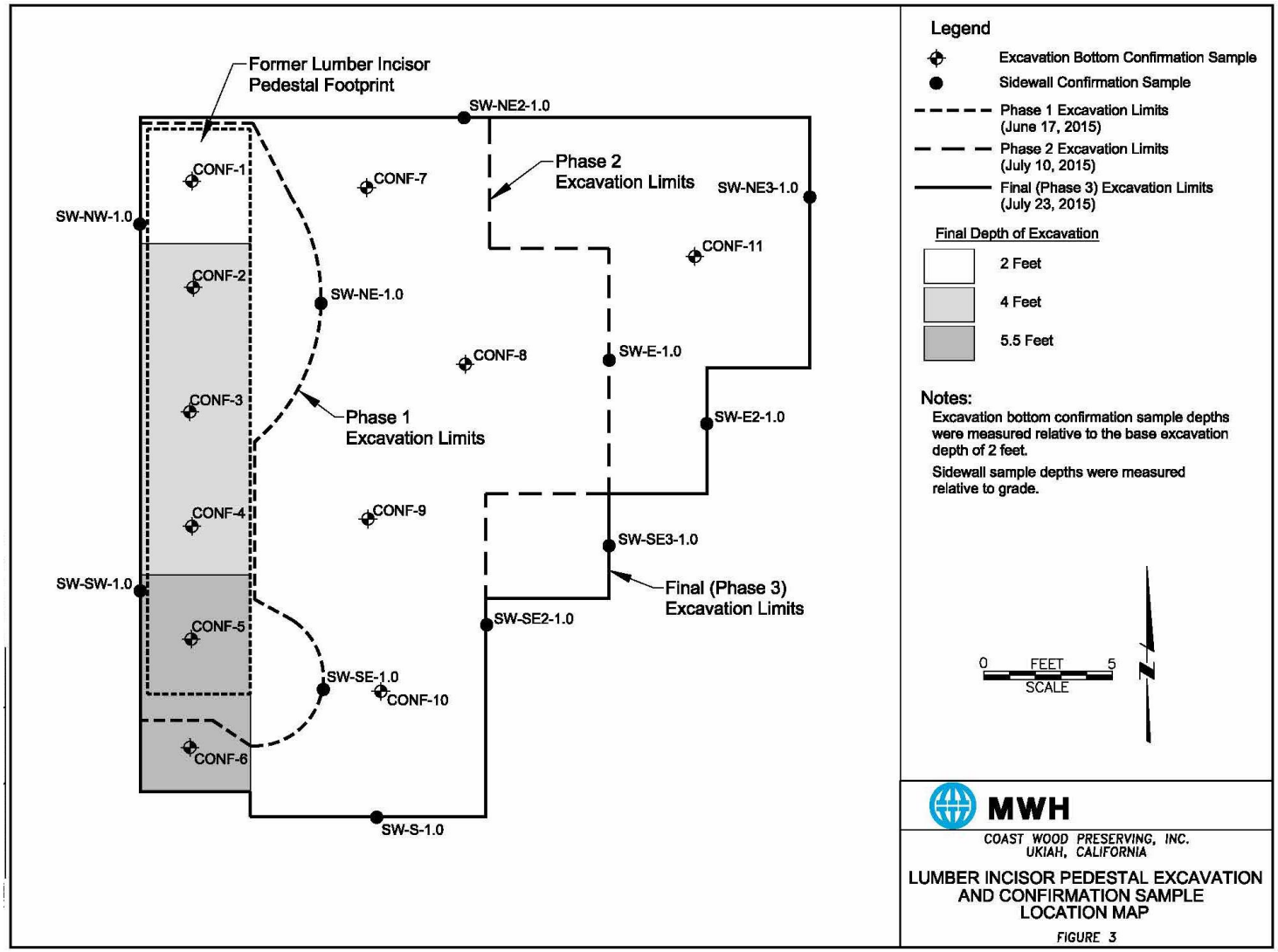

Figure B-17: Excavation Footprint, 2015

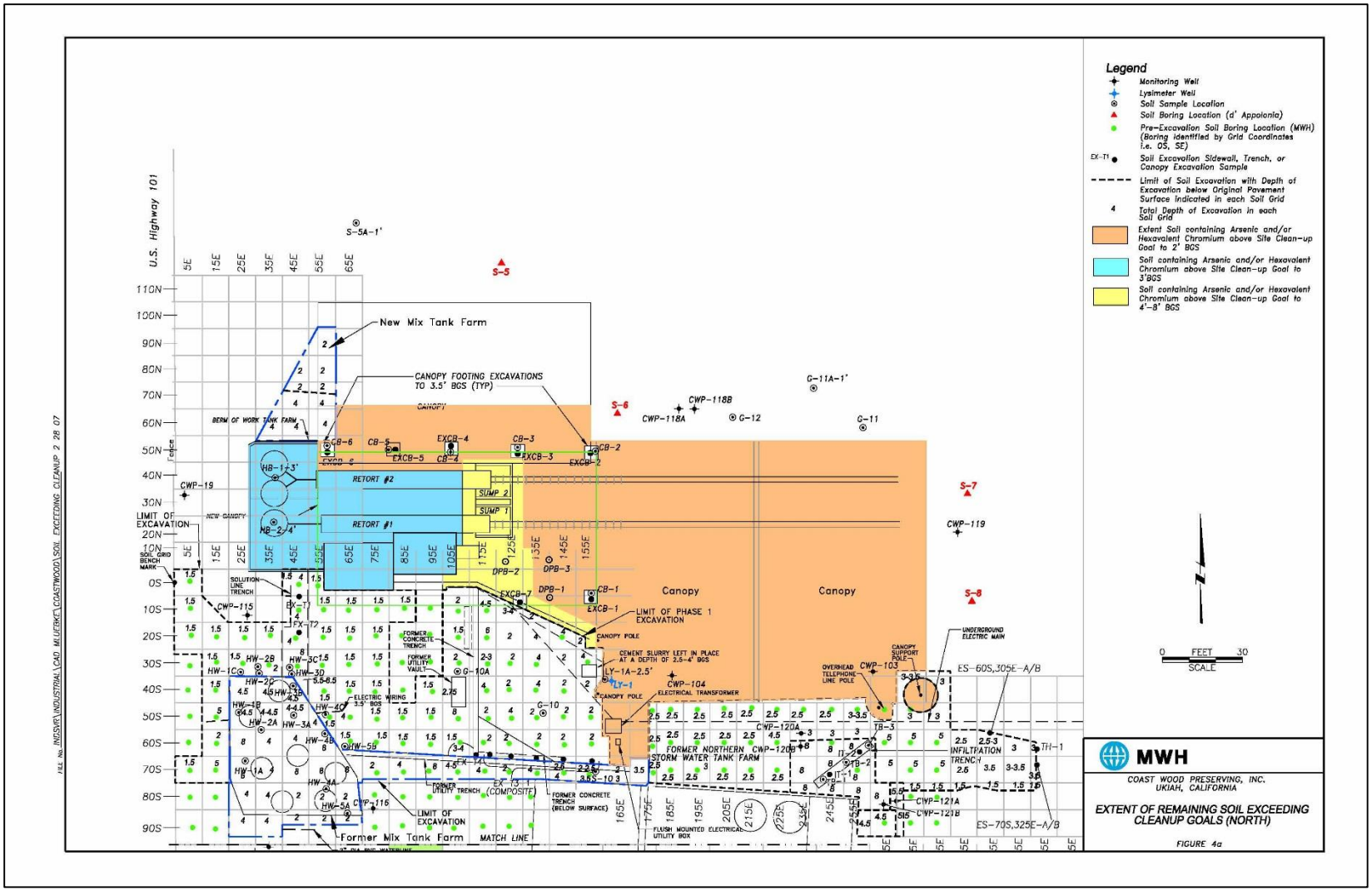

Figure B-18: Extent of Remaining Soil Exceeding Cleanup Goals (North)

