FIFTH FIVE-YEAR REVIEW REPORT FOR OPERATING INDUSTRIES, INC. LANDFILL SUPERFUND SITE LOS ANGELES COUNTY, CALIFORNIA

Prepared by

US Army Corps of Engineers, Seattle District
for
U.S. Environmental Protection Agency
Region IX
San Francisco, California

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Errata

December 9, 2015

Subsequent to signing the OII Five Year Review, errors were found for the State MCLs listed, the milestone date for a recommendation and a typo. Corrections to tables and text associated with the errors are presented in this errata sheet.

1. The following is the corrected text for the Five-Year Review Summary Form, page iv. (Correction in Milestone Date)

OU(s): OU-1 Liquids Control and Contaminated Groundwater	**Issue Category:** Monitoring			
	Issue: Groundwater plumes for the areas associated with the PLCs not well identified in annual reports.			
	Recommendation: Delineate approximate groundwater plumes for the areas associated with the PLCs to better visualize off-site contamination in the areas between the landfill and the Groundwater Compliance Lines.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	12/2016

2. The following table corrects Table 6.1, page 22. (Corrections in State MCLs)

Summary of Groundwater ARAR Changes

Contaminants of Concern	1996 ROD cleanup goals (µg/L)	State MCL (µg/L)	Federal MCL (µg/L)	MCLs Changed?
1,1,1-trichloroethane	200	200	200	No
1,1,2-trichloroethane	5	5	5	No
1,1-dichloroethane	5	5	5	No
1,1-dichloroethylene	6	6	6	No
1,2,4-trichlorobenzene	70	5	70	Yes, current State MCL is lower than the 1996 ROD cleanup level
1,2-dichlorobenzene	600	600	600	No
1,2-dichloroethane	0.5	0.5	5	No
1,2-dichlorethylene, cis-	6	6	70	No
1,2-dichlorethylene, trans-	10	10	100	No
1,2-dichloropropane	5	5	5	No
1,3-dichloropropene, cis-	0.5	0.5	--	No
1,3-dichloropropene, trans-	0.5	0.5	--	No
1,4-dichlorobenzene	5	5	75	No

Contaminants of Concern	1996 ROD cleanup goals (µg/L)	State MCL (µg/L)	Federal MCL (µg/L)	MCLs Changed?
1,4-dioxane	1.6	--	--	No
2-butanone	2,464	--	--	No
4-methyl 1-2-pentanone	198	--	--	No
Acetone	768	--	--	No
Aldrin	0.00053	--	--	No
Benzene	1	1	5	No
BHC, beta	0.05	1	1	No
BHC, gamma-	0.2	0.2	0.2	No
Bis(2-ethylhexyl)phthalate	4	4	6	No
Butylbenzylphthalate	100	--	--	No
Carbon tetrachloride	0.5	0.5	5	No
Chlordane	0.1	0.1	2	No
Chlorbenzene	70	70	100--	No
Chloroform	1,100	--	80[2]	Yes, current federal MCL is lower than the 1996 ROD cleanup level
Di-n-octylphthalate	9.3	--	--	N/A
Dibromochloromethane	100	--	80[2]	Yes, current federal MCL is lower than the 1996 ROD cleanup level
Endrin	2	2	2	No
Ethylbenzene	700	300	700	Yes, current state MCL is lower than the 1996 ROD cleanup level
Heptachlor	0.01	0.01	0.4	No
Heptachlor epoxide	0.01	0.01	0.2	No
Methoxychlor	40	30	40	Yes, current state MCL is lower than the 1996 ROD cleanup level
Methylene chloride	5	--	--	NA
Pentachlorophenol	1	1	1	No
Styrene	10	100	100	Yes, current state and federal MCLs are higher than the 1996 ROD cleanup level
Tetrachloroethylene	5	5	5	No
Toluene	150	150	1,000	No
Trichloroethylene	5	5	5	No
Trichlorofluoromethane	150	150	--	No
Vinyl chloride	0.5	0.5	2	No
Xylenes	1,750	1,750	10,000	No
Inorganic Constituents				
Aluminum	1,000	1,000	--	No
Ammonia	35,405	--	--	No
Antimony	6	6	6	No

Contaminants of Concern	1996 ROD cleanup goals (µg/L)	State MCL (µg/L)	Federal MCL (µg/L)	MCLs Changed?
Arsenic	50	10	10	Yes, current state and federal MCLs are lower than the 1996 ROD cleanup level
Barium	1,000	1,000	2,000	No
Beryllium	4	4	4	No
Cadmium	5	5	5	No
Chromium VI	50	10	--	Yes, current state MCL is lower than the 1996 ROD cleanup level
Chromium III	50	50[1]	100[1]	No
Copper[3]	1,300	1,300	1,300	No
Cyanide	200	150	200	Yes, current state MCL is lower than the 1996 ROD cleanup level
Fluoride	19,905	2,000	4,000	Yes, current state and federal MCLs are lower than the 1996 ROD cleanup level
Lead[3]	15	15	15	No
Manganese	1,830	--	--	N/A
Mercury	2	2	2	No
Nickel	100	100	--	No
Nitrate (as NO_3)	10,000	10,000 (as N)[4]	(10,000 [as N])	No
Nitrite (as N)	1,000	1,000	1,000	No
Selenium	50	50	50	No
Thallium	4,153	2	2	Yes, current state and federal MCLs are lower than the 1996 ROD cleanup level
Vanadium	256	--	--	N/A
Zinc	10,950	--	--	N/A

Notes: Shaded rows indicate COCs with MCL changes.
[1]Total chromium.
[2]Total trihalomethanes.
[3]Not MCLs but regulatory action levels.
[4]In 2015, nitrate as NO3 was changed in California to match Federal designation of nitrate as N.

3. The following is the corrected text summarizing the corrected Table 6.1, page 23 (Added four compounds whose State MCLs have changed: 1,2,4-trichlorobenzene, ethylbenzene, methoxyclor and fluoride. Removed Nitrate as having a new MCL.)

Ten compounds have had their standards lowered since the 1996 ROD. Two standards changed because the federal and state MCLs for the individual compounds were eliminated in favor of a combined MCL. Specifically, the federal and state MCLs for bromoform, chloroform, and dichlorobromomethane were

removed and are now regulated as "total trihalomethanes (THM)." Dichlorobromomethane and chloroform have been analyzed as separate constituents and have not been detected above the new THM MCL over the past five years. For three other compounds, 1,2,4-trichlorobenzene, ethylbenzene, and methoxyclor, the state MCLs became lower. These compounds have not been detected above the new state MCLs over the past five years.

Inorganic COCs that have had their respective MCL lowered since the 1996 ROD are thallium, chromium VI, cyanide, arsenic and fluoride. Thallium, fluoride, and cyanide have not been detected above their respective current MCL over the past five years. Hexavalent chromium and arsenic have been detected above their current MCL in the past five years. These elevated concentrations of hexavalent chromium and arsenic do not impact the current protectiveness of the OII since no exposure pathway exists. However, for long term protection, these changes in MCLs must be incorporated into the remedy.

4. The following is the corrected text for the second paragraph in Vapor Intrusion in Section 6.3, page 29. (Added 'not' to last sentence.)

There is evidence of TCE above cleanup levels in the NE PLC. The wells are located east of the NE PLC compliance line and south of SR-60, between the OII South Parcel and the Costco Warehouse. No residences are located within this area. Wells OI-64A, OI-75A, and OI-76A have at least one verified exceedances following the August 2014 sampling event of 5.9, 91 and 100 µg/L, respectively. Since the operation of the NE PLC system began in 2012 contaminant concentrations in the area, have been showing a downward trend. Though, above cleanup levels, these results do not pose a risk for vapor intrusion, since depth to aquifer in the area of the wells is approximately 140 ft.

5. The following is the corrected text for the second sentence in Section 7.2, page 39. (Corrected for ten COCs, not seven)

There are new chemical-specific standards for ten COCs.

6. The following is the corrected text for the second paragraph in Section 7.4, page 40. (Corrected for ten COCs, not seven)

No new exposure routes, contaminants of concern, or changes to the remedy were noted that would affect the protectiveness of the remedy. There are new chemical-specific standards for ten chemicals of concern (COCs). Of these ten COCs, arsenic and hexavalent chromium have been detected at levels above their new respective MCLs over the past five years. There is currently no exposure for the groundwater; however, for the long-term protectiveness, the remedy should be modified to include these new MCLs. There is likely to be future land use changes at the Site as a result of North Parcel redevelopment, and coordination with developers during the placement of commercial building in the Northern Parcel should be easy to address.

7. The following table corrects Table 8-1, Page 41. (Corrected for ten COCs, not seven)

Issue	Affects Current Protectiveness? (Yes or No)	Affects Future Protectiveness? (Yes or No)
MNA progress towards meeting ROD cleanup times has not been assessed.	No	Yes
Groundwater plumes for the areas associated with the PLCs not well identified in annual reports.	No	No
Ten COCs have new, lower MCLs: 1,2,4-trichlorobenzene, ethylbenzene, methoxyclor, dichlorobromomethane, chloroform, thallium, chromium VI, arsenic, cyanide and fluoride	No	Yes

8. The following table corrects Table 9-1, page 42. (Corrected for ten COCs, not seven)

Issue	Recommendations/ Follow-Up Actions	Party Respon-sible	Over-sight Agency	Mile-stone Date	Affects Protectiveness? (Yes or No)	
					Current	Future
MNA progress towards meeting ROD cleanup times has not been assessed	Perform technical evaluation of the MNA component of the groundwater remedy as part of AGMER to ensure compliance towards meeting MNA timeframes.	OII PRP	EPA	01/2020	No	Yes
Groundwater plumes for the areas associated with the PLCs not well identified in annual reports.	Delineate approximate groundwater plumes for the areas associated with the PLCs to better visualize off-site contamination in the areas between the landfill and the Groundwater Compliance Lines.	OII PRP	EPA	12/2016	No	No
Ten COCs have new, lower MCLs: 1,2,4-trichlorobenzene, ethylbenzene, methoxyclor, dichlorobromomethane, chloroform, thallium, chromium VI, arsenic, cyanide, and fluoride	Modify the remedy to include the most current MCLs as cleanup standards.	EPA	EPA	12/2018	No	Yes

Executive Summary

The United States Environmental Protection Agency (EPA) has completed the fifth Five-Year Review (FYR) for the Operating Industries, Inc. (OII) Landfill Superfund Site (the Site) located in Monterey Park, California. The five-year review is required by statute and performed because hazardous substances, pollutants, or constituents remain at the Site above levels that allow for unrestricted use and unlimited exposure. The triggering action for this FYR was the signing of the previous FYR September 27, 2010.

The Site is located at 900 Potrero Grande Drive in the City of Monterey Park, approximately 10 miles east of downtown Los Angeles. The Site is 190 acres, and is divided by California Highway 60 (Pomona Freeway). Waste disposal at the OII Landfill resulted in the generation and migration of leachate and landfill gas.

The EPA began remedial investigation and feasibility study (RI/FS) activities at the Site in 1984. To efficiently manage the problems at the landfill and address the most apparent environmental problems at the landfill prior to completion of the remedial investigation and implementation of the final remedy, the initial site work was divided into three discrete interim tasks which included (1) site control and monitoring, (2) leachate management and treatment, and (3) landfill gas migration control and landfill cover. The final phase of RI/FS work addressed perimeter liquids and groundwater.

EPA has issued four Records of Decision (RODs) for the cleanup remedies at the Site. Three operable units (OUs) have been identified at OII to address specific remedial actions:

OU-1 Site Control and Monitoring (SCM)
OU-2 Leachate Management
OU-3 Landfill Gas Control and Cover

Interim RODs were issued in July 1987 for OU-1 and in November 1987 for OU-2. A third ROD was issued in September 1988 (later amended in September 1990) to select a permanent remedy for OU-3.

In September 1996, EPA signed the Final ROD, which selected a comprehensive site-wide groundwater remedy. Because the RODs for OU-1 (SCM) and OU-2 (Leachate Management) were interim RODs, they were superseded by the signing of the Final ROD; however, the activities required by them continue as part of the Final ROD. The OU-3 (LFG Control and Cover) ROD and the Final ROD are the decision documents pertaining to permanent remedies at the Site and are the focus of this Five-Year Review.

The remedy is operating as intended because contamination from past landfill activities is being contained by the landfill cap and the leachate and landfill gas collection systems. Leachate and other landfill liquids are treated to acceptable levels and discharged off site. The landfill gas treatment system (LFGTS) uses thermal oxidation destruction technology to destroy the contaminants in landfill gas prior to discharge. Landfill gas and perimeter liquids are monitored by numerous soil gas monitoring probes and groundwater monitoring wells at the point of compliance to ensure that

Applicable or Relevant and Appropriate Requirements (ARARs) and other remedy performance standards are being met. Maintenance issues related to aging infrastructure can be easily fixed as needed. Given that the Perimeter Liquid Control (PLC) system have only recently been fully implemented, it is premature to assess MNA progress. It is anticipated that by the next five-year review, there will sufficient data to better assess whether monitored natural attenuation is progressing as expected. However, groundwater monitoring collected to date do not give indication of any major remedy issues.

No new exposure routes, contaminants of concern, or changes to the remedy were noted that would affect the protectiveness of the remedy. There are new chemical-specific standards for seven chemicals of concern (COCs). Of these seven COCs, arsenic, hexavalent chromium and nitrate (as nitrogen) have been detected at levels above their new respective MCLs over the past five years. There is currently no exposure for the groundwater; however, for the long-term protectiveness, the remedy should be modified to include these new MCLs.

The sale of the North Parcel for redevelopment is nearing conclusion. There will be land use changes as a result of the North Parcel redevelopment. Coordination between the OII Work Defendants' contractor, New Cure, Inc. and the developers will be necessary to ensure that these changes do not interfere with on-going remedial activities or compromise the integrity of the existing remedies. Oversight by EPA of some redevelopment activities that impact or may impact the existing remedies, also may be necessary. The remedies at the Operating Industries, Inc. (OII) Landfill Superfund Site are currently protective of human health and the environment because they are functioning as intended, controlling both potential releases of and exposure to landfill waste, leachate, and gas. In addition, institutional controls ensure that there is no exposure to contaminated groundwater, soils, and landfill gas vapors. However, to be protective in the long-term, a more comprehensive annual technical evaluation of the MNA component of the groundwater remedy needs to be conducted, an improved groundwater plume map should be included within the Annual Groundwater Monitoring Evaluation Reports, and the remedy should to be modified to include the most current MCLs as cleanup standards

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Operating Industries, Inc. Landfill Superfund Site		
EPA ID: 0958 **CERCLIS ID:** CATO080012024		
Region: 9	**State:** CA	**City/County:** Monterey Park/Los Angeles County

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA **If "Other Federal Agency" was selected above, enter Agency name:** N/A
Author name (Federal or State Project Manager): Julie Santiago-Ocasio
Author affiliation: EPA
Review period: November, 21, 2014 – September 27, 2015
Date of site inspection: December 15-16, 2014
Type of review: Statutory
Review number: 5
Triggering action date: September 28, 2010
Due date *(five years after triggering action date)*: September 28, 2015

Five-Year Review Summary Form (continued)

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:
N/A

Issues and Recommendations Identified in the Five-Year Review:

OU(s): Sitewide	**Issue Category: Monitoring**			
	Issue: MNA progress towards meeting ROD cleanup times has not been assessed			
	Recommendation: Perform technical evaluation of the MNA component of the groundwater remedy as part of AGMER to ensure compliance towards meeting MNA timeframes.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	1/1/2020

OU(s): Sitewide	**Issue Category: Monitoring**			
	Issue: Groundwater plumes for the areas associated with the PLCs not well identified in annual reports.			
	Recommendation: Delineate approximate groundwater plumes for the areas associated with the PLCs to better visualize off-site contamination in the areas between the landfill and the Groundwater Compliance Lines.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	No	PRP	EPA	1/1/2016

OU(s): Sitewide	**Issue Category: Monitoring**			
	Issue: Seven COCs have new, lower MCLs: dichlorobromomethane, chloroform, thallium, chromium VI, arsenic, cyanide and nitrate (as nitrogen)			
	Recommendation: Modify the remedy to include the most current MCLs as cleanup standards.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	No	PRP	EPA	12/31/2018

Sitewide Protectiveness Statement	
Protectiveness Determination: Short-term Protective	*Addendum Due Date (if applicable):* *N/A*

Protectiveness Statement:

The remedies at the Operating Industries, Inc. (OII) Landfill Superfund Site are currently protective of human health and the environment because they are functioning as intended, controlling both potential releases of and exposure to landfill waste, leachate, and gas. In addition, institutional controls ensure that there is no exposure to contaminated groundwater, soils, and landfill gas vapors. However, to be protective in the long-term, a more comprehensive annual technical evaluation of the MNA component of the groundwater remedy needs to be conducted, an improved groundwater plume map should be included within the Annual Groundwater Monitoring Evaluation Reports, and the remedy should to be modified to include the most current MCLs as cleanup standards.

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List of Abbreviations

AGMER	Annual Groundwater Monitoring and Evaluation Report
ARAR	Applicable or Relevant and Appropriate Requirement
ARE	access and restrictive easement
BHHRA	baseline human health risk assessment
CC	capital cost
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
CPS	chemical performance standard
DTSC	California Department of Toxic Substances Control
EPA	U. S. Environmental Protection Agency
FYR	Five-Year Review
GCS	groundwater cleanup standards
IC	institutional control
LARWQCB	Los Angeles Regional Water Quality Control Board
LFG	landfill gas
LFGTS	landfill gas treatment system
LTGMP	long-term groundwater monitoring plan
LTP	leachate treatment plant
LW/SP	Lakewood/San Pedro Formation
MCL	maximum contaminant level
MNA	monitored natural attenuation
MPD	Monterey Park Disposal Company
NC Area	North Central Area of the Site
NCI	New Cure, Inc.
NCP	National Contingency Plan
NE Area	Northeast Area of the Site
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	operation and maintenance
OII	Operating Industries, Inc.
OU	operable unit
PCOR	Preliminary Close Out Report
PLC	perimeter liquids control
POC	point of compliance
ppm	parts per million
PRP	potentially responsible party
RAO	remedial action objective
ROD	Record of Decision
RSL	Regional Screening Level
SCAQMD	South Coast Air Quality Management District
SCM	Site control and monitoring
Site	Operating Industries, Inc. Landfill Superfund Site
SOP	Standard Operating Procedure
SWEAP	Southwest Early Action Plan
USACE	U. S. Army Corps of Engineers
VOC	volatile organic compound

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Fifth Five-Year Review Report
for
Operating Industries, Inc. Landfill Superfund Site

1. Introduction

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of FYRs are documented in five-year review 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) prepares FYRs pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 121 and the National Contingency Plan (NCP). CERCLA Section 121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

EPA interpreted this requirement further in the NCP; 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii), which states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such actions no less often than every five years after the initiation of the selected remedial action.*

EPA conducted the FYR and prepared this report for the remedy implemented at the Operating Industries, Inc. (OII). Landfill Superfund Site (Site) in Monterey Park, Los Angeles County, California. EPA is the lead agency for developing and implementing the remedy for the Site. The California Department of Toxic Substances Control (DTSC) is the support agency. DTSC concurred with the remedies selected for the Site and has played an active role throughout the oversight of the remedial action process.

This is the Fifth FYR for the Site. The triggering action for this statutory review is the previous FYR. The FYR is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

2. Site Chronology

Table 2-1 lists the dates of important events for the Site.

