

**Fourth Five-Year Review Report
for
Operating Industries, Inc. Landfill Superfund Site
Monterey Park, Los Angeles County, California**

September 2010

PREPARED BY:

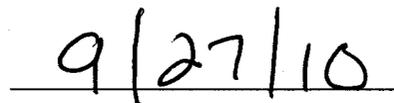
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Region 9
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San Francisco, California 94105**

Approved by:

Date:



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List of Acronyms

AGMER	Annual Groundwater Monitoring and Evaluation Report
ARAR	applicable or relevant and appropriate requirement
AREs	access and restrictive easements
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CD	Consent Decree
CDWR	California Department of Water Resources
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COD	chemical oxygen demand
CPS	chemical performance standard
CSDLAC	County Sanitation Districts of Los Angeles County
CTP	Compliance Testing Plan
DCA	dichloroethane
DCE	dichloroethene
DOHS	California Department of Health Services
DRE	destruction and removal efficiency
EPA	United States Environmental Protection Agency (USEPA)
FWENC	Foster Wheeler Environmental Corporation
GAC	granular-activated carbon
GCL	geosynthetic clay liner
ICs	institutional controls
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
MCL	maximum contaminant level

MMBTUH	million British thermal units per hour
MNA	monitored natural attenuation
MP	Monterey Park Disposal Company
NCI	New Cure, Inc.
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	operation and maintenance
OII	Operating Industries, Inc.
OU	operable unit
PCE	perchloroethylene
PLC	perimeter liquids control
POC	point of compliance
POHC	principal organic hazardous constituent
POTW	publicly-owned treatment works
ppm	parts per million
PRP	potentially responsible party
RDI	remedial design investigation
ROD	Record of Decision
SBR	sequence batch reactor
SCAQMD	South Coast Air Quality Management District
scfm	standard cubic feet per minute
SCE	Southern California Edison
SCM	site control and monitoring
SHERP	safety, health, and emergency response plan
SOP	Standard Operating Procedure
SWEAP	Southwest Early Action Plan
TBC	to be considered [criteria]
TCE	trichloroethylene
USACE	United States Army Corps of Engineers
VOC	volatile organic compound
VOST	volatile organic sampling train

Executive Summary

The United States Environmental Protection Agency (EPA) has completed the fourth five-year review for the Operating Industries, Inc. (OII) Landfill Superfund Site (the Site) 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 review was the third five-year review, completed in September 2005.

EPA began remedial investigation and feasibility study activities at the Site in 1984. The Site-wide remedial investigation, as a culminating effort of those numerous studies and investigations, was completed in October 1994. The objectives of the remedial investigation were to characterize physical conditions in the vicinity of the OII Landfill; characterize the nature and extent of contamination in the air, soil, surface water, and groundwater; and evaluate fate and transport of organic and inorganic chemicals present in groundwater associated with the landfill.

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 task of site work included the groundwater remedy.

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

- OU-1 Site Control and Monitoring (SCM)
- OU-2 Leachate Management
- OU-3 Landfill Gas (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. 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 will 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 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 the monitored natural attenuation (MNA) component of the groundwater remedy needs to be completed; the restrictive covenants need to be executed, and the two access and restrictive easements need to be recorded.

Five-Year Review Summary Form

SITE IDENTIFICATION

Site name : Operating Industries, Inc. Landfill Superfund Site

EPA ID: 0958 **CERCLIS ID :** CAT080012024

Region: 9 **State:** CA **City/County:** Monterey Park/Los Angeles County

SITE STATUS

NPL status: Final Deleted Other (specify) _____

Remediation status (choose all that apply): Operating Complete

Multiple OUs? YES NO **Construction completion date:** n/a

Has site been put into reuse? YES NO

REVIEW STATUS

Reviewing agency: EPA State Tribe Other Federal Agency _____

Authors names: Randy Born, P.E., John Erwin, P.E., Cory Koger Ph.D., Rick McComb P.E., Marc Sydow R.G., Shiann-Jang Chern, P.E.

Authors title: Engineers, toxicologist, geologist

Authors affiliation: U. S. Army Corps of Engineers (Sacramento District) and EPA

Review period: Feb - Sep 2010

Date(s) of site inspection: 23-24 Feb 2010

Type of review: Statutory

Policy Post-SARA Pre-SARA NPL-Removal only

Non-NPL Remedial Action Site NPL State/Tribe-lead Regional Discretion)

Review number: 1 (first) 2 (second) 3 (third) Other (*fourth*)

Five-Year Review Summary Form, cont'd

Triggering action:

- Actual RA On-site Construction
- Actual RA at OU #1
- Construction Completion
- Previous Five-Year Review Report
- Other (specify) _____

Triggering action date: September 28, 2005

Due date: September 28, 2010

Issues and Recommendations:

Issue

In general, the monitored natural attenuation (MNA) component of the groundwater remedy is working at the OII Site based on the results obtained from groundwater monitoring events. However, high concentrations of 1,4-dioxane have been detected in a monitoring well located southwest and downgradient of the South Parcel and approximately 200 feet upgradient of the groundwater organic compliance line.

Recommendation

Continue to assess the fate and transport of 1,4-dioxane in the area southwest of the South Parcel and complete the technical evaluation of the MNA component of the remedy.

Issue

Most of the institutional controls (ICs) have been implemented at the OII Site except the restrictive covenants on the North and South Parcels and the execution and recording of two access and restrictive easements (AREs) to ensure the access to the South Parcel for remedial purposes and restrictive uses.

Recommendation

Complete the recording of restrictive covenants for both the South Parcel and the North Parcel and the execution and recording of two Access and Restrictive Easements.

Protectiveness Statement

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 the MNA component of the groundwater remedy needs to be completed; the restrictive covenants need to be executed; and the two access and restrictive easements need to be recorded.

1.0 Introduction

The purpose of the five-year review process is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify issues found during the review, if any, and identify recommendations to address them.

This review is required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The Agency is preparing this Five-Year Review report pursuant to CERCLA §121 and the National Contingency Plan (NCP). CERCLA §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 sections [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.

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) 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 action no less often than every five years after the initiation of the selected remedial action.

The United States Environmental Protection Agency (EPA), Region 9, conducted the five-year review of the remedy implemented at the Operating Industries, Inc. (OII) Landfill Superfund Site in Monterey Park, California. This review was conducted by the Army Corps of Engineers – Sacramento District under the direction of the EPA Remedial Project Manager (RPM) from February 2010 through April 2010. This report documents the results of the review.

This is the fourth five-year review for the OII Site. The first, second, and third five-year reviews were completed in 1995, 2000, and 2005, respectively. The triggering action for this statutory review was the third five-year review, signed by EPA on 28 September 2005. This five-year review 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.

Most of the OII Site remedies have been completed except the groundwater remedy. The 1996 final Record of Decision (ROD) selected the groundwater remedy. The implementation of the final groundwater remedy was specified in the OII Eighth Partial Consent Decree (CD-8) in 2002. Two portions of the three perimeter liquid control systems have been completed, and the third is expected to be completed with one year.

2.0 Site Chronology

TABLE 2-1
Chronology of Site Events

Event	Date
Area used as a sand and gravel quarry	pre-1948
Landfilling operations begin in the former quarry area	Oct 1948
OII assumes site ownership	Jan 1952
Los Angeles Regional Water Quality Control Board (LARWQCB) classifies OII 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 <i>Resolution 78-76</i> , 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
OII site proposed to the National Priorities List	Oct 1984
All landfill operations cease	Oct 1984
EPA begins remedial investigation/feasibility study	1984
State files lawsuit against OII to perform remedial actions and enforce Orders	May 1985
OII site finalized on the National Priorities List	May 1986
EPA issues interim Record of Decision (ROD) for site control and monitoring	Jul 31, 1987
EPA issues interim ROD for leachate management	Nov 16, 1987
EPA issues Landfill Gas Migration Control ROD	Sep 30, 1988
EPA amends Landfill Gas Migration Control ROD	Sep 28, 1990
The site-wide remedial investigation is completed	1994

Event	Date
First five-year review completed	May 30, 1995
Feasibility study and risk assessment performed	1996
Final ROD issued	Sep 30, 1996
Landfill cover work begins	Summer 1997
Landfill gas treatment system (LFGTS) installed on North Parcel	Aug – Dec 1999
Second five-year review completed	Feb 18, 2000
CD-3 Final Construction As-Built Report including Site Operations Plan	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 approves potentially responsible parties' (PRPs') remedial action report for landfill gas and cover operable unit	Sep 24, 2002
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 five-year review completed	Sep 28, 2005
Final North Parcel Remedial Design for NP Cover	Jun 2008
Final Compliance Testing of Perimeter Liquids Control (PLC) System in Southwest Early Action Plan (SWEAP) Area	March 2009
PLC System North Central (NC) Area As-built (Phases I & II) Construction Complete Report	April 15, 2009
Final Compliance Testing Plan of the PLC System NC Area	March, 2010
North Parcel Cover Construction Completion Report approved	July, 2010
Compliance testing of NC Area PLC system completed	July 2010
EPA approves Technical Memorandum on the PLC system Northeast (NE) Area Study	August 18, 2010

3.0 Site Background

3.1 Physical Characteristics

The OII Landfill Site is located in Monterey Park, Los Angeles County, California (see Figure 3-1, Site Location Map). It is situated in the central Montebello Hills (also known as the La Merced Hills) of the Los Angeles Basin. The Montebello Hills are one of the chains of hills that separate the San Gabriel Groundwater Basin to the north from the Central Groundwater Basin to the south. Groundwater in and around the Site is not used for water supplies.

3.2 Geology/Hydrogeology

Shallow geologic units in the Montebello Hills comprise siltstone with sandstone and conglomerate interbeds of the Pliocene Age Pico time unit, poorly-sorted silty sand and gravel with silt interbeds of the Pleistocene Age Lakewood/San Pedro Formation, and recent alluvium. All three units crop out at the surface around the landfill.

The landfill base lies on an uneven surface left by quarrying materials of the Lakewood/San Pedro Formation, resulting in basal waste primarily in contact with the Pico unit. Lateral contact with the Lakewood/San Pedro Formation exists at the northwestern and eastern portions of the South Parcel and at the North Parcel. The Pico unit is described as marine deposits of alternating sandstone, sandy shale, clayey shale, and siltstone. The San Pedro Formation is coarse-grained sandstone and conglomerate with interbedded siltstone of shallow marine and fluvial origin. The Lakewood Formation consists of fluvial coarse sand and gravel conglomerates. The San Pedro and Lakewood Formations have been grouped together due to their similar hydrologic properties.

Hydrogeologic unit designations, based on the 1994 remedial investigation, divide the OII Site into shallow and deep systems. The shallow aquifer, also known as the Unconfined Aquifer, comprises saturated portions of the Lakewood/San Pedro Formation and the shallowest sandstones and siltstones of the upper Pico unit. Pico unit shallow siltstone forms the Shallow Silt Flow System that is in contact beneath much of the South Parcel and along its southwestern and southeastern boundaries. The lower Pico unit siltstone forms the Deep Silt Flow System, within which two deeper Pico unit sandstone aquifer systems have been delineated: South Aquifer and West Aquifer. Both the South Aquifer and West Aquifer are in contact with the landfill base as unconfined units and dip gently towards the southwest to form confined and discontinuous units isolated within the lower-permeability Deep Silt Flow System. The South Aquifer crops out farther to the east and underlies the stratigraphically-higher West Aquifer.

Groundwater flow at the Site is generally radial from the South Parcel. The low-to-moderate permeabilities of the OII aquifers result in mounding beneath the landfill, steep hydraulic gradients, and slow rates of flow. Flow within coarse-grained aquifer units is essentially horizontal, although flow within very fine-grained saturated units has been found to be predominantly downward.

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. The groundwater is not in contact with the waste prism at the eastern portion of the Site and is in fact about 13 feet below it.

3.3 Land and Resource Use

Prior to 1946, the Site area was a sand and gravel quarry cut into the Montebello Hills. The landfill property covers 190 acres and is divided by the Pomona Freeway (California Highway 60). The 45 acres to the north of the freeway are referred to as the North Parcel site and the 145 acres of the site south of the freeway are called the South Parcel site (see Figure 3-2, Site Layout). The neighboring city of Montebello borders the South Parcel.

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 autowrecking operation occupied much of the eastern portion of the North Parcel. The autowrecking 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 Site analytical laboratory are located on the North Parcel site. Currently the PRPs are working with a developer and the City of Monterey Park to redevelop the North Parcel site into a retail shopping center.

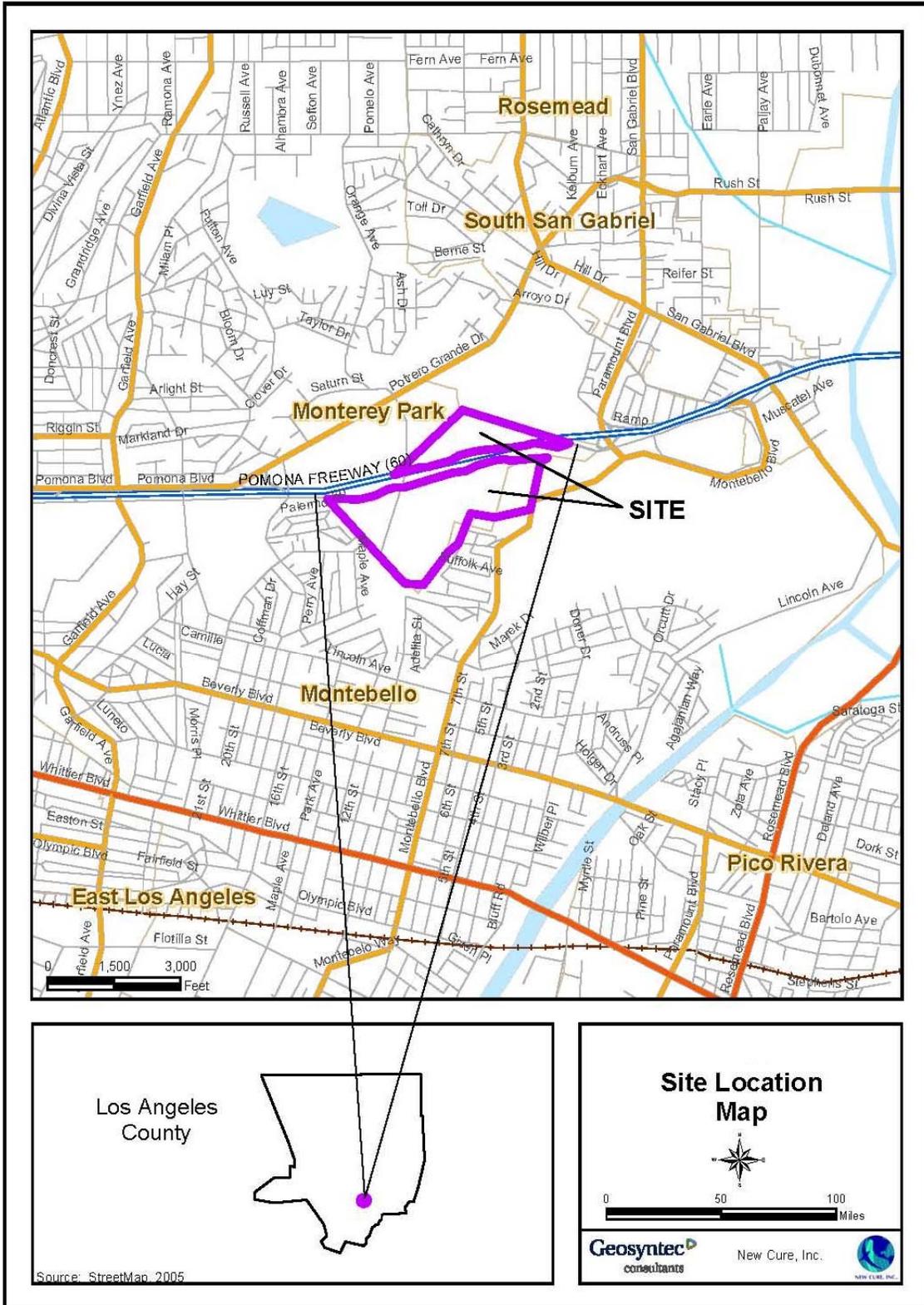
The area surrounding the Site is heavily developed with mixed general commercial/industrial and residential land use, with small pockets of open space. The Montebello Hills oilfield, which contains many active oil production wells, is located to the southeast of the South Parcel. A Southern California 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.

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 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.

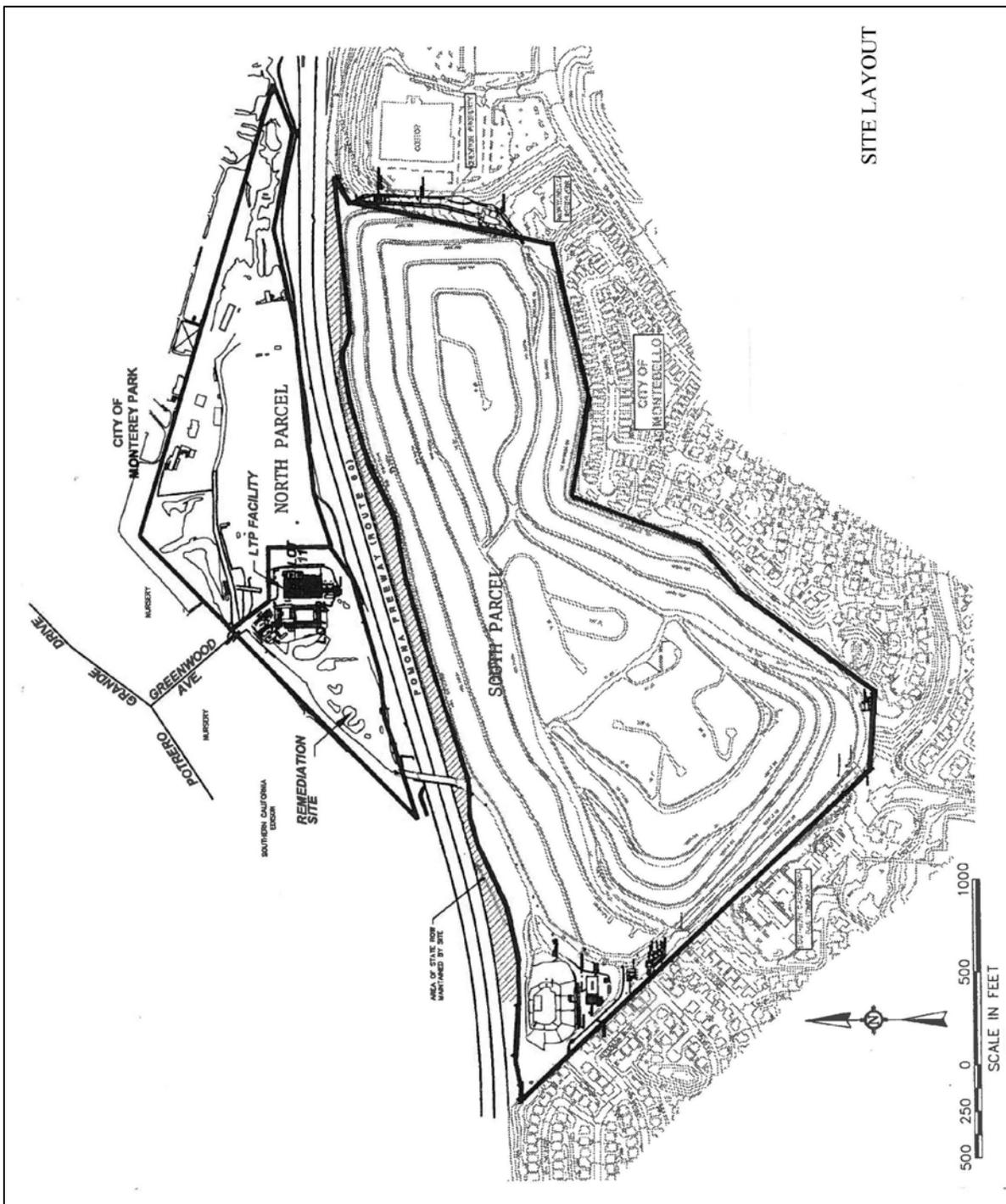
The two primary sources of contamination from the OII Landfill are leachate and landfill gas. Both of these materials are generated within the landfill. As they migrate out of the landfill, both leachate and LFG can contaminate surrounding media, such as ambient air, surface and subsurface soil, surface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

FIGURE 3-1. Site Location Map



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FIGURE 3-2. Site Layout



3.5 Initial Response

Various government agencies have been monitoring and regulating the OII Landfill for many years. 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 (DOHS) 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.

The OII Site was placed on the California Hazardous Waste Priority List in January 1984. In October 1984, the OII Site 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.

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.

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.

3.5 Basis for Taking Action

Monitoring probes around the OII Site 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 the OII Site. 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.

4.0 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 the OII Site 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. The Final ROD also included the requirements for the Institutional Controls. 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 will 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:

- Limit methane concentration to less than 5 percent at the landfill boundary;
- Control 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;
- Minimize odor nuisance. This is directly associated with the reduction of surface emissions;
- Attain applicable or relevant and appropriate requirements, standards, criteria, or limitations under federal and state environmental laws, according to the terms of CERCLA Section 121, 42 USC §9621;

- Expedite implementation by the sequencing and phasing of remedial activities to rapidly mitigate identified gas problems;
- Provide consistency with final remedies, considering potential effects of future remedial activities in developing alternatives to mitigate and minimize identified gas problems;
- Integrate gas operations and optimize migration control by integrating perimeter and interior gas extraction systems; and
- Use 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.

4.1.2 Final ROD Remedy Selection

The Final ROD addresses landfill perimeter liquids control and monitoring natural attenuation of contaminated groundwater downgradient of the landfill boundary, 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 perimeter liquids control (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, 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 institutional controls (ICs) to ensure appropriate future use of the OII site and to restrict groundwater use in the immediate vicinity of the OII site. Institutional controls 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 institutional controls 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 the OII Site, 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 institutional controls.
- **Environmental Monitoring:** Assess compliance with the chemical performance standards and cleanup standards (listed in the Table 7-1); 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.
- **Institutional Controls Within the Landfill Boundary:** Limit human exposure to potentially contaminated materials; prevent trespassing; and protect the integrity of the cap
- **Institutional Controls 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

Landfill Cover System. Design and construction of the landfill cover began in the summer of 1997.

On the flat top deck area, a two-foot foundation layer was constructed on top of the existing cover. A geosynthetic clay liner (GCL) was added on the top of foundation layer, then a two-foot protective soils layer, including vegetative layer, was placed above the GCL. Over most of the sloping area, four 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 design was installed to provide additional strength beyond that required in the pre-design. 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.

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 landfill gas treatment system (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% destruction and removal efficiency (DRE).

The gas control system on the west side of the South Parcel had methane concentrations continuing to exceed 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 landfill gas 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 are in the compliance level.

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 drain to drainpipes 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. A pre-certificate inspection of the OU-3 remedial action was conducted on November 8, 2000.

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.

Six microturbines were installed on the North Parcel. The electricity generated from landfill gases using the microturbine technology provided 70% of the energy required to operate site systems which resulted in a considerable cost savings.

4.2.2 Final ROD Remedy Implementation

Perimeter Liquids Control (PLC) System. The ROD identified three areas around the landfill where the water quality data indicated that PLC would be required:

- SWEAP area – along the western and southwestern perimeter of the South Parcel
- North Central (NC) area – along the western perimeter of the North Parcel
- Northeast (NE) area – the northeastern corner of the South Parcel

The first piece of PLC system includes the western and southwestern boundary of the South Parcel (known as the Southwest Early Action Plan or SWEAP area). The SWEAP system has undergone a series of expansions over the years and was completed in 2007. Additional control measures were installed in segments along the SWEAP area where vapor and liquids extraction wells were either absent or damaged (NCI, 2008).