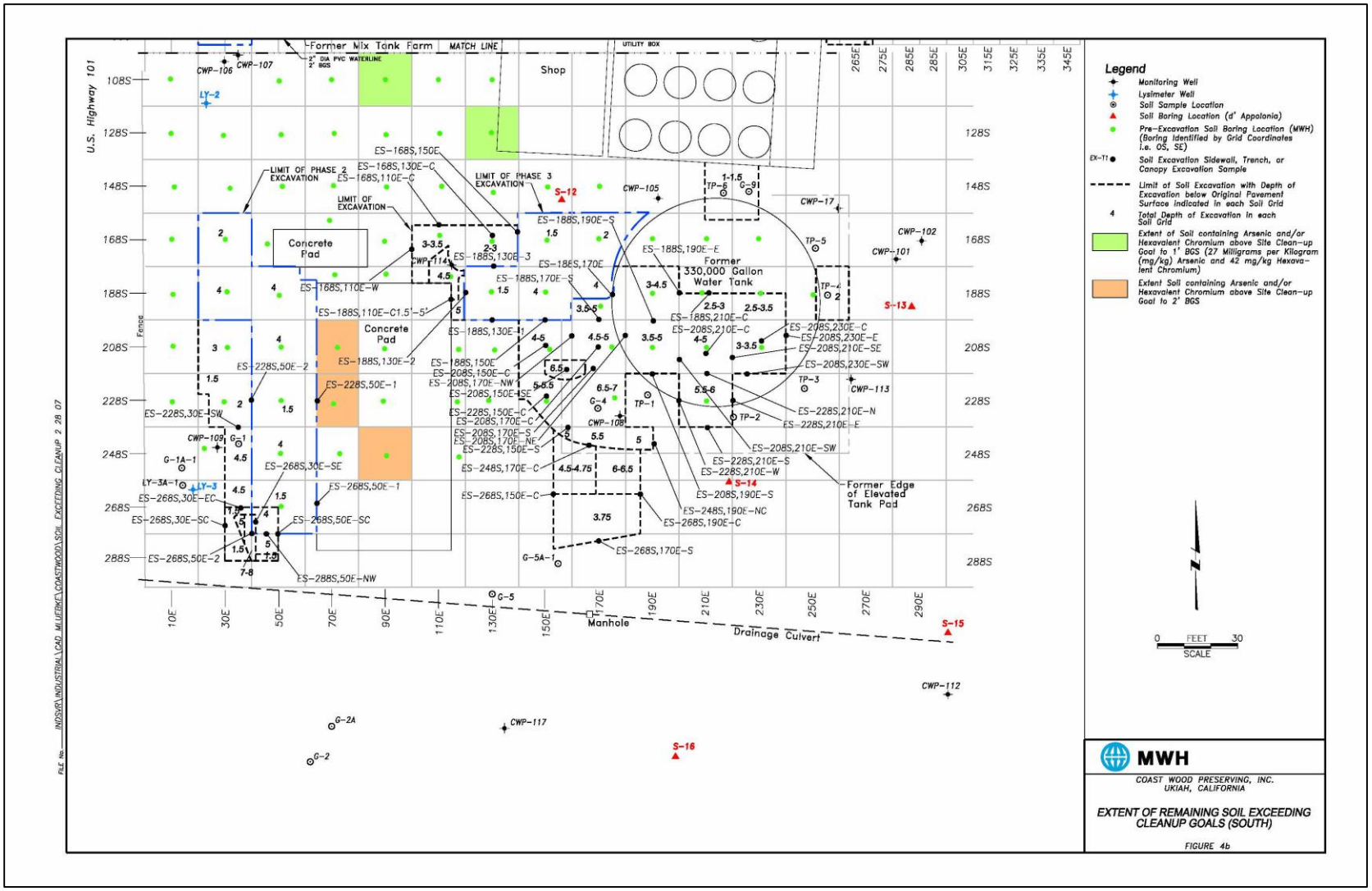

Figure B-19: Extent of Remaining Soil Exceeding Cleanup Goals (South)

Table B-2: Data Utilized for Mann-Kendall Trend Analysis

Well Name	Constituent	Sample Date	Result	Units
CWP-5	ARSENIC	4/30/2007	0	µg/L
CWP-5	ARSENIC	7/28/2008	0	µg/L
CWP-5	ARSENIC	4/29/2009	0	µg/L
CWP-5	ARSENIC	1/28/2010	0	µg/L
CWP-5	ARSENIC	4/29/2010	0	µg/L
CWP-5	ARSENIC	7/28/2010	6.8	µg/L
CWP-5	ARSENIC	10/28/2010	10	µg/L
CWP-5	ARSENIC	1/26/2011	0	µg/L
CWP-5	ARSENIC	4/26/2011	0	µg/L
CWP-5	ARSENIC	7/28/2011	0	µg/L
CWP-5	ARSENIC	1/31/2012	0	µg/L
CWP-5	ARSENIC	4/30/2013	11	µg/L
CWP-5	ARSENIC	4/30/2014	0	µg/L
CWP-5	CHROMIUM, TOTAL	4/29/2010	0	µg/L
CWP-5	CHROMIUM, TOTAL	7/28/2010	12	µg/L
CWP-5	CHROMIUM, TOTAL	10/28/2010	11	µg/L
CWP-5	CHROMIUM, TOTAL	1/26/2011	68	µg/L
CWP-5	CHROMIUM, TOTAL	4/26/2011	72	µg/L
CWP-5	CHROMIUM, TOTAL	7/28/2011	0	µg/L
CWP-5	CHROMIUM, TOTAL	1/31/2012	14	µg/L
CWP-5	CHROMIUM, TOTAL	4/30/2013	0	µg/L
CWP-5	CHROMIUM, TOTAL	4/30/2014	114	µg/L
CWP-106	CHROMIUM, TOTAL	4/26/2011	0	µg/L
CWP-106	CHROMIUM, TOTAL	7/28/2011	42	µg/L
CWP-106	CHROMIUM, TOTAL	10/30/2011	49	µg/L
CWP-106	CHROMIUM, TOTAL	1/31/2012	26	µg/L
CWP-106	CHROMIUM, TOTAL	8/27/2012	27	µg/L
CWP-106	CHROMIUM, TOTAL	10/31/2012	110	µg/L
CWP-106	CHROMIUM, TOTAL	5/9/2013	12	µg/L
CWP-106	CHROMIUM, TOTAL	10/24/2013	13	µg/L
CWP-106	CHROMIUM, TOTAL	4/30/2014	262	µg/L
CWP-106	CHROMIUM, TOTAL	11/4/2014	0	µg/L
CWP-106	CHROMIUM, TOTAL	4/28/2015	18	µg/L
CWP-106	CHROMIUM, TOTAL	10/28/2015	0	µg/L
CWP-108	ARSENIC	1/21/2011	12	µg/L
CWP-108	ARSENIC	4/20/2011	0	µg/L
CWP-108	ARSENIC	7/26/2011	0	µg/L
CWP-108	ARSENIC	10/30/2011	0	µg/L
CWP-108	ARSENIC	1/29/2012	7.4	µg/L

