Second Five-Year Review Report
for
Del Amo Superfund Site
Waste Pits Operable Unit

Los Angeles
Los Angeles County, California

September 22, 2010

Approved by:

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Date 9/24/10

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List of Acronyms

µg/m^3	micrograms per cubic meter
ARARs	Applicable or Relevant and Appropriate Requirements
bgs	below ground surface
C1	Carbon Vessel 1
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
COC	chemical of concern
CO^2	carbon dioxide
CY	cubic yard
DTSC	Department of Toxic Substances Control
ESD	Explanation of Significant Differences
FFS	Focused Feasibility Study
GAC	granulated activated carbon
GCL	geosynthetic clay liner
GCTS	gas collection and treatment system
HDPE	high-density polyethylene
IBT	In-Situ Bioventing Technology
kg	kilogram
LBF	Lower Bellflower Aquitard
LEL	lower explosive limit
LNAPL	light non-aqueous-phase liquid
LUCs	Land-Use Covenants
MBF	Middle Bellflower Aquitard
MBFB	Middle Bellflower B Sand
MBFC	Milled Bellflower C Sand
MCL	maximum contaminant level
MSL	mean sea level
NAPL	non-aqueous-phase liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan

List of Acronyms (continued)

OM&M	operations, monitoring, and maintenance
OM&M Manual	operations, monitoring, and maintenance Manual
OU	Operable Unit
O^2	oxygen
OSHA	Occupational Safety and Health Administration
PID	photoionization detector
PLC	Programmable Logic Controller
ppmv	parts per million by volume
PRD	pressure relief devices
PRG	Preliminary Remediation Goals
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RSL	Regional Screening Levels
SCAQMD	South Coast Air Quality Management District
Site	Del Amo Superfund Site
SVE	soil vapor extraction
SVE/IBT	soil vapor extraction/in-situ bioventing technology
SVOC	semivolatile organic compound
TBC	to-be-considered
TCE	trichloroethylene
UBF	Upper Bellflower Aquitard
URS	URS Corporation
USC	United States Code
USEPA	United States Environmental Protection Agency
VFPE	very flexible polyethylene
VOC	volatile organic compound
Waste Pits OU-2	Waste Pits Operable Unit 2

Executive Summary

This second five-year review of the Del Amo Waste Pits Operable Unit (Waste Pits OU-2) at the Del Amo Superfund Site (Site) in Los Angeles, California, was conducted between March and September 2010. The first five-year review was completed in September 2005. A review of the implemented remedy is required by statute and performed because hazardous substances, pollutants, or contaminants remain at the Site above levels that do not allow for unrestricted use and unlimited exposure. The Site is located in Los Angeles, California in a narrow strip of the city known as the Harbor Gateway and encompasses approximately 280 acres. The portion of the Site that is the subject of this five-year review—the Waste Pits OU-2—is approximately 4 acres and is located at the southern end of the Site, immediately north of Del Amo Boulevard alley.

The Del Amo synthetic rubber plant operated from approximately 1943 to 1972, and consisted of three separate plants dedicated to styrene, butadiene, and rubber production. During its early operations, waste generated was disposed of at the waste pits located within the Waste Pits OU-2. The waste pits consisted of four unlined evaporation ponds and six unlined waste pits.

Results from environmental investigations within the Waste Pits OU-2 indicate that waste material and adjacent soil and soil gas is contaminated with volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). Benzene, a known human carcinogen, is the hazardous substance detected most frequently and at the greatest concentrations at the Waste Pits OU-2. Of the SVOCs, naphthalene has been detected at the greatest concentrations and at the greatest frequency in waste material and soil. An estimated 15,600 cubic yards of waste material and 17,100 cubic yards of heavily contaminated soil remain in place at the Waste Pits OU-2 (United States Environmental Protection Agency [USEPA] 1997a). Groundwater is impacted with similar constituents beneath, and in the vicinity of, the former waste pits area. VOCs and SVOCs (particularly benzene, ethylbenzene, naphthalene, and phenol) are also the prime chemicals of concern (COCs) in groundwater near the Waste Pits OU. A separate groundwater operable unit (OU), known as Dual Site Groundwater OU-3, has been established to address issues related to groundwater contamination at the Del Amo Superfund Site.

The selected remedy for the Waste Pits OU-2 was outlined in the Record of Decision (ROD) for Del Amo Waste Pits Operable Unit (Waste Pits ROD), issued by the USEPA in September 1997 (USEPA 1997a), and two subsequent Explanations of Significant Differences (ESD) issued in 2002 and 2006. Components of the selected remedy include installation of a Resource Conservation and Recovery Act (RCRA)-equivalent cap; installation of surface water controls; installation and operation of a soil vapor extraction/in-situ bioventing technology (SVE/IBT) system; installation of security fencing around the above-ground treatment units; establishment and enforcement of institutional controls (deed restrictions); and long-term operation, monitoring, and maintenance (OM&M).

The cap and its gas collection and treatment system (GCTS), surface water control, and security fence are functioning as intended in the Waste Pits ROD. The cap continues to protect potential receptors from contamination present in soil and soil gas at the Site, as well as serve as a barrier

to deter surface water infiltration. The cap is in good condition, with well-established vegetation. The GCTS continues to be effective in collecting and treating vapors from below the cap installed at the Waste Pits OU. Effluent emission concentrations have consistently been below the established standard of 5 parts per million by volume (ppmv) for benzene. Influent VOC concentrations, ranging from 0 to 25.6 ppmv, have steadily declined during this five-year review period.

The SVE/IBT System is functioning as intended in the Waste Pits ROD. The system has completed its third year of full operation during this five-year review period. In general, the system has been performing at a level consistent with design parameters. The vapor extraction wells have established a sufficient radius of influence within the vadose zone to capture any contaminants that could migrate to the groundwater. The system has proven effective in degrading and removing contaminants from the subsurface. The SVE/IBT system is degrading and adsorbing an estimated average of 43.9 pounds (19.9 kilograms [kg]) and 21.1 pounds (9.6 kg) of benzene per day, respectively. By the end of the 2009 operational year, approximately 70,430 pounds of benzene had been removed from the Waste Pits OU-2 since system startup on August 6, 2006, of which an estimated 53,849 pounds had been removed through degradation and an estimated 16,582 pounds through carbon adsorption.

The Del Amo Waste Pits' RCRA-equivalent cap and drainage controls, SVE/IBT System, and the deed restrictions are protective of human health and the environment; exposure pathways that could result in unacceptable risks are being controlled. The components of the selected remedy have performed and are currently performing at a level consistent with design parameters. The remedy is effectively preventing direct human contact with contaminants and preventing contaminant migration from the vadose zone to the groundwater.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name: Del Amo Waste Pits Superfund Site		
EPA ID: CAD029544731		
Region: 9	State: CA	City/County: Los Angeles / Los Angeles
SITE STATUS		
NPL status: ☑ Final ☐ Deleted ☐ Other (specify)		
Remediation status (choose all that apply): ☑ Operating ☐ Complete		
Multiple OUs? ☑ YES ☐ NO	Construction completion date:	
Has the Waste Pits OU-2 been put into reuse? ☐ YES ☑ NO		
REVIEW STATUS		
Lead agency: ☑ EPA ☐ State ☐ Tribe ☐ Other Federal Agency		
Author name: Dante Rodriquez		
Author title: Remedial Project Manager	Author affiliation: U.S. EPA, Region 9	
Review period: March through June 2010		
Date(s) of Site inspection: March 25, 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 (specify)		
Triggering action: ☐ Actual RA On-site Construction at the Waste Pits OU ☐ Actual RA ☑ Previous Five-Year Review Report ☐ Construction Completion		
Triggering action date: September 22, 2005		
Due date (five years after triggering action date): September 22, 2010		

ISSUES AND RECOMMENDATIONS
Issue There are no issues affecting the protectiveness of this remedy. There are some operations and maintenance items identified that will require follow-up action, but these items do not affect the protectiveness of the remedy.
PROTECTIVENESS STATEMENT
The Del Amo Waste Pits' RCRA-equivalent cap and drainage controls, SVE/IBT System, and the deed restrictions are protective of human health and the environment; exposure pathways that could result in unacceptable risks are being controlled. The components of the selected remedy have performed and are currently performing at a level consistent with design parameters. The remedy is effectively preventing direct human contact with contaminants and preventing contaminant migration from the vadose zone to the groundwater.

Section 1
Introduction

The United States Environmental Protection Agency (USEPA) Region IX conducted this second five-year review of the remedial actions implemented at the Del Amo Superfund Site, Waste Pits OU-2 located in Los Angeles, California. The Agency is preparing this Five-Year Review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA §121(c) states:

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

The Agency interpreted this requirement further in the NCP. 40 Code of Federal Regulations (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.*

This second statutory five-year review has been completed for the remedial actions implemented at the Waste Pits OU-2 because hazardous substances continue to remain above levels that allow for unrestricted use and unlimited exposure.

The Site consists of three OUs: the Soil and non-aqueous phase liquid (NAPL) Operable Unit (OU-1), the Waste Pits Operable Unit (OU-2), and the Dual-site Groundwater Operable Unit (OU-3) for Montrose Chemical and Del Amo Superfund Sites.

The Del Amo Superfund Site is not "Construction Complete," meaning all remedies for the site as a whole have not yet been implemented.

The scope of the second five-year review is limited to the Waste Pits OU. A summary of the status for the other site OUs is presented in Table 1-1.

TABLE 1-1
Del Amo Superfund Site Operable Units
Second Five-Year Review Report, Del Amo Waste Pits (OU-2), Los Angeles, California

Operable Unit	***Description***	***Status of Remedy Selection and Implementation***
OU 2 – Waste Pits	Addresses constituents in the vadose zone in a four-acre area at the southern end of the Site.	• The ROD was issued in September 1997. • The cap, surface water controls, and security fencing were completed in February 2000. • Deed restrictions were implemented in September 2000 and May 2005. • The SVE/IBT System was in full operation by August 2006.
OU 3 – Groundwater	Addresses groundwater located at the Montrose Chemical and Del Amo Superfund Sites. Includes remediation of the dissolved phase, and hydraulic containment surrounding NAPL and other contamination sources.	ROD for the Dual Site Groundwater OU, Montrose Chemical and Del Amo Superfund Sites (Groundwater ROD) issued by USEPA March 1999 (USEPA 1999a). The remedial action selected by this ROD has not yet been implemented. Responsible parties are currently working on the design of the groundwater cleanup system, including groundwater modeling and field pumping tests.
OU 1 – Soil and NAPL	Addresses soil and NAPL in areas of the Site that have not been addressed in the Waste Pits ROD.	A remedy has not been selected. A Remedial Investigation Report was completed in June 2007, a Feasibility Study Report was completed in January 2010, and a Proposed Plan was issued for public comment in June 2010.

Section 2
Site Chronology

Table 2-1 provides a chronology of events that have occurred at the Waste Pits OU.

TABLE 2-1
Chronology of Events
Second Five-Year Review Report, Del Amo Waste Pits (OU-2), Los Angeles, California

Date	Event
1943	Operation of styrene and butadiene plants commenced at Del Amo.
1944	Operation of synthetic rubber plant commenced at Del Amo.
1945	Disposal of waste generated during production of synthetic rubber to waste pits began.
1955	Disposal to Waste Pits 2-A through 2-F terminated. Pits filled.
1969	Disposal to Waste Pits 1-A, 1-B, and 1-C terminated. Waste pits filled and covered with vegetation. Former waste pits surrounded by a double row of chain-link fence.
1969 to 1972	Styrene, butadiene, and synthetic rubber plants were gradually shut down.
1972	Observations of contamination in soil made in the vicinity of the former waste pits during geotechnical investigations associated with redevelopment activities.
1981	First environmental investigations performed under the direction of the California Department of Health Services to characterize soil and waste materials at the former waste pits.
1982 to 1984	Waste material and contaminated soil at Waste Pit 1-A excavated in four phases and disposed off-site. Void subsequently backfilled.
1984	Initial characterization data documented in *Draft Del Amo Site Investigation Phase 1 Report* (Radian 1984), *Interim Summary* of *Findings, Del Amo Site Investigation* (Dames & Moore 1984), and *Summary* of *Soil Data at the Western Waste Industries Del Amo Site, Lot* 37 (Hekimian 1984).
1985 to 1991	Environmental investigations performed to support the early remedial investigation/feasibility study (RI/FS) of the Del Amo Site. Investigations performed under a Memorandum of Agreement between the State of California and the property owner, and subsequently under a State Administrative Order. Order terminated in 1991, at which time USEPA assumed regulatory responsibility for the Site.
1990	Additional investigation performed at Waste Pits 1-B, 1-C, and 2-A through 2-F for purposes of treatability testing, including bench-scale analyses of thermal distillation, bioremediation, solidification, and soil washing.
1991	USEPA proposed that Del Amo be added to the National Priority List and divided the Site into three operable units - Groundwater, Waste Pits, and Soil and NAPL.
1991	A baseline risk assessment for the Waste Pits OU-2 performed.
1992	USEPA, Department of Toxic Substances Control (DTSC), Shell Oil Company, and Dow Chemical Company entered into an Administrative Order on Consent to perform an accelerated RI/FS for the Waste Pits OU.
1992	Treatability studies performed to test the effectiveness of SVE and bioventing in remediating volatile compounds in the vadose zone.
1993	*Phase 1 Remedial Investigation Report, Del Amo Study Area* (Dames & Moore 1993) submitted.
1994	USEPA issued a Unilateral Administrative Order to the Shell Oil Company following the discovery of small areas of exposed waste at Waste Pits 2-A and 2-B. (USEPA subsequently issued a Notice of Completion for this Order in 1999.)
1994	Indoor/outdoor air monitoring performed at the Waste Pits OU-2 and adjacent residences.
1996	*Final Focused Feasibility Study, Del Amo Waste Pits Area* (Dames & Moore 1996) submitted and approved by USEPA.

TABLE 2-1 (continued)
Chronology of Events
Second Five-Year Review Report, Del Amo Waste Pits (OU-2), Los Angeles, California

Date	Event
1997	The ROD for the Waste Pits OU-2 issued. The selected remedy included a cap with SVE and institutional controls.
1997	Pursuant to section 105 of CERCLA, 42 United States Code (USC) § 9605, USEPA placed the Site on the National Priorities List.
1998	Unilateral Administrative Order for Remedial Design issued to perform a remedial design for the remedy specified in the ROD for the Waste Pits OU.
1999	ROD for the Groundwater OU-3 issued.
1999	*Prefinal Design Report* (Parsons et al. 1999b) submitted and approved by USEPA.
1999	*Operations, Monitoring, and Maintenance Manual* for *the Del Amo Waste Pits Operable Unit* (OM&M Manual) (Parsons et al. 1999a) submitted (for long-term operations, monitoring, and maintenance of the selected remedy at the Waste Pits OU).
1999	Evaluation of treatment technologies alternative to Soil Vapor Extraction (SVE) with thermal oxidation commenced due to community concerns regarding potential generation of dioxin.
1999	Unilateral Administrative Order for Remedial Action issued to perform a remedial action in accordance with the ROD for the Waste Pits OU.
1999-2000	Components of the selected remedy (cap, SVE wells, cap gas collection and treatment system, drainage channels, and fence) installed, as documented in the *Remedial Action Report* (Parsons et al. 2000). A land-use covenant (LUC) recorded for one of the two parcels that compose the Waste Pits OU.
2000	Baseline monitoring for cap gas collection and treatment system performed.
2000 to 2005	Operation, monitoring, and maintenance of the cap, SVE wells, off-gas collection and treatment system, drainage channels, and fence performed in accordance with the OM&M Manual.
2002	An Explanation of Significant Differences (ESD) issued (USEPA 2002). ESD specified the Applicable or Relevant and Appropriate Requirements (ARARs) that apply to the use of adsorption treatment technology.
2003	Field pilot test for resin adsorption for vapor treatment on SVE system performed.
2004	Adsorption treatment technology with enhanced biodegradation evaluated.
2005	*Remedial Design Workplan Addendum* for *SVE* (C2 REM 2005a) submitted and approved by USEPA. Work plan proposes a combination of SVE and bioventing for treatment of contaminated soil vapor at the Waste Pits OU. Field design tests for the in-situ bioventing technology (IBT) performed.
2005	LUCs recorded for the second of the two parcels that compose the Waste Pits OU.
2005	First Five-Year Review Report (USEPA 2005) completed.
2006	*SVE/IBT Operations, Maintenance and Monitoring Manual* (C2 REM 2006) submitted and approved by USEPA.
2006	SVE/IBT System placed into full-time operation.
2006	ESD #2 issued (USEPA 2006). ESD #2 provided information regarding the length of time that the SVE system will need to operate before soil clean-up goals are achieved.
2008	*Waste Pits Operation, Maintenance and Monitoring Manual* (C2REM 2008c) submitted to but not yet approved by USEPA.

Section 3
Site Background

3.1 Physical Characteristics

3.1.1 Site Description

The Del Amo Superfund Site is located within the City of Los Angeles, California in an area of the City referred to as the Harbor Gateway. It is bordered by the City of Torrance to the west and by the City of Carson to the east, and is located approximately 10 miles north of the Pacific Ocean. The Site is bounded by 190th Street to the north, Hamilton Avenue to the east, Del Amo Boulevard to the south, and railroad tracks (prior to reaching Normandie Avenue) to the west. The Waste Pits OU-2 is located at the southern end of the Site, immediately north of the Del Amo Boulevard alley (Figure 3-1). The Site encompasses approximately 280 acres.

The Waste Pits OU-2 is approximately 4 acres and consists of two parcels. Six unlined pits (Waste Pits 2-A through 2-F) and three unlined ponds (Waste Pits l-A through l-C) are located within the Waste Pits OU, as presented on Figure 3-2. In addition, an evaporation pond located immediately east of Waste Pit 1-A was also formerly located within the Waste Pits OU.

3.1.2 Surface Features

The Site is located on a relatively flat alluvial plain (the Torrance Plain) (Dames & Moore 1990). A multi-layer cap is present at the Waste Pits OU-2 and is covered with a vegetative cover consisting of naturally-occurring shallow rooted grasses. Surface drainage channels are located on the north and south sides of the cap to collect and divert rainfall from the cap. Surface water flows down the channels to catch basins located near the eastern side of the cap, and eventually to the storm sewer. The locations of the surface drainage channels and catch basins are presented on Figure 3-2. There are no surface water sources at the Waste Pits OU. Other surface features at the Waste Pits OU-2 include the SVE/IBT conveyance piping and system treatment pad located just north of Pit 2-A.

3.1.3 Geology

Alluvial deposits, consisting of sands, silts, and clays, extend hundreds of feet below ground surface (bgs) at the Site. Soil in the uppermost 100 feet at the Site consists of stratified, heterogeneous, and unconsolidated silty clays, clayey silts, and sandy silts and clays (Dames & Moore 1990). A cross-section of the upper 65 feet of soil in the vicinity of the waste pits is presented on Figure 3-3.

3.1.4 Hydrogeology

The following formations, summarized in Table 3-1, have been observed in the vicinity of the Waste Pits OU: (1) the upper Bellflower aquitard (UBF), (2) the middle Bellflower sand (MBF), (3) the lower Bellflower aquitard (LBF), and (4) the Gage aquifer. The MBF can be further

subdivided into the middle Bellflower B sand (MBFB) and the middle Bellflower C sand (MBFC) units.

The greatest groundwater flow occurs within the MBF and the Gage aquifers, which are more permeable than other formations beneath the Site. The water table intersects the MBFB unit near the western margin of the Site. East of this demarcation, the UBF unit and the MBFB are considered separate units, while to the west they are identical (Dames & Moore 1998). With exception of monitoring wells XMW-29 and PZL0021, wells in the vicinity of the Waste Pit OU-2 fall to the east of the demarcation line, where the two aquifers are considered separate units. The Gage-Lynwood aquitard is present beneath the Gage aquifer and separates groundwater from the regional aquifers (the Lynwood and Silverado aquifers) (Dames & Moore 1993, 1998).

Groundwater is present at the Site at approximately 60 feet bgs within the UBF unit. Recharge and decreased groundwater extraction in the basin since the late 1970's caused the groundwater elevation at the Site to rise at a rate of approximately one foot per year (Dames & Moore 1998); this rate of change has decreased dramatically in recent years. Groundwater at the Waste Pits OU-2 has a horizontal gradient of approximately 0.0025 foot/foot to the southeast (Dames & Moore 1998). Hydraulic gradients can be as high as 0.0193 foot/foot in the vicinity of the Waste Pits OU. The groundwater flows to the south-southeast.

TABLE 3-1
Formations Observed at the Waste Pits OU
Second Five-Year Review Report, Del Amo Waste Pits (OU-2), Los Angeles, California

Formation	Approximate Depth Interval (feet bgs)	Notes
UBF	0 to 80	Comprised of mud with sandy zones, discontinuous sands. Low permeability.
MBFB	80 to 100	Stratified sands, shell beds, mud, continuous sand.
MBFC	100 to 140	Stratified sands, shell beds, mud, continuous sand.
LBF	140 to 170	Mud with sandy zones. Low permeability.
Gage Aquifer	170 to 240	Stratified sands, shell beds, mud zones.

Source: Dames & Moore 1993.

3.2 Land Use

All but approximately 10 of the 280 acres that comprise the Site have been developed for industrial and commercial uses, including light manufacturing, warehousing, and offices. The Site is composed of 62 separate parcels, not counting transportation corridors and rights-of-ways, with approximately 60 to 65 separate structures. There are five public streets within the Site, and three others border the Site. Two large freeways run within one block of the Site, on the north and east sides. Approximately 17,600 people live within one mile of the Site.

The two parcels (Assessor's Parcel Numbers: 7351-034-077 and 7351-034-078) that comprise the Waste Pits OU-2 are zoned for restricted light industrial uses (City of Los Angeles 2005). While the waste pits have been filled and covered with 2 to 15 feet of soil, the area of the Waste Pits OU-2 remains undeveloped (with the exception of the treatment systems that have been installed as part of the remedy for the Waste Pits OU). The Waste Pits OU-2 is bounded by

industrial and commercial development to the north, Vermont Avenue to the east, Del Amo Boulevard alley and a vacant lot to the south, and a vacant lot used for temporary storage to the west. Electrical power transmission easements run along the northern boundary of the Waste Pits OU-2, and two major underground petroleum and chemical pipeline corridors run along the southern boundary. Residences are located to the southeast, south, and southwest of the Waste Pits OU.

3.3 History of Contamination

The Del Amo synthetic rubber plant consisted of three separate plants dedicated to styrene, butadiene, and rubber assembly, formerly operated at the Site. Synthetic rubber was produced by manufacturing styrene and butadiene separately, piping them to the rubber plant, and then mixing the two together (Dames & Moore 1990). Chemicals used in the production of styrene include propane, crude benzene, toluene, ethylbenzene, a caustic, hydrochloric acid, and sulfuric acid, among others. Chemicals used in the production of butadiene include butane and butylenes, among others.

The plants operated from approximately 1943 to 1972. During their operations, some of the waste generated was disposed at the waste pits located within the Waste Pits OU. The waste pits consisted of four unlined evaporation ponds (referred to as Waste Pits 1-A, 1-B, and 1-C and the eastern evaporation pond) and six unlined waste pits (referred to as Waste Pits 2-A through 2-F). The 1-series waste pits received aqueous waste, and the 2-series waste pits received semi-viscous to viscous wastes. Materials disposed of at 1-series waste pits included acid sludge, kaolin clay, lime slurry, and petroleum hydrocarbons. The 2-series waste pits received an aluminum chloride complex containing petroleum hydrocarbons. The 2-series waste pits also received heavy impurities and tars, including sulfur tars from the styrene purification process (Dames & Moore 1996). The 1-series waste pits were larger in extent compared to 2-series waste pits. However, the 2-series waste pits were considerably deeper, ranging from 17 to 22 feet in depth, compared to the 1-series waste pits, which were approximately 6 feet deep (Dames & Moore 1990).

3.4 Initial Response

The initial response actions below were implemented prior to issuance of the Waste Pits ROD in 1997:

1. Waste material and soil at Waste Pit 1-A was excavated from 1982 through 1984, under State oversight, at depths ranging from 6 to 25 feet bgs. The material was disposed off-Site at an appropriate hazardous waste facility. Approximately 8,000 cubic yards (CY) of waste and 12,000 CY of contaminated soil were removed (Dames & Moore 1996). The excavation was backfilled with soil in 1985 following regulatory approval (Dames & Moore 1996). However, based on confirmation samples collected from the base of the excavation, contaminated soil likely remains beneath the backfill at Waste Pit 1-A.

2. In July 1994, USEPA issued a Unilateral Administrative Order to the Shell Oil Company following discovery of small areas of exposed waste at Waste Pits 2-A and 2-B. Under the Order, Shell was required to secure the Waste Pits, perform routine inspections of the Waste

Pits OU, and address seeps of waste material from the Waste Pits. This Order was carried out until September 1999, at which time USEPA issued a Notice of Completion.

3.5 Basis for Taking Action

The ROD describes the basis for taking action as follows. The baseline health risk assessment presented in the Final Focused Feasibility Study (FFS) Report (Dames & Moore 1996) concluded that contaminants present at the Waste Pits OU-2 do not pose an unacceptable risk to potential receptors. However, there remains a possibility that a release of hazardous substances would occur in the future. If the waste pits were disturbed, significant emissions of VOCs may be released to the atmosphere. Therefore, a remedial action was determined to be warranted to protect potential human receptors from exposure to constituents remaining in the waste pits.

Furthermore, groundwater analytical data collected from upgradient, downgradient, and at the Waste Pits OU-2 suggested that volatile contaminants were migrating from soil in the Waste Pits OU-2 to groundwater (including groundwater in aquifers that are used as a domestic water supply).

Section 4
Remedial Actions

The following section summarizes the remedial actions that have been selected and implemented at the Waste Pits OU. The remedial action selected for the Dual-Site Groundwater OU, as it pertains to groundwater beneath the waste pits, is also summarized but is not evaluated in this five-year review.

4.1 Remedy Selection

Based on the evaluation of remedial alternatives presented in the Final FFS Report (Dames & Moore 1996), the selected remedy for the Waste Pits OU-2 was presented in the Waste Pits ROD (USEPA 1997). The ROD was issued by USEPA on September 5, 1997. The major components of the selected remedy included:

1. Placement of a RCRA-equivalent cap over the Waste Pits Area and associated soil gas monitoring;

2. Installation of surface water controls to prevent ponding of water on the cap and to prevent runoff onto adjacent properties;

3. Installation and operation of an SVE system beneath the Waste Pits Area to achieve the interim soil remediation standards established in the ROD;

4. Installation of security fencing around the treatment units associated with the cap and SVE systems;

5. Implementation of deed restrictions prohibiting future residential use of the Waste Pit Area and prohibiting any future use of the Waste Pits Area that could threaten the integrity of the RCRA equivalent cap;

6. Long-term operation and maintenance of all of the above and related components of the remedy selected in this ROD.

This alternative was determined to be the most appropriate alternative to address, on an interim basis, the contribution of the Waste Pits OU-2 to contamination in groundwater.

The interim remedy was made final in the *ROD for Dual Site Groundwater Operable Unit Montrose Chemical and Del Amo Superfund Sites* (Groundwater ROD) issued in March 1999 (USEPA 1999). The Groundwater ROD established a technical impracticability waiver for the groundwater underlying the Waste Pits, meaning that groundwater beneath the Waste Pits will not be restored to drinking water standards. USEPA concluded in the Groundwater ROD that the interim remedy selected in the Waste Pits ROD was appropriate as a final remedy, since it would remove or contain, to the extent practicable, contaminant sources present in the vadose zone beneath and surrounding the Waste Pits which contribute to the groundwater

contamination. The Waste Pits themselves will not be cleaned up by will be contained by the remedy.

4.1.1 Remedy and Remedial Action Objectives for Waste Pits OU

The following sections present the components of the selected remedy and associated remedial action objectives, as identified in the Waste Pits ROD (USEPA 1997).

1. RCRA-equivalent Cap, Cap Gas Collection and Treatment System

The selected remedy included construction of a RCRA-equivalent cap over the waste and contaminated soil. The approximately 4-acre cap was to be applied over Waste Pits 1-A, 1-B, 1-C, 2-A, 2-B, 2-C, 2-D, 2-E, and 2-F. The cap includes a surface water drainage layer, a low-permeability layer, and a gas collection layer. The objectives of the cap are to prevent: (1) direct human contact with contaminants; (2) generation of uncontrolled runoff and wind-blown dust; (3) the emission of contaminants into the air; (4) rainwater from washing through the waste pits and carrying contaminants into the groundwater; and (5) rainwater from washing through the contaminated vadose-zone soils below the pits and carrying contaminants into the groundwater.

The physical barrier created by the cap prevents direct human contact with the contaminants and the generation of wind-blown contaminated dust. A surface water collection and diversion system associated with the cap prevents ponding on the cap and uncontrolled runoff onto adjacent properties. The impermeable barrier created by the cap prevents rainfall from infiltrating the soil and waste and transporting contaminants into the groundwater. The cap's GCTS prevents the emission of unacceptable levels of contaminants into the air.

2. Soil Vapor Extraction and Associated Monitoring

The second component of the selected remedy was the design, installation, operation, and long-term monitoring and maintenance of an SVE system, to remove volatile constituents from vadose-zone soil and thus limit migration into groundwater. The objectives of the soil cleanup are to protect groundwater from: (1) contaminants that migrate out of the pits; (2) contaminants that migrate out of the vadose soil below the pits; and (3) contaminants in the soil below the pits in the event that the water table rises into the contaminated soil.

The SVE system is applied to the unsaturated soils under the waste pits and above the water table. The depth of the SVE application is between the capillary fringe above the water table (approximately 60 feet bgs) and just below the bottom of each waste pit (located at depths ranging from 6 to 22 feet bgs). The areal extent of the SVE application extends across the waste pits themselves and laterally beyond the boundaries of the waste. It was estimated that the volume of soil within which the SVE system would be applied is approximately 317,000 CY. The SVE is not applied to the waste itself.

The SVE system will clean these soils to a soil standard and then maintain a zone of soil which does not exceed the standard. The soil standard must be clean enough so that contaminants from the soil could not increase the groundwater contaminant concentrations by more than 0.5

percent of the existing contaminant concentrations. The soil standard is described further in Section 6.4.2(1).

3. Security Fencing

The selected remedy included installation of security fencing surrounding the SVE system and GCTS.

4. Deed Restrictions

To prevent inappropriate future land use or development, the remedy also required deed restrictions, prohibiting future residential use of the Waste Pits OU-2 and prohibiting any future use that could impact the integrity of the cap.

4.1.2 Remedy for Dual-Site Groundwater OU

The remedy for groundwater is not evaluated in this five-year review. However, the Dual Site Groundwater OU-3 ROD included groundwater beneath the Waste Pits OU. Since remedial action objectives for the Waste Pits OU-2 involve the protection of groundwater, the remedy for the Dual Site Groundwater OU-3 is relevant to the five-year review of the Waste Pits OU.