Table 2-1. Chronology of Site Events

Event	Date
Area used as a sand and gravel quarry	pre-1948
Landfilling operations begin	Oct. 1948
OII assumes Site ownership	Jan. 1952
Los Angeles Regional Water Quality Control Board (LARWQCB) classifies OII Landfill as a Class II-I landfill	1954
Pomona Freeway (Highway 60) completed, separating North and South Parcels of the landfill	1964
Residential development moves closer to the landfill	1968
Considerable residential and commercial development adjacent to landfill boundary	Mid-1970s
Monterey Park City Council adopts Resolution 78-76, eliminating solid waste disposal on both the North Parcel and a 15-acre area in the northwestern section of the South Parcel	1975
Leachate observed seeping off the landfill site	1982
OII operators cease acceptance of liquid hazardous waste	Jan 1983
OII operators cease acceptance of all liquid waste	Apr 1983
State places the Site on the California Hazardous Waste Priority list	Jan. 1984
California Department of Health Services issues Remedial Action Order	Aug. 1984
Site proposed to the National Priorities List	Oct. 1984
All landfill operations cease	Oct. 1984
EPA begins remedial investigation/feasibility study	1984
State filed lawsuit against OII to perform remedial actions and enforce Orders	May 1985
Site finalized on the National Priorities List	May 1986
EPA issued interim Record of Decision (ROD) for site control and monitoring (OU-1)	July 31, 1987
EPA issued interim ROD for leachate management (OU-2)	Nov 16, 1987
EPA issued landfill gas (LFG) migration control ROD (OU-3)	Sept 30, 1988
EPA amended LFG migration control ROD (OU-3)	Sept 28, 1990
Leachate Treatment Plant, constructed in 1992, begins operation	Aug 1994
Site-wide remedial investigation completed	1994
First Five-Year Review (FYR) completed	May 30, 1995
Feasibility study and risk assessment performed	1996
Final ROD issued	Sept. 1996
Landfill cover work began	Summer 1997
LFG treatment system (LFGTS) installed on North Parcel	Aug. – Dec. 1999
Second FYR completed	Feb 18, 2000
CD-3 Final Construction As-Built Report including Site Operations Plan issued	May 2000
Performance test final report for Thermal Oxidizer Unit 101 issued	Jan 2001
Long-Term Groundwater Monitoring Plan approved by EPA	May 8, 2002
EPA approved potentially responsible parties' (PRPs') remedial action report for the LFG and cover operable unit (OU-3)	Sept 24, 2002

Event	Date
Final Access and Institutional Controls Work Plan approved by EPA	May 27, 2003
EPA directed the PRPs to implement the North Parcel (NP) remedy as an item of Excluded Work under CD-3	April 2004
Thermal Oxidizer Unit 151 Performance Test performed	Jul 2005
Third FYR completed	Sept. 28, 2005
Final NP Remedial Design for NP Cover completed	June 2008
North Central (NC) PLC System Area As-built (Phases I & II) Construction Complete Report	April 15, 2009
EPA approved the compliance testing of the PLC in the Southwest Early Action Plan (SWEAP) Area	July 2010
NP Cover Construction Completion Report approved	July 2010
Fourth FYR completed	Sept 27, 2010
EPA approved the compliance testing of the NC Area PLC System	July 2010
Preliminary Close Out Report completed	Sept 11, 2012
EPA approved the compliance testing of the Northeast Area PLC System	August 2012
Final Revised Third Partial Consent Decree Work Completion Report Finalized	Feb 27, 2013
Covenant to Restrict Use of Property for parcels located in the North Parcel of OII recorded	April 26, 2013
Approval of CD-3 work construction completion report, resulting in termination of CD-3	Dec. 24, 2013
Covenant to Restrict Use of Property and Environmental Restriction for parcels located within the South Parcel of OII recorded	July 16, 2013
Covenant to Restrict Use of Property for parcels located in the North Parcel of OII were re-recorded to include correct parcels transferred to and from CalTrans land swap agreement	July 30, 2013
CD-8 Final Remedial Action Completion Report Finalized	Mar 26, 2014
Covenant to Restrict Use of Property and Environmental Restriction for parcels owned by the Southern California Edison where North Parcel waste remains under cover or to which the North Parcel cover extends recorded	July 2, 2014

3. Background

3.1. Physical Characteristics

The Site is located in Monterey Park, Los Angeles County, California (Figure 3-1). It is situated in the central Montebello Hills (also known as the La Merced Hills) of the Los Angeles Basin. The Site is divided into two parcels by the Pomona Freeway. The North and South Parcels are approximately 45 and 145 acres, respectively. The top elevation of the South Parcel is approximately 275 feet above the surrounding land surface, while the North Parcel is relatively flat. Groundwater in and around the Site is not used for water supplies.

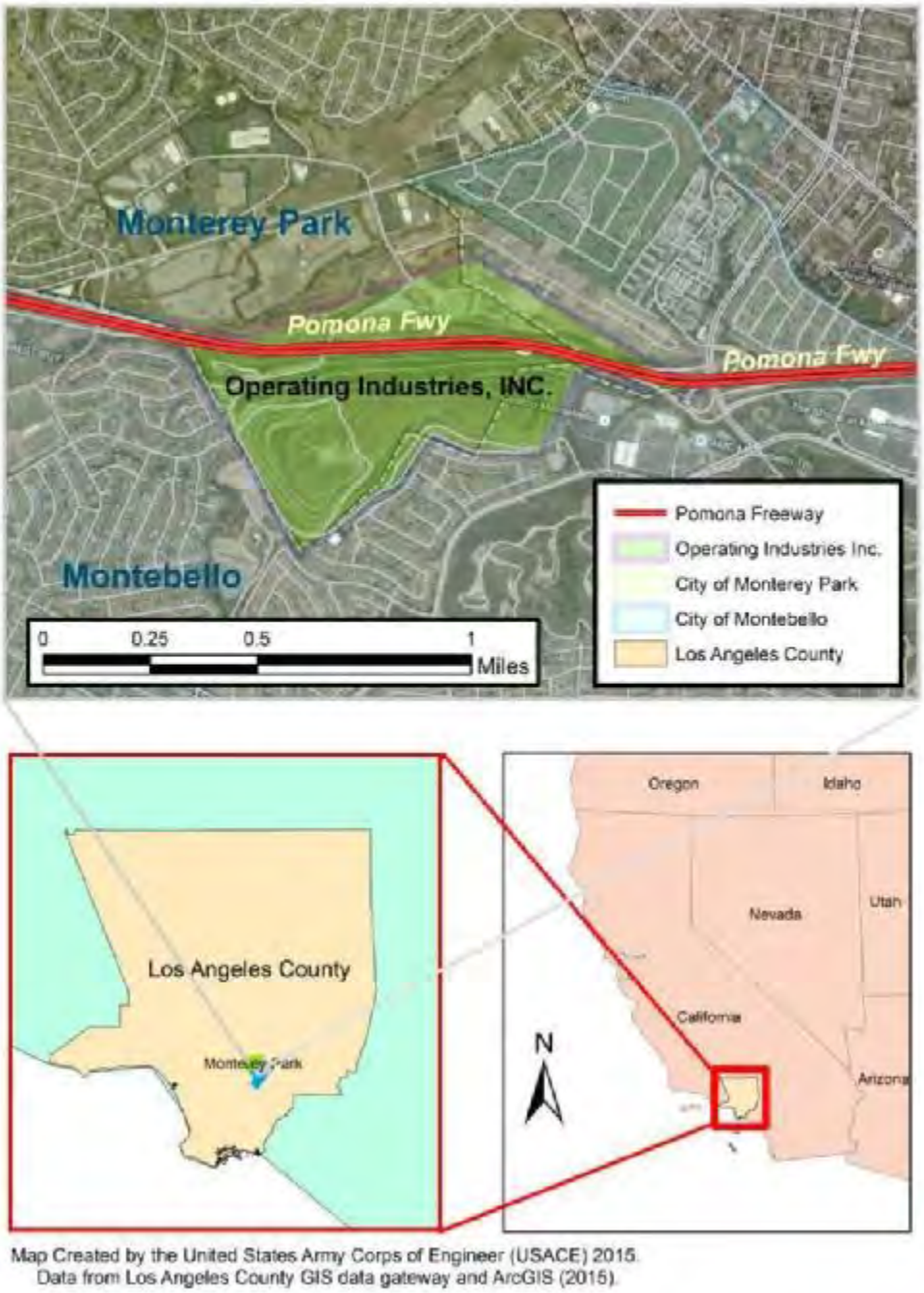

Figure 3-1. Location Map for the OII Superfund Site

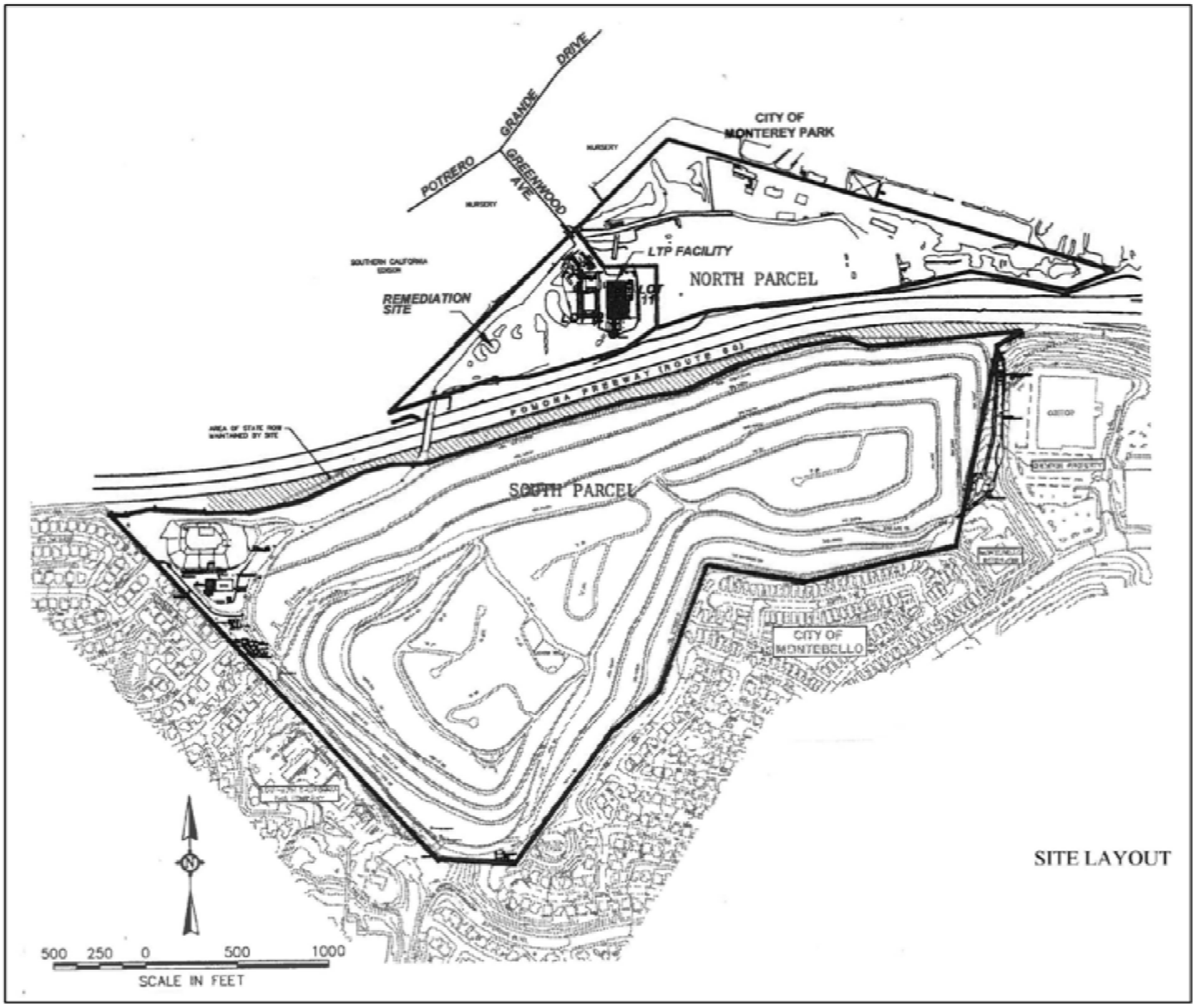

Figure 3-2. Site Layout

3.2. Geology/Hydrology

In the OII vicinity, the Pico Unit consists of more than 500 feet thick of numerous siltstone layers, with conglomerates and occasional marine limestone beds. The Lakewood and the San Pedro Formations overlie the Pico Unit and have been grouped together due to their similar hydrologic properties. The Lakewood/San Pedro Formation consists largely of poorly consolidated sandstones and conglomerates, with lesser amounts of siltstone. The alluvium consists of unconsolidated

sediments ranging in size from clay to cobbles and boulders. The alluvium typically occurs surficially and occupies the topographically low portions of the OII vicinity.

There are no natural streams on or adjacent to the landfill. Surface water (storm water) runoff from the South Parcel flows to lined swales on the inboard side of each terraced bench road on the landfill side slopes, where it is diverted to the storm water drainage system.

The complex geologic conditions present in the OII vicinity (i.e., depositional environment, folding, faulting) have resulted in similarly complex hydrogeologic conditions. The hydrogeologic units and groundwater flow conditions vary considerably in different portions of the landfill. Groundwater flow at the Site is generally radial from the South Parcel. The low to moderate permeabilities of the OII Landfill aquifers result in mounding beneath the landfill, steep hydraulic gradients, and slow rates of flow. The estimated horizontal groundwater flow velocity in the shallow systems varies greatly in different units, ranging from approximately 0.3 to 1,810 feet per year (ft/yr).

Hydrogeologic unit designations, based on the 1994 remedial investigation, divide the Site into shallow and deep systems. The shallow aquifer, also known as the unconfined aquifer, is comprised of saturated portions of the Lakewood/San Pedro Formation and the shallowest sandstones and siltstones of the upper Pico unit.

Depth to water in the landfill vicinity varies greatly and ranges from about 15 to 20 feet at the southwestern corner of the South Parcel to over 200 feet at the southeastern corner of the landfill. In the western portion of the South Parcel, the groundwater table is near (or potentially in contact with) the waste prism. At the eastern portion of the Site, the groundwater is about 13 feet below the waste prism and is not in contact with it.

3.3. Land and Resource Use

Disposal operations at the OII Landfill began in October 1948, when the Monterey Park Disposal Company (MPD) leased 14 acres from Henry H. Wheeler. An operations agreement between the City of Monterey Park, California, and MPD ensured that MPD would operate a municipal landfill on behalf of the City. The landfill reverted to private ownership by OII in early 1952 when zoning variances for operating the landfill were not obtained by MPD. The landfill expanded to 218 acres as additional Wheeler property was obtained in 1953 and 1958. OII ceased accepting hazardous liquid waste in January 1983.

The South Parcel received the majority of waste at the site and is currently covered by a landfill cap. The top elevation of the South Parcel site rises approximately 275 feet above the surrounding land surface. Cover construction was completed on the South Parcel landfill in 2000. Approximately 10 acres of the western part of the North Parcel was used as a landfill, and an auto wrecking operation occupied much of the eastern portion of the North Parcel. The auto wrecking yard was shut down and removed in 1998, and the area is currently vacant. The leachate and landfill gas (LFG) treatment systems and the OII analytical laboratory are located on the North Parcel. The OII Custodial Trust, the

entity created to sell the North Parcel, is close to completing the sale of the North Parcel to a developer for construction of a retail shopping center.

The area surrounding the Site is heavily developed with mixed general commercial/industrial and residential land use, with small pockets of open space. The Montebello Hills oilfield, which contains many active oil production wells, is located to the southeast of the South Parcel. A Southern California Edison substation complex occupies a portion of the property to the northwest of the North Parcel. On the southeast and south sides of the South Parcel, adjacent land use is mostly low-density residential with pockets of medium-density residential and open space. Many homes in this area are located immediately adjacent to the landfill boundary and share a common property line with the landfill.

The City of Monterey Park (to the north of the Site) has a population of 60,269 and the city of Montebello (to the south of the Site) has a population of 62,500 (2010 census). Land use covenants in the area prohibit drilling for drinking water, oil, or gas. Remedial activities are the only allowable reason for the extraction of groundwater on or near the Site.

3.4. History of Contamination

The Monterey Park Disposal Company began landfill operations in the former sand and gravel quarry in 1948. Operating Industries, Inc., the former owner of the South Parcel, purchased the landfill in 1952 and continued disposal operations. Throughout its operating life, residential and commercial refuse, industrial wastes, liquid wastes, and various hazardous wastes were disposed at the landfill. A total estimated refuse volume of 38 million cubic yards was disposed of at the landfill over its operating life (CH2M 1988). More than 300 million gallons of liquids are recorded as having been disposed of between 1976 and 1983. In 1982, leachate was observed seeping off-site. Landfill operations ceased in October 1984.

The two primary sources of contamination from the OII Landfill are leachate and LFG. Both of these materials are generated within the landfill. As they migrate out of the landfill, both leachate and LFG can contaminate surrounding media, such as ambient air, surface and subsurface soil, surface water, and groundwater. Other initial landfill problems included odors, slope stability issues, and landfill fires.

3.5. Initial Response

The South Coast Air Quality Management District (SCAQMD) issued two Orders for Abatement in 1978 and 1983, including requirements for OII to install an LFG emission control system and install a permanent leachate control system.

The California Department of Health Services (DHS) issued its first Remedial Action Order against OII in August 1984, requiring OII to phase out the on-site redisposal of leachate and provide plans for implementing a leachate collection and treatment system, a site characterization and groundwater monitoring program, an LFG collection and monitoring system, and slope stability corrective measures. In May 1985, the California Waste Management Board and DOHS filed a joint suit against

OII to enforce the Order. The Los Angeles Regional Water Quality Control Board issued a Cleanup and Abatement Order in October 1984, which required OII to comply with portions of the DOHS Remedial Action Order.

OII was placed on the California Hazardous Waste Priority List in January 1984.

The OII owner/operator performed some partial control measures during the years of landfill operation and after the cessation of waste receipt to address leachate and landfill gas. These included installation of a leachate collection system, development of an air dike air injection system on the west side to control subsurface gas migration, installation of perimeter gas extraction wells with a flaring station, site contouring, slope terracing, vegetation, and covering refuse with added fill material.

The owner/operator's ability to control the environmental problems and maintain the control systems began to diminish significantly in late 1984 when it notified EPA and the DHS that it could no longer afford to truck leachate off site for treatment. EPA conducted the leachate trucking and treatment for several months. Subsequently, DHS assumed responsibility for this activity, while OII continued to attempt to operate and maintain remaining on-site control systems. In October 1984, the OII was proposed for the federal National Priorities List (NPL) of uncontrolled hazardous waste sites, and EPA began remedial investigation and feasibility activities that same year. The Site was finalized on the NPL in May 1986.

On May 19, 1986, OII notified the State that it intended to discontinue all site control and monitoring activities on the site except irrigation. The EPA therefore assumed these activities on May 20, 1986. Site SCM activities then continued to be performed by EPA with DHS providing leachate trucking and treatment and OII providing on-site irrigation. On December 15, 1986, the State transferred responsibility for leachate trucking and treatment to the EPA. EPA also requested that OII allow EPA to assume full responsibility for irrigation of the site because EPA believed OII was not conducting irrigation properly.

In 1974, Getty Synthetic Fuels, Inc. (GSF) entered into a contractual relationship with OII for the extraction of gas from the South Parcel landfill for processing and sale to Southern California Gas Company. GSF's gas extraction system went into operation in 1979. In March 1986, GSF ceased its gas processing activities and applied to the South Coast Air Quality Management District (SCAQMD) for a permit to construct an electrical generating plant. At that time, GSF began to flare the extracted gas in an incinerator until final permits for construction of the electrification plant were issued. In January 1986, the City of Monterey Park denied GSF's application for a permit to discharge treated effluent to the sewer system. As a result, GSF decided to abandon their extraction operations at the OII Landfill as of March 1987. EPA took over operation of the GSF system in June 1987. The flare was in operation until 1999, when the new LFGTS was installed in the North Parcel.

These partial control measures were found by EPA to be insufficient in maintaining site integrity (USEPA, 1987). As a result, EPA conducted emergency response actions, including slope stability and erosion control improvements; surface runoff and drainage improvements; main flare station rehabilitation; site security improvements; placement of vented water meter box covers in residential

areas closest to the landfill to prevent accumulation of LFG in meter boxes; and installation of control systems for landfill gas in nearby affected residences.

3.6. Basis for Taking Action

Monitoring probes around OII showed that off-site methane migration was occurring. EPA conducted a preliminary risk assessment focusing on the LFG. Contaminants detected in at least 10 percent of the ambient air samples included benzene, carbon tetrachloride, perchloroethylene (PCE), trichloroethylene (TCE), vinyl chloride, 1,1,1-trichloroethane, and toluene. The risk assessment concluded that there was a need for LFG migration control and a landfill cover to stabilize the Site, to minimize further contaminant migration, and to quickly achieve significant risk reduction.

In 1996, EPA conducted a baseline human health risk assessment and ecological risk assessment of potential risks from exposure to chemicals associated with OII. The human health risk assessment focused on media beyond the source area: ambient air, groundwater, and off-site soils/sediment. The constituents of concern in these media included volatiles and semi-volatile organics, pesticides, polyaromatic hydrocarbons, and inorganic constituents. The finding of the human health risk assessment was that potential risks existed, and EPA determined that remedial action was necessary.

4. Remedial Actions

EPA has issued four Records of Decision (RODs) for the cleanup remedies at the Site. Three operable units (OUs) have been identified at OII to address specific remedial actions:

OU-1 Site Control and Monitoring (SCM)
OU-2 Leachate Management
OU-3 LFG Control and Cover

Interim RODs were issued in July 1987 for OU-1 and in November 1987 for OU-2. A third ROD was issued in September 1988 (later amended in September 1990) to select a permanent remedy for OU-3.

In September 1996, EPA signed the Final ROD, which selected a comprehensive site-wide groundwater remedy. The Final ROD also included the requirements for the Institutional Controls (ICs). Because the RODs for OU-1 (SCM) and OU-2 (Leachate Management) were interim RODs, they were superseded by the signing of the Final ROD; however, the activities required by them continue as part of the Final ROD. The OU-3 (LFG Control and Cover) ROD and the Final ROD are the decision documents pertaining to permanent remedies at the Site and are the focus of this Five-Year Review.

4.1. Remedy Selection

4.1.1. OU-3 ROD Remedy Selection

The 1988 OU-3 ROD selected an active landfill gas collection and treatment system as the remedy to address landfill gas migration (USEPA, 1988). After continued settling of onsite landfill wastes and the occurrence of subsurface fires were found to have decreased the integrity of the existing landfill cap, the ROD was amended in 1990 to include an upgraded landfill cap (USEPA, 1990).

The amended remedy consists of capping the landfill; installing landfill gas extraction wells around the perimeter and on the top of the cap; collecting and treating landfill gas by incineration; and dewatering saturated landfill zones.