Well Name	Constituent	Sample Date	Result	Units
CWP-108	ARSENIC	8/24/2012	6.1	µg/L
CWP-108	ARSENIC	10/30/2012	16	µg/L
CWP-108	ARSENIC	4/30/2013	0	µg/L
CWP-108	ARSENIC	10/22/2013	0	µg/L
CWP-108	ARSENIC	4/29/2014	0	µg/L
CWP-108	ARSENIC	10/30/2014	8.9	µg/L
CWP-108	ARSENIC	4/21/2015	0	µg/L
CWP-108	ARSENIC	10/28/2015	0	µg/L
CWP-115	ARSENIC	1/25/2011	23	µg/L
CWP-115	ARSENIC	4/26/2011	11	µg/L
CWP-115	ARSENIC	7/27/2011	0	µg/L
CWP-115	ARSENIC	1/30/2011	0	µg/L
CWP-115	ARSENIC	8/24/2012	0	µg/L
CWP-115	ARSENIC	11/2/2012	0	µg/L
CWP-115	ARSENIC	2/19/2013	0	µg/L
CWP-115	ARSENIC	5/1/2013	7.3	µg/L
CWP-115	ARSENIC	10/23/2013	0	µg/L
CWP-115	ARSENIC	1/24/2014	0	µg/L
CWP-115	ARSENIC	4/29/2014	6.5	µg/L
CWP-115	ARSENIC	10/31/2014	8.3	µg/L
CWP-115	ARSENIC	1/23/2015	20	µg/L
CWP-115	ARSENIC	4/21/2015	12	µg/L
CWP-115	ARSENIC	10/28/2015	0	µg/L
CWP-116	ARSENIC	1/26/2011	0	µg/L
CWP-116	ARSENIC	4/26/2011	27	µg/L
CWP-116	ARSENIC	7/28/2011	0	µg/L
CWP-116	ARSENIC	10/31/2011	62	µg/L
CWP-116	ARSENIC	1/31/2012	13	µg/L
CWP-116	ARSENIC	8/27/2012	28	µg/L
CWP-116	ARSENIC	10/31/2012	0	µg/L
CWP-116	ARSENIC	5/9/2013	15	µg/L
CWP-116	ARSENIC	10/24/2013	0	µg/L
CWP-116	ARSENIC	4/30/2014	0	µg/L
CWP-116	ARSENIC	11/4/2014	13	µg/L
CWP-116	ARSENIC	4/28/2015	0	µg/L
CWP-116	ARSENIC	10/28/2015	0	µg/L
CWP-116	CHROMIUM, TOTAL	1/26/2011	610	µg/L
CWP-116	CHROMIUM, TOTAL	4/26/2011	560	µg/L
CWP-116	CHROMIUM, TOTAL	7/28/2011	220	µg/L
CWP-116	CHROMIUM, TOTAL	10/31/2011	600	µg/L

Well Name	Constituent	Sample Date	Result	Units
CWP-116	CHROMIUM, TOTAL	1/31/2012	150	µg/L
CWP-116	CHROMIUM, TOTAL	8/27/2012	330	µg/L
CWP-116	CHROMIUM, TOTAL	10/31/2012	180	µg/L
CWP-116	CHROMIUM, TOTAL	5/9/2013	140	µg/L
CWP-116	CHROMIUM, TOTAL	10/24/2013	940	µg/L
CWP-116	CHROMIUM, TOTAL	4/30/2014	66	µg/L
CWP-116	CHROMIUM, TOTAL	4/30/2014	235	µg/L
CWP-116	CHROMIUM, TOTAL	4/28/2015	122	µg/L
CWP-116	CHROMIUM, TOTAL	10/28/2015	1000	µg/L
CWP-120A	ARSENIC	1/21/2011	22	µg/L
CWP-120A	ARSENIC	4/20/2011	40	µg/L
CWP-120A	ARSENIC	7/27/2011	32	µg/L
CWP-120A	ARSENIC	10/30/2011	33	µg/L
CWP-120A	ARSENIC	1/30/2012	28	µg/L
CWP-120A	ARSENIC	8/24/2012	34	µg/L
CWP-120A	ARSENIC	10/31/2012	33	µg/L
CWP-120A	ARSENIC	4/30/2013	24	µg/L
CWP-120A	ARSENIC	4/29/2014	20	µg/L
CWP-120A	ARSENIC	4/21/2015	17	µg/L
CWP-120B	ARSENIC	1/21/2011	0	µg/L
CWP-120B	ARSENIC	4/20/2011	0	µg/L
CWP-120B	ARSENIC	7/27/2011	0	µg/L
CWP-120B	ARSENIC	10/30/2011	0	µg/L
CWP-120B	ARSENIC	1/30/2012	11	µg/L
CWP-120B	ARSENIC	8/24/2012	6.8	µg/L
CWP-120B	ARSENIC	11/2/2012	0	µg/L
CWP-120B	ARSENIC	4/30/2013	0	µg/L
CWP-120B	ARSENIC	10/23/2013	0	µg/L
CWP-120B	ARSENIC	4/30/2014	0	µg/L
CWP-120B	ARSENIC	10/30/2014	0	µg/L
CWP-120B	ARSENIC	4/21/2015	6.4	µg/L
CWP-120B	ARSENIC	10/28/2015	0	µg/L
CWP-120B	CHROMIUM, TOTAL	1/21/2011	0	µg/L
CWP-120B	CHROMIUM, TOTAL	4/20/2011	0	µg/L
CWP-120B	CHROMIUM, TOTAL	7/27/2011	0	µg/L
CWP-120B	CHROMIUM, TOTAL	10/30/2011	0	µg/L
CWP-120B	CHROMIUM, TOTAL	1/30/2012	0	µg/L
CWP-120B	CHROMIUM, TOTAL	8/24/2012	0	µg/L
CWP-120B	CHROMIUM, TOTAL	11/2/2012	0	µg/L
CWP-120B	CHROMIUM, TOTAL	4/30/2013	0	µg/L