The remedy for groundwater at the Montrose Chemical and Del Amo Superfund Sites included containment of benzene, chlorobenzene, and trichloroethylene (TCE) plumes (both dissolved phase and NAPL) for an indefinite period within a groundwater containment zone and reduction of dissolved-phase contaminant concentrations outside of the containment zone. The dissolved-phase benzene, chlorobenzene, and TCE plumes inside the containment zones were to be contained through a combination of groundwater extraction and treatment, and monitored intrinsic biodegradation. Groundwater within the containment zone is subject to a technical impracticability waiver. The areas that are subject to the technical impracticability waiver are presented on Figure 4-1. Due to the presence of benzene as a light non-aqueous-phase liquid (LNAPL) beneath the waste pits, groundwater in the UBF, MBFB, and MBFC units at the Waste Pits OU-2 is within the containment zone and is therefore subject to the technical impracticability waiver.

Constituent concentrations in groundwater outside of the containment zone were to be reduced to *in-situ* groundwater standards through groundwater extraction and treatment. The in-situ standards are the lower of the state or federal maximum contaminant limits (MCLs) or, when MCLs have not been identified for a particular analyte, USEPA preliminary remediation goals (PRGs).

4.1.3 ESD

The remedial design initially selected thermal oxidation for the vapor treatment component of the SVE system. In response to community concerns regarding thermal oxidation, however, a range of alternate vapor treatment technologies were evaluated. As a result of this evaluation, a resin adsorption technology with on-Site regeneration was settled on. Because this technology was not included in the Waste Pits ROD, ARARs related to this technology had not been fully evaluated. Consequently, an ESD (USEPA 2002b) was issued on August 13, 2002 to add ARARs for the adsorption technology to the Administrative Record for the Waste Pits OU-2 (USEPA 2002a). A pilot test was performed but found benzene reuse infeasible. A new alternative using

carbon adsorption and adding an in-situ bioventing component was then proposed. A second ESD (USEPA 2006) was then issued on August 24, 2006. This ESD provided information regarding the estimated timeframe increase from five years to approximately 10 to 15 years for the SVE and in-situ bioventing system to achieve soil cleanup goals.

4.2 Remedy Construction

Remedial design of the selected remedy commenced following issuance of the Waste Pits ROD in 1997, in compliance with the requirements of the Administrative Order for Remedial Design issued in 1998. Construction of the remedy consisted of two components: (1) Component I, which included the RCRA-equivalent cap, GCTS, surface water drainage, security fencing, SVE wells and deed restrictions; and (2) Component II, which included the SVE/IBT System vapor treatment and conveyance system.

4.2.1 Component I Remedy Construction

A RCRA-equivalent cap and an off-gas collection and treatment system were installed as part of Component I of the remedy constriction between May 1999 and February 2000. These systems were constructed in accordance with the *Prefinal Design Report* (Parsons et al. 1999b) and the *Construction Quality Assurance Plan* (Parsons et al. 1999c). Other systems installed during Phase I include surface water controls, security fencing, SVE wells and deed restrictions. The final inspection of this remedy component was performed on February 10, 2000.

4.2.1.1 RCRA-Equivalent Cap

From bottom to top, the subsurface cap consists of: (1) a compacted soil foundation layer, (2) a 6-inch gas collection sand layer with high-density polyethylene (HDPE) collection piping (part of GCTS), (3) an impermeable geosynthetic clay liner (GCL), (4) a 40-mil impermeable very flexible polyethylene (VFPE) geomembrane, (5) a non-woven geosynthetic drainage layer, (6) a 3-foot layer of cover soil, and (7) a topsoil layer vegetated with native grasses. A cross-section of the cap is presented on Figure 4-2. A vertical gabion retaining wall was installed along the southern side of the cap to prevent erosion from the cap to the area south of the cap (Figure 3-2).

Following construction of the cap, concrete drainage channels were installed on the north and south sides of the cap at the locations presented on Figure 3-2. Surface grading was performed (to a maximum grade of 2 percent) to direct surface runoff into the drainage channels and storm drains. Catch basins were installed at the eastern end of the cap.

Few obstacles were encountered during construction of the cap. Shallow tarry waste was encountered in the subsurface during installation of anchor trenches for the cap. This waste was consistent with the waste present in the Waste Pits. The waste was subsequently deposited within one of the Waste Pits beneath the cap.

4.2.1.2 Cap-Gas Collection and Treatment System (GCTS)

Soil gas is collected within the RCRA-equivalent cap through a 4-inch-diameter perforated HDPE pipe laid horizontally in the 6-inch cohesion-less sand layer (immediately above the soil foundation). Following construction of the cap, the above-ground components of the cap GCTS were installed (at the location presented on Figure 4-3). Soil gas is extracted utilizing a 5-

horsepower regenerative extraction blower and treated by a carbon treatment system consisting of a vapor-liquid separator and two carbon canisters in series. Approximately 90 percent of the treated vapor is returned to the sand layer and ten percent is exhausted to the atmosphere (after being treated to air emission standards).

4.2.1.3 Security Fencing

A six-foot high chain-link security fence was installed around the perimeter of the Site and a separate ten-foot high chain-link security fence with barbed wire and vinyl slats was installed around the perimeter of the SVE/IBT System and GCTS pad (Figure 3-2) (Parsons et al. 2000). Access to the Waste Pits OU-2 is through a 20-foot wide double swing gate along the eastern boundary of the Site.

4.2.1.4 Institutional Controls

Deed restrictions, also known as Land Use Covenants, that prohibit unrestricted land use and identify environmental restrictions are recorded with the Los Angeles County Recorder's Office.

The first LUC was recorded for the western parcel (APN 7351-034-078) of the Waste Pits OU-2 on September 27, 2000. This parcel is owned by Triton Diagnostics, a subsidiary of Shell Oil Company. Waste Pits I-B, l-C, 2-A through 2-F, and the 62-feet of the most westerly portion of Waste Pit 1-A are located within this parcel. A second LUC was recorded for the eastern parcel on May 27, 2005. The eastern parcel is owned by Del Amo Landfill, LLC. The remaining portions of Waste Pit 1-A and the former eastern evaporation pond are located within this parcel.

4.2.2 Component II Construction

Component II of the Waste Pits OU-2 consists of the SVE/IBT System. The system was designed and installed during the 2006 operational year. Design of the SVE/IBT System is based on the technical evaluation of biodegradation at the Site. This phase of the remedy was implemented in accordance with the *SVE/IBT Final Design Report* (C2 REM 2006a) and the *SVE/IBT Construction Quality Assurance Plan* C2 REM 2006b). Construction of the SVE/IBT System occurred between February and April 2006. The system was put into operation and full-scale monitoring in August 2006.

4.2.2.1 SVE/IBT System

The SVE/IBT System involves vapor extraction and re-injection, with proportional carbon adsorption. Soil vapors are extracted from SVE wells, amended with oxygen, and re-injected into the waste pit area. The system consists of 23 injection/extraction wells and sixty-five vapor monitoring wells, which were installed as part of Component I of the remedial action. Injection is conducted at four SVE wells and extraction at nine SVE wells in sequence to enhance the natural aerobic degradation observed within the vadose zone (locations of the wells are presented on Figure 4-3). The sixty-five vapor monitoring wells are grouped as follows:

- Fourteen wells are used to measure the pressure response to vapor extraction from the targeted zone of remediation (+ 10 feet mean sea level [msl] layer) and the underlying portions of the vadose zone;

- Thirteen clusters of three wells (for a total of 39 wells) are used to collect soil vapor samples/readings to determine vertical soil vapor concentration profiles and measure cleanup progress; and

- Twelve monitoring wells surrounding the cap system (perimeter monitoring wells) are used to collect soil vapor samples/readings from a subsurface elevation of approximately +20 feet msl (from 5.7 to 23.6 feet bgs) to detect any lateral migration of vapors from the waste pits.

Other components of the SVE/IBT System include the surface conveyance system, two-2,000 pounds carbon units, an oxygen generator, two vapor blowers, air-moisture separator, system sensors, and automatic control features (i.e. Programmable Logic Controller [PLC]).

4.2.3 Groundwater

This five-year review does not address the Dual Site Groundwater OU-3 directly. Currently, the remedial action for the Dual Site Groundwater OU-3 has not yet been implemented. The remedy for the Dual Site Groundwater OU-3 will address groundwater beneath the Waste Pits OU, along with the overall "joint Site" as defined by the 1999 Dual Site Groundwater Operable Unit ROD. As stated in Section 4.1.2, groundwater beneath the Waste Pits OU-2 is subject to a technical impracticability waiver. Dissolved-phase constituents beneath the waste pits will be contained through hydraulic extraction and treatment and monitored intrinsic biodegradation.

Responsible parties are currently working on the design of the groundwater cleanup system, including extensive groundwater modeling and field pumping tests.

It is anticipated that the remedial design phase for the cleanup will continue through 2010, with construction of the groundwater extraction and injection wells, a treatment plant, and underground piping commencing in 2011.

The Groundwater ROD pertains to dissolved-phase constituents and did not specifically address the recovery or migration of NAPL. The Proposed Plan to address LNAPL at the Del Amo Site is currently out for public comment.

4.3 Operation and Maintenance

Operation, maintenance, and routine monitoring of the Waste Pits OU-2 remedy components have been performed since construction was completed on the respective components. Operating parameters, performance standards, monitoring procedures and evaluation procedures are set forth in the *Operations, Maintenance and Monitoring Manual* (Parsons et al. 1999a) and the *SVE/IBT OM&M Manual* (C2 REM 2006c) , and the *Waste Pits Operation, Maintenance, and Monitoring Manual Waste Pits OM&M Manual* (C2 REM 2008c). Table 4-1 presents a summary of the OM&M activities and frequency of events specified in the OM&M Manuals for the Waste Pits OU.

Operation and maintenance activities discussed in this five-year review are primarily limited to activities conducted since the First Five-Year Review (USEPA 2005).

4.3.1 Cap

In order to ensure the cap is functioning as intended by the ROD, the following maintenance and monitoring activities are conducted: (a) visual inspection of the cover system, surface water drainage system, subsurface drainage system with repairs as necessary; (b) Gas Collection and Treatment System operation and monitoring; and (c) settlement monitoring.

1. Visual Inspections

Visual observations of the cap cover system are made to ensure that the physical, impermeable barrier it creates remains intact. The frequencies of the cap cover system inspections are presented in Table 4-1. The inspections included observing the cover soil, surface water drainage system and subsurface drainage system.

2. GCTS Operation and Monitoring

Proper operation of the GCTS prevents contaminated vapors from building up under the cap and potentially escaping out the sides and into the atmosphere. The GCTS collects any vapors from the gas collection layer and treats them on-Site with carbon adsorption (with subsequent off-Site recycling of the carbon). The system consists of a vapor-liquid separator, two carbon adsorber canisters in series, and a five horsepower regenerative extraction blower. The treatment system operates for four hours per day five days per week. Approximately two pore volumes are extracted from the sand layer daily.

Effluent monitoring from the GCTS is conducted to ensure compliance with the air emissions ARAR. Bi-monthly (once every two weeks) monitoring is conducted at four locations (i.e., system influent [1], effluent of the lead carbon vessel [2], effluent of the secondary carbon vessel [3], and system effluent [4]). Samples are collected in one liter tedlar bags and analyzed with a hand-held photoionization detector (PID) field instrument, calibrated to benzene. Once every five years, a confirmation sampling program is undertaken to confirm the accuracy of the field instruments by comparing field measurements to samples analyzed in the laboratory.

A criterion of 5 ppmv total for VOCs and SVOCs in exhaust from the GCTS must be met, based on this system's design and flow rate. This criterion was developed to assure compliance with the South Coast Air Quality Management District's (SCAQMD) Rule 1401, which requires that the potential human health risk from carcinogenic compounds be less than 10 occurrences of cancer in 1,000,000 people (Parsons et al 1999a, and C2 REM 2008c). The effluent VOC standard of 5 ppmv was developed based on a comparison between the maximum allowable ground level benzene concentrations estimated for the fence line (0.0154 to 0.0165 micrograms per cubic meter [$\mu g/m^3$]) [1] (Parsons et al. 1999b) and the 2009 ambient air Regional Screening Level for benzene (0.31 $\mu g/m^3$) [2] (USEPA 2009) for nearby residential receptors.

[1] Benzene concentrations at the fence line were estimated through an evaluation of emissions from a thermal oxidizer (the SVE treatment technology selected in the Waste Pits ROD) and an air dispersion analysis, as presented in the Pre-final Design Report (Parsons 1999b).

[2] The Region 9 PRGs have been harmonized with similar risk-based screening levels used by Regions 3 and 6 into a single table: "Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites."

System startup and baseline monitoring of the off-gas collection and treatment system was performed in March 2000.

3. Settlement Monitoring

Eight survey monuments are located within the footprint of the cap to monitor and track ground movement and settlement. Surveys were scheduled to be conducted monthly for the first year of operation in 2000 and subsequently annually through 2005. The current monument survey schedule is once every five years (C2 REM 2005). Surveys of the monuments on the pits are completed via field survey equipment using standard practice survey accuracy within + 0.01 feet.

TABLE 4-1
Summary of Operation, Maintenance, and Monitoring Activities
Second Five-Year Review Report, Del Amo Waste Pits (OU-2), Los Angeles, California

Event	Frequency Identified in OM&M Manual (C2 REM 2008c)	Deviations from OM& M Manual	Notes
Cover Systems Inspection	Quarterly, after heavy rainfall, after seismic event, and after fires	None	
SVE/IBT System Inspection	Weekly for the first year Quarterly thereafter.[3]	None	
SVE/IBT Performance Monitoring	Bi-Monthly (once every two weeks)	Twice-daily measurements during pre-system startup; weekly during short-term OM&M.	
Cap Gas Collection and Treatment System Inspection	Quarterly	None	
Cap Gas Collection and Treatment System Monitoring	Bi-Monthly	None	Results from the monitoring are used to assess need for carbon canister change-out.
Cap Gas Confirmation Sampling/Collection and Treatment System	Every 5-Years (USEPA 2002)	None	Initially, confirmation sampling was conducted annually. USEPA approved change in frequency (2002).
SVE Cluster, Pressure Response and Vacuum Well Monitoring	Quarterly	None	
Perimeter Well Monitoring	Quarterly	Monthly monitoring of Perimeter Wells A, B, C, D and H and quarterly monitoring of Perimeter Wells E, F, G, I, J, K and L was conducted in 2007, 2008, and 2009 pursuant to USEPA's August 15, 2008 Letter.	Perimeter monitoring points will be monitored quarterly during the Post-SVE/IBT monitoring program for a period not to exceed one year or until asymptotic VOC concentrations are observed.
Groundwater Monitoring	Quarterly for first year, then annually	Not performed since full-time SVE/IBT System startup	
Surface Water Drainage System	Quarterly and after heavy rainfall	None	
Subsurface Drainage Systems	Quarterly and after heavy rainfall	None	
Security Fences	Quarterly and after a seismic event	None	
Access Road	After heavy rainfall, after seismic event, and/or annually	None	
Settlement Monitoring	Every five years or after seismic event	None	
Repairs	As required		

[3] Based on the OM&M Plan (C2 REM 2008c), system operation will be optimized and monitoring will be based on and reflective of carbon use.

4.3.2 SVE System

The objectives of monitoring during SVE/IBT System operations are to:

- Measure the capture zone of soil vapor around and within the extraction points to determine the extent and adequacy of the capture zone;
- Measure progress towards achieving the SVE/IBT System performance standard including the soil standard and the vertical concentration gradient;
- Assess whether the system is protective of groundwater; and
- Measure soil vapor concentrations at points laterally outside of the engineered cap.

These objectives are accomplished by monitoring two primary parameters: pore vapor pressure and soil vapor concentration. Two secondary parameters measured that contribute to the monitoring objectives are Oxygen (O_2) and Carbon Dioxide (CO_2). Additionally, groundwater monitoring is also scheduled to be collected.

Effluent emissions are also regulated by the SCAQMD Rule 1401, based on the system's design and flow rate. The maximum effluent concentration of 50 ppmv for VOCs and SVOCs must be met. To ensure compliance with this ARAR, effluent monitoring is conducted.

Within the SVE/IBT System treatment component, soil vapor concentrations are monitored bi-monthly using a PID at four sample stations: (1) Influent – the inlet (the combined flow of the nine extraction wells); (2) Post Ambient Air – the diversion loop (to the Granulated Activated Carbon [GAC] beds) just after the ambient air intake; (3) Carbon Vessel 1 (C1) – the effluent of the primary GAC bed; and (4) Effluent – the effluent stack. Flow rate, O_2, and CO_2 are also monitored at these four stations using hand-held monitoring equipment. In-line sensors are also used at these four stations to measure O_2, flow rate, percent Lower Explosive Limit (LEL), temperature, relative humidity, and benzene; data is automatically logged by the PLC System.

Cluster and pressure response soil monitoring wells, along with the SVE extraction/injection wells are monitored quarterly. Perimeter Wells A, B, C, D and H are monitored monthly and Perimeter Wells E, F, G, I, J, K and L are monitored quarterly. All wells have VOC, O_2, and CO_2 concentrations measured, as well as pressure.

Groundwater was scheduled to be sampled quarterly for the first year of SVE/IBT System operation and annually thereafter. The monitoring wells to be samples included the following: PZL0018, PZL0019, PZL0020, PZL0022, PZL0024, PZL0025, SWL0008, SWL0044, SWL0051, VWL0004, XDM-02, XMW-29, and XP-02. The collected groundwater samples were to be analyzed for VOCs using EPA Method 8260b and for SVOCs using EPA Method 8270c.

4.3.3 Fencing

Fencing was to be inspected and maintained in accordance with the OM&M Manual (Parsons et al. 1999a).

4.3.4 Irregularities and Unscheduled Maintenance Activities

Table 4-2 presents a summary of non-routine maintenance and/or repairs as reported in the annual OM&M reports. The issues identified have been remedied, as indicated in the table.

TABLE 4-2
Irregularities and Unscheduled Maintenance Activities
Second Five-Year Review Report, Del Amo Waste Pits (OU-2), Los Angeles, California

Year	Non-Routine Maintenance/Repair	Notes
2005	Access road covered w/ new gravel	
2006	Installed new perimeter fencing (May 2006) with barbed wire and swinging gate	
2006	Gravel area surrounding treatment enclosure and office trailer expanded	Area was expanded in preparation for construction of the SVE/IBT System
2007	Temporary above ground irrigation system installed	Assist in re-establishing the cover system vegetation
2007	SVE/IBT System in-line sensors and components repaired	Sensors were repaired due to failure and calibration issues
2007	Four surveillance cameras installed	Vandalism to on-Site trailer prompted increased security
2008	SVE/IBT System manifold replaced (July 2008)	Manifold replaced due to weathering and deteriorating ball valves

4.3.5 Operation, Maintenance, and Monitoring Costs

At the time of this five-year review, current costs for OM&M activities were not available. Annual OM&M costs developed during the remedy selection process was estimated to be approximately $271,500[4] (Dames & Moore 1996).

[4] Estimated annual costs for inspection ($61,500), OM&M of the SVE System ($180,000), and groundwater monitoring ($30,000). It should be noted that the estimated costs do not consider implementation of the *In-Situ Bioventing Technology*.

Section 5
Progress Since Last Five-Year Review

5.1 2005 Five-Year Review Protectiveness Statement

The 2005 Five-Year Review states:

> "The remedial action at the Waste Pits OU-2 is expected to be protective of human health and the environment upon completion of all components as outlined in the Waste Pits ROD. In the short-term, Phase I of the remedial action (i.e. RCRA-equivalent cap, cap-gas collection and treatment system, surface water drainage, security fencing, and deep restrictions) is successful in controlling exposure to unacceptable risks at the Waste Pits OU. Upon completion of the SVE/IBT System, the remedy will be fully protective."

5.2 2005 Five-Year Review Issues & Recommendations

Table 5-1 presents issues identified during the first five-year review process. The issues relate to system optimization, evaluation of ARARs for bioventing technology, and the remedial action objectives for the Waste Pits OU.

TABLE 5-1
2005 Five-Year Review Issues & Recommendations
Second Five-Year Review Report, Del Amo Waste Pits (OU-2), Los Angeles, California

Issue	Recommendation and Follow-Up Action	Current Status
Operation of the cap-gas collection treatment system should be optimized.	a. The operating time of the cap-gas collection and treatment system will be reduced from 4 to 2 hours daily. b. The system will continue to be monitored bi-weekly to ensure that effluent concentrations do not exceed 5 ppmv. c. The frequency of system monitoring will be re-evaluated following one year of system operation under revised conditions.	a. The system operates for four hours per day five days per week and is controlled by an Allen Bradley PLC System. b. The system is monitored bi-weekly. c. See above
USEPA has not made an ARARs determination for the bioventing treatment technology.	USEPA will follow up by evaluating potential ARARs that would apply to the IBT that have not been previously identified.	In September 2005, the USEPA approved the final SVE system remedial design for carbon adsorption and bioventing. In August 2006, the USEPA issued a second ESD which identified the in-situ component of the SVE system.
The remedial action objectives identified for the Waste Pits OU-2 in regards to groundwater have not been fully achieved.	The SVE/IBT System will be installed to reduce impacts to groundwater and to achieve the remedial action objectives for the Waste Pits OU.	The SVE/IBT System has been in full operation since August 2006.

Section 6
Five-Year Review Process

The following sections discuss findings from the five-year review process.

6.1 Administrative Components

The responsible parties were notified of the Five-Year Review in February 2010. The Second Five-Year Review was led by Dante Rodriguez, USEPA Remedial Project Manager. ITSI provided technical support to USEPA for the review. The five-year review process included:

- Community Involvement
- Document Review
- Data Review
- Site Inspection
- Interviews

This second five-year review was conducted between March and June 2010.

6.2 Community Involvement

USEPA posted a notice in the local community newspapers (one English, one Spanish) on July 19, 2010 notifying the public that it was conducting the five-year review and inviting them to submit any comments regarding the remedial actions implemented at the Waste Pits OU. The English-language newspaper was the Torrance Daily Breeze, and the Spanish-language newspaper was La Opinión. Following the release of this document, USEPA will produce and distribute a fact sheet to the community near the Waste Pits OU. The fact sheet will summarize the findings of the five-year review and instructions on how to access a copy of the review. The public will be able to submit any comments or concerns regarding the remedy to USEPA.

6.3 Document Review

As a part of the five-year review, ITSI reviewed numerous Site related documents primarily focusing on activities conducted since the first five-year review. Appendix A lists the documents reviewed, including a chain-of-title report and environmental lien report attached in Appendix D.

6.4 Data Review

Long-term operation, maintenance and monitoring activities are required by the ROD. The OM&M program is used to ensure the remedy is functioning as intended by the decision documents (ROD and ESDs). The specific details and references for the OM&M program are described in Section 4.3. This section describes the monitoring data collected for each component of the remedy to ensure it is functioning as intended. Types of data reviewed and

evaluated included visual observations, field monitoring (see Table 6-1), and laboratory analytical data.

6.4.1 Cap

The cap is monitored by visual observation and settlement monitoring to ensure the physical, impermeable barrier it creates remains intact. Likewise, the surface water collection and diversion system is monitored by visual observation to ensure it functions to adequately collect and convey rainfall. The cap's GCTS is monitored by vapor sampling to ensure it meets the emission standard.

(1) Visual Inspections

The results of the past 5 years of visual inspections are that no problems were observed with the cap cover and surface water collection systems that required repairs. The systems remained intact throughout this period.

(2) GCTS Monitoring

The GCTS addresses VOCs that collect in soil gas beneath the cap by extracting them and treating with carbon adsorption before release to the atmosphere. A criterion of 5 ppmv for VOCs and SVOCs in exhaust from the GCTS must be met. Monitoring is conducted on a bi-monthly frequency. Effluent concentrations from 2005 through 2009 met the benzene emission standard of 5 ppmv in all cases except one. On September 22, 2005, all PID readings were abnormally high, with the effluent concentration reading being 16.0 ppmv. Upon obtaining these readings, the system was turned off. Laboratory confirmation sampling conducted on September 23, 2005 indicated a system effluent reading of 2.0 ppmv, suggesting potential PID error. The system was subsequently turned back on.

Influent VOC concentrations have steadily declined between 2005 and 2009. Influent soil gas concentrations detected between 2005 and 2009 ranged from 0 to 25.6 ppmv (December 2006 event). System influent VOC data collected in 2009 ranged from 0 to 1.2 ppmv.

Cap-Gas System confirmation sampling was conducted on June 2, 2005 to ensure the effectiveness of field monitoring. Samples were collected from the four sampling ports in 6-Liter Summa canisters and analyzed using USEPA Method TO-15. Sample results indicated that benzene was only detected at the system influent, at a concentration of 0.16 ppmv. This information was used to verify the approximate COC concentrations determined with the PID during bi-monthly monitoring. Based on a correlation analysis of the laboratory data and monitoring results, the PID accurately measures the soil vapor concentrations, to a correlation of 99.9 percent.

Based on established system guidelines, the carbon canisters were only changed out once between 2005 and 2010, in March 2005.

(3) Settlement Monitoring

A monument survey was conducted on March 9, 2010. Results from the 2010 event were compared to the baseline event conducted in 2000 and to the 2005 survey event results. Vertical displacement ranged from -0.188 feet to 0.084 feet for the 2005 and the 2010 monitoring events. This degree of settlement is not considered to be significant and is not expected to affect the integrity of the cap. Table 6-2 presents the elevation data recorded at the eight survey monuments in 2000, 2005, and 2010, and the vertical displacement between the 2000 and 2010 monitoring events.

6.4.2 SVE/IBT System

(1) Performance Standards

The ROD specified that the vadose soil beneath the Waste Pits must be cleaned up such that contaminants from the soil could not increase the groundwater contaminant concentrations by more than 0.5 percent of the existing contaminant concentrations. This would be achieved by the SVE system cleaning the vadose soils to a soil standard and then maintaining a zone of soil which does not exceed that standard. The ROD identified the method for calculating this soil standard, which was used during the design phase as follows. First, the area of concern has been divided into four sub-areas based on average groundwater concentrations. Then those groundwater concentrations were used to derive performance standards, including remediation and contingency goals, for the overlying vadose zone sub-areas. The remediation and contingency goals are presented in Table 6-3.

TABLE 6-3
Remediation and Contingency Goals for Benzene in Soil Gas
Second Five-Year Review Report, Del Amo Waste Pits (OU-2), Los Angeles, California

	Sub-Area I	Sub-Area II	Sub-Area III	Sub-Area IV
Remediation Goal (ppmv)	510	2,000	840	78
Contingency Goal (ppmv)[a]	4,300	17,000	7,200	700

[a] The contingency standard is defined as an upward constituent concentration gradient with an upper concentration limit of less than 60 percent of the constituent equilibrium concentration in groundwater (Parsons et al. 1999a).
Sub-Area I includes Waste Pits 2-E and 2-F, Sub-Area II includes Waste Pits 2-A through 2-D, Sub-Area III includes Waste Pits 1-B and 1-C, and Sub-Area IV includes Waste Pit 1-A (Figure 3-2).

In addition to the remediation and contingency goals, a groundwater protection standard was established. This standard was to establish and maintain an upward soil vapor gradient in the vadose, i.e. soil vapor concentrations decrease with distance above the water table. Such a state would show that vapors are not diffusing downward into the groundwater.

A criterion of 50 ppmv for benzene in exhaust from the SVE/IBT System must be met, pursuant to the relevant air emission ARAR.

Although there are no standards for O_2 and CO_2, these indicators of biodegradation are measured at locations throughout the SVE/IBT treatment system and treatment area to provide data to assess biodegradation within the system.

(2) Monitoring Results

The SVE/IBT System conducted pre-system start-up operations from May 2006 through August 2006, followed by short-term full scale operations from August through November 2006. Long term full scale operations began in late November 2006. Detailed results from field-testing activities conducted in 2006 are presented in the *Summary of SVE/IBT Pre-System Operations Report, Del Amo Waste Pits* (C2 REM 2006d) and the *Technical Memorandum, SVE/IBT Short-Term Operations, Del Amo Waste Pits OU-2* (C2 REM 2008a).

Capture Zone: pore-vapor pressure measurements in vacuum monitoring wells.

Pore-vapor pressure was measured quarterly in the vacuum monitoring wells and in the cluster wells, SVE extraction/reinjection wells and perimeter monitoring wells. The measurements from the 53 vacuum and cluster wells were used to measure the pressure response to extraction throughout the targeted zone of remediation (+ 10 MSL) and thus assess the radius of influence for the SVE/IBT extraction wells.

Based on a review of the 2007 through 2009 field monitoring data for the vacuum monitoring wells and cluster wells located at +10 MSL, a negative pressure was observed at 49 of the 53 wells during quarterly sampling events and positive pressure (from 0.06 – 1.0 inches of water) was detected at 4 locations. The 4 locations with positive pressure, vacuum monitoring wells C′ and N′ and cluster wells B″ and L," were positive due to their close proximity to injection wells. However , the pressure data demonstrated a radius of influence sufficient to maintain a capture zone both vertically and horizontally within all the areas of interest throughout the operational period in review.

Lateral Migration: soil vapor contaminant concentration measurements in perimeter soil vapor monitoring wells.

Regular quarterly monitoring of the vapor monitoring wells around the perimeter of the Waste Pits OU-2 was initiated at the request of USEPA beginning in 2003 (USEPA 2003) and continued throughout the period of this 5-year review. The *2005 Operations, Maintenance, & Monitoring Annual Report* (C2 REM 2006e) documents perimeter vapor monitoring activities that occurred in 2005. The low concentrations of VOCs detected at the perimeter wells (i.e. <2.0 ppmv) in 2005 indicate that the cover system performed as designed and that contaminated soil vapors did not migrate significantly beyond the cap boundaries.

Monthly field monitoring of perimeter soil vapor monitoring wells was conducted in 2006, during start-up of the SVE/IBT System. Quarterly monitoring was not conducted in 2006 due to the extensive sampling conducted during SVE/IBT field testing. VOC concentrations (measured with a PID) ranged from 0.0 to 11.1 ppmv (with an average of 0.18 ppmv). The VOC concentration of 11.1 ppmv was detected at Perimeter Monitoring Well C on May 17, 2007. VOC concentrations detected at Well C during other monthly monitoring events in 2007 ranged from 0.0 to 0.2 ppmv, most likely indicating that the 11.1 ppmv concentration was an anomaly. VOCs at all other perimeter well locations ranged from 0 to 1.4 ppmv.

Starting in 2008, some perimeter wells were monitored monthly (wells A, B, C, D, H) and some quarterly (wells E, F, G, I, J, K, L). Perimeter well data indicated VOC concentrations ranged from 0.0 to 2.3 ppmv (with an average of 0.2 ppmv). This range in VOC concentrations excludes monitoring results collected on June 26, 2008. VOC results for June 26, 2008 ranged from 0.0 to 87.0 ppmv. However, due to suspected instrument error and fouling of the sensor, the results were deemed inaccurate and re-monitoring was conducted on July 1, 2008. The VOC readings at these perimeter wells during the re-monitoring event ranged from 0.0 to 0.8 ppmv, confirming the suspicion that the June 26 results were erroneous.

Perimeter well monitoring in 2009 indicated VOC concentrations ranged from 0 to 0.6 ppmv.