The second piece of PLC system is in the north central area of the Site (known as the NC Area) which includes the western portion of the North Parcel and the northern portion of the South Parcel. The PLC NC system began operating on a nearly continuous basis in mid-2008, general extracting

between 5 and 10 gallons per minute (gpm). A noted decrease in groundwater elevations was observed in the North Central area once the PLC system came online.

The third piece of the PLC system is in the northeast portion of the South Parcel and the eastern portion of the North Parcel (known as Northeast Area, or NE Area). Although two portions of the PLC system have been installed, VOC concentrations at the POC and in groundwater beyond the landfill perimeter are still quite high. Therefore, additional extraction points are required. By early 2011, EPA expects to determine what additional facilities or enhancements will be needed, if any, to complete the NE PLC.

Groundwater Monitoring Program. The groundwater monitoring program serves several purposes, as described in Section 4.1.2. 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 are prepared in accordance with the LTGMP.

Monitored Natural Attenuation. Monitoring of natural attenuation requires monitoring wells located both within the areas of groundwater contamination and downgradient of the contamination at the groundwater compliance lines, beyond which contaminant concentrations should not exceed performance standards. The wells located within the areas of contamination help track the progress of natural attenuation. The wells located downgradient of the contamination, designated as sentinel wells, ensure that contamination is not migrating further than expected. The existing monitoring well network provides the monitoring points necessary to evaluate performance of the natural attenuation remedy.

Institutional Controls (ICs). The 1996 Final ROD mandates the use of both on- and off-site institutional controls as part of the final remedy selected for the Site. The Final ROD does not, however, specify which institutional controls should be used to achieve these objectives. Instead, the specific control mechanisms are specified in the consent decrees entered in relation to the Site. Both the Seventh and Eighth Partial Consent Decrees for OII (CD-7 and CD-8 respectively) contain requirements related to the implementation of the Final ROD's requirements for institutional controls.

Institutional controls for the OII Site include use restrictions, proprietary controls, information controls, and governmental controls. They are discussed in the following sections. EPA approved the "Final Access and Institutional Controls Work Plan" submitted by the PRPs on July 15, 2009. The biennially updated plan, which includes a report on the implementation of the required institutional controls, did not identify any failures of the required institutional controls.

Use Restrictions - On-site use restrictions currently are being adhered to, and no off-site use restrictions have been determined to be necessary yet. 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 and therefore present an exposure risk.

Proprietary Controls - The proprietary controls are the execution and recording of two 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 Institutional Controls 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's groundwater cleanup standards. This notice has not been mailed since 2005. A copy of the notice mailed in 2005 is contained in Appendix F. EPA plans to mail out a five-year review fact sheet in November 2010 which will incorporate the notice of current plume information.

Governmental Controls - The Governmental Controls include but are not limited to the zoning control, ordinances, and permitting process. Governmental controls need coordinated efforts from different agencies. The PRPs have done the coordination efforts with the Los Angeles Basin Watermasters, Los Angeles Regional Water Quality Control Board (LARWQCB), Los Angeles County Department of Public Works, CA Department of Water Resources, the CA 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.

4.3 System Operations/Operation and Maintenance (O&M)

The selected remedies include operation and maintenance of all facilities and environmental control systems at the OII Site. These include: the landfill cover system; the PLC system; groundwater monitoring system; leachate collection system; leachate treatment plant; 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 the OII Site 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, Landfill Gas Treatment System (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.

4.4 Operation and Maintenance Costs

Table 4-1 presents both the ROD-estimated costs and the actual dollars spent for the systems. The information was obtained from the Summary of Project Costs in both the *Remedial Action Report for the Gas Control, Cover, and Surface Water Management Systems* (USACE 2002) and the *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 (USEPA 2003).

Current O&M costs are generally within the range or below the estimated projections found in the Site RODs. It is anticipated that annual O&M costs will increase as the treatment and conveyance systems age.

TABLE 4-1

Operations and Maintenance Costs ¹

Fourth Five-Year Review Report for Oil Landfill Superfund Site, Monterey Park, California

Remedial Activities	Capital Cost (millions)		Annual O&M Cost 2005-2010 (millions)
	Actual	ROD Estimate	
Gas Control, Cover and Surface Water	Actual	\$115.1	\$3.5
	ROD Estimate	\$68.4-118.3	\$3.7-4
Perimeter Liquids Control (PLC), Monitoring Natural Attenuation (MNA) and Operations & Maintenance	Actual ²	\$3.7	\$3.0
	ROD Estimate	\$17.6	NA

NA – Not available

1. Costs from NCI March 2010
2. the PLC & MNA capital costs are the actual capital costs incurred through mid-2010. The final pieces of the PLC system and MNA have not been completed yet. Therefore, the actual PLC and MNA capital costs will be higher.

5.0 Progress Since Last Five-Year Review

The last five-year review for the OII Site was completed in September 2005.

The 2005 Five-Year Review determined that:

“The final remedy at the Operating Industries, Inc., Landfill site is expected to be protective of human health and the environment. Portions of the required remedial actions that are still incomplete include capping and landfill gas control at the North Parcel and full implementation of required PLC systems. In addition, implementation of institutional controls has not yet been completely fulfilled. Completion of these remedial activities, along with continued groundwater monitoring/evaluation, will allow EPA to predict with greater certainty the time required to achieve the groundwater cleanup goals. In the interim, exposure pathways that could result in unacceptable risks are being controlled. Many of the threats at the site have been addressed through capping and capture/treatment of both landfill gas and leachate. Continued operations/maintenance activities and implementation of site security measures will result in further reduction of these threats.

Long-term protectiveness of the implemented remedies will be verified by obtaining additional water samples to fully evaluate potential migration of the contaminant plume downgradient/radially and vertically from the landfill. Current data indicate that the plume remains relatively stable, and areas where a problem may be evolving are undergoing further investigation and remedial actions. Full implementation of institutional controls will also prevent exposure to, or the ingestion of, contaminated water.”

Three issues and recommendations were made regarding the protectiveness and technical improvement during the 2005 Five-Year Review. The recommendations and follow-up actions since 2005 Five-Year Review are discussed in detail in Section 5.1.

5.1 Recommendations and Follow-up Activities

Recommendation on the North Parcel remedy: “New Cure Inc. (NCI) continues to move forward toward development of a final design of the North Parcel remedy and, ultimately, its construction.”

Follow-up: In April 2004, EPA directed the PRPs to implement the North Parcel remedy as an item of Excluded Work under CD-3. The PRPs’ contractor, NCI, collected additional geotechnical engineering data and remapped the existing NP landfill waste boundary in 2005 and 2006. The NP landfill cover design was approved in July 2008. The construction of the NP landfill cover was completed in the summer 2009. After completion of two consecutive 90-day performance tests, NCI submitted the draft final NP landfill cover Remedial Action complete report in April 2010. EPA approved the PRPs’ final NP Remedial Action report in July 28, 2010.

Recommendation on Perimeter Liquids Control (PLC) System: “Complete the design and implementation of perimeter liquids control actions.”

Follow-up: Since last five-year review, considerable progress has been made on implementation of the required PLC systems to control leachate migration offsite. The PLC system in the SWEAP Area of the OII Site was completed and began full operation in 2009. The compliance testing of the PLC north central (NC) area was completed and determined to be operational in July 2010. Due to the complexity of the groundwater flow pattern and flat groundwater gradient in the NE area, the implementation of this final piece of PLC system has not been completed. The study is ongoing and is scheduled to be completed in 2011.

Recommendation for the ICs Implementation: “Implement the Institutional Controls.”

Follow-up: The PRPs updated the Final Access and Institutional Control Plan (ICs Plan) in 2009. The PRPs have conducted biannual inter-agency ICs implementation meetings as required by the ICs Plan. The agencies involved in the meetings include the LARWQCB, the Watermaster, CA Department of Water Resources, Los Angeles County Department of Public Works, the City of Monterey Park, the City of Montebello, and the CA DTSC. The focus of the meetings is a discussion of the water use and drilling issues above the OII Site groundwater compliance area. The last inter-agency meeting was conducted in August 2009. The PRPs have also requested well data from the CA Department of Water Resources to conduct well data review every two years. Well data review includes all the wells within a two mile radius of the OII Site to confirm there were no new wells drilled within the OII groundwater compliance area. The last well data review was performed by the PRPs in summer 2009.

EPA has discussed with the PRPs the need for restrictive covenants on the North and South Parcels as required by the ROD and the consent decrees. The OII Access and Restrictive Easements (AREs) have been drafted, but not recorded due to a delay in transfer of property ownership. Once the remedial activities are completed or properties are sold (sale of the North Parcel is currently in escrow), the restrictive covenants and the AREs should be recorded in the titles.

5.2 Other Site Work

From the time of the issuance of the previous five-year review until present, many activities have occurred and continue to occur at the Site. Some of the major milestones are listed below.

5.2.1 South Parcel

- Integrated surface gas emission and cover and settlement monitoring and evaluation surveys were performed. Annual reports to summarize information gathered during the reporting year relating to settlement and performance of the cover system, roads, and the surface water management systems were submitted.
- Four additional extraction wells were installed to address discrete areas along the former SWEAP system where the potential for off-site landfill liquids migration exists due absent or damaged vapor and liquids extraction wells (NCI, May 2008).
- Final compliance testing report of the SWEAP system was approved by the EPA on July 9, 2010.
- A review of fluid level and hydrostratigraphic data northwest of the SWEAP system was performed to assess preferential pathway for potential off-site migration of landfill-related liquids.

5.2.2 North Parcel

The PRPs continue North Parcel Cover O&M work, make improvements to the stormwater drainage system, and maintain the LTP. In August 2005, the PRPs conducted LFGTS performance test on second unit at the NP site. Per the five-year testing cycle, the performance test on the first unit started in September 2010.

5.2.3 Site-wide

- Continued improvements, upgrades, and optimization evaluation of the groundwater and gas monitoring systems are ongoing.
- Microturbine technology continued to use LFG to generate electricity supply for operations at the Site.
- Annual Groundwater Monitoring and Evaluation Reports (AGMERs) for 2005, 2006, 2007, 2008, and 2009 were completed.
- The Ninth Partial Consent Decree, a cash-out settlement with a group of major PRPs, was lodged and entered in 2010.
- Annual stormwater discharge reports were prepared and submitted to the LARWQCB, as required by general permit No. 419S002548 for industrial activities.
- The industrial wastewater discharge permit No. 14501 was renewed in 2008 by the CSDLAC and is valid for a five-year period. This permit allows for treated wastewater to be discharged to the sanitary sewer at the LTP located on the North Parcel. An audit for the on-site laboratory occurs every two years.
- EPA approved the “Access and Institutional Controls Work Plan” submitted on July 15, 2009.

6.0 Five-Year Review Process

The OII Five-Year Review team was led by Rick McComb, P.E., of USACE, and included members Marc Sydow, R.G., Randy Born, P.E., John Erwin, P.E., and Cory Koger, Ph. D., who contributed subject area expertise in engineering, geotechnical engineering, and geology/hydrology. Shiann-Jang Chern, EPA's primary remedial project manager for the Site, represented EPA on the Five-Year Review team.

The five-year review consisted of a review of relevant documents, a site inspection, and interviews with the EPA project manager, current Work Defendants and OII on-site staff, OII consultants, and former and current USACE oversight managers.

6.1 Community Involvement

Activities to involve the community in the five-year review were initiated with a public notice published in the February 12, 2010 edition of the *Los Angeles Times*, with notification that a five-year review was to be conducted for the OII Landfill Superfund Site, describing the process, and encouraging community input to the EPA community involvement coordinator. Following the release of the Five-Year Review report, EPA will distribute a fact sheet to the site mailing list summarizing the report along with any findings and recommendations. A public notice containing similar information will also be placed in the *Los Angeles Times*. Five-Year Review and OII Site update information are also posted in the EPA's OII Landfill Superfund Site website.

6.2 Documents Reviewed

As a part of the five-year review process, the USACE conducted a brief review of numerous documents related to site activities. See Appendix A for a list of the documents that were reviewed.

6.3 Data Review

The following sections describe the data that were reviewed for components of the OII Landfill remedial actions.

6.3.1 Landfill Cover and Related Components

There is an annual reporting requirement regarding settlement of the landfill and performance of the cover system. Both the 2005 and 2009 annual reports were reviewed. It should be noted that 2005 was reportedly the last comprehensive Cover Evaluation Report provided by NCI. Table 6-1 provides a summary of the major topics and reporting results for each year, as well as observations made during the fourth five-year review inspection performed in February 2010.

TABLE 6-1

Summary of 2005 and 2009 Annual Report findings relating to Cover Settlement Monitoring and Evaluation, and Fourth Five-Year Review Inspection for OII Landfill Superfund Site, Monterey Park, California

Major Topic	2005	2009/2010
Landfill Settlement	<p>GPS surveys along settlement profiles and bench roads revealed no areas of rapid settlement or potential rainwater ponding, other than at V-ditches that are addressed by existing SOPs. The report stated relocation of the southeast detention basin may be needed to address repeated settlement concerns noted during the December 2005 annual inspection.</p>	<p>September 2009 survey data show average settlement over 5.5 years ranging from 3 inches along Fire Break Road to 35 inches across the Top Deck.</p> <p>Five-Year Observations: no areas of potential rainwater ponding were observed. A significant depression noted between the 540N and 480N roads at marker "G-5" will be monitored by NCI and repaired (backfilled) when needed. Maintenance repairs to the North Slope and miscellaneous other areas due to settlement are expected and on-going. There are no major areas of settlement that indicate need for repairs or corrective action at this time.</p>
Monocover	<p>No significant cover damage due to storm events or earthquakes occurred in 2005. Slopes were found to be stable and vegetation cover was good. Moisture probe (TDR) monitoring indicated the evapotranspiration layer functioned as designed. About 25% of the North Slope was re-worked to correct normal settlement-induced cracking and depressions.</p>	<p>Five-Year Observations: the monocover, vegetation and North Slope appear to be in good condition with no instability issues observed during the Feb 2010 inspection. By implementation of appropriate SOPs for monocover system maintenance and repair, the cover complies with performance standards.</p>
GCL Cover	<p>The GCL layer did not show signs of deep-rooted vegetation or depressions that would cause ponding or infiltration. However, heavy evidence of burrows up to 2 feet deep was observed in the 24-inch thick protective cover soil above the GCL layer. Burrows may require additional vector controls or relocation of the existing bird perches if further increases in burrowing animal activity are observed. Soil cover areas requiring</p>	<p>Five-Year Observations: the GCL cover appears to be in good condition with no instability, depression or deep rooting vegetation problems observed during the Feb 2010 inspection. By implementation of appropriate SOPs for GCL cover maintenance and repair, the cover complies with performance standards.</p>

TABLE 6-1

Summary of 2005 and 2009 Annual Report findings relating to Cover Settlement Monitoring and Evaluation, and Fourth Five-Year Review Inspection for OII Landfill Superfund Site, Monterey Park, California

Major Topic	2005	2009/2010
	attention were repaired using SOP 164, and re-seeding of isolated areas was performed.	
Access and Bench Roads	The bench roads are in good condition following repair work in 2005, though additional minor re-work may be needed on the 480N and 540N roads due to settlement. No instability issues, major erosion, or loss of road base were noted as of the December 2005 annual inspection. New visual inspection criteria were recommended in paragraph 5.4 (bottom page 13).	Five-Year Observations: the bench roads are in fair condition (some subsidence and cracking continues to occur) following pressure grouting and re-work on an as-needed basis due to landfill settlement. Continued implementation of appropriate SOPs relating to bench road maintenance and repair will provide all-weather access and comply with performance standards.
Toe Buttress	No repairs during 2005 were listed for the Toe Buttress Road. However, the cross-slope was reportedly increasing towards the V-ditch (in board), possibly requiring future action to maintain roadway access associated with depression and adverse grades. No stability issues were noted along the Toe Buttress Road area.	Five-Year Observations: the Toe Buttress area appeared to be stable. Surveys would be needed to confirm any future displacement concerns.
Surface Water Management Systems	A record wet season with 37 inches of rainfall was recorded in 2005, including two 24-hour 5-inch-plus storm events. The soil loss and sediment retained in the northwest and southeast detention basins were less than expected. The cover system showed adequate performance as indicated in the annual stormwater report required by the Regional Water Quality Control Board.	2008-9 SWDGP Report: (to be completed/updated after review of the Report) The surface water management system complied with the performance standards relevant to landfill settlement and cover system performance. No further action or modification to the storm water system is required, other than continued implementation of relevant SOPs.

GCL = geosynthetic clay liner.
 HDPE = high-density polyethylene.
 GPS = global positioning system.

6.3.2 Groundwater

The control of Site-associated liquids will be achieved through implementation of PLC actions at the landfill perimeter. See Figure 6-1 for the distribution of verified exceedances of performance standards in OII Landfill site monitoring wells.

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 determine 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.

6.3.2.1 Perimeter Liquids Control System

The PLC systems in the SWEAP area and North Central area have been constructed and are operational. Compliance testing of the SWEAP area PLC system was conducted from August through November 2009. The final compliance testing report was approved by EPA in 2010. The compliance testing demonstrated that landfill liquids migration in the SWEAP area is being controlled.

The North Central Area PLC compliance testing was initiated in March 2010 and completed in July 2010. Early indications are that the PLC system will be able to effectively control landfill liquids at the landfill perimeter limiting further impacts at the POC and inhibiting off-site migration of landfill liquids.

Evaluations are ongoing in the Northeast area to determine whether additional actions are needed to complete PLC system implementation.

6.3.2.2 Monitored Natural Attention

The formal MNA assessments are not fully implemented due to the incomplete implementation of the final piece of PLC System in the NE Area. However, groundwater data in each of the downgradient areas (south, west and northeast of the South Parcel and west of the North Parcel) are being evaluated on an annual basis and reported in the AGMERs. As reported in the recent (2008 and 2009) AGMERs, chemical concentrations in the groundwater in areas downgradient of the landfill perimeter are relatively stable. There are isolated areas with increasing and decreasing contaminant conditions, however, in general contaminant conditions are consistent with what was anticipated in the ROD.

While these general evaluations indicate that MNA is likely progressing as intended in most areas, the entire MNA remedy component will not likely be fully functional until approximately late 2012 after the completion of PLC system in the NE area in 2011 and additional characterization and reevaluation of 1,4-dioxane in the southwest areas described above has been completed.

In the area west of the South Parcel and downgradient of the SWEAP PLC system, elevated 1,4-dioxane concentrations are higher than expected in locations that are considerably downgradient of the landfill perimeter and relatively close (approximately 200 feet) to the compliance line. The existing sentinel wells may not be adequate.

At the northeast corner of the South Parcel, new and ongoing exceedances of VOCs have occurred in groundwater beyond the landfill perimeter since the last Five-Year Review (2005). Landfill gas is thought to be the primary source of the groundwater contamination observed in this area. The VOC concentrations in groundwater were decreasing in this area in early 2000. Due to a landfill underground fire occurred in this area in 2002, part of the LFG extraction system was damaged. The LFG extraction system in this portion of the landfill has been reevaluated and improvements made. However, these improvements have not yet resulted in significant reductions in VOC concentrations at the POC or in downgradient monitoring wells. The groundwater gradient in this area is extremely flat and there is no indication that contamination is migrating beyond the existing monitoring well network.

As described in the Final ROD, it is expected that the natural attenuation remedy will take decades before full groundwater cleanup is completed. Groundwater monitoring and evaluation will continue on a routine basis until the groundwater cleanup performance standards have been achieved. .

6.3.2.3. Groundwater Monitoring Program

Groundwater monitoring is conducted semiannually (generally in February and August), as described in the Final LTGMP (NCI 2002a). In selected instances (i.e., new wells or if requested by EPA), monitoring is conducted quarterly. The AGMER is also intended to evaluate the groundwater data as it relates to performance of the PLC systems and the natural attenuation remedy. The most recent EPA-approved AGMER was submitted in December 2009.

Detection Monitoring. Detection monitoring is conducted along the site perimeter to identify any potential new releases attributable to landfill liquids. Recent (2008 and 2009) groundwater sampling identified new Chemical Performance Standard (CPS) exceedances in select detection monitoring wells: 1,4-dioxane in OI-59B in the SWEAP Area and benzene in OI-28B along the eastern perimeter of the South Parcel. The benzene concentration in OI-28B showed a slight increase (from 3 µg/L to 4.3 µg/L) from 2008 to 2009. Completion of the SWEAP PLC system should be able to control these recent CPS exceedances.

Adequacy of Groundwater Monitoring Program. The analytical program is generally adequate to satisfy the requirements of detection, compliance and performance monitoring. However, as noted above in Section 6.3.2.2, additional monitoring wells may be required downgradient of the landfill west of the SWEAP

area as part of the evaluation of 1,4-dioxane exceedances. Additional wells may also be required in the Northeast area PLC system as part of the ongoing evaluation in that area.

Optimization evaluation of the overall sampling plan continues, and reductions in sampling frequencies and analyte lists have been achieved with EPA concurrence. Low-flow sampling techniques have been utilized at OI-35A. Low-flow pumps will be installed for all wells when the old pumps need to be replaced

6.3.3 LTP, LFGTS, and Stormwater Control Systems

The LTP, LFGTS and stormwater control systems have not experienced significant changes since the last five-year review. The detailed evaluation of these remedy components from the last five-year review is found in Appendix G.

This section provides a general discussion of data collected to evaluate past performance and current status of these remedy components.

- No violations have been reported from either the permitted wastewater discharge or the North and South LFGTS stacks over the last five years.
- The next LFGTS stack to be tested is the north stack in the September 2010 timeframe. Currently, the stack destruction efficiency is required to be at 99.99% and that has been consistently met. Self reporting to the Air Quality Management District is done on a monthly basis.
- A short interview with CSDLAC staff (Mr. Paul Martyn) indicates that OII has met all requirements for Permit 14501 with the CSDLAC. The last discharge problem with the OII site was ten years ago when there was a minor nickel violation. Mr. Martyn says that because NCI pretests before discharge, there is no problem and the CSDLAC is very satisfied with OII.
- Efficiency of power generation from the microturbines at the LFG treatment plant has decreased dramatically due to the units nearing the end of their service life.
- Approximately two 20-cubic yard bins of leachate filter cake are sent to Port Arthur, Texas, every three months for incineration. A certificate of incineration is returned to OII for every shipment.

6.4 Site Inspection

USACE representatives were taken on a Site inspection led by EPA and NCI (OII Site Management Team) staff on February 23 - 24, 2010. The inspection included the components of OU-1 and OU-3, as well as a driving tour of the surrounding area including some of the off-site wells. A summary of the inspection findings is presented below. The site inspection checklist and photos are provided in Appendices C and E, respectively.

On the day that the Site inspection was conducted, the weather was generally clear and temperatures were mild. Significant rainfall had occurred prior to the visit and there was a small slump evident along a road on the South Parcel that was under repair. Landfill vegetation was very green. There was no ponding noted at either the North or South Parcels. There were no unusual or distinctive odors or any exposed waste debris observed while the Site tour was being conducted. There were areas where pressurized grouting of subsurface voids had recently been finished.

No significant issues have been identified relating to the South Parcel based upon the Site inspection. All of the systems appeared to be properly monitored, operated, and maintained. The LFG and surface water conveyance piping appeared to be in good condition.