The 1988 ROD and 1990 ROD amendment established the following remedial action objectives (RAOs) for OU-3:

- Limiting methane concentration to less than 5 percent at the Site boundary.
- Controlling surface emissions of LFG such that total organic compound concentration is less than 50 parts per million (ppm) on the average and methane concentration is less than 500 ppm at any point on the surface through integration of the gas control remedy and the final cover for the Site..
- Minimizing the odor nuisance. This objective is directly associated with the reduction of surface emissions; consequently, although odor reduction will be achieved prior to final cover placement, integration with the final cover will be required to fully address this problem.
- Attaining applicable or relevant and appropriate standards, requirements, criteria, or limitations under other Federal and State environmental laws according to the terms of Section 121 of Superfund Amendments and Reauthorization Act.
- Expediting implementation (sequencing and phasing remedial activities) to rapidly mitigate identified gas problems.
- Providing consistency with final remedies including considering potential effects of future remedial activities in developing alternatives to mitigate and minimize identified gas problems.
- Integrating gas operations including optimizing migration control by integrating perimeter and interior gas extraction systems.
- Using resource recovery technologies to the maximum extent practicable if cost-effective.

Additional RAOs specific to the landfill cover component of the OU-3 remedy include reducing surface gas emissions; reducing oxygen intrusion to the refuse; reducing surface water infiltration; providing erosion control; and improving aesthetics.

Cleanup levels for the OU-3 Remedy are given in Table 4-1.

Table 4-1. Cleanup Levels Pertinent during the Selection of OU-3 Remedy

Law Instituted	Concentration or Requirement
California Air Pollution Control Regulations (Title 17 Section 70200.5)	Ambient Concentrations of vinyl chloride not to exceed 10 parts per billion over a 24-hour period.
SCAQMD Rules and Regulations. Rule 1150.1	Limits concentrations of total organic compounds to 50 ppm over a certain area of the landfill, and limits maximum concentration of organic compounds (measured as methane) to 500 ppm at any point on the surface of the landfill.

4.1.2. Final ROD Remedy Selection

The final ROD addresses landfill perimeter liquids control (PLC) and monitoring natural attenuation of contaminated groundwater downgradient of the landfill boundary, and ICs, as well as long-term operation and maintenance of all environmental control facilities at the landfill, excluding those facilities covered under the amended OU-3 ROD.

The major components of the Final ROD remedy include:

- Installation of a PLC system in areas where contaminants are migrating from the landfill at levels that cause groundwater to exceed performance standards.
- Contaminated groundwater beyond the landfill perimeter would be reduced to below cleanup standards through monitored natural attenuation.
- Conveyance of the collected liquids to the on-site treatment plant.
- On-site treatment of collected liquids using the existing leachate treatment plant (LTP), modified as necessary to handle the new liquids. Treated liquids will be discharged to the County Sanitation Districts of Los Angeles County (CSDLAC) sanitary sewer system.
- Implementation of a monitoring and evaluation program to ensure that natural attenuation of the contaminated groundwater is progressing as anticipated, to detect future releases of contaminants from the landfill, and to ensure that PLC system performance standards are being met.
- Establishment of on-site and off-site ICs to ensure appropriate future use of OII and to restrict groundwater use in the immediate vicinity of OII. The ICs are non-engineering methods that federal, state or local governments, or private parties, can use to prevent or limit exposure to contaminants to ensure the effectiveness of remedial actions. The ICs supplement the engineering controls at the Site.
- Interim O&M of existing Site activities including the requirements specified in the interim OU-1 and OU-2 RODs (gas extraction and air dike, leachate collection, leachate treatment, irrigation, access roads, stormwater drainage, site security, slope repair and erosion control), except to the extent that they are addressed under the OU-3 ROD.
- Long-term O&M of all facilities and environmental control components at OII, except to the extent that they are addressed under the OU-3 ROD.

The Final ROD established the following RAOs:

- PLC component: Prevent migration of contaminants from the landfill to groundwater at levels that impair water quality and/or represent a potential threat to human health and the environment.
- Groundwater: Reduce contaminant concentrations in groundwater to below cleanup standards through PLC and natural attenuation, and prevent exposure to contaminated groundwater through implementation of ICs.
- Environmental Monitoring: Assess compliance with the chemical performance standards and cleanup standards (listed in the Tables 6, 7 and 8); monitor the effectiveness of the PLC system; detect additional releases of constituents from the landfill; monitor the progress of natural attenuation in groundwater; and monitor effluent chemical concentrations from the treatment plant.
- ICs Within the Landfill Boundary: Limit human exposure to potentially contaminated materials; prevent trespassing; and protect the integrity of the cap
- ICs Beyond the Landfill Boundary: Prevent the use of contaminated groundwater as a drinking water supply for the duration of the remedy in those areas where contaminant concentrations exceed the chemical performance standards or where they are anticipated to exceed performance standards in the future.

4.2. Remedy Implementation

4.2.1. OU-3 ROD Remedy Implementation

4.2.1.1 Landfill Cover System

Design and construction of the landfill cover began in the summer of 1997. On the flat top deck area, a 2-foot foundation layer was constructed on top of the existing cover. A geosynthetic clay liner was added on the top of foundation layer, then a 2-foot protective soils layer, including vegetative layer, was placed above the liner. On most of the sloping area, 4 feet of monocover was placed over the existing cover except on the steep north slope. To “fit” the geometry of the freeway, a modified cap was installed to provide additional strength beyond that required in the pre-design. A geotextile-reinforced wall was applied at the toe of the south slope (toe buttress).

As the monocover was completed, areas were hydroseeded. There is no permanent irrigation system at the Site. Five areas were planted with small trees and shrubs and temporarily irrigated between 1999 and 2001.

4.2.1.2 Gas Control System

The LFG monitoring system consists of a series of 38 probe locations, with five to six probes at each location. Gas collection piping, condensate collection piping and sumps, leachate piping, and industrial compressed air piping were all constructed as the wells were drilled and completed.
A LFGTS using thermal oxidation destruction technology was completed in 2000. After the LFGTS

facility had been in operation for approximately 8 months, a demonstration burn was conducted by an outside laboratory to verify achievement of the compliance requirement of 99.99-percent destruction and removal efficiency.

The gas control system on the west side of the South Parcel had methane concentrations exceeding compliance levels in some of the gas monitoring probes in early 2000s. A former Southern California Gas Company underground liquefied natural gas storage facility is located in this area just outside the OII Landfill property. In order to bring the methane levels in this area into compliance, air was injected into wells in close proximity to the monitoring points, thus creating an "air dike" (or air curtain) to contain LFG on site and to limit infiltration of methane gas from other sources. Since the installation of air dike system, the methane levels at the monitoring probes have not exceeded the compliance level.

4.2.1.3 Surface Water Management System

The landfill cover was designed with relatively flat slopes leading to drainage ditches at the edge of access roads. These ditches either empty to drain pipes or continue in ditches along the road or benches to previously existing points of discharge from the Site. Two of the major discharge points have detention basins constructed to level the peak flows.

4.2.1.4 North Parcel Remedy and Redevelopment

Remediation of the 10-acre landfill portion of the North Parcel was included as part of the remedy selected in the OU-3 ROD. EPA determined that the remedy for the landfill area of the North Parcel could be compatible with future commercial land use.

In April 2004, EPA directed the PRPs to start the North Parcel remediation work. In 2008, after several failed attempts to implement remediation concurrent with development work on the North Parcel, the PRPs completed the final "development friendly" North Parcel cover design. The cover construction was completed in summer 2009. EPA approved the North Parcel remedy construction complete report in July 2010. The OII Custodial Trust is close to completing the sale of the North Parcel to a developer for construction of a retail shopping center In addition, Los Angeles Metro is proposing a Metro Gold Line Eastside Extension light Rail system. One of the route options under consideration is for the Metro line to be constructed between California SR60 and the North Parcel of OII.

Six microturbines were installed on the North Parcel in 2001. The electricity generated from LFGs using the microturbine technology provided 70 percent of the energy required to operate Site systems which resulted in a considerable cost savings. However, the microturbines were turned off in 2009 due to failures of seals caused by the corrosive nature of the LFG. The structures were disassembled and removed from the Site in July 2013.

4.2.2. Final ROD Remedy Implementation

4.2.2.1 Perimeter Liquids Control System

The ROD identified three areas around the landfill where the water quality data indicated that a (PLC system would be required:

- SWEAP Area – along the western and southwestern perimeter of the South Parcel within Subareas A and B;
- North Central Area – along the western perimeter of the North Parcel within Subarea C; and
- Northeast Area – the northeastern corner of the South Parcel within Subarea D and part of Subarea E.

The first component of the PLC system includes the western and southwestern boundary of the South Parcel (known as the SWEAP Area). Extraction wells were first installed in the SWEAP area in 1995. The SWEAP system underwent a series of expansions between 1995 and 2007 to facilitate control of first landfill gas and then liquids at the site perimeter. The final batch of extraction wells installed in 2007 were placed in segments along the SWEAP Area where vapor and liquids extraction wells were either absent or damaged (NCI, 2008). In total there are over 100 liquid extraction wells included in the SWEAP system. Most of these wells were installed primarily as landfill gas extraction wells, but all are equipped with pumps that extract any liquids that accumulate in the well to provide the required perimeter liquids control. The combined extraction rate of all the SWEAP extraction wells averaged 5.7 gpm in 2014.

The second component of the PLC system is in the North Central Area, which includes the western portion of the North Parcel and the northern portion of the South Parcel. The North Central Area PLC system began operating on a nearly continuous basis in mid-2008, generally extracting between 5 and 10 gallons per minute (gpm). The extraction rate averaged 6.6 gpm in 2014. The North Central Area PLC system is comprised of 5 extraction wells (only 3 are actively operated because that is all that is required to provide the required containment). The extraction wells are equipped with pumps and associated controls. A noted decrease in groundwater elevations was observed in the NC Area ever since the PLC control system came online.

The third component of the PLC system is in the northeast portion of the South Parcel and the eastern portion of the North Parcel (known as the Northeast Area). This system became operational during this five-year period. Two existing monitoring wells (OI-60A and OI-78A) were converted into extraction wells as part of the Northeast Area (NE) PLC implementation. These two extraction wells generally extract at an average rate of between 5 and 10 gpm. The extraction rate averaged 7.6 gpm in 2014. In addition to equipping the wells with pumps and associated components, a new pipeline was installed along the north side of the South Parcel to convey the liquids extracted from the NE PLC. This new

pipeline was connected to an existing spare pipeline on the south side of the Greenwood Avenue Bridge to convey the liquids over to the liquid treatment plant.

4.2.2.2 Groundwater Monitoring Program

The groundwater monitoring program serves several purposes. The scope of the monitoring program is described in the Long-term Groundwater Monitoring Plan (LTGMP), which was approved by EPA on May 8, 2002. Periodic updates and modifications to the monitoring program have been implemented with EPA approval since the LTGMP was approved. Each year, Annual Groundwater Monitoring and Evaluation Reports (AGMERs) are prepared in accordance with the LTGMP.

4.2.2.3 Monitored Natural Attenuation

Monitored natural attenuation is the selected remedy for off-site contaminated groundwater remediation in areas where constituent concentrations exceed the groundwater cleanup standards specified in the 1996 ROD. This includes areas downgradient of the landfill perimeter to the south, west, and northeast of the South Parcel and to the west of the North Parcel. In the areas requiring groundwater cleanup, the ROD specified approximate cleanup times and approximate distances of additional constituent migration that could potentially occur before cleanup standards would be met (see ROD Table 17 in Appendix E). The ROD indicates that statistical analysis of monitoring data on both a well-by-well basis and a plume-wide basis will be used to evaluate if natural attenuation is progressing approximately as predicted.

In the Statement of Work (SOW) for the 8th Consent Decree (CD), the approach to evaluating the progress of natural attenuation was further refined through development of several specific criteria:

- As described in Table SOW-2, included in Appendix E, the starting time for comparing the progress of natural attenuation against the approximate cleanup times provided in ROD Table 17 is based on when the PLC system first meets performance standards in a particular subarea. Based on EPA approval of the compliance testing of the PLC in each subarea the starting times are:

    a) SWEAP Area- July 2010
    b) North Central Area- July 2011
    c) Northeast Area- August 2012

- As shown in Figure SOW-3, included in Appendix E, the estimated contaminant migration distances included in ROD Table 17 were used to identify specific groundwater compliance lines that delineate the maximum downgradient distance away from OII where landfill-related contaminants can be expected to exceed cleanup standards. The SOW also describes the use of "sentinel" wells located near the groundwater compliance lines to confirm that the natural attenuation remedy is achieving performance standards.

- A flow chart was developed, see Figure SOW-4 in Appendix E, which presents the decision process for evaluating monitored natural attenuation at OII. The flow chart describes each

decision point included in the annual performance evaluation process and provides for an outcome that either natural attenuation is progressing as expected or that evaluation of potential contingency response actions need to be initiated.

- The results of the annual evaluation of the progress of monitored natural attenuation in each subarea at OII (i.e., SWEAP, North Central, and Northeast) is to be included in each year's AGMER. Because the PLC systems have only been operating and in compliance for a relatively short time, the recent AGMERs have presented an abbreviated evaluation of natural attenuation performance. However, moving forward a more comprehensive annual technical evaluation of monitored natural attenuation will be undertaken to fully assess remedy performance.

4.2.2.4 Institutional Controls

The 1996 Final ROD mandates the use of both on- and off-site ICs as part of the final remedy selected for the Site. The 1996 ROD provides that ICs for within the landfill boundaries must "prohibit all activities and uses that EPA determines would interfere or be incompatible with, or that would in any way reduce or impair the effectiveness or protectiveness of" the selected remedy. ICs beyond the landfill boundaries "must prevent use of contaminated groundwater as a drinking water supply for the duration of the remedy." The Final ROD does not, however, specify which ICs should be used to achieve these objectives: the ICs "may include, but are not limited to, deed notices and restrictions on construction that run with the land; access restrictions including, but not limited to, fencing and warning signs; zoning controls; and well restrictions." Instead, the specific control mechanisms are specified in the Seventh and Eighth Partial Consent Decrees for OII (CD-7 and CD-8, respectively).

The ICs for the Site (within and beyond the landfill boundaries) specified in CD-7 and CD-8 include use restrictions, proprietary controls, information controls, and governmental controls. EPA approved the "Final Access and Institutional Controls Work Plan" submitted by the potentially responsible parties (PRPs) on March 24, 2003 (NCI, 2003a).

Use Restrictions. On-site use restrictions currently are being adhered to. On-site use restrictions are being adhered to, in part through the implementation of procedures found in both the Site Operations Plan (NCI, 2000) and the Pre-Final Operations Plan (NCI, 2003c). The procedures include standard operating procedures for controlling any type of work operations and/or maintenance that might compromise the landfill cap integrity.

Proprietary Controls. The proprietary controls are the execution and recording of three access and restrictive easements (AREs): one that both ensures access to the South Parcel for remedial purposes and restricts future uses of the South Parcel; and another that accomplishes the same goals with regard to property adjacent to the North Parcel that contains landfill-related waste.

Information Controls. The Final Access and ICs Plan requires a notice to owners and addresses properties which are located above groundwater that currently is, or potentially could become

contaminated in excess of the Final ROD groundwater cleanup standards. EPA mailed out five-year review fact sheets in March of 2011. This fact sheet incorporates the notice to owners regarding groundwater in the OII vicinity.

Governmental Controls. The governmental controls include but are not limited to zoning controls, ordinances, and the permitting process. The OII Working Group coordinated efforts with the Los Angeles Basin Watermasters, Los Angeles Regional Water Quality Control Board (LARWQCB), Los Angeles County Department of Public Works, California Department of Water Resources, California Department of Toxic Substances Control (DTSC), the City of Montebello, and the City of Monterey Park through inter-agency meetings to review enforcement of the governmental controls.

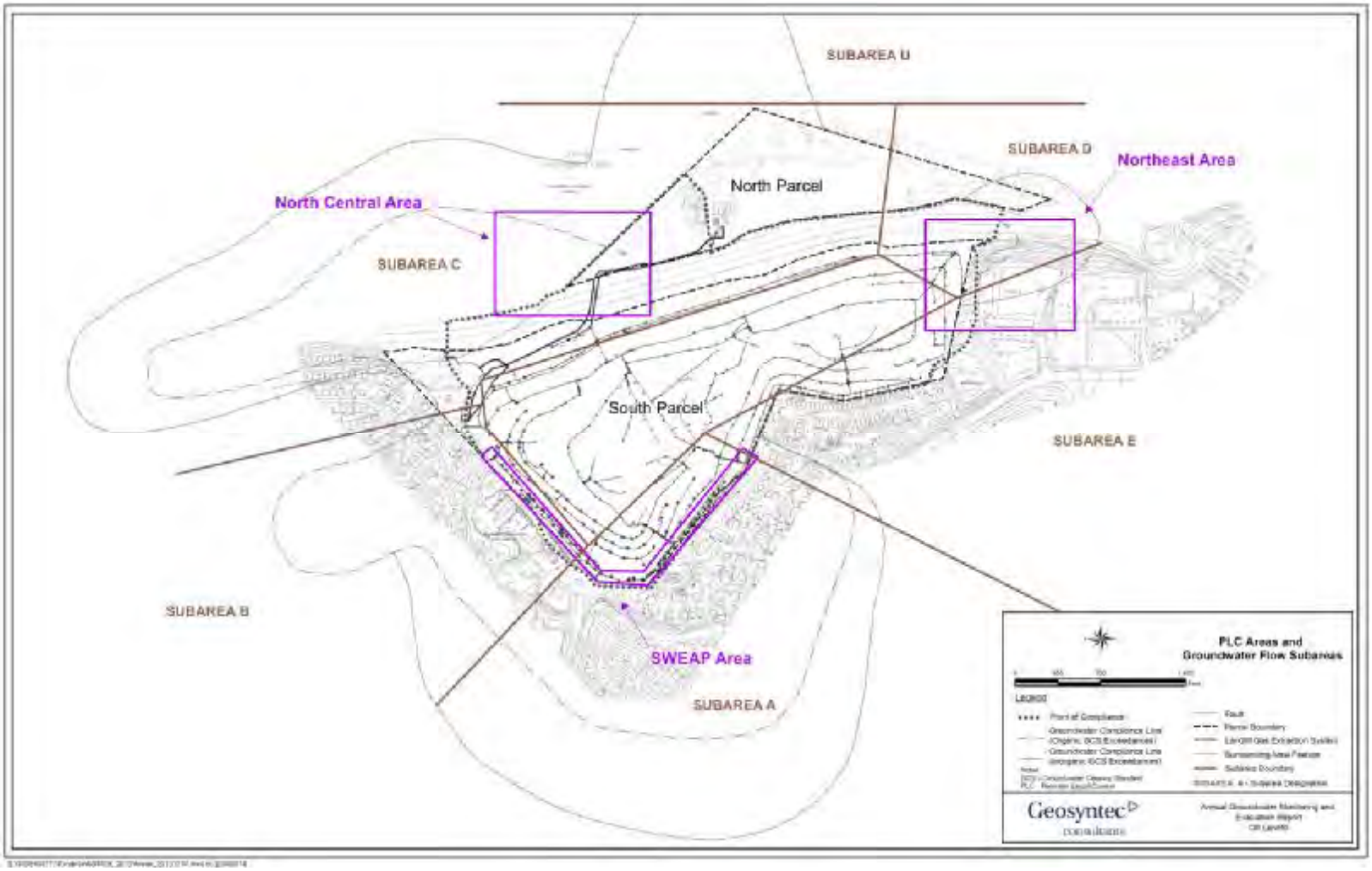

Figure 4-1. Perimeter Liquids Control Areas and Groundwater Flow Subareas

4.3. Operation and Maintenance

The selected remedies include operation and maintenance of all facilities and environmental control systems at OII. These include: the landfill cover system; the PLC system; groundwater monitoring system; leachate collection system; LTP; LFG extraction and air dike system; irrigation system; access roads; stormwater drainage system; site security; slope repair; erosion control; and site operation facilities.

A comprehensive Site Operations Plan for OII was prepared in May 2000 as part of the Final Construction Report (NCI, 2000). Both of the treatment systems, for leachate and LFG, have extensive operations plans for activities related to these systems. These can be found in the Site Operations Plan, Volume 2, Leachate Treatment Plant (LTP) Operations Plan, and Volume 3, LFGTS Operations Plan.

A Compliance Testing Plan (CTP) was developed in 2000 to describe the procedures to demonstrate compliance and guide the compliance testing activities relating to performance standards that must be met for LFG, including: 1) emissions through the cover, (2) subsurface gas migration, and (3) methane in on-site structures. Landfill Surface Gas Emission surveys are conducted every six months to confirm the integrity of the cover system. Landfill surface visual inspections are also conducted routinely to identify the landfill surface cracks and the areas with excessive settlement. Performance testing of the LFGTS is conducted separately every five years for one unit. A Long-Term Groundwater Monitoring Plan (LTGMP) (NCI 2002a) is being implemented to ensure that performance standards are met. The monitoring program is intended to meet several objectives, including: assessing compliance with the chemical performance standards and cleanup standards; monitoring the effectiveness of the PLC system; detecting additional releases of constituents from the landfill; monitoring the progress of natural attenuation in groundwater; and monitoring effluent chemical concentrations from the treatment plant.