Well Name	Constituent	Sample Date	Result	Units
CWP-120B	CHROMIUM, TOTAL	10/23/2013	16	µg/L
CWP-120B	CHROMIUM, TOTAL	4/30/2014	0	µg/L
CWP-120B	CHROMIUM, TOTAL	10/30/2014	0	µg/L
CWP-120B	CHROMIUM, TOTAL	4/21/2015	120	µg/L
CWP-120B	CHROMIUM, TOTAL	10/28/2015	11	µg/L
CWP-121B	ARSENIC	1/25/2011	0	µg/L
CWP-121B	ARSENIC	4/20/2011	0	µg/L
CWP-121B	ARSENIC	7/27/2011	0	µg/L
CWP-121B	ARSENIC	10/30/2011	0	µg/L
CWP-121B	ARSENIC	1/30/2012	8.4	µg/L
CWP-121B	ARSENIC	8/24/2012	0	µg/L
CWP-121B	ARSENIC	11/2/2012	0	µg/L
CWP-121B	ARSENIC	5/1/2013	0	µg/L
CWP-121B	ARSENIC	10/23/2013	0	µg/L
CWP-121B	ARSENIC	4/29/2014	0	µg/L
CWP-121B	ARSENIC	10/31/2014	15	µg/L
CWP-121B	ARSENIC	4/21/2015	0	µg/L
CWP-121B	ARSENIC	10/27/2015	0	µg/L
CWP-20	ARSENIC	1/26/2011	12	µg/L
CWP-20	ARSENIC	7/28/2011	42	µg/L
CWP-20	ARSENIC	10/31/2011	13	µg/L
CWP-20	ARSENIC	1/31/2012	11	µg/L
CWP-20	ARSENIC	8/27/2012	62	µg/L
CWP-20	ARSENIC	11/2/2012	36	µg/L
CWP-20	ARSENIC	4/30/2013	110	µg/L
CWP-20	ARSENIC	10/22/2013	8.8	µg/L
CWP-20	ARSENIC	4/29/2014	63	µg/L
CWP-20	ARSENIC	10/30/2014	78	µg/L
CWP-20	ARSENIC	4/28/2015	24	µg/L
CWP-20	ARSENIC	10/27/2015	0	µg/L
HL-7	CHROMIUM, TOTAL	1/26/2011	63	µg/L
HL-7	CHROMIUM, TOTAL	4/26/2011	68	µg/L
HL-7	CHROMIUM, TOTAL	7/28/2011	33	µg/L
HL-7	CHROMIUM, TOTAL	10/31/2011	0	µg/L
HL-7	CHROMIUM, TOTAL	1/31/2012	0	µg/L
HL-7	CHROMIUM, TOTAL	8/27/2012	0	µg/L
HL-7	CHROMIUM, TOTAL	10/31/2012	0	µg/L
HL-7	CHROMIUM, TOTAL	5/9/2013	14	µg/L
HL-7	CHROMIUM, TOTAL	10/23/2013	22	µg/L
HL-7	CHROMIUM, TOTAL	4/30/2014	365	µg/L

Well Name	Constituent	Sample Date	Result	Units
HL-7	CHROMIUM, TOTAL	11/4/2014	0	µg/L
HL-7	CHROMIUM, TOTAL	1/23/2015	0	µg/L
HL-7	CHROMIUM, TOTAL	4/28/2015	226	µg/L
HL-7	CHROMIUM, TOTAL	10/28/2015	13	µg/L
CWP-6	ARSENIC	7/28/2011	32	µg/L
CWP-6	ARSENIC	10/30/2011	6.1	µg/L
CWP-6	ARSENIC	1/31/2012	6.8	µg/L
CWP-6	ARSENIC	8/27/2012	0	µg/L
CWP-6	ARSENIC	10/31/2012	0	µg/L
CWP-6	ARSENIC	5/9/2013	0	µg/L
CWP-6	ARSENIC	10/24/2013	0	µg/L
CWP-6	ARSENIC	4/30/2014	0	µg/L
CWP-6	ARSENIC	11/4/2014	0	µg/L
CWP-6	ARSENIC	4/21/2015	0	µg/L
CWP-6	ARSENIC	10/28/2015	0	µg/L
CWP-6	CHROMIUM, TOTAL	4/26/2011	0	µg/L
CWP-6	CHROMIUM, TOTAL	7/28/2011	0	µg/L
CWP-6	CHROMIUM, TOTAL	10/30/2011	0	µg/L
CWP-6	CHROMIUM, TOTAL	1/31/2012	0	µg/L
CWP-6	CHROMIUM, TOTAL	8/27/2012	0	µg/L
CWP-6	CHROMIUM, TOTAL	10/31/2012	0	µg/L
CWP-6	CHROMIUM, TOTAL	5/9/2013	0	µg/L
CWP-6	CHROMIUM, TOTAL	10/24/2013	0	µg/L
CWP-6	CHROMIUM, TOTAL	4/30/2014	20	µg/L
CWP-6	CHROMIUM, TOTAL	11/4/2014	0	µg/L
CWP-6	CHROMIUM, TOTAL	4/21/2015	26	µg/L
CWP-6	CHROMIUM, TOTAL	10/28/2015	0	µg/L
CWP-08D	ARSENIC	1/25/2013	0	µg/L
CWP-08D	ARSENIC	5/9/2013	0	µg/L
CWP-08D	ARSENIC	7/11/2013	0	µg/L
CWP-08D	ARSENIC	10/22/2013	0	µg/L
CWP-08D	ARSENIC	4/25/2014	6.7	µg/L
CWP-08D	ARSENIC	10/30/2014	7.7	µg/L
CWP-08D	ARSENIC	4/20/2015	9	µg/L
CWP-08D	ARSENIC	10/27/2015	0	µg/L
CWP-08S	ARSENIC	1/25/2013	0	µg/L
CWP-08S	ARSENIC	5/9/2013	0	µg/L
CWP-08S	ARSENIC	7/11/2013	0	µg/L
CWP-08S	ARSENIC	10/22/2013	0	µg/L
CWP-08S	ARSENIC	4/25/2014	11	µg/L

Well Name	Constituent	Sample Date	Result	Units
CWP-08S	ARSENIC	10/30/2014	5.6	µg/L
CWP-08S	ARSENIC	4/20/2015	5.7	µg/L
CWP-08S	ARSENIC	10/27/2015	0	µg/L
CWP-122	ARSENIC	1/25/2013	0	µg/L
CWP-122	ARSENIC	5/9/2013	0	µg/L
CWP-122	ARSENIC	7/11/2013	0	µg/L
CWP-122	ARSENIC	10/24/2013	0	µg/L
CWP-122	ARSENIC	4/25/2014	0	µg/L
CWP-122	ARSENIC	10/30/2014	0	µg/L
CWP-122	ARSENIC	4/20/2015	9.1	µg/L
CWP-122	ARSENIC	10/27/2015	0	µg/L
CWP-21	CHROMIUM, TOTAL	1/20/2011	0	µg/L
CWP-21	CHROMIUM, TOTAL	4/19/2011	0	µg/L
CWP-21	CHROMIUM, TOTAL	7/28/2011	0	µg/L
CWP-21	CHROMIUM, TOTAL	10/31/2011	0	µg/L
CWP-21	CHROMIUM, TOTAL	11/1/2012	0	µg/L
CWP-21	CHROMIUM, TOTAL	4/30/2013	0	µg/L
CWP-21	CHROMIUM, TOTAL	5/23/2013	0	µg/L
CWP-21	CHROMIUM, TOTAL	10/22/2013	0	µg/L
CWP-21	CHROMIUM, TOTAL	4/30/2014	0	µg/L
CWP-21	CHROMIUM, TOTAL	11/4/2014	0	µg/L
CWP-21	CHROMIUM, TOTAL	4/28/2015	92	µg/L
CWP-21	CHROMIUM, TOTAL	10/28/2015	0	µg/L

Yellow highlighted values indicate concentrations significantly above cleanup levels while purple highlights indicate concentration that are slightly above cleanup levels.