North Central Area PLC system compliance testing concluded in July 2010. All remedy components installed on the North Parcel appeared to be working as designed, and are properly monitored, operated, and maintained.

The site is completely secured around its perimeter by fencing, with a single gap in the fence noted to OII staff who were aware of the gap and planned to repair it. There was no evidence of vandalism.

A subset of groundwater monitoring wells, PLC extraction wells, LFG extraction wells, and conveyance lines were examined and found to be in good working order.

Some areas of the landfill are very close to Montebello neighborhoods, especially along the southern border. Despite the proximity, the landfill appears well maintained, and no encroachment or nuisance issues were observed.

6.5 Interviews

Technical interviews were conducted with EPA staff, PRPs' site operational manager, PRPs' site operational staff, and USACE staff, as oversight contractor for EPA project coordinator at the OII Site. Additional telephone interviews were conducted with PRPs project coordinator and PRPs' contractors. Interview questions/answers and detailed interview forms from each interviewee listed below are provided in Appendix D.

7.0 Technical Assessment

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

The review of documents, ARARs, results of the site inspection, and site interviews indicates that the remedy is functioning as intended by the RODs. For remedy components where construction work has been completed, remedial action performance requirements are being met and approved O&M procedures are being followed.

The PLC actions in the SWEAP and NC area have been completed. The data obtained from the SWEAP PLC and NC PLC performance tests have demonstrated that the performance standards required by the Final ROD have been achieved. The study of the final portion of the PLC system in the NE area is continuing and will be completed in 2011. Additional extraction wells may be needed in the PLC NE area. Until the completion of final portion of PLC system, the perimeter liquids control system cannot be considered fully implemented as required by the Final ROD.

For the MNA component of the groundwater remedy, additional monitoring wells and sentinel wells may be required west of the South Parcel as part of the ongoing evaluation of 1,4-dioxane exceedances downgradient of the landfill.

The restrictive covenants on the SP and NP have not completed. The execution and recording of two Access and Restrictive Easements (AREs) have also not been completed. Current land use restrictions on the SP and NP are enforced under the terms of CD-7 and CD-8, and thus the lack of complete ICs does not affect protectiveness in the short term. However, the lack of ICs will become an issue if the property titles have been transferred without the attachment of restrictive covenants. Until the ICs have been fully completed, the long-term functioning of the remedy as required by the Final ROD will not be achieved.

7.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels and RAOs Used at the time of Remedy Selection still Valid?

During this five-year review, the assumptions concerning exposure to constituents of concern, toxicity data, and changes in remedial action objectives were evaluated. No current or potential changes have been identified during this five-year review process. The following section summarizes the analysis performed for the human health and ecological risk evaluations.

7.2.1 Human Health Evaluation

7.2.1.1 Changes in Toxicity

The 1996 ROD for the OII Ste identifies groundwater cleanup standards based on maximum contaminant levels (MCLs) or risk-based values (Table 7.1).

7.2.1.2 Changes in Standards and To Be Considered (TBC Criteria)

The five-year review process includes an assessment of changes in remedial action objectives and/or cleanup standards with respect to overall protectiveness of the remedy. The information provided in Table 7.2 is pertinent to the remediation objectives stated for the selected remedy at the OII Site. Table 7.1 compares the MCLs or risk-based standards from the 1996 ROD with the current MCLs or (if an MCL does not exist) EPA Regional Screening Levels (RSLs) for tap water. RSLs are to-be-considered (TBC) criteria in that they are not promulgated standards, but rather screening-level criteria. As shown in Table 7.2, there have been a number of changes to MCLs.

Eight (8) compounds had lower MCLs in 2010 than in 1996: arsenic, cyanide, dibromoethane, ethylbenzene, fluoride, methoxychlor, thallium, and 1,2,4-trichlorobenzene. However, there is no current exposure to groundwater constituents by any receptor.

Table 7.3 has been compiled to compare original discharge requirements to existing (i.e., currently issued) permit effluent limitations. Discharge from the OII Site LTP is to an industrial sewer system. There have been no changes to the discharge limits as shown in Table 7.3.

7.2.1.3 Changes in Risk Assessment Methods

The human health risk assessment method and results for the OII Site are detailed in the Feasibility Study Report (EPA, 1996a) and summarized in the 1996 ROD. There are no significant changes to risk assessment methodology or exposure assumptions outlined in the risk assessment that indicate a change in the level of protectiveness. The exposure parameters used to develop the estimates of risk are standard default EPA values. The exposure assumptions include both adult and child residential receptors, and are therefore conservative, valid and appropriate.

7.2.1.4 Changes in Exposure

The on-site land use is expected to remain industrial/commercial. No significant changes in exposure or water use are expected. Exposure pathways evaluated in the risk assessment for other than on-site workers are currently incomplete. Direct ingestion, dermal contact, or inhalation of fugitive dust from OII soils are not complete exposure pathways since the remedy blocks exposure via these routes, and contaminated groundwater is not used as a source of water supply.

7.2.2 Environmental Health (Ecological Assessment) Evaluation

In the Feasibility Study Report (EPA, 1996a) and as summarized in the 1996 ROD, it was determined that ecological exposure pathways to potential site contaminants are incomplete for both on- and off-site areas. A Site visit completed in February 2010 indicated that there is no current ecological habitat on the OII Site. No changes in exposure to ecological receptors are anticipated.

7.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

There have not been any natural disasters, such as weather-related or seismic incidents, in recent years that would affect or compromise the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

TABLE 7-1
Comparison of Cleanup Standards in the 1996 ROD to Current MCLs or RSLs

Contaminant	Media	1996 Selected Performance Health-Based Standard ^a	Current 2010 State and Federal Drinking Water or Risk-based Levels State ^b / Federal ^c
Organic Constituents (ug/L)			
1,1,1-Trichloroethane	water	200	200/200
1,1,2-Trichloroethane	water	5	5/5
1,1-Dichloroethane	water	5	5/NA
1,1-Dichloroethylene	water	6	6/7
1,2,4-Trichlorobenzene	water	70	5/70
1,2-Dichlorobenzene	water	600	600/600
1,2-Dichloroethane	water	0.5	0.5/5
1,2-Dichloroethene (cis)	water	6	6/70
1,2-Dichloroethene (trans)	water	10	10/100
1,2-Dichloropropane	water	5	5/5
1,3-Dichloropropene (cis)	water	0.5	0.5/NA
1,3-Dichloropropene (trans)	water	0.5	0.5/NA
1,4-Dichlorobenzene	water	5	5/7.5
1,4-Dioxane	water	1.6	3
2-Butanone	water	2464	7100 ^d
4-Methyl-2-pentanone	water	198	NA
Acetone	water	768	22000 ^d
Aldrin	water	0.00053	4000 ^d
Benzene	water	1	1/5
BHC, beta-	water	0.05	1/1
BHC, gamma (Lindane)	water	0.2	4/4
Bis (2-ethylhexyl)phthalate	water	4	4/6

Butylbenzylphthalate	water	100	NA
Carbon Tetrachloride	water	0.5	0.5/5
Chlordane	water	0.1	0.1/0.2
Chlorobenzene	water	70	91 ^d
Chloroform	water	1100	80
Di-n-octylphthalate	water	9.3	NA
Dibromomethane	water	100	8.2^d
Endrin	water	2	2/2
Ethylbenzene	water	700	300/700
Heptachlor	water	0.01	0.01/0.4
Heptachlor epoxide	water	0.01	0.01/0.2
Methoxychlor	water	40	30/40
Methylene chloride	water	5	5/5
Pentachlorophenol	water	1	1/1
Styrene	water	10	100/100
Tetrachloroethylene	water	5	5/5
Toluene	water	150	150/1000
Trichloroethylene	water	5	5/5
Tichlorofluoromethane	water	150	150/NA
Vinyl Chloride	water	0.5	0.5/2
Xylenes	water	1750	1750/10000

Inorganic Constituents (ug/L)

Arsenic	water	50	10/10
Barium	water	1000	1000/2000
Beryllium	water	4	4/4
Cadmium	water	5	5/5
Chromium VI	water	50	0.043^d
Chromium III	water	50	50/100
Copper	water	1300	1300/1300
Cyanide	water	200	150/200
Fluoride	water	19905	2000/2000
Lead	water	15	15/15
Manganese	water	1830	880 ^d
Mercury	water	2	2/2

Nickel	water	100	100/Remanded
Nitrate (as NO ₃)	water	10000	45000/NA
Nitrate (as N)	water	1000	1000/1000
Selenium	water	50	50/50
Thallium	water	4153	2/2
Vanadium	water	256	180^d
Zinc	water	10950	11000 ^d

^a 1996 ROD for OU1, EPA/ROD/R09-96/152

^b State MCLs (<http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Chemicalcontaminants.aspx>)
as of 3/26/10

^c Federal MCLs (<http://www.epa.gov/safewater/contaminants/index.html#listmcl>)
as of 3/26/10

^d USEPA Regional Screening Levels for Tapwater
(<http://www.epa.gov/region9/superfund/prg/index.html>) as of 3/26/10

NA – Not available.

Bolded values are below ROD values.

TABLE 7-2

Review of Applicable or Relevant and Appropriate Requirements that Potentially Impact Protectiveness.

REQUIREMENT AND CITATION	ACTION TAKEN ATTAIN REQUIREMENT	CHANGE IN ARAR
Clean Water Act, 33 USC §1251-1387, and 40 CFR pt. 122, National Pollutant Discharge Elimination System, implemented by State Water Resources Control Board Statewide General Permits re Stormwater Discharges, 99-08 (General Construction) and 97-03 (General Industrial)	Continued Groundwater Monitoring	None
Postclosure Land Use, 27 CCR §21190	Land Use Restrictions in Place	None
Solid Waste Management Act of 1972, 27 CCR, §20919, Gas Control	Continued Soil Gas Monitoring	None
Gas Monitoring and Control during Closure and Postclosure, 27 CCR, §20921,	Continued Soil Gas Monitoring	None
Monitoring during Closure and Postclosure, 27 CCR §20923	Continued Soil Gas Monitoring	None
Perimeter Monitoring during Closure and Postclosure, 27 CCR §20925	Continued Soil Gas Monitoring	None
Structure Monitoring during Closure and Postclosure, 27 CCR §20931	Continued Soil Gas and Indoor Air Monitoring	None
Monitoring Parameters during Closure and Postclosure, 27 CCR §20932	Continued Soil Gas Monitoring	None
Monitoring Frequency during Closure and Postclosure, 27 CCR §20933	Continued Soil Gas Monitoring	None
Landfill Gas Control, 27 CCR §20937	Continued Soil Gas Monitoring	None
Landfill Gas Control, 27 CCR §20937	Continued Soil Gas Monitoring	None
Vadose Zone Monitoring, 27 CCR §20415(d)	Continued Groundwater and Soil Gas Monitoring	None
Postclosure Care and Use of Property, 27 CCR §21180	Continued Groundwater and Soil Gas Monitoring	None

REQUIREMENT AND CITATION	ACTION TAKEN ATTAIN REQUIREMENT	CHANGE IN ARAR
Water Quality Monitoring Requirements for Permitted Facilities, 22 CCR, §§66264.95, 66264.97, 66264.98, 66264.99	Continued Groundwater Monitoring	None
Groundwater Monitoring, 27 CCR §§20405, 20415-20430	Continued Groundwater Monitoring	None
Porter-Cologne Water Quality Control Act, Cal. Water Code §§13000, 13140, 13240; State Water Resources Control Board Resolution No. 88-63, "Sources of Drinking Water Policy"; Los Angeles RWQCB Resolution 89-03 (adopting Resolution 88-63 into Basin Plan)	Continued Groundwater Monitoring	None

TABLE 7-3
 Chemical Specific Effluent Surface Water Discharge Limits

Pollutants	1996 ROD Discharge Limits mg/L	Current General Permit Substance Limits ^b mg/L
pH	>6	6.0 S.U.
Dissolved Sulfides	0.1	0.1
Temperature	140°F	140°F
Arsenic	3	3
Cadmium	0.69	0.69
Chromium	2.77	2.77
Copper	3.38	3.38
Lead	0.69	0.69
Mercury	2	2
Nickel	3.98	3.98
Silver	0.43	0.43
Zinc	2.61	2.61
Cyanide	1.20	1.2
Oil and Grease	75	NL
Total Volatile Organics	1	1
Total Semivolatile Organics	1	1
Total Identifiable Chlorinated Hydrocarbons	Essentially None	0

^a USEPA, 1996a. Operating Industries, Inc., Landfill OU1 Record of Decision. Monterey Park, CA, EPA/ROD/R09-96/152, September 30.

^b 2008 Industrial Wastewater discharge Permit No. 014501, County Sanitation Districts of Los Angeles County, expires 6/5/2013.

NL – Not listed.

8.0 Issues and Recommendations

Issue

In general, the Monitored Natural Attenuation (MNA) component of the groundwater remedy is working at the OII Site based on the results obtained from groundwater monitoring events. However, there have been high concentrations of 1,4-dioxane detected in a monitoring well in the southwest area downgradient of the South Parcel and approximately 200 feet upgradient of the groundwater organic compliance line, indicating that MNA may not be effective for 1,4-dioxane.

Recommendation

Continue to assess the fate and transport of 1,4-dioxane in the Southwest area of the South Parcel. Complete the technical evaluations of MNA.

Issue

Most of the ICs have been implemented at the OII Site except the restrictive covenants on the North and South Parcels and the execution and recording of two access and restrictive easements (AREs) to ensure the access to the South Parcel for remedial purposes and restrictive uses.

Recommendation

Complete the recording of Restrictive Covenants on South Parcel and North Parcel and the execution and recording of two Access and Restrictive Easements

TABLE 8-1

Summary Table - Issues, Recommendations and Follow-Up Actions
Fourth Five-Year Review Report for Oil Landfill Superfund Site, Monterey Park, California

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
1,4-dioxane detections in SW area.	Complete technical evaluations of MNA	NCI	EPA	2012	No	Yes
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	NCI	EPA	2015	No	Yes

9.0 Protectiveness Statement

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 need to be completed; the restrictive covenants needs to be executed; and the two access and restrictive easements need to be recorded.

10.0 Next Five-Year Review

The next five-year review for the OII Landfill Superfund Site is required by September 2015, five years from the date of this review.

Appendix A

Documents Reviewed

- New Cure, Inc. (NCI). 2000. Site Operations Plan, Operating Industries, Inc. Landfill, Monterey Park, California. May.
- _____. 2002a. Final Long-Term Groundwater Monitoring Plan for Operating Industries, Inc. Landfill, Monterey Park, California. April.
- _____. 2005. 2005 Annual Report Cover and Settlement Monitoring and Evaluation Operating Industries Inc. (OII) Landfill Monterey Park, California. January.
- _____. 2007. Groundwater Quarterly Sampling Event, Operating Industries, Inc. Landfill, Monterey Park, California. February.
- _____. 2007. Draft North parcel Well Protection Work Plan, Operating Industries, Inc. Landfill, Monterey Park, California. July 24
- _____. 2007. Perimeter Liquids Control Design Report North Central Area, Operating Industries, Inc. Landfill, Monterey Park, California. July 24
- _____. 2007. Groundwater Quarterly Sampling Event, Operating Industries, Inc. Landfill, Monterey Park, California. August 21.
- _____. 2008. Groundwater Quarterly Sampling Event, Operating Industries, Inc. Landfill, Monterey Park, California. August 4.
- _____. 2008. Groundwater Quarterly Sampling Event, Operating Industries, Inc. Landfill, Monterey Park, California, February, 12.
- _____. 2008. Annual Groundwater Monitoring and Evaluation Report, Operating Industries, Inc. Landfill, Monterey Park, California. May
- _____. 2008. Final Supplemental Hydrogeologic Evaluation Report, Operating Industries, Inc. Landfill, Monterey Park, California. May
- _____. 2008. Final SWEAP Area Well Installation Report, Operating Industries, Inc. Landfill, Monterey Park, California. May
- _____. 2009. February 2009 Groundwater Semi-Annual Sampling Event, Operating Industries, Inc. Landfill, Monterey Park, California, April 30.
- _____. 2009. SCM LMS/LTS Data, Operating Industries, Inc. Landfill, Monterey Park, California, March.
- _____. 2009. Final 2008 Annual Groundwater Monitoring and Evaluation Report, Operating Industries, Inc. Landfill, Monterey Park, California, April.
- _____. 2009. Final Compliance Testing Plan SWEAP Area. Operating Industries, Inc. Landfill, Monterey Park, California, April.
- _____. 2009. Final Evaluation of LNAPL in Well OI-67A. Operating Industries, Inc. Landfill, Monterey Park, California, April 13.
- _____. 2009. Evaluation of Liquid levels Northwest of the SWEAP PLC System, Operating Industries, Inc. Landfill, Monterey Park, California, April 27.

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- _____. 2009. Final Access and Institutional Controls Work Plan for Operating Industries, Inc. Landfill, Monterey Park, California. July 15
- _____. 2009. Revised Final North Parcel Compliance Testing Plan. Operating Industries, Inc. Landfill, Monterey Park, California, July 30.
- _____. 2009 Groundwater Quarterly Sampling Event, Operating Industries, Inc. Landfill, Monterey Park, California, August 12
- _____. 2009. SCM LMS/LTS Data, Operating Industries, Inc. Landfill, Monterey Park, California, October.
- _____. 2009. PLC As-Built Report North Central Area. Operating Industries, Inc. Landfill, Monterey Park, California, December 15.
- _____. 2010. Final Compliance Testing Plan North Central Area PLC System. Operating Industries, Inc. Landfill, Monterey Park, California, January 5.
- United States District Court for the Central District of California. 1988. Partial Consent Decree. December.
- _____. 1991. Second Partial Consent Decree. February
- _____. 1991. 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.
- United States Environmental Protection Agency (USEPA). 1987. Record of Decision, Operating Industries, Inc., Monterey Park, California, Site Control and Monitoring Operable Unit. July 31.
- _____. 1987. 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.

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

_____. 1996a. Operating Industries, Inc., Landfill OU1 Record of Decision. Monterey Park, CA, EPA/ROD/R09-96/152, September 30.

_____. 1996b. Feasibility Study Report, Operating Industries, Inc., EPA ID: CAD980884357, OU 01, SANTA FE SPRINGS, CA, 06/21/2002.

_____. 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.

_____. 2003. 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, Los Angeles County Sanitation District, expires June 5, 2013.

Appendix B

Applicable or Relevant and Appropriate Requirements

TABLE B-1
 ARARs from 1988 and 1990 (amended) Gas Migration Control ROD
Fourth Five-Year Review Report for Oil Landfill Superfund Site, Monterey Park, California

Source	Citation	Description	Findings and Comments
Federal Requirements	40 CFR Part 265, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities Subpart G: Closure and Post-Closure 40 C.F.R. § 265.117 Post Closure Care and Use of Property	Post-closure care requirements must begin after closure of the unit and continue for 30 years after that date. These requirements include (c): post-closure use of the property on or in which hazardous wastes remain after partial or final closure must never be allowed to disturb the integrity of the cover.	Applicable.
Federal Requirements	40 CFR Part 265, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities Subpart N: Landfills 40 C.F.R. § 265.310 Closure and Post-Closure Care	The final landfill cover must be designed and constructed to: (1) provide long-term minimization of migration of liquids through the closed landfill; (2) function with minimum maintenance; (3) promote drainage and minimize erosion or abrasion of the cover; (4) accommodate settling and subsidence so that the cover's integrity is maintained; and (5) have a permeability less than or equal to any bottom liner system or natural subsoils present. The 30 year post-closure care of the cover must include: (1) maintenance of the integrity and effectiveness of the cover, including repairs to the cover as necessary to correct the effects of settling, subsidence, erosion or other events; (2) prevention of run-on and run-off from eroding or otherwise damaging the cover; and (3) protection and maintenance of surveyed benchmarks.	Applicable.
Federal Requirements	40 CFR Part 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities Subpart O: Incinerators 40 C.F.R. § 264.343-Performance Standards	The thermal destruction facility must be designed, constructed and maintained to meet the following performance standards: (1) the facility must achieve a destruction and removal efficiency of 99.99 percent for each principal organic hazardous constituent in the waste feed; (2) the facility must reduce hydrogen chloride emissions to 1.8 kg/kr or 1 percent of the HC1 in the stack gasses before entering any pollution control devices; and (3) the facility must not release	Applicable. Must meet performance standards as outlined in the approved Performance Test Plan. Performance tests shall be conducted at least once every five years. The northern-most stack was tested in 2000 and the results were reported in the Performance Test Final Report (January 2001) and deemed to be in compliance by EPA. The south stack testing is currently

TABLE B-1
 ARARs from 1988 and 1990 (amended) Gas Migration Control ROD
 Fourth Five-Year Review Report for Oil Landfill Superfund Site, Monterey Park, California

Source	Citation	Description	Findings and Comments
		particulate in excess of 180mg/dscm corrected for the amount of oxygen in stack gas..	being conducted.
Federal Requirements	40 CFR Part 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities Subpart O: Incinerators 40 C.F.R. § 264.345-Operating Requirements	The thermal destruction facility will be operated to meet the following requirements of this section: (1) monitoring of various parameters during operation, including, combustion temperature, waste feed rate, an indicator of combustion gas velocity, and carbon monoxide; (2) control of fugitive emissions by (a) keeping the combustion zone totally sealed against fugitive emission, (b) maintaining combustion-zone pressure lower than atmospheric pressure, or (c) controlling via an alternate means to provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure; and (3) utilization of an automatic cutoff system to stop waste feed when operating conditions deviate.	Applicable. Must meet performance standards as outlined in the approved Performance Test Plan. Performance tests shall be conducted at least once every five years. The northern-most stack was tested in 2000 and the results were reported in the Performance Test Final Report (January 2001) and deemed to be in compliance by EPA. The south stack testing is currently being conducted.
Federal Requirements	Clean Water Act (CWA) 40C.F.R. Part 125-Criteria and Standards for NPDES	Sets forth requirements for permits for the discharge of pollutants from any point source into waters of the United States. Minimization of the off-site transport of materials and debris to meet the substantive portion of the NPDES permit requirements will be addressed during the Remedial Design phase in the development of the landfill cover grading plan and the design of the site stormwater management and drainage structures.	Applicable. Can be attained by implementation of Stormwater Pollution Prevention Plan (SWPPP) and Stormwater Monitoring, Sampling and Reporting Program.
California Air Resources Board	Title 17, Section 70200.5	Applicable standard for ambient concentrations of vinyl chloride not to exceed 10 ppb over a 24-hour period.	Remains applicable. Results of the ambient air sampling activity indicate that this requirement is currently satisfied.
South Coast Air Quality Management District	Regulation IV-Prohibitions, Rule 401-Visible Emissions	Do not discharge any single source of emission for a period of three minutes or more in any one hour that obscures view.	Remains applicable. Compliance will be attained by visual observations.