5. Progress Since the Last Five-Year Review

5.1. Previous Five-Year Review Protectiveness Statement and Issues

The protectiveness statement from the 2010 Five-Year Review (FYR) for the Site stated the following:

> *"The remedy at the OII Site is currently protective of human health and the environment because the response actions to date have been successful in controlling exposure to contaminants in soil, air, and groundwater. However, to be protective in the long term, the technical evaluation of MNA for the groundwater needs to be completed; the restrictive covenants needs to be executed; and the two access and restrictive easements need to be recorded."*

The 2010 FYR included two issues and recommendations. Each recommendation and the current status are summarized below in Table 5-1.

Table 5-1. Status of Recommendations from the 2010 FYR

Issues from previous FYR	Recommendations	Action Taken and Outcome	Date of Action
1,4-dioxane detection in SW area	Complete technical evaluation of MNA	New monitoring well (OI-96A) installed in SW area. MNA analysis are submitted in the Annual Groundwater Monitoring and Evaluation Reports (AGMERs)	2011 - ongoing
ICs have not been fully implemented	Complete the recording of Restrictive Covenants on South Parcel and North Parcel and the execution and recording of two Access and Restrictive Easements (AREs).	North Parcel Covenant to Restrict Use of Property Completed.	4/26/13
		South Parcel Covenant to Restrict Use of Property Completed.	7/16/13

5.2. Work Completed at the Site during this Five-Year Review Period

Prior to the FYR in 2010, construction of most of the required remedial systems was completed. Since the previous FYR, many activities have occurred at the Site.

5.2.1. North Parcel

The following modifications to the LFG facility were completed:

- Microturbine technology shut off in 2009 due to failures of seals caused by the corrosive nature of the LFG (Preliminary Close Out Report [PCOR], 2012), and removed in 2013.
- Relocation of propane tank and removal of stormwater storage tank T-19 for preparation of the proposed development in the North Parcel. The location of the T-19 and propane tank is in the way of the proposed driveway of the future development.

5.2.2. South Parcel

The following work has been completed in the South Parcel:

- The NE PLC system was implemented by converting two existing monitoring wells (OI-60A and OI-78A) to extraction wells and installing liquids conveyance lines to the LTP (Geosyntec, 2011).
- Final compliance testing of the PLC systems in the North Central Area and Northeast Area was approved by EPA in July 2011 and August 2012, respectively.
- In 2011, a well (OI-96A) was installed west of the groundwater compliance line along the interpreted 1,4-dioxane migration pathway from the western SWEAP Area to delineate the downgradient extent of 1,4-dioxane exceedances.

- In 2011, a liquid extraction pump was installed in the SWEAP Area interior to lower the water level as close as possible to the Lakewood/San Pedro Formation (LW/SP)-Pico Formation contact elevation for the purposes of dewatering.
- In 2012, a well in Subarea B, was replaced to confirm the depth of the LW/SP-Pico Formation contact.
- In 2013, new extraction pumps were installed and selected existing pumps lowered in an attempt to further lower the liquids below the LW/SP-Pico Formation contact along the SWEAP Area perimeter.

6. Five-Year Review Process

6.1. Administrative Components

EPA Region 9 initiated the FYR in September 2014 and scheduled its completion for September 2015. The EPA review team was led by Julie Santiago-Ocasio of EPA, Remedial Project Manager for the Site. On November 25, 2014, EPA held a scoping call with the review team to discuss the Site and items of interest as they related to the protectiveness of the remedy currently in place.

6.2. Community Involvement

A public notice will be published in the *San Gabriel Valley Tribune* announcing the completion of the FYR for the Site, providing contact information for EPA's Community Involvement Coordinator Jackie Lane, and Carmen Santiago-Ocasio, EPA Remedial Project Manager.

The FYR report will also be made available to the public once it has been finalized. Copies of this document will be placed in the designated public repository: the Bruggemeyer Memorial Library at 318 South Ramona Ave., Monterey Park, CA and online at: ww.epa.gov/region09/OperatingIndustries

6.3. Document Review

This FYR included a review of relevant, Site-related documents, including the Records of Decision (RODs), remedial action reports, and recent monitoring data. A complete list of the documents reviewed can be found in Appendix A.

ARAR Review

Section 121 (d)(2)(A) of CERCLA specifies that Superfund remedial actions must meet any Federal standards, requirements, criteria, or limitations that are determined to be legally Applicable or Relevant and Appropriate Requirements (ARARs). ARARs are those standards, criteria, or limitations promulgated under Federal or State law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site.

Chemical-specific ARARs identified in the selected remedy within the RODs and subsequent ROD Amendments for the groundwater at this Site and considered for this FYR for continued groundwater treatment, are shown in Table 6. ARARs that are more stringent than those in the RODs have been highlighted in light orange.

Table 6-1. Summary of Groundwater ARAR Changes

Contaminants of Concern	1996 ROD cleanup goals (µg/L)	MCL or Risk Based Standard (µg/L)	MCLs Changed?
1,1,1-trichloroethane	200	200	No
1,1,2-trichloroethane	5	5	No
1,1-dichloroethane	5	5[Cal]	No
1,1-dichloroethylene	6	6[Cal]	No
1,2,4-trichlorobenzene	70	70	No
1,2-dichlorobenzene	600	600	No
1,2-dichloroethane	0.5	0.5[Cal]	No
1,2-dichlorethylene, cis-	6	6[Cal]	No
1,2-dichlorethylene, trans-	10	10[Cal]	No
1,2-dichloropropane	5	5	No
1,3-dichloropropene, cis-	0.5	0.5[Cal]	No
1,3-dichloropropene, trans-	0.5	0.5[Cal]	No
1,4-dichlorobenzene	5	5[Cal]	No
1,4-dioxane	1.6	1.6[ROD]	No
2-butanone	2,464	2,464[ROD]	No
4-methyl 1-2-pentanone	198	198[ROD]	No
Acetone	768	768[ROD]	No
Aldrin	0.00053	0.00053[ROD]	No
Benzene	1	1[Cal]	No
BHC, beta	0.05	0.05[ROD]	No
BHC, gamma-	0.2	0.2	No
Bis(2-ethylhexyl)phthalate	4	4[ROD]	No
Butylbensylphthalate	100	100[ROD]	No
Carbon tetrachloride	0.5	0.5[Cal]	No
Chlordane	0.1	0.1[ROD]	No
Chlorbenzene	70	70[ROD]	No
Chloroform	1,100	80[3]	Yes, current MCL is lower than the 1996 ROD cleanup level
Di-n-octylphthalate	9.3	9.3[ROD]	No
Dibromochloromethane	100	80	Yes, current MCL is lower than the 1996 ROD cleanup level
Endrin	2	2	No
Ethylbenzene	700	300[Cal]	No
Heptachlor	0.01	0.01[ROD]	No
Heptachlor epoxide	0.01	0.01[ROD]	No
Methoxychlor	40	40	No
Methylene chloride	5	5	No
Pentachlorophenol	1	1	No

Contaminants of Concern	1996 ROD cleanup goals (µg/L)	MCL or Risk Based Standard (µg/L)	MCLs Changed?
Styrene	10	10[ROD]	No
Tetrachloroethylene	5	5	No
Toluene	150	150[Cal]	No
Trichloroethylene	5	5	No
Trichlorofluoromethane	150	150[Cal]	No
Vinyl chloride	0.5	0.5[Cal]	No
Xylenes	1750	1,750[Cal]	No
Inorganic Constituents			
Arsenic	50	10	Yes, current MCL is lower than the 1996 ROD cleanup level
Barium	1000	1000[Cal]	No
Beryllium	4	4	No
Cadmium	5	5	No
Chromium VI	50	10[Cal]	Yes, current MCL is lower than the 1996 ROD cleanup level
Chromium III	50	50[Cal,2]	No
Copper	1300	1300	No
Cyanide	200	150[Cal]	Yes, current MCL is lower than the 1996 ROD cleanup level
Fluoride	1990	2000[Cal]	No
Lead	15	15	No
Manganese	1830	1830[ROD]	No
Mercury	2	2	No
Nickel	100	100[Cal]	No
Nitrate (as NO_3)	10000	4,500[Cal]	Yes, current MCL is lower than the 1996 ROD cleanup level
Nitrate (as N)	1000	1000	No
Selenium	50	50	No
Thallium	4153	2	Yes, current MCL is lower than the 1996 ROD cleanup level
Vanadium	256	256[Cal]	No
Zinc	10950	10950[ROD]	No

Notes: [1]The more stringent of Federal and State drinking water standards (maximum contaminant levels [MCLs]).
[Cal]California MCLs (as of July, 2014).
[ROD]Health-based standard as determined from 1996 ROD (most stringent noted).
[2]Total chromium.
[3]Total trihalomethanes.

Seven compounds have had their standards lowered since the 1996 ROD. Two standards changed because the federal and state MCLs for the individual compounds were eliminated in favor of a combined MCL. Specifically, the federal and state MCLs for bromoform, chloroform, and dichlorobromomethane were removed and are now regulated as "total trihalomethanes (THM)." Dichlorobromomethane and chloroform have been analyzed as separate constituents and have not been detected above the new THM MCL over the past five years.

Inorganic COCs that have had their respective MCL lowered since the 1996 ROD are thallium, chromium VI, cyanide, arsenic and nitrate (as nitrogen). Thallium and cyanide have not been detected above their respective current MCL over the past five years. Hexavalent chromium, arsenic and nitrate (as nitrogen) have been detected above their current MCL in the past five years. These elevated concentrations of hexavalent chromium, nitrate and arsenic do not impact the current protectiveness of the OII since no exposure pathway exists. However, for long term protection, these changes in MCLs must be incorporated into the remedy.

Federal and State laws and regulations other than the chemical-specific ARARs that have been promulgated or changed over the past five years are described in Table 6-2. The table does not include those ARARs identified from the 1988/1990 and 1996 RODs that are no longer pertinent, now that the response action has transitioned from construction to long-term O&M phase work. For example, ARARs related to remedial design and construction are not included in the table if they do not continue into long-term O&M.

The following ARARs have not changed since the last Five Year Review; and therefore, do not affect protectiveness:

- Resource Conservation and Recovery Act (RCRA Part 264)
- Federal Clean Water Act (40 CFR 403, Section 141 Subparts B and G)
- South Coast Air Quality Management District Rule 1150.1
- Effluent Discharge Limits for Centralized Hazardous Waste Treatment Facilities, Sanitation Districts of Los Angeles County
- Solid Waste Management and Resource Recovery Act of 1972 (Section 17794, 17783-17783.15)
- Title 22, California Code of Regulations (Article 18, 23, and 29)
- Title 23, California Code of Regulations (Chapter 3, Subchapter 15 –Section 2546 and 2547)
- Title 27, California Code of Regulations (Sections 20405, 20415-20430, 21190, 20921, 20923, 20925, 20932, 20927, 20415, 21180)
- Porter-Cologne Water Quality Control Act, California Water Code (Sections 13000, 13140, 13240: State Water Resources Control Board Resolution No. 88-63, “Sources of Drinking Water Policy”; Los Angeles RWQBC Resolution 89-03 (adopting Resolution 88-63 into Basin Plan).

Table 6-2. Applicable or Relevant and Appropriate Requirements Evaluation

Requirement and Citation	Document	Description	Effect on Protectiveness	Comments	Amendment Date (between Sept. 2010-present)
South Coast Air Quality Management District Rules and Regulations, Regulation IV – Prohibitory Rules	August 1988 ROD	The following are rules that were considered to be ARARs: • Rule 401-409, 431.1 and 474 – Air quality measurements. • Rule 476 – Applies to boilers larger than 50 million BTU per hour production. • Rule 1150.1 – Control of gaseous emissions from active landfills	None. Methane requirements on site are being met at all outlets of the gas control system.	The amendment requires further reduction of nonmethane organic compounds from the outlet of the gas control system to below 20 ppm by volume, dry basis as hexane at 3 percent oxygen.	Rule 1150.1 was amended by SCAQMD on April 11, 2011.
South Coast Air Quality Management District Rules and Regulations Regulation XIII – Prohibitory Rules	August 1988 ROD	Requires that new equipment or modifications to equipment be the most recent technologically so as to reduce emissions.	None. Requires that new equipment or modifications on facilities will not cause violations or make worse an existing violation. Best Available Control Technology may be utilized so that construction can move forward without the risk of denial. Other amendments are related to administration of this regulation.	None	The following rules were amended: • Rule 1304.1, adopted Sept. 6, 2013. • Rule 1309, amended Feb. 5, 2013. • Rule 1325, amended Dec. 5, 2014
40 CFR Section 141 Subparts B and G	1996 Final ROD	Establishes national primary drinking water standards for public drinking water supply systems (maximum contaminant levels, or MCLs).	Yes, There have been changes to seven MCLs, the pathways to exposures are incomplete and therefore do not pose a current threat to human health and the environment.	None	Subparts B last amended on July 1, 2014 Subparts G last amended on July 1, 2014

Human Health Risk Assessment Review

The baseline human health risk assessment (BHHRA) presented in the 1996 Final ROD evaluated media beyond the source area including: ambient air, groundwater, off-site soils, and sediments. The conclusion from the BHHRA was that if actual or threatened releases of hazardous substances from the Site were not addressed they may present an imminent and substantial endangerment to the public health, welfare, or the environment.

No new receptors were identified during this FYR. No operational changes on site were noted that would affect the exposure routes or receptors on site or off site. No analytical procedures which would alter EPA's understanding of the nature and extent of contamination on site were identified. No new or revised exposure or risk models were identified that would result in a higher estimate of risks.

Toxicity Values

Air and groundwater concentration results are compared to EPA's Regional Screening Levels (RSLs) as a first step in determining whether response actions may be needed to address potential human health exposures. The RSLs are chemical-specific concentrations for individual contaminants that correspond to an excess cancer risk level of $1x10^{-6}$ (or a Hazard Quotient of 1 for noncarcinogens), and they have been developed for a variety of exposure scenarios (e.g., residential, commercial/industrial) (Table 6-3 to Table 6-5). RSLs are not de facto cleanup standards for a Superfund site, but they do provide a good indication of whether actions may be needed. The EPA Risk range is between $1x10^{-6}$ to $1x10^{-4.}$ RSL values that fell within this range were determined to be acceptable from a risk stand point. COCs with selected clean up levels above the acceptable risk range have been highlighted.

Table 6-3. Summary of RSLs Residential Air (January 2015) for COCs at the Site

Contaminant of Concern	Regional Screening Level for Cancer Risk in Excess of $1x10^{-6}$ ($\mu g/m^3$)	Regional Screening Level for Noncancer Hazard ($\mu g/m^3$)	EPA Risk Management Range Based on RSLs	ROD Selected Cleanup Level ($\mu g/m^3$)
Vinyl chloride	0.17	100	0.17 - 17	10

Table 6-4. Summary of RSLs Residential Tap Water (January 2015) for COCs at the Site

Contaminant of Concern	Regional Screening Level for Cancer Risk in Excess of $1x10^{-6}$ (µg/L)	Regional Screening Level for Noncancer Hazard (µg/L)	EPA Risk Management Range Based on RSLs	ROD Performance Standard (µg/L)
1,1,1-trichloroethane	NL	4,000	<4,000	200
1,1,2-trichloroethane	1.4	80	1.4 - 80	5
1,1-dichloroethane	14	4,000	14-1,400	5
1,1-dichloroethylene	NL	1,000	<1,000	6
1,2,4-trichlorobenzene	2.7	200	2.7 - 270	70
1,2-dichlorobenzene	NL	1,800	<1,800	600
1,2-dichloroethane	0.86	120	0.86-86	0.5
1,2-dichlorethylene, cis-	NL	40	<40	6
1,2-dichlorethylene, trans-	NL	400	<400	10
1,2-dichloropropane	2.2	1,800	2.2 - 220	5
1,3-dichloropropene, cis-	0.78	600	0.78-78	0.5
1,3-dichloropropene, trans-	0.78	600	0.78-78	0.5
1,4-dichlorobenzene	14	1,400	14-1,400	5
1,4-dioxane	0.78	600	0.78-78	1.6
2-butanone	NL	12,000	<12,000	2464
4-methyl 1-2-pentanone	NL	1,600	<1,600	198
Acetone	NL	18,000	<18,000	768
Aldrin	0.0046	0.6	0.0046-0.46	0.00053
Benzene	1.4	80	1.4-140	1
BHC, beta	0.049	NL	0.049-4.9	0.05
BHC, gamma-	0.071	6	0.071-6	0.2
Bis(2-ethylhexyl) phthalate	5.6	400	5.6-400	4
Butylbensylphthalate	41	4,000	41-4,000	100
Carbon tetrachloride	1.1	80	1.1-80	0.5
Chlordane	0.22	10	0.22-22	0.1
Chlorobenzene	NL	400	<400	70
Chloroform	2.5	200	2.5-250	1,100
Di-n-octylphthalate	NL	200	<200	9.3
Dibromochloromethane	0.91	400	0.91-91	100
Endrin	NL	6	<6	2
Ethylbenzene	7.1	700	7.1-700	700
Heptachlor	0.017	10	0.017-1.7	0.01
Heptachlor epoxide	0.00086	0.26	0.00086-0.086	0.01
Methoxychlor	NL	100	<100	40
Methylene chloride	13	120	13-1,300	5
Pentachlorophenol	0.19	100	0.19-19	1
Styrene	NL	4,000	<4,000	10
Tetrachloroethylene	37	120	37-120	5

Contaminant of Concern	Regional Screening Level for Cancer Risk in Excess of $1x10^{-6}$ (µg/L)	Regional Screening Level for Noncancer Hazard (µg/L)	EPA Risk Management Range Based on RSLs	ROD Performance Standard (µg/L)
Toluene	NL	1,600	<1,600	150
Trichloroethylene	1.2	10	1.2-10	5
Trichlorofluoromethane	NL	6,000	<16,000	150
Vinyl chloride	0.021	60	0.021-2.1	0.5
Xylenes	NL	4,000	<4,0000	1,750

Table 6-5. Summary of RSLs Residential Tap Water (January 2015) for Inorganic COCs at the Site

Contaminant of Concern	Regional Screening Level for Cancer Risk in Excess of $1x10^{-6}$ (µg/L)	Regional Screening Level for Noncancer Hazard (µg/L)	EPA Risk Management Range Based on RSLs	ROD Performance Standard (µg/L)
Arsenic	0.052	6.0	0.052-5.2	50
Barium	NL	4,000	4,000	1,000
Beryllium	NL	40	40	4
Cadmium	NL	10	10	5
Chromium VI	0.05	60	0.05-5	50
Chromium III	NL	3,000	<3,000	50
Copper	NL	800	<800	1300
Cyanide	NL	12	<12	150
Fluoride	NL	800	<800	19,905
Lead	NL	NL	NL	15
Manganese	NL	480	<480	1,830
Mercury	NL	NL	NL	2
Nickel	NL	400	<400	100
Nitrate (as NO_3)	NL	32,000	<32,000	10,000
Nitrate (as N)	NL	NL	NL	1,000
Selenium	NL	100	<100	50
Thallium	NL	0.2	<0.2	4,153
Vanadium	NL	100	<100	256

Notes: NL – Not Listed.

There are two COCs, arsenic and chromium VI that have ROD Performance Standards that fall outside of EPA's risk management range based on the current RSLs. However, because groundwater from the site is contained in place by the perimeter liquid control and groundwater usage in the site vicinity is restricted by ICs and there are no complete exposure pathways, the changes in RSLs do not effect current protectiveness.

Vapor Intrusion

EPA's understanding of vapor intrusion has changed over the past few years. In June 2015, EPA finalized its guidance to identify and consider key factors for assessing the potential for vapor intrusion, *OSWER Technical Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (OSWER Publication 9200.2-154). As a first step in assessing the potential for vapor intrusion, groundwater sampling data can be compared to the groundwater Vapor Intrusion Screening Levels (VISL's) for volatile compounds. At OII, the only COCs exceeding their respective VISL's are vinyl chloride and TCE. Further, the groundwater wells with exceedances for vinyl chloride and TCE are in the uppermost groundwater unit, in an area where the depth to groundwater is at

approximately 140 feet. EPA's guidance recommends an inclusion zone to assess the potential vapor intrusion pathway to include areas where the depth to groundwater of less than 100 feet, based on potential risk. According to EPA's guidance, groundwater contamination deeper than 100 feet is generally not considered to be a risk for vapor intrusion. Because the contaminants in the groundwater are greater than 100 feet, vapor intrusion would not be a concern. However, the depth to water should be reconfirmed in a subsequent sampling event. Finally, through multiple rounds of sampling, the contaminant concentrations for TCE and vinyl chlorine in this area has declined over time.

There is evidence of TCE above cleanup levels in the NE PLC. The wells are located east of the NE PLC compliance line and south of SR-60, between the OII South Parcel and the Costco Warehouse. No residences are located within this area. Wells OI-64A, OI-75A, and OI-76A have at least one verified exceedance following the August 2014 sampling event of 5.9, 91 and 100 µg/L, respectively. Since the operation of the NE PLC system began in 2012 contaminant concentrations in the area, have been showing a downward trend. Though, above cleanup levels, these results pose a risk for vapor intrusion, since depth to aquifer in the area of the wells is approximately 140 ft.