Over the past five years of system monitoring, there has been an overall decrease of contaminant concentrations found in the perimeter wells. The continued low concentrations of VOCs detected at the perimeter wells indicate good control of injected air volumes, that the cover system is performing as designed, and that the contaminated soil vapors are not migrating beyond the cap boundaries.

Emission Standard: vapor contaminant concentration measurements in treatment system effluent.

Vapor contaminant concentrations are measured bi-monthly within the SVE/IBT System treatment component. Since system start, effluent concentrations have consistently been non-detect, with the exception of the 3.4 ppmv concentration detected in September 2007. These benzene concentrations demonstrated that the SVE/IBT System was effective in maintaining acceptable emission limits (i.e., less than 50 ppmv benzene). Monitoring results for each year are as follows.

The *2007 Operations, Maintenance, & Monitoring Annual Report* (C2 REM 2008b) documents the first full year operation of the Component II remedy (i.e. SVE/IBT System). Monitoring data indicated that benzene concentrations at the effluent ranged from ND to 3.4 ppmv, with all but one sample reported at below laboratory detection limits.

The *2008 Operations, Maintenance, & Monitoring Annual Report* (C2 REM 2009) documents the second year of operation of the Phase II remedy (i.e. SVE/IBT System). Monitoring data indicated benzene concentrations at the effluent ranged from ND to 0.015 ppmv.

The 2009 monitoring data indicated benzene concentrations at the effluent were all nondetect, with the exception of the sampling on May 14, 2009. Analysis of the effluent sample could not be performed on this date due to inadequate sample volume in the Tedlar air bag.

O_2 and CO_2: Oxygen and carbon dioxide level measurements in all soil vapor monitoring wells and all monitoring points within the treatment system.

An examination of the field monitoring data and operational summary during the operational period shows an overall increase in CO_2 concentrations that correlate with increased O_2 injections. The increased operation time of the O_2 generator (1,177 hours for 2007 and 1,409

hours for 2008) required to maintain the 15 percent optimal O_2 concentration, coupled with the continued increase of CO_2 concentrations are good indicators of continuing biodegradation and a sustained microbial population. The 2009 field monitoring data indicates that CO_2 concentrations continued to increase and O_2 concentrations remained consistent with previous years.

The O_2 and CO_2 data during the 2006 start-up period was used to estimate that the SVE/IBT System effectively removed approximately 4,000 pounds (1800 kg) of benzene, of which 2,700 pounds (1,200 kg) was removed via biodegradation, and 1,300 pounds (600 kg) was removed via treatment system adsorption.

It was estimated that during the 2008 operational period the SVE/IBT System degraded approximately 44 pounds (20 kg) of benzene per day in situ, and adsorbed approximately 19 pounds (8.5 kg) of benzene per day. As of December 31, 2008, the SVE/IBT System had removed approximately 51,300 pounds of benzene from the Waste Pits (approximately 38,700 pounds through degradation and approximately 12,600 pounds through adsorption to carbon).

It was estimated that during the 2009 operational period the SVE/IBT System degraded approximately 39 pounds (17.9 kg) of benzene per day in situ, and adsorbed approximately 17 pounds (7.7 kg) of benzene per day. An estimated total of 18,214 pounds (8262 kg) of benzene was removed/degraded during 2009. As of the end of the 2009 operational year, approximately 70,430 pounds of benzene has been removed from the Waste Pits (approximately 53,849 pounds through degradation and approximately 16,582 pounds through carbon adsorption) (Figure 6-2) since SVE/IBT System operations began (C2 REM, 2010a).

Groundwater: groundwater contaminant concentration measurements in groundwater monitoring wells.

Initial groundwater contamination conditions were reported by C2 REM (2008c, Table 1 of Attachment 1 of Appendix G therein), for nineteen wells/piezometers within and in the vicinity of the waste pits area that were sampled in January 1998 or during the initial Remedial Design Field Investigation in 2000, 2004, and October 2006. These results were used to calculate initial average benzene groundwater concentration within the four sub-areas (Table 3, op. cit.). Monitoring well locations are presented in Figure 6-3.

6.4.3 Security Fencing

Visual monitoring of the security fencing throughout the 5-year review period showed that there were no breaches of the fencing surrounding the SVE/IBT System treatment components. There were documented breaches of the perimeter fencing around the Waste Pits OU-2 that resulted in periodic vandalism (i.e., spray painting of site trailer) and the theft of site security cameras in one instance. No damage occurred to any components of the SVE/IBT System or to the cap system. The trespassing occurrences were reported to police. Security cameras captured video images of the intruder. Additional security measures were subsequently taken, including motion sensitive lighting and police alerts.

6.4.4 Institutional Controls

Current parcel ownership and copies of the LUCs were obtained through a title and environmental lien search. These documents are provided in Appendix D. The search was conducted to confirm that the land use controls are still recorded in the land records of the two parcels that comprise the Waste Pits Area. The search also serves to confirm that a buyer would encounter the deed restriction when performing a routine title search.

The environmental lien search report found the Activity and Use Limitations were present in the land record, as specified in the ROD. The exact wording from the filed documents, entitled "Covenants to Restrict Use of Property and Environmental Restriction" was correctly provided by the search report.

6.5 Site Inspection

A site inspection was conducted by ITSI staff in the presence of representatives of the on-site contractor, C2 REM, on March 25, 2010. A summary of the inspection findings is presented below. The five-year review Site inspection checklist and photo documentation is provided in Appendix B and C, respectively.

The Site inspection consisted of a thorough visual inspection of the three main components of the remedial action: (1) RCRA-equivalent cap and drainage system; (2) GCTS; and (3) SVE/IBT System.

The cap appeared to be in good condition. Vegetative cover on the cap was well established and well maintained. No evidence of erosion, slope instability, or indications of settlement was observed. No evidence of erosion was observed in the surface drainage channels. The concrete V-ditch surface drainage channels bordering the cap on the northern and southern edges appeared to be in good condition. No large cracks (greater than 2 inches) were observed. Caulking at the joints along the concrete-paved ditches appeared to be intact and in suitable condition. Debris and/or sediment were not observed along the drainage channels or in the catch basins located at the eastern end of the cap. The rock, gabion retaining wall along the southern edge of the cap appeared to be intact and in good condition, with no observable damage or areas in need of repair.

Components of the GCTS appeared to be in good condition. The GCTS was in operation during the inspection, and functioning as expected. The GCTS typically operates 4 hours (10:00 am – 2:00 pm), Monday through Friday. The carbon canisters, vapor-liquid separator, and blower were in good working condition, with no observable damage or defects. Inspection of the associated piping and fittings did not reveal any cracks or leaks.

Components of the SVE/IBT System appeared to be in good condition. The SVE/IBT System was in operation during the inspection, which operates for 8 hours a day (8:00 am – 4:00 pm), Monday through Friday. The O_2 generator, blowers, air-moisture separator, and carbon vessels appeared to be in good working condition, with no observable damage or defects. Inspection of SVE wellheads, injection wellheads, above-ground piping, and conveyance system manifold did not reveal any cracks, leaks, or signs of damage. Well vaults appeared to be adequately

sealed and were generally in good condition. No signs of damage were observed. Well vaults were only subject to surface inspections, with the exception of cluster Well D". The well vault and sample ports for Well D" appeared to be in good condition. System valve configuration was consistent with the *SVE/IBT Final Design Report* (C2 REM 2006a). In-line sensors appeared to be working properly, with the exception of the O_2 sensor (AT_05B) located downstream of the system manifold, which was reading considerably lower than the other O_2 system sensors. At the time of inspection, the system PLC unit was undergoing maintenance. During the Site inspection, a soil gas sample was analyzed with a portable PID and the reading from the portable PID was consistent with an in-line PID sensor located immediately downstream of the sampling port. The SVE/IBT System treatment enclosure was in good condition. The fencing surrounding the enclosure, overhead canopy, and concrete pad were well maintained and in good condition. The access road from Vermont Avenue to the Site trailer and treatment enclosure was in good condition. Perimeter fencing was in good condition, with no signs of damage.

Overall, the RCRA-equivalent cap and drainage system, the GCTS, and SVE/IBT System appear to be well maintained, in good operating condition, and functioning as designed. No significant damage or deficiency was observed for each respective system.

6.6 Interviews

Key Site personnel from C2 REM were interviewed (interview questions are provided in Appendix E). C2 REM staff, on behalf of the Shell Oil Company, oversees and performs operation, maintenance, and monitoring activities at the Waste Pits OU-2. The following C2 REM personnel were present during the interview:

- Ed Bourke, Principal
- Stefan Klemm, Project Manager
- Ian Yusko, Lead Project Engineer

C2 REM indicated that the Site is in good condition overall, and that the GCTS and SVE/IBT System are operating and functioning as designed, and are meeting the ROD objectives. With regard to SVE System remedial action objectives, C2 REM indicated that the respondents were currently working with USEPA to identify alternative methodologies for measuring clean-up progress. Although groundwater data had not been included in the recent OM&M annual reports, C2 REM indicated that groundwater data were being collected as part of a separate OU for area groundwater, and that the groundwater data will be made available for evaluation. C2 REM expressed that SVE system performance could be evaluated utilizing other system parameter data, such as monitoring data from pressure and cluster wells that indicated a negative pressure, which demonstrates that the downward flux of contaminants from the waste pits is unlikely in the vadose zone.

C2 REM affirmed that the GCTS is effective in removing fugitive VOC emissions from beneath the cap, and that the SVE/IBT System is effective in removing benzene, and that it has been successful in generating and maintaining optimal subsurface conditions to promote

biodegradation. No modifications to system operation, maintenance, and/or monitoring were suggested at this time.

Section 7
Technical Assessment

7.1 Functioning of the Remedy as Intended by Decision Documents

Is the remedy functioning as intended by the decision documents?

As of this five-year review, all components of the selected remedy that have been installed to date are functioning as intended by the Waste Pits ROD. The following sections provide information in support of this determination.

7.1.1 Remedial Action Performance

Objectives and status of components of the remedy are presented in Table 7-1.

Table 7-1
Summary of Remedy Objectives Achievement
Second Five-Year Review Report, Del Amo Waste Pits (OU-2), Los Angeles, California

Objectives	Status of Implementation
RCRA-Equivalent Cap	
1. Prevent direct human contact with contaminants.	The objective has been achieved. Visual and settlement monitoring demonstrates that the cap remains intact and continues to provide a barrier between receptors and contamination present in soil and soil gas at the Waste Pits OU.
2. Prevent generation of uncontrolled runoff and windblown dust.	The objective has been achieved. Visual and settlement monitoring demonstrates that the cap remains intact and continues preventing dust associated with contaminated soil from being generated by the wind and preventing runoff associated with contaminated soil from being created. Visual monitoring also demonstrates that the surface water collection and diversion system associated with the cap remains intact and prevents uncontrolled runoff from the cap itself.
3. Prevent the emission of contaminants into the air.	The objective has been achieved. Records demonstrate that the cap gas collection and treatment system has been operated as designed, and monitoring data demonstrates that the effluent emission standard of 5 ppmv benzene has been achieved throughout the past five years. The one observed exceedance of the standard was concluded to be likely due to PID instrument error.
4. Prevent rainwater from washing through the waste pits and carrying contaminants into the groundwater.	The objective has been achieved. Visual and settlement monitoring demonstrates that the cap remains intact, serving as a barrier to surface water infiltration and thus eliminating water infiltration as a mechanism for transport of Waste Pit contaminants to underlying groundwater.

***Table 7-1** (continued)*

SVE/IBT System	
5. Prevent rainwater from washing through the contaminated vadose zone soils below the pits and carrying them into the groundwater.	The objective has been achieved. Visual and settlement monitoring demonstrates that the cap remains intact, serving as a barrier to surface water infiltration and thus eliminating water infiltration as a mechanism for transport of vadose zone contaminants to underlying groundwater.
6. Protect groundwater from contaminants that migrate out of the pits.	The objective has been achieved. Monitoring data from the pressure and cluster wells indicated that negative pressure was maintained in the area throughout the operational period, demonstrating that the System maintained a capture zone in the vadose zone between the Waste Pits and the groundwater. This prevents a downward flux of contaminants from the waste pits to the groundwater.
7. Protect groundwater from contaminants that migrate out of the vadose zone below the pits.	The objective has been achieved. Monitoring data from the pressure and cluster wells indicated that negative pressure was maintained in the vadose area throughout the operational period, demonstrating that the System maintained a capture zone in the vadose zone. This prevents a downward flux of contaminants from the vadose zone into the groundwater.
8. Protect groundwater from contaminants in the soil below the pits in the event that the water table rises into the contaminated soil.	This objective will be achieved when the System attains the soil remediation goal. The System continues to successfully maintain capture in the vadose zone and remove contaminants (benzene) from the soil, and it is progressing towards the soil cleanup goal.

7.1.2 Opportunities for Optimization

The GCTS and SVE/IBT System are operating effectively and have performed at a level consistent with design parameters. No system optimization changes are suggested at this time.

7.1.3 Operation, Maintenance and Monitoring Items to Address

One of the key remedial action objectives set forth in the Waste Pits ROD is to remove volatile constituents from vadose zone soil through operation of the SVE/IBT System and thus limit migration into groundwater of contaminants present at the Waste Pits OU-2. The Waste Pits ROD specifies that the performance standard for the system "shall be that the pits will not be able to cause an incremental groundwater contribution in excess of 0.5 percent of the existing groundwater concentration." Progress towards achieving this standard would be measured through regular soil vapor monitoring in the vadose zone. The initial soil cleanup goal that would achieve the standard was based on groundwater monitoring data from 1998 and 2000. However, the 2008 OM&M Manual specified that groundwater monitoring would occur annually so as to regularly update the soil cleanup goal. This has not occurred.

Furthermore, the method for evaluating the system's performance towards achieving the soil cleanup goals established in the original OM&M Manual (Parsons 1999a) has not been finalized in the most recent OM&M Manual (C2 REM 2008c). According to the original Manual, groundwater monitoring data were to be collected to update the vadose soil remediation goals, followed by an evaluation of the progress the system has made towards achieving the soil cleanup goals for each sub-area. In addition, an evaluation of the vapor concentration gradients at the cluster monitoring wells was to have been performed. This work has not been performed. In the 2008 Manual, USEPA approved all sections except the section pertaining to monitoring achievement of the soil cleanup standard. As it currently stands, revisions to the methodology have been proposed by the Responsible Parties but not approved by USEPA.

The following recommendations to address the OM&M items identified are:

- The methodology for measuring progress towards achieving the soil cleanup standard needs to be clearly established.

- Groundwater monitoring needs to be performed consistent with Attachment 1 to Appendix G of the 2008 OM&M Manual (C2 REM, 2008c) to update the SVE/IBT performance standard.

- The vapor concentration gradients at the cluster wells need to be evaluated.

7.1.4 Implementation of Institutional Controls

The Unilateral Administrative Order for Remedial Action (1999) requires that the Respondents implement, monitor, and maintain the institutional controls selected in the Waste Pits ROD. As discussed in Section 4.2.1.5, two LUCs have been recorded for properties located within the Waste Pits OU. The first was recorded on September 2000 and the second was recorded on May 2005. The LUCs define restrictions associated with the Waste Pits OU. The LUCs prohibit use of the properties as a hospital, school, day care, or for residential purposes, and prohibits disturbance to the cap, SVE system, or groundwater monitoring wells without notification and approval by USEPA. The LUCs also stipulate that the Respondents shall be responsible for the ongoing monitoring and enforcement of the environmental covenants and restrictions.

The Waste Pits ROD specifies that deed restrictions (institutional controls) are a component of the selected remedy. The remedial action objectives for the deed restrictions are two-fold: to prevent residential use and to prevent any other use that could impact the integrity of the cap. The OM&M Manual (C2 REM 2008c) specifies that monthly inspection will be performed to determine if provisions outlined in the LUCs are being met. Current reporting protocols specified in the OM&M Manual include a requirement for USEPA and DTSC to be notified within 24 hours if a condition arises at the Site that could cause exposure to the surrounding community. Current monitoring procedures for the deed restrictions are satisfactory and comply with Remedial Action Objective (RAOs).

7.2 Validity of Assumptions Used During Remedy Selection

Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid?

The following sections present an evaluation of the ARARs, assumptions used in the human health risk assessment, and assumptions used during the remedy selection process.

7.2.1 Regulatory Review

Section 121(d) of CERCLA requires that remedial actions implemented at CERCLA sites attain any federal or more stringent state environmental standards, requirements, criteria, or limitations that are determined to be ARARs.

The scope of review for this five-year review included the following:

- Determine if ARARs listed in the 2005 Five-Year Review have existing or pending amendments;
- Determine if amendments to ARARs will result in changes that would impact remedial actions or cleanup standards applied to the Site.

There are three categories of ARARs, namely, chemical-specific, location-specific, and action-specific. The second five-year review defines these three categories of ARARs. No chemical-specific or location-specific ARARs were considered applicable to the remedies identified in the Waste Pits ROD or ESD (USEPA, 2002 & 2006).

To-be-considered (TBC) criteria, as defined in 40 CFR 300.400(g)(3), are non-promulgated criteria, advisories, guidance, proposed standards issued by federal and state governments that may provide useful information or recommend procedures for the remedial action. Similar to the first five-year review, the second five-year review focuses on action-specific ARARs and TBC criteria presented in the Waste Pits ROD and ESD. Action-specific ARARs identified in the ROD and ESD are presented in Tables 7-2 and 7-3, respectively.

The following ARARs have been amended since the first five-year review in 2005:

- SCAQMD Rule 1173 was modified on February 6, 2009. The amendment changed the response requirements when releases from atmospheric process pressure relief devices (PRD) are in excess of either 500 pounds or 2,000 pounds of VOCs in a continuous 24-hour period. Changes would not impact the current remedial actions or cleanup standards.
- Clean Air Act Regulation XIV – Rule 1401 was incorrectly identified in the first five-year review as having been amended on March 4, 2005. Rule 1402 was amended on March 4, 2005 whereas Rule 1401 was amended on June 5, 2009.
- USEPA Region 9 PRGs were replaced by Regional Screening Levels in 2009.

Amendments to these ARARs do not change requirements in the remedial activities at the Site.

7.2.2 Human Health Risk Assessment

The assumptions made in performing the human health risk assessment remain valid. The uses of the Waste Pits OU-2 have not changed, and the Site remains undeveloped. A fence remains along the perimeter of the Waste Pits OU. The fence and potential damage to the cap are routinely inspected, and repairs are performed as needed. The presence of the cap and routine maintenance of the cap ensure that it remains intact over the pits, and therefore prevents human exposure to the contaminants within the Waste Pits OU.

The baseline human health risk assessment evaluated potential exposures of off-Site residents, office workers, and on-Site maintenance workers. Potential exposures of on-Site maintenance workers were compared to permissible exposure limits established of the Occupational Safety and Health Administration (OSHA). Due to maintenance of the cap and enforcement of the LUC, the only pathway by which people could be exposed to constituents at or near the ground surface would be from inhaling chemical vapors. Proper operation of the GCTS and SVE/IBT prevents this exposure. As stated in Section 7.1, the effluent standard of 5 ppmv for VOCs captured and treated with the GCTS and 50 ppmv benzene for the SVE/IBT System, remains protective of off-Site residential receptors.

The original health risk assessment was modified before the first five-year review due to changes in the toxicity values for naphthalene and benzene. The modified health risk assessment indicated that potential risks to on-site and off-site receptors are within acceptable levels. Therefore, changes in the toxicity criteria for benzene and naphthalene do not affect the remedial action objectives for the Site. Toxicity criteria for chemicals of concern at the Site have remained the same since the first five-year review.

7.2.3 Ecological Risk Assessment

An assessment of scoping-level ecological risks was performed when the State of California was the lead agency for the Site. This assessment was utilized during the selection of the remedy for the Waste Pits OU. The assessment concluded that no sensitive and threatened or endangered ecological receptors were observed at the Site or in the immediate Site vicinity. In addition, the disturbed nature of the Site does not offer any habitats for ecological receptors. These conclusions were adopted by USEPA in their issuance of the Waste Pits ROD.

An additional ecological risk evaluation was conducted as part of the Soil & NAPL Operable Unit risk assessment. This evaluation covered the Waste Pits OU-1 area as well.

These ecological risk evaluations were deemed sufficient and further evaluation of ecological risks at the Waste Pits OU-2 was not warranted for this five-year review.

7.3 Recent Information Affecting the Protectiveness of the Remedy

Has any other information come to light that could call into question the protectiveness of the remedy?

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

7.4 Technical Assessment Summary

According to the data reviewed, the site inspection, and the interviews, the remedy is functioning as designed, and as intended by the Waste Pits ROD. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. Amendments to ARARs since the first five-year review do not change requirements in the remedial activities at the Site. There have been no changes in the toxicity factors for the contaminants of concern since the first five year review and there have been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy. No other information has come into light that calls into question the protectiveness of the remedy. However OM&M items were identified that need to be addressed, including clearly establishing the methodology for measuring cleanup performance and progress, conducting regular groundwater monitoring so as to update the soil cleanup goals, and regularly updating the soil cleanup goals, evaluating progress towards the soil cleanup goals, and evaluating vapor concentration gradients at the cluster wells.

Section 8
Issues

There are no issues affecting the protectiveness of this remedy.

There were some OM&M items identified that will require follow-up actions, but these items do not affect the protectiveness of the remedy. The items are discussed in Section 7.1.3.

Section 9
Recommendations

There are no issues that affect the protectiveness of this remedy, so there are no associated recommendations.

There were OM&M items identified that require follow-up action, discussed in Section 7.1.3. The necessary follow-up actions are also discussed in that same section.

Section 10
Protectiveness Statements

The Del Amo Waste Pits' RCRA-equivalent cap and drainage controls, SVE/IBT System, and the deed restrictions are protective of human health and the environment; exposure pathways that could result in unacceptable risks are being controlled. The components of the selected remedy have performed and are currently performing at a level consistent with design parameters. The remedy is effectively preventing direct human contact with contaminants and preventing contaminant migration from the vadose zone to the groundwater.

Section 11
Next Five-Year Review

The next five-year review should be performed in 2015. A report to document results of that review should be completed by September 30, 2015.

Section 12
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Table 6-1
Perimeter Well Monitoring Results (VOCs in ppm)
Second Five-Year Review Report, Del Amo Waste Pits (OU2), Los Angeles, California

Perimeter Well ID	2005			2007										
	March	August	November	January	February	April19	April26	May	June	July	August	October	November	December
A	0.0	0.6	0.0	0.0	NA	0.5	0.0	0.1	0.0	0.1	0.1	0.0	0.5	0.0
B	0.2	1.1	0.6	0.5	NA	0.9	0.5	0.3	0.0	0.2	0.1	0.4	0.5	0.4
C	0.0	0.8	0.0	0.0	NA	0.1	0.0	11.1	0.0	0.0	0.0	0.0	0.2	0.1
D	0.0	0.6	0.0	0.0	NA	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.1
E	0.0	1.4	0.0	0.1	NA	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
F	0.0	0.7	0.0	0.0	NA	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
G	0.0	0.4	0.0	0.0	NA	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1
H	0.0	0.8	0.0	0.0	NA	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4
I	0.0	0.6	0.0	0.1	NA	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
J	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2
K	0.0	0.5	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
L	0.0	1.0	0.2	0.1	NA	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1

Perimeter Well ID	2008[1]							2009[2]											
	March	June	July	Aug	Sept	Oct	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
A	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
B	0.3	30*	0.8	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.1
C	0.2	18*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.2	0.1
D	0.1	13.9*	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0
E	0.1	10.5*	0.1	NA	0.0	0.0	0.0	-	-	0.0	-	-	0.2	-	-	0.0	-	-	0.0
F	0.1	11.9*	0.3	NA	0.0	0.0	0.0	-	-	0.0	-	-	0.2	-	-	0.0	-	-	0.0
G	0.1	5.2*	0.1	NA	0.4	0.0	0.0	-	-	0.0	-	-	0.2	-	-	0.0	-	-	0.0
H	0.1	87*	0.5	0.0	2.3	0.0	0.3	0.0	0.0	0.2	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
I	0.1	0.0	0.0	-	0.5	NA	0.1	-	-	0.1	-	-	0.1	-	-	0.0	-	-	0.0
J	0.1	0.0	0.6	-	0.1	NA	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.1
K	0.1	0.2	0.8	-	0.1	NA	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0
L	0.1	0.2	0.0	-	0.1	NA	0.0	-	-	0.1	-	-	0.2	-	-	0.1	-	-	0.0

[1] The VOC concentrations observed on June 26, 2008 at Wells A, C, D, E, F, G, and H were abnormally high. The instrument was suspected to have dirty sensor module, excessive moisture and water condensation. VOC concentrations detected at these perimeter wells during a re-monitoring event conducted on July 1, 2008 ranged from 0.0 to 0.8 ppm, most likely indicating that the observed June 26, 2008 concentrations were an anomaly.

[2] Perimeter wells were monitored monthly (Wells A, B, C, D, and H) and quarterly (Wells E, F, G, I, J, K, and L).

Table 6-2
Monument Survey Data
Second Five-Year Review Report, Del Amo Waste Pits (OU2), Los Angeles, California

Survey Pt.	2000 Baseline Coordinates			2005 Coordinates			2010 Coordinates			
	Northing	Easting	Elevation (ft)	Northing	Easting	Elevation (ft)	Northing	Easting	Elevation (ft)	Vertical Displacement 2000 to 2010 (ft)
S-1	56646.97	199287.31	39.76	56646.95	199287.29	39.84	56646.96	199287.3	39.844	0.084
S-2	56646.99	199102.66	40.6	56646.97	199102.62	40.67	56646.952	199102.644	40.663	0.063
S-3	56631.7	198929.44	41.42	56631.7	198929.41	41.42	56631.667	198929.44	41.388	-0.032
S-4	56631.66	198876.96	41.55	56631.64	198876.94	41.45	56631.586	198876.96	41.362	-0.188
S-5	56631.73	198807.17	42.57	56631.72	198807.13	42.42	56631.693	198807.152	42.392	-0.078
S-6	56631.72	198760.02	43.05	56631.74	198759.96	42.98	56631.679	198759.978	42.917	-0.133
S-7	53331.85	198722.09	43.4	56631.86	198722.09	43.41	56631.808	198722.133	43.395	-0.005
S-8	56631.59	198688	43.72	56631.6	198688.09	43.74	56631.554	198688.094	43.726	0.006

TABLE 7-2
Action-specific ARARS Identified in the ESD
Five-Year Review Report, Del Amo Waste Pits Operable Unit, Los Angeles, California

Source	Citation	Description	Status	Findings and Comments
California Code of Regulations	22 CCR §66261.1-4, 21, 24	A hazardous waste is considered a RCRA hazardous waste if it exhibits any of the characteristics of ignitability, corrosivity, reactivity, or toxicity, or if it is listed as a hazardous waste. Most waste determinations will focus on whether the generated waste could be classified as toxicity characteristic waste as defined by the contaminant concentrations. Wastes can be classified as non-RCRA, State-only hazardous wastes if they exceed the soluble threshold limit concentration or total threshold limit concentration values.	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	22 CCR §66264.190,192-199	Article 10. Tank Systems. Regulations are for facilities that use tank systems for transferring, storing or treating hazardous waste. The absorption system waste will be recycled thus the regulations are AR. Residual amounts of wastes would be disposed of as hazardous waste and this regulation applicable for those liquids	Applicable or relevant and appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. If the final treatment technology requires transfer, storage or treatment of hazardous waste in tank systems, the provisions of these regulations will be complied with.
California Code of Regulations	22 CCR §66264.600-602	Article 1 – Facilities that transfer, treat, store or dispose of hazardous waste in miscellaneous unit	Relevant and appropriate for recycled waste and applicable for non-recycled waste.	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. If the final treatment technology results in generation of either recycled or non-recycled waste and utilizes miscellaneous units, the provisions of these regulations will be complied with.
California Code of Regulations	22 CCR §66264.700-708	Article 17 – Specifies the required environmental monitoring at permitted facilities.	Relevant and appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with the substantive requirements of these regulations.

TABLE 7-2
Action-specific ARARS Identified in the ESD
Five-Year Review Report, Del Amo Waste Pits Operable Unit, Los Angeles, California

Source	Citation	Description	Status	Findings and Comments
California Code of Regulations	22 CCR §66264.1030-1036	Article 27 – Air emission standards for process vents.	Applicable or relevant and appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. If the final treatment technology includes facilities that treat, store or dispose of hazardous waste with organic concentrations of at least 10 ppmw and uses process vents, the provisions of these regulations will be complied with.
California Code of Regulations	22 CCR §66264.1050-1065	Article 28 – Air emission standards for equipment leaks. Regulations are for systems that handle hazardous waste with an organic content of at least 10 ppm. The system is expected to exceed this content.	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	22 CCR §66265.400-406	Article 17 – Chemical, physical, and biological treatment.	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	CHSC § 25143.2	This regulation provides definitions for recyclable materials, describes exemptions from waste classification for recyclable materials, and provides management and handling requirements and reporting requirements. These regulations apply to the chemicals that are recovered from the SVE.	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations
South Coast Air Quality Management District	SCAQMD Rule 463 – Organic Liquid Storage	This rule would apply if the final design calls for tanks whose capacity exceeds 19,815 gallons.	Applicable	There have been no substantive changes that would bear on the protectiveness of the remedy. Remedial activities will comply with provisions of these regulations.

TABLE 7-2
Action-specific ARARS Identified in the ESD
Five-Year Review Report, Del Amo Waste Pits Operable Unit, Los Angeles, California

Source	Citation	Description	Status	Findings and Comments
South Coast Air Quality Management District	SCAQMD Rule 466 – Pumps and Compressors	This rule is applicable if the final design calls for pumps or compressors to handle the recovered chemicals, which are VOCs. Substantive requirements only applicable.	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with the substantive requirements of this rule.
South Coast Air Quality Management District	SCAQMD Rule 466.1 – Valves and Flanges	This rule is applicable if the final design calls for valves and flanges that work with reactive organic compounds. Substantive requirements only applicable.	Applicable or relevant and appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with the substantive requirements of this rule
South Coast Air Quality Management District	SCAQMD Rule 467- Pressure Release Devices	This rule is applicable if the final design calls for pressure relief devices that handle VOCs.	Relevant and appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
South Coast Air Quality Management District	SCAQMD Rule 476 – Steam Generating Equipment	This rule sets nitrogen oxides emission limits for steam generating equipment whose maximum head input rate exceeds 50 million British thermal units (BTUs) per hour	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
South Coast Air Quality Management District	SCAQMD Rule 1146 -- Emissions of Oxides of Nitrogen from small industrial institutional and commercial boilers, steam generators and process heaters	This rule sets nitrogen oxides emission limits whose heat input capacity exceeds 5 million BTUs per hour. This rule would be applicable if the final design calls for equipment of that size and type.	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
South Coast Air Quality Management District	SCAQMD Rule 1146.1- Emissions of Oxides of Nitrogen from small industrial, institutional and commercial boilers, steam generators and process heaters	This rule sets nitrogen oxides emission limits whose heat input capacity exceeds 2 million BTUs per hour but is less than 5 million BTUs per hour. This rule would be applicable if the final design calls for equipment of that size and type.	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.