TABLE B-1
 ARARs from 1988 and 1990 (amended) Gas Migration Control ROD
Fourth Five-Year Review Report for Oil Landfill Superfund Site, Monterey Park, California

Source	Citation	Description	Findings and Comments
South Coast Air Quality Management District	Regulation IV-Prohibitions, Rule 402-Nuisance	Prohibits the discharge of any material (including odorous compounds) that cause injury, detriment, nuisance, or annoyance to the public, businesses, or property or endangers human health, comfort, repose, or safety.	Remains applicable. All gas control systems should be designed to maintain an inward flux of gas at the landfill surface. Cover defects will be repaired and the control system adjusted as necessary. Appropriate performance testing, monitoring, operations and maintenance are being conducted on the South Parcel. Although, the North Parcel remedy has not been completed, this requirement will apply.
South Coast Air Quality Management District	Regulation IV-Prohibitions, Rule 403-Fugitive Dust	This rule limits on-site activities such that concentrations of fugitive dust at the property line shall not be visible and the downwind particulate concentrations shall not exceed 100 micrograms per cubic meter above upwind concentrations.	Remains applicable. Dust control methods currently include use of vegetated soils and surface roadways on the South Parcel. Similar methods will be applied in the remedy construction on the North Parcel.
South Coast Air Quality Management District	Regulation IV-Prohibitions, Rule 404-Particulate Matter	This rule limits particulate emissions to a range of 0.010 to 0.196 grain per standard cubic foot depending on the volume of total stack gases.	Remains applicable. All gas control systems should be designed to maintain an inward flux of gas at the landfill surface. Cover defects will be repaired and the control system adjusted as necessary. Appropriate performance testing, monitoring, operations and maintenance are being conducted on the South Parcel. Although, the North Parcel remedy has not been completed, this requirement will apply.
South Coast Air Quality Management District	Regulation IV-Prohibitions, Rule 407-Liquid and Gaseous Air Contaminants	This rule limits carbon monoxide emissions to 2,000 ppm and sulfur dioxide emissions to 500 ppm. The sulfur dioxide limit does not apply if the fuel meets the provisions of Rule 431.1.	Applicable. Must meet performance standards as outlined in the approved Performance Test Plan. Performance tests shall be conducted at least once every five years. The northern-most stack was tested in 2000 and the results were reported in the Performance Test Final Report (January 2001) and deemed to be in compliance by EPA. The south stack testing is currently being conducted.

TABLE B-1
 ARARs from 1988 and 1990 (amended) Gas Migration Control ROD
Fourth Five-Year Review Report for Oil Landfill Superfund Site, Monterey Park, California

Source	Citation	Description	Findings and Comments
South Coast Air Quality Management District	Regulation IV-Prohibitions, Rule 409-Combustion Contaminants	This rule limits the emission of combustion contaminants to 0.10 grain per standard cubic foot at 12 percent carbon dioxide.	Applicable. Must meet performance standards as outlined in the approved Performance Test Plan. Performance tests shall be conducted at least once every five years. The northern-most stack was tested in 2000 and the results were reported in the Performance Test Final Report (January 2001) and deemed to be in compliance by EPA. The south stack testing is currently being conducted.
South Coast Air Quality Management District	Regulation IV-Prohibitions, Rule 432.1-Sulfur Content of Gaseous Fuels	This rule limits burning of fuel gas that has greater than 800 ppm hydrogen sulfide unless stack gases are cleaned to below the equivalent concentration.	Applicable. Must meet performance standards as outlined in the approved Performance Test Plan. Performance tests shall be conducted at least once every five years. The northern-most stack was tested in 2000 and the results were reported in the Performance Test Final Report (January 2001) and deemed to be in compliance by EPA. The south stack testing is currently being conducted.
South Coast Air Quality Management District	Regulation XI-Source Specific Standards, Rule 1150.2-Control of Gaseous Emissions from Inactive Landfills	This rule requires installation of a landfill gas control system and combustion, treatment and sale, or other equivalent method of landfill gas disposal. The rule requires perimeter landfill gas monitoring probes to evaluate off-site migration. It also limits concentration 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.	Remains applicable. All gas control systems should be designed to maintain an inward flux of gas at the landfill surface. Cover defects will be repaired and the control system adjusted as necessary. Appropriate performance testing, monitoring, operations and maintenance are being conducted on the South Parcel. Although, the North Parcel remedy has not been completed, this requirement will apply.
South Coast Air Quality Management District	Regulation XIII-New Source Review	Regulation 13 requires that whenever a permit is required for a new piece of equipment or modification to an existing piece of equipment at a new facility or site, that emissions be controlled using best available control technology (BACT) and that emissions be offset by other emissions reductions at the same	Applicable. Must meet performance standards as outlined in the approved Performance Test Plan. Performance tests shall be conducted at least once every five years. The northern-most stack was tested in 2000 and the results were reported in the

TABLE B-1
 ARARs from 1988 and 1990 (amended) Gas Migration Control ROD
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Source	Citation	Description	Findings and Comments
		<p>facility or other nearby facilities. BACT is a series of emissions limits, process, and equipment specific requirements (see definition at 1301 (E)). The SIP is reviewed by the State Air Resources Board and the EPA for compliance under the federal clean air act. The net allowable cumulative increase in emissions is detailed in SCAQMD rule 1303 and 1306.</p> <p>Under SCAQMD Rule 1304 (B) (2), there is an exemption from the offset requirements at 1303 (B) (2) (C) for a landfill gas control or processing facility. The exemption waives the requirement to find enough criteria emissions offsets if the owner or applicant for the permit has: (1) Provided all required offsets available by modifying sources owned; or (2) Demonstrated to the satisfaction of the SCAQMD executive officer that the owner or applicant neither owns, nor operates other facilities within the district that could be modified to provide such offsets.</p> <p>The State Implementation Plan (SIP) is reviewed by the State Air Resources Board and the EPA for compliance under the Federal Clean Air Act. However, EPA has not approved the exemption from the offset requirement, nor is such an exemption approvable as part of the SIP (40 CFR 51.165). Therefore, the offset requirement as contained in the SIP applies.</p> <p>Moreover, on August 31, 1988 a moratorium on construction or modification of major stationary sources of carbon monoxide and volatile organic compounds went into effect (53 FR 1780; 40 CFR 52.24). A major source is defined as one which emits or has the potential to emit in excess of 100 tons per year of a specified pollutant. Flares may be considered to have the potential to emit in excess of 100 tons of CO per year.</p>	<p>Performance Test Final Report (January 2001) and deemed to be in compliance by EPA. The south stack testing is currently being conducted.</p>

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Source	Citation	Description	Findings and Comments
South Coast Air Quality Management District	Regulation IV-Prohibitions, Rule 474-Fuel Burning Equipment Oxides of Nitrogen	This rule limits the concentration of oxides of nitrogen to a range of 125 to 300 ppm for gaseous fuels depending on maximum gross heat input.	May be applicable to the operation of the microturbines resource recovery equipment. Appropriate performance testing, monitoring, operations and maintenance are being conducted.
South Coast Air Quality Management District	Regulation IV-Prohibitions, Rule 476-Boilers	This rule applies to boilers larger than 50 million BTU per hour. Oxides of nitrogen may not exceed 125 ppm, combustion contaminants may not exceed 11 pounds per hour and 0.01 grains per standard cubic foot.	Not applicable.
California Integrated Waste Management Board	Title 14, California Code of Regulations, Division 7, Chapter 3 Minimum Standards of Solid Waste Handling and Disposal, Article 7.8 Disposal Site Closure and Post Closure Section 17705-Gas Control	When decomposition gases are a hazard or nuisance, monitor and take action to control such gases.	This requirement is now found in CCR Title 27, Division 2, Subchapter 4, Article 6, 20919. Remains applicable. All gas control systems should be designed to maintain an inward flux of gas at the landfill surface. Cover defects will be repaired and the control system adjusted as necessary. Appropriate performance testing, monitoring, operations and maintenance are being conducted on the South Parcel. Although, the North Parcel remedy has not been completed, this requirement will apply.
California Integrated Waste Management Board	Title 14, California Code of Regulations, Division 7, Chapter 3 Minimum Standards of Solid Waste Handling and Disposal, Article 7.8 Disposal Site Closure and Post Closure Section 17773-Final Cover	This regulation requires that a minimum thickness and quality of cover be placed over the entire surface of the final lift which meets the standards of Title 23, CCR, Subchapter 15, Section 2581 or that meet the standards set forth for an engineered alternative. The prescriptive standard must be not feasible and the alternative must be consistent with the performance goals of subsection (e) and afford equivalent protection against water quality impairment. Subsection (d) provides the basis for showing compliance with this standard is not feasible. Subsection (e) sets forth the following minimum performance goals for the thickness and quality of cover: (1) a need to limit infiltration of water, to the	This requirement is now found in CCR Title 27, Division 2, Subchapter 5, Article 2, 21140 It remains applicable.

TABLE B-1
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Source	Citation	Description	Findings and Comments
		greatest extent possible; (2) a need to control landfill gas emissions; (3) the future reuse of the site; and (4) a need to protect the low permeability layer from desiccation, penetration by rodents, and heavy equipment damage.	
	Title 14, California Code of Regulations, Division 7, Chapter 3 Minimum Standards of Solid Waste Handling and Disposal, Article 7.8 Disposal Site Closure and Post Closure Section 17783-Gas Monitoring and Control During Closure and Post Closure	During periods of closure and post -closure maintenance, landfill gases generated at the facility must be controlled as follows: (1) The concentration of methane gas must not exceed 1.25% by volume in air within on-site structures; (2) The concentration of methane gas migrating from the landfill must not exceed 5% by volume in the air at the facility property boundary or an alternative boundary in accordance with Section 17783.5. (3) Trace gases shall be controlled to prevent adverse acute and chronic exposure to toxic and/or carcinogenic compounds. Subsection (b) sets forth the period during which monitoring should continue and subsection (d) provides that the monitoring and control systems shall be modified, during the closure and post-closure maintenance period to reflect changing on-site and adjacent land uses. Post-closure land use at the site shall not interfere with the function of gas monitoring or control systems.	This requirement is now found in CCR Title 27, Division 2, Subchapter 4, Article 6, 20921. It remains applicable.
California Integrated Waste Management Board	Title 14, California Code of Regulations, Division 7, Chapter 3 Minimum Standards of Solid Waste Handling and Disposal, Article 7.8 Disposal Site Closure and Post Closure Section 17783.3-Monitoring	This section requires that the gas monitoring system shall be designed to meet with the specified site characteristics, and potential migration pathways or barriers, including, but not limited to: (1) local soil and rock conditions; (2) hydrogeological conditions at the facility; (3) locations of buildings and structures relative to the waste deposit area; (4) adjacent land use, and inhabitable structures within 1000 feet of the landfill property boundary; (5) man-made pathways, such as underground construction; and (6) the nature and age of waste and its potential to generate landfill gas.	This requirement is now found in CCR Title 27, Division 2, Subchapter 4, Article 6, 20923. It remains applicable.

TABLE B-1
 ARARs from 1988 and 1990 (amended) Gas Migration Control ROD
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Source	Citation	Description	Findings and Comments
California Integrated Waste Management Board	Title 14, California Code of Regulations, Division 7, Chapter 3 Minimum Standards of Solid Waste Handling and Disposal, Article 7.8 Disposal Site Closure and Post Closure Section 17783.5-Perimeter Monitoring Network	This section sets forth specific requirements for the location (subsection a), spacing (subsection b), depth (subsection c) and construction (subsection d) of the monitoring wells.	This requirement is now found in CCR Title 27, Division 2, Subchapter 4, Article 6, 20925. It remains applicable.
California Integrated Waste Management Board	Title 14, California Code of Regulations, Division 7, Chapter 3 Minimum Standards of Solid Waste Handling and Disposal, Article 7.8 Disposal Site Closure and Post Closure Section 17783.7-Structure Monitoring	This section requires that the design of the monitoring system include provisions for monitoring on-site structures, identifies some methods for monitoring such structures, and requires that structures located on top of the waste deposit area be monitored on a continuous basis.	This requirement is now found in CCR Title 27, Division 2, Subchapter 4, Article 6, 20931. It remains applicable.
California Integrated Waste Management Board	Title 14, California Code of Regulations, Division 7, Chapter 3 Minimum Standards of Solid Waste Handling and Disposal, Article 7.8 Disposal Site Closure and Post Closure Section 17783.90 Monitoring Parameters	This section requires that all monitoring probes and on-site structures be sampled for methane and for specified trace gases, when there is a possibility of acute or chronic exposure due to carcinogenic or toxic compounds.	This requirement is now found in CCR Title 27, Division 2, Subchapter 4, Article 6, 20932. It remains applicable.
California Integrated Waste Management Board	Title 14, California Code of Regulations, Division 7, Chapter 3 Minimum Standards of Solid Waste Handling and Disposal, Article 7.8 Disposal Site Closure and Post Closure Section 17783.11-Monitoring Frequency	This section requires a minimum of quarterly monitoring with more frequent monitoring required if results indicate the landfill gas is migrating or accumulating in structures.	This requirement is now found in CCR Title 27, Division 2, Subchapter 4, Article 6, 20933. It remains applicable.

TABLE B-1

ARARs from 1988 and 1990 (amended) Gas Migration Control ROD

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Source	Citation	Description	Findings and Comments
California Integrated Waste Management Board	Title 14, California Code of Regulations, Division 7, Chapter 3 Minimum Standards of Solid Waste Handling and Disposal, Article 7.8 Disposal Site Closure and Post Closure Section 17783.15-Control	<p>Subsection (a) (1) requires that all immediate steps be taken when the results of gas monitoring indicate levels of methane in excess of the compliance levels required by Section 17783 (a).</p> <p>Subsection (b) requires that the gas control system be designed to: (1) prevent methane accumulation in on-site structures; (2) reduce methane concentrations at monitored property boundaries to below compliance levels; (3) reduce trace gas concentrations; (4) provide for the collection and treatment and/or disposal of landfill gas condensate at the surface.</p> <p>Subsection (c) indicates that the gas control systems may include, but are not limited to, the control systems enumerated in subsections (c) (1), (2) and (3).</p> <p>Subsection (d) provides steps to be taken in the event on-site structure methane levels exceed that specified in Section 17783 (a).</p> <p>Subsection (e) requires that the operator provide for system monitoring and adjustment to ensure that the gas control system is operating at optimum efficiency.</p>	This requirement is now found in CCR Title 27, Division 2, Subchapter 4, Article 6, 20937. It remains applicable.
California Integrated Waste Management Board	Title 14, California Code of Regulations, Division 7, Chapter 3 Minimum Standards of Solid Waste Handling and Disposal, Article 7.8 Disposal Site Closure and Post Closure Section 17794-Postclosure Land Use	This regulation sets forth requirements concerning post-closure land use. Subsections (c), (d) and (e) are applicable to this remedial action. Subsection (c) requires that construction improvements on the site shall maintain the integrity of the final cover and the function of the monitoring system(s). Subsection (d) sets forth conditions to be met for construction of structural improvements on top of landfilled areas during the post-closure period. Subsection (e) sets forth building conditions pertaining to on-site structures constructed within 1,000 feet of the waste holding area.	This requirement is now found in CCR Title 27, Division 2, Subchapter 4, Article 6, 20925. It remains applicable.

TABLE B-1
 ARARs from 1988 and 1990 (amended) Gas Migration Control ROD
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Source	Citation	Description	Findings and Comments
California Integrated Waste Management Board	Title 22, California Code of Regulations Article 18: General Facility Standards Section 67108: Seismic and Precipitation Design Standards	Requires the design of cover systems and drainage control to function without failure when subjected to capacity, hydrostatic and hydrodynamic loads resulting from a 24-hour probable maximum precipitation storm. Additionally, all covers and cover systems which will remain after closure must be designed, constructed and maintained to withstand the maximum credible earthquake without the level of public health and environmental protection afforded by the original design being decreased	This requirement is now found in CCR Title 22, Division 4.5, Article 2, Section 66265.25. It remains applicable.
California Integrated Waste Management Board	Title 22, California Code of Regulations Article 23-Closure and Post-closure for Interim Status and Permitted Facilities Section 67211-Closure Performance Standard	Requires that the facility be closed in a manner which controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, postclosure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere.	This requirement is now found in CCR Title 22, Division 4.5, Article 7, Section 66265.111(b). It remains applicable.
California Integrated Waste Management Board	Title 22, California Code of Regulations Article 29-Landfills at Both Interim Status and Permitted Facilities Section 67418-Closure and Post-Closure Care of Landfills at Interim Status Landfills	This section requires the design and construction of final cover to meet certain standards which are equivalent to those set forth under RCRA. More stringent, applicable requirements include, subsection (1) which requires the prevention of downward entry of water into the closed landfill throughout a period of at least 100 years, and subsection (5) which requires that the cover be designed and constructed to accommodate lateral and vertical shear forces generated by earthquakes so that the integrity of the cover is maintained.	This requirement is now found in CCR Title 22, Division 4.5, Article 14, Section 66265.310. It remains applicable.
Porter-Cologne Water Quality Control Act California Integrated Waste Management Board	Title 23, California Code of Regulations Chapter 3, State Water Resources Control Board Subchapter 15-Discharges to Land Section 2546-Precipitation and Drainage Control	Subsection (a) requires that the cover shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout and overtopping under probable maximum precipitation conditions. Subsection (c) requires diversion and drainage facilities to be designed and constructed to	This requirement is now found in CCR Title 23, Subchapter 2, Article 4, Section 20365. It remains applicable.

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Source	Citation	Description	Findings and Comments
		<p>accommodate the anticipated volume of precipitation and peak flows from surface run-off under probable maximum precipitation conditions.</p> <p>Subsection (d) requires collection and holding facilities associated with precipitation and drainage control systems to be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system.</p> <p>Subsection (e) requires surface and subsurface drainage from outside of a waste management unit to be diverted from the waste management unit.</p> <p>Subsection (f) requires cover materials to be graded to divert precipitation from the waste unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation with the return frequency specified in Table 4.1</p>	
Porter-Cologne Water Quality Control Act California Integrated Waste Management Board	Title 23, California Code of Regulations Chapter 3, State Water Resources Control Board Subchapter 15-Discharges to Land Section 2547-Seismic Design	This section requires structures which control surface drainage, erosion or gas shall be designed to withstand the maximum credible earthquake without damage.	This requirement is now found in CCR Title 23, Subchapter 2, Article 4, Section 20370. It remains applicable.
Porter-Cologne Water Quality Control Act California Integrated Waste Management Board	Title 23, California Code of Regulations Chapter 3, State Water Resources Control Board Subchapter 15-Discharges to Land Section 2381-Landfill Closure Requirements	The requirements of subsection (a) for cover are applicable. This section requires at least two feet of appropriate materials, (primarily soil-type materials) as a foundation layer and an additional one foot of soil on top of this foundation layer. These requirements will not be met by the selected remedy, and are being waived pursuant to Section 121 (d) (4) (B), (C) and (D), 42 U.S.C. § 9621 (d) (4) (B), (C) and (D). Due to the configurations of the Oil site, including its steep slopes and direct proximity to both homes and the Pomona Freeway, a cover constructed of soil-type materials and with the thickness required by this subsection would result in a greater risk to human health and the environment than the selected	This requirement is now found in CCR Title 23, Subchapter 2, Article 4. It remains applicable.

TABLE B-1
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Source	Citation	Description	Findings and Comments
		<p>remedy. Construction for such a cover is technically impracticable from an engineering perspective; far greater flexibility in types of materials and cover design is required by this site. The remedy selected will attain a standard of performance that is equivalent to that required by this section through an alternative approach which provides for a variety of cover materials.</p> <p>The landfill cover component will be designed to attain the requirements of Sections 2581 (b) and (c). Subsection (b) sets forth grading requirements which provide that closed landfills will be graded and maintained to prevent ponding and sets forth conditions specific to the steepness of slopes. Subsection (c) requires that the surface water be monitored in accordance with Articles 5 of this Section.</p>	

TABLE B-2
 ARARs from 1996 Final Remedy ROD
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Source	Citation	Description	Findings and Comments
Federal ARARS	40 CFR § 14 1, Subparts B and G	Establishes national primary drinking water standards for public drinking water supply systems (Maximum Contaminant Levels, or "MCLs").	MCLs are relevant and appropriate for groundwater designated as a current or potential source of drinking water where the more stringent maximum contaminant level goals (MCLGs) are not relevant or appropriate. MCLGs are not appropriate due to the complex hydrogeological setting at the Oil Site, the minimal risks of exposure, and the limited potential use of the resource.
	16U.S.C. § 703 –Migratory Bird Act	Protects species of native birds in the U.S. from unregulated "take", which can include poisoning at hazardous waste site.	Oil provides habitat to protected bird species. All remedial designs will identify any measures necessary to prevent unregulated "take" of protected bird species.
State ARARs	22 CCR § 6626T94 (c)	Requires establishment of groundwater protection standards for waste management units where releases have occurred; concentration limits may be set greater than background up to the MCL). If it is technically or economically infeasible to achieve background and the proposed limit will not pose a substantial hazard to human health or the environment.	EPA selected MCLs that exceed baseline (or health-based limits where no MCLs are set) as the groundwater protection standard due to the complex hydrogeological setting at the Oil Site, the minimal risks of exposure, and the limited potential use of the resource.
	22 CCR § 64431, 64444	Establishes California primary drinking water standards for public drinking water supply systems (also known as "MCLs").	Specific California MCLs are relevant and appropriate where they are more stringent than federal MCLs.

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 ARARs from 1996 Final Remedy ROD
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Source	Citation	Description	Findings and Comments
State ARARs	State Water Resources Control Board Resolution 92-49 111.G	Requires cleanup and abatement of discharges to background water quality, or the best water quality which is reasonable if background levels cannot be restored.	Applicable to wastes discharged to waters of the state. EPA selected MCLs that exceed baseline (or health-based limits where no MCLs are set) as the groundwater protection standard due to the complex hydrogeological setting at the Oil Site, the minimal risks of exposure, and the limited potential use of the resource.
	Porter-Cologne Water Quality Control Act § 13370.5; California Government Code § 54739.	Pursuant to these authorities, the Los Angeles County Sanitation District issues Industrial Wastewater Discharge permits setting discharge limits for concentration of contaminants, temperature and volume.	Permits are required for discharges to the sanitary sewer, because it is an off-site activity.
	22 CCR § 66264.18 (a) – Within 200 feet of a fault displaced in Holocene time	Prohibits construction of new hazardous waste treatment, storage, or disposal facilities.	Several faults have been identified in the area that may have been displaced during the Holocene, indicating recent fault movement.
	22 CCR § 2547-Seismic Zone	Requires waste management units to be designed to withstand the maximum credible earthquake without damage to the foundation or to structures that control Leachate.	Appropriate seismic protection measures are required for existing leachate collection and treatment units at the Oil Landfill. Any new waste management units must be designed to withstand the maximum credible earthquake.
	Landfill Maintenance, Closure and Postclosure 22 CCR § 66265.31	Requires maintenance and operation of facilities to minimize fire, explosion, or release of hazardous substances.	Applicable.

TABLE B-2
 ARARs from 1996 Final Remedy ROD
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Source	Citation	Description	Findings and Comments
State ARARs	Landfill Maintenance, Closure and Postclosure 22 CCR § 66265.32, 66265.33, 66264.34, 66265.37(a), 66265.55, 66265.56(a)-(c), (e)-(h)	Specifies emergency and communications systems for hazardous waste facilities, testing of equipment, and arrangement for emergency support services.	Applicable.
	Landfill Maintenance, Closure and Postclosure 22 CCR § 66265.14	Requires security measures sufficient to prevent unknowing or unauthorized entry into hazardous waste facilities.	Applicable.
	Landfill Maintenance, Closure and Postclosure 14 CCR § 17767 (c)	Requires security measures to prevent unauthorized access to closed landfills and monitoring, control, and recovery systems.	Relevant and appropriate.
	Landfill Maintenance, Closure and Postclosure 14 CCR § 17701	Requires operation and maintenance of landfills to prevent public nuisance.	Relevant and appropriate.
	Landfill Maintenance, Closure and Postclosure 14 CCR § 17706	Requires operation and maintenance of landfills to minimize dust creation.	Relevant and appropriate.
	Landfill Maintenance, Closure and Postclosure 14 CCR § 17707	Requires operation and maintenance of landfills to control vectors (insects, rodents, etc.).	Relevant and appropriate.
	Landfill Maintenance, Closure and Postclosure 14 CCR § 17713	Requires operation and maintenance of landfills to control odors.	Relevant and appropriate.
State ARARs	Landfill Maintenance, Closure and Postclosure 22 CCR § 66265.111,	Requires closure to minimize need for further maintenance and to protect human health and the environment from release hazardous substances.	Applicable.