Table B-3: Groundwater Monitoring Program (Revised 11/16/15)

Well ID	Sampling Frequency
CWP-5	Semi-annually and annually*
CWP-6	Semi-annually
CWP-8	Semi-annually
CWP-9	None
CWP-11	None
CWP-13	None
CWP-15	None
CWP-20	Semi-annually
CWP-21	Semi-annually and annually*
CWP-22	Semi-annually
CWP-101	None
CWP-102	None
CWP-103	None
CWP-104	None
CWP-105	Semi-annually and annually*
CWP-106	Semi-annually and annually*
CWP-107	Semi-annually
CWP-108	Semi-annually
CWP-109	None
CWP-111	None
CWP-113	None
CWP-114	Semi-annually
CWP-115	Semi-annually
CWP-116	Semi-annually and annually*
CWP-118A	Semi-annually
CWP-118B	Semi-annually and annually*
CWP-119	None
CWP-120A	Semi-annually and annually*
CWP-120B	Semi-annually
CWP-121A	Semi-annually
CWP-121B	Semi-annually
CWP-122	Semi-annually
CWP-HL-7	Semi-annually and annually*

*Semi-annual sampling conducted for total chromium, dissolved arsenic, dissolved manganese, dissolved calcium, dissolved sulfate, and ammonia. Annual sampling for hexavalent chromium.

Appendix C: ARAR Assessment

Section 121(d)(1)(A) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires that remedial actions at CERCLA sites attain (or justify the waiver of) any Federal or State environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate requirements (ARARs). Federal ARARs may include requirements promulgated under any Federal environmental laws. State ARARs may only include promulgated, enforceable environmental or facility-siting laws of general application that are more stringent or broader in scope than Federal requirements and that are identified by the State in a timely manner. ARARs are identified on a site-specific basis from information about the chemicals at the site, the remedial actions contemplated, the physical characteristics of the site, and other appropriate factors. ARARs include only substantive, not administrative, requirements and pertain only to onsite activities. There are three general categories of ARARs: chemical-specific, location-specific, and action-specific.

Table C-1 shows chemical-specific ARARs identified in the selected remedy for the Coast Wood Preserving Superfund Site (Site) within the Record of Decision (ROD) and subsequent ROD Amendment for the groundwater at this Site. These ARARS were considered for this FYR for continued groundwater treatment. Contaminants with cleanup goals that exceed their current maximum contaminant levels (MCLs) are highlighted in light orange in Table C-1.

Table C-1: Summary of Groundwater ARAR Changes

Contaminants of Concern	Cleanup Goals (µg/L)	State MCL (µg/L)	Federal MCL (µg/L)	Is the Cleanup Goal above the Current MCL?
Total Chromium	50[2]	50	100	No
Hexavalent Chromium	50[1]	10[3]	--	Yes
Arsenic	50[2]	10[4]	10[5]	Yes

Notes: µg/L = micrograms per liter.
[1]ARARs as shown in the 1989 ROD (Section 6.3.1, page 30, and Table 10, page 56).
[2]ARARs as shown in the 1989 ROD (Table 10, page 56).
[3]The MCL for hexavalent chromium was promulgated in 2014.
[4]The State MCL for arsenic was changed in 2008 from 50 µg/L to 10 µg/L.
[5]The federal MCL for arsenic was changed from 50 µg/L to 10 µg/L effective February 22, 2002..

The 1989 ROD and 2003 Explanation of Significant Differences issued specified cleanup levels as indicated in Table C-1 above. Though the cleanup levels for hexavalent chromium and arsenic are above the State and Federal MCL, significant reductions in hexavalent chromium and total chromium concentrations in onsite groundwater have occurred resulting in a shrinking plume over the past 15 years. Data, as discussed in Section 4.2 of this FYR, indicates that no concentrations above the current MCLs exist outside the Site boundary and that only a couple of wells exceed the specified levels within the Site boundaries. In addition, groundwater on site is not used for residential purposes (i.e., drinking, and bathing). Therefore, the current cleanup level for the contaminants hexavalent chromium and arsenic do not impact the protectiveness of the remedy.

No chemical-specific soil ARARs exists. Cleanup levels for soils were risk based and will be evaluated further in Appendix E in the Human Health Risk Assessment Review.

The following ARARs have not been revised in the past 5 years and therefore do not affect protectiveness:

- Resource Conservation and Recovery Act of 1976, amended by the Hazardous and Solid Waste amendments of 1984, Title 42 Chapter 82.
- Safe Drinking Water Act of 1974, as amended.
- California State's Porter-Cologne Water Quality Control Act (Title 23 Divisions 3-5).
- California Health and Safety Codes pertinent to this Site, including: Division 37 Section 57000-57020, Division 101 Part 1 Article 4 Sections 100325-100335, Division 103 Part 1, Chapter 8 Section 104324-104324.5, and Division 104 Part 1 Chapter 4 Article 1 Section 106600-106735.

Table C-2 includes the remaining ARARs from the ROD that had revised requirements during this review period.

Table C-2: Applicable or Relevant and Appropriate Requirements Evaluation

Original ARAR	Document	Original ARAR requirement	Revised requirement	Revision Date (Sept. 2011 to Present)	Effect on Protectiveness
California Code of Regulations, Title 27, Division 4, Chapter 1. Safe Drinking Water and Toxic Enforcement Act of 1986	September 1989 ROD	It is the practice of the Office of Environmental Health Hazard Assessment, as lead agency for implementing the Safe Drinking Water and Toxic Enforcement Act of 1986 (Health and Safety Code Section 25249.5 et seq.) to answer inquiries of individuals and organizations, whenever appropriate, as to the application of the act to their activities. One of the lead agency's functions is to issue public rulings on the requirements of the act.	None pertinent to the remedy.[1]	2012-2014	None
North Coastal Basin Water Quality Control Plan Adopted by the California Regional Water Quality Control Board (RWQCB)	September 1989 ROD	All orders, including specifications, provisions, prohibitions, and requirements issued by the RWQCB.	The discharge and the activities which affect the discharge are managed in conformance with the provisions of the applicable National Pollutant Discharge Elimination System permit which is maintained on site and therefore this does not impact the protectiveness of the remedy. The permittee shall implement a general management program to eliminate or minimize non-storm water discharges into surface waters.	May 12, 2011	None

Note 1. The following are the changes noted for this ARAR:

- Section 25403. Change without regulatory effect amending subsection (a) filed 9-12-2012 pursuant to Section 100, Title 1, California Code of Regulations (Register 2012, No. 37).
- Section 25707. Repeal of subsection (b) (4) and subsection renumbering filed 10-10-2012; operative 11-9-2012 (Register 2012, No. 41).
- Section 25801. New subsection (f) and amendment of Note filed 7-12-2012; operative 8-11-2012.
- Section 25805. Amendment of subsection (b) filed 8-8-2013; operative 10-1-2013 (Register 2013, No. 32).
- Section 27001. Amendment of subsections (b) and (c) filed 7-17-2014; operative 7-17-2014. Submitted to Office of Administrative Law for printing only pursuant to Health and Safety Code section 25249.8 (Register 2014, No. 29).

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Appendix E: Human Health and the Environment Risk Assessment

E.1. Human Health Risk Assessment Review

A human health risk assessment was completed for the Coast Wood Preserving Superfund Site (Site) as part of the 1989 Record of Decision (ROD). The risk assessment was reviewed to identify any changes in exposure or toxicity that would impact protectiveness.

Total chromium, hexavalent chromium, and arsenic were selected as the contaminants of concern (COCs) in soil. Total chromium was selected as a COC for groundwater. Potential exposure pathways identified in the 1989 ROD included airborne particulate matter and direct exposure to soil, surface water, and groundwater. Receptors of these pathways include nearby residents and onsite workers.