TABLE 7-2
Action-specific ARARS Identified in the ESD
Five-Year Review Report, Del Amo Waste Pits Operable Unit, Los Angeles, California

Source	Citation	Description	Status	Findings and Comments
South Coast Air Quality Management District	SCAQMD Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers	This rules sets nitrogen oxides emission limits for boilers, steam generators and process heaters whose heat input capacity exceeds 75,000 BTUs per hour but is less than 2 million BTUs per hour.	Applicable	Amended January 7, 2005: "On or after January 1, 2006, no person shall operate any unit in the District, more than 15 years old, based on the original date of manufacture….units with varying rated heat inputs." Remedial activities will comply with provisions of these regulations.
South Coast Air Quality Management District	SCAQMD Rule 1173 – Fugitive Emissions of VOCs	This rule controls VOC leaks from valves, fittings, pumps and other equipment at specific types of facilities	Relevant and appropriate	This rule was changed on Feb. 6, 2009. Changed response requirements when release from the atmospsheric process pressure relief devices are in excess of 500 lbs or 2000 lbs of VOCs w/in a continuous 24-hr period.
South Coast Air Quality Management District	SCAQMD Rule 1176 – Emissions from Wastewater Systems	This rule controls VOC emissions from wastewater systems.	Relevant and appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations

TABLE 7-3
Action-specific ARARS from the Waste Pits ROD
Five-Year Review Report, Del Amo Waste Pits Operable Unit, Los Angeles, California

Source	Citation	Description	Status	Findings and Comments
California Code of Regulations	22 CCR § 66262.11	Hazardous Waste Determination by Generators	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of this regulation.
California Code of Regulations	22 CCR § 66262.34	Accumulation Time	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of this regulation.
California Code of Regulations	CCR § 66264.14 (a), (b)	Hazardous Facility General Security Requirements	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of this regulation.
California Code of Regulations	CCR § 66264.15	General Facility Inspection Requirements for SVE including Vapor Water Treatment	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of this regulation.
California Code of Regulations	CCR § 66264.17	Hazardous Waste Facility General Requirements for Ignitable, Reactive or Incompatible Wastes	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of this regulation.
California Code of Regulations	CCR § 66264.25	Hazardous Waste Facility Seismic and Precipitation Design Standards	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of this regulation.

TABLE 7-3
Action-specific ARARS from the Waste Pits ROD
Five-Year Review Report, Del Amo Waste Pits Operable Unit, Los Angeles, California

Source	Citation	Description	Status	Findings and Comments
California Code of Regulations	CCR § 66264.31-35 and .37	Preparedness & Prevention-Design and Operation of Facility	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	CCR § 66264.51-.56	Contingency Plan	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	22 CCR § 66264.111	Hazardous Waste Facility Closure Performance Standard	Applicable or relevant and appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	22 CCR §66264.114	Hazardous Waste Facility Closure Disposal decontamination of Equipment, Structure and Soils	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	22 CCR §66264.117 (a), (b)(1)(excluding reference to Article (6) and (d)	Hazardous Waste Facility Postclosure Care and Use of Property for RCRA Cap and SVE	Applicable or relevant and appropriate	There have been no substantive changes that would bear on the protectiveness of the remedy. Remedial activities will comply with provisions of these regulations.

TABLE 7-3
Action-specific ARARS from the Waste Pits ROD
Five-Year Review Report, Del Amo Waste Pits Operable Unit, Los Angeles, California

Source	Citation	Description	Status	Findings and Comments
California Code of Regulations	22 CCR §66264.119 (a) (b)(1)	Hazardous Waste Facility Postclosure Notices	Applicable or relevant and appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with the substantive requirements of this rule.
California Code of Regulations	22 CCR §66264.171-178	Use and Management of Containers	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with the substantive requirements of this rule
California Code of Regulations	22 CCR §66262.34	Hazardous Waste Accumulation Time Requirements	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	22 CCR §66264.228	Facility Closure and Post-closure Care for Surface Impoundments	Relevant and Appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	22 CCR §66264.310	Hazardous Waste Facility Closure and Post-closure for Landfills	Relevant and Appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	22 CCR §66264.341-351	Hazardous Waste Incinerators Requirements	Relevant and Appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. These ARARs are applicable for the original ROD; however, it does not seem likely that any type of thermal destruction will be used in treating the soil vapor. These ARARs remain relevant, but not applicable at this time.

TABLE 7-3
Action-specific ARARS from the Waste Pits ROD
Five-Year Review Report, Del Amo Waste Pits Operable Unit, Los Angeles, California

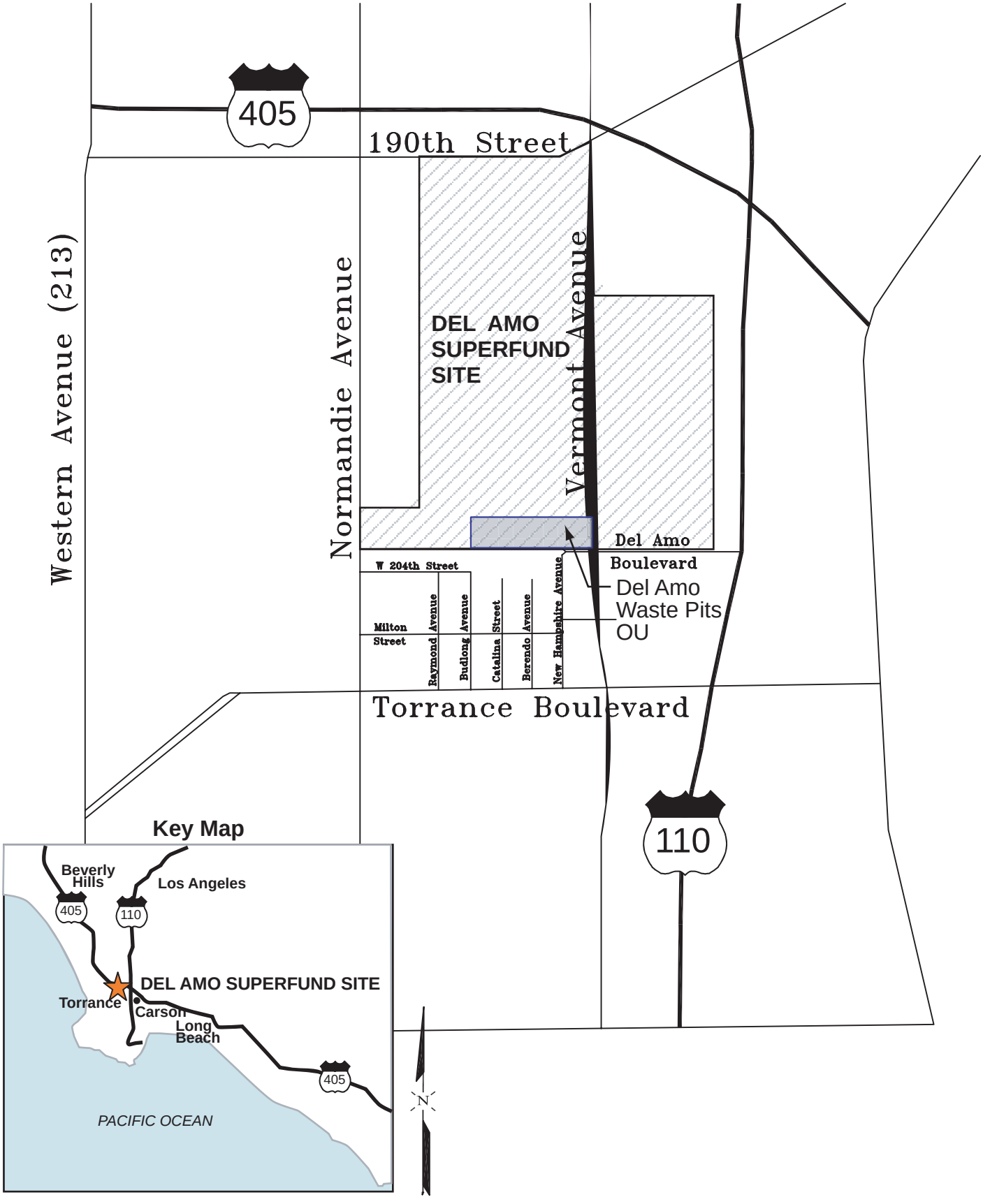
Source	Citation	Description	Status	Findings and Comments
California Code of Regulations	22 CCR § 66264.1101	Containment Buildings Design and Operating Standards	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with the substantive requirements of this rule.
California Code of Regulations	22 CCR §66268.1	Purpose, Scope, and Applicability	Applicable or relevant and appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with the substantive requirements of this rule.
California Code of Regulations	22 CCR §66268.3	Hazardous Waste Dilution Prohibition as Substitute for Treatment	Applicable or relevant and appropriate	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
California Code of Regulations	22 CCR §66268 Articles 4, 10 and 11	Hazardous Waste Treatment Standards and Non-RCRA Land Disposal Restrictions	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
Clean Air Act SCAQMD	Rule 401	Visible Emissions In California, the authority for enforcing the standards established under the Clean Air Act have been delegated to the State. The program is administered by the SCAQMD in Los Angeles.	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.

TABLE 7-3
Action-specific ARARS from the Waste Pits ROD
Five-Year Review Report, Del Amo Waste Pits Operable Unit, Los Angeles, California

Source	Citation	Description	Status	Findings and Comments
Clean Air Act SCAQMD	Rule 402	Nuisance	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with the substantive requirements of this rule.
Clean Air Act SCAQMD	Rule 403	Fugitive Dust	Applicable	Amended in February 2004. There have been no substantive changes that would bear on the protectiveness of the remedy. Remedial activities will comply with provisions of this rule.
Clean Air Act SCAQMD	Rule 473	Disposal of Solid and Liquid Wastes	Applicable	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of these regulations.
Clean Air Act SCAQMD	Regulation X NESHAP	Substantive Standards for Benzene	Applicable	Amended to "certify a notice of exemption" on May 7, 2004. There have been no substantive changes that would bear on the protectiveness of the remedy. Remedial activities will comply with provisions of this rule
Clean Air Act SCAQMD	Regulation XI – Rule 1150.2	Source Specific Standards – Control of Gaseous Emissions from Inactive Landfills	Relevant and Appropriate	Rescinded by South Coast Air Quality Monitoring Governing Board on April 10, 1998. May no longer be applicable.
Clean Air Act SCAQMD	Regulation XI – Rule 1166	Source Specific Standards – Emissions from Soil Decontamination	Applicable	Suggested that the test method in the proposed amended rule used for measuring VOC concentrations in soil be amended to correspond with the test method adopted by the Bay Area Air Quality Management District. The rule is currently being amended and undergoing the exemption from California Environmental Quality Act requirements as recommended by staff. Remedial activities will comply with provisions of this rule

TABLE 7-3
Action-specific ARARS from the Waste Pits ROD
Five-Year Review Report, Del Amo Waste Pits Operable Unit, Los Angeles, California

Source	Citation	Description	Status	Findings and Comments
Clean Air Act SCAQMD	Regulation XIII – Rule 1303	New Source Review – Attainment of State and Federal Ambient Air Quality Standards	Applicable	Amended December 6, 2002, as part of resolution 02-31. There have been no substantive changes that would bear on the protectiveness of the remedy. Remedial activities will comply with provisions of this rule.
Clean Air Act SCAQMD	Regulation XIV – Rule 1401	New Source Review –Toxic Air Contaminants	Applicable (substantive standards only)	Amended March 4, 2005, and adopted resolution no. 05-11. Certification of the addendum was made to the July 1998 Final Environmental Assessment for Rule 1401. Remedial activities will comply with provisions of this rule.
Clean Air Act SCAQMD	Regulation XIV	Toxics	Applicable (substantive standards only)	There have been no changes to these requirements that would significantly impact the current remedial actions or cleanup standards. Remedial activities will comply with provisions of this regulation.
USEPA	Hydrologic Performance of Landfill Performance Mode, Vol I and II		TBC	
USEPA	Landfill and Surface Impoundment Evaluation		TBC	
Clean Air Act SCAQMD		Best Available Control Technology (BACT) Guidelines Document	TBC	This policy is a TBC. On December 11, 1998, the Governing Board approved: (1) a new format for listing BACT determinations; and (2) a revised process for updating AQMD BACT Guidelines that complies with federal and state laws. On October 20, 2000, the Governing Board approved revisions to the New Source Review regulations that: (1) maintained the federal Lowest Achievable Emission Rate requirement for major polluting facilities; and 2) established a minor source BACT for non-major polluting facilities that will consider cost before making minor source BACT more stringent.
USEPA		Regional Screening Levels (RSL 2008)	TBC	Region 9 PRGs replaced by RSLS in 2008



Source: C2REM 2005

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FIVE-YEAR REVIEW REPORT FOR
DEL AMO WASTE PITS OPERABLE UNIT
Los Angeles, California

FIGURE 3-1
Site Vicinity Map

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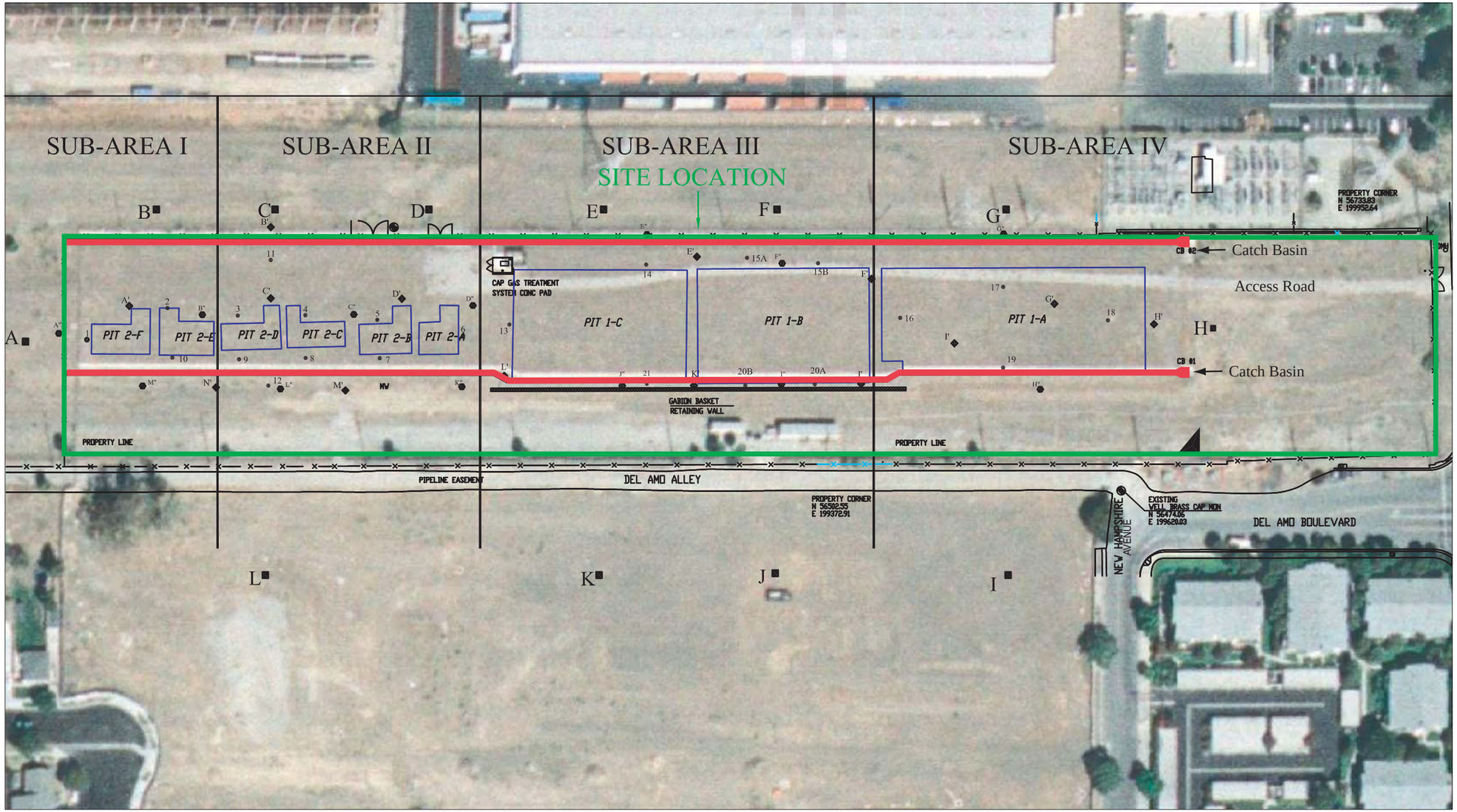

LEGEND

- Soil Vapor Extraction (SVE) Concentration Monitoring Cluster
- Soil Vapor Extraction (SVE) Pressure and Performance Standard Well Location
- Soil Vapor Extraction (SVE) Well Location
- Soil Vapor Extraction (SVE) Perimeter Well Location
- Pit 1-C — Estimated Extent of Former Waste Pit
- Waste Pits OU Boundary
- Sub-Area Delineations
- Surface Water Drainage Channels

Source: C2REM 2005

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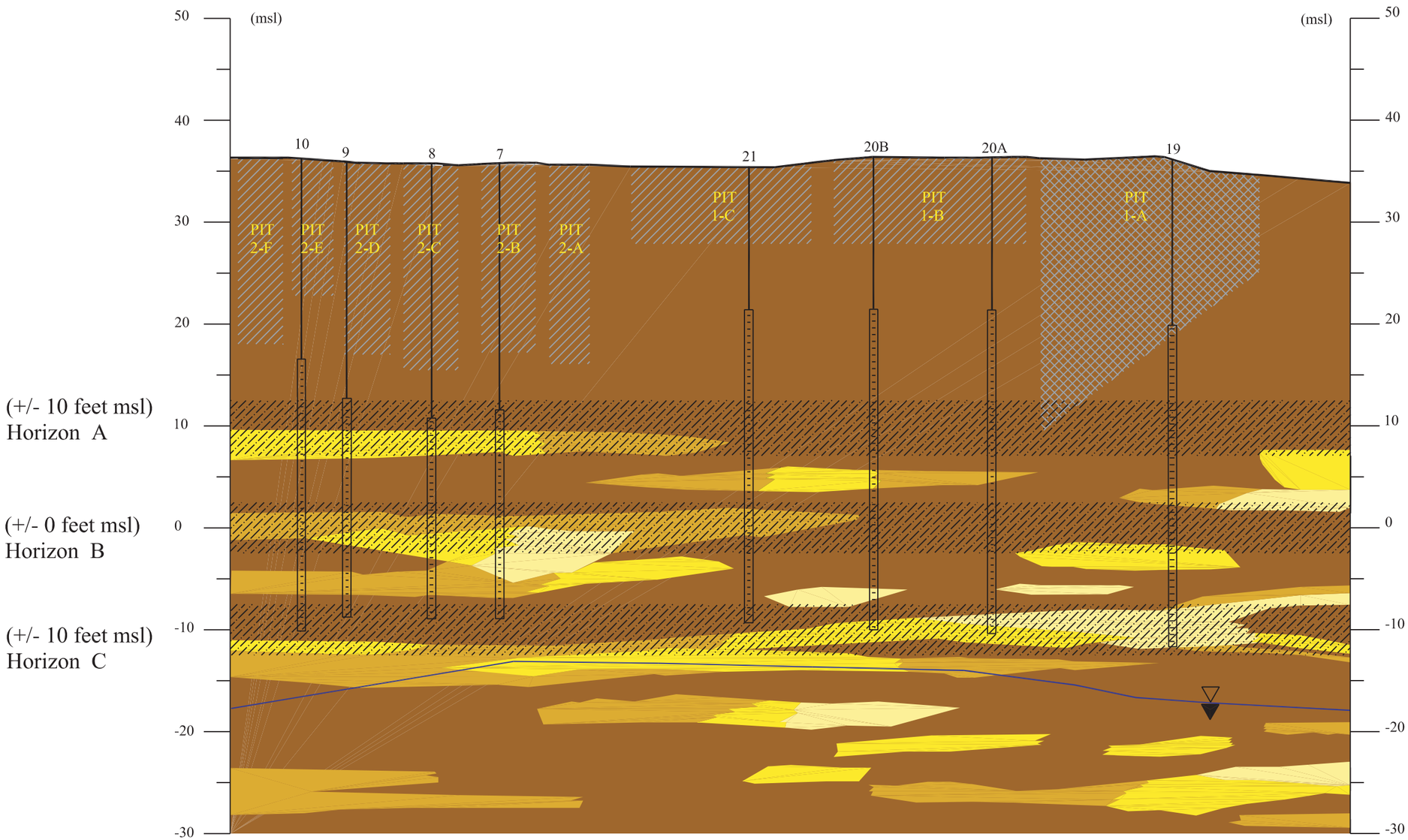
FIVE-YEAR REVIEW REPORT FOR DEL AMO WASTE PITS OPERABLE UNIT
Los Angeles, California

FIGURE 3-2
Site Layout



Lithotype	Tip Resistence Range	Estimated Horizontal Hydraulic Conductivity (K)
Sand	>275 tsf	>2E+00 ft/day (8E-04 cm/sec)
Silty Sand to Sand	175-275 tsf	1E-01 to 2E+00 ft/day (4E-05 to 8E-04 cm/sec)
Sandy Silt to Silty Sand	125-175 tsf	2E-02 to 1E-01 ft/day (9E-06 to 4E-05 cm/sec)
Silt	<125 tsf	<E-02 ft/day (9E-06 cm/sec)

Waste Pit (projected approximately 100 feet south onto cross section)

Pit 1-A Fill (projected approximately 100 feet south onto cross section)

Facies Change

Estimated January 1997 Water Table

Horizon Delineation Zones

Hydrology Reference: Preliminary Draft Hydrostratigraphic Model, Dames & Moore, February 4, 1998

SVE Location Reference: Final Design Report Drawings - Appendix C, Parsons Engineering Science, et al, April 9, 1999

Note: Southern Extraction Wells Projected Between 50 and 75 Feet Onto Hydrostratigraphic Cross Section

SVE Well

Screen Interval

Source: C2REM 2005

\\Engineering\projects\071 63.0000 EPA Region 9\00039 TO 38 Del Amo 5YR Review\Graphics\Geologic X-Section.ai

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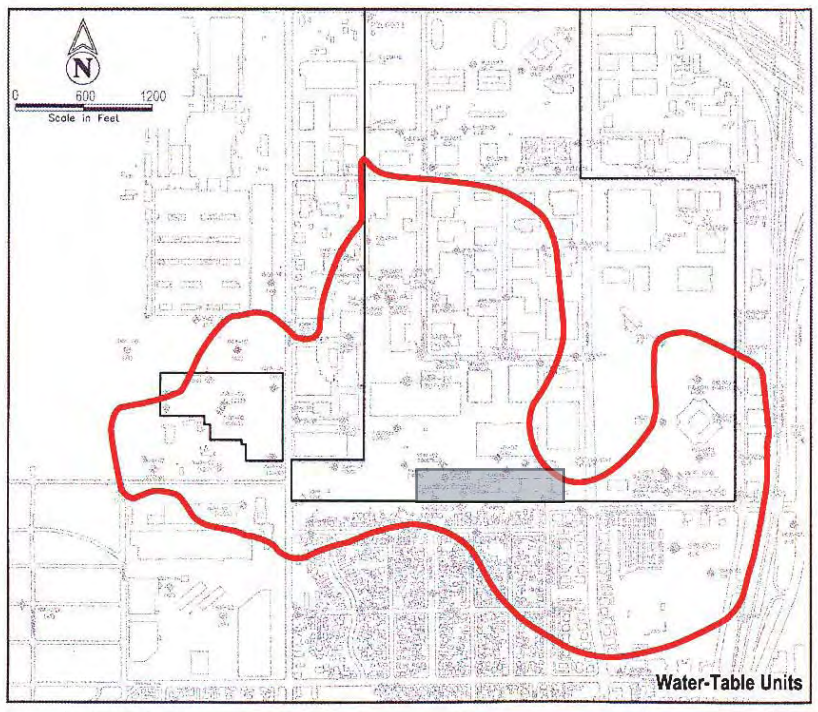
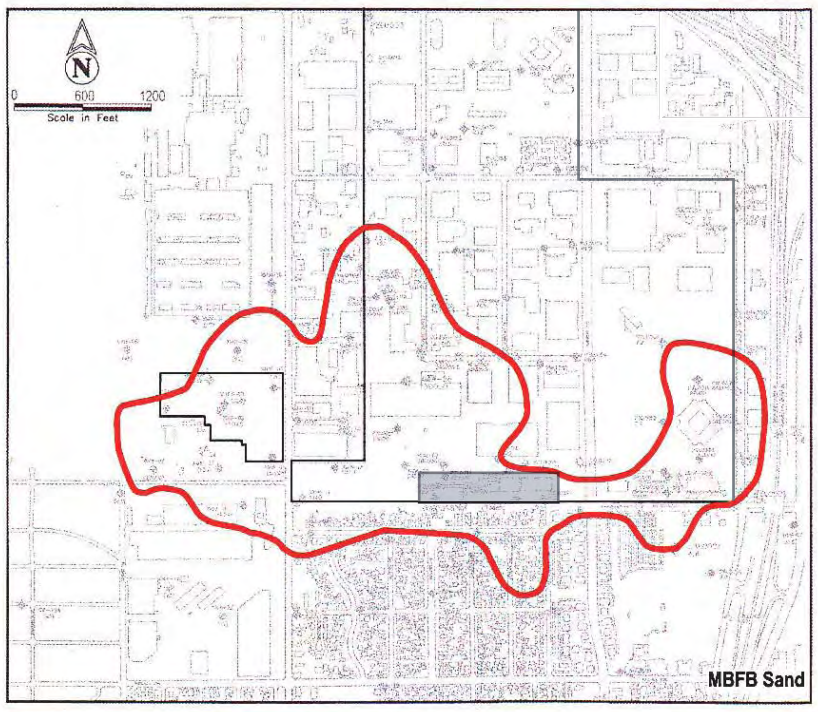
Los Angeles, California

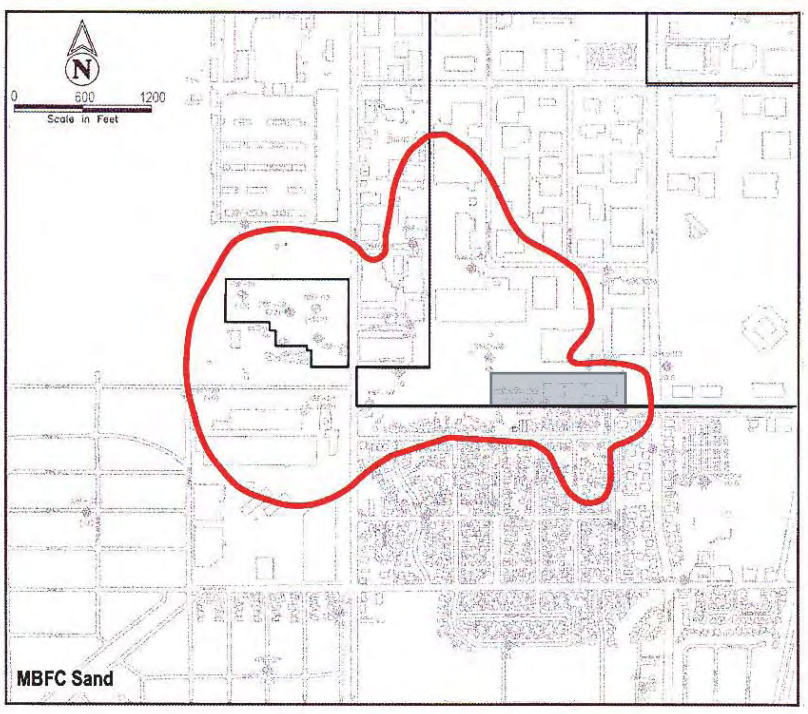
FIGURE 3-3
Geologic Cross-Section



Water-Table Units (UBF & MBFB)



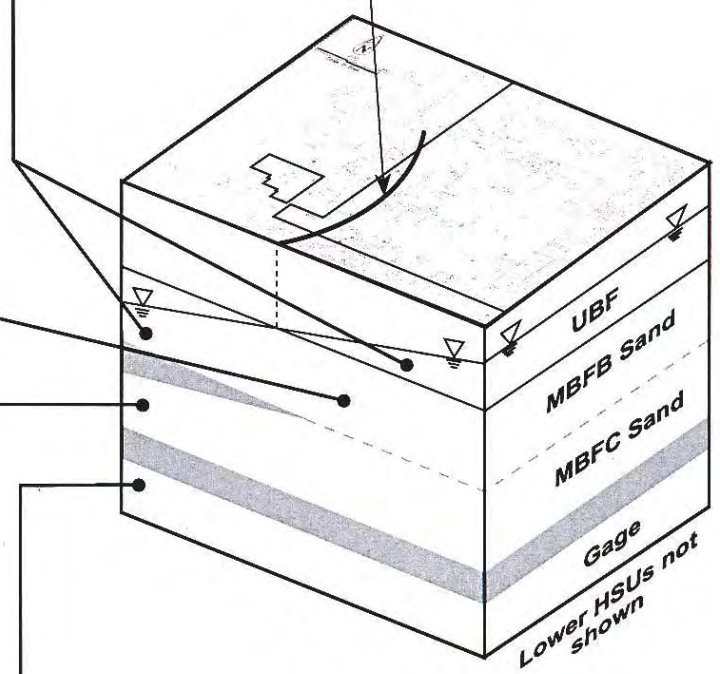
MBFB Sand*



MBFC Sand

Gage

Approximate location of demarcation line, where Water Table crosses the contact between UBF and MBFB Sand.