TABLE B-2
ARARs from 1996 Final Remedy ROD
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Source	Citation	Description	Findings and Comments
	Landfill Maintenance, Closure and Postclosure 22 CCR § 66265.310 (b) (1), and (b) (3) except references to § 66265.118-120	Requires facility closure to minimize chance of postclosure release of hazardous waste; facilities postclosure maintenance, monitoring and emergency response.	Applicable.
	Landfill Maintenance, Closure and Postclosure 22 CCR § 66265.95	Establishes the point of compliance for groundwater protection standards as a vertical surface located at the hydraulically downgradient limit of the waste management area.	Applicable.
	Landfill Maintenance, Closure and Postclosure 22 CCR § 66265.96	Defines the compliance period for groundwater quality as the number of years equal to the active life of the waste management unit. Requires restarting the compliance period if evaluation monitoring is initiated.	Applicable.
	Landfill Maintenance, Closure and Postclosure 22 CCR § 66264.96 (c)	Extends groundwater quality compliance period until groundwater protection standard has been met for three consecutive years.	Applicable.
	Landfill Maintenance, Closure and Postclosure 22 CCR § 66265.98 (a)	Requires release detection monitoring in areas unaffected by prior releases.	Applicable.
State ARARs	Landfill Maintenance, Closure and Postclosure 22CCR § 66265.99 (a), (b), (e) (1)-(4) and (6) except for reference to surface water	Requires evaluation monitoring to assess the nature and extent of any exceedances of groundwater performance standards.	Applicable.

TABLE B-2
ARARs from 1996 Final Remedy ROD
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Source	Citation	Description	Findings and Comments
	Landfill Maintenance, Closure and Postclosure 22 CCR § 66264, 1 00 (d)	Requires water quality monitoring programs to measure effectiveness of remediation.	Applicable.
	Landfill Maintenance, Closure and Postclosure 22 CCR § 66265.117 (b)-(d) except references to 66265.118, 119 and 120	Requires post-closure care for 30 years after completion of closure of the interim status hazardous waste management facilities.	Applicable.
	Landfill Maintenance, Closure and Postclosure Los Angeles Regional Water Quality Control Board Order WDR-906-054 NPDES # CAS614001	Establishes requirements for stormwater discharge from hazardous waste treatment, storage and disposal facilities.	Applicable to on-site discharges, otherwise off-site discharge requirements apply.
	Landfill Liquids Treatment and Disposal 22 CCR § 66264.601	Requires location, design, construction, operation, and maintenance of miscellaneous units that treat hazardous waste to ensure protection of human health and the environment.	Applicable to new units; portions applicable or relevant and appropriate to existing units.
	Landfill Liquids Treatment and Disposal 22 CCR § 66264.192, 66264.193 (c)-(f), 66264.194, 66264.195, 66264.197	Requires construction, operation, and closure of hazardous waste treatment in tanks to comply specified standards, including contaminant, inspection, and operating limits.	Applicable to new units; portions applicable or relevant and appropriate to existing units.
State ARARs	Landfill Liquids Treatment and Disposal 22 CCR § 2581 (c) (2) and (c) (3) except references to surface water	Requires operation of Leachate collection and removal systems as long as Leachate is generated and detected throughout the post-closure care period.	Applicable.

TABLE B-2
 ARARs from 1996 Final Remedy ROD
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Source	Citation	Description	Findings and Comments
	Landfill Liquids Treatment and Disposal 22 CCR § 66265.310 (e) (2)	Requires maintenance and operation of Leachate collection, removal and treatment system to prevent excess accumulation of leachate during post-closure care period.	Applicable.
	Landfill Liquids Treatment and Disposal 22 CCR § 66264.1050-1063	Sets air emission standards for equipment leaks for units from facilities that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight.	Applicable.
	Landfill Liquids Treatment and Disposal 22 CCR § 66264.32, 66264.33, 66264.34, 66264, 66265.37 (a), 66265.55, 66265.56 (a)-(c), (c)-(h).	Specifies emergency and communications systems for hazardous waste facilities, testing of equipment, and arrangements for emergency support services.	Applicable.
	Excavation, Construction and Disposal 22 CCR § 66265.114	Requires equipment, structures and soils to be properly disposed of or decontaminated during closure.	Applicable.
	Excavation, Construction and Disposal 22 CCR 66265.13	Requires analysis of hazardous waste before transfer, treatment, storage or disposal.	Applicable.
	Excavation, Construction and Disposal 22 CCR § 66262.34	Allows storage of hazardous waste on-site in containers for up to 90 days.	Applicable.
State ARARs	Excavation, Construction and Disposal 22 CCR § 66265.171-66264.175, 66264.178	Requires storage of waste in appropriate containers, and appropriate management and closure of containment areas.	Applicable to new units; portions applicable or relevant and appropriate to existing units.

TABLE B-2
 ARARs from 1996 Final Remedy ROD
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Source	Citation	Description	Findings and Comments
	Excavation, Construction and Disposal 22 CCR § 66264.552 (e) (1)-(4)	Allows redisposal of hazardous waste generated as part of remediation in designated units.	Applicable to new units; portions applicable or relevant and appropriate to existing units.
	Excavation, Construction and Disposal 22 CCR § 66265.553 (b), (c)	Allows establishment of temporary tanks and container storage areas for treatment or storage of remediation wastes.	Applicable to new units; portions applicable or relevant and appropriate to existing units.
	Excavation, Construction and Disposal SCAQMD Rule 402	Limits discharge of any air contaminant or material that causes injury, detriment, nuisance, or annoyance, or that endangers the comfort, repose, or safety of the public, property, or business.	Applicable.
	Excavation, Construction and Disposal SCAQMD Rule 403	Limits downwind concentration of PM-10 from fugitive dust to 100g/m ³ above upwind concentration, averaged over 5 hours.	Applicable.
	Excavation, Construction and Disposal SCAQMD Rule 1150	Requires mitigation measures that ensure a nuisance does not occur when buried waste is exposed.	Applicable.

Appendix C
Five-Year Review ACE Team Roster and Site Inspection Checklist

TABLE C-1
Site Inspection Team Roster, Site Inspection- February 23-24, 2010
Fourth Five-Year Review Report for Oil Landfill Superfund Site, Monterey Park, California

Name	Title	Affiliation
Randy Born, P.E.	Geotechnical Engineer	United States Army Corps of Engineers
John Erwin, P.E.	Project Manager	United States Army Corps of Engineers
Cory Koger, Ph.D.	Toxicologist/Risk Assessor	United States Army Corps of Engineers
Rick McComb, P.E.	Environmental Engineer	United States Army Corps of Engineers
Marc Sydow, R.G.	Geologist	United States Army Corps of Engineers

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST
Operational Industries Inc., Superfund Site

I. SITE INFORMATION			
Site name: <i>Operational Industries Inc.</i>	Date of inspection: <i>23-24 Feb 2010</i>		
Location and Region: <i>Monterey Park, CA</i>	EPA ID: <i>CAT080012024</i>		
Agency, office, or company leading the five-year review: <i>EPA lead, Army Corps of Engineers performed the site inspection and report preparation</i>	Weather/temperature: <i>partly sunny with light clouds and light wind</i>		
Remedy Includes: (Check all that apply): <input checked="" type="checkbox"/> Landfill cover/containment <input checked="" type="checkbox"/> Monitored natural attenuation <input checked="" type="checkbox"/> Access controls <input checked="" type="checkbox"/> Groundwater containment <input checked="" type="checkbox"/> Institutional controls <input type="checkbox"/> Vertical barrier walls <input type="checkbox"/> Groundwater pump and treatment <input checked="" type="checkbox"/> Surface water collection and treatment <input checked="" type="checkbox"/> Other: <i>Leachate extraction/treatment and landfill gas extraction/treatment</i>			
Attachments: <input checked="" type="checkbox"/> Inspection team roster attached <input checked="" type="checkbox"/> Site map attached			
II. INTERVIEWS			
List of interviewees:			
1. <i>Shiann-Jang Chern</i>	<i>EPA Project Manager</i>	<i>EPA</i>	<i>24 Feb 2010</i>
2. <i>Corey Bertlesen</i>	<i>OII Project Coordinator</i>	<i>OII Work Defendants</i>	<i>04 Mar 2010</i>
3. <i>Ed Robles</i>	<i>OII Site Operations Mgr,</i>	<i>New Cure Inc.</i>	<i>24 Feb10</i>
4. <i>John Erwin</i>	<i>Project Mgmt Support</i>	<i>ACE</i>	<i>03 Mar 2010</i>
5. <i>Wendy Luo</i>	<i>EPA On-site Representative</i>	<i>ACE</i>	<i>01 Mar 2010</i>
6. <i>Rick Lainhart</i>	<i>On-site Representative</i>	<i>ACE</i>	<i>24 Feb 2010</i>
7. <i>David Towel</i>	<i>Hydrogeologist</i>	<i>CH2MHill</i>	<i>24 Feb 2010</i>
8. <i>Scott Rowlands</i>	<i>Senior Geologist</i>	<i>GeoSyntech</i>	<i>11 Mar 2010</i>
9. <i>Suji Somasundaram</i>	<i>Geotechnical Engineer</i>	<i>AES</i>	<i>18Mar2010</i>
<p>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.)</p> <ul style="list-style-type: none"> <i>No interviews with these authorities or agencies were conducted.</i> <p>Other interviews (optional).</p> <ul style="list-style-type: none"> <i>No other interviews were conducted.</i> 			

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)			
1.	O&M Documents O&M manual As-built drawings Maintenance logs Remarks:	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
2.	Site-Specific Health and Safety Plan Contingency plan/emergency response plan Remarks:	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
3.	O&M and OSHA Training Records Remarks: <i>OSHA 8-hour certificate present (includes CPR, First aid, waste mgmt, DOT, etc)</i>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
4.	Permits and Service Agreements Air discharge permit Effluent discharge Waste disposal, POTW Other permits: <i>CalTrans encroachment</i> Remarks: <i>No AQMD permits due to Superfund status, but substantive requirements are followed.</i>	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
5.	Gas Generation Records Remarks:	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
6.	Settlement Monument Records Remarks:	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
7.	Groundwater Monitoring Records Remark:	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
8.	Leachate Extraction Records Remarks:	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
9.	Discharge Compliance Records Air Water (effluent) Remarks: <i>SMR (Self-monitoring records)</i>	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
10.	Daily Access/Security Log Remarks: <i>Front entrance for sign-in sheet. Daily tailgate meetings</i>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A

IV. O&M COSTS			
1.	<p>O&M Organization</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> State in-house <input type="checkbox"/> PRP in-house <input type="checkbox"/> Federal Facility in-house <input type="checkbox"/> Other: </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Contractor for State <input checked="" type="checkbox"/> Contractor for PRP <input type="checkbox"/> Contractor for Federal Facility </td> </tr> </table>	<input type="checkbox"/> State in-house <input type="checkbox"/> PRP in-house <input type="checkbox"/> Federal Facility in-house <input type="checkbox"/> Other:	<input type="checkbox"/> Contractor for State <input checked="" type="checkbox"/> Contractor for PRP <input type="checkbox"/> Contractor for Federal Facility
<input type="checkbox"/> State in-house <input type="checkbox"/> PRP in-house <input type="checkbox"/> Federal Facility in-house <input type="checkbox"/> Other:	<input type="checkbox"/> Contractor for State <input checked="" type="checkbox"/> Contractor for PRP <input type="checkbox"/> Contractor for Federal Facility		
2.	<p>O&M Cost Records</p> <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> Funding mechanism/agreement in place <input type="checkbox"/> Original O&M cost estimate: (Breakdown attached)		
<p>*** NOTE: SEE MAIN REPORT FOR PRESENTATION OF O&M COST DATA ***</p>			
3.	<p>Unanticipated or Unusually High O&M Costs During Review Period Describe costs and reasons: <i>None</i></p>		
V. ACCESS AND INSTITUTIONAL CONTROLS <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
A. Fencing			
1.	<p>Fencing <input checked="" type="checkbox"/> Location shown on site maps <input checked="" type="checkbox"/> Gates secured <input type="checkbox"/> N/A Remarks: <i>Gap noted under bottom of perimeter fence. Integrity of secondary fence not inspected. OII staff aware of problem and plan to fix.</i></p>		
B. Other access restrictions			
1.	<p>Signs and Other Security Measures <input checked="" type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A Remarks:</p>		

C. Institutional Controls (ICs)			
1.	Implementation and Enforcement	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Site conditions imply ICs properly implemented	<input type="checkbox"/> Yes	<input type="checkbox"/> N/A
	Site conditions imply ICs being fully enforced	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Type of monitoring : (e.g., self-reporting, drive by): <i>visual inspection</i>		
	Frequency: <i>monthly, plus 24 hour security service performs checks</i>		
	Responsible party/agency: <i>New Cure Inc.</i>		
	Contact: <i>Ed Robles Site Operations Manager</i> <i>323-720-9775</i>		
	Reporting is up-to-date	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Reports are verified by the lead agency	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Specific requirements in deed or decision documents have been met	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Violations have been reported	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Other problems or suggestions: <i>See Section 4.1.4 of main report for details regarding ICs.</i>		
2.	Adequacy	<input type="checkbox"/> ICs are adequate	<input checked="" type="checkbox"/> ICs are inadequate
	Remarks:	<input type="checkbox"/> N/A	
D. General			
1.	Vandalism/trespassing	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No vandalism evident
	Remarks:		
2.	Land use changes on site	<input checked="" type="checkbox"/> None	<input type="checkbox"/> N/A
	Remarks:		
3.	Land use changes off site	<input type="checkbox"/> None	<input checked="" type="checkbox"/> N/A
	Remarks:		
VI. GENERAL SITE CONDITIONS			
A. Roads	<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A	
1.	Roads	<input type="checkbox"/> Damaged	<input checked="" type="checkbox"/> Location shown on site map
	Remarks: <i>Inspection and maintenance of roads is performed continually. Whenever settlement damages roads, action taken to repair immediately. See photos.</i>	<input checked="" type="checkbox"/> Roads adequate	<input type="checkbox"/> N/A
B. Other Site Conditions			
	Remarks:		

VII. LANDFILL COVERS <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
A. Landfill Surface	
1.	Settlement <input checked="" type="checkbox"/> Location shown on site map <input type="checkbox"/> Settlement not evident Areal extent: Depth: Remarks: <i>Settlement occurs at various locations and is repaired on an as needed basis</i>
2.	Cracks <input checked="" type="checkbox"/> Location shown on site map <input type="checkbox"/> Cracking not evident Lengths: Widths: Depths: Remarks: <i>Cracks occur at various locations and are repaired on an as needed basis</i>
3.	Erosion <input checked="" type="checkbox"/> Location shown on site map <input type="checkbox"/> Erosion not evident Areal extent: <i>100 sq ft.</i> Depth: <i>1 ft.</i> Remarks: <i>Minor slumping due to recent heavy rains. Repaired on an as-needed basis</i>
4.	Holes <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Holes not evident Areal extent: Depth: Remarks:
5.	Vegetative Cover <input checked="" type="checkbox"/> Grass <input checked="" type="checkbox"/> Cover properly established <input checked="" type="checkbox"/> No signs of stress <input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram) Remarks:
6.	Alternative Cover (armored rock, concrete, etc.) <input checked="" type="checkbox"/> N/A Remarks:
7.	Bulges <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Bulges not evident Areal extent: Height: Remarks: <i>Settlement of waste mass causes minor bulging in cap, which are repaired on an as-needed basis</i>
8.	Wet Areas/Water Damage <input type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Wet areas <input type="checkbox"/> Location shown on site map Areal extent: <input type="checkbox"/> Ponding <input type="checkbox"/> Location shown on site map Areal extent: <input type="checkbox"/> Seeps <input type="checkbox"/> Location shown on site map Areal extent: <input type="checkbox"/> Soft subgrade <input type="checkbox"/> Location shown on site map Areal extent: Remarks: <i>Small slump on road between office and bridge from recent heavy rains; covered with plastic</i>
9.	Slope Instability <input type="checkbox"/> Slides <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> No evidence of slope instability Areal extent: Remarks:

6.	<p>Excessive Vegetative Growth</p> <input checked="" type="checkbox"/> No evidence of excessive growth <input type="checkbox"/> Vegetation in channels does not obstruct flow <input type="checkbox"/> Location shown on site map	Type:	
	Remarks:	Areal extent:	
D. Cover Penetrations <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1.	<p>Gas Vents <input checked="" type="checkbox"/> Active <input type="checkbox"/> Passive</p> <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition		
	<input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A		
	Remarks: <i>Active landfill gas collection system at landfill</i>		
2.	<p>Gas Monitoring Probes</p> <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition		
	<input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A		
	Remarks:		
3.	<p>Monitoring Wells (within surface area of landfill)</p> <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition		
	<input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A		
	Remarks:		
4.	<p>Leachate Extraction Wells</p> <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition		
	<input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A		
	Remarks:		
5.	<p>Settlement Monuments <input type="checkbox"/> Located <input checked="" type="checkbox"/> Routinely surveyed <input type="checkbox"/> N/A</p>		
	Remarks; <i>Performed annually</i>		

E. Gas Collection and Treatment		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Gas Treatment Facilities <input type="checkbox"/> Flaring <input checked="" type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks: <i>Richer gas is sent to microturbines to generate power</i>		
2.	Gas Collection Wells and Piping <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks: <i>Thermal oxidation has severely impacted (i.e. melted) several extraction wells in the past. Those wells were abandoned in place</i>		
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks:		
F. Cover Drainage Layer		<input checked="" type="checkbox"/> Applicable (North Parcel only)	<input type="checkbox"/> N/A
1.	Outlet Pipes Inspected Remarks:	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A
2.	Outlet Rock Inspected Remarks:	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A
G. Detention/Sedimentation Ponds		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Siltation Areal extent: Depth: <input checked="" type="checkbox"/> Siltation not evident Remarks:		<input type="checkbox"/> N/A
2.	Erosion Areal extent: Depth: <input checked="" type="checkbox"/> Erosion not evident Remarks:		<input type="checkbox"/> N/A
3.	Outlet Works Remarks:	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A
4.	Dam Remarks:	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A

H. Retaining Walls		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Deformations Horizontal displacement: Rotational displacement: Remarks:	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Deformation not evident Vertical displacement:
2.	Degradation Remarks:	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Degradation not evident
I. Perimeter Ditches/Off-Site Discharge		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Siltation Areal extent: Remarks:	<input type="checkbox"/> Location shown on site map Depth:	<input checked="" type="checkbox"/> Siltation not evident
2.	Vegetative Growth <input checked="" type="checkbox"/> Vegetation does not impede flow Areal extent: Remarks:	<input type="checkbox"/> Location shown on site map Type:	<input type="checkbox"/> N/A
3.	Erosion Areal extent: Remarks:	<input type="checkbox"/> Location shown on site map Depth:	<input checked="" type="checkbox"/> Erosion not evident
4.	Discharge Structure Remarks:	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A
VIII. VERTICAL BARRIER WALLS		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	Settlement Areal extent: Remarks:	<input type="checkbox"/> Location shown on site map Depth:	<input type="checkbox"/> Settlement not evident
2.	Performance Monitoring <input type="checkbox"/> Performance not monitored Frequency: Head differential: Remarks:	Type of monitoring: Evidence of breaching:	

IX. GROUNDWATER/SURFACE WATER REMEDIES		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Pumps, Wellhead Plumbing, and Electrical <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> All required wells properly operation <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks: <i>The PLC system consists of monitoring wells leachate extraction wells, and associate piping</i>		
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks:		
3.	Spare Parts and Equipment <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks: <i>Stockpile of extra parts and equipment on top of South Parcel</i>		
B. Surface Water Collection Structures, Pumps, and Pipelines		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Collection Structures, Pumps, and Electrical <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks:		
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks:		
3.	Spare Parts and Equipment <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks:		

C. Treatment System	<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
<p>1. Treatment Train (Check components that apply)</p> <p> <input type="checkbox"/> Metals removal <input checked="" type="checkbox"/> Oil/ water separation <input type="checkbox"/> Bioremediation <input type="checkbox"/> Air stripping <input checked="" type="checkbox"/> Carbon adsorbers: <i>Granular Activate Carbon (GAC)</i> <input checked="" type="checkbox"/> Filters: <input checked="" type="checkbox"/> Additive (e.g., chelation agent, flocculent): <i>Chemical precipitation unit (CPU)</i> <input checked="" type="checkbox"/> Others: <i>air sparging performed in the batch reactors</i> <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input checked="" type="checkbox"/> Sampling ports properly marked and functional <input checked="" type="checkbox"/> Sampling/maintenance log displayed and up to date <input checked="" type="checkbox"/> Equipment properly identified <input checked="" type="checkbox"/> Quantity of groundwater treated annually: <i>3Mgal/year</i> <input type="checkbox"/> Quantity of surface water treated annually: <i>difficult to calculate - amount varies based on rainfall</i> </p> <p>Remarks: <i>Waste water discharged after air sparging if permit requirements met. If requirements not met, wastewater goes to CPU and/or GAC for additional treatment prior to discharge.</i></p>		
<p>2. Electrical Enclosures and Panels (properly rated and functional)</p> <p> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance </p> <p>Remarks:</p>		
<p>3. Tanks, Vaults, Storage Vessels</p> <p> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs maintenance </p> <p>Remarks:</p>		
<p>4. Discharge Structure and Appurtenances</p> <p> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance </p> <p>Remarks:</p>		
<p>5. Treatment Building(s)</p> <p> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input checked="" type="checkbox"/> Chemicals and equipment properly stored </p> <p>Remarks:</p>		
<p>6. Monitoring Wells (pump and treatment remedy)</p> <p> <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition </p> <p> <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A </p> <p>Remarks: <i>With hundreds of wells of all types on site, only a few were examined closely</i></p>		

D. Monitoring Data		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Monitoring Data <input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality Remarks: <i>Submitted monthly to agencies. Interagency communication with DTSC, AQMD, RWQCB, EPA, ACE, and both city of Monterey Park and Montibello</i>		
2.	Monitoring data suggests <input type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining <input checked="" type="checkbox"/> Data collection still ongoing Remarks: <i>Trend analysis ongoing. See main report section 6.3.6 for details</i>		
E. Monitored Natural Attenuation		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Monitoring Wells (natural attenuation remedy) <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input checked="" type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks: <i>MNA not fully implemented yet because conditions are different than expected (i.e. sentinel wells had unexpected concentrations of contaminants). Full MNA implementations likely by 2012 after new sentinel wells are installed.</i>		
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. Note that there are no other remedies.			
List other remedies at the site.			
_____		<input type="checkbox"/> Inspection sheet attached	
_____		<input type="checkbox"/> Inspection sheet attached	
_____		<input type="checkbox"/> Inspection sheet attached	

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).