Ecological Review

Ecological pathways were determined to be incomplete for ambient air, groundwater, and surface water because the remedial actions prevent exposure. Currently, EPA is evaluating O&M activities impacts to the California Gnatcatcher habitat, and conducting an informal Endangered Species Act Section 7 consult with the US Fish and Wildlife. The evaluation is expected to be completed by December 2015.

6.4. Data Review

6.4.1. Landfill Cover

Annual inspections are conducted to determine the amount of cap settlement. Findings from the 2014 Annual Cover Settlement Monitoring Evaluation Report (NCI, 2014a) indicated that landfill displacement trends and patterns for 2014 are similar to what has been observed over the past 10 ½ years. The magnitudes and rates of vertical displacement are generally consistent with waste thickness with the higher rates of settlement occurring within the upper portions of the slope and top deck areas. The rates of lateral movement in the past 10 ½ years are approximately 0.9 inch per year to the west and 1.73 inches per year to the north. No areas of excessive settlement were noted.

6.4.2. Groundwater

Monitored natural attenuation is being used for off-site contaminated groundwater remediation in areas where constituent concentrations exceed the groundwater cleanup standards specified in the ROD. This includes areas downgradient of the landfill perimeter to the south, west, and northeast of the South Parcel and to the west of the North Parcel. In the areas requiring groundwater cleanup, the ROD specified the projected cleanup times and anticipated distances of additional constituent migration

before cleanup standards would be met. The distances were used to identify groundwater compliance lines that are used to help assess whether or not the natural attenuation remedy is in compliance. Groundwater monitoring results from sentinel wells located near the compliance lines are one of the items evaluated to determines whether the remedy is complying with performance standards. In addition, groundwater monitoring results from throughout the areas of contamination are used to assess whether the natural attenuation remedy is progressing in accordance with the cleanup times specified in the ROD and is therefore in compliance.

6.4.2.1 Perimeter Liquids Control System

PLC systems are operational in areas around the landfill perimeter- the SWEAP Area, North Central Area and Northeast Area. In the SWEAP Area, the majority of wells along the Site perimeter are dry or dewatered to below the LW/SP-Pico Unit contact and the gradient has been effectively reversed within the upper Pico Unit along the landfill boundary perimeter. Hydraulic capture in the Northeast Area was assessed as part of the compliance testing requirements completed in 2011 (and approved by EPA in August 2012). In both the North Central and Northeast Areas, liquids in the vicinity of the point of compliance and immediately downgradient areas beyond the landfill boundary are flowing towards, and being captured by the PLC well fields.

EPA has also designated twelve detection monitoring wells at the point of compliance to identify if there are any new releases from the landfill. Detection monitoring wells include: OI-02, OI-03R, OI-08A, OI-15B, OI-17B, OI-18B, OI-21B, OI-23B, OI-25A, OI-25B, OI-59B, and OI-67B. As of August 2014, detection monitoring did not reveal any new releases at the Site perimeter.

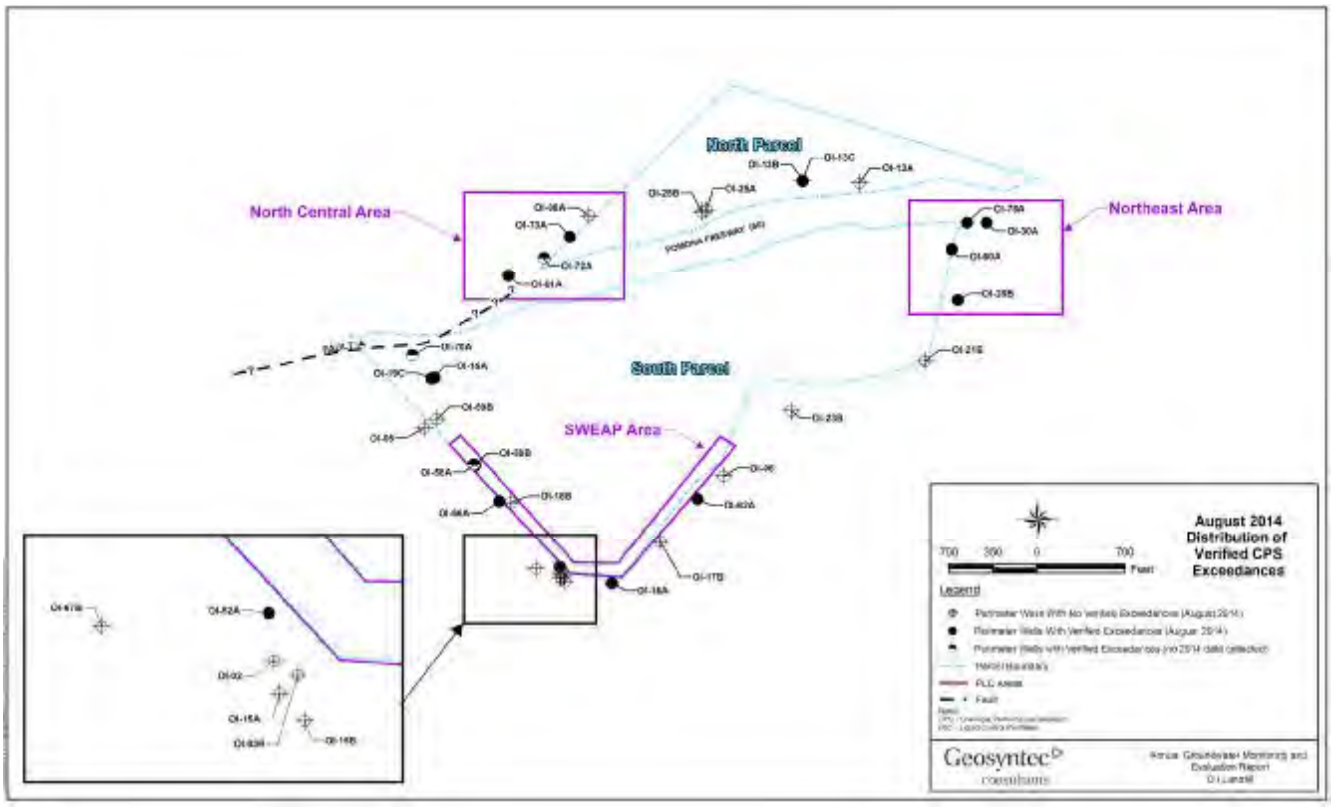

Figure 6-1. Distribution of Exceedances at the Landfill Perimeter from August 2014 Sampling Results

6.4.2.2 Monitored Natural Attenuation

The MNA Site process establishes that all PLC Systems should be in place before formal MNA evaluation begins. EPA approval of all PLC Systems occurred between July 2010 and August 2012 (see Section 4.2.2.3). As part of the groundwater cleanup action, EPA has identified groundwater compliance lines beyond which contaminant concentrations should not exceed cleanup standards. Selected downgradient monitoring wells installed near the groundwater compliance lines have been designated as sentinel wells. EPA generally assumes if concentrations at the sentinel wells exceed cleanup standards then natural attenuation may not be progressing as expected in that area.

Because the PLC systems have only been operating and in compliance for less than five years, it is premature to assess progress towards meeting the approximate groundwater target cleanup dates provided in the Final ROD. Groundwater monitoring and evaluation will continue on a routine basis until the groundwater cleanup performance standards have been achieved. The OII Workgroup has been collecting the data and performing statistical trend analysis. It is anticipated that by the next five-year review, there will sufficient data to better assess whether monitored natural attenuation is progressing as expected to meet approximate groundwater target cleanup dates.

Analysis from the 2014 groundwater sampling event indicated that there are some monitoring wells outside the compliance line that show verified exceedances for various COCs. Wells outside the point of compliance could potentially have varying trends, because of the impacts of the fairly recent PLC operation and associated changes in groundwater flow directions. As presented in the 2014 AGMER, the Mann-Kendall trend analysis for these wells includes data from 2001 to 2014. Most concentration trends were either stable or decreasing.

Exceedances downgradient of the point of compliance are primarily for 1,4 dioxane and nickel. Although 1,4 dioxane is a primary indicator of landfill-related impacts in groundwater, the increasing trends noted are associated with relatively low concentrations of 1,4-dioxane that are only slightly above clean-up standards. 1,4 dioxane may take longer than other volatile organic compounds to attenuate due its recalcitrance to degradation. Due to potential matrix diffusion from finer grained aquifer materials along historic contaminant migration pathways, it is not unexpected that some downgradient areas may experience increasing concentrations well after the PLC systems cut-off further releases at the landfill perimeter.

Although a long-term increasing nickel trend was identified for Well OI-32A, the August 2014 concentrations are within the historical range of detection ranging between 0.18 µg/L to 0.23 µg/L for the past 2 years. In addition, an earlier evaluation of nickel concentrations in downgradient monitoring wells, presented in the 2005 AGMER, demonstrated that most of the results were likely coming from the stainless steel screens used in monitoring well construction and was not indicative of landfill-related contamination.

Since the operation of the NE PLC system began in 2012 contaminant concentrations in OI-75A and OI-76A have been showing a downward trend. Increasing concentrations of TCE were observed in Well OI-64A since August 2011. The increasing TCE concentration trends at OI-64A appear to be the result of

contamination that had migrated downgradient of the landfill perimeter prior to the installation and operation of the NE PLC system. However, sampling results from February and August 2014 are evidence of a starting downward trend. Well OI-64A is located east of the compliance line and south of SR-60. Though, above cleanup levels, it poses no human health risk, since depth to aquifer in the area of Wells OI-64A, OI-75A and OI-76A is approximately 140 ft.

Prior to 2013, benzene was not detected in OI-26A. Sample results in 2013 and 2014 have ranged from non-detect up to 1.1 µg/L, with the last sample (from August 2014) once again being non-detect. Continued monitoring at this location over the next few years will help evaluate whether the recent increasing trend persists as the influence of the PLC system containment continues to influence concentrations further downgradient.

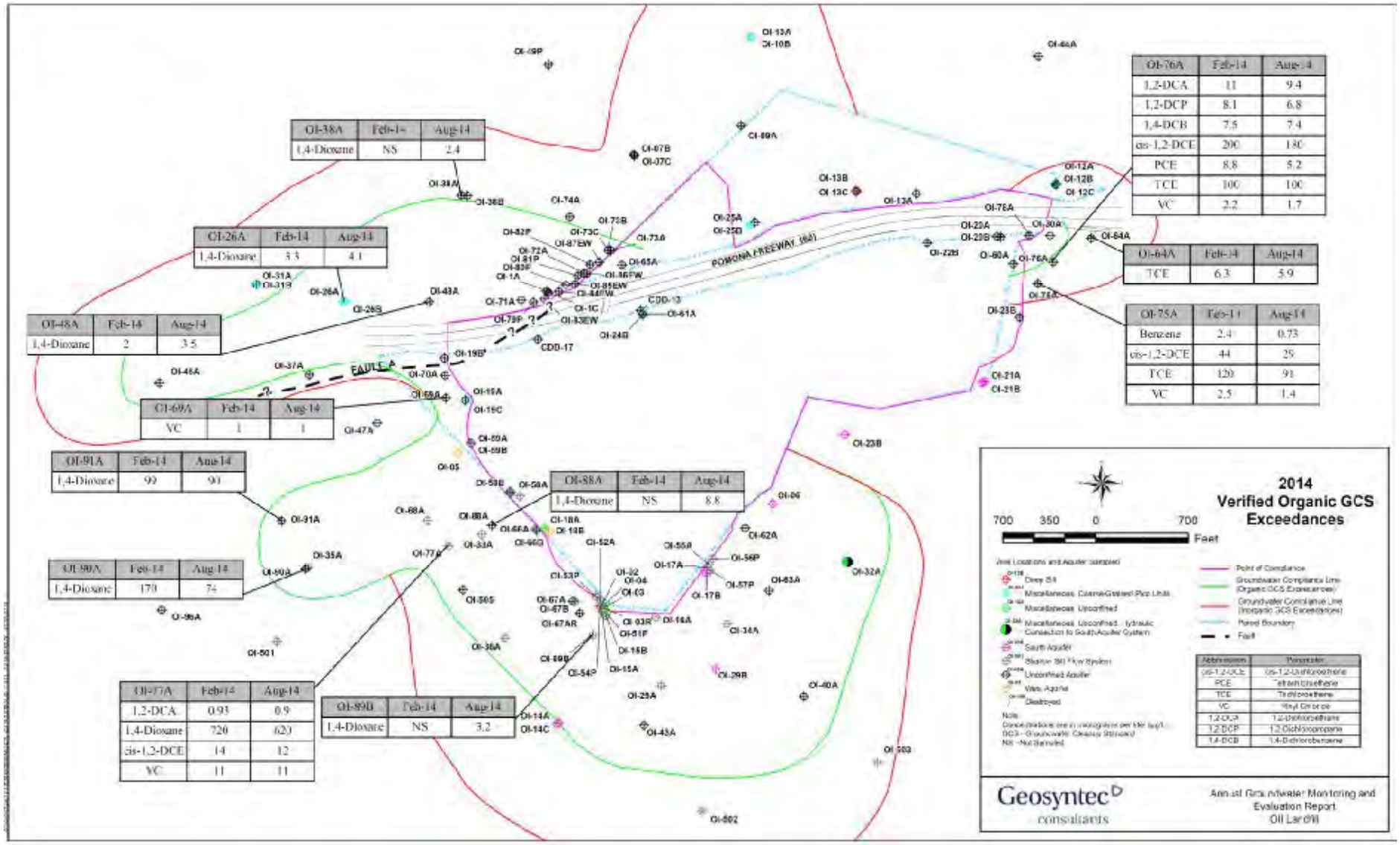

Figure 6-2. Verified Organic groundwater cleanup standards Exceedances from August 2014 Sampling Results

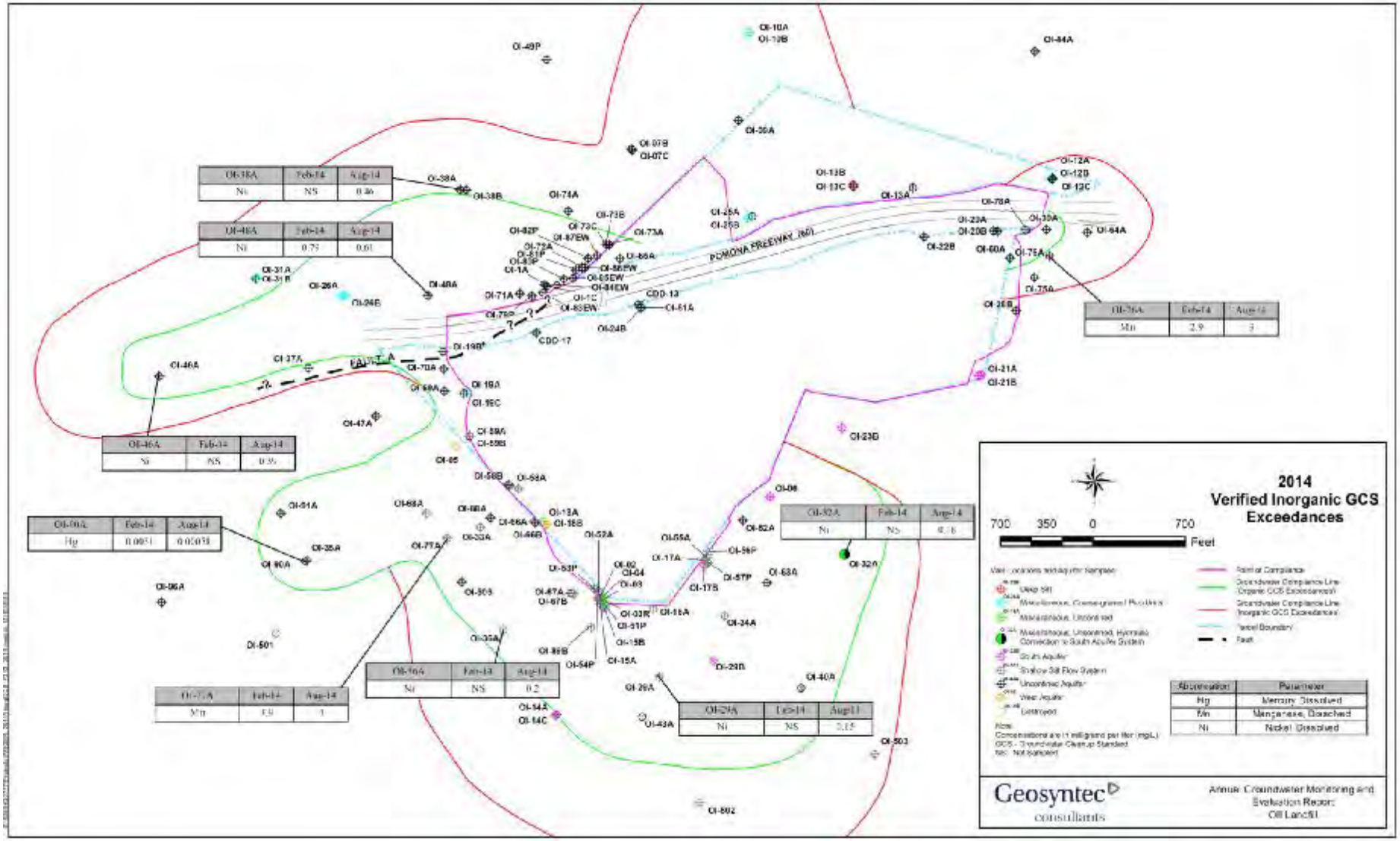

Figure 6-3. Verified Inorganic groundwater cleanup standards Exceedances from August 2014 Sampling Results

6.4.3. Leachate Treatment Plant, LFGTS, and Storm Water Control Systems

A self-monitoring report is received quarterly. The report includes the average daily wastewater discharge from the LTP, the maximum wastewater discharge, water parameters, including pH, suspended solids and pertinent COCs, that ensure that the LTP is meeting discharge standards set forth in the discharge permit issued by the Sanitation Districts of Los Angeles County (the LTP discharges to an industrial sewer system). The Sanitation Districts review the self-monitoring reports to confirm that the LTP discharges comply with permit requirements. The latest self-monitoring report reviewed for this FYR was the October through December 2014 report (NCI, 2014d).

Inspections of the storm water system and storm water sampling are conducted annually. The most recent inspection reviewed for this FYR occurred in September 2014 and evaluated drainage and erosion control structures, drainage benches, top deck, slope areas, leachate treatment system, and areas on the Site that may contribute contaminants to storm water. During the dry season, no authorized or unauthorized non-storm water discharges have been identified. Observations from previous years also indicate that there have been no unauthorized non-storm water discharges. During last wet season no contaminants were detected at elevated concentrations. Storm water samples were not collected in 2014 because there were no storm water events during Site operating hours that produced sufficient flows for sampling. The results from LTP run-off samples showed no evidence of leaks, waste materials, or spills during rainfall events.

6.5. Site Inspection

A Site inspection was conducted on December 15 and 16, 2014, by Wendy Luo of the U.S. Army Corps of Engineers (USACE). Julie Santiago-Ocasio (EPA), Corey Bertelsen (OII), Ed Robles (OII), David Towell (CH2MHill), Scott Rowlands (Geosyntec), and Tedd Yargeau (Department of Toxic Substances Control [DTSC]) were also in attendance. The Site Inspection Checklist is provided in Appendix C. Photos taken during the Site visit can be seen in Appendix D.

In summary, remedies in place at the Site are in good condition. The extensive LFG and leachate collection and conveyance system has been maintained, is in good working order, and is functioning as intended; however, due to aging the system was noted to have separation occurring at the manifolds of the LFG conveyance system. The PLC systems in the SWEAP, North Central and Northeast Areas are fully operational and in good condition. A change in ownership of the North Parcel is underway currently. EPA should review the necessary land ownership change document to ensure IC and remedies in place will remain unchanged in the future.

6.6. Interviews

During the FYR process, interviews were conducted with parties impacted by the Site, including the current landowners and regulatory agencies involved in Site activities or aware of the Site. The purpose of the interviews was to document the perceived status of the Site and any perceived problems or successes with the remedial systems that have been implemented at the Site. One interview was conducted during

the Site visit on December 16, 2014, with Tedd Yargeau, the project manager for the DTSC. The other three interviews were completed via written response between December 2014 and February 2015. Interviews are summarized below and complete interviews are included in Appendix B.

Mr. Yargeau's impression of the Site was positive. Mr. Yargeau believed that the EPA and New Cure, Inc. (NCI), the contractor operating and maintaining the remedy at the Site, have been proactive about all the work that has been conducted on site. He stated that the Site was in great condition. He also stated that, now that the remedy has shifted to an O&M phase, there has been less need for Site visits and inspections due to the proactive work conducted by the EPA and NCI. Mr. Yargeau stated that the monitoring data has shown either steady or decreasing trends and that he was unaware of any emerging COCs on site. Mr. Yargeau also stated that, to his knowledge, all land use covenants and Site access controls are in place as needed and that there is a potential for redevelopment of certain portions of the North Parcel. He stated that past green remediation techniques that have been used are monocovers and the use of microturbines for reuse of LFG. Mr. Yargeau noted no issues or problems with the Site.