* MBFB Sand is a water-table unit west of the demarcation line and is a confined aquifer east of the demarcation line

Waste Pits OU

Source: USEPA 1999

\\Engineering\projects\07163.0000 EPA Region 9\0039 TO 38 Del Amo 5YR Review\Graphics\Technical Waiver.ai

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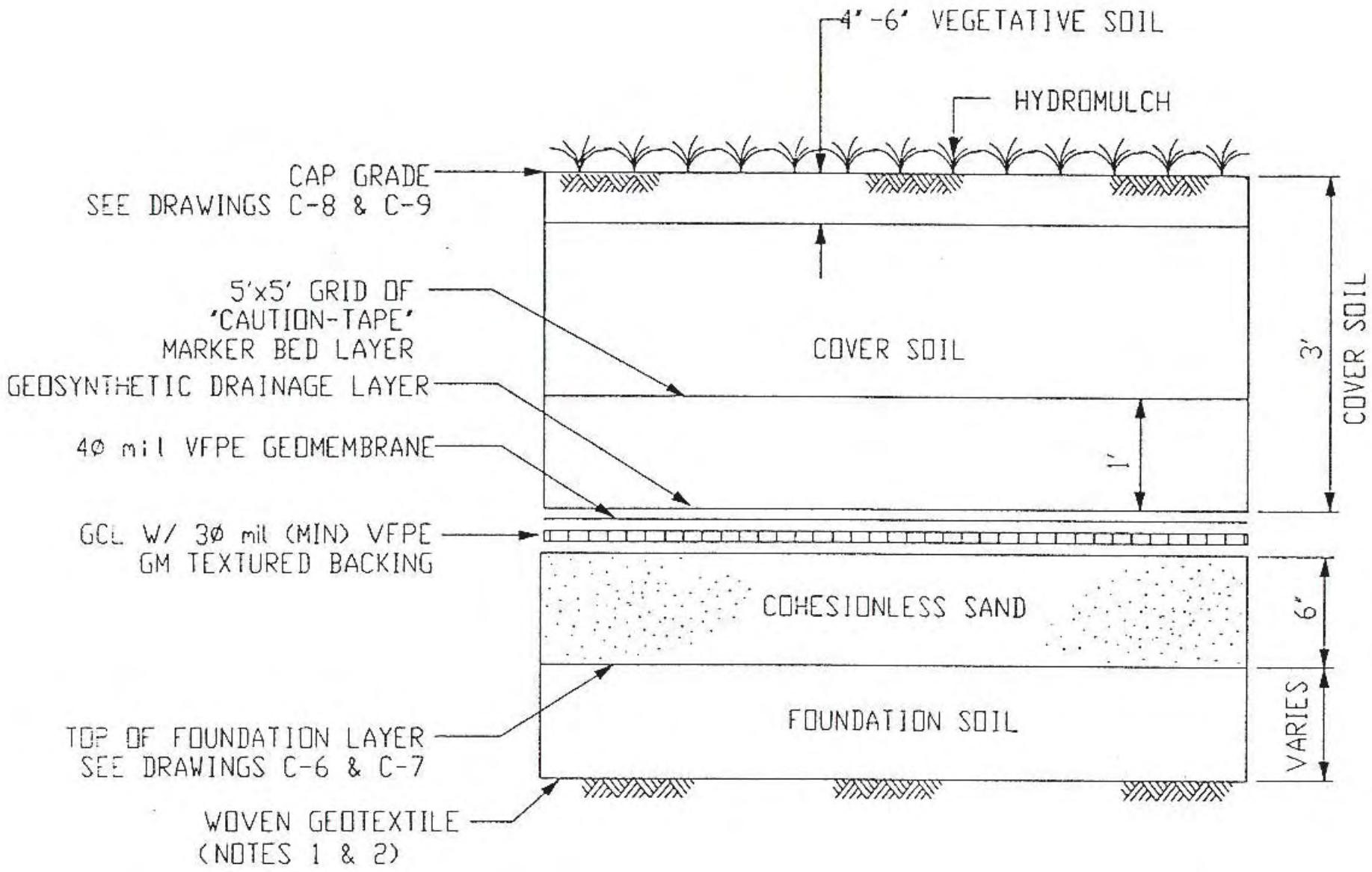
FIGURE 4-1
Area Subject to Technical Impracticability Waiver



Source: Parsons 2000

\\Engineering\projects\07163.0000 EPA Region 9\0039 TO 38 Del Amo 5YR Review\Graphics\X-Section RCRA Cap.ai

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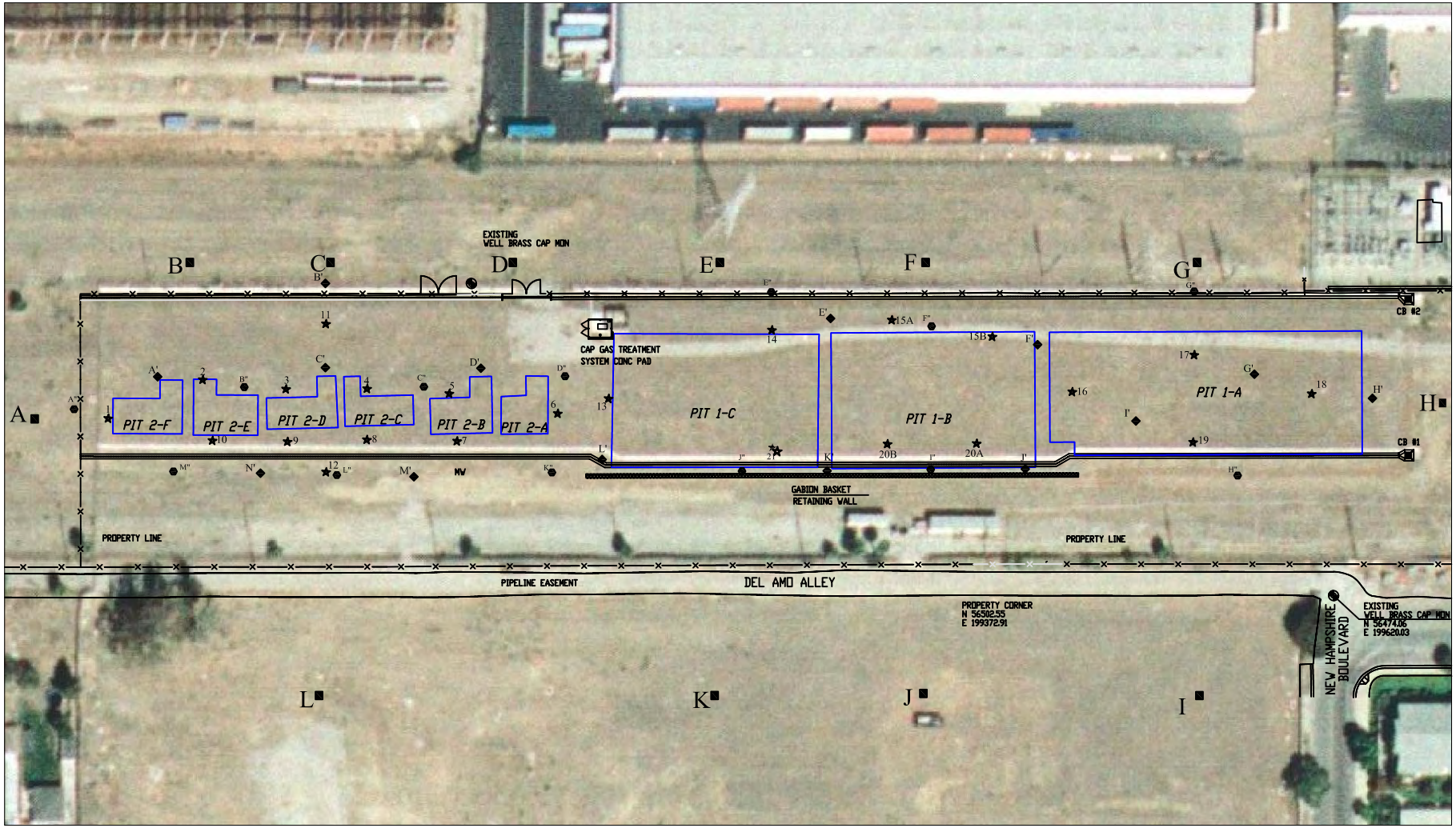
Los Angeles, California

FIGURE 4-2
Cross-Section of RCRA-Equivalent Cap



LEGEND

Pit 1-C — Estimated Extent of Subsurface Impoundment

Perimeter Monitoring Well

Vacuum Pressure Performance Monitoring Well

Soil Vapor Cluster Monitoring Well

Soil Vapor Extraction/Injection Well
1- Series : 13, 14, 15A, 15B, 16, 17, 18, 19, 20A, 20B, 21A
2- Series : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Source: C2REM 2010a

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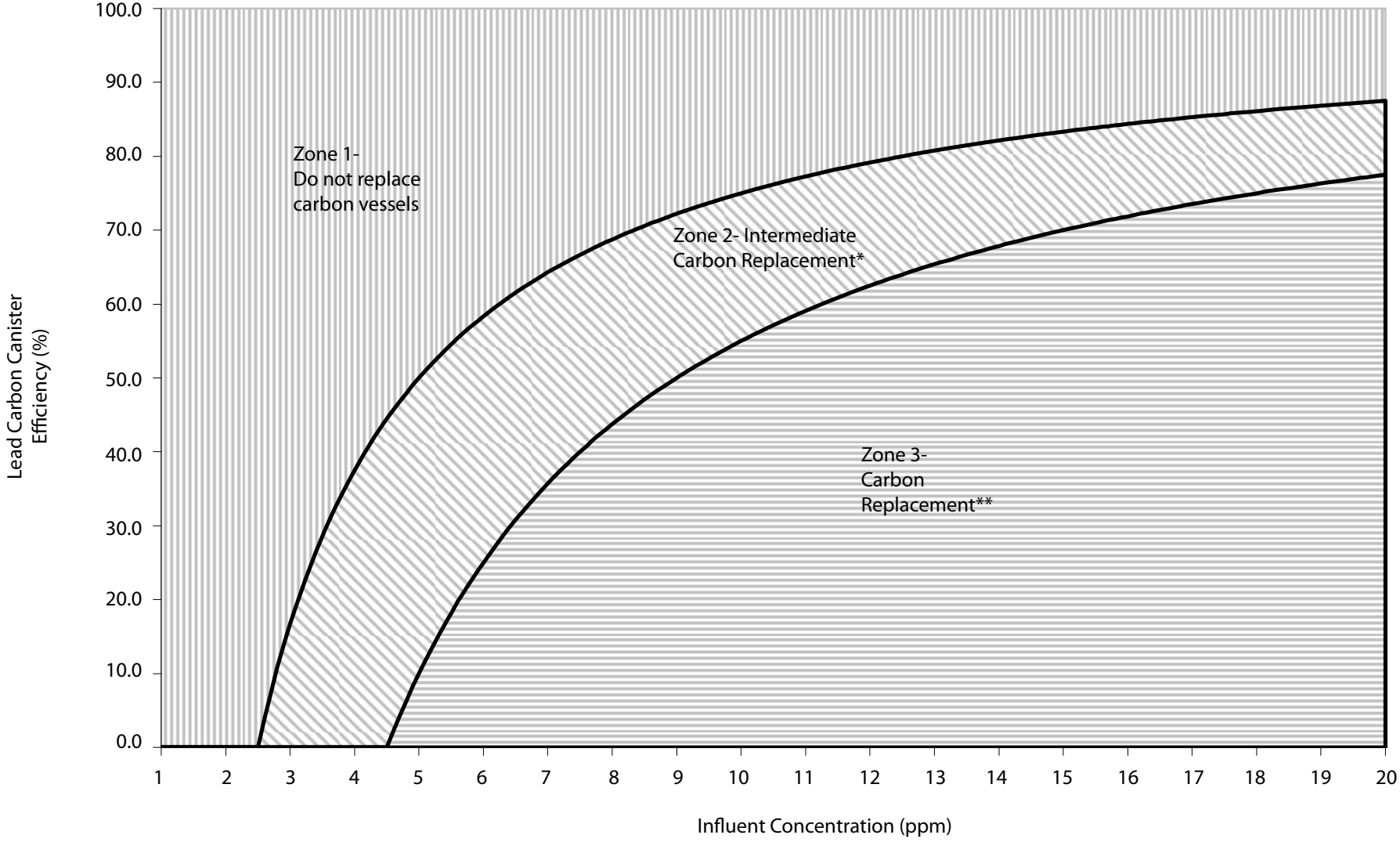
FIGURE 4-3
SVE and Monitoring Well Location Map

\\Engineering\projects\07163.0000 EPA Region 9\0039 TO 38 Del Amo 5YR Review\Graphics\SVE MW Map.ai



* Two consecutive monitoring results within this zone indicate carbon vessel replacement
** One monitoring result within this zone indicates carbon vessel replacement Figure

Source: C2REM 2009

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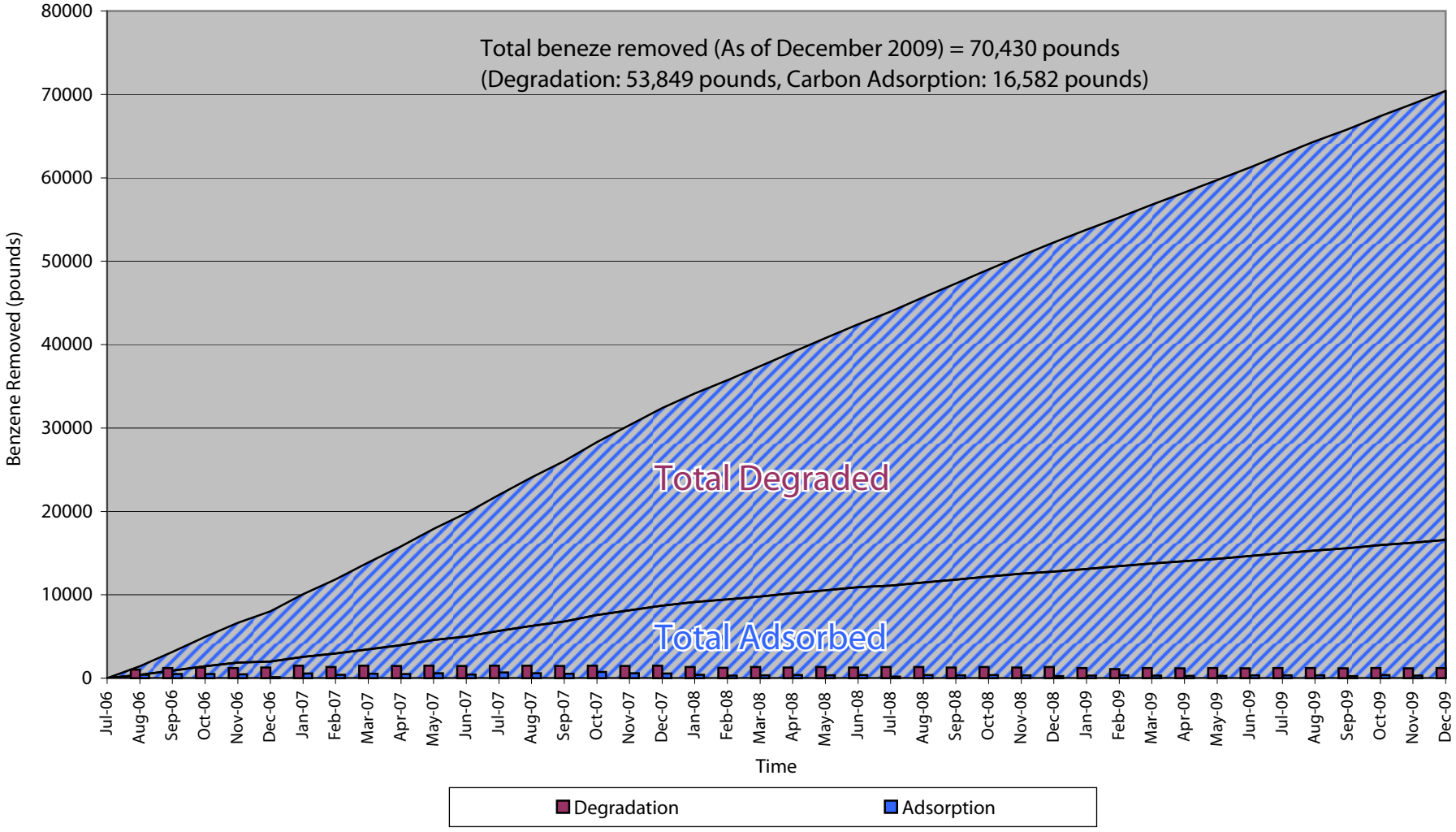
FIGURE 6-1
Carbon Replacement Protocol

\\Engineering\projects\07163.0000 EPA Region 9\0039 TO 38 Del Amo 5YR Review\Graphics\GCTS Replacement.ai



Source: C2REM 2010a

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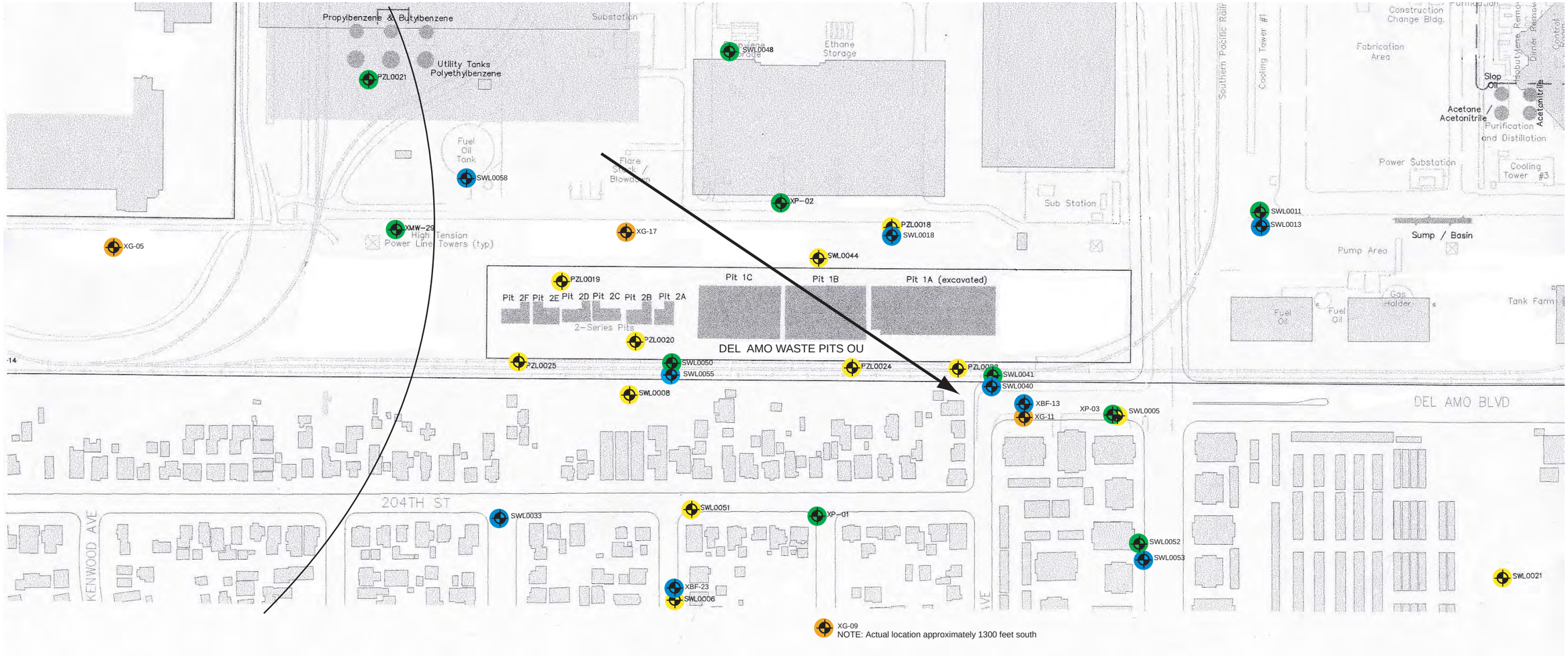
FIGURE 6-2
SVE-IBT System Operation Total Benzene Removed

\\Engineering\projects\07163.0000 EPA Region 9\0039 TO 38 Del Amo 5YR Review\Graphics\Benzene Removed.ai



Inferred intersection of water table surface with top of middle Bellflower B sand. The overlying upper Belflower aquitard is unsaturated west of the inferred intersection.

Direction of prevailing groundwater flow. NOTE: Flow direction in the UBF is highly variable. The flow direction in the UBF may not be accurately depicted in this figure.

UBF Monitoring location

MBFB Monitoring location

MBFC Monitoring location

Gage Aquifer Monitoring location

N

0 200 400

Source: Dames and Moore 1998

\\Engineering\projects\07163.0000 EPA Region 9\0039 TO 38 Del Amo 5YR Review\Graphics\MW Loc and GW Flow Direction.ai

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Los Angeles, California

FIGURE 6-3
Monitoring Well Location and Groundwater Flow Direction

Appendix A
Documents Reviewed

C2REM. 2004. *Technical Memorandum, Bioventing Efficiency Assessment, Bioventing Evaluation, Del Amo Waste Pits OU.* August.

_____. 2005. *Remedial Design Workplan Addendum, Soil Vapor Extraction, Del Amo Waste Pits, Los Angeles, California.* February.

_____. 2006. *SVE/IBT Final Design Report, Del Amo Waste Pits, Los Angeles, California.* January.

_____. 2006. *SVE/IBT Operation, Maintenance, and Monitoring Manual, Del Amo Waste Pits, Los Angeles, California.* January.

_____. 2006. *SVE/IBT Removal Action Workplan, Del Amo Waste Pits, Los Angeles, California.* January.

_____. 2006. *Summary of SVE/IBT Pre-System Startup Operations, Del Amo Waste Pits, Los Angeles, California.* November.

_____. 2006. *2005 Operations, Maintenance, and Monitoring Annual Report, Del Amo Waste Pits, Los Angeles, California.* February.

_____. 2007. *2006 Operations, Maintenance, and Monitoring Annual Report, Del Amo Waste Pits, Los Angeles, California.* March.

_____. 2008. *Technical Memorandum, SVE/IBT Short-Term Operations, Del Amo Waste Pits OU.* March.

_____. 2008. *2007 Operations, Maintenance, and Monitoring Annual Report, Del Amo Waste Pits, Los Angeles, California.* June.

_____. 2008. *Waste Pits Operations, Maintenance, and Monitoring Annual Report, Del Amo Waste Pits, Los Angeles, California.* September.

_____. 2009. *2008 Operations, Maintenance, and Monitoring Annual Report, Del Amo Waste Pits, Los Angeles, California.* March.

_____. 2010. Email correspondence from Stefan Klemm/C2REM to Ed Gillera & Kent Baugh/ITSI. April 9.

_____. 2010. Email correspondence from Stefan Klemm/C2REM to Ed Gillera & Kent Baugh/ITSI. April 20.

URS Corporation (URS). 2005. *Del Amo Baseline Groundwater Sampling Report.* April.

U.S. Environmental Protection Agency. 1997. EPA Superfund Record of Decision, Del Amo Waste Pits, Los Angeles, California. September.

_____. 1999. EPA Superfund Record of Decision for Dual Site Groundwater Operable Unit, Montrose Chemical and Del Amo Superfund Sites. March.

_____. 2001. *Comprehensive Five-Year Review Guidance.* Office of Emergency and Remedial Response. EPA 540-R-01-007. June.

_____. 2002. Explanation of Significant Differences from Record of Decision, Del Amo, OU2, EPA ID**:** CAD029544731, Los Angeles, California. August.

_____. 2005. *First Five-Year Review Report, Del Amo Waste Pits Operable, Los Angeles, California.* September.

_____. 2006. Explanation of Significant Differences (#2) from Record of Decision, Del Amo, OU2, EPA ID**:** CAD029544731, Los Angeles, California. August.

_____. 2009. *Regional Screening Levels* (formerly Preliminary Remediation Goals. Region 9. December.

Appendix B
Five-Year Review Inspection Checklist & Interview Report

Second Five-Year Review Site Inspection Checklist
Del Amo Superfund Site – Waste Pits OU

I. SITE INFORMATION	
Site name: Del Amo Superfund Site – Waste Pits OU	**Date of inspection:** March 25, 2010
Location and Region: Los Angeles, CA – Region IX	**EPA ID:** CAD029544731
Agency, office, or company leading the five-year review: U.S. EPA, Region IX	**Weather/temperature:** Cloudy, approximately 65ºF

Remedy Includes: (Check all that apply)

- ☑ Landfill cover/containment
- ☑ Access controls
- ☑ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls
- ☑ Other: SVE/IBT System, Cap-Gas Collection & Treatment System, Surface Water Collection

Attachments: ☑ Inspection team roster attached ☑ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Stefan Klemm (Name) | C2 REM, Project Manager (Title) | March 25, 2010 (Date)
   Interviewed ☑ at site • at office • by phone Phone no. (949) 261-8098
   Problems, suggestions; ☑ See attached Interview Record

2. **O&M staff** Ian Yusko (Name) | C2 REM, Lead Project Engineer (Title) | March 25, 2010 (Date)
   Interviewed ☑ at site • at office • by phone Phone no. (949) 261-8098
   Problems, suggestions; ☑ See attached Interview Record

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.). ☑ **Not Applicable**

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; • Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; • Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; • Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; • Report attached _____
_____

4. **Other interviews** ☑ See attached Interview Record

Ed Bourke, C2 REM, Principal – Interviewed at the site on March 25, 2010

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

1. **O&M Documents**
   - ☑ O&M manual — • Readily available — • Up to date — • N/A
   - ☑ As-built drawings — ☑ Readily available — ☑ Up to date — • N/A
   - ☑ Maintenance logs — • Readily available — ☑ Up to date — • N/A

   Remarks: The O&M manual available onsite was dated 1999. The most recent iteration of the O&M manual which outlines procedures for operation of the SVE/IBT System was not available onsite. As-built drawings were kept onsite. Maintenance logs are kept and maintained offsite at the C2 REM's Newport Beach office.

2. **Site-Specific Health and Safety Plan** ☑ Readily available ☑ Up to date • N/A
   - • Contingency plan/emergency response plan — • Readily available — • Up to date — • N/A

   Remarks: The HASP was revised December 2009.

3. **O&M and OSHA Training Records** • Readily available • Up to date • N/A

   Remarks: O&M and OSHA training records are kept and maintained at C2 REM's Newport Beach office. It was undetermined at the time of inspection whether the records are up to date.

4. **Permits and Service Agreements**
   - • Air discharge permit — • Readily available — • Up to date — ☑ N/A
   - • Effluent discharge — • Readily available — • Up to date — ☑ N/A
   - • Waste disposal, POTW — • Readily available — • Up to date — ☑ N/A
   - • Other permits_____ — • Readily available — • Up to date — ☑ N/A

   Remarks: Operation of the SVE/IBT System does not require a permit with the SCAQMD because of Superfund classification. Respondents are only required to "meet the intent" of the permit requirements. Consequently, no data are reported to SCAQMD. Surface water collected through the cap drainage system is discharged directed to the municipal stormwater sewer system. No permit is required.

5. **Gas Generation Records** ☑ Readily available ☑ Up to date • N/A

   Remarks: Data for 2008 and 2007 are available. SVE/IBT System began full-time operation on August 7, 2006. Data from 2009 will be presented in the 2009 Annual OM&M Report currently in preparation.

6. **Settlement Monument Records** ☑ Readily available ☑ Up to date • N/A

   Remarks: Settlement data are recorded every five years. Settlement data from 2005 are presented in the 2005 Annual OM&M Report. Data from the March 2010 settlement survey could be made available, but at the time of the site inspection had not been reviewed by C2 REM. These data are kept at C2 REM's Newport Beach office.

7. **Groundwater Monitoring Records** • Readily available • Up to date • N/A

   Remarks: C2 REM indicated that groundwater monitoring data were being collected. At the time of inspection, C2 REM could not specify the scope and frequency of groundwater data collection. Nor did C2 REM recall the date of the most recent groundwater monitoring event.

8. **Leachate Extraction Records** • Readily available • Up to date ☑ N/A

   Remarks_____

9. **Discharge Compliance Records**
   - ☑ Air — ☑ Readily available — ☑ Up to date — • N/A
   - • Water (effluent) — • Readily available — • Up to date — ☑ N/A

   Remarks: Benzene concentrations are monitored at the effluent of 1) the Cap-Gas Collection and Treatment System, and 2) the SVE/IBT System. Monitoring is conducted bi-weekly for both systems. Monitoring data are presented in the annual OM&M reports. Condesate (approximately 25-gal/year) collected primarily from SVE/IBT conveyance system low points (less than 10 gal/year from air-water separator of SVE/IBT System) is manifested and disposed as hazardous material.

10.	**Daily Access/Security Logs**	☑ Readily available	☑ Up to date	• N/A
	Remarks: Site visit logs are recorded during C2 REM's bi-weekly inspections. Completed logs are kept at C2 REM's Newport Beach office.			

IV. O&M COSTS

1. **O&M Organization**
   - State in-house
   - Contractor for State
   - PRP in-house
   - ☑ Contractor for PRP
   - Federal Facility in-house
   - Contractor for Federal Facility
   - Other_____

2. **O&M Cost Records**
   - Readily available
   - Up to date
   - Funding mechanism/agreement in place

   Original O&M cost estimate_____ • Breakdown attached

   Total annual cost by year for review period if available

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   Remarks: O&M costs were not available at the time of inspection. C2 REM indicated that further consultation with their client would be required before this information can be disclosed.

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: None during this five-year review period.

V. ACCESS AND INSTITUTIONAL CONTROLS ☑ Applicable • N/A

A. Fencing

1. **Fencing damaged** ☑ Location shown on site map ☑ Gates secured • N/A
   Remarks: A 6-feet high chain-link fence is installed around the perimeter of the site. A 10-foot high security fence with barbed wire and vinyl slats is installed around the SVE/IBT treatment enclosure. Both fences appeared to be in good condition and are routinely inspected.

B. Other Access Restrictions

1. **Signs and other security measures** ☑ Location shown on site map • N/A
   Remarks: Signs are present at the site gate and on the fence surrounding the site.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented • Yes ☑ No • N/A
Site conditions imply ICs not being fully enforced • Yes ☑No • N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Visual monitoring is conducted as part of the routine SVE/IBT System O&M for the deed restriction pertaining to maintaining the integrity of the Cap and SVE/IBT System at the site. Other monitoring is not required as part of the institutional controls (deed restrictions) implemented at the site.
Frequency At least twice monthly, more frequently if necessary for system operation or maintenance. __
Responsible party/agency C2 REM_____
Contact Stefan Klemm_____ C2 REM, Project Manager 3-25-2010__ (949) 261-8098
Name Title Date Phone no.

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

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

2. **Adequacy** ☑ ICs are adequate • ICs are inadequate • N/A
Remarks: Deed restrictions apply to the capped portion of the site. The deed restrictions prohibit specific uses for the property (i.e., residential, hospitals, schools, daycare centers), and also prohibits disturbance and non-interference with the cap and SVE system.

D. General

1. **Vandalism/trespassing** • Location shown on site map • No vandalism evident
Remarks: Vandalism, theft, and trespassing have been an ongoing issue at the site. C2 REM recently installed a security system, including motion sensor lighting, security cameras, and alarm system. Incidents of vandalism/trespassing reported to the local police.

2. **Land use changes on site** ☑ N/A
Remarks_____
_____

3. **Land use changes off site** ☑ N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads ☑ Applicable • N/A

1. **Roads damaged** ☑ Location shown on site map • Roads adequate • N/A
Remarks: A rock-based access road is present along the northern side of the site extending from Vermont Avenue to the trailer and treatment pad enclosure.

B. Other Site Conditions

Remarks: Native grass is maintained on the cap. A temporary above-ground irrigation system was installed to maintain vegetation growth during dry periods of the year. Native grass was healthy and had recently been mowed at the time of the site inspection.

VII. LANDFILL COVERS ☑ Applicable • N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☑ Location shown on site map ☑ Settlement not evident
Areal extent_____ Depth_____
Remarks: Settlement monitoring is conducted every five years, with the most recent event conducted in March 2010. One area within Sub-Area II demonstrated signs of burrowing animals. A pest control vendor was present during the site inspection.

2. **Cracks** • Location shown on site map ☑ Cracking not evident
Lengths_____ Widths_____ Depths_____
Remarks_____

3. **Erosion** • Location shown on site map ☑ Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4. **Holes** • Location shown on site map ☑ Holes not evident
Areal extent_____ Depth_____
Remarks_____

5. **Vegetative Cover** ☑ Grass ☑ Cover properly established ☑ No signs of stress
• Trees/Shrubs (indicate size and locations on a diagram)
Remarks: No signs of vegetation stress was evident during the inspection. C2 REM indicated that watering was necessary during drier months.