There are multiple remedies used at the OII landfill. Interim RODs were signed for Site Control and Monitoring (Operable Unit #1) and Leachate Management (Operable Unit #2) in July and Nov 1987, respectively. A ROD for Gas Migration Control and Landfill Cover (Operable Unit #3) was signed in Sep 1988, and amended in Sep 1990. The final ROD for Perimeter Liquids Control was signed by EPA in 1996 and supersedes the Site Control and Monitoring (operable Unit #1) and Leachate Management (Operable Unit #2) interim RODs. The final remedies for the site are Gas Migration Control and Landfill Cover and Perimeter Liquids Control. Components of remedies associated with each Operable Units are listed below.

- Operable Unit 1 - The long-term O&M of environmental control facilities addresses O&M for existing site activities including gas extraction, air dike operation, leachate collection, leachate treatment, irrigation, access roads, stormwater drainage, site security, slope repair, and erosion control.
- Operable Unit 2 - The liquids control and contaminated groundwater remedy installed a perimeter liquids control (PLC) system, conveys collected liquids to the existing on-site treatment plant, treats collected liquids at the leachate treatment plant, discharges treated liquids to the sanitary sewer system, maintains monitoring well networks (on-site and off-site), operates a groundwater monitoring and evaluation program, and establishes institutional controls.
- Operable Unit 3 - The landfill gas migration control and landfill cover remedy reduce surface gas emissions and odors, prevent oxygen intrusion into the refuse, prevent surface water infiltration, provide erosion control, and improve site aesthetics.

Based on information gathered from the site inspection, review of documents (RODs, reports, SOPs, past five-year reviews, maps, and as-built drawings), ARAR's and interviews, the remedies are generally functioning as designed.

The landfill caps that are used on both the North and South Parcels are designs that appear to be functioning as intended. A critical component of all remedies is for both regularly scheduled maintenance and event driven maintenance to be performed. Settlement of the South Parcel is a constantly occurring process that is managed by periodic inspections and repair work as necessary. Addressing settlement problems when they are small makes the repairs easier and causes less stress on infrastructure (wells, piping, ditches, and roads). Caring for the vegetation on the South Parcel, which is an integral part of the evapotranspirative cover design, appears to be adequate. On the South Parcel, the moncover slopes appear adequate for long-term protectiveness of the remedy.

The site inspection team found that the landfill gas and leachate extraction/conveyance systems were quite extensive, maintained in good working order, and were functioning as intended. Both systems are comprised of well and surface piping networks found on both the North and South Parcel. The extraction wells are plumbed into surface piping that conveys the gas and leachate streams (through

XI. OVERALL OBSERVATIONS**A. Implementation of the Remedy (continued)**

separate pipes) to the treatment plant. Along the way, there are booster pumps and holding tanks that control flow. At the plant, the gas stream is thermally oxidized (substantive permit requirements being followed) and the leachate is batch treated with the residual waste discharged to the sanitary sewer system (under permit). These systems require constant monitoring and adjustment, which is done either manually or remotely. Currently, the North Central PLC system is the only extraction system that is being operated remotely. The treatment plant can be monitored remotely but cannot be controlled remotely.

The Monitored Natural Attenuation (MNA) program for groundwater plumes that have migrated beyond the site boundary is not yet functioning as intended. This is due to downgradient conditions being different than expected. In some areas, COCs have migrated beyond existing compliance lines (e.g. Subareas B and C.), and in other cases, changing conditions require further characterization to assess the interaction of landfill gas with groundwater (Subarea D.) The monitoring program is being optimized to account for differing conditions and as necessary, additional monitoring wells will be installed, sampling frequencies adjusted, and analyte lists updated. When considering the site as a whole, the MNA program is scheduled to be fully operational by 2012. Trend analysis shows overall decreasing trends at most subareas along the perimeter. It is expected that once the PLC system is fully operational, trends that are currently increasing or stable will begin to decline.

Institutional controls have not yet been fully implemented and are not functioning as intended. The EPA should review the IC process as it related to well permit review reporting, notifications to homeowners, processing restrictive easements for work at off-site locations, and maintaining overall site security. During the site inspection, a gap was noted under a portion of the perimeter fence that borders the SEMPRA facility. Even though the SEMPRA facility is secured, the landfill fence warrants repair.

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.

Observations by the inspection team indicate the O&M procedures currently being followed support successful remedy performance. SOPs define O&M processes and procedures and currently, there are 87 SOPs in use. Occasionally, an SOP requires updating as new data comes in. The site visit to OII included both an inspection of the field conditions and the office where documents are housed. The information repository at the main office was well organized with SOPs, reports, permits, and other documentation readily available.

The cap requires periodic routine inspection and maintenance to correct for settlement, cracking and vegetation management. Event-driven inspections (e.g. rain events and earthquakes), are accomplished on an as-needed-basis. Without regular maintenance, the landfill cover would be impacted by erosion and settlement forces that would eventually destroy the cap integrity allowing gases to escape into the atmosphere, infiltrating surface water to form leachate, and damage to drainage ditch that allow surface water to pond. Periodic inspections are conducted to locate surface cracks in the cover and when found, are immediately repaired. Settlement causing significant changes (flattening) of the side slopes is corrected by backfilling to return the cover surface to its original slope. When subsurface settlement is observed affecting infrastructure such as roadways, pressurized grout is injected into the void(s) until the ground surface is returned to original elevation. There is stockpile of additional piping and equipment on the South Parcel so repairs can be expedited.

O&M of the landfill gas and leachate extraction systems are a large part of the overall site-wide O&M. Constant attention is required to monitor and adjust individual components of each system. For instance, monitoring extraction rates preserves the integrity of the extraction wells and keeps them from melting due to extremely high subsurface temperatures that can be attained as a result of uncontrolled decay of organic matter and drawing in of oxygen from the unsealed landfill perimeter. Establishing extraction rates is calculated from performance testing data and inserted into SOPs to assure consistent performance. The North Central PLC system can be remotely monitored and controlled with adjustable settings (i.e. pump speed, flow, set points, shutoff levels, etc.) that control flow to the treatment plant. The system also has the ability to call an operator when an alarm is triggered. The air dike system that separates the SEMPRA facility from the landfill is being maintained. Although the SEMPRA facility has not been active for over 15 years, there is still a risk that the stored gas can be extracted and treated if it is not kept out of the landfill gas extraction well capture zone.

O&M for the PLC system is mostly related to maintenance/change out of dedicated pumps. No evidence of biofouling was indicated. The gas and leachate extraction system headers that links extraction wells with the conveyance lines leading to the treatment plant are checked regularly and repaired as 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.

The inspection team saw no indication that there were remedies or remedy components that had unforeseen O&M costs or a high frequency of unscheduled repairs that were threatening the protectiveness of the remedy.

Overall, O&M costs are within ranges stated in the RODs. As treatment systems come online it is anticipated that O&M costs will rise. Currently, the PLC system and the groundwater monitoring program are being expanded therefore, are likely to see an increase in long-term cost. Some components of the PLC system are undergoing performance testing so the final operational configuration has yet to be established. The groundwater monitoring program may need additional wells and associated monitoring, although optimization could offset those increased costs.

A potential source of future problems is the microturbines. The microturbines produce power for the site and due to their antiquated design; they are not supported well by the manufacturer. This results in downtime of the microturbines while replacement parts are being located.. With time, this condition is not expected to improve . I it should be noted that the microturbines are not essential for LFG treatment and their operation is not critical to the successful implementation of the overall remedy.

D. Opportunities for Optimization

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

Opportunities to optimize the groundwater sampling program include reduction in sampling frequencies; including/excluding certain wells from a particular sampling event, and consideration of what constituents should be included in the analyte list. Low flow sampling has been utilized at specific locations and EPA is currently evaluating a proposal to utilize low-flow sampling across the entire site.

Optimization of the landfill gas and leachate extraction systems is a constant process that requires attention as gas and liquid streams are constantly changing in both volume and concentration. Currently, only the North Central Area PLC is remotely monitored and controlled. If a point in time comes when it can be shown that benefits outweigh costs to upgrade the remaining gas and leachate extraction systems to remote monitoring and control, then the technology may prove worthwhile.

Reporting can be optimized by utilizing remote sensing and GIS capabilities. The manual nature of current reporting systems makes reporting efforts time consuming and inefficient.

Institutional Controls must be maintained as long as the site poses a risk to human health and the environment. Several additional recommendations for optimizing the IC process are noted here:

- The provided Well Permit Review Study should include a positive statement that reads, "There were no drinking water wells installed within two miles of the OII site or groundwater accessed in the natural attenuation area during the last two years."
- Develop supporting information for local agencies to fully describe their role in local agency meetings.
- The provided Access and Institutional Controls Work Plan Biennial Update could be improved by;
 - i. Providing a positive statement like, "There was no failure of institutional controls in the last two years."
 - ii. Including a copy of the last notice to property owners
 - iii. Including a copy of the last biennial well installation permit survey
 - iv. Including a copy of the last biennial well installation permit agency meeting agenda or note

Appendix D
Five-Year Review Interview Summary Forms

INTERVIEW RECORD		
Site Name: Operational Industries Incorporated (OII)		EPA ID No: CAT080012024
Subject: OII 5-yr review		Time: 9:00 am
		Date: 24 Feb 2010
Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing
Location of Visit: OII office, Monterey Park, CA		
Interviewer(s)		
Name: Rick McComb, P.E.	Title: Environmental Engineer	Organization: USACE
Interviewee		
Name: Shiann-Jang Chern	Title: Superfund Project Manager	Organization: EPA
Telephone No: 415-972-3268	Street Address:	
Fax No: 415-947-3528	USEPA Region 9	
E-Mail Address: Chern.shiann-jiang@epa.gov	75 Hawthorne Street, SFD-7-4	
	San Francisco, CA 94105	
Summary Of Conversation		
<u>OII Interview Questions</u>		
<p>1. <i>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? (general sentiment)</i></p> <p>My role as project manager is to represent the lead agency and be involved with construction/O&M, groundwater studies, and budget approval. My impression is that the site is in good shape. There are occasional problems but they do not turn into major problems because the operations manager and the site crews are very good at identifying problems and fixing them so they do not happen again. All procedures are in place to make the landfill operation work correctly.</p>		
<p>2. <i>What is the current status of construction? Have any problems or difficulties been encountered that have impacted construction progress or implementability?</i></p> <p>Major construction left is that is part of the Remedial Action process include,</p> <ul style="list-style-type: none"> • North Parcel cover performance testing and final construction completion report (to be completed by New Cure) • Groundwater still waiting for North Central area PLC performance test report and North East area PLC study results • MNA program will need to identify locations for additional monitoring wells <p>Major construction that is not part of the ROD but is instead part of the O&M is to include the addition of 1,4-dioxane into the LTP treatment process</p>		

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.*

EPA has hired ACE on-site representatives to conduct inspections and report on routine operations. The EPA maintains constant communications with the site manager on practically a daily basis. I am on site every 2-3 months plus on an as needed basis when there are specific event occurring, such as groundwater monitoring.

4. *What does the monitoring data show? Are there any trends that show contaminant levels decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy?*

Groundwater data for the PLC area shows that some contaminant concentrations are on the rise, while in other areas contaminant concentrations are stable and/or decreasing. Overall, trends are decreasing in contaminant concentrations except in the North East area. In general, most plumes are stable or decreasing. Off site wells in the eastern side show that 1,4-dioxane has been decreased somewhat in the past but it has bounced back. It is a current and future concern for the groundwater monitoring program.

Monitoring for landfill gas on the surface of the landfill has always produced good results. The cover is not cracking and is intact. There may be minor cracks, but they get repaired. Roads are also repaired regularly. Settlement monitoring on the South Parcel indicates there are no major problems. Small settlement problems are addressed with grouting.

For the LFGTS, there are no major problems with operation. New Cure is updating instrumentation. Five year performance stack testing show emissions are in compliance with regulations.

The gas extraction wells in the North East area (South Parcel) area have been sheared off from landfill movement but it hasn't been a major problem.

There have been no problems associated with the stormwater discharges from the LTP. Quarterly reports are sent to the Los Angeles County Sanitation District.

The microturbines are getting old (installed in 2002) and efficiency is decreasing. Some parts are hard to get and vendors have trouble acquiring used parts when needed. Maybe the existing microturbines will get replaced with new microturbines in a few years.

No new emerging COCs are expected, but if any are detected, a Special Study Area will be created to address the problem.

5. *Would you say that O&M and/or sampling efforts have been optimized? Please describe how improved efficiency has/has not occurred.*
6. Yes, groundwater sampling is being optimized for analytes and frequency.
7. *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.*

There have been no changes to the site's land use. Institutional controls meetings are held every two years. Agencies (EPA, DTSC, Water Boards, and LA County Sanitation District) meet with New Cure personnel. Things have gone so smoothly that the meetings are going to be held in the future as telecons since the effort required for face-to-face meetings is no longer warranted.

There have been no complaints from neighbors regarding the site. Nearby residents (those that live within the compliance lines) are notified when there is construction planned.

8. *Have any problems been encountered which required changes to the remedial design or ROD?*

No

9. *Do you have any comments, suggestions, or recommendations regarding the site?*

Some operations can be improved. Examples are;

- Buy a truck or SUV for security because the rental costs from the security contractor are more expensive due to contractor markups
- There are various site uses that can be explored like solar power and use of treated LTP effluent as irrigation water for the cemetery and/or nursery
- Thermal recovery and/or cogeneration from the LFGTS stacks if the North Parcel is ever developed
- Modify the LFGTS stacks to remove VOCs instead of the air strippers that are being used now

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

The main concern is the bridge collapsing and the landfill gas line inside the bridge being damaged. The entire site is under a series of SOPs, which are contingency plans themselves. Bottom line is that if/when an earthquake happens; we will just have to deal with it.

11. *What is your current staffing and what is your projected staffing (future drawdown)?*

In 2012 there will be a drawdown in staffing as the landfill gas volume naturally reduces and groundwater sampling program is further optimized. Once the site is completely in the O&M phase, the on-site representatives will no longer be needed.

12. *How have the microturbines been operating?*

Efficiency of the microturbines started going down approximately 1 year ago. As of now it is around 50%, but it is still functioning well enough to fulfill the power needs of the site.

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

Green remediation techniques being used include, microturbines, solar power for weather stations, groundwater sampling optimization, detention basin water used for irrigation, and electronic data (WiFi) transmission of extraction well parameter data (automatic data collection) back to office to and reduce costs.

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

No.

INTERVIEW RECORD		
Site Name: Operational Industries Incorporated (OII)		EPA ID No: CAT080012024
Subject: OII 5-yr review		Time: 1000 Date: 4 Mar 2010
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing
Location of Visit: n/a		
Interviewer(s)		
Name: Rick McComb, P.E.	Title: Environmental Engineer	Organization: USACE
Interviewee		
Name: Corey Bertelsen	Title: Project Coordinator	Organization: OII Work Defendants
Telephone No: 805-934-5951	Street Address:	
Fax No:	868 Greystone Place	
E-Mail Address: cbertelsen@cs.com	San Luis Obispo CA 93401	
Summary Of Conversation		
<u>OII Interview Questions</u>		
<p>1. <i>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? (general sentiment)</i></p> <p>I am the Project Coordinator for the site, which is a named position under the consent decree. I handle site operations and funds requests. I am not a New Cure employee.</p> <p>My general impression of the work performed at the site is good. New Cure is driven to maintain a functional system. All appropriate documents are turned in on time and checklists are used for working level inspections and operations. New Cure documents site conditions very good because the site has been in O&M for so long.</p>		
<p>2. <i>What is the current status of construction? Have any problems or difficulties been encountered that have impacted construction progress or its implementation?</i></p> <p>The North Parcel construction was the last major action and that was from Jun 2008 - Jun 2009. The consent decree mandated two 90-day compliance periods (Sep - Nov 08 and Dec 2008 - Feb 2009). The North Parcel Construction Completion report was submitted to EPA. The North Central Construction Completion Report was submitted to EPA a couple years ago and the SWEAP before that. Landfill gas well replacement occurs occasionally.</p>		

The North Parcel construction had its challenges. It is a ten-acre RCRA cap. Waste removal along the Hwy 60 corridor was challenging but handled well. An EPA "Tiger Team" used a seismic design that allowed 24" of settlement. The developer couldn't live with that so "Enhanced Waste Processing" was used to lower the range to 2-4" of settlement.

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, we have quarterly technical exchange meetings with EPA. We are currently discussing groundwater issues. Quarterly meetings are held in San Francisco where a larger group (technical, legal, and funding staff) meets. The results have been positive since the last five-year review. There are no large technical or operational issues.

4. *What does the monitoring data show? Are there any trends that show contaminant levels decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy?*

For the landfill cap, surface, subsurface and surface water monitoring data show the cap is performing well. For groundwater, we perform quarterly monitoring with two larger events per year. Points of compliance lines have been established and any hit is reported in the exceedances report. Contaminant concentrations crossing compliance lines can trigger actions. Some VOCs in the Northeast area are being discussed with EPA. There are no new COCs and there are no impacts to the effectiveness of the remedy.

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

Since the last five-year review, there has been some reduction in sampling. An example is reducing the frequency from monthly to quarterly for the subsurface landfill gas probes. The groundwater SAP has also changed in the last two years with assistance from EPA and further reductions will be discussed in the future.

6. *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.*

No. Every two years an invitation is sent to a broad list of people requesting their input on new well. There have been no strange activities or complaints and there have been no new water wells installed.

7. *Have any problems been encountered which required changes to the remedial design or ROD?*

For the landfill cap, no. For the groundwater, CD8 provides that exceedances can trigger certain activities, but not changes to the ROD.

8. *Do you have any comments, suggestions, or recommendations regarding the site?*
Wrap up disputes over who pays for what.
9. *Are any contingency plans in place for dealing with the impacts an earthquake may have on any of the remedial systems?*
SHERP and O&M require very specific responses in the event of an earthquake or maximum precipitation event. Much of the response is by performing inspections. We measure horizontal and vertical movement each year and combine into an annual report.
10. *What is your current staffing and what is your projected staffing (future drawdown)?*
NCI formed a remediation contractor (17 folks). NCI hires other contractors too. NCI staff may go down by one or two by the next five-year review.
11. *How have the microturbines been operating?*
Not well. Problem is that they are old and not supported well by Ingersoll rand. We have a hard time keeping them running as much as we want. OII has a 350kw demand and each microturbine generates 70kw. With landfill gas declining, there is not as much high concentration methane gas to run the units with so the operating efficiency is around 40%. Ingersoll rand has been out numerous times to address issues with the microturbines. NCI has tried to concentrate the gas to the turbines.
12. *What types of "green remediation" techniques have been used?*
Minimize the power demand, and we have had a couple of vendors approach us for using the top deck of the South parcel for solar power.
13. *Are there any issues you can think of that have not been covered by these questions?*
None
14. *Is there any way to catch illegal activities?*
There is no illegal activity within compliance lines based on regular visits and survey.
There is no regular inspection.
15. *Do you know that there are no irrigation wells installed on the Sempra property?*
I do not believe there are any irrigation wells, but will confirm with Ed Robles. Subsequent email verified that Ed know of no irrigation wells.
16. *Please provide a copy and results of the Well Installation Review study.*
There were no new drinking water wells, (and the Study provided by email showed) in the last two years.

INTERVIEW RECORD		
Site Name: Operational Industries Incorporated (OII)		EPA ID No: CAT080012024
Subject: OII 5-yr review		Time: 1130 am
Date: 24Feb10		
Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other Location of Visit: OII office, Monterey Park, CA		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing
Interviewer(s)		
Name: Rick McComb, P.E.	Title: Environmental Engineer	Organization: USACE
Interviewee		
Name: Ed Robles	Title: Site Operations Manager	Organization: New Cure, Inc.
Telephone No: 323-720-9775 Fax No: 323-720-9905 E-Mail Address: erobles@oii-landfill.com	Street Address: 2550 Greenwood Avenue Monterey Park, CA 91755	
Summary Of Conversation		
<u>OII Interview Questions</u>		
<p>1. <i>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? (general sentiment)</i></p> <p>I am the operations manager for OII. My impression of the work here is that a very good job is being done here and we are constantly seeking improvement.</p>		
<p>2. <i>What is the current status of construction? Have any problems or difficulties been encountered that have impacted construction progress or implementability?</i></p> <p>There is no construction going on right now. The North Parcel construction was started in 2008 and completed in 2009, as was the North Central construction.</p>		
<p>3. <i>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.</i></p> <p>SOPs and management plans are adhered to as needed or on a daily basis, as required. I have communications with New Cure staff on a daily basis.</p>		
<p>4. <i>What does the monitoring data show? Are there any trends that show contaminant levels decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy?</i></p> <p>Monitoring data shows that methane generation is decreasing as measured by BTUs and flow rate. Groundwater trends are reported in all the reports we have. There are so many different trends, I'd point you towards the reports for specific information.</p>		

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

O&M improvements that would help are things like revisions to SOPs, and an overall high level review to all procedures for increased optimization.

Sampling optimization has been approved by EPA for groundwater. The optimization reduced and or added constituents to the analyte list and added/removed locations where sampling was needed.

6. *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.*

There have been upgrades to several fences and others sections have been added where they didn't exist. There has also been additional signage placed along the perimeter fencing.

7. *Have any problems been encountered which required changes to the remedial design or ROD?*
No.

8. *Do you have any comments, suggestions, or recommendations regarding the site?*
No.

9. *Are any contingency plans in place for dealing with the impacts an earthquake may have on any of the remedial systems?*

Catastrophic events are dealt with in SOPs/Emergency Response Plan. Both people and facilities are handled. There are specific incident response procedures and rally points.

10. *What is your current staffing and what is your projected staffing (future drawdown)?*
Current staffing is adequate. We hire as needed.

11. *How have the microturbines been operating?*

We are currently working with Ingersoll Rand to see what improvements are needed. The microturbines are producing and continue to produce power, but not to the level of initial installation. Considering these units had a five-year lifespan, they are doing fine.

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

Outside lighting is on sensors, we are using energy efficient interior lighting for the office, weather stations and lighting on the top deck (boneyard) are solar powered, and we recycle aluminum, plastic, cardboard, paper and oil. We practice the 3-Rs. Reduce, Reuse, and Recycle.

13. *Are there any issues you can think of that have not been covered by these questions?*

None.

14. *How have the microturbines been operating?*

We are currently working with Ingersoll Rand to see what improvements are needed. The microturbines are producing and continue to produce power, but not to the level of initial installation. Considering these units had a five-year lifespan, they are doing fine.

15. *What types of "green remediation" techniques have been used?*

Outside lighting is on sensors, we are using energy efficient interior lighting for the office, weather stations and lighting on the top deck (boneyard) are solar powered, and we recycle aluminum, plastic, cardboard, paper and oil. We practice the 3-Rs. Reduce, Reuse, and Recycle.

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

None.