The risk assessment in the 1989 ROD concluded:

- Exposure to onsite soils via migration of air was determined to be negligible due to paving over areas of elevated concentrations prior to the writing of the ROD.
- Exposure to onsite soils via direct contact was also negligible due to paving. However, exposures are expected to occur during Site closeout.
- Exposure to contaminated groundwater off site was evaluated and determined to be below drinking water standards for chromium for nearby receptors and therefore insignificant; however ongoing containment and remediation would be needed to prevent further downgradient migration.

Exposures to COCs noted above are known to cause adverse health effects such as gastrointestinal and neurological effects, as well as impacting lung and kidney functions. Hexavalent chromium and arsenic are known carcinogens.

No new exposure pathways were identified. No new methodologies to determine risk more accurately were identified during this Five-Year Review (FYR).

Toxicity values: The U.S. Environmental Protection Agency's (EPA's) Integrated Risk Information System (IRIS) has a program to update toxicity values used by the agency in risk assessment when newer scientific information becomes available. In the past 5 years, there have been a number of changes to the toxicity values for many COCs at the Site.

To evaluate the protectiveness of the cleanup standards for this FYR, those standards were compared to EPA's current regional screening levels (RSLs). The RSLs for cancer are chemical-specific concentrations for individual contaminants that correspond to an excess cancer risk level of 1×10^{-6} (or a hazard quotient of 1 for non-carcinogens), and they have been developed for a variety of exposure scenarios (e.g., residential, commercial/industrial). RSLs are not de facto cleanup standards for a Superfund site, but they do provide a good indication of whether actions may be needed to address potential human health exposures. The EPA acceptable risk range is between 1×10^{-6} and 1×10^{-4}. RSL values that fall within this range were determined to be acceptable from a risk

standpoint. The non-cancer RSLs correspond to a hazard quotient of 1, Table E-1 and Table E-2, below, present this comparison.

In 2015, EPA updated its RSLs for hexavalent chromium. The RSL update was based on a revised toxicity assessment by the New Jersey Department of Environmental Protection (2009) following new toxicity information from the National Toxicology Program (2008). The current (2016) hexavalent chromium RSL for tap water ingestion is 0.052035 micrograms per liter (µg/L or parts per billion, ppb). There is significant scientific discussion regarding the health protective assumptions used to derive this value and the extrapolations from higher doses in the animal studies and the relevance for humans at much lower levels. In 2011, the California Office of Environmental Health Hazard Assessment finalized a new public health goal for hexavalent chromium at 0.02 µg/L (ppb) based on the same studies and similar assumptions as to the biological effects at low doses as in the New Jersey derivation. A public health goal is a level of contaminant in drinking water that does not pose a significant health risk over a lifetime of exposure. The Federal MCL for total chromium is set at 100 µg/L (ppb) and a California MCL for total chromium is set at 50 µg/L (ppb). These total chromium MCLs assume that the majority of chromium in drinking water is in the hexavalent state.

California recently (2014) promulgated an MCL specific to hexavalent chromium of 10 µg/L (ppb). The U.S. EPA IRIS program is conducting its own reassessment of the toxicity of hexavalent chromium. EPA has committed to revising the chromium MCL upon completion of the IRIS reassessment.

Table E-1: Summary of Groundwater RSLs (November 2015) for COCs at the Site

Contaminant of Concern	RSL for Cancer Risk in Excess of 1×10^{-6} (µg/L)	Protective Cancer Risk Range (µg/L)	RSL for Non-Cancer Hazard (µg/L)	Selected Cleanup Level (µg/L)	Is the Cleanup Standard Still Protective?
Total chromium	-	-	-	50	Yes
Hexavalent chromium	3.5E-02	3.5E-02 – 3.5	4.4	50	Yes[1]
Arsenic	5.2E-02	5.2E-02 – 5.2	6.0	50	Yes[1]

Notes: A single dash alone represents that no value is provided in the RSL table or in the decision documents.
[1]. Though the selected cleanup is above the protective cancer risk range and non-cancer RSL it is protective because exposure pathways do not exist.

Table E-2: Summary of Composite Worker Soil RSLs (November 2015) for COCs at the Site

Contaminant of Concern	RSL for Cancer Risk in Excess of 1×10^{-6} (mg/kg)	Protective Cancer Risk Range (mg/kg)	RSL for Non-Cancer Hazard (mg/kg)	Selected Cleanup Level (mg/kg)	Is the Cleanup Standard still Protective?
Total chromium	-	-	-	100	Yes
Hexavalent chromium	6.3	6.3 – 630	3,500	42	Yes
Arsenic	3	3 – 300	480	27	Yes

Notes: A single dash alone represents that no value is provided in the RSL table or in the decision documents; mg/kg = milligrams per kilogram.

The evaluation of RSLs and the selected cleanup levels indicate that the current cleanup levels are within the protective cancer risk range for COCs in soil and for total chromium in groundwater. The current cleanup levels for hexavalent chromium and arsenic in groundwater are above the protective risk range; however, the cleanup level is still protective because exposure pathways of groundwater do not exist.

E.2. Ecological Review

Ecological risks from the contamination at the Site were determined to be minimal in the 1989 ROD. The concern regarding ecological exposure via surface water flows from the Site was evaluated; however, the potential exposure of biological receptors in downstream ditches and streams was determined to be negligible. No changes in Site conditions, receptors, or exposure pathways that could affect ecological risks were noted in the past 5 years.

Appendix F: Press Notice

Ukiah Daily Journal
590 S. School St
PO Box 749
Ukiah, California 95482
(707) 468-3500
udjlegals@pacific.net
3723433

COAST WOOD PRESERVING
P.O. BOX 673
UKIAH, CA 95482

Legal No. **0005692721**

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
COUNTY OF MENDOCINO

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the Ukiah Daily Journal, a newspaper of general circulation, printed and published daily in the City of Ukiah, County of Mendocino and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Mendocino, State of California, under the date of September 22, 1952, Case Number 9267; that the notice, of which the annexed is a printed copy (set in type not smaller than non-pareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

03/18/2016

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Dated at Ukiah, California,
March 25th, 2016

Sue Fullbright

Sue Fullbright, LEGAL CLERK

1794-16
3-18/16

PRESERVING SUPERFUND SITE

The United States Environmental Protection Agency (EPA) is conducting the fifth Five-Year Review (FYR) of the cleanup remedies at the Coast Wood Preserving Superfund Site (Site) located at the southwest corner of Taylor Drive and Plant Roads on the southern side of Ukiah, California. This review will evaluate the effectiveness of the groundwater extraction and treatment system and soil cleanup at the site to protect human health and the environment.

The State Remedial Action Plan and EPA's Record of Decision for this Site includes the building of a groundwater extraction and treatment system that operated until September 1999. It prevented the offsite migration of chromium and reduced the concentration of chromium in the groundwater on-site. Subsequently, an in-situ reduction system was instituted to effectively reduce hexavalent chromium to a non-toxic form. Soil remediation has further improved groundwater quality by removing impacted soil that could po-

tentially leach contaminants to the water table. An asphalt/concrete cap covers the entire Site and eliminates the health risk associated with direct contact with arsenic-contaminated soil.

EPA is required to review a cleanup site every five years if the cleanup process takes more than five years to complete or hazardous wastes remain on the site. The fourth FYR covered the remedial activities conducted between January 2006 and December 2010. The purpose of this review is to determine whether the remedies continue to be protective. EPA invites the community to learn more about this process. If you have any questions, please contact Tu Nguyen, Remedial Project Manager, at (415) 972-3443, or nguyen.anhtu@epa.gov.