6. **Alternative Cover (armored rock, concrete, etc.)** ☑ N/A
Remarks: Rock-based gabion wall located at south edge of cap, part of original design and in good conditoin._____

7. **Bulges** • Location shown on site map ☑ Bulges not evident
Areal extent_____ Height_____
Remarks_____
_____

8. **Wet Areas/Water Damage** ☑ Wet areas/water damage not evident
• Wet areas • Location shown on site map Areal extent_____
• Ponding • Location shown on site map Areal extent_____
• Seeps • Location shown on site map Areal extent_____
• Soft subgrade • Location shown on site map Areal extent_____
Remarks: Small wet area observed where the irrigation system was recently vented to depressurize the pipe.

9.	**Slope Instability** • Slides • Location shown on site map ☑ No evidence of slope instability Areal extent_____ Remarks_____
B. Benches	• Applicable ☑ N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)
1.	**Flows Bypass Bench** • Location shown on site map ☑ N/A or okay Remarks: _____
2.	**Bench Breached** • Location shown on site map ☑ N/A or okay Remarks_____
3.	**Bench Overtopped** • Location shown on site map ☑ N/A or okay Remarks_____
C. Letdown Channels	• Applicable ☑ N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)
1.	**Settlement** • Location shown on site map ☑ No evidence of settlement Areal extent_____ Depth_____ Remarks_____ _____
2.	**Material Degradation** • Location shown on site map ☑ No evidence of degradation Material type_____ Areal extent_____ Remarks_____ _____
3.	**Erosion** • Location shown on site map ☑ No evidence of erosion Areal extent_____ Depth_____ Remarks_____ _____

4. **Undercutting** • Location shown on site map ☑ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☑ No obstructions
• Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☑ No evidence of excessive growth
• Vegetation in channels does not obstruct flow
• Location shown on site map Areal extent_____
Remarks: Grass is mowed when necessary.

D. Cover Penetrations ☑ Applicable • N/A

1. **Gas Vents** ☑ Active • Passive
☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition
• Evidence of leakage at penetration • Needs Maintenance
• N/A
Remarks: Wells associated with the SVE/IBT System are present within the surface area of the cap. Wells appear to be in good condition. Subgrade conveyance piping to blower and carbon units. Blowers for SVE/IBT System operate 8 hrs per day, five days a week.
Cap gas collected in sand layer and conveyed to treatment enclosure via piping (perforated underground) connected to the dedicated cap gas system blower. Blower to collect cap gas operates 4-hrs per day, five days a week. Approximately two pore volumes are extracted per day.

2. **Gas Monitoring Probes**
• Properly secured/locked • Functioning • Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance ☑ N/A
Remarks_Cap gas monitoring performed at the treatment enclosure._____
_____

3. **Monitoring Wells** (within surface area of landfill)
☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled (vapor wells)
☑ Good condition • Evidence of leakage at penetration • Needs Maintenance • N/A
Remarks: Wells appear to be in good condition. Wells, consisting of vapor monitoring and groundwater monitoring wells, are located outside the footprint of the cap.

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

5. **Settlement Monuments** ☑ Located ☑ Routinely surveyed • N/A
Remarks: Approximately 8-9 settlement monitoring points exist on the cap. The latest survey was reportedly completed in March 2010, prior to the site inspection.

E. Gas Collection and Treatment ☑ Applicable • N/A

1. **Gas Treatment Facilities**
   • Flaring • Thermal destruction • Collection for reuse
   ☑ Good condition • Needs Maintenance
   Remarks: Gas beneath the cap is collected in a 6-inch sand layer located on top of the cap foundation, then conveyed through 4-inch piping (perforated below grade), extending to an above-ground blower located at the treatment enclosure. Gas treatment consists of a vapor-liquid separator and two carbon canisters operated in series.

2. **Gas Collection Wells, Manifolds and Piping**
   ☑ Good condition • Needs Maintenance
   Remarks: Subsurface piping is not visible. Piping to blower and carbon canisters appears to be in good condition.

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

F. Cover Drainage Layer ☑ Applicable • N/A

1. **Outlet Pipes Inspected** ☑ Functioning • N/A
   Remarks: Concrete lined V-ditches are located on the northern and southern edges of the cap. The ditches lead to two catch basins located on the eastern end of the cap. Collected surface runoff is disposed to the municipal storm sewer system.

2. **Outlet Rock Inspected** • Functioning ☑ N/A
   Remarks_____
   _____

G. Detention/Sedimentation Ponds • Applicable ☑ N/A

1. **Siltation** Areal extent_____ Depth_____ • N/A
   • Siltation not evident
   Remarks_____
   _____

2. **Erosion** Areal extent_____ Depth_____
   • Erosion not evident
   Remarks_____
   _____

3. **Outlet Works** • Functioning • N/A
   Remarks_____
   _____

4. **Dam** • Functioning • N/A
   Remarks_____
   _____

H. Retaining Walls ☑ Applicable • N/A

1. **Deformations** ☑ Location shown on site map ☑ Deformation not evident
Horizontal displacement_____ Vertical displacement_____
Rotational displacement_____
Remarks: Rock-based Gabion wall present along the southern edge of the cap and constructed as part of the original installation. Gabion wall is in good condition.

2. **Degradation** • Location shown on site map ☑ Degradation not evident
Remarks_____
_____

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

1. **Siltation** • Location shown on site map ☑ Siltation not evident
Areal extent_____ Depth_____
Remarks: Ditches are routinely inspected for vegetation, caulking, siltation, etc. No siltation observed during inspection. Landscaping sub-contractor is responsible for clearing ditches.

2. **Vegetative Growth** • Location shown on site map • N/A
☑ Vegetation does not impede flow
Areal extent_____ Type_____
Remarks: Vegetation was not observed in drainage channels.

3. **Erosion** • Location shown on site map ☑ Erosion not evident
Areal extent_____ Depth_____
Remarks_____
_____

4. **Discharge Structure** • Functioning ☑ N/A
Remarks_____
_____

VIII. VERTICAL BARRIER WALLS • Applicable ☑ N/A

1. **Settlement** • Location shown on site map • Settlement not evident
Areal extent_____ Depth_____
Remarks_____
_____

2. **Performance Monitoring** Type of monitoring_____
• Performance not monitored
Frequency_____ • Evidence of breaching
Head differential_____
Remarks_____
_____

IX. GROUNDWATER/SURFACE WATER REMEDIES • Applicable ☑ N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines • Applicable • N/A
1. **Pumps, Wellhead Plumbing, and Electrical** • Good condition • All required wells properly operating • Needs Maintenance • N/A Remarks_____
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** • Good condition • Needs Maintenance Remarks_____
3. **Spare Parts and Equipment** • Readily available • Good condition • Requires upgrade • Needs to be provided Remarks_____
B. Surface Water Collection Structures, Pumps, and Pipelines • Applicable • N/A
1. **Collection Structures, Pumps, and Electrical** • Good condition • Needs Maintenance Remarks_____
2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances** • Good condition • Needs Maintenance Remarks_____
3. **Spare Parts and Equipment** • Readily available • Good condition • Requires upgrade • Needs to be provided Remarks_____

C. Treatment System • Applicable • N/A

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

   Remarks_____
   _____

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

   Remarks_____
   _____

3. **Tanks, Vaults, Storage Vessels**
   - • N/A • Good condition • Proper secondary containment • Needs Maintenance

   Remarks_____
   _____

4. **Discharge Structure and Appurtenances**
   - • N/A • Good condition • Needs Maintenance

   Remarks_____
   _____

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

   Remarks_____
   _____

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

   Remarks_____
   _____

D. Monitoring Data

1. Monitoring Data
   - • Is routinely submitted on time • Is of acceptable quality

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

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
   • Properly secured/locked • Functioning • Routinely sampled • Good condition
   • All required wells located • Needs Maintenance • N/A
   Remarks_____
   _____

X. OTHER REMEDIES (SVE/IBT System) ☑ Applicable □ N/A

A. SVE Extraction Wells, Pumps, and Pipelines • Applicable ☑ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☑ Good condition ☑ All required wells properly operating • Needs Maintenance • N/A
   Remarks: Well heads appear to be in good condition. Injection wellheads are enclosed in a locked metal cage to prevent tampering. Piping to wellheads is buried.

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☑ Good condition • Needs Maintenance
   Remarks: Above-ground extraction system piping appears to be in good condition. Visual inspection of well vault surface did not reveal any damage or deficiencies.

3. **Spare Parts and Equipment**
   ☑ Readily available • Good condition • Requires upgrade • Needs to be provided
   Remarks: Spare parts and other equipment are kept in an on-site storage container.

B. Surface Water Collection Structures, Pumps, and Pipelines ☑ Applicable • N/A

1. **Collection Structures, Pumps, and Electrical**
   • Good condition • Needs Maintenance
   Remarks: No secondary containment for air-water separator. C2 REM indicated that approximately 10-gal per year is collected from the air-water separator for the SVE/IBT System. Negligible amount of water collected annually in the vapor-liquid separator for the cap gas treatment system.

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   • Good condition • Needs Maintenance ☑ N/A
   Remarks_____
   _____

3. **Spare Parts and Equipment**
   ☑ Readily available • Good condition • Requires upgrade • Needs to be provided
   Remarks: Spare parts and other equipment are kept in an onsite storage container.

C. Treatment System ☑ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☑ Bioremediation
☐ Air stripping ☑ Carbon adsorbers
☐ Filters_____
☐ Additive (*e.g.*, chelation agent, flocculent)_____
☑ Others: O_2 generation
☑ Good condition ☐ Needs Maintenance
☐ Sampling ports properly marked and functional
☐ Sampling/maintenance log displayed and up to date
☑ Equipment properly identified
☐ Quantity of groundwater treated annually_____
☐ Quantity of surface water treated annually_____
Remarks: The SVE/IBT System consists of a PVC pipe conveyance system that connects a total of 13 wellheads in Sub-Area I and II (4 wells for injection (re-circulated vapor and O_2); and 9 extraction wells). Extracted vapors conveyed to the treatment enclosure when the vapor flows are combined at a single above-ground manifold. Approximately 80% of the combined vapors re-circulated for re-injection. Dedicated blower for re-injection of this re-circulated vapor stream. Re-circulated vapor and O_2 generated at the treatment enclosure conveyed in separate piping back to the re-injection wells.

The portion of the extracted vapors not re-circulated (approximately 20%) flow to an air-water separator and then the vapor stream is treated by two vapor-phase carbon vessels connected in series. The blower for the portion of the extracted vapor flow that is treated is located downstream of the carbon vessels. The discharge from the blower is discharge to the atmosphere at an estimated height of 12 feet, which is above the shade canopy over the treatment enclosure. The SVE/IBT System operates for 8 hours a day, 5 days per week. Sampling ports for the SVE System were functional as demonstrated by the lead engineer during the site visit. The four sampling ports were not labeled.

2. **Electrical Enclosures and Panels** (properly rated and functional)
☐ N/A ☑ Good condition ☐ Needs Maintenance
Remarks: The PLC and electrical panel is located within the SVE System treatment enclosure. The process control system for the SVE/IBT System can be accessed either via a computer located in the onsite trailer or remotely.

3. **Tanks, Vaults, Storage Vessels**
☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
Remarks: Two 2,000 lb. vapor-phase carbon vessels appear to be in good condition. Vapor-phase carbon vessels operated in series to provide secondary protection against vapor breakthrough before change-out of carbon. Using the online photoionization detectors calibrated to benzene, carbon is changed out when benzene level from the lead vessel reaches 25 ppm. No secondary containment was present for the air-water separator. C2 REM stated that water collected at low points in the SVE/IBT conveyance piping and from the air-water separators was stored in a drum with an overpack for secondary containment pending off-site disposal.

4. **Discharge Structure and Appurtenances**
☐ N/A ☑ Good condition ☐ Needs Maintenance
Remarks: The SVE System effluent vapor vent was located at the treatment enclosure and approximately 12-feet above the concrete slab.

5. **Treatment Building(s)**
☐ N/A ☑ Good condition (esp. roof and doorways) ☐ Needs repair
☐ Chemicals and equipment properly stored
Remarks: The treatment building is constructed on a concrete slab and surrounded by a 10-foot high chain link fence and locked gate. Recently, an overhead canopy was installed to inhibit UV-damage to the equipment.

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

D. Monitoring Data

1. Monitoring Data
☑ Is routinely submitted on time ☐ Is of acceptable quality
Remarks: Monitoring data is submitted to EPA monthly and compiled in an annual OM&M report.

2. Monitoring data suggests:
☑ Vapor plume is effectively contained ☐ Contaminant concentrations are declining
Remarks: Low VOC concentrations detected at the perimeter wells suggest that soil vapors are not migrating beyond the cap boundaries.

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.):

The implemented remedy at the Waste Pits OU consists of two main components – the RCRA-equivalent cap and the SVE/IBT System. The fundamental objective of the remedy is to prevent direct human contact with contaminants, and to minimize the impact of site contaminants to groundwater.

The RCRA-equivalent cap has proven effective in preventing human contact with contaminants in the waste pits and surrounding soil. Combined with the Cap-Gas Collection and Treatment System (CGTS), this component of the remedy has effectively prevented emission of contaminants by collecting and treating VOC vapors prior to release into the air. The cap and associated drainage system has also effectively prevented surface water infiltration which could potentially lead to further groundwater contamination. The cap remains in good condition, and the CGTS continues to remove VOC vapors from beneath the cap surface.

Following completion of start-up testing, operation of the SVE/IBT System began in August 2006. A three month short-term operation period was used to ascertain the operational scenario for the SVE/IBT System. Since November 2006, the SVE/IBT System has operated 8 hours per day, Monday through Friday. During this operational period, the SVE/IBT System has performed at a level consistent with design parameters. During 2007, different operating scenarios were conducted to assess the optimal conditions for O_2 utilization. Results indicated that the highest average O_2 utilization occurred at a subsurface O_2 concentration of 15%. Currently, the O_2 generator operation is regulated based on maintaining a 15% O_2 level in the subsurface.

Through monitoring at the treatment enclosure as well as the vapor monitoring wells, the SVE/IBT System has effectively captured, treated, and degraded VOCs beneath the waste pits through biodegradation and carbon treatment. Although the system has proven effective in removing VOCs from the subsurface, the measure of effectiveness as prescribed in the ROD (limiting waste pit contribution to groundwater contamination) remains undetermined.

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:

Implementation of O&M procedures have been consistent with the requirements outlined in the Waste Pits OM&M Manual, with the exception of groundwater monitoring. No major deviations from the scope and frequency of operation, maintenance, and monitoring at the SVE/IBT System and cap-gas capture system have been noted. Monitoring data have indicated that that the CGTS and SVE/IBT System have been operating and functioning as designed.

The cap continues to limit exposure to the waste pit contamination, and also limits surface water infiltration. Data collected from perimeter wells indicate that migration of soil vapors beyond the cap footprint has been effectively controlled by the SVE/IBT System and CGTS. Monitoring data from operation of the SVE/IBT System have shown that the system has continually removed VOCs from the vadose zone through treatment and biodegradation.

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: None indicated in consideration of the radius of influence of the SVE/IBT System's extraction wells, and positive results on treatment performance. Monitoring of groundwater concentrations is recommended to confirm that the ROD criteria are being me by the SVE/IBT System and CGTS.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy: System optimization changes are not proposed at this time. Optimization testing was performed in 2007 to establish the desired level of O_2 (15%) in the subsurface. To adequately assess the effectiveness of the SVE/IBT System in limiting waste pit contribution to groundwater contamination, annual groundwater monitoring of the wells outlined in the *Groundwater Sampling and Analysis Plan – Supporting SVE/IBT Performance Monitoring* (C2 REM 2008) is recommended.

Appendix C
Photo Documentation Log

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX
Location: Los Angeles, CA
Photograph Dates: March 25, 2010
Prepared by: ITSI
Photographer: E. Gillera
Project Number: 07163.0039

Photograph No. 001

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

RCRA-equivalent cap looking west towards the Waste Management property. View of established vegetative cover, SVE extraction/injection wells and southern drainage channel.

Photograph No. 002

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

View of RCRA-equivalent cap looking east towards Vermont Avenue. Southern drainage channel and gabion retaining wall visible.

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX
Location: Los Angeles, CA
Photograph Dates: March 25, 2010
Prepared by: ITSI
Photographer: E. Gillera
Project Number: 07163.0039

Photograph No. 003

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Concrete V-ditch along the southern edge of the cap. Drainage channel free of debris.

Photograph No. 004

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Catch basin at the eastern end of the cap. Catch basin free of debris.

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX
Location: Los Angeles, CA
Photograph Dates: March 25, 2010
Prepared by: ITSI
Photographer: E. Gillera
Project Number: 07163.0039

Photograph No. 005

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Concrete V-ditch and catch basin along the northern edge of the cap. Drainage channel and catch basis free of debris.

Photograph No. 006

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Temporary irrigation piping running along the center of the cap.

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX
Location: Los Angeles, CA
Photograph Dates: March 25, 2010
Prepared by: ITSI
Photographer: E. Gillera
Project Number: 07163.0039

Photograph No. 007

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Gabion retaining wall along the southern edge of the cap. Wall appeared to be intact and in good condition.

Photograph No. 008

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

View of site access road (facing east) leading from Vermont Avenue gate towards site trailer and SVE/IBT System treatment pad.

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX
Location: Los Angeles, CA
Photograph Dates: March 25, 2010
Prepared by: ITSI
Photographer: E. Gillera
Project Number: 07163.0039

Photograph No. 009

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

View of cap facing east. Visible are three SVE injection wells (SVE well 4, 8 & 9).

Photograph No. 010

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Detail view of SVE Well No. 8 (injection well). Well is enclosed within a locked metal cage to prevent against tampering and vandalism.

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX **Prepared by:** ITSI
Location: Los Angeles, CA **Photographer**: E. Gillera
Photograph Dates: March 25, 2010 **Project Number:** 07163.0039

Photograph No. 011

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

View of SVE Well No. 7 (extraction well).

Photograph No. 012

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

View of SVE Well No. 2 (extraction well) and vault for well A' (pressure and performance monitoring well) and B" (soil vapor monitoring cluster well).

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX **Prepared by:** ITSI
Location: Los Angeles, CA **Photographer**: E. Gillera
Photograph Dates: March 25, 2010 **Project Number:** 07163.0039

Photograph No. 013

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Detail view inside well vault.

Photograph No. 014

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Groundwater monitoring well located just south of Well No. M" (cluster well).

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX
Location: Los Angeles, CA
Photograph Dates: March 25, 2010
Prepared by: ITSI
Photographer: E. Gillera
Project Number: 07163.0039

Photograph No. 015

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

View of fenced treatment pad housing the Cap-Gas Collection/Treatment System and the SVE/IBT System.

Photograph No. 016

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Cap-Gas Collection and Treatment System. Two 55-gallon carbon canisters are pictured on the left and a moisture separator canister is pictured to the right of the canisters.

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX
Location: Los Angeles, CA
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Prepared by: ITSI
Photographer: E. Gillera
Project Number: 07163.0039

Photograph No. 017

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

SVE/IBT Treatment System.

Photograph No. 018

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

O_2 generator and buffer tank for SVE/IBT System. Spare 55-gal carbon canister for Cap-Gas System pictured in the foreground.

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX
Location: Los Angeles, CA
Photograph Dates: March 25, 2010
Prepared by: ITSI
Photographer: E. Gillera
Project Number: 07163.0039

Photograph No. 019

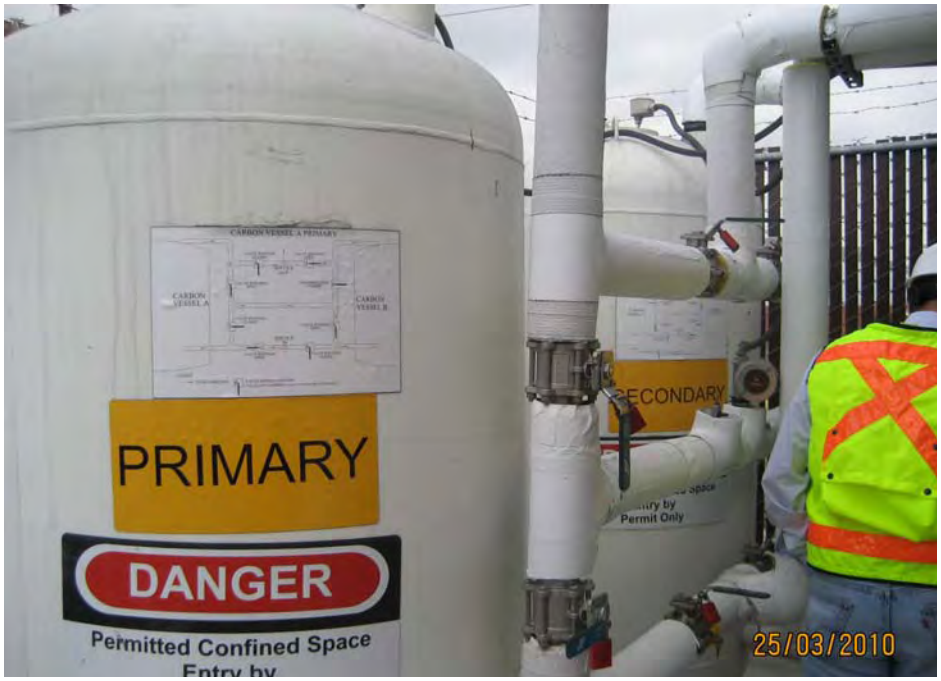
Date: 3/25/10

Site: Del Amo Waste Pits

Description:

SVE/IBT conveyance system manifold.

Photograph No. 020



Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Two 2,000 lbs. granulated activated carbon units.

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX
Location: Los Angeles, CA
Photograph Dates: March 25, 2010
Prepared by: ITSI
Photographer: E. Gillera
Project Number: 07163.0039

Photograph No. 021

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

PLC and electrical panel.

Photograph No. 022

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Open PLC panel.

Innovative Technical Solutions, Inc.

Photographic Documentation

Project: Second Five-Year Review – Del Amo Waste Pits
Client: USEPA, Region IX **Prepared by:** ITSI
Location: Los Angeles, CA **Photographer**: E. Gillera
Photograph Dates: March 25, 2010 **Project Number:** 07163.0039

Photograph No. 023

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

SVE/IBT Treatment System effluent sample point.

Photograph No. 024

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Field monitoring vapor samples are collected in a one-liter Tedlar bag and analyzed with a site-dedicated PID.

Innovative Technical Solutions, Inc.

Photographic Documentation

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Client: USEPA, Region IX
Location: Los Angeles, CA
Photograph Dates: March 25, 2010
Prepared by: ITSI
Photographer: E. Gillera
Project Number: 07163.0039

Photograph No. 025

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

One of eight survey monuments located within the footprint of the cap.

Photograph No. 026

Date: 3/25/10

Site: Del Amo Waste Pits

Description:

Gopher hole on cap located within Sub-Area II.

Appendix D
Title Search Results

2055 East Rio Salado Parkway, Suite 201
Tempe, Arizona 85281
Phone: (480) 967-6752
Fax Number: (480) 966-9422
Web Site: www.netronline.com

HISTORICAL CHAIN OF TITLE REPORT

DEL AMO WASTE PITS OU
DEL AMO BLVD AND VERMONT AVE
LOS ANGELES, CALIFORNIA

Submitted to:

INNOVATIVE TECHNICAL SOLUTIONS, INC.
1891 North Gaffey Street
San Pedro, California 90731

Attention: Ed Gillera

Project No. N10-00440

Monday, March 1, 2010

NETR - Real Estate Research & Information hereby submits the following ASTM historical chain-of-title to the land described below, subject to the leases/miscellaneous shown in Section 2. Title to the estate or interest covered by this report appears to be vested in:

DEL ALMO LANDFILL, LLC, A DELAWARE LIMITED LIABILTY (AS TO CHAIN 1) AND TRITON DIAGNOSTICS, INC. (AS TO CHAIN 2)

The following is the current property legal description:

All that certain piece or parcel of land being a portion of Lots 36 and 37, in Tract 4671, according to the map or plat thereof, as filed of record in Book 56, Pages 30 and 31 of Maps, together with that portion of Vermont Avenue (vacated) adjoining said Lots, Los Angeles County, State of California

All that certain piece or parcel of land being a portion of Lot 37, in Tract 4671, according to the map or plat thereof, as filed of record in Book 56, Pages 30 and 31 of Maps, together with that portion of Vermont Avenue (vacated) adjoining said Lot 37, Los Angeles County, State of California

Assessor's Parcel Number(s): 7351-034-077, 7351-034-078

1. HISTORICAL CHAIN OF TITLE

I. Chain 1 - Conveys parcel number 7351-034-078.

1. GRANT DEED
   - RECORDED: 04/25/1955
   - GRANTOR: Rubber Teck, Inc.
   - GRANTEE: Shell Oil Company
   - INSTRUMENT: 1
   - COMMENTS: According to our research, it appears that Rubber Teck, Inc., acquired title prior to 1940.

2. GRANT DEED
   - RECORDED: 12/15/1972
   - GRANTOR: Shell Oil Company
   - GRANTEE: International Property Development
   - INSTRUMENT: 5058

3. GRANT DEED
   - RECORDED: 03/17/1976
   - GRANTOR: International Property Development
   - GRANTEE: CC&F
   - INSTRUMENT: 2509

4. GRANT DEED
   - RECORDED: 03/17/1976
   - GRANTOR: CC&F
   - GRANTEE: Willowdale Investments, Inc.
   - INSTRUMENT: 2511

5. GRANT DEED
   - RECORDED: 03/17/1976
   - GRANTOR: Willowdale Investments, Inc.
   - GRANTEE: CC&F
   - INSTRUMENT: 2515

6. GRANT DEED
   - RECORDED: 10/29/1976
   - GRANTOR: CC&F
   - GRANTEE: Cadillac Fairview/California, Inc.
   - INSTRUMENT: 1135

7. GRANT DEED

RECORDED:	02/19/1981
GRANTOR:	Cadillac Fairview/California, Inc.
GRANTEE:	WRH Industries
INSTRUMENT:	81-182051

8. GRANT DEED

RECORDED:	05/09/1983
GRANTOR:	WRH Industries
GRANTEE:	Cadillac Fairview/California, Inc.
INSTRUMENT:	83-512498

9. GRANT DEED

RECORDED:	05/09/1983
GRANTOR:	Cadillac Fairview/California, Inc.
GRANTEE:	Western Waste Industries
INSTRUMENT:	83-512499

10. CORPORATION QUIT CLAIM DEED

RECORDED:	05/27/2005
GRANTOR:	Western Waste Industries, a California corporation, formerly known as WRH Industries
GRANTEE:	Del Almo Landfill, LLC, a Delaware limited liabilty company
INSTRUMENT:	05-1252931

II. Chain 2 - Conveys parcel number 7351-034-077.

11. GRANT DEED

RECORDED:	04/25/1955
GRANTOR:	Rubber Teck, Inc.
GRANTEE:	Shell Oil Company
INSTRUMENT:	1
COMMENTS:	According to our research, it appears that Rubber Teck, Inc., acquired title prior to 1940.

12. GRANT DEED

RECORDED:	12/15/1972
GRANTOR:	Shell Oil Company
GRANTEE:	International Property Development
INSTRUMENT:	5058

13. GRANT DEED
    - RECORDED: 03/17/1976
    - GRANTOR: International Property Development
    - GRANTEE: CC&F
    - INSTRUMENT: 2509

14. GRANT DEED
    - RECORDED: 03/17/1976
    - GRANTOR: CC&F
    - GRANTEE: Willowdale Investments, Inc.
    - INSTRUMENT: 2511

15. GRANT DEED
    - RECORDED: 03/17/1976
    - GRANTOR: Willowdale Investments, Inc.
    - GRANTEE: CC&F
    - INSTRUMENT: 2515

16. GRANT DEED
    - RECORDED: 10/29/1976
    - GRANTOR: CC&F
    - GRANTEE: Cadillac Fairview/California, Inc.
    - INSTRUMENT: 1135

17. CORPORATION GRANT DEED
    - RECORDED: 10/15/1987
    - GRANTOR: Cadillac Fairview/California, Inc.
    - GRANTEE: GP Holdings, Inc.
    - INSTRUMENT: 87-1651937

18. QUIT CLAIM DEED
    - RECORDED: 07/20/1994
    - GRANTOR: GP Holdings, Inc.
    - GRANTEE: Triton Diagnostics, Inc.
    - INSTRUMENT: 94-1345895

2. LEASES AND MISCELLANEOUS

1. A search of encumbrances was not part of the scope of work for this report.

LIMITATION

This report was prepared for the use of Innovative Technical Solutions, Inc., exclusively. This report is neither a guarantee of title, a commitment to insure, or a policy of title insurance. NETR- Real Estate Research & Information does not guarantee nor include any warranty of any kind whether expressed or implied, about the validity of all information included in this report since this information is retrieved as it is recorded from the various agencies that make it available. The total liability is limited to the fee paid for this report.

The NETR Environmental Lien Search Report

DEL AMO WASTE PITS OU
DEL AMO BLVD AND VERMONT AVE
LOS ANGELES, CALIFORNIA

Monday, March 1, 2010

Project Number: L10-00441

2055 East Rio Salado Parkway
Tempe, Arizona 85281

Telephone: 480-967-6752
Fax: 480-966-9422

ENVIRONMENTAL LIEN REPORT

The NETR Environmental LienSearch Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied property information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' office, registries of deed, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved and description); and
- provide a copy of the deed or cite documents reviewed;

Thank you for your business
Please contact NETR at 480-967-6752
with any questions or comments

ENVIRONMENTAL LIEN REPORT

The NETR Environmental Lien Search Report is intended to assist in the search for environmental liens filed in land title records.

TARGET PROPERTY INFORMATION

ADDRESS

Del Amo Waste Pits OU
Del Amo Blvd and Vermont Ave
Los Angeles, California

RESEARCH SOURCE

Source: Los Angeles County Assessor
Los Angeles County Recorder

DEED INFORMATION

Type of Instrument: Quit Claim Deed

Title is vested in: Triton Diagnostics, Inc., a Delaware corporation

Title received from: GP Holdings, Inc., a California corporation

Deed Dated: 05/18/1994
Deed Recorded: 07/20/1994
Instrument: 94-1345895

LEGAL DESCRIPTION

All that certain piece or parcel of land being a portion of Lots 36 and 37, in Tract 4671, according to the map or plat thereof, as filed of record in Book 56, Pages 30 and 31 of Maps, together with that portion of Vermont Avenue (vacated) adjoining said Lot 37, Los Angeles County, State of California

Assessor's Parcel Number(s): 7351-034-077

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AULs: Found ☒ Not Found ☐

Type of Instrument: Notice
RECEIVED FROM: Triton Diagnostics, Inc.

DIRECTED TO: United States Environmental Protection Agency

AUL Recorded: 08/03/1999
Instrument: 99-1453930

Comments: The United States Environmental Protection Agency issued a "Unilateral Administrative Order for Remedial Action." Triton Diagnostics, Inc., is a wholly owned subsidiary of Shell Oil Company. See attached.