INTERVIEW RECORD		
Site Name: Operational Industries Incorporated (OII)		EPA ID No: CAT080012024
Subject: OII 5-yr review		Time: 1300 Date: 3 Mar 2010
Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing
Location of Visit: Army Corps of Engineers office, Sacramento, CA		
Interviewer(s)		
Name: Rick McComb, P.E.	Title: Environmental Engineer	Organization: USACE
Interviewee		
Name: John Erwin, P.E.	Title: ACE Project Manager	Organization: USACE
Telephone No: 916-557-7306	Street Address:	
Fax No:	1325 J St. 12 th Floor	
E-Mail Address: john.erwin@usace.army.mil	Sacramento, CA 95814	
Summary Of Conversation		
<u>OII Interview Questions</u>		
<p>1. <i>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? (general sentiment)</i></p> <p>My role is the ACE Project Manager for OII. My impression is that the site is complicated, but work is being performed well.</p>		
<p>2. <i>What is the current status of construction? Have any problems or difficulties been encountered that have impacted construction progress or implementability?</i></p> <p>The South Parcel construction is complete. The North Parcel construction is complete. As-built drawings and construction completion reports are being processed.</p>		
<p>3. <i>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.</i></p> <p>I provide an Interagency Agreement monthly status report to EPA documenting ACE expenditures.</p>		
<p>4. <i>What does the monitoring data show? Are there any trends that show contaminant levels decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy?</i></p> <p>n/a</p>		

5. *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.*
Required IC's are not in place yet. Required site access controls are in place. There are reuse proposals for the North Parcel. My conversations with the Water Resources Control Board staff indicate they are unsure of their role as it related to institutional Controls. Complaints from residents on Iguala Dr. concerning vapor intrusion have been resolved and there is no problem.
6. *Have any problems been encountered which required changes to the remedial design or ROD?*
I don't know
7. *Do you have any comments, suggestions, or recommendations regarding the site?*
Replacement of the existing treatment system needs to be attended to due to aging equipment.
8. *Are any contingency plans in place for dealing with the impacts an earthquake may have on any of the remedial systems?*
Material is in place to replace piping in the event of an earthquake. The structural adequacy of the bridge is unknown
9. *What is your current staffing and what is your projected staffing (future drawdown)?*
Currently, the ACE has 4 separate contractors employed on OII and there are 4 full-time equivalents in the Sacramento office. We predict a 50% drawdown when CD8 is complete.
10. *How have the microturbines been operating?*
Poorly due to age.
11. *What types of "green remediation" techniques have been used?*
Methane gas capture is a good example of this.
12. *Are there any issues you can think of that have not been covered by these questions?*
No, good questions.

INTERVIEW RECORD		
Site Name: Operational Industries Incorporated (OII)		EPA ID No: CAT080012024
Subject: OII 5-yr review		Time: 3 pm Date: 1 Mar 2010
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other Location of Visit: OII office, Monterey Park, CA		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing
Interviewer(s)		
Name: Rick McComb, P.E.	Title: Environmental Engineer	Organization: USACE
Interviewee		
Name: Wendy Luo	Title: Civil Engineering Technician	Organization: USACE
Telephone No: 626-401-4046 Fax No: 626-401-4007 E-Mail Address: wendy.l.luo@usace.army.mil	Street Address: 645 N. Durfee Ave. Bldg #17 South El Monte, CA 91733	
Summary Of Conversation		
<u>OII Interview Questions</u>		
<p>1. <i>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? (general sentiment)</i></p> <p>I perform Quality assurance four days a week (Monday - Thursday) at the site by reading meters on the leachate treatment plant and I observe all ongoing activities. I take before and after pictures and keep records of daily activity, which are submitted to John Erwin. Any issues noted are brought to the attention of John and SJ.</p> <p>Overall impression is that the site is managed fairly well. Some vendors are not responsive. Ingersoll Rand does not give answers very readily. All employees seem to have the process down because they have been there so long and know all aspects of the site.</p>		
<p>2. <i>What is the current status of construction? Have any problems or difficulties been encountered that have impacted construction progress or implementability?</i></p> <p>There have been no major problems since I have been there. Minor construction activities include pressure grouting and moving pipes for landfill gas extraction system as land settles. Other minor construction is the monocover compaction when they do crack repairs.</p> <p>There have been no problems or delays with daily operations. The staff is good at keeping a safe working environment.</p>		

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.*
We have daily communications (Monday – Thursday) and make a report. The purpose is to keep track of site conditions ACE is the eyes and ears of the EPA at OII.

A record of all data off the alarm panel for the LTP is kept and questions are raised to Ed Robles if a reading is out of range.
4. *What does the monitoring data show? Are there any trends that show contaminant levels decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy?*
Monitoring data shows that over a long period of time, trends are mostly decreasing. In groundwater, I am not aware of any new contaminants of concern.
5. *Would you say that O&M and /or sampling efforts have been optimized? Please describe how improved efficiency has/has not occurred.*
Yes, O&M and sampling has been optimized. Periodically, the PVC well casing in the ground experiences high temperatures and some collapse. Replacements are installed, so the same level of extraction can continue.
6. *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.*
No new site access controls have been constructed. The existing gates work well. Only site personnel can enter the gates. There are two sets of gates. Land use changes in the past included an attempt to make the North Parcel open for commercial development. This required a different type of cap on the North Parcel.
7. *Have any problems been encountered which required changes to the remedial design or ROD?*
No. They have following the plan and no change is necessary.
8. *Do you have any comments, suggestions, or recommendations regarding the site?*
Other site personnel should be as educated about procedures as well as Ed Robles. Ed needs some backup.
9. *Are any contingency plans in place for dealing with the impacts an earthquake may have on any of the remedial systems?*
Emergency repair plans are on-site but there should be additional people that are as knowledgeable about the plans as Ed.

10. *What is your current staffing and what is your projected staffing (future drawdown)?*

There is no staffing drawdown plan for the ACE inspection. One person is doing the inspections right now and there are no changes in the future.

11. *How have the microturbines been operating?*

The microturbines are not operating since I took over this job.

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

The microturbines would be considered green technology if they were operating. Solar power is used to operate the weather station and lighting on the top deck. The site recycles oil, paper, plastic, and vegetation. Stormwater is collected in detention basins and used to back-flush the leachate extraction lines.

13. *Are there any issues you can think of that have not been covered by these questions?*

No.

INTERVIEW RECORD		
Site Name: Operational Industries Incorporated (OII)		EPA ID No: CAT080012024
Subject: OII 5-yr review		Time: 9:00 am
		Date: 24 Feb 2010
Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other Location of Visit: OII office, Monterey Park, CA		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing
Interviewer(s)		
Name: Rick McComb, P.E.	Title: Environmental Engineer	Organization: USACE
Interviewee		
Name: Rick Lainhart	Title: Civil Engineering Technician	Organization: USACE
Telephone No: 626-401-4094 Fax No: 626-401-4007 E-Mail Address: richard.s.lainhart@usace.army.mil	Street Address: 645 N. Durfee Ave. Bldg #17 South El Monte, CA 91733	
Summary Of Conversation		
<u>OII Interview Questions</u>		
<p>1. <i>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? (general sentiment)</i></p> <p>From October 2006 to may 2009, I was taking plant readings, observing daily work, and was here for approximately 80% of the North parcel construction.</p> <p>Overall impressions are that the inspections are done in a conscientious manner, the plant is well maintained, and the workers are all very knowledgeable.</p>		
<p>2. <i>What is the current status of construction? Have any problems or difficulties been encountered that have impacted construction progress or implementability?</i></p> <p>Slopes are repaired when necessary by bringing in a side boom to roll slopes (recompaction) followed by reseeding. The entire landfill is inspected twice per year followed by slope repair where needed. I was involved in this on approximately 60% of the South Parcel.</p> <p>There was a complete rebuild on the North Parcel for the redevelopment. This included excavating down to the trash, treating it and recompaction. Both the geotextile and moncover are complete.</p>		

Maintenance of the drainage/BMPs are kept up through the year.

Repair and modification of the LFGTS include a new tank, lines replaced and upgraded, and computer systems upgraded (SIMS building).

Groundwater sampling events have required new wells, mainly along the eastern and western sides.

The only problem I saw was that the North Parcel development took longer due to short delays, like finding ordnance in the landfill and dealing with changes to the Caltrans right-of-way.

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.*

I was here every day with approximately 80% of my time spent on the North parcel construction and 20% of my time spent on routine tasks, like reading and documenting data.

4. *What does the monitoring data show? Are there any trends that show contaminant levels decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy?*

Monitoring data comes from source like, liquids and gases being drawn off, burn-off temperature, self-generating plants run time (which is very important to keep online), LFG reading as at heads, run time of plant, and an emissions survey that is done two times per year for methane.

Gas flow coming into the plant is showing a steady trend. You can only draw so much anyway.

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

The plant can be modernized but the cost is high and the system is working well.

6. *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.*

One resident had trouble obtaining fire insurance until New Cure trimmed the landfill grass back to a height that the insurance company found acceptable.

The south slope of the South Parcel (toe buttress wall) has 24 hour security for the 4th of July so fires are not started.

7. *Have any problems been encountered which required changes to the remedial design or ROD?*

No

8. *Do you have any comments, suggestions, or recommendations regarding the site?*

The site is well maintained given its size. The staff gets a daily safety briefing and they are doing a good job.

9. *Are any contingency plans in place for dealing with the impacts an earthquake may have on any of the remedial systems?*

Safety procedures are in place such as, emergency radio procedures, and staging areas for staff followed by pipe inspections over a short period of time.

10. *What is your current staffing and what is your projected staffing (future drawdown)?*

One ACE on-site representative.

11. *How have the microturbines been operating?*

Less than 50% run time because they are getting old. There have been discussions to evaluate the costs of replacing the units and selling the power back to Edison.

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

There has been a proposal to use the LFGTS discharge water on-site for irrigation and future development. Cuttings from vegetation removal are recycled to a local composter. Overall, the recycling program works well.

13. *Are there any issues you can think of that have not been covered by these questions?*

Plant upgrading and modernization to components like;

- gauging
- burning
- design of plant is oversized for need

INTERVIEW RECORD		
Site Name: Operational Industries Incorporated (OII)		EPA ID No: CAT080012024
Subject: OII 5-yr review		Time: 1015 am
Date: 24Feb10		
Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing
Location of Visit: OII office, Monterey Park, CA		
Interviewer(s)		
Name: Rick McComb, P.E.	Title: Environmental. Engineer	Organization: USACE
Interviewee		
Name: David Towell, P.E.	Title: Senior Project Manager	Organization: CH2MHill
Telephone No: 213-228-8285	Street Address:	
Fax No: 213-538-1399	1000m Wilshire 21st Floor	
E-Mail Address: divid.towell@ch2m.com	Los Angeles, CA 90017	
Summary Of Conversation		
<u>OII Interview Questions</u>		
<p>1. <i>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? (general sentiment)</i></p> <p>My role is to provide technical support to EPA for PLC and groundwater issues. My overall impression is good. Things are going much better than five-years ago. Now, EPA and New Cure are working together better.</p>		
<p>2. <i>What is the current status of construction? Have any problems or difficulties been encountered that have impacted construction progress or implementability?</i></p> <p>Construction is complete for known problems. The Northeast Cover may need more work. We are awaiting resolution of whether or not gas extraction (SVE) should be used to help support the groundwater remedy.</p> <p>The North Central area construction was slowed by coordination with North Parcel construction work. It just took a little longer to coordinate.</p>		
<p>3. <i>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.</i></p> <p>Yes, there are quarterly technical meetings to discuss groundwater, PLC and any new issues. There is an annual groundwater report and periodic SWEAP, PLC meetings as needed. There is also PLC implementation compliance testing.</p>		

4. *What does the monitoring data show? Are there any trends that show contaminant levels decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy?*

The PLC plume is stable. There are no emerging COC's

Off-site wells show some increasing, some decreasing trends but nothing unexpected, except 1,4-dioxane. There is an ongoing MNA evaluation for 1,4-dioxane.

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

Sampling optimization efforts have considered "greener" sampling methods like using low-flow sampling methods. Other optimization methods being used are reducing the frequency and analyte list for wells. There will be another optimization event after PLC compliance testing is finished.

The North central area has not been under a sampling program long enough to be optimized.

6. *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.*

No. Processes are still being followed as specified in the ROD. IC's exist for groundwater and are being worked. There is a site access agreement with Southern California Edison for the North Central PLC.

7. *Have any problems been encountered which required changes to the remedial design or ROD?*

No

8. *Do you have any comments, suggestions, or recommendations regarding the site?*

Ongoing technical discussions/activities need to continue and achieve reasonable progress. Related to the groundwater and PLC.

9. *Are any contingency plans in place for dealing with the impacts an earthquake may have on any of the remedial systems?*

No, as it relates to groundwater/PLC.

10. *What is your current staffing and what is your projected staffing (future drawdown)?*

n/a

11. *How have the microturbines been operating?*

n/a

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

Low flow and other no-purge techniques may be considered in the future. As for now, dedicated pumps are replaced with new dedicated pumps.

13. *Are there any issues you can think of that have not been covered by these questions?*

No issues.

INTERVIEW RECORD		
Site Name: Operational Industries Incorporated (OII)		EPA ID No: CAT080012024
Subject: OII 5-yr review		Time: 0800 Date: 11 Mar 2010
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing
Location of Visit:		
Interviewer(s)		
Name: Rick McComb, P.E.	Title: Environmental Engineer	Organization: USACE
Interviewee		
Name: Scott Rowlands	Title: Senior Hydrogeologist	Organization: Geosyntec
Telephone No: 714-465-1249	Street Address:	
Fax No: 714-969-0820	2100 main St. Ste #150	
E-Mail Address: srowlands@geosyntec.com	Huntington beach CA 92648	
Summary Of Conversation		
<u>OII Interview Questions</u>		
<p>1. <i>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? (general sentiment)</i></p> <p>My role is to provide consulting services for groundwater related issues at OII. My overall impression is that the work at OII is done efficiently and to a high level of quality. The schedules are agreed upon with EPA.</p>		
<p>2. <i>What is the current status of construction? Have any problems or difficulties been encountered that have impacted construction progress or implementability?</i></p> <p>n/a</p>		
<p>3. <i>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.</i></p> <p>Yes, regular technical exchange meetings with EPA are held once or twice a quarter and there is regular communications with on site New Cure staff at least once a week. The results of these meetings are that planning/scheduling/budgeting issues are discussed.</p>		
<p>4. <i>What does the monitoring data show? Are there any trends that show contaminant levels decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy?</i></p> <p>Generally, groundwater monitoring shows that progress is being made with selected remedies that are described in CD8. There are three key areas related to the PLC system.</p>		

- SWEAP (Southwest Early Action Project - west side of the South Parcel) - The SWEAP was an earlier project initially built and operated without proper compliance testing. It is a dual-extraction system and compliance testing was completed last year and the results have been submitted to EPA for review.
- North East area (northeast side of the South Parcel) – at this location, we are not seeing decreasing trends as quickly as expected and we believe it is a gas control problem - that landfill gas that may be contaminating the groundwater. We're actively working with the EPA on this issue; we've made several efforts including replacing wells so far.
- North Central area (northern and west side of the North Parcel). Have installed two phases of liquids extraction system in the north-central area and compliance testing for the PLC system will start within the coming month and should be completed by the end of this year..

Other areas do not appear to need PLC and MNA appears to be progressing as expected. Most areas around the site are showing decreasing trends. 1-4, dioxane does not degrade as rapidly as other VOCs and is extending further from the site when compared to the over 100 VOCs that have been detected so far. Overall, remedies are working as expected and we anticipate having all wells installed by 2012 at which time the remedy will enter the long-term monitoring phase.

An emerging compound is a compound that does not have a drinking water MCL. Health data has not been established for the compound.

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

Yes, optimization of the groundwater remedy has been proposed at Technical Exchange Meetings and the proposal was accepted. These changes have been memorialized in the 2008 annual groundwater monitoring report. Initially, some groundwater sampling was semi-annual and has been changed to quarterly. Generally, groundwater monitoring optimization includes modifications to analytical suites, and frequencies based on statistical analysis of the data. There are also improvements to analytical methods and much thought goes into the location of future monitoring wells. Use of low flow sampling methods was proposed in the Draft 2009 AGMER and we're hoping to move towards implementing that.

6. *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.*

I am often around the perimeter of the site and I can say that we have top-notch security.

7. *Have any problems been encountered which required changes to the remedial design or ROD?*

Not to my knowledge

8. *Do you have any comments, suggestions, or recommendations regarding the site?*
No
9. *Are any contingency plans in place for dealing with the impacts an earthquake may have on any of the remedial systems?*
n/a
10. *What is your current staffing and what is your projected staffing (future drawdown)?*
We bring in specialists as needed. Currently, there are 2-3 people supporting me.
11. *How have the microturbines been operating?*
N/A
12. *What types of "green remediation" techniques have been used?*
The use of monitored natural attenuation as a remedial alternative can be considered "green remediation". We have focused (groundwater extraction) remedial efforts because of the existence of preferential flow paths which means we use less energy, etc.
13. *Are there any issues you can think of that have not been covered by these questions?*
No.

INTERVIEW RECORD		
Site Name: Operational Industries Incorporated (OII)		EPA ID No: CAT080012024
Subject: OII 5-yr review		Time: 2:00 pm Date: 18Mar2010
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other Location of Visit:		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing
Interviewer(s)		
Name: Rick McComb, P.E.	Title: Environmental Engineer	Organization: USACE
Interviewee		
Name: Suji Somasundaram Ph. D, P.E.	Title: Principal Engineer	Organization: Advanced Earth Sciences (AES) Inc.
Telephone No: 949-379-2465 Fax No: 949-379-2470 E-Mail Address: suji@aesciences.com	Street Address: 9307 Research Drive Irvine CA 92618	
Summary Of Conversation		
<u>OII Interview Questions</u>		
<p>1. <i>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? (general sentiment)</i></p> <p>For the last few years, I have helped NCI as technical consultant on post-closure maintenance issues on the South parcel. I was also the Construction Quality Assurance engineer of record for the North Parcel back in June. My overall impression is that the cover is performing as intended and overall, I am pretty satisfied with it.</p>		
<p>2. <i>What is the current status of construction? Have any problems or difficulties been encountered that have impacted construction progress or implementability?</i></p> <p>The South Parcel was completed 4-5 years ago and now the work is mainly routine annual maintenance activities. There is no ongoing construction. There are no problems, just routine issues related to settlement, which is covered by the SOPs.</p>		
<p>3. <i>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.</i></p> <p>Yes, annual inspections of the cover system. Inspections are done on an as needed basis when a call is received from Ed (Robles).</p>		
<p>4. <i>What does the monitoring data show? Are there any trends that show contaminant levels decreasing? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedy?</i></p>		

There are several different types of monitoring done.

- Settlement for the cap is monitored at over 100 locations on a semi-annual basis. Every year we put together a settlement report to document the conclusions.
- Settlement for Geogrid walls on the south side of the South Parcel is done as part of the annual inspection.
- Moisture monitoring probes (8) were installed at the end of construction. These probes were monitored for 3 years and a report was submitted. The instruments have shown to be very robust and are still operational.

Moisture monitoring shows that the cover is operating as intended. Settlement monitoring shows normal settlement also. Performance of the cap is fine as long as regular maintenance is done.

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

Yes, the sampling is routine per the SOPs.

6. *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.*

n/a

7. *Have any problems been encountered which required changes to the remedial design or ROD?*

No.

8. *Do you have any comments, suggestions, or recommendations regarding the site?*

As part of the annual cover evaluation, recommendations are made. Some are for immediate action. The trend we see is that steep slopes are getting steeper as lateral bulging occurs. This is an anticipated effect that general maintenance will have to repair on a regular basis..

9. *Are any contingency plans in place for dealing with the impacts an earthquake may have on any of the remedial systems?*

There is an operations plan in place with SOPs and inspection requirements in place.

10. *What is your current staffing and what is your projected staffing (future drawdown)?*

n/a

11. *How have the microturbines been operating?*

n/a

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

The landfill cap design is an original "green" design for a landfill. This was the first for a Superfund site that was permitted and built this way. The evapotranspirative cover is self-sustaining and relies on natural processes to prevent percolation of moisture into the ground. The design uses native vegetation. This design differs from classic RCRA cover where moisture is not allowed to penetrate the cover.

13. *Are there any issues you can think of that have not been covered by these questions?*

No.

14. *How have the microturbines been operating?*

We are currently working with Ingersoll Rand to see what improvements are needed. The microturbines are producing and continue to produce power, but not to the level of initial installation. Considering these units had a five-year lifespan, they are doing fine.

15. *What types of "green remediation" techniques have been used?*

Outside lighting is on sensors, we are using energy efficient interior lighting for the office, weather stations and lighting on the top deck (boneyard) are solar powered, and we recycle aluminum, plastic, cardboard, paper and oil. We practice the 3-Rs. Reduce, Reuse, and Recycle.

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

None.

Appendix E

Site Visit Photographs

OII Superfund Site Photos – 23-24 February 2010



Southwest corner of South Parcel washpad



Southwest corner sludge storage tank near washpad



Former gas storage facility (background) and OII perimeter fence (foreground) South Parcel



Former gas storage facility (background) and OII perimeter fence (foreground) South Parcel



Typical South Parcel landfill gas extraction wells



South Parcel leachate conveyance booster pumps station



South Parcel bird stand with bird



South Parcel toe buttress wall



South Parcel toe buttress wall



South Parcel toe buttress wall



Groundwater monitoring in neighborhood adjacent to southern side of South Parcel



Typical V-notch surface drainage system and pressure grout injection lines (vertical lines and hose on ground) for controlling subsidence at north east side of South Parcel



Pressure grout injection points in bench access road on northeast side of South Parcel



Typical South Parcel slope along bench access road showing V-notch drainage, vegetation, and Pomona Freeway



Toe buttress wall along north side of South Parcel showing vegetation and Pomona Freeway



Top of cap South Parcel



North Parcel leachate sump



North Parcel gas and leachate conveyance lines



North Parcel gas conveyance line flex connection for earthquakes control



Typical geogrid liner used throughout OII



Settlement monument on North Parcel



North Parcel LFGTS monitoring stations in control room



LFGTS thermal oxidation stacks



Silica gel and carbon tanks used for gas stream pretreatment
prior to entering microturbines



Microturbines used for site power generation



LTP Baker tank used for disposal of sludge



LTP liquid waste washout area



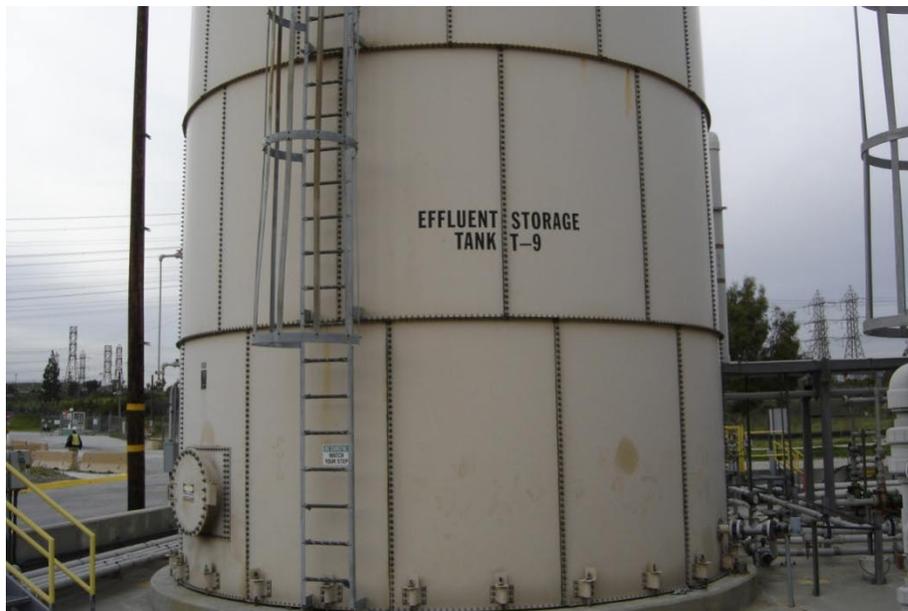
LTP control panel



LTP sequencing batch reactor for leachate treatment



LTP sedimentation tanks



LTP effluent storage tank



T-13 weir used by OII and Los Angeles County Sanitation District to collect legal samples of discharge water prior to entering sanitary sewer system



North Parcel geo-lined swale



Detention basin at the northeast corner of North Parcel



Top of cap North Parcel

Appendix F
2005 Notice to Owners/Occupants, Properties near the Operating
Industries Superfund Site

New Cure, Inc.
 2550 Greenwood Avenue
 Monterey Park, CA 91016

ATTENTION: Lee LaFountain

INSIDE:

Notice regarding groundwater remedy and use restrictions at the Operating Industries Inc. Superfund Site.