The Site's Administrative Record and other relevant information is located at the Mendocino County Library, 105 N. Main Street, Ukiah, California 95482, (707) 746-4491 and the California Department of Toxic Substances Control (DTSC) File Room, 700 Heinz Avenue, Berkeley, California 94710 (510) 540-3800. The final fifth FYR report will be available to the public after September 30, 2016 at the repositories above and on the DTSC Envirostar website: http://www.envirostor.dtsc.ca.gov/public/profile_report.asp

?global_id=232
40013

Appendix G: Interview Forms

Five-Year Review Interview Record			
Site: Coast Wood Preserving		**EPA ID No:**	CAD063015887

Interview Type: *Visit*
Location of Visit: Coast Wood Preserving Ukiah, CA
Date: 2/4/2016
Time: 1500

Interviewers

Name	Title	Organization
Nguyen Anhtu	Region 9 Regional Project Manager	EPA

Interviewees

Name	Organization	Title	Telephone	Email
Bob Schmidt	Coast Wood	Project Coordinator	209-632-9931	cfvwoodpreserve@aol.com
Gene Pietila	Coast Wood	Manager	707-468-0141	info@wetreatwood.com

Summary of Conversation

1) What is your overall impression of the project?

Coast Wood Preserving is meeting cleanup goals and performing groundwater monitoring efficiently. There is a good remedial cost estimate in place. Overall, the project is going well and there is good cooperation between Coast Wood and both State and Federal regulatory agencies.

2) Is the remedy functioning as expected? How well is the remedy performing?

The remedy is functioning well and is effective. Overall, the concentration trends are decreasing.

3) Are there any concerns regarding rebound of contaminants within the groundwater environment? If data shows increasing trends of hexavalent chromium in the future, what will be possible future actions?

If the data shows increasing trends of hexavalent chromium, Coast Wood Preserving would address the issue. Possible solutions would be further infiltration. Currently, there are no significant issues of rebounding.

4) Is there a continuous O&M presence? If so, please describe staff and activities. If there is not a continuous onsite presence, describe staff and frequency of Site inspections and activities.

Yes, there is a continuous O&M presence. O&M is required for the routine groundwater sampling as well as the injections.

5) Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines in the last 5 years? If so, do they affect protectiveness of the remedy? Please describe changes and impacts.

No, there have not been any significant changes in the past 5 years.

6) What are the annual operating costs for your organization's involvement with the site?

Coast Wood Preserving preferred not to disclose this information for privacy reasons.

7) Have there been unexpected O&M difficulties or costs at the site in the last 5 years? If so, please give details.

No.

8) Have there been opportunities to optimize O&M or sampling efforts? Please describe changes and resultant or desired cost savings or improved efficiency.

No. During the last Five-Year Review period, the groundwater monitoring program was optimized, which saved costs while still remaining effective.

9) Are you aware of any changes in Federal/State/County/Local laws and regulations that may impact the protectiveness of the remedy?

There is discussion of possible Regional Screening Level for hexavalent chromium which could impact the protectiveness of the remedy.

10) Do you have any comments, suggestions, or recommendations regarding the project?

Coast Wood Preserving noted that they would have preferred to have the State be the lead agency for the FYR, stating that since the State is the lead agency, it is appropriate for them to be the lead in the FYR as well. In addition, they noted that when EPA/USACE performs the FYR, there is a significant increase in cost. Coast Wood also requests that they review the draft FYR before publishing to ensure accuracy of facts and figures.

Additional Site-Specific Questions

1) What are possible future land uses of the Site? Do you know of any future land uses of the surrounding properties?

   Coast Wood Preserving stated that the future land use would be for industrial use.

2) Due to the current drought, have there been any impacts to groundwater monitoring? If the drought continues, when will possible impacts of the drought impact monitoring? Are there possible corrective actions that can be taken before there are impacts to monitoring data?

   Some of the wells were dry due to the drought which created some data gaps. However, due to the recent rain, it is expected that the wells will not be dry during the next sampling event.

Appendix H: Site Inspection Checklist

Five-Year Review Site Inspection Checklist

I. SITE INFORMATION

Site name: Coast Wood Preserving	**Date of inspection:** February 4, 2016
Location: Ukiah, California	**EPA ID:** CAD063015887
Agency, office, or company leading the five-year review: EPA Region 9	**Weather/temperature** 62 Fahrenheit, cloudy, rained the night before

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other: *e.g. Groundwater monitoring*
- ☒ Monitored natural attenuation
- ☒ Groundwater containment
- ☐ Vertical barrier walls

Groundwater containment is maintained by trench at the south eastern corner of the site. The site has had asphalt placed in locations where soil was noted to have been contaminated by past industrial activities. The IC (Land use covenant) that has been put in place guarantees that the site will be used for industrial purposes only.

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Gene Pietila (Name) Manager (Title) 2/4/2016 (Date)
   Interviewed ☐ at site ☒ at office ☐ by phone Phone no. 510-540-2305
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** _____ (Name) Water Resource Control Engin (Title) 2/4/2016 (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. 707-576-6732
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency	Contact Name	Title	Date	Phone no.	Problems; suggestions; Report attached
Department of Toxics Substance Control	Tom Lanphar	Project Manager	2/4/2016	510-540-2305	
Regional Water Quality Control Board	Keith Baldanza	Water Resource Control Engineer	2/4/2016	707-576-6732	
Regional Water Quality Control Board	Craig Hunt	Senior Water Resource Control Engineer	2/4/2016	707-570-3767	

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	☐ N/A
☐ As-built drawings	☐ Readily available	☐ Up to date	☐ N/A
☐ Maintenance logs	■ Readily available	■ Up to date	☐ N/A

Remarks There was no O&M manual or As-built drawings on-site

2. **Site-Specific Health and Safety Plan** ■ Readily available ☐ Up to date ☐ N/A

■ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ☐ N/A

Remarks The HASP was available, however, the last update was in 2008. The Contingency Plan was not available on-site, but was stated that it was sent electronically to the RWQCB.

3.	**O&M and OSHA Training Records** Remarks Readily Available on-site	■ Readily available	☐ Up to date	☐N/A
4.	**Permits and Service Agreements**			
	■ Air discharge permit	■ Readily available	■ Up to date	☐ N/A
	■ Effluent discharge	■ Readily available	☐Up to date	☐ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	■ N/A
	☐ Other permits_____	☐ Readily available	☐ Up to date	■ N/A
	Remarks The Effluent discharge permit is from 2012.			
5.	**Gas Generation Records** Remarks	☐ Readily available	☐ Up to date	■ N/A
6.	**Settlement Monument Records** Remarks	☐ Readily available	☐ Up to date	■ N/A
7.	**Groundwater Monitoring Records** Remarks	■ Readily available	☐ Up to date	☐N/A
8.	**Leachate Extraction Records** Remarks	☐ Readily available	☐ Up to date	■ N/A
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	☐ N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	☐ N/A
	Remarks			
10.	**Daily Access/Security Logs** Remarks	☐Readily available	☐ Up to date	■ N/A

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☒ PRP in-house ☐ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other

2. **O&M Cost Records**

☐ Readily available ☐ Up to date ☐ Funding mechanism/agreement in place
Original O&M cost estimate_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons:

Note for Number 2 above: Coast Wood stated that the O&M Cost Records are located at their Turlock site.