ENVIRONMENTAL LIEN REPORT

Type of Instrument: Covenant to Restrict Use of Property
RECEIVED FROM: Triton Diagnostics, Inc., a wholly-owned subsidiary of Shell Oil Company

DIRECTED TO: Department of Toxic Substances Control

AUL Recorded: 09/27/2000
Instrument: 00-1521450

Comments: Prohibited Uses: The Property shall not be used for any of the following purposes: A residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation. A hospital for humans. A public or private school for persons under 21 years of age. A day care center for children. See attached.

Type of Instrument: Covenant to Restrict Use of Property and Environmental Restriction
RECEIVED FROM: Del Almo Landfill, LLC

DIRECTED TO: Department of Toxic Substances Control

AUL Recorded: 05/27/2005
Instrument: 05-1252930

Comments: A limited portion of the property is Capped Property. The Capped Property is currently being remediated. Under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), the U.S. EPA has issued a Unilateral Administrative Order for Remedial Action ("UAORA") in which the U.S. EPA has ordered Shell Oil Company, The Dow Chemical Company, Michelin North America, Inc., on behalf of itself and Uniroyal Goodrich Tire Company, and the Goodyear Tire and Rubber Company to implement a remedial action for the remedy described in the Record of Decisions. Hazardous Substances may remain on portions of the Property in soil and groundwater. Prohibited Uses: The Property shall not be used for any of the following purposes: A residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation. A hospital for humans. A public or private school for persons under 21 years of age. A day care center for children. See attached.

ENVIRONMENTAL LIEN REPORT

TARGET PROPERTY INFORMATION

ADDRESS

Del Amo Waste Pits OU
Del Amo Blvd and Vermont Ave
Los Angeles, California

RESEARCH SOURCE

Source: Los Angeles County Assessor
Los Angeles County Recorder

DEED INFORMATION

Type of Instrument: Corporation Quit Claim Deed

Title is vested in: Del Almo Landfill, LLC, a Delaware limited liabilty company

Title received from: Western Waste Industries, a California corporation, formerly known as WRH Industries

Deed Dated: 03/08/2005
Deed Recorded: 05/27/2005
Instrument: 05-1252931

LEGAL DESCRIPTION

All that certain piece or parcel of land being a portion of Lot 37, in Tract 4671, according to the map or plat thereof, as filed of record in Book 56, Pages 30 and 31 of Maps, together with that portion of Vermont Avenue (vacated) adjoining said Lot 37, Los Angeles County, State of California

Assessor's Parcel Number(s): 7351-034-078

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AULs: Found ☒ Not Found ☐

Type of Instrument: Notice
RECEIVED FROM: Triton Diagnostics, Inc.

DIRECTED TO: United States Environmental Protection Agency

AUL Recorded: 08/03/1999
Instrument: 99-1453930

Comments: The United States Environmental Protection Agency issued a "Unilateral Administrative Order for Remedial Action." Triton Diagnostics, Inc., is a wholly owned subsidiary of Shell Oil Company. See attached.

ENVIRONMENTAL LIEN REPORT

Type of Instrument: Covenant to Restrict Use of Property
RECEIVED FROM: Triton Diagnostics, Inc., a wholly-owned subsidiary of Shell Oil Company

DIRECTED TO: Department of Toxic Substances Control

AUL Recorded: 09/27/2000
Instrument: 00-1521450

Comments: Prohibited Uses: The Property shall not be used for any of the following purposes: A residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation. A hospital for humans. A public or private school for persons under 21 years of age. A day care center for children. See attached.

Type of Instrument: Covenant to Restrict Use of Property and Environmental Restriction
RECEIVED FROM: Del Almo Landfill, LLC

DIRECTED TO: Department of Toxic Substances Control

AUL Recorded: 05/27/2005
Instrument: 05-1252930

Comments: A limited portion of the property is Capped Property. The Capped Property is currently being remediated. Under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), the U.S. EPA has issued a Unilateral Administrative Order for Remedial Action ("UAORA") in which the U.S. EPA has ordered Shell Oil Company, The Dow Chemical Company, Michelin North America, Inc., on behalf of itself and Uniroyal Goodrich Tire Company, and the Goodyear Tire and Rubber Company to implement a remedial action for the remedy described in the Record of Decisions. Hazardous Substances may remain on portions of the Property in soil and groundwater. Prohibited Uses: The Property shall not be used for any of the following purposes: A residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation. A hospital for humans. A public or private school for persons under 21 years of age. A day care center for children. See attached.

ACCOMMODATION

RECORDING REQUESTED BY

FIRST AMERICAN TITLE COMPANY of LOS ANGELES

AND WHEN RECORDED MAIL THIS DEED AND, UNLESS OTHERWISE SHOWN BELOW, MAIL TAX STATEMENT TO:

Name Triton Diagnostics Inc.

Street Address Dept. 800, P. O. Box 4320

City & State Houston, Texas 77210-4320

Zip

Title Order No. GLN2201-21 Escrow No. _____

94 1345895

RECORDED/FILED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA
JUL 20 1994 AT 8 A.M.

FEE $10 | 1 | 2

SPACE ABOVE THIS LINE FOR RECORDER'S USE

T 360 LEGAL (1-94)

Quitclaim Deed

A.P. No.: 7351-034-077

7351-034-077

THE UNDERSIGNED GRANTOR(s) DECLARE(s)
DOCUMENTARY TRANSFER TAX IS $ -0-*
☐ _____ unincorporated area ☒ City of Los Angeles
Parcel No. _____
☒ computed on full value of property conveyed, or
☐ computed on full value less value of liens or encumbrances remaining at time of sale, and

*The value of the Property in this Conveyance, exclusive of liens and encumbrances is $100 or less, and there is no additional consideration received by the Grantor, R&T 11911

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

GP HOLDINGS, INC., a California corporation

hereby REMISE, RELEASE AND FOREVER QUITCLAIM to

TRITON DIAGNOSTICS INC., a Delaware Corporation

the following described real property in the City of Los Angeles
county of Los Angeles, state of California: See Exhibit "A" attached hereto and incorporated herein by this reference.

Dated May 18, 1994

GP HOLDINGS, INC., a California Corporation

By _____ President

By _____ Asst Secretary

STATE OF ~~CALIFORNIA~~ TEXAS
COUNTY OF DALLAS } S.S.

On May 18, 1994 before me, GAYNELLE H. IHMS a Notary Public in and for said County and State, personally appeared DENNIS J. BUBOIS AND J. NEVAIL DILBECK personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature _____

GAYNELLE H. IHMS NOTARY PUBLIC STATE OF TEXAS

MAIL TAX STATEMENTS TO PARTY SHOWN ON FOLLOWING LINE; IF NO PARTY SHOWN, MAIL AS DIRECTED ABOVE

EXHIBIT "A"

(Legal Description)

The legal description of the real property is as follows:

Lot 36 of Tract 4671, in the City of Los Angeles, as per map recorded in Book 56 Pages 30 and 31 of Maps, in the office of the county recorder of the County of Los Angeles.

Together with the Westerly 62 feet of Lot 37 of said Tract, together with those portions of Lot 13 of said Tract and Rosemead Street, shown and dedicated upon said Tract and vacated by the Board of Supervisors of said County, a copy of which vacation recorded in Book 6142 Page 206, Official Records of said county which lie Easterly of a line parallel with distant Westerly 100 feet from the center line of said Rosemead Street.

EXCEPT from the above mentioned Lots and Street a 100 foot strip of land described in the deed to the Department of Water and Power of the City of Los Angeles recorded in Book 19574 Page 48, Official Records.

94 1345895

This page is part of your document - DO NOT DISCARD

05 1252931

RECORDED/FILED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA

11:01 AM MAY 27 2005

TITLE(S) : DEED

LEAD SHEET

FEE

FEE $16 ZZ
4

D.T.T

NOTIFICATION SENT

CODE
20

CODE
19

CODE
9

Assessor's Identification Number (AIN)
To be completed by Examiner OR Title Company in black ink.

Number of AIN's Shown

7351 - 034 - 070

003

THIS FORM NOT TO BE DUPLICATED

2

RECORDING REQUEST BY

05 1252931

WHEN RECORDED MAIL TO

NAME: Waste Management, Inc.
Real Estate Department

MAILING ADDRESS: 720 E. Butterfield Road
4th Floor

CITY, STATE ZIP CODE: Lombard, IL 60148

SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE

TITLE(S)

CORPORATION QUITCLAIM DEED

3

WHEN RECORDED MAIL TO:

Waste Management, Inc

Real Estate Department

720 E. Butterfield Rd., 4th Floor

Lombard, IL 60148

SPACE ABOVE THIS LINE FOR RECORDER'S USE

MAIL TAX STATEMENTS TO:

Del Amo Landfill, LLC

P.O. Box 1450

Chicago, IL 60690-1450

DOCUMENTARY TRANSFER TAX: $NO TAX (Consideration or value of the interest or property conveyed (exclusive of liens or encumbrances) is less than $100, R&T 11911)

E. William Huron, Esq.

Law Offices of E. William Huron, P.C.

CORPORATION QUITCLAIM DEED

Western Waste Industries, a California corporation, formerly known as WRH Industries ("Grantor"), for good and valuable consideration, the receipt of which is acknowledged, does hereby remise, release and forever quitclaim to Del Amo Landfill, LLC, a Delaware limited liability company ("Grantee"), all right, title and interest of Grantor, if any, in and to the following real estate:

IN THE CITY OF LOS ANGELES, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS FOLLOWS:

APN: 7351-034-070,077,078

PARCEL 1:

Lot 12 of Tract 4671, in the city of Los Angeles, as per map recorded in Book 56 Pages 30 and 31 of Maps, in the office of the county recorder of said county.

EXCEPT THEREFROM A 100 foot strip of land described in deed to Dept. of Water and Power of the city of Los Angeles, recorded September 3, 1942 in Book 19574 Page 48 Official Records.

ALSO EXCEPT THEREFROM that portion of said Lot described in the Final Order of Condemnation under Case No. C160691 and recorded July 24, 1986 as Instrument No 86-938568.

PARCEL 2:

Lot 13 of Tract 4671, in the city of Los Angeles, as per map recorded in Book 56 Pages 30 and 31 of Maps, together with the Westerly 25 feet of Rosemead Street (vacated) adjoining said Lot.

EXCEPT THEREFROM the Easterly 100 feet thereof.

ALSO EXCEPT THEREFROM that portion lying Northerly of the Southerly line of that certain 100 foot wide strip of land to the Dept. of Water and Power of the City of Los Angeles recorded in Book 19574 Page 48 Official Records.

05 1252931

05 1252931

ALSO EXCEPT THEREFROM and portion of said lot included within the map of Tract 32036. Said land above is also shown as Parcel "A" of the covenant and agreement to hold property as one parcel recorded April 5, 1983 as Instrument No. 83-375485.

PARCEL 4:

Lot 37 of Tract 3671, in the city of Los Angeles, as per map recorded in Book 56 Pages 30 and 31 of Maps, in the office of the county recorder of said county, together with that portion of Vermont Avenue (vacated) adjoining said Lot 37.

EXCEPT THEREFROM the Westerly 62.00 feet of said Lot 37.

ALSO EXCEPT THEREFROM the Northerly 100.00 feet.

AND ALSO EXCEPT THEREFROM that portion described in the Final Order of Condemnation under Case No. C296442 and recorded October 7, 1982 as Instrument No. 82-1015540.

Said land is also known as Parcel "C" of the covenant and agreement to hold property as one parcel, recorded April 5, 1983 as Instrument No. 83-375484.

Subject to real estate taxes and assessments for the current year and subsequent years.

Subject to all valid easements, rights of way, covenants, conditions, reservations and restrictions of record, if any, and also to applicable zoning, land use and other laws and regulations.

To have and to hold the same, together with all the buildings, improvements and appurtenances belonging thereto, if any, to the Grantee and Grantee's heirs, successors and assigns forever.

IT IS EXPRESSLY UNDERSTOOD AND AGREED between Grantor and Grantee that Grantor makes no representations, covenants or warranty of any kind whatsoever. By this instrument, the parties intend that Grantor release to Grantee whatever interest Grantor may have in the above property, if any.

Dated: March 9, 2005

WESTERN WASTE INDUSTRIES
A California Corporation, "Grantor"

By: _____
Gregory L. Geiss
Director of Lease Management

05 1252931

STATE OF Illinois

COUNTY OF Will

In _____, on the 8th day of Sept, 2005, before me, a Notary Public in and for the above state and county, personally appeared Gregory J. Parker, known to me or proved to be the person named in and who executed the foregoing instrument, and being first duly sworn, such person acknowledged that he or she executed said instrument for the purposes therein contained as his or her free and voluntary act and deed.

Deborah L Mendick
NOTARY PUBLIC

"OFFICIAL SEAL"
DEBORAH L MENDICK
NOTARY PUBLIC, STATE OF ILLINOIS
COMMISSION EXPIRES 01/24/06

My Commission Expires: 1-24-2006

05 1252931

2028888

C_2 REM
COORDINATION, CLIENT REPRESENTATION AND ENVIRONMENTAL MANAGEMENT

Mr. Dante Rodriguez
U.S Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

August 18, 1999

Project No.: 97-101

Transmittal
Notice of U.S. E.P.A. Order
Del Amo Pits Superfund Site

Dear Mr. Rodriguez:

Please find enclosed a copy of the Notice of the U.S. E.P.A. Order, which was recorded in the Official Records of the Recorder's office of Los Angeles County at 10:21 a.m., on August 3, 1999, as Document No. 99-1453930.

This activity has been completed pursuant to United States Unilateral Administrative Order [U.S. E.P.A. Docket No. 99-08 section VIII (parties bound) page 23 paragraph 25]. The order is indexed to the Title for that portion of the site owned by Triton Diagnostics, Inc., a wholly owned subsidiary of Shell Oil Company (Order Respondent).

Should you have any questions or comments, please call me at (949) 261-8098.

Sincerely,

Edmond F. Bourke, C_2 REM
Respondent Coordinator

Attachments

Cc: Chuck Paine, Shell Oil Company
Gloria Conti, DTSC

19762 MacArthur Boulevard • Suite 140 • Irvine • California 92612
(949) 261-8098 • FAX (949) 261-8097

Recording Requested by and When Recorded Return to:	
David J. Earle Law Offices of David J. Earle 138 North Brand Boulevard Suite 303 Glendale, California 91203 818.242.4700	

Space Above For L.A. County Recorder's Use Only

NOTICE OF U.S. E.P.A ORDER

KNOW ALL PERSONS BY THIS NOTICE that on [DATE], the United States Environmental Protection Agency issued a "Unilateral Administrative Order For Remedial Action" which affects possession and use of the following described Property owned by [PROPERTY OWNER].:

[LEGAL DESCRIPTION]

The above described Order, a true and exact copy of which is attached hereto as Exhibit A, requires by its terms at paragraph __ (page __) that [PROPERTY OWNER], as the owner of the above described property, record a true and exact copy of the Order in the Official Records of Los Angeles County as a document affecting the possession and use of the above described property.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.
Executed this ___ day of July, 1999 at Glendale, California

[PROPERTY OWNER]

_____
By: David J. Earle, Attorney in Fact for [PROPERTY OWNER]

State of California)
County of Los Angeles) ss

On _____[date]_____, before me, _____[name and title of officer]_____ personally appeared _____[declarant]____ personally known to me to be ther person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity and that by his/her signature on the instrument the person(s) or the entity upon behalf of which the person acted, executed the instrument.
WITNESS my hand and official seal. [NOTARY SEAL]

_____
Signature of Notary

RECORDING REQUEST BY

WHEN RECORDED MAIL TO

NAME DAVID J. EARLS

MAILING ADDRESS 138 N. Brand Blvd, Ste 303

CITY, STATE ZIP CODE Glendale, CA 91203

99 1453930

RECORDED/FILED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA
10:21 AM AUG 03 1999

SPACE ABOVE THIS LINE RESERVED FOR RECORDER S USE

TITLE(S)

NOTICE OF ZPA ORDER

FEE CODE	N/A	N/A	0	20	9_	19	04	19
REC. FEE	NO. PAGES	NO TITLES	PCOR	D.A. FEE	SURVEY MON.	NOTIF.	INVOL LIEN	NON CONF.

EXAMINER S INT.

Assessor s Identification Number (AIN)
To Be Completed By Examiner Or Title Company In Black Ink

Number of Parcels Shown

— —

Recording Requested by and When Recorded Return to:	99 1453930
David J. Earle Law Offices of David J. Earle 138 North Brand Boulevard Suite 303 Glendale, California 91203 818.242.4700	FEE $ 157 S 51 D.A. FEE Code 20 $ 2-

Space Above For L.A. County Recorder's Use Only

KNOW ALL PERSONS BY THIS NOTICE that on May 3, 1999 the United States Environmental Protection Agency issued a "Unilateral Administrative Order For Remedial Action" which affects possession and use of the following described Property owned by Triton Diagnostics Inc.:

> Lot 36 of Tract 4671, in the City of Los Angeles, as per map recorded in Book 56, Pages 30 and 31 of Maps, in the office of the County Recorder of the County of Los Angeles.
>
> Together with the Westerly 62 feet of Lot 37 of said Tract, together with those portions of Lot 13 of said Tract and Rosemead Street, shown and dedicated upon said Tract and vacated by the Board of Supervisors of said County, a copy of which vacation recorded in Book 6142, Page 206 of the Official Records of said County which lie easterly of a line parallel with distant Westerly 100 feet from the center line of said Rosemead Street.
>
> EXCEPT from the above mentioned Lots and Street a 100 foot strip of land described in the deed to the Department of Water and Power of the City of Los Angeles recorded in Book 19574, Page 48, in the Official Records of Los Angeles County.

The above described Order, a true and exact copy of which is attached hereto as Exhibit A, requires by its terms at paragraph 25 (page 23) that Triton Diagnostics Inc., as the owner of the above described property, record a true and exact copy of the Order in the Official Records of Los Angeles County as a document affecting the possession and use of the above described property.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 21st day of July, 1999 at Glendale, California

TRITON DIAGNOSTICS INC,

By: David J. Earle, Attorney in Fact for Triton Diagnostics Inc.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Los Angeles } ss.

On 7-27-99 (Date), before me, Margaret Earle, notary public (Name and Title of Officer (e.g., "Jane Doe/Notary Public"))

personally appeared David J. Earle (Name(s) of Signer(s))

☒ personally known to me
☐ proved to me on the basis of satisfactory evidence

to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(~~s~~) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

MARGARET EARLE
Commission # 1202802
Notary Public - California
Los Angeles County
My Comm. Expires Nov 27, 2002

WITNESS my hand and official seal.

Margaret Earle
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer

Signer's Name: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

☐ Individual
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

Signer Is Representing: _____

EXHIBIT "A"

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IX

In The Matter Of: **The Del Amo Superfund Site** **Del Amo Waste Pits Operable Unit** SHELL OIL COMPANY; DOW CHEMICAL COMPANY; MICHELIN NORTH AMERICA, INC., on behalf of itself and UNIROYAL GOODRICH TIRE COMPANY; GOODYEAR TIRE AND RUBBER COMPANY; UNITED STATES GENERAL SERVICES ADMINISTRATION Respondents Proceeding Under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (42 U.S.C. § 9606(a))	U.S. EPA Docket No.99-08

UNILATERAL ADMINISTRATIVE ORDER

FOR REMEDIAL ACTION

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ATTACHMENTS

Attachment 1: Record of Decision

Attachment 2: Statement of Work

ADMINISTRATIVE ORDER

FOR REMEDIAL ACTION

I. INTRODUCTION AND JURISDICTION

1. This Order directs Shell Oil Company, Dow Chemical Company, Michelin North America Inc. on behalf of itself and Uniroyal Goodrich Tire Company, and the Goodyear Tire and Rubber Company (collectively, Respondents") to implement a remedial action for the remedy described in the Record of Decision for the Del Amo Superfund Site, Waste Pits Operable Unit, dated September 5, 1997. The obligations of Respondent United States General Services Administration ("GSA") are addressed in paragraph 20 of this Order. This Order is issued to Respondents by the United States Environmental Protection Agency ("EPA") under the authority vested in the President of the United States by section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. § 9606(a). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580 (52 Fed. Reg. 2923, January 29, 1987). This authority was further delegated to EPA Regional Administrators on May 11, 1994 by EPA Delegation No. 14-14-B, and was further delegated to the Director, Superfund Division, Region IX on September 29, 1997.

II. FINDINGS OF FACT

2. Site History

A. The Del Amo Superfund Site (the "Site") is located in a section of the city of Los Angeles known as the Harbor Gateway, a half mile wide appendage of the city that extends from the main body of the city south to the coast near Long Beach, California. The Site is located approximately 6 miles south of the main body

of the city and 10 miles north of the Pacific Coast. The subject of this Order is the Waste Pits Area, a 5-acre portion of the Site located at the southern Site boundary in a part of the Site formerly occupied by a synthetic rubber manufacturing operation. The Waste Pits Area consists of two parcels: Lot 36 and Lot 37, as identified on the Los Angeles County Assessor's Map Number 7351-034 Northwest. (See Figure 1 of the Record of Decision for the Del Amo Waste Pits Operable Unit, which is appended hereto as Attachment 1.)

B. From 1942 through 1971, a synthetic rubber manufacturing operation, consisting of three separate plants, covered 280 acres at the Site. From 1942 until 1955, the rubber manufacturing operation consisted of a styrene plant operated by Dow Chemical Company, a butadiene plant operated by Shell Oil Company, and a synthetic rubber (copolymer) plant operated by U.S. Rubber Company (Uniroyal Goodrich Tire Company), Goodyear Tire & Rubber Company, and others. During this period, the United States owned all three plants, which were operated by the above-noted companies under agreements with the United States. In 1955, the United States sold all three plants to Shell Oil Company, and Shell continued to operate these plants until 1971.

C. Synthetic rubber was produced by manufacturing styrene and butadiene separately, piping them to the rubber plant, and then chemically synthesizing the two into synthetic rubber. Raw materials and finished products were stored primarily in aboveground tanks. Some feedstock chemicals, particularly benzene, were delivered via underground pipeline from off-site sources. The primary feedstocks for styrene manufacture were propane and crude benzene. Other chemicals used or produced in the process included toluene, ethylbenzene, styrene, hydrochloric acid, and sulfuric acid. The feedstocks for butadiene manufacture, including a mixture of butane, butylene and butadiene, were received primarily by pipeline. Synthetic rubber

was produced in a series of reactions by combining styrene and butadiene with lesser amounts of other chemicals, including soap solutions and acid solutions.

D. At various times during the operation of the facility, wastes from the production processes were disposed of in a waste disposal area located on Lots 36 and 37 of the Site ("the Waste Pits Area"). The Waste Pits Area consists of a series of six unlined waste disposal pits and four unlined evaporation ponds, which have been covered or filled with soil at various points in the past.

E. Contaminated waste remains beneath the soil surface at various locations in the Waste Pits Area, and soil beneath and adjacent to the waste disposal pits is also contaminated. The groundwater beneath the pits is heavily laden with hazardous substances from both the waste pits and other upgradient Site sources.

F. When Shell Oil Company closed the three plants in 1972, the unlined waste disposal pits and evaporation ponds had already been covered with soil fill. Shell sold the property to a development company in 1972, and the three plants were dismantled.

G. Most of the 280-acre area once occupied by the synthetic rubber manufacturing operation has since been redeveloped as an industrial park. Today, Lot 36 of the 5-acre Waste Pits Area is a vacant lot surrounded by a double row of chain-link fencing and covered by soil fill and weeds. Lot 36 is currently owned by Triton Diagnostics, a wholly owned subsidiary of Shell Oil Company. Pursuant to an EPA unilateral administrative order, Shell Oil Company conducts regular inspections of Lot 36 as well as regular fence maintenance and weed mowing. Lot 37 of the 5-acre Waste Pits Area is currently

owned by USA Waste, Inc., and is also a vacant lot covered by soil fill and vegetation and surrounded by a double row chain link fence. The Waste Pits Area is bounded by industrial and commercial development on the north and by Del Amo Boulevard with adjacent residences on the south. Electrical power transmission easements run along the northern and southern boundaries of the Waste Pits Area, and two major underground petroleum and chemical pipeline corridors run along its southern boundary. The adjacent residential community south of the Waste Pits Area lies within the jurisdiction of unincorporated Los Angeles County.

H. The land upon which the Site sits is a relatively flat alluvial plain. Underlying the Site are alluvial deposits of sands, silts and clays that extend down hundreds of feet. These deposits contain four distinct and separate aquifers, the third and fourth (deepest) of which are used for municipal drinking water. There are no surface water resources at the Site.

I. The Record of Decision for the Del Amo Waste Pits Operable Unit (September 5, 1997) and the Focused Feasibility Study Report for the Waste Pits Area (December 1996) describe the Site conditions and the Waste Pits Area in greater detail).

3. Respondents

A. Respondent Shell Oil Company was, from 1942 until 1955, the operator of the butadiene plant at the Site under an agreement with the United States, which owned all three plants. In 1955, Respondent Shell Oil Company purchased all three plants, and continued to own and operate the three plants (including the Waste Pits Area) until 1971. From the mid-1940's through 1971, hazardous substances, including some or all of those described in Section II, Paragraph 5A below, were, at various times, disposed of at the Waste Pits Area.

B. Respondent Dow Chemical Company was, from 1942 until 1955, the operator of the styrene plant at the Site under an agreement with the United States, which owned all three plants (including the Waste Pits Area). At various times during that period, hazardous substances, including some or all of those described in Section II, Paragraph 5A below, were disposed of at the Waste Pits Area by Dow Chemical Company.

C. Respondent GSA has been administratively assigned certain responsibilities attributable to the various federal government corporations and entities that owned the Site on behalf of the United States for a period of time during and following World War II. Those federal government corporations and entities have been terminated. During their ownership of the Site, hazardous substances, including some or all of those substances described in Section II, Paragraph 5.A below, were disposed of at the Waste Pits Area.

D. Respondent Goodyear Tire and Rubber Company was, from 1943 until 1949, the operator of the copolymer plant known as Plancor 611 at the Site under an agreement with the United States. At various times during that period, Goodyear Tire and Rubber Company arranged for the disposal and treatment of hazardous substances owned or possessed by Goodyear Tire and Rubber Company, including some or all of those hazardous substances described in Section II, Paragraph 5A below, at or in the Waste Pits Area.

E. Respondent Michelin North America Inc, is the successor by merger to Uniroyal Goodrich Tire Company, a dissolved corporation. Uniroyal Goodrich Tire Company is the successor to U.S.Rubber. U.S.Rubber was from 1943 until 1949, the operator of the copolymer plant known as Plancor 611-A at the Site under an agreement with the United States. At various times during that period, U.S. Rubber Company arranged for the disposal and

treatment of hazardous substances owned or possessed by U.S. Rubber Company, including some or all of those hazardous substances described in Section II, Paragraph 5A below, at or in the Waste Pits Area.

4. History of EPA investigation

A. In 1983, the California Department of Toxic Substances Control (DTSC) began investigating waste disposal areas within the Waste Pits Area. In 1984, contamination was discovered in the waste pits and underlying soils. From 1985 until 1991, Dow Chemical Company, Shell Oil Company and G.P. Holdings (a landowner identified as a potentially responsible party) undertook a Remedial Investigation and Feasibility Study ("RI/FS") for Lot 36 under a Memorandum of Agreement and subsequently under an Administrative Order with the California Department of Toxic Substances Control ("DTSC"). In 1991, DTSC issued a Notice of Non-Compliance and terminated the Administrative Order. In July 1991, EPA proposed the Del Amo Site to be added to EPA's National Priorities List (NPL), and DTSC referred the Site to EPA shortly thereafter.

B. To study and undertake response activities in phases, EPA divided the Site into operable units. The operable units for the Site are the Waste Pits Area, the groundwater, and the remainder of the Site (primarily soil contamination). This Order addresses remedial action at the Waste Pits Operable Unit.

C. On May 7, 1992, Shell Oil Company and Dow Chemical Company, entered into an Administrative Order on Consent (U.S. EPA Docket No. 92-13) with EPA and California Department of Toxic Substances Control (DTSC) agreeing to perform a Remedial Investigation/ Feasibility Study (RI/FS) for the Site, pursuant to CERCLA and the National Contingency Plan, 40 C.F.R. Part 300.

In addition, Dow and Shell agreed to perform an accelerated RI/FS for the Waste Pits Area. After rejecting several drafts of the focused RI/FS for the Waste Pits Area due to inaccuracies and poor quality, EPA performed part of the RI/FS, which Shell Oil Company and Dow Chemical Company included into the focused RI/FS for the Waste Pits Area. EPA finally approved the revised Focused Feasibility Study Report for the Waste Pits Area in December, 1996.

D. Pursuant to section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the Focused Feasibility Study Report for the Waste Pits Area and of the proposed plan for remedial action on December 16, 1996, and provided opportunity for public comment on the proposed remedial action.

E. The decision by EPA on the remedial action to be implemented at the Del Amo Superfund Site, Del Amo Waste Pits Operable Unit, is embodied in a Record of Decision ("ROD"), executed on September 5, 1997, on which the State of California has given its concurrence. The Record of Decision is attached to this Order as Attachment 1 and is incorporated by reference. The Record of Decision is supported by an administrative record that contains the documents and information upon which EPA based the selection of the response action.

5. Site Releases

A. The primary contaminants of concern in the Waste Pits Area are semi-volatile organic compounds (SVOCs) and volatile organic compounds (VOCs). Benzene, a VOC and known human carcinogen, is the most frequently found hazardous substance in the waste pits, the soil beneath and adjacent to the waste pits, and the groundwater. Other VOCs found in the Waste Pits Area include toluene, ethylbenzene and styrene. Naphthalene, an SVOC, is the polycyclic aromatic hydrocarbon (PAH) found most often and

in the highest concentration in both the waste pits and the soil. Although naphthalene is not classified as a human carcinogen, acute or chronic exposure to naphthalene can cause a number of adverse health effects in humans, including cataracts, dermatitis and anemia. Other SVOCs found in the Waste Pits Area include anthracene, chrysene, fluorene, and phenanthrene. Test results indicate that the waste pits are also capable of emitting significant levels of hydrogen sulfide gas into the atmosphere if the waste comes into contact with air. Finally, the groundwater beneath and immediately downgradient of the waste pits is contaminated with benzene, ethylbenzene, and phenol. Contamination in groundwater at the Site is being addressed by EPA as a separate Operable Unit.

B. Waste disposal practices at the Site from the mid-1940's through 1971 resulted in contamination of the Waste Pits Area by the chemicals described in the preceding paragraph. Wastes generated at the Site and disposed of in the unlined pits and evaporation ponds in the Waste Pits Area include, but are not limited to, aqueous waste, waste styrene, semi-viscous and viscous wastes, aluminum chloride complex wastes (containing large amounts of hydrocarbons), acid sludge (a by-product of the treatment of benzene and sulfuric acid), kaolin clay (used to dehydrate alcohol and produce ethylene), and lime slurry (a by-product of a zeolite softening system).