Written responses to interview questions were provided by Scott Rowland (Geosyntec), David Towell (CH2MHill), and Corey Bertelsen (OII). All interviewees responded positively to the work being conducted at the Site. The OII partners and contractors appear to have frequent and good communication amongst each other and are able to conduct Site visits, meetings, and monitoring events as needed. All interviewees appear to be in agreement that the monitoring data shows stable or decreasing contamination trends, and that no new or emerging COCs have been identified. Interviewees agree that sampling efforts have been reviewed and updated as needed to optimize the sampling program on site, thereby increasing efficiency and decreasing costs. No interviewees noted significant issues. No unanticipated or unusually high O&M costs were noted during the interviews for this review period. No changes to the remedy were recommended due to problems encountered in the last five years. Interviewees were not aware of any issues that would compromise the protectiveness of the remedy in the future.

6.7. Institutional Controls

The ICs for the landfill had not been implemented prior to the previous FYR. However, in April and July of 2013, the OII Trust completed the North Parcel and South Parcel covenants to restrict use of property and filed them as official records at the Recorder's Office in Los Angeles County, California.

In July 2014, Southern California Edison (SCE) recorded at the Recorder's Office in Los Angeles County, California a covenant to restrict the use of property designated in CD-7 as the SCE Property and Proximate Access Property. The covenant was put in place to meet the objectives to limit human exposure to potentially contaminated materials, prevent trespassing, and to protect the integrity of the landfill closure and remedial actions.

The biennially updated plan, which includes a report on the implementation of the required ICs, did not identify any failures of the required ICs**.**

Table 6-6 lists the ICs associated with areas of interest at the Site.

Table 6-6. IC Summary Table

Media	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Instrument in Place	Notes
Air, Soil, Ground-water	Land Use Covenant	5293-022-001 (NP), 5275-002-002 (SP), 5275-003-002 (SP), and 5275-003-016 (SP)	Environmental restrictions reduce exposure and maintain protectiveness of Site. AREs for implementation and maintenance of remedy.	Prohibited use— The property shall not be used as: a residence or to build housing, a hospital, public school for persons under 21, or a daycare facility. The Site will not raise food, drill for water, oil, or gas. No extraction of water shall occur other than implementation of CD8.	Parcels are located on landfill.
Air, Soil, Ground-water	Land Use Covenant	5275-002-808, 809, and 5275-003-800	Environmental restrictions reduce exposure and maintain protectiveness of Site. AREs for implementation and maintenance of remedy.	Prohibited use— The property shall not be used as: a residence or to build housing, a hospital, public school for persons under 21, or a daycare facility. The Site will not raise food, drill for water, oil, or gas. No extraction of water shall occur other than implementation of CD8.	Parcels located in Southern California Edison Landfill and Proximate Access Property. Includes non-interference with remedial systems on site.

Note; NP- North Parcel; SP- South Parcel.

7. Technical Assessment

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

The remedies at the Site are functioning as intended in the RODs. Remedial actions have ensured containment is effective by eliminating potential exposure pathways. The landfill cap and the leachate and LFG collection systems are maintained to prevent exposure to LFG, leachate and contaminated soils. Leachate and other landfill liquids are treated to meet permit requirements and discharged off site. The LFGTS uses thermal oxidation destruction technology to destroy the contaminants in landfill gas prior to discharge. Landfill gas and perimeter liquids are monitored by numerous soil gas monitoring probes and groundwater monitoring wells at the point of compliance to ensure that ARARs and other remedy performance standards are being met

Liquids at the site perimeter are being effectively controlled by PLC systems in the SWEAP, North Central and Northeast areas that are operating as intended. Groundwater monitoring (detection monitoring) results show there have been no new releases at the site perimeter. The MNA Site process establishes that all PLC Systems should be in place before formal MNA evaluation begins. Given that the PLC system have only recently been fully implemented, it is premature to assess MNA progress at this time. Data collected to date do not indicate any major issues and groundwater monitoring will continue. .

It is anticipated that by the next five-year review, there will sufficient data to better assess whether monitored natural attenuation is progressing as expected.

Operating procedures, as implemented, will maintain the effectiveness of the response actions on site. There were not any large variances in O&M costs that would indicate a potential remedy problem or issue in the future.

There are opportunities that exist to reduce costs of monitoring and sampling on site. For example, continued evaluation of the groundwater monitoring program, including the interior landfill wells would ensure that sampling is optimized to cost-effectively produce the required information.

The Site inspection indicated few issues regarding the Site O&M of the remedy. However, manifolds and piping of the LFG conveyance system are in need of repair due to separation at joints from extreme temperature changes, aging, and settlement on site (Appendix C).

The restrictive covenants on the South Parcel and North Parcel have been completed and have been determined to be effective as stated in the biennially updated plan.

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

The exposure assumptions for the Site presented in the 1988/1990 and 1996 RODs are still valid to date. No new exposure routes were identified during this FYR. There are new chemical-specific standards for seven COCs. There is currently no exposure for the groundwater; however, for the long-term protectiveness, the remedy should be modified to include these new MCLs. Other new standards that have been promulgated do not affect the protectiveness of the remedy. Risk assessments conducted prior to construction of the remedy are still valid by today's standards for determining exposures to personnel and residence in the area in or around Site. Due to the control of the LFG along the landfill and the depth to water, there appears to be no risk from vapor intrusion.

There is likely to be future land use changes at the Site as a result of North Parcel redevelopment. This land use change may cause issues if coordination between developers and OII is not maintained. Currently, the North Parcel landfill cap eliminates exposures to LFG, the source materials, and contaminated soils.

No new contaminants, contamination sources, or unanticipated toxic byproducts were identified during this FYR. No physical Site conditions or the understanding of these conditions have changed in a way that would affect the protectiveness of the remedy.

The majority of the cleanup standards identified in the RODs fall within EPA's risk management range (Table 10-12) based on comparison to RSLs. The two exceptions are arsenic and chromium VI. However, because arsenic and chromium VI are present at concentration that are below MCLs and groundwater

exposure pathways are incomplete in the site vicinity, changes to the risk-based toxicity values do not impact the protectiveness of the remedies.

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

Although there is no exposure pathways to ecological receptors, EPA is evaluating O&M activities impacts to the California Gnatcatcher, an endangered species under the US Fish and Wildlife Endangered Species Act. Evaluation is expected to be completed by December 2015. No other information has not come to light that could call into question the protectiveness of the remedy.

7.4. Technical Assessment Summary

The remedy is operating as intended because contamination from past landfill activities is being contained by the landfill cap and the leachate and landfill gas collection systems. Leachate and other landfill liquids are treated to acceptable levels and discharged off site. The LFGTS uses thermal oxidation destruction technology to destroy the contaminants in landfill gas prior to discharge. Landfill gas and perimeter liquids are monitored by numerous soil gas monitoring probes and groundwater monitoring wells at the point of compliance to ensure that Applicable or Relevant and Appropriate Requirements (ARARs) and other remedy performance standards are being met. Maintenance issues related to aging infrastructure can be easily fixed as needed. Given that the PLC system have only recently been fully implemented, it is premature to assess MNA progress. It is anticipated that by the next five-year review, there will sufficient data to better assess whether monitored natural attenuation is progressing as expected. However, groundwater monitoring collected to date do not give indication of any major remedy issues.

No new exposure routes, contaminants of concern, or changes to the remedy were noted that would affect the protectiveness of the remedy. There are new chemical-specific standards for seven chemicals of concern (COCs). Of these seven COCs, arsenic, hexavalent chromium and nitrate (as nitrogen) have been detected at levels above their new respective MCLs over the past five years. There is currently no exposure for the groundwater; however, for the long-term protectiveness, the remedy should be modified to include these new MCLs. There is likely to be future land use changes at the Site as a result of North Parcel redevelopment, and coordination with developers during the placement of commercial building in the Northern Parcel should be easy to address.

8. Issues

Table 8-1 summarizes the current issues for the Site.

Table 8-1. Current Issues for the Site

Issue	Affects Current Protectiveness? (Yes or No)	Affects Future Protectiveness? (Yes or No)
MNA progress towards meeting ROD cleanup times has not been assessed.	No	Yes
Groundwater plumes for the areas associated with the PLCs not well identified in annual reports.	No	No
Seven COCs have new, lower MCLs: Dichlorobromomethane, chloroform, thallium, chromium VI, arsenic, cyanide and nitrate (as nitrogen)	No	Yes

9. Recommendations and Follow-up Actions

Table 9-1 provides recommendations to address current issues at the Site.

Table 9-1. Recommendations to Address Current Issues at the Site

Issue	Recommendations/ Follow-Up Actions	Party Respon-sible	Over-sight Agency	Mile-stone Date	Affects Protectiveness? (Yes or No)	
					Current	Future
MNA progress towards meeting ROD cleanup times has not been assessed	Perform technical evaluation of the MNA component of the groundwater remedy as part of AGMER to ensure compliance towards meeting MNA timeframes.	OII PRP	EPA	09/2020	No	Yes
Groundwater plumes for the areas associated with the PLCs not well identified in annual reports.	Delineate approximate groundwater plumes for the areas associated with the PLCs to better visualize off-site contamination in the areas between the landfill and the Groundwater Compliance Lines.	OII PRP	EPA	12/2016	No	No
Seven COCs have new, lower MCLs: Dichlorobromomethane, chloroform, thallium, chromium VI, arsenic, cyanide and nitrate (as nitrogen)	Modify the remedy to include the most current MCLs as cleanup standards.	EPA	EPA	12/2018	No	No

Recommendations for items that do not affect the protectiveness of the remedy are as follows:

- Continue to evaluate and optimize the groundwater monitoring program, including expanding the use of low-flow purging and sampling techniques.
- Manifolds and piping were noted to be in need of repair due to separation at joints from extreme temperature changes, aging, and settlement on site.
- Ecological pathways were determined to be incomplete for ambient air, groundwater, and surface water because the remedial actions prevent exposure. However, EPA is evaluating O&M

activities impacts to the California Gnatcatcher, an endangered species under the US Fish and Wildlife Endangered Species Act. Evaluation is expected to be completed by December 2015.

10. Protectiveness Statement

The remedies at the Operating Industries, Inc. (OII) Landfill Superfund Site are currently protective of human health and the environment because they are functioning as intended, controlling both potential releases of and exposure to landfill waste, leachate, and gas. In addition, ICs ensure that there is no exposure to contaminated groundwater, soils, and landfill gas vapors. However, to be protective in the long-term, a more comprehensive annual technical evaluation of the MNA component of the groundwater remedy needs to be conducted, an improved groundwater plume map should be included within the Annual Groundwater Monitoring Evaluation Reports, and the remedy should to be modified to include the most current MCLs as cleanup standards

11. Next Review

This is a statutory Site that requires ongoing FYRs as long as waste is left on site that does not allow for unlimited use and unrestricted exposure. The next FYR will be due within five years of the signature date of this FYR.

Appendix A: List of Documents Reviewed

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List of Documents Reviewed

EPA (United States Environmental Protection Agency). 1987a. Record of Decision, Operating Industries, Inc., Monterey Park, California, Site Control and Monitoring Operable Unit. July 31.

_____. 1987b. Record of Decision for Operating Industries, Inc. Superfund Site, Monterey Park, California. November 17.

_____. 1988. Record of Decision for Operating Industries, Inc. Superfund Site, Monterey Park, California, Gas Migration Control. EPA Doc. No. EPA/ROD/R09- 88/013. September 30.

_____. 1990. Record of Decision Amendment for Operating Industries, Inc. Superfund Site, Monterey Park, California, Gas Migration Control. EPA Doc. No. EPA/ROD/R09-90/055. September 30.

_____. 1996a. Final Record of Decision for Operating Industries, Inc. Superfund Site, Monterey Park, California. EPA Doc. No. EPA/ROD/R09-96/152. September.

_____. 1996c. *Feasibility Study Report for Operating Industries, Inc. Landfill Superfund Site, Monterey Park, California*. March.

_____. 2001. Comprehensive Five-Year Review Guidance, Office of Emergency and Remedial Response. OSWER No. 9355.7-03D-P, EPA Doc. No. 540-R-01-007. June.

_____. 2003a. Final Access and Institutional Controls Work Plan, Operating Industries, Inc. (OII) Landfill, Monterey Park, California. March 24, 2003.

_____. 2003b. Interim Remedial Action Report for the Final Remedy Perimeter Liquids Control, Natural Attenuation of Groundwater Contamination, and Long-Term O&M of Environmental Control Systems. September.

_____. 2008 Industrial Wastewater discharge Permit No. 014501, County Sanitation Districts of Los Angeles County, expires June 5, 2013.

_____. 2011. Fact Sheet Fourth Five-Year Review Completed and Other Site Information. March 2011.

_____. 2013a. Approval of CD-3 Work Construction Completion Report, Termination of CD-3. December 24, 2013

_____. 2013b. Fact Sheet Fourth Five-Year Review Completed and Other Site Information. December 2013.

Geosyntec. 2010. Construction Completion Report OII Landfill CD-3 North Parcel Remedy. Operating Industries, Inc. (OII) Landfill Monterey Park, California. July 2010.

_____.2011. Final 2010 Annual Groundwater Monitoring and Evaluation Report. Operating Industries, Inc. (OII) Landfill Monterey Park, California. April 2011.

_____. 2012. Final 2011 Annual Groundwater Monitoring and Evaluation Report. Operating Industries, Inc. (OII) Landfill Monterey Park, California. March 2012.

_____. 2013. Final 2012 Annual Groundwater Monitoring and Evaluation Report. Operating Industries, Inc. (OII) Landfill Monterey Park, California. March 2013.

_____. 2014a. Final 2013 Annual Groundwater Monitoring and Evaluation Report. Operating Industries, Inc. (OII) Landfill Monterey Park, California. April 2014.

_____. 2014b. Draft 2014 Annual Groundwater Monitoring and Evaluation Report. Operating Industries, Inc. (OII) Landfill Monterey Park, California. December 2014.

Los Angeles County. 2013a. Covenant To Restrict Use of Property Environmental Restriction Assessor Parcel Numbers: 5275-002-002, 5275-003-002 and 5275-003-016. April 26, 2013.

_____. 2013b. Covenant To Restrict Use of Property Environmental Restriction Assessor Parcel Numbers: 5923-022-001, 5293-022-006, 5293-022-002, 5293-022-033, 5293-022-005, and 5393-022-004. July 16, 2013.

_____. 2013c. Covenant to Restrict Use of Property for parcels located in the North Parcel of OII were re-recorded to include correct parcels transferred to and from CalTrans land swap agreement Parcel Numbers: DD-000226-01-01, DD-000227-01-01, DD-000227-02-01 and DD-000227-03-01. July 30, 2013.

_____. 2014. Covenant To Restrict Use of Property Environmental Restriction Assessor Parcel Numbers: 5275-002-808, and 809, 5275-003-800. July 2, 2014.

NCI (New Cure, Inc.). 2007. Final Phase 2 Remedial Design Investigation Report – Northeast Area, Eighth Partial Consent Decree (CD-8), Operating Industries, Inc. Landfill, Monterey Park, California. May 2007.

_____.2008. Final SWEAP Area Well Installation Report, Operating Industries, Inc. Landfill, Monterey Park, California. May 2008.

_____.2010. Final Compliance Testing Plan North Central Area PLC System. Operating Industries, Inc. Landfill, Monterey Park, California, January 5.

_____ . 2013. CD-3 Final Revised Work Completion Report, Operating Industries, Inc. Superfund Landfill Site, Monterey Park, California. Feb 2013.

_____. 2014a. 2014 Annual Report Cover Settlement Monitoring and Evaluation. December, 2014.

_____. 2014b. Eighth Partial Consent Decree Operating Industries, Inc. Superfund Landfill Site. March 26, 2014.

_____. 2014c. 2013-2014 Annual Report for Storm Water Discharges General Permit No. 419I002548 Associated with Industrial Activities. June, 2014.

_____. 2014d. Industrial Wastewater Self -Monitoring Report Permit Number 014501. January 15, 2015.

United States District Court for the Central District of California. 1988. Partial Consent Decree. December.

_____. 1991a. Second Partial Consent Decree. February

_____. 1991b. Third Partial Consent Decree. February

_____. 1994. Fourth Partial Consent Decree. December.

_____. 1996. Fifth Partial Consent Decree. March.

_____. 1997. Sixth Partial Consent Decree. September.

United States District Court Central District of California Western Division. 2000. Seventh Partial Consent Decree. October.

_____. 2002. Eighth Partial Consent Decree. May.

U.S. Army Corps of Engineers. 2002. Remedial Action Report Gas Control System, Cover System, and Surface Water Management System (OU-3). September.

Appendix B: Interview Forms

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Interview Forms

Five-Year Review Interview Record			
Site:	Operating Industries Inc.	**EPA ID No:**	0958

Interview Type: *Visit*
Location of Visit: Operating Industries Inc Site, Monterey Park, CA
Date: 12/16/2014
Time: 8:00 am

Interviewers

Name	Title	Organization
Wendy Luo	Project Engineer	USACE

Interviewees

Name	Organization	Title	Telephone	Email
Tedd Yargeau	DTSC	Project Manager	818 212-5340	Tedd.Yargeau@dtsc.ca.gov

Summary of Conversation

1) What is your current role as it relates to the site? What is your overall impression of the work conducted at the site to date?

   Project manager for Cal EPA – Dept. of Toxic Substances Control. Excellent. EPA and New Cure are very proactive about all of the work conducted to date. The Site is in great shape even after all of the recent heavy rain.

2) Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, give purpose and results.

   In the beginning, our agency was very active performing Site visits and inspections. Since construction activities concluded and the Site has been in operation and maintenance phase there has not been a need for frequent visits/inspections as EPA and New Cure have taken great care of the Site. We are also informed about reporting activities and have ample opportunity to review and comment on all deliverables.

3) What does the monitoring data show? Are there any trends that show contaminant concentrations decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy? Are any COCs above cleanup concentrations and at what data collections points are these occurring?

   To my knowledge, the monitoring data shows either steady or decreasing trends. I am not aware of any new emerging COCs. N/A. N/A. N/A.

4) Would you say that O&M and /or sampling efforts have been optimized? Please describe how improved efficiency has/has not occurred.

   Yes, based upon my Site visit on 12/16/2014, the Site is in excellent shape due to routine O&M activities. Not certain on the sampling efforts though.

5) In the past the Site Operations Manager asked for revisions to the SOPs and an overall high-level review. Was this done? Why or why not?

   N/A.

6) 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.

N/A.

7) Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. From the past five years did any optimization occur as mentioned in the FYR? If so what are the estimated cost savings from the optimization of the system, tasks, or operation of the remedy.

N/A.

8) Are you aware of any institutional controls, Site access controls, and new ordinances in place, changes in actual or projected land use, and/or complaints being filed or unusual activities at the Site? Please describe. Have institutional controls been put in place? If none have been put in place why not?

To my knowledge, all of the land use covenants are in place in addition to all Site access controls. I am not aware of any new ordinances in place. As for changes in actual or projected land use there is the potential redevelopment of certain portions on the North Parcel. I have not received nor heard of any complaints about the Site.

9) Have any problems been encountered in the last five years which required changes to the remedial design or ROD?

None to my knowledge.

10) Are any contingency plans in place for dealing with the impacts of an earthquake or mudslide may have on any of the remedial systems?

N/A.

11) What is your current staffing and what is your projected staffing?

Typically, just myself and perhaps a chemical or geotechnical engineer depending upon the Site activities.

12) What types of "green remediation" techniques have been used?

Monocover and use of microturbines for reuse of landfill gas.

13) Do you have any comments, suggestions, or recommendations regarding the site?

N/A.

14) Are there any issues you can think of that have not been covered by these questions?

N/A.

Additional Site-Specific Questions

[If needed]

Five-Year Review Interview Record			
Site:	Operating Industries Inc.	**EPA ID No:**	0958

Interview Type: *Written*
Location of Visit:
Date: 12/29/14
Time:

Interviewers		
Name: Wendy Luo	**Title**	**Organization**

Interviewees				
Name	**Organization**	**Title**	**Telephone**	**Email**
Scott Rowlands	Geosyntec	Associate Hydrogeologist		

Summary of Conversation

1) What is your current role as it relates to the site? What is your overall impression of the work conducted at the site to date?

My role is to consult the OII Work Group on groundwater related issues (assessment and remediation). We (Geosyntec) evaluate the ongoing performance of the perimeter liquid control (PLC) systems and prepare the Annual Groundwater Monitoring and Evaluation Report (AGMER).

I believe the work conducted at the site is of high quality.

2) Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, give purpose and results.

Yes. I and other Geosyntec team members are in frequent communications with the Project Coordinator (Corey Bertelsen) and the Site Manager (Ed Robles) with respect to the groundwater monitoring program and PLC operations. Site visits are conducted during scheduled update meetings, monitoring events, and on an as-needed basis for PLC related activities. Regular reporting activities at this time include preparation of the AGMER.

3) What does the monitoring data show? Are there any trends that show contaminant concentrations decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy? Are any COCs above cleanup concentrations and at what data collections points are these occurring?

The monitoring data show decreasing contaminant concentration trends. No new or emerging COCs have been identified that impact the effectiveness of the PLC systems or other remedial approaches such as monitored natural attenuation.

4) Would you say that O&M and /or sampling efforts have been optimized? Please describe how improved efficiency has/has not occurred.

Optimization of O&M and sampling is an ongoing effort and is reviewed on a semiannual basis. However, modifications to the groundwater sampling program and PLC operations have greatly improved efficiency over the last five years.

5) 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.

There have been no unexpected changes in the cost or scope of O&M that may compromise the groundwater remedy.

6) Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. From the past five years did any optimization occur as mentioned in the FYR? If so what are the estimated cost savings from the optimization of the system, tasks, or operation of the remedy.

LTP O&M and groundwater monitoring scopes have been optimized during the last 5 years and continue to be evaluated for future optimization opportunities. Please contact the Project Coordinator for information on estimated cost savings from monitoring and system optimization.

7) Have any problems been encountered in the last five years which required changes to the remedial design or ROD?

No.

8) Are any contingency plans in place for dealing with the impacts an earthquake or mudslide may have on any of the remedial systems?

Not to my knowledge.

9) What is your current staffing and what is your projected staffing?

Current Geosyntec staffing includes myself, Andy Simons (Project Manager), and Joy Lin (Staff Engineer) working a combined total of approx. 80 hours per month. Projected staffing and level of effort is not expected to change unless special project needs arise.

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

Significant progress has been made over the last 5 years with respect to the groundwater remedy. The PLC systems are in place, have passed compliance testing and are operating as intended. Significant efficiencies have been realized in the groundwater monitoring program and PLC operations. Geosyntec is proud to be part of the OII Work Group's project team implementing the groundwater remedy at this Mega-Superfund Site.

11) Are there any issues you can think of that have not been covered by these questions?

No.

Additional Site-Specific Questions

[If needed]

Five-Year Review Interview Record				
Site:	Operating Industries Inc.		**EPA ID No:**	0958
Interview Type: *Written* Location of Visit: Date: Time:				
Interviewers				
Name: Wendy Luo			**Title**	**Organization**
Interviewees				
Name	**Organization**	**Title**	**Telephone**	**Email**
David Towell, P.E.	CH2MHill	Senior Project Engineer	213-228-8285	David.towell@ch2m.com

Summary of Conversation

1) What is your current role as it relates to the site? What is your overall impression of the work conducted at the site to date?

My role is to provide technical support to EPA related to ongoing remedy implementation and related issues. My overall impression is very good. All of the various remedies at the Site have been implemented and are effective. Long-term O&M is proceeding efficiently.

2) Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, give purpose and results.

Yes. There are regular technical exchange meetings at the Site several times a year. In addition, there have been site inspections related to the CD-3 Work Completion/Closeout and CD-8 Construction Completion. In addition, I review various technical documents produced by the OII Word Defendants, including the Annual Groundwater Monitoring and Evaluation Report.

3) What does the monitoring data show? Are there any trends that show contaminant concentrations decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy? Are any COCs above cleanup concentrations and at what data collections points are these occurring?

The groundwater monitoring data show that the groundwater concentrations are primarily either stable or decreasing and the PLC data indicate that releases are contained at the point of compliance (POC). The methane monitoring shows that landfill gas levels continue to decline. No new or emerging COCs have been identified.

Several COCs remain above cleanup levels in groundwater beyond the landfill perimeter and at the POC in the southwest, nort**h-central and northeast areas.** T**he POC exceedances are effectively contained through the SWEAP, North-Central and Northeast PLC systems. The exceedances downgradient of the PLC systems are being addressed through the monitored natural attenuation (MNA) remedy for groundwater. As described in the ROD, the MNA remedy will take several decades to be complete so ongoing monitoring and evaluation will be required well into the future.**

4) Would you say that O&M and /or sampling efforts have been optimized? Please describe how improved efficiency has/has not occurred.

There have been ongoing efforts to optimize the groundwater monitoring program through reduced monitoring frequencies and shorter analyte lists. In addition, NCI routinely evaluates their activities to look for ways to improve efficiency and reduce O&M costs.

5) 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.

I am not aware of any issues that suggest remedy protectiveness may be compromised in the future. There are robust O&M and monitoring procedures in place that should detect changed conditions well before they impact protectiveness.

6) Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. From the past five years did any optimization occur as mentioned in the FYR? If so what are the estimated cost savings from the optimization of the system, tasks, or operation of the remedy.

As noted in Question 4 above, there have been efforts to optimize the groundwater monitoring program, but I am not aware of the specific cost savings associated with this. Currently, EPA and the OII Work Defendants are evaluating increased use of low-flow sampling to further optimize the groundwater monitoring program. In the future, the extraction rates for the North-Ce**ntral and Northeast PLC systems can likely be further optimized to reduce remedy implementation costs.**

7) Have any problems been encountered in the last five years which required changes to the remedial design or ROD?

No.

8) Are any contingency plans in place for dealing with the impacts an earthquake or mudslide may have on any of the remedial systems?

I am not familiar with any specific contingency plans, but NCI does have documented emergency response procedures, and the SOPs likely include contingencies.

9) What is your current staffing and what is your projected staffing?

N/A.

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

The upcoming redevelopment of the North Parcel into a shopping center could potentially lead to conflicts with ongoing remedy implementation. Close coordination between EPA, OII Work Defendants, and the developer will be require[d] throughout the construction process.

11) Are there any issues you can think of that have not been covered by these questions?

No issues.

Additional Site-Specific Questions
[If needed]

Five-Year Review Interview Record			
Site:	Operating Industries Inc.	**EPA ID No:**	0958
Interview Type: *Written* Location of Visit: Date: Time:			

Interviewers		
Name: Wendy Luo	**Title**	**Organization**

Interviewees				
Name	**Organization**	**Title**	**Telephone**	**Email**
	OII Work Defendants	Project Coordinator		

Summary of Conversation

1) What is your current role as it relates to the site? What is your overall impression of the work conducted at the site to date?

I am the named Project Coordinator representing the OII Work Group at the site. As such I am responsible for site operations, coordination with EPA, budgets, schedule, etc.

2) During the last FYR the following recommendations were provided: Buying a truck/SUV for security to reduce rental costs, installation of solar panels, and use of the liquid treatment (LTP) for irrigation, thermal recovery, modification of the LFGTS stacks to remove VOCs. Were any of these recommendations followed through? Why or why not?

With EPA's approval we modified the security patrol requirements for the site that eliminated the need to rent a vehicle for security personnel.
We have not installed any solar panels as they are not economic as we cannot take advantage of the Incentive Tax Credits.
We received EPA approval of using treated LTP water for irrigation and have done so.
We have not modified the TOs [Task Orders] (LFTGS).

3) Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, give purpose and results.

New Cure Inc conducts a series of regular inspections and monitoring that is reported to EPA each month as part of the Monthly Summaries.

4) What does the monitoring data show? Are there any trends that show contaminant concentrations decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy? Are any COCs above cleanup concentrations and at what data collections points are these occurring?

The OII WG [Work Group] submits an Annual Groundwater Monitoring and Evaluation Report (AGMER) that provides a complete summary of all monitoring data and analysis of what that data indicates with respect to contaminant trends, etc.

5) Would you say that O&M and /or sampling efforts have been optimized? Please describe how improved efficiency has/has not occurred.

Yes. But we continue to work with EPA and their consultants to review procedures and sampling programs to optimize these efforts.

6) In the past, the Site Operations Manager asked for revisions to the SOPs and an overall high-level review. Was this done? Why or why not?

See #5 above.

7) 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.

None.

8) Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. From the past five years did any optimization occur as mentioned in the FYR? If so what are the estimated cost savings from the optimization of the system, tasks, or operation of the remedy.

See #5 above. We have continued to optimize operations at the site and reduce site O&M staffing to reduce overall costs at the site from about $7 MM in 2008 to current expenditure levels of about $5 MM in 2014.

9) Are you aware of any institutional controls, site access controls, new ordinances in place, changes in actual or projected land use, and/or complaints being filed or unusual activities at the site? Please describe. Have institutional controls been put in place? If none have been put in place why not?

None.

10) Have any problems been encountered in the last five years which required changes to the remedial design or ROD?

None. We did install the final groundwater system (NE PLC) about 5 years ago but that was discussed in the previous FYR.

11) Are any contingency plans in place for dealing with the impacts an earthquake or mudslide may have on any of the remedial systems?

12) What is your current staffing and what is your projected staffing?

The current NCI staffing (which handles O&M and administrative requirements) is 12. We expect to reduce that by 1 in 2015.

13) During the last FYR the following recommendations were provided: Buying a truck/SUV for security to reduce rental costs, installation of solar panels, and use of LTP for irrigation, thermal recovery, modification of the LFGTS stacks to remove VOCs. Were any of these recommendations followed through? Why or why not?

See #2 above.

14) Have there been any complaints from the public regarding the Site (explain). If so what have been the corrections made to deal with these issues.

None.

15) Do you have any comments, suggestions, or recommendations regarding the Site?

None.

16) Are there any issues you can think of that have not been covered by these questions?

None.

Additional Site-Specific Questions
[If needed]

Five-Year Review Interview Record				
Site:	Operating Industries Inc.		EPA ID No:	0958
Interview Type: *[e.g. Visit, Teleconference, etc.]* Written Location of Visit: Date: 1-2-15 Time:				

Interviewers		
Name	Title	Organization
		New Cure, Inc

Interviewees				
Name	Organization	Title	Telephone	Email
Bleovardo Robles	New Cure Inc	Site Operations Manager	323 720 9775	erobles@oii-landfill.com

Summary of Conversation

1) What is your current role as it relates to the site? What is your overall impression of the work conducted at the site to date?

My role is Site Operations Manager for the entire OII Landfill site. My job is to maintain site compliance, operations of the LFGTS, LTP, Gas Systems and Liquid System to optimal condition. High work standards, and to maintain a clean and well ran site.

2) What is the current status of construction? Have any problems or difficulties been encountered that have impacted construction progress or implementability?

None

3) Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, give purpose and results.

Yes, through Corey Bertelsen and myself to agencies as needed.

4) What does the monitoring data show? Are there any trends that show contaminant concentrations decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy? Are any COCs above cleanup concentrations and at what data collections points are these occurring? Site is in compliance, Groundwater monitoring data illustrate some decreasing trends.

5) Would you say that O&M and /or sampling efforts have been optimized? Please describe how improved efficiency has/has not occurred. OM&M operations, maintenance, monitoring efforts are ongoing and are to be optimized as needed for site activities based on empirical monitoring and sampling data gathered, as well as maintenance frequencies.

6) 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.

None

7) Can you provide a breakdown of the O&M cost since the initial remedy? Have any additions or changes been made to the existing system that may have caused a change in O&M costs in the past five years?

Site Cost data is confidential, must speak with Project Manager Corey Bertelsen for that information.

8) Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. From the past five years did any optimization occur as mentioned in the FYR? If so what are the estimated cost savings from the optimization of the system, tasks, or operation of the remedy.

Optimization has occured in the last 5 years for monitoring & sampling frequencies
Must speak to Project Manager Corey Bertelsen for cost impacts information.

9) Have any problems been encountered in the last five years which required changes to the remedial design or ROD?

No

10) Are any contingency plans in place for dealing with the impacts an earthquake or mudslide may have on any of the remedial systems?

Yes, Emergency Response Plan, this section is in our SHERP

11) What is your current staffing and what is your projected staffing?

12 full time staff projected to remain the same, unless conditions or frequencies change.

12) How have the microturbines been operating? Have they paid for themselves since installation occurred?

System has be decommissioned/ Removed

13) What types of "green remediation" techniques have been used?

Recycle, re-use parts, reduce or minimize waste, solar lighting top deck

14) Have other site personnel been educated in the procedures for O&M to support yourself/Ed Robles as suggested in the last FYR?

Yes

15) Have there been any complaints from the public regarding the site (explain). If so what have been the corrections made to deal with these issues.

None

16) Do you have any comments, suggestions, or recommendations regarding the site?

The site is clean and well maintained

17) Are there any issues you can think of that have not been covered by these questions?

No

Additional Site-Specific Questions

(If needed)

Appendix C: Site Inspection Checklist

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Site Inspection Checklist

Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: Operating Industries Inc.	**Date of inspection:** 15-16 December 2014
Location: 2650 Greenwood Avenue, Monterey Park, CA	**EPA ID:** CAT080012024
Agency, office, or company leading the five-year review: EPA lead, Army Corps of Engineers performed the	**Weather/temperature** Heavy wind with rain in the forecast

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☒ Surface water collection and treatment
- ☒ Other
  - GW and air monitoring, Leachate extraction/treatment and landfill gas extraction/treatment
- ☒ Monitored natural attenuation
- ☒ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☒ Inspection team roster attached ☒ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Corey Bertiesen (Name) — OII Project Coordinator (Title) — 12/16/2015 (Date)
   Interviewed ☐ at site ☐ at office ☒ ~~by phone~~ ~~Phone no.~~ ~~via email~~
   Problems, suggestions: ☒ Report attached

2. **O&M staff** Ed Robles (Name) — OII Site Operations Manager (Title) — 1/6/2015 (Date)
   Interviewed ☐ at site ☐ at office ☒ ~~by phone~~ ~~Phone no.~~ ~~via email~~
   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: DTSC				
Contact: Todd Vargas	Project Manager	12/16/2014	via email	
Name	Title	Date	Phone no.	
Problems; suggestions; ☒ Report attached				
Agency				
Contact	Off-Site Operations Manager	1/6/2015	via email	
Name	Title	Date	Phone no.	
Problems; suggestions; ☒ Report attached				
Agency				
Contact				
Name	Title	Date	Phone no.	
Problems; suggestions; ☐ Report attached				
Agency				
Contact				
Name	Title	Date	Phone no.	
Problems; suggestions; ☐ Report attached				

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

GeoSyntech Senior Geologist (NCI Consultant) - Scott Rowlands

CH2MHILL Senior Project Manager (EPA/USACE Consultant) - David Towell

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

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 Most recent update in 2006.

3.	**O&M and OSHA Training Records**	☐ Readily available	■ Up to date	☐ N/A
	Remarks: Updated record of OSHA 8-hour certified staff is available onsite.			
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: Stormwater Discharge	■ Readily available	■ Up to date	☐ N/A
	Remarks: Permit for Industrial Wastewater Discharge is renewed by County Sanitation Districts of L.A. County for effluent discharge effective through May 29, 2018. No AQMD Permit [illegible]			
5.	**Gas Generation Records**	■ Readily available	☐ Up to date	☐ N/A
	Remarks: Data available in electronic data base onsite.			
6.	**Settlement Monument Records**	■ Readily available	■ Up to date	☐ N/A
	Remarks: Annual report prepared at the end of the year. Most recent report dated December 2014.			
7.	**Groundwater Monitoring Records**	■ Readily available	■ Up to date	☐ N/A
	Remarks: Periodic GW monitoring conducted onsite as required. Most recent GW sampling report is the semi annual GW sampling report dated February 2014.			
8.	**Leachate Extraction Records**	■ Readily available	■ Up to date	☐ N/A
	Remarks: Record available in electronic data base onsite.			
9.	**Discharge Compliance Records**			
	☐ Air	■ Readily available	☐ Up to date	■ N/A
	☐ Water (effluent)	■ Readily available	■ Up to date	☐ N/A
	Remarks: Record available in electronic database onsite. Effluent discharge compliance subject to inspection by County Sanitation Districts quarterly.			
10.	**Daily Access/Security Logs**	■ Readily available	☐ Up to date	☐ N/A
	Remarks: Site visit sign-in sheet and daily tailgate meeting records available on hard copies.			

IV. O&M COSTS

1. **O&M Organization**
   - ☐ State in-house
   - ☐ PRP in-house
   - ☐ Federal Facility in-house
   - ☐ Other
   - ☐ Contractor for State
   - ■ Contractor for PRP
   - ☐ Contractor for Federal Facility

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 _____ Date	To _____ Date	_____ Total cost	☐ Breakdown attached
From _____ Date	To _____ Date	_____ Total cost	☐ Breakdown attached
From _____ Date	To _____ Date	_____ Total cost	☐ Breakdown attached
From _____ Date	To _____ Date	_____ Total cost	☐ Breakdown attached
From _____ Date	To _____ Date	_____ Total cost	☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons:

   NONE

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

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) AIS plan requires OII to include any new wells installed in the area

Frequency Bi annually

Responsible party/agency OII Trust

Contact David Hirsch Trustee

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

Currently OII Trust owns the OII property as well as the title. OII Trust is a group of 12 entities. Prior to 2013 ALAS owns the OII property.

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

Remarks Be aware that the OII North Parcel (NP) is currently undergoing a sale/purchase transaction. Need to ensure NP new owner/developer to comply with IC.

D. General

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

Remarks

2. **Land use changes on site** ☐ N/A

Remarks OII North Parcel land owner change is underway. Future use of NP is commercial development.

3. **Land use changes off site** ☐ N/A

Remarks Southern California Edison Substation expansion planning is underway in the area west to the LTP in the North Parcel.

VI. GENERAL SITE CONDITIONS

A. Roads ■ Applicable ☐ N/A

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

Remarks Continuous landfill settlement occurred with time and resulted in regular periodic road and slope inspections and continuous bench road and slope repairs at OII. See photos

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 Settlement observed at various locations and are repaired on an as needed basis.

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
Lengths Widths Depths
Remarks Cracks continue to develop with time at OII and requires periodic inspection and maintenance on a regular basis.

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
Areal extent_____ Depth_____
Remarks Shallow gullies were observed at various locations on slopes after precipitation events are shown on attached site inspection photos.

4. **Holes** ☐ Location shown on site map ■ Holes not evident
Areal extent_____ Depth_____
Remarks No large holes observed.

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 No large bulges observed.

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 Ponding observed at various locations in the concrete drainage gutters along the 540 N bench road		
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 Active landfill gas collection system in place at OII.

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
Survey performed annually

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

1. **Gas Treatment Facilities**
   ■ Flaring ■ Thermal destruction ☐ Collection for reuse
   ■ Good condition ☐ Needs Maintenance
   Remarks 100% collected gas is sent to flare. All six (6) former microturbines onsite have been removed in July 2013

2. **Gas Collection Wells, Manifolds and Piping**
   ■ Good condition ■ Needs Maintenance
   Remarks Gas collection piping are old PVC pipes for the most part. They occasionally separate at joints during extreme temperature change condition and need repairs

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 Detention basins are clean out on a regular basis at OI

2. **Erosion** Areal extent Depth ■ Erosion not evident
   Remarks

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

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

II. 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 The PLC system consists of monitoring wells, leachate extraction wells, and associated piping. Pump maintenance is performed on a regular basis.

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) Chemical precipitation Unit (CPU)
☒ Others Air sparging performed in the basin reactors
☒ 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 approximately 3 Mgal/year
☐ Quantity of surface water treated annually amount varies with amount of rainfall
Remarks Waste water discharged after air sparging if industrial waste discharge requirements are met. Otherwise, wastewater goes to CPU and/or GAC for additional treatment prior to discharge

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

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 Inspected on a regular basis.
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
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.).

Remedies in place at OII are generally functioning as designed in the past 5-years. The extensive landfill gas and leachate collection and conveyance system at OII has been maintained in good working order and functioning as intended in overall. The Monitored Natural Attenuation (MNA) program is currently fully operational at OII. The North Parcel ownership change is underway currently. EPA should review the necessary land ownership change documents to ensure Institutional Control and Remedies in place will remain unchanged in the future.

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.

The O & M procedures currently being followed resulted in successful remedy performance. Occasionally, some new information obtained from the field would warrant updates in some sections of the SOW. The most current version of SOW is available in the information repository (library) in the main office onsite. Along with the continuous slope and bench road maintenance, O&M for the landfill gas and leachate collection and conveyance line are also a large part of the overall maintenance at OII. A section of the leachate PVC lines in the North Parcel next to the [illegible] has been realigned and replaced with HDPE in October 2014 to prepare for the planned upcoming North Parcel development. Currently all the underground leachate conveyance line has been replaced by HDPE. The aged PVC piping for the extensive gas conveyance system at OII has problems dealing with the landfill differential settlement and would often result in joints separation incidents when extreme temperature changes occur. Constant joint inspections and repairs on these PVC piping is necessary.

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.

Overall, there is no indication of unforeseen O&M cost related to remedies in place at OII. However, the current North Parcel land ownership change underway may need close monitoring once the new owner began construction for the commercial development in order to ensure the protective remedy already in place will not be threatened or compromised.

D. Opportunities for Optimization

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

Institutional Controls must be maintained as long as there is a threat to human health and environment. Measures should be taken to ensure IC during the construction phase and future use of land after North Parcel land ownership change takes place.

Appendix D: Photographs from Site Inspection Visit and Construction from 2010-2015

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Photographs from Site Inspection Visit

Site Visit Photos

Leachate Treatment Monitoring Panel

Leachate Treatement Operation Controls

Gullies on 540 N Slope After Rain

Ponding in depressed spots along 540 N

Stormwater ponding in 540N concrete gutter

Stormwater in 540S concrete gutter after rain

Trip Report Oil Landfill Superfund Site FYR 3

PVC Gas Conveyance line (typical joint repair)

Two incinerators

Decon-pad next to the LTP

New concrete valve housing the HDPE connection

Concrete slab for former Microturbines

Secondary Containment for the LTP

Samples of leachates and GW in the onsite Lab

Treated Liquid Discharge Sampling Well

NP developer taking boring for foundation design

Gravel Stockpile at NP

Current footprint of the LFGTS and LTP equipments and facilities at the North Parcel

Appendix E: MNA Evaluation Process: SOW from Consent Decree

Table SOW-1

Potential Perimeter Liquids Control Remedial Actions

- Enhanced landfill gas recovery and control;
- Enhanced liquids recovery in CD-3 gas recovery wells;
- Focused liquids extraction within/beneath landfill in areas upgradient of POC;
- In-situ remediation technologies to enhance volatile constituent recovery or bioremediation;
- Focused liquids extraction wells in perimeter "hot spot" areas;
- Shallow perimeter liquids/leachate collection trench;
- Expanded source control by leachate extraction from the waste near perimeter areas;
- Full (continuous) liquids extraction in affected perimeter areas.