No unusually high O&M costs during the review period.

V. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A

Remarks

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☒ N/A

Remarks Signs are in good condition.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ■ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ☐ N/A
Other problems or suggestions: ☐ Report attached

There is still currently a deed restriction for industrial use.

2. **Adequacy** ■ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ■ No vandalism evident
Remarks

2. **Land use changes on site** ■ N/A
Remarks

3. **Land use changes off site** ■ N/A
Remarks

VI. GENERAL SITE CONDITIONS

A. Roads ■ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ■ Roads adequate ☐ N/A
Remarks

B. Other Site Conditions

Remarks

VII. LANDFILL COVERS ☐ Applicable ☒ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
   Areal extent_____ Depth_____
   Remarks

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established
   ☐ No signs of stress ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
   Areal extent_____ Height_____
   Remarks

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
- ☐ Wet areas ☐ Location shown on site map Areal extent_____
- ☐ Ponding ☐ Location shown on site map Areal extent_____
- ☐ Seeps ☐ Location shown on site map Areal extent_____
- ☐ Soft subgrade ☐ Location shown on site map Areal extent_____

Remarks

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability
Areal extent_____
Remarks

B. Benches ☐ N/A ☐ Applicable

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks

2. **Bench Breached** ☐ Location shown on site map ☐ N/A or okay
Remarks

3. **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay
Remarks

C. Letdown Channels ☐ Applicable ☐ N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent_____ Depth_____
Remarks

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks

5. **Obstructions** Type_____ ☐ No obstructions ☐ Location shown on site map
Areal extent_____ Size_____
Remarks

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks

D. Cover Penetrations ☐ Applicable ☐ N/A

1. **Gas Vents** ☐ N/A ☐ Active ☐ Passive ☐ Properly secured/locked ☐ Functioning
☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration
Remarks

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks

E. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks

G. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A

1. **Siltation** ☐ N/A ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks

2. **Erosion** Areal extent_____ Depth_____ ☐ Erosion not evident
   Remarks

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks

4. **Dam** ☐ Functioning ☐ N/A
   Remarks

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored ☐ Evidence of breaching
   Frequency_____ Head differential_____
   Remarks

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☒ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☒ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
☐ Good condition ☐ Needs Maintenance
Remarks

3. **Spare Parts and Equipment**
☐ Readily available ☐ Good condition ☒ Requires upgrade ☐ Needs to be provided
Remarks

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A

1. **Collection Structures, Pumps, and Electrical**
☐ Good condition ☐ Needs Maintenance
Remarks

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
☐ Good condition ☐ Needs Maintenance
Remarks

3. **Spare Parts and Equipment**
☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
Remarks

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
☐ Air stripping ☐ Carbon adsorbers
☐ Filters_____
☐ Additive (*e.g.*, chelation agent, flocculent)_____
☐ Others_____
☐ Good condition ☐ Needs Maintenance
☐ Sampling ports properly marked and functional
☐ Sampling/maintenance log displayed and up to date
☐ Equipment properly identified
☐ Quantity of groundwater treated annually_____
☐ Quantity of surface water treated annually_____
Remarks

2. **Electrical Enclosures and Panels** (properly rated and functional)
☐ N/A ☐ Good condition ☐ Needs Maintenance
Remarks N/A

3. **Tanks, Vaults, Storage Vessels**
☐ N/A ☐ Good condition ■ Proper secondary containment ☐ Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
☐ N/A ☐ Good condition ☐ Needs Maintenance
Remarks

5. **Treatment Building(s)**
☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
☐ Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks

D. Monitoring Data

1. Monitoring Data
■ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
■ Properly secured/locked ☐ Functioning ☐ Routinely sampled ■ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks All wells inspected were properly secured or locked and in good condition.

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

At this point, the remedy's goal is to contain the plume and to prevent exposure to people at the site. No issues regarding the remedy and effectiveness were discovered during the site inspection. Potential regulatory changes in hexavalent chromium may impact the remedy.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

O&M procedures were sufficient and provided short and long-term protectiveness. The asphaltic cap was generally in good condition with no major cracks or exposure pathways. The monitoring wells were secured or locked and all wells observed were in good condition.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

Not Applicable. No unexpected changes in the cost or scope of O&M during this review period.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Currently, there are no optimization opportunities for the operation of the remedy suggested.

Appendix I: Site Inspection Trip Report

Coast Wood Preserving Superfund Site, Ukiah, California

1. INTRODUCTION

a. Date of Visit: February 4, 2016
b. Location: Ukiah, California
c. Purpose: A site visit was conducted to visually inspect and document the conditions of the remedy, the site, and the surrounding area for inclusion in the Five-Year Review Report (FYR).
d. Participants:

Bob Schmidt	Coast Wood Preserving, Inc., Project Coordinator	209-632-9931
Gene Pietila	Coast Wood Preserving, Inc., Manager	707-468-0141
Tom Lanphar	DTSC, Project Manager	510-540-2305
Keith Baldanza	RWQCB, Water Resource Control Engineer	707-576-6732
Craig Hunt	RWQCB, Senior Water Resource Control Engineer	707-570-3767
Tu Nguyen	EPA, Remedial Project Manager	415-972-3443

2. SUMMARY

The Coast Wood Preserving Superfund Site (Site) FYR Site inspection took place starting 1 p.m. on Thursday, February 4, 2016 with the team departing at 4 p.m. The weather was cloudy and slightly windy; there was rain the night before. The Site inspection included walking the perimeter of the Site boundary as well as looking at various monitoring wells to inspect the integrity of the wells. Wells CWP-118A and CWP-118B were inspected and appeared to be in good condition. The well covering for CWP-20 was flooded (see photos below). The Site inspection also included areas of daily operations such as the drip pad and the wood treatment area. The infiltration trench was inspected and appeared to be in good condition. The asphaltic cap was in good condition with no significant cracks. There was standing water in various locations of the Site from rain the night before.

During the interview, representatives from both Coast Wood Preserving, Inc. (CWP), and the State regulatory agencies had positive comments regarding the overall status of the project. CWP representatives Mr. Schmidt and Mr. Pietila stated that they believed they were meeting cleanup goals and performing groundwater monitoring sufficiently and that there was good cooperation between CWP and both State and Federal regulatory agencies. Mr. Baldanza and Mr. Hunt from the California Regional Water Quality Board (RWQCB) stated that for an industrial site, the site is kept clean and has good storm water protection. Mr. Lanphar from the California Department of Toxic Substances Control (DTSC) stated that the remedy performs well and the groundwater monitoring program is efficient and meets necessary requirements also adding that the slurry wall is effective. Furthermore, Mr. Lanphar stated that the potentially responsible parties respond effectively and react well to changing conditions.

3. DISCUSSION

The on-site operations and maintenance manager, Mr. Pietila, had no operational issues to mention. However, he did note that some wells were dry due to the drought, but he expects, due to the recent rain, that the wells could potentially have water in them for sampling purposes. However, both Mr. Pietila and Mr. Schmidt noted that they would have preferred that the State be the lead for FYR to be consistent with what was done the past three FYRs. CWP representatives stated that there is a significant cost increase from having EPA/USACE write the FYR.

4. ACTIONS

USACE will incorporate information obtained from the site visit into the FYR report.

Blair Kinser
Environmental Engineer
Seattle District, USACE

Tu Nguyen
Remedial Project Manager
EPA Region IX