C. Site investigations indicate that the contaminants have migrated into the soils underneath and adjacent to the waste disposal pits and evaporation ponds and into the groundwater beneath the Waste Pits Area. The former evaporation ponds have been designated as "Pits 1A, 1B, 1C, and the Eastern Evaporation Pond." The former disposal pits have been designated as "Pits 2A, 2B, 2C, 2D, 2E and 2F." All of the series 2 Pits and Pits 1B and 1C are located on Lot 36. Pit 1-A and the Eastern Evaporation Pond are located on Lot 37. Waste was removed from Pit 1-A on

Lot 37 in the mid-1980's, but vadose zone soil contamination continues to exist. The waste material in pits 1B and 1C is covered with 2-4 feet of clean soil, and the waste extends down an average of 9 feet. The waste material in the 2-series pits is covered with 3-15 feet of soil fill, and the waste extends down 21 to 32 feet. Beneath several of the pits, contaminated soil extends down to the water table, a depth of approximately 60 feet. The lateral extent of the contaminated soil on Lot 36 is roughly confined within the inner fence that surrounds the pits. The predominant contaminants in the groundwater beneath and immediately downgradient of the pits are benzene (with concentrations as high as 470,000 ppb), ethylbenzene (with concentrations as high as 15,000 ppb) and phenol (with concentrations as high as 440 ppb). The data show a sharp rise in groundwater contamination in the immediate vicinity of the Waste Pits Area as compared with contaminant levels further upgradient, indicating that contaminants from the waste pits are migrating to and causing significant contamination of the underlying groundwater.

D. Air emissions tests performed at the Waste Pits Area revealed that the waste pits and adjacent contaminated soils are capable of emitting significant levels of benzene and hydrogen sulfide gas into the atmosphere if the waste is disturbed. These emissions are of great concern due to the adverse health effects that could result from exposure to these contaminants. Emissions investigations performed at the Waste Pits Area also found emissions of several VOCs in addition to benzene, including toluene, ethylbenzene and styrene. SVOC emissions included anthracene, chrysene, fluorene, and naphthalene.

E. The exposure pathways of concern for the Waste Pits Area are groundwater exposure and surface exposure. Shell Oil Company and Dow Chemical Company performed a risk assessment for surface exposure, assuming that the people most affected by any

hazardous substance releases from the Waste Pits Area would be residents located at the fence line on the south side of the pits, office workers located at the northern fence line, and a maintenance worker on the waste pits themselves. The risk assessment did not quantitatively assess risks associated with contaminated groundwater because the Waste Pits Operable Unit ROD selects an interim action for groundwater. However, the groundwater concentration of benzene (as high as 470,000 ppb) underneath the waste pits significantly exceeds the federal MCL of 5 ppb and the California MCL of 1 ppb.

6. Summary of Site Risks

A. The risk assessment for the Waste Pits Area suggests that the contaminants do not currently pose an unacceptable threat to human health for persons living or working at the ground surface at or near the Waste Pits Area, provided that the existing controls at the Waste Pits Area (soil fill cover over the waste, double row of chain-link fence, routine inspection and maintenance) and the current emissions rates remain as they are today. However, if the waste pits were disturbed, significant emissions of volatile contaminants, particularly hydrogen sulfide, could be released, which would pose a significant and unacceptable risk to the public. There is substantial uncertainty regarding the reliability of the risk assessment assumption that existing conditions (i.e. fencing) are adequate to prevent human intrusions into the site and potential human incursions into the waste itself. In addition, future development activities, including trenching or excavations (for structures, pipelines or utilities), or natural erosion, such as erosion resulting from major storms, could expose waste material to the surface. Emissions testing of disturbed waste revealed that the waste material can emit significant levels of volatile contaminants, such as hydrogen sulfide gas, benzene and styrene. Acute exposure to these contaminants can cause irritation, dizziness,

suffocation, and even death. Consequently, if conditions at the Waste Pits Area were to change, exposures and resultant risks to humans at or in the vicinity of the Waste Pits Area would likely be substantially higher and at unacceptable levels. Indeed, on July 15, 1994, EPA issued a Unilateral Administrative Order to Shell Oil Company following the discovery of small areas of exposed waste in the Waste Pits Area. The Order requires Shell to conduct regular inspections and maintain the Waste Pits Area and in particular, to detect and cover or remove exposed waste material. The Unilateral Administrative Order for inspection and maintenance of the Waste Pits Area remains in effect.

B. The groundwater beneath the Waste Pits Area contains contaminant concentrations in excess of Maximum Contaminant Levels (MCLs) as a direct result of uncontrolled migration of waste pits contamination into the groundwater. Because the groundwater under the Waste Pits Area is classified as a potential source of drinking water by the State of California, EPA determined that this exceedance of MCLs by the groundwater warrants remedial action to prevent additional migration of contaminants from the Waste Pits Area into the groundwater.

7. The Record of Decision (ROD) for the Del Amo Waste Pits Operable Unit (September 5, 1997) selects a final remedy for the Waste Pits Area addressing potential human exposures to waste pit contaminants at or near the ground surface. The ROD also selects an interim groundwater remedy for the Waste Pits Area by selecting measures to prevent continued migration of hazardous substances from the waste pits or surrounding soil to the groundwater. As summarized in ROD declaration, the major components of the selected remedy include:

- Placement of a RCRA-equivalent cap over the Waste Pits Area as described in this ROD, and associated soil gas monitoring;

- Installation of surface water controls to prevent ponding of water on the cap and to prevent runoff onto adjacent properties;

- Installation and operation of a soil vapor extraction system (SVE) beneath the Waste Pits Area to achieve the interim soil remediation standards established in this ROD;

- Installation of security fencing around the treatment units associated with the cap and the SVE systems;

- Implementation of deed restrictions prohibiting future residential use of the Waste Pits Area and prohibiting any future use of the Waste Pits Area that could threaten the integrity of the RCRA equivalent cap; and

- Long-term operation and maintenance of all of the above and related components of the remedy selected in this ROD.

8. The remedy addresses the risks posed by the release or threat of release hazardous substances as follows:

A. The construction of a RCRA-equivalent cap will result in a permanent cover over the Waste Pits Area that will eliminate the direct contact, ingestion and vapor inhalation pathways of contaminant exposure. The cap also provides a significant physical barrier against human incursions into the waste, and provides some measure of groundwater protection by preventing significant rainwater infiltration through the waste and contaminated soil. The cap's surface water collection and diversion system will prevent ponding of water in the cap and uncontrolled runoff onto adjacent properties, and the cap's vapor collection and treatment system will prevent the emission of unacceptable levels of contaminants into the air.

B. Installation and operation of an SVE system will enhance groundwater protection by removing migrating volatile chemicals from the soil above the water table. This will protect the groundwater aquifer from the downward migration of contaminants that currently exist in the waste and soil, and it will also prevent significant contamination of groundwater caused by a rising water table coming into contact with contaminated soils.

C. Installation of security fencing around the treatment units associated with the cap and the SVE system will prevent unauthorized access or tampering.

D. Deed restrictions prohibiting future residential use of the Waste Pits area will prevent inappropriate future land use or development. In addition, deed restrictions will prohibit any future use of the Waste Pits Area that could threaten the integrity of the RCRA-equivalent cap.

E. Long-term operation and maintenance of all components of the remedial action will ensure the continued effectiveness of the remedy and ensure that the remedy complies with the ROD requirements at all times.

9. Respondent GSA has indicated its consent to the issuance of this Order. Respondent Shell Oil Company has indicated its willingness to perform the remedial action work pursuant to a CERCLA Unilateral Administrative Order.

III. CONCLUSIONS OF LAW AND DETERMINATIONS

10. The Del Amo Superfund Site, including but not limited to the Waste Pits Area, is a "facility" as defined in section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

11. Each Respondent is a "person" as defined in section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

12. Respondents are "liable parties" as defined in section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and are subject to this Order under section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

13. The substances listed in Section II, Paragraph 5A are found at the Site and are "hazardous substances" as defined in section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

14. The past disposal and subsequent migration of hazardous substances at the Site constitute a "release" as defined in section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

15. These hazardous substances are actually or potentially being released from the Site into the soil, groundwater and air.

16. The potential for future migration of hazardous substances from the Site poses a threat of a "release" as defined in section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

17. The release and threat of release of one or more hazardous substances from the facility may present an imminent and substantial endangerment to the public health or welfare or the environment.

18. The actions required by this Order are necessary to protect the public health, welfare and the environment.

IV. NOTICE TO THE STATE

19. On **April 22, 1999,** prior to issuing this Order, EPA notified the State of California, Office of the Attorney General and the Department of Toxic Substances Control, that EPA would be issuing this Order.

V. ORDER

20. Based on the foregoing, Respondents Shell Oil Company, the Dow Chemical Company, Michelin North America Inc.(on behalf of itself and Uniroyal Goodrich Tire Company), and Goodyear Tire and Rubber Company are hereby ordered to comply with the following provisions and requirements of this Order, including but not limited to all attachments to this Order, all documents incorporated by reference into this Order, and all schedules and deadlines in this Order, attached to this Order, or incorporated by reference into this Order. As used in Paragraphs 22 through 70, 74 through 78, and 80 through 83 as well as in the attached Statement of Work, the term "Respondents" shall mean Shell Oil Company, the Dow Chemical Company, Michelin North America Inc,(on behalf of itself and Uniroyal Goodrich Tire Company),and Goodyear Tire and Rubber Company. The United States and Shell Oil Company have entered into a Settlement Agreement approved and adopted on April 26, 1994, by the United States District Court for the Central District of California in Cadillac Fairview/California Inc. v. Dow Chemical Company, et al, Civil Action Nos. 83-7996 and 83-8034 ("the 4/26/94 Settlement") under which the United States, on behalf of GSA and any other federal agency that may be a liable party under CERCLA at the Waste Pits Operable Unit, has agreed to reimburse Shell Oil Company for a portion of the necessary costs of response incurred by Shell at the Waste Pits Operable Unit. Respondent GSA shall have no further obligations under this Order beyond the United States' obligations set forth in the 4/26/94 Settlement. Any disputes regarding the 4/26/94

Settlement shall be resolved in accordance with the provisions of the 4/26/94 Settlement, and this Order shall not be construed as amending or altering the 4/26/94 Settlement.

VI. DEFINITIONS

21. Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in the statute or its implementing regulations. Whenever terms listed below are used in this Order or in the documents attached to this Order or incorporated by reference into this Order, the following definitions shall apply:

a. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.

b. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or Federal holiday. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the end of the next working day.

c. "EPA" shall mean the United States Environmental Protection Agency.

d. "DTSC" shall mean the California Environmental Protection Agency, Department of Toxic Substances Control.

e. "National Contingency Plan" or "NCP" shall mean the National Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including any amendments thereto.

f. "Operation and Maintenance" or "O&M" shall mean all activities required under the Operation and Maintenance Plan developed by Respondents pursuant to this Order and Section 6 of the Statement of Work, and approved by EPA.

g. "Paragraph" shall mean a portion of this Order identified by an arabic numeral.

h. "Performance Standards" shall mean those cleanup standards, standards of control, and other substantive requirements, criteria or limitations, identified in the Record of Decision, that the Remedial Action and the Work required by this Order must attain and maintain (including, without limitation, the requirements and specifications identified in pages 38 through 46 of the Record of Decision and in Attachment A to the Record of Decision).

i. "Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the Del Amo Superfund Site, Del Amo Waste Pits Operable Unit, signed on September 5, 1997 by the Director, Superfund Division, EPA Region IX, and all attachments thereto.

j. "Remedial Action" or "RA" shall mean those activities, except for Operation and Maintenance, to be undertaken by Respondents to implement the final plans and specifications submitted by Respondents pursuant to the Remedial Action Work Plan approved by EPA, including any additional activities required under sections X, XI, XII, XIII, and XIV of this Order.

k. "Remedial Design" or "RD" shall mean those activities to be undertaken by Respondents to develop the final plans and specifications for the Remedial Action pursuant to the Remedial Design Work Plan.

l. "Response Costs" shall mean all costs, including direct costs, indirect costs, enforcement costs and accrued interest incurred by (or on behalf of) EPA to perform or support response actions at the Site. Response costs include but are not limited to the costs of overseeing the Work, such as the costs of reviewing or developing plans, reports, costs of implementing deed restrictions, and other items pursuant to this Order and costs associated with verifying the Work.

m. "Statement of Work" or "SOW" shall mean the statement of work for implementation of the Remedial Action, as set forth in Attachment 2 to this Order. The Statement of Work is incorporated into this Order and is an enforceable part of this Order.

n. "Section" shall mean a portion of this Order identified by a roman numeral and includes one or more paragraphs.

o. "Site" shall mean the Del Amo Superfund Site, located in the city of Los Angeles California, in a section of the city known as the Harbor Gateway, as described in the Record of Decision.

p. "State" shall mean the State of California.

q. "United States" shall mean the United States of America.

r. "Work" shall mean all activities Respondents are required to perform under this Order to implement the ROD for the Waste Pits Operable Unit, including Remedial Action, Operation and Maintenance for the Operable Unit, and any activities required to be undertaken pursuant to this Order.

s. "Remedial Design Workplan" or "RD Workplan" shall mean the work plan approved by EPA for Remedial Design at the Site.

t. "Work Plan" shall mean the work plan approved by EPA for Remedial Action at the Site.

VII. NOTICE OF INTENT TO COMPLY

22. Not later than five (5) days after the effective date of this Order, Respondents shall provide (either jointly or separately) written notice to EPA's Remedial Project Manager and EPA's Assistant Regional Counsel stating whether they will comply with the terms of this Order. If Respondents do not unequivocally commit to perform the Remedial Action as provided by this Order, they shall be deemed to have violated this Order and to have failed or refused to comply with this Order. Respondents' written notice shall describe, using facts that exist on or prior to the effective date of this Order, any "sufficient cause" defenses asserted by Respondents under sections 106(b) and 107(c)(3) of CERCLA. The absence of a response by EPA to the notice required by this paragraph shall not be deemed to be acceptance of Respondents' assertions.

VIII. PARTIES BOUND

23. This Order shall apply to and be binding upon Respondents their directors, officers, employees, agents, successors, and assigns. No change in the ownership, corporate status, or other control of Respondents shall alter any of the Respondents' responsibilities under this Order.

24. Respondents shall provide a copy of this Order to any prospective owners or successors before a controlling interest in Respondents' assets, property rights, or stock are transferred to the prospective owner or successor. Respondents shall also provide a copy of this Order to each contractor, sub-contractor, laboratory, or consultant retained to perform any Work under this Order, within five (5) days after the effective date of this

Order or on the date such services are retained, whichever date occurs later. Respondents shall also provide a copy of this Order to each person representing any Respondents with respect to the Site or the Work and shall condition all contracts and subcontracts entered into hereunder upon performance of the Work in conformity with the terms of this Order. With regard to the activities undertaken pursuant to this Order, each contractor and subcontractor shall be deemed to be related by contract to the Respondents within the meaning of section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3). Notwithstanding the terms of any contract, Respondents are responsible for compliance with this Order and for ensuring that their contractors, subcontractors and agents comply with this Order, and perform any Work in accordance with this Order.

25. Within five days after the effective date of this Order each Respondent who owns real property comprising all or part of the Waste Pits Area shall record a copy or copies of this Order in the appropriate government office where land ownership and transfer records are filed or recorded and shall ensure that the recording of this Order is indexed to the title of each and every property in the Waste Pits Area so as to provide notice to third parties of the issuance and terms of this Order with respect to those properties. Respondents shall within fifteen days after the effective date of this Order, send notice of such recording and indexing to EPA.(1) Not later than sixty (60) days prior to any transfer of any real property interest in any property included within the Site, Respondent Shell Oil Company shall submit a true and correct copy of the transfer documents to EPA, and shall identify the transferee by name, principal business address and effective date of the transfer.

IX. WORK TO BE PERFORMED

26. Respondents shall cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Respondents shall participate in the preparation of such information for distribution to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to the Site.

27. All aspects of the Work to be performed by Respondents pursuant to this Order shall be under the direction and supervision of a qualified project manager the selection of which shall be subject to approval by EPA. Not later than five (5) days after the effective date of this Order, Respondents shall notify EPA in writing of the name and qualifications of the project manager, including primary support entities and staff, proposed to be used in carrying out Work under this Order. If at any time Respondents propose to use a different project manager, Respondents shall notify EPA and shall obtain approval from EPA before the new project manager performs any Work under this Order.

28. EPA will review Respondents' selection of a project manager according to the terms of this paragraph and Section XI of this Order. If EPA disapproves of the selection of the project manager, Respondents shall submit to EPA within thirty (30) days after receipt of EPA's disapproval of the project manager previously selected, a list of project managers, including primary support entities and staff, that would be acceptable to Respondents. EPA will thereafter provide written notice to Respondents of the names of the project managers that are acceptable to EPA. Respondents may then select any approved project manager from that list and shall notify EPA of the name of the project manager selected within twenty-one (21) days of EPA's designation of approved project managers.

29. Within 30 (thirty) days after Respondents select an approved project manager, Respondents shall submit a Remedial Action Work Plan (Work Plan) to EPA for review and approval. The Work Plan shall be developed in accordance with the ROD and the attached Statement of Work, and shall be consistent with the Final Design as approved by EPA. The Work Plan shall include methodologies, plans and schedules for completion of at least the following: (1) selection of the remedial action contractor; (2)updating and implementation of the CQAP; (3) development and submission of the Health and Safety Plan; (4) identification of and satisfactory compliance with applicable permitting requirements; (5) updating and implementation of the Operation and Maintenance Plan (including compliance activities); (6)updating and implementation of the Site Management Plan (including contingency procedures); (7) development and submission of the Performance Standards Assessment Plan; (8) development and submission of deed restrictions prohibiting future residential use of the Waste Pits Area and prohibiting any future use which may impact the remedial action at the Operable Unit including, but not limited to, the integrity of the cap; (9) updating and implementation of the Sampling and Analysis Plan. The Work Plan shall also include a schedule for implementing all remedial action tasks identified in the Statement of Work and shall identify the initial formulation of Respondent's Remedial Action Project Team (including the Supervising Contractor). Within 30 (thirty) days, Respondents shall also submit to EPA for review the Health and Safety Plan for field activities required by the Work Plan. The Health and Safety Plan for field activities shall conform to applicable Occupational Safety and Health Administration and EPA requirements, including but not limited to the regulations at 54 Fed. Reg. 9294. Within 45 (forty-five) days, Respondents shall submit to EPA for review the deed restrictions required by the ROD and Work Plan. The deed restrictions for the Waste Pits Area: (a) shall conform to all the requirements of California Civil Code section 1471 pertaining to Environmental Covenants for Lands

Containing Hazardous Materials, and/or California Health and Safety Code section 25222.1 and/or other identified California statutory authority for environment land use restrictions; (b) shall be provided in a legal instrument that runs with the land and is binding upon each successive owner and/or operator of any portion of the land affected by the ROD; and (c) shall be enforceable under the laws of the State of California and all applicable local jurisdictions. The deed restrictions shall reference the ROD and shall specify who is responsible for the ongoing monitoring and enforcement of the deed restrictions. At the same time that Respondents provide EPA with a copy of the proposed deed restrictions, Respondents shall provide to EPA a legal opinion from Respondents stating that the deed restrictions are in a form that complies with all applicable state and/or local procedural and substantive legal requirements, binding in perpetuity against current owners and future transferees and successors, and enforceable against current owners and future transferees and successors.

30. Upon approval by EPA, the Work Plan is incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order.

31. Upon approval of the Work Plan by EPA, Respondents shall implement the Work Plan according to the schedules in the Work Plan. Unless otherwise directed by EPA, Respondents shall not commence remedial action at the Site prior to approval of the Work Plan.

32. If Respondents seek to retain a construction contractor to assist in the performance of the Remedial Action, then Respondents shall submit a copy of the contractor solicitation documents to EPA not later than five (5) days after publishing the solicitation documents.

33. Within ten (10) days after EPA approves the Work Plan, Respondents shall notify EPA in writing of the name, title, and qualifications of any construction contractor proposed to be used in carrying out work under this Order. EPA shall thereafter provide written notice of the name(s) of the contractor(s) it approves, if any. Respondents may select any approved contractor from that list and shall notify EPA of the name of the contractor selected within twenty one (21) days of EPA's designation of approved contractors. If at any time Respondents propose to change the construction contractor, Respondents shall notify EPA and shall obtain approval from EPA as provided in this paragraph, before the new construction contractor performs any work under this Order. If EPA disapproves of the selection of any contractor as the construction contractor, Respondents shall submit a list of contractors that would be acceptable to them to EPA within thirty (30) days after receipt of EPA's disapproval of the contractor previously selected.

34. The Work performed by Respondents pursuant to this Order shall, at a minimum, achieve the Performance Standards specified in the Record of Decision and in Attachment 6 of the Statement of Work.

35. Notwithstanding any action by EPA, Respondents remain fully responsible for achievement of the Performance Standards in the Record of Decision and Statement of Work. Nothing in this Order, or in EPA's approval of the Statement of Work, or in the Remedial Design or Remedial Action Work Plans, or approval of any other submission, shall be deemed to constitute a warranty or representation of any kind by EPA that full performance of the Remedial Action will achieve the Performance Standards set forth in the ROD and in the Statement of Work. Respondents' compliance with such approved documents does not foreclose EPA from seeking additional work to achieve the applicable performance standards.

36. Respondents shall, prior to any off-site shipment of hazardous substances from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's RPM of such shipment of hazardous substances. However, the notification of shipments shall not apply to any off-Site shipments when the total volume of all shipments from the Site to the State will not exceed ten (10) cubic yards.

a. The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondents shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

b. The identity of the receiving facility and state will be determined by Respondents following the award of the contract for Remedial Action construction. Respondents shall provide all relevant information, including information under the categories noted in paragraph (.a) above, on the off-Site shipments as soon as practicable after the award of the contract and before the hazardous substances are actually shipped.

37. Within thirty (30) days after Respondents conclude that the Remedial Action has been fully performed, Respondents shall so notify EPA and shall schedule and conduct a pre-certification inspection to be attended by Respondents and EPA. The pre-certification inspection shall be followed by a written report submitted within thirty (30) days of the inspection by a registered professional engineer and Respondents' Project

Coordinator certifying that all components of the Remedial Action, including but not limited to the implementation of deed restrictions, have been completed in full satisfaction of the requirements of this Order. The written report shall include a legal opinion from Respondents that the deed restrictions are in effect and in a form that complies with all applicable state and/or local procedural and substantive legal requirements, binding in perpetuity against current owners and operators and future transferees, successors and operators, and enforceable against current owners and operators and future transferees, successors and operators. If, after completion of the pre-certification inspection and receipt and review of the written report, EPA determines that the Remedial Action or any portion thereof has not been completed in accordance with this Order, EPA shall notify Respondents in writing of the activities that must be undertaken to complete the Remedial Action and shall set forth in the notice a schedule for performance of such activities. Respondents shall perform all activities described in the notice in accordance with the specifications and schedules established therein. If EPA concludes, following the initial or any subsequent certification of completion by Respondents that the Remedial Action has been fully performed in accordance with this Order, EPA may notify Respondents that the Remedial Action has been fully performed. EPA's notification shall be based on present knowledge and Respondent's certification to EPA, and shall not limit EPA's right to perform periodic reviews pursuant to section 121(c) of CERCLA, 42 U.S.C. § 9621(c), or to take or require any action that in the judgment of EPA is appropriate at the Site, in accordance with 42 U.S.C. §§ 9604, 9606, or 9607.

38. Within thirty (30) days after Respondents concludes that all phases of the Work have been fully performed, that the Performance Standards have been attained, and that all Operation and Maintenance activities have been completed, Respondents shall submit to EPA (1) a written Remedial Action report by a

registered professional engineer certifying that the Work has been completed in full satisfaction of the requirements of this Order; and (2) a legal opinion from Respondents that the deed restrictions are in effect and in a form that complies with all applicable state and/or local procedural and substantive legal requirements, binding in perpetuity against current owners and operators and future transferees, successors and operators, and enforceable against current owners and operators, and future transferees, successors and operators. EPA shall require such additional activities as may be necessary to complete the Work or EPA may, based upon present knowledge and Respondent's certification to EPA, issue written notification to Respondents that the Work has been completed, as appropriate, in accordance with the procedures set forth in Paragraph 37 for Respondent's certification of completion of the Remedial Action. EPA's notification shall not limit EPA's right to perform periodic reviews pursuant to section 121(c) of CERCLA, 42 U.S.C. § 9621(c), or to take or require any action that in the judgment of EPA is appropriate at the Site, in accordance with 42 U.S.C. §§ 9604, 9606, or 9607.

X. FAILURE TO ATTAIN PERFORMANCE STANDARDS

39. In the event that EPA determines that additional response activities are necessary to meet applicable Performance Standards, EPA may notify Respondents that additional response actions are necessary.

40. Unless otherwise stated by EPA, within thirty (30) days of receipt of notice from EPA that additional response activities are necessary to meet any applicable Performance Standards, Respondent(s) shall submit for approval by EPA a work plan for the additional response activities. The plan shall conform to the applicable requirements of sections IX, XVI, and XVII of this Order. Upon EPA's approval of the plan pursuant to Section XIV,

Respondents shall implement the plan for additional response activities in accordance with the provisions and schedule contained therein.

XI. EPA PERIODIC REVIEW

41. Under section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, EPA may review the Site to assure that the Work performed pursuant to this Order adequately protects human health and the environment. Until such time as EPA certifies completion of the Work, Respondents shall conduct the requisite studies, investigations, or other response actions as determined necessary by EPA in order to permit EPA to conduct the review under section 121(c) of CERCLA. As a result of any review performed under this paragraph, Respondents may be required to perform additional Work or to modify Work previously performed.

XII. ADDITIONAL RESPONSE ACTIONS

42. EPA may determine that in addition to the Work identified in this Order and attachments to this Order, additional response activities may be necessary to protect human health and the environment. If EPA determines that additional response activities are necessary, EPA may require Respondents to submit a work plan for additional response activities. EPA may also require Respondents to modify any plan, design, or other deliverable required by this Order, including any approved modifications.

43. Not later than thirty (30) days after receiving EPA's notice that additional response activities are required pursuant to this Section, Respondents shall submit a work plan for the response activities to EPA for review and approval. Upon approval by EPA, the work plan is incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order. Upon

approval of the work plan by EPA, Respondents shall implement the work plan according to the standards, specifications, and schedule in the approved work plan. Respondents shall notify EPA of their intent to perform such additional response activities within seven (7) days after receipt of EPA's request for additional response activities.

XIII. ENDANGERMENT AND EMERGENCY RESPONSE

44. In the event of any action or occurrence during the performance of the Work which causes or threatens to cause a release of a hazardous substance or which may present an immediate threat to public health or welfare or the environment, Respondents shall immediately take all appropriate action to prevent, abate, or minimize the threat, and shall immediately notify EPA's Remedial Project Manager (RPM) or, if the RPM is unavailable, EPA's Alternate RPM. If neither of these persons is available, Respondents shall notify EPA's Section Chief. If neither the RPM, the Alternate RPM, nor the Section Chief is available, Respondents shall notify the EPA Emergency Response Section, Region IX. Respondents shall take such action in consultation with EPA's RPM and in accordance with all applicable provisions of this Order, including but not limited to the Health and Safety Plan and the Site Management Contingency Plan. In the event that Respondents fails to take appropriate response action as required by this Section, and EPA takes that action instead, EPA reserves the right to bring an action under Section 107 of CERCLA, 42 U.S.C. section 9607, for the recovery of all costs not inconsistent with the NCP. Section XVIII of this order identifies the EPA RPM, Alternate RPM and Section Chief and describes the procedure for changing these designations.

45. Nothing in the preceding paragraph shall be deemed to limit any authority of the United States to take, direct, or order all appropriate action to protect human health and the environment or

to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the Site.

XIV. EPA REVIEW OF SUBMISSIONS

46. After review of any deliverable, plan, report or other item which is required to be submitted for review and approval pursuant to this Order, EPA may: (a) approve the submission; (b) approve the submission with modifications; (c) disapprove the submission and direct Respondents to re-submit the document after incorporating EPA's comments; or (d) disapprove the submission and assume responsibility for performing all or any part of the response action. As used in this Order, the terms "approval by EPA," "EPA approval," or a similar term means the action described in paragraphs (a) or (b) of this paragraph.

47. In the event of approval or approval with modifications by EPA, Respondents proceed to take any action required by the plan, report, or other item, as approved or modified by EPA.

48. Upon receipt of a notice of disapproval and a request for a modification, Respondents shall, within fifteen (15) days or such longer time as specified by EPA in its notice of disapproval or request for modification, correct the deficiencies and resubmit the plan, report, or other item for approval. Notwithstanding the notice of disapproval, or approval with modifications, Respondents shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission.

49. If any submission is disapproved by EPA, Respondents shall be deemed to be in violation of this Order.

XV. PROGRESS REPORTS

50. In addition to the other deliverables set forth in this Order, Respondents shall provide monthly progress reports to EPA with respect to actions and activities undertaken pursuant to this Order. The progress reports shall be submitted on or before the fifteenth (15th) day of each month following the effective date of this Order. At a minimum these progress reports shall: (1) describe the actions which have been taken to comply with this Order during the prior month; (2) describe all work planned for the next three months with schedules relating such work to the overall project schedule for RA completion; and (3) describe all problems encountered with the overall implementation of this Order and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

XVI. QUALITY ASSURANCE, SAMPLING AND DATA ANALYSIS

51. Respondents shall use the quality assurance, quality control, and chain of custody procedures described in the "EPA NEIC Policies and Procedures Manual," May 1978, revised May 1986, (EPA-330/9-78-001-R); EPA's "Guidelines and Specifications for Preparing Quality Assurance Program Documentation," June 1, 1987; EPA's "Data Quality Objective Guidance," (EPA/540/G87/003 and 004); EPA's "Guidance for Data Quality Objectives (DQO) Process," September 1994 (EPA QA/G-4); "Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Project," August 1993 (EPA QAMS DCN 9QA-06-93); USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganic Data Review," February 1994 (EPA 540/R-94/013); "USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review," February 1994 (EPA 540/R-94/012); and any amendments to these documents, while conducting all sample collection and analysis activities required herein by any plan.

To provide quality assurance and maintain quality control, Respondents shall:

a. Use only laboratories which have a documented Quality Assurance Program that complies with EPA guidance document QAMS-005/80.

b. Ensure that the laboratory used by the Respondents for analyses, performs according to a method or methods deemed satisfactory to EPA and submits all protocols to be used for analyses to EPA at least fifteen (15) days before beginning analysis.

c. Ensure that EPA personnel and EPA's authorized representatives are allowed access to the laboratory and personnel utilized by the Respondents for analyses.

52. Respondents shall notify EPA not less than fourteen (14) days in advance of any sample collection activity. At the request of EPA, Respondents shall allow split or duplicate samples to be taken by EPA or its authorized representatives, of any samples collected by Respondents with regard to the Site or pursuant to the implementation of this Order. In addition, EPA shall have the right to take any additional samples that EPA deems necessary.

XVII. COMPLIANCE WITH APPLICABLE LAWS

53. All activities by Respondents pursuant to this Order shall be performed in accordance with or designed to comply with the requirements of all Federal and state laws and regulations, including, but not limited to the applicable or relevant and appropriate requirements (ARARs) and other laws identified in Attachment