**Notice to Owners / Occupants
 Properties Near the Operating Industries Superfund Site**

September 2004

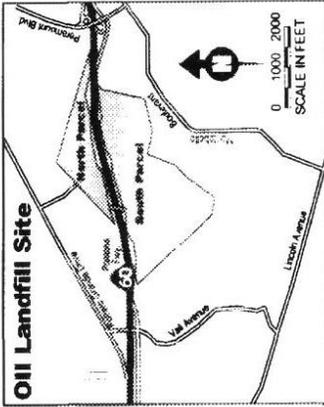
residents who currently do, or may in the future, have groundwater beneath their property that exceeds the cleanup standards specified by EPA.

Introduction

You are receiving this notice because property you own or occupy is located above groundwater which is, or may become, contaminated from the Operating Industries, Inc. (OI) Landfill Superfund site. The OI site is a former landfill located at 2550 Greenwood Avenue in the City of Monterey Park, approximately 10 miles east of downtown Los Angeles (see map). Since being listed as a Superfund site in 1986, OI has been the subject of extensive investigation and remediation, or cleanup, as well as extensive enforcement efforts.

Because of possible groundwater contamination from the OI site, there are certain restrictions and prohibitions on well drilling and groundwater extraction on your property. PLEASE BE ASSURED that the groundwater under your property is deep beneath the surface, and it is highly unlikely you would come into contact with it. Also, your drinking water does NOT come from this groundwater source. Please read this entire notice for more detailed information about why it has been sent to you and what the applicable restrictions and prohibitions are. The bottom line is that you cannot drill a well into this groundwater source until the groundwater has been cleaned to specific standards.

The cleanup of the Site is being performed by New Cure, Inc. under the oversight of the U.S. Environmental Protection Agency (EPA). New Cure was hired by a group of potentially responsible parties who agreed to perform the cleanup (the Work Parties). As part of the groundwater cleanup, the Work Parties must annually send a notice to all property owners and



Natural Attenuation Remedy for Groundwater at Oil

EPA thoroughly considered the various groundwater cleanup alternatives and selected "monitored natural attenuation" of contaminated groundwater outside of the Site perimeter to achieve the appropriate groundwater cleanup standards. Monitored natural attenuation involves two elements: natural attenuation and monitoring. Natural attenuation is a cleanup approach that relies on natural processes to reduce the levels of hazardous constituents in groundwater to acceptable levels over time and

distance as they break down and disperse. This process is regularly monitored to track progress toward achieving cleanup levels.

Restrictions and Prohibitions on Well-Drilling and Installation

Current State of California statutory requirements related to the construction, alteration, destruction or abandonment of wells are codified in Division 7, Chapter 10, Sections 13750.5 - 13755, of the California Water Code. The Department of Water Resources (DWR) has prepared a booklet entitled "California Laws for Water Wells, Monitoring Wells, Cathodic Protection Wells and Geothermal Heat Exchange Wells" which collects, in one place, statutory provisions that relate directly to the construction, alteration, maintenance and destruction of the aforementioned types of wells. The booklet is available on-line at:

http://www.dpiw2.water.ca.gov/publications/groundwater/ca_water_laws_2003.pdf

or by contacting the California Department of Water Resources, Bulletins & Reports, P.O. Box 942836, Sacramento, CA 94236-0001, (916) 653-1087.

Current State technical standards and regulations applicable to the construction, alteration, destruction or abandonment of a water well, cathodic protection well, groundwater monitoring well or geothermal heat exchange well may be found in DWR Bulletin 74-81 and Bulletin 74-90 (it is necessary to have both bulletins to have a complete set of applicable water well standards). The contents of Bulletins 74-81 and 74-90 may be found in a combined and integrated format on the web site of the Department of Water Resources' Southern District at:

http://www.dpiw2.water.ca.gov/sd/groundwater/california_well_standards.html

Groundwater Extraction and Use is Subject to Watermaster Jurisdiction

The Main San Gabriel Basin and Central Basin Watermasters serve as the governing body for the management of water resources in the Los Angeles area. Watermaster approval is required for constructing or modifying a well. More information about groundwater management in California can be obtained from the DWR. The DWR currently is updating a publication known as "Bulletin 118" and titled "California's Groundwater: Update 2003". The most recent draft of this document made available for public comment may be viewed and downloaded at:

<http://www.groundwater.water.ca.gov/bulletin118/index.cfm>

EPA Prohibits the Installation of Groundwater Extraction Wells on Your Property

Following its mission to protect human health and the environment, EPA prohibits the installation of wells on your property until it is safe to do so. The Agency must certify that all the components of the selected remedy have fully performed and all applicable cleanup standards have been achieved.

For More Information

Contact:

Les LeFountain
New Cure, Inc.
2550 Greenwood Avenue
Monterey Park, CA 91016
323-720-9775

Public information about the site is at

Bruggemeyer Memorial Library
318 South Ramona Avenue
Monterey Park, CA 91754
(626) 307-1333

The official EPA site is:

Superfund Records Center
35 Hawthorne Street, Room 403
San Francisco, CA 94105
(415) 536-2000

Additional contacts are as follows:

Lance Richman
EPA's Oil Project Coordinator
Phone: (415) 972-3022 or (800) 231-3075
E-mail: lrichman.lance@epa.gov

EPA Community Involvement Coordinator,

Vicki Rosen
Phone: (415) 972-3244 or (800) 231-3075
E-mail: rosen.vicki@epa.gov

Appendix G

Five-Year Review Process Information

The following information describes remedial actions that have had no significant change since the Third Five-Year Review Report (2005). The information has been taken directly from the Data Review section of the Third Five-Year Review Report (2005). Remedial actions that were not reviewed during this Fourth Five-Year Review include the treatment plant for liquids and gases, and the stormwater control system.

6.3.1 Leachate Treatment Plant

A Leachate Treatment Plant Operations Plan was prepared in May 2000 as part of Volume 2 of the Final Construction As-Built Report under Attachment 3, the Site Operations Plan. The plan is quite comprehensive and outlines general leachate treatment system management, describes the process units and support systems, the unit operations and provides references to other documentation useful in understanding the full system operations. The key elements of the LTP relating to performance standards are the influent treatment and effluent discharge aspect of the system. These elements and data associated with them are discussed below.

6.3.1.1 Influent Treatment and Effluent Discharge

The effluent discharge from the batch treatment conducted at the leachate treatment plant is regulated by CSDLAC. CSDLAC operates a POTW for treatment of industrial wastewater. The effluent from the OII Site LTP can be discharged into the industrial wastewater stream that goes to the POTW as long as discharge requirements are being met per the Industrial Wastewater Discharge Permit. The Industrial Wastewater Discharge Permit is issued by the CSDLAC and for the discharge of treated wastewater under Permit No. 14501. A copy of the permit is kept on file at the site and was available for review at the treatment facility when the five-year review site inspection was conducted. This permit will expire on April 10, 2008.

The approved wastewater producing operations are landfill leachate extraction, equipment decontamination, gas condensate, stormwater, utility water, and laboratory wastes. The constituents of the wastewater are acidity, sulfides, chemical oxygen demand (COD), and traces of toxic organics. The treatment plant is currently permitted for and can be operated under various modes including Modes 1, 2, 3, 4a, 4b, 4c and 5. These modes are dependent on the flow rate of wastewater to be treated and the constituents present. Modes 1-4 include influent equalization, sand filtration, GAC, and solids handling. In addition to these, Mode 1 includes the sequence batch reactors (SBRs); Mode 2 includes the SBRs and the chemical precipitation unit (CPU); Mode 3 includes the CPU; and Mode 4 includes the SBRs in modified mode (as a settling basin for Mode 4a, as a CPU for Mode 4b, and as an air stripper for Mode 4c), with the use of CPU as needed. A final mode, Mode 5, includes only the SBRs used as air strippers, followed by sand filtration and GAC. Influent equalization may be used, but is not required, under Mode 5. A remote oil separation facility may be operated in any mode, but is not required.

The treated leachate effluent must comply with the following conditions before it can be discharged:

- A permitted discharge flow rate of 27,000 gallons per day with a peak flow rate of 120 gallons per minute
- Effluent discharge limitations and requirements as follows:

- The concentrations of pollutants in the wastewater effluent discharged from the facility shall not exceed the following limits for all composite or grab samples:

Conventional Pollutants**Maximum Concentration**

pH	>6 pH units
Dissolved sulfides	0.1 milligrams per liter (mg/l)
Temperature	140 °F
Closed Cup Flash Point	>140 °F

Heavy Metals and Cyanide**Maximum Concentration**

Arsenic (Total)	3 mg/L
Cadmium (Total)	0.69 mg/L
Chromium (Total)	2.77 mg/L
Copper (Total)	3.38 mg/L
Lead (Total)	0.69 mg/L
Mercury (Total)	2 mg/L
Nickel (Total)	3.98 mg/L
Silver (Total)	0.43 mg/L
Zinc (Total)	2.61 mg/L
Cyanide (Total)	1.20 mg/L

Priority Organics

Volatile Total Toxic Organics	1,000 µg/L
Semivolatile Total Toxic Organics	1,000 µg/L
Total Identifiable Chlorinated Hydrocarbons	Essentially None

- Batch discharge of treated wastewater to the sanitary system is required. Continuous, flow-through discharge of treated wastewater is not permitted. Manual control of the batch discharge system must be exercised at all times. Batches of treated wastewater may only be discharged to the existing 60° v-notch weir followed by the sanitary sewer via the effluent storage tanks (Tanks T-9, T-10, and T-11), except during operation in Mode 5, when discharge via the SBR wet wells (Tank T-8A and T-8B) is allowed.
- A representative sample of each batch of treated wastewater must be collected and analyzed before the batch is discharged to the sanitary sewer. To obtain a representative

sample, the contents of each batch of wastewater must be thoroughly mixed (i.e., pump recirculation) prior to sample collection.

- Each batch of treated wastewater shall be analyzed for pH and dissolved sulfides. The batch may be discharged to the sanitary sewer only if its contents meet the effluent discharge limits. All sewer discharge laboratory analyses, including those for wastewater that does not meet the discharge limits, shall be retained on-site for at least 180 days and made available to CSDLAC personnel upon request. CSDLAC may require batch testing for additional parameters if discharge violations occur.
- Adequate on-site or readily-available facilities, including analytical instruments and technical personnel, must be provided to satisfy the batch-discharge analysis requirements. The laboratory must be certified by the State of California.
- Wastewater containing pollutants in excess of any discharge limitations must be rerouted through the appropriate treatment unit(s) for removal of the pollutants before discharge to the public sewers.
- A log book must be maintained for the batch discharge system. The date, time, volume, treatment provided, and analytical results for each batch of wastewater discharged must be entered into the log book, as well as any corrective action taken on off-spec batches. The log book must be kept on-site and made available for inspection by CSDLAC personnel upon request.
- Grab sampling must be conducted at the 60° v-notch weir located at the north end of the bermed LTP area prior to discharge.
- Self-monitoring Reports that cover the reporting period of the previous three months must be submitted on the 15th of every third month. For example, the report due on the July 15 would cover the reporting period from April 1 through June 30.
- The following discharges are prohibited:
 - Any toxic, flammable, explosive, corrosive, radioactive, or non-biodegradable substance.
 - Uncontaminated cooling water, groundwater, storm water, or surface drainage water.
 - Industrial wastewater with temperatures exceeding 140°F.

Other provisions include:

- A surcharge test must be conducted monthly depending on flow rate. The parameters for this test include COD and suspended solids. A long form detailing analytical results with surcharge test results must be submitted annually.
- Rain water must be collected and pumped to the equalization tank for the first 0.65 inch of rain. After 0.65 inch, rain is collected and pumped to a stormwater holding tank. All equipment associated with the rainwater cups, gauges, pumps, and valves must be properly maintained.

- Flow monitoring maintenance must be recorded on the Flow Monitoring System Maintenance Records Form at the LTP monthly log book. These forms must also be submitted to CSDLAC along with instrumentation calibration reports annually.
- A spill log book must be kept to record all spills. This log book must contain the date, time, and cause of spill, name and quantity of material spilled, method of disposal, operator name, and corrective action to prevent spill from re-occurring.
- Instrumentation maintenance must be performed annually on the effluent flow monitoring devices. Hydraulic calibration of the entire system must be performed every three years.
- Maintenance of the V-notch weir is required monthly.

Some of the quarterly industrial wastewater self-monitoring reports were reviewed to ascertain if OII is properly reporting per the permit requirements. These reports included a completed Self-monitoring Report form which is preprinted with the reporting parameters and provided by CSDLAC. These reports included the analytical results from an off-site laboratory. The analytical laboratory that OII is currently using is Columbia Analytical Services, Inc., a State-certified laboratory located in Canoga Park, California. The on-site laboratory located at the LTP plant is set up to provide analytical results for the pH, total suspended solids, sulfides, and COD. The permit discharge requirements were all being met.

The wastewater treatment surcharge statement for 2003-2004 was also reviewed. The permit requires OII Landfill, as an industrial user, to be a participant in the CSDLAC Surcharge Program. This means that OII is subject to additional self-monitoring requirements, including monitoring for COD and suspended solids at a frequency dependent upon yearly cumulative flow from each outlet. During the 2003-2004 reporting year, from July 1, 2003 through June 30, 2004, the sampling frequency for COD and suspended solids averaged once every 3 months, which is in compliance with the frequency requirement based on yearly cumulative flow, which was about 4.5 million gallons.

An effluent flow measurement system calibration report prepared in September 2004 was reviewed to assure that the discharge requirement for annual calibration was being met. Each year, an instrument calibration check is required for the flow measurement devices located at the LTP. The calibration activities are overseen by a California-registered professional engineer. The report includes the certification of test results for the calibration check, as well as the flow monitoring system maintenance, calibration check, instrumentation and control loop test records, and the certificate of calibration with associated test results.

6.3.2 Landfill Gas Treatment System

A LFGTS Plan was prepared in May 2000 as part of Volume 3 of the Final Construction As-Built Report under Attachment 3, the Site Operations Plan. The plan is quite comprehensive and describes the system and processes, outlines operations, monitoring, and maintenance requirements; lists reporting and evaluation information; and explains emergency response procedures. The key elements of the LFGTS, also known as the thermal destruction facility, relating to performance standards are the influent treatment and effluent discharge aspect of the system. Elements and data associated with these aspects are discussed below.

The thermal destruction facility is required to achieve a DRE of 99.99 percent, reduce hydrogen chloride emission to 1.8 kilograms per hour or 1 percent of the hydrogen chloride in the stack

gasses, and must not release particulates in excess of 180 milligrams per dry standard cubic meter corrected for the amount of oxygen in the stack gas. To ensure that these remedial objectives are being met, a performance test is conducted once every five years for each of the thermal oxidizer units. The northernmost stack was tested in 2000, and the results were reported in the Performance Test Final Report (NCI 2001). The south stack testing is currently being conducted. The south stack performance test report will be available in Fall 2005.

6.3.2.1 North Stack Performance Test Results

The performance test was conducted to determine the compliance status at both a high-load and low-load operating conditions for the following emission and operating limits:

- Target operating temperature of $1,800^{\circ}\text{F} \pm 50^{\circ}\text{F}$
- Minimum residence time of 1 second
- Benzene DRE of ≥ 99.99 percent, based on the results of each run
- Particulate matter emission limit of ≤ 0.08 grains per dry standard cubic foot at 1 atmosphere and 68°F (gr/dscf) at 7 percent oxygen, based on the results of each run
- Hydrogen chloride emission limit of ≤ 4 pounds per hour, based on the results of each run
- Oxides of nitrogen emission limit of ≤ 0.08 pounds per million British Thermal Units, based on the average of three runs
- Particulate matter emission limit of ≤ 0.04 gr/dscf at 7 percent oxygen, based on the average of three runs
- Carbon monoxide emission limit of ≤ 100 ppm at 7 percent oxygen, based on the average of three runs
- Total reduced sulfur concentration at the inlet location of ≤ 40 ppm, based on the average of three runs
- Vinyl chloride 24-hour ground level concentration of ≤ 10 parts per billion by volume

All exhaust gas sampling was conducted on the platform to Thermal Oxidizer-101, also known as the north stack. Combustion air sampling was conducted at the inlet air duct to TO-101, and LFG samples were collected from the LFG feed line to TO-101. Three test runs were conducted for each operating condition.

Emissions of particulate matter and hydrogen chloride were found to be well below the established limits, as specified in the original and amended ROD. The unit also demonstrated percent-destruction efficiency greater than the required DRE of 99.99 percent for the POHC (benzene) during all six test runs (three high and three low).

In addition to the emission limits in the original and amended ROD, the ROD also cited a number of other federal and state regulations as applicable or relevant and appropriate requirements (ARARs). (See Appendix B for a list of all the ARARs defined in the RODs.) In regard to these emission criteria, particulate matter, total reduced sulfur, vinyl chloride, and oxides of nitrogen were found to be below the established limits. Since the vinyl chloride stack gas concentration of 0.17 parts per billion by volume was well below the 10 parts per billion by

volume ground level concentration limit, no dispersion modeling was performed to demonstrate compliance. Ground-level concentrations will be even further below the limit. The unit also demonstrated total gaseous non-methane organics (TGNMO) destruction efficiency greater than 98 percent.

In regard to the operational limits set forth in the ROD, the thermal oxidizer unit was operated within the target combustion temperature of $1,800^{\circ}\text{F} \pm 50^{\circ}\text{F}$ during each test run. The thermal oxidizer unit demonstrated a residence time greater than 1 second during each run, and the hourly rolling average for carbon monoxide was well below the limit of 100 ppm during each test day.

The performance test was deemed by EPA to be in compliance by meeting the performance standards for emission limits and testing requirements of the third partial Consent Decree, the 1988 ROD, and the 1990 ROD amendment.

6.3.2.2 South Stack Performance Test Results

The south unit (TO-151) stack was tested in July/August 2005. NCI had submitted both a thermal oxidizer performance test proposal and plan addendum to EPA in early 2005. EPA approved the final thermal testing package, and NCI started the stack performance test on July 18, 2005. The tests were similar to the north unit (T-101) stack performance tests conducted in 2000, except the POHC was changed. Benzene was used as the POHC in 2000, but due to hazardous issues and safety concerns, NCI proposed to use toluene as the POHC in 2005. The tests (using toluene as the POHC) were completed on August 6, 2005. NCI will prepare a report to document the performance test results for the south unit (TO-151) stack and submit to EPA for review and comment.

6.3.3 Air

The third partial Consent Decree specified that compliance testing could begin after approval of the Construction As-Built Final Report for the entire site, with testing conducted in two consecutive 90-day compliance testing periods. The Construction As-Built Report was approved by EPA on September 11, 2002 and included an approved Compliance Testing Plan. Three types of compliance testing were performed during two separate compliance testing periods from October 2002 through March 2003. The results of each of these compliance tests for each testing period were reviewed in the May 2003 report entitled *First and Second Compliance Testing Periods, Third Partial Consent Decree* (NCI 2003b). According to these reports, the compliance testing that was conducted included subsurface gas migration, gas emission through the cover and methane in on-site structures.

6.3.3.1 Compliance Testing Period - Subsurface Gas Migration

Subsurface gas migration was monitored at a series of probe locations that each contains a probe cluster with up to six completions at various depths. Both hand-recorded pressure data and data-logger methane data were collected, compiled, and entered into the site database system (per appropriate SOP). The results over each of the 3-month periods met the performance standard of ≤ 5 percent methane in the compliance probes and the LFG system.

6.3.3.2 Compliance Testing Period - Surface Emissions Monitoring

Data were collected in compliance with the appropriate SOP. The results from the compliance testing period were used to satisfy both the compliance testing requirements, as well as the

Third Partial Consent Decree Operations Plan emissions survey requirements. Two emission surveys are required annually. The results showed that surface emissions met the compliance performance standard, and the surface emissions system was operating in compliance with the requirements of the Consent Decree.

6.3.3.3 Compliance Testing Period - Methane in On-site Structures

Methane was reported per the appropriate SOP, and the results indicated that the methane levels met the performance standard for all sensors at a value of 0 percent of the methane lower explosive limit.

On June 20, 2003, EPA deemed that that compliance testing activities had been successfully completed but did not include the North Parcel item of Excluded Work. This notification by EPA confirmed that the 3-year joint O&M of all systems had begun.

6.3.3.4 O&M - Surface Emissions Monitoring

Surface gas emission surveys are conducted semi-annually to evaluate the effectiveness of the landfill cover and the gas extraction system in controlling movement of LFG through the cover. Two surveys were conducted in 2004, one in May/June and the other in November/December.

The survey employs integrated sampling along routes specified in the approved SOP and a 50 parts per million by volume trigger level for initiation of the location of emission sources greater than 500 ppm. The survey was conducted by traversing 212 routes. The field crew collected composite samples for each route in a 10 liter Tedlar bag while walking an approximately 250 foot route. The results indicated that no values were > 50 parts per million by volume during the survey; therefore, no cover repairs were required.

6.3.5 Groundwater

This section is incorporated in the document text in Section 6.3.2.

6.3.5 Stormwater

An annual report for stormwater discharges associated with industrial activities is required to be submitted to the local LARWQCB every year by July 1. This is required by under the Statewide General Industrial Activities Storm Water Discharge Permit No. 419S002548 (General Permit). For this five-year review, annual stormwater reports from 2001 to 2004 were reviewed.

The OII Landfill is required to collect and analyze samples from two rain events, defined as steady rain of at least 1 hour duration, in accordance with the General Permit. In 2003 and 2004, OII collected samples during only one rain event due to lack of storm events during work hours and lack of flow. There are 22 stormwater discharge locations at the facility, and four were sampled during the first event on March 1, 2004. According to the annual report, these locations were the only ones with enough flow to capture a sample. In 2002 and 2003, OII collected samples at all but one of the 22 locations during four rain events. The discharge locations were sampled in December 2002 and February 2003. In 2001 and 2002, OII collected no samples during rain events due to lack of storm events during work hours and lack of flow.

Visual observations were made of all drainage areas to detect the presence of unauthorized non-stormwater discharges and their sources, as required by the General Permit. No unauthorized non-stormwater discharges were detected in any of the years that were reviewed.

Monthly visual observations of stormwater discharges occurred at all locations during the wet season, as required in the General Permit. The wet season months are October through May. An Annual Comprehensive Site Compliance Evaluation, as required by Section A.9 of the General Permit, was conducted each year according to the stormwater reports. According to the annual reports, all appropriate potential pollutant source/industrial activity area inspections were made, and the Storm Water Pollution Prevention Plan was reviewed to assure that all Best Management Practices were being implemented.

When sampling was able to be conducted, the samples were analyzed for ammonia, COD, chloride, specific conductance, cyanide, nitrate, oil and grease, pH, total dissolved solids, total suspended solids, sulfate, volatile organic compounds, semivolatile organic compounds, and hexavalent chromium. For the purposes of the annual stormwater reporting requirements in the General Permit, only the basic parameters of pH, total suspended solids, specific conductance, and oil and grease were reported in the sampling and analysis results table. Columbia Analytical Services, Inc., a state-approved laboratory, performed the analysis.