Notes:

- Enhanced landfill gas recovery, liquids recovery from CD-3 gas recovery wells, and focused liquids extraction systems in perimeter or upgradient areas may require more complete characterization of the release mechanisms of contamination and migration pathways.
- Enhanced groundwater monitoring may also be implemented, if appropriate, as an initial remedial action during the Area-Specific Evaluation and the Remedial Design Investigation to collect additional information to evaluate the specific remedial action(s) which may be needed and to implement a PLC response.

Table SOW-2
- OII Site Natural Attenuation Requirements -
Maximum Times (a) and Distances (b) to Reach Cleanup Standards in Groundwater

	Organic Constituents		**Inorganic Constituents**	
Area	**Years**	*Distance (feet)*	**Years**	*Distance (feet)*
Northwest Area - Shallow Units	**12**	*0*	**56**	*600*
Northwest Area - Deeper Units	**12**	*0*	**56**	*600*
Southwest Area - Shallow Units	**34**	*200*	**150**	*1,000*
Eastern Area	**18**	*0*	**56**	*600*

Note: Times and distances are from *Table 17* of the *Final ROD*.

(a) Times are years for contaminant concentrations in groundwater to be reduced to cleanup standards from the first date when perimeter liquids control meets Performance Standards at the upgradient POC in that subarea.

(b) Distances listed refer to distances beyond the Extent of Groundwater Cleanup Standard Exceedances shown on Figure SOW-3. These distances, graphically represented on Figure SOW-3, form the Groundwater Compliance Lines.

FIGURES

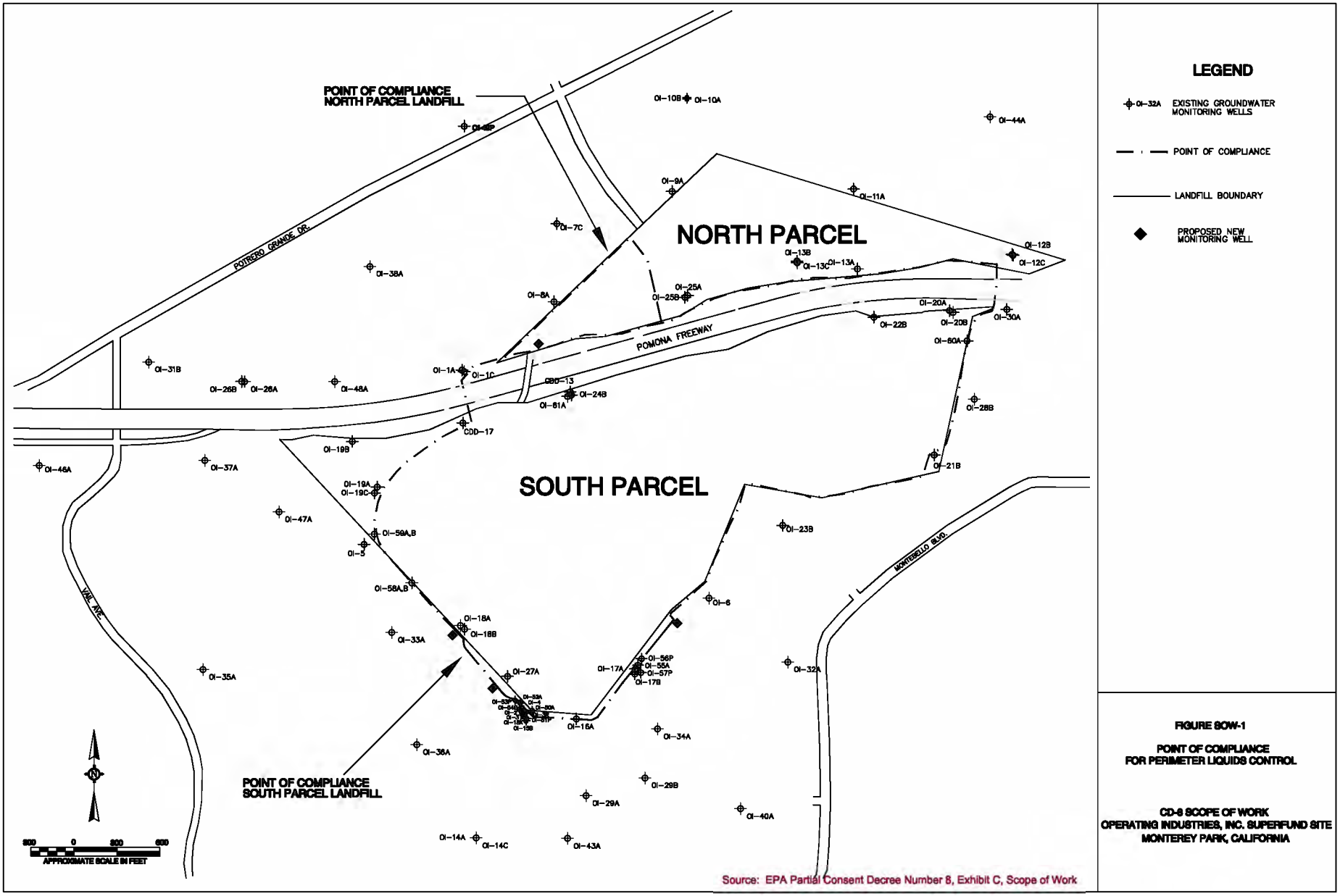

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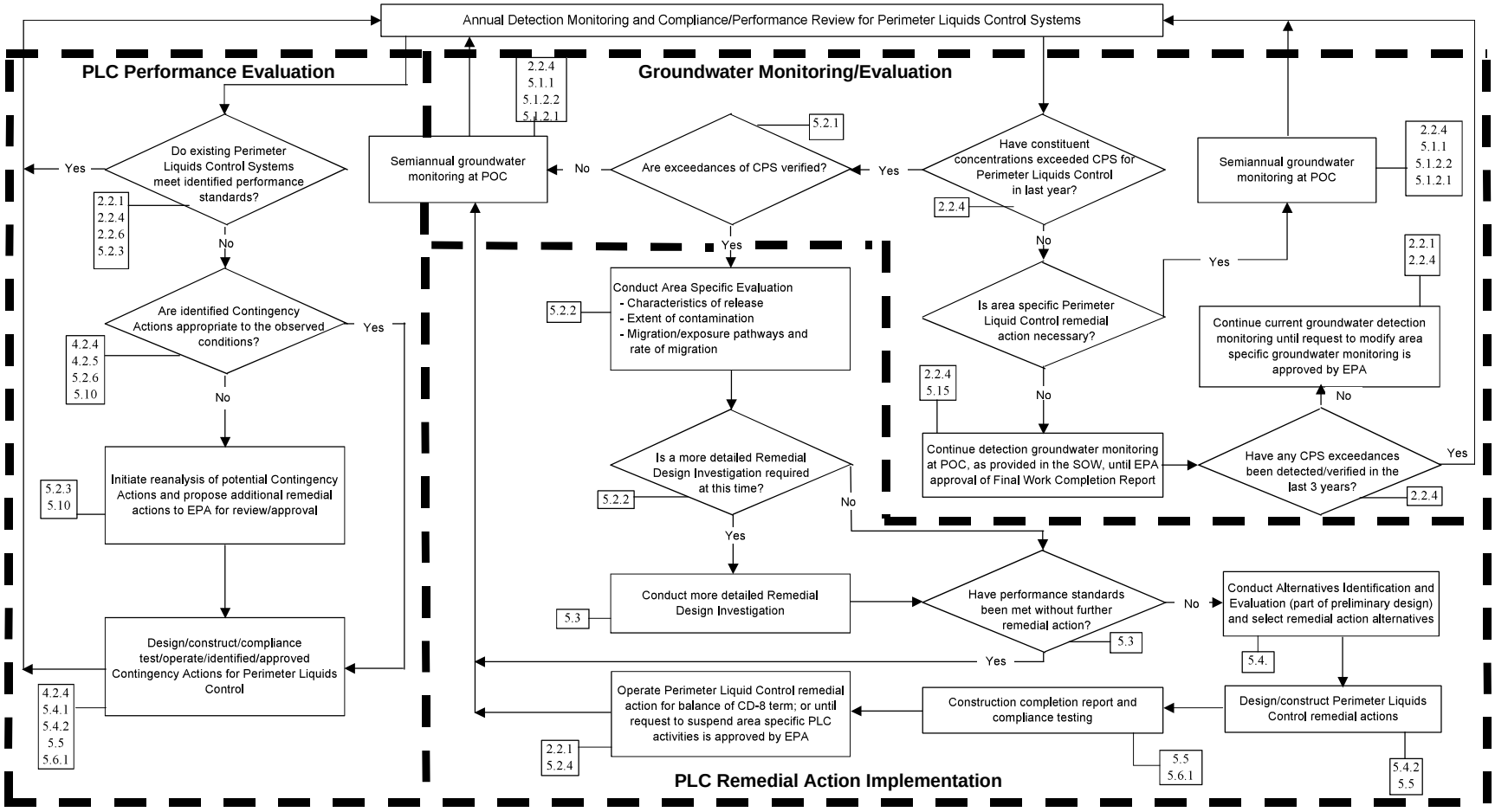
FIGURE SOW-1

POINT OF COMPLIANCE FOR PERIMETER LIQUIDS CONTROL

CD-8 SCOPE OF WORK
OPERATING INDUSTRIES, INC. SUPERFUND SITE
MONTEREY PARK, CALIFORNIA

FIGURE SOW - 2
DECISION PROCESS FOR PERIMETER LIQUIDS CONTROL IMPLEMENTATION



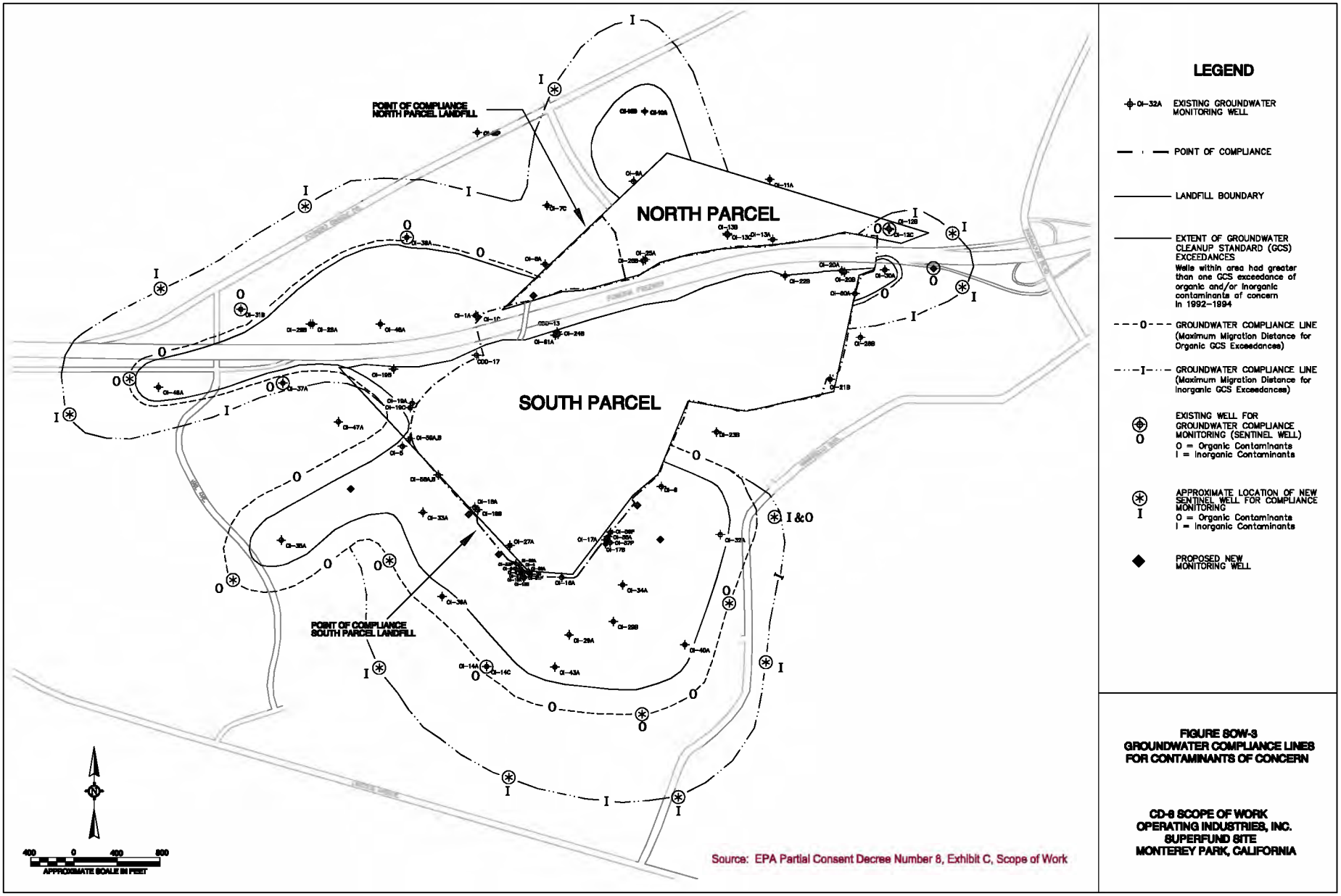
Note: 5.1.1 is reference to SOW section

Figure SOW - 2

DECISION PROCESS FOR PERIMETER LIQUIDS CONTROL IMPLEMENTATION

CD-8 Scope of Work
Operating Industries, Inc. Superfund Site
Monterey Park, California

Source: EPA Partial Consent Decree Number 8, Exhibit C, Scope of Work



LEGEND

- OI-32A — EXISTING GROUNDWATER MONITORING WELL
- POINT OF COMPLIANCE
- LANDFILL BOUNDARY
- EXTENT OF GROUNDWATER CLEANUP STANDARD (GCS) EXCEEDANCES
  Wells within area had greater than one GCS exceedance of organic and/or inorganic contaminants of concern in 1992–1994
- 0 — GROUNDWATER COMPLIANCE LINE (Maximum Migration Distance for Organic GCS Exceedances)
- I — GROUNDWATER COMPLIANCE LINE (Maximum Migration Distance for Inorganic GCS Exceedances)
- 0 — EXISTING WELL FOR GROUNDWATER COMPLIANCE MONITORING (SENTINEL WELL)
  O = Organic Contaminants
  I = Inorganic Contaminants
- I — APPROXIMATE LOCATION OF NEW SENTINEL WELL FOR COMPLIANCE MONITORING
  O = Organic Contaminants
  I = Inorganic Contaminants
- PROPOSED NEW MONITORING WELL

FIGURE SOW-3
GROUNDWATER COMPLIANCE LINES FOR CONTAMINANTS OF CONCERN

CD-8 SCOPE OF WORK
OPERATING INDUSTRIES, INC.
SUPERFUND SITE
MONTEREY PARK, CALIFORNIA

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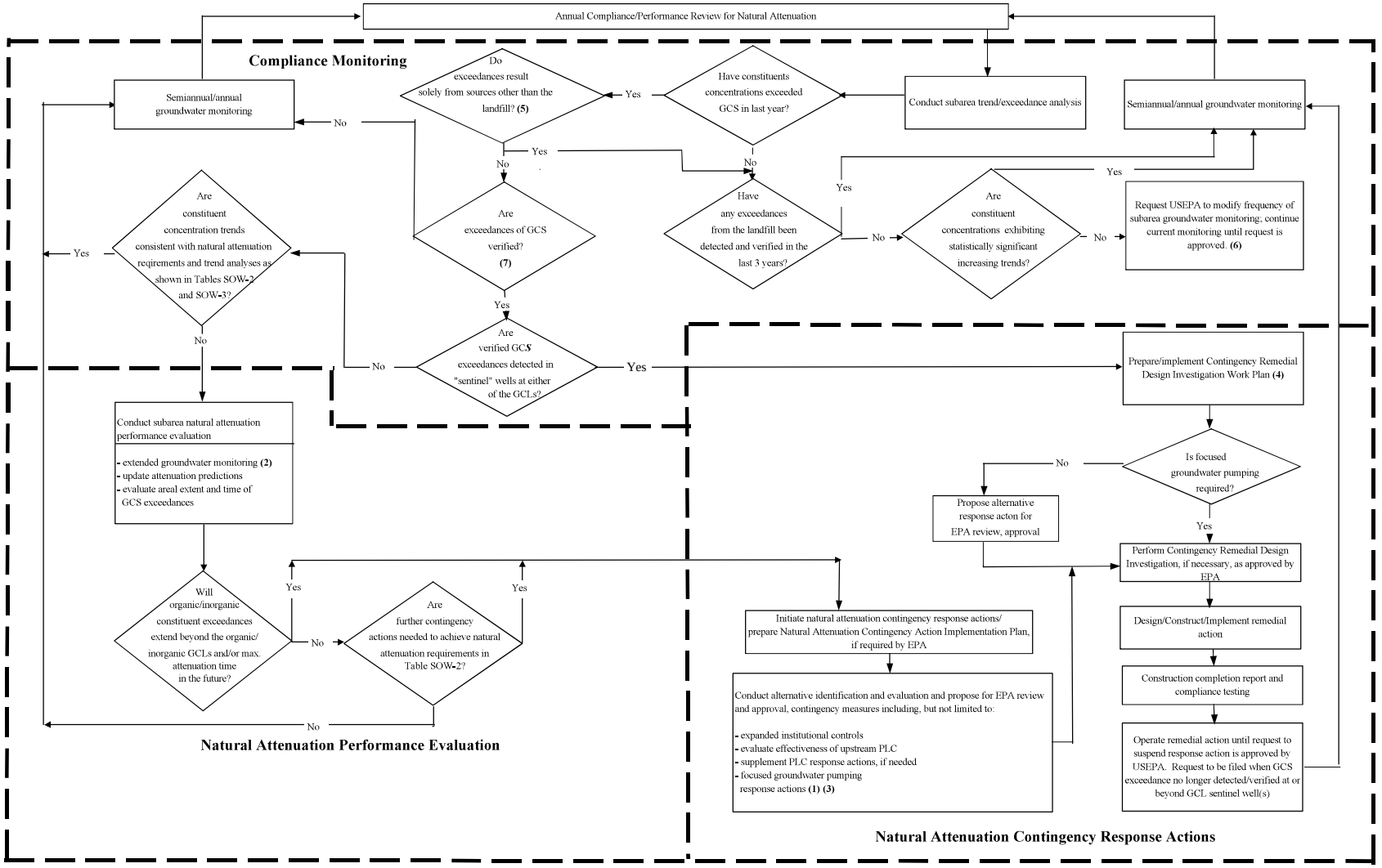
FIGURE SOW-4
DECISION PROCESS FOR MONITORED NATURAL ATTENUATION



Source: EPA Partial Consent Decree Number 8, Exhibit C, Scope of Work

FIGURE SOW-4
DECISION PROCESS FOR MONITORED NATURAL ATTENUATION

Notes:

(1) Factors that EPA may consider before requiring a focused groundwater pumping response action include EPA determination that 1) other contingency actions are or will be ineffective in achieving natural attenuation cleanup requirements; or 2) GCS exceedances of organics or inorganics are predicted to extend beyond either the inner or outer GCL, respectively, or to exceed the maximum time to achieve the GCS for the subarea as presented in Table SOW-2; see Table SOW-3 for additional detail.

(2)

(3) If contingency measures represent a significant departure from the remedy selected by EPA in the Final ROD, a ROD amendment or Explanation of Significant Difference may be appropriate.

(4) The evaluation of alternative designs to implement the focused groundwater pumping response action in the remedial design investigation shall consider the potential mobility, toxicity and persistence of the constituents at issue, the degree to which the GCS has been exceeded at the GCL, the proximity to any nearby areas that may be used as a source of groundwater supply, hydrogeologic conditions in the affected groundwater zone that may influence the implementation and effectiveness of groundwater pumping in limiting constituent migration, access to offsite properties, and impacts on the community.

(5) The evaluation to determine whether sources other than the landfill have caused exceedance of the GCS in areas beyond the POC shall consider, but is not limited to the following: the specific detected constituent(s) and concentrations in comparison to upgradient wells and the POC; the presence of other known and/or potential upgradient sources of the detected constituent(s); the presence/absence of other landfill constituents in the subject well and in other upgradient wells; and the history of detection of the same constituent(s) in other nearby wells.

(6) If GCS exceedances are verified at any time at the upgradient point of compliance, or if EPA determines that conditions warrant continued monitoring, EPA may require Work Defendants to continue (or later restart) monitoring selected wells in the subarea.

(7) If verified exceedances of groundwater cleanup standards are detected in areas that are not currently contaminated above groundwater cleanup standards and are not located downgradient of currenly contaminated areas, EPA will determine natural attenuation time and distance performance standards and Groundwater Compliance Lines as are presented in Table SOW-2, and Figure SOW-3, respectively, for other areas. EPA may also require new sentinel wells and contingency measures in these areas.

Source: EPA Partial Consent Decree Number 8, Exhibit C, Scope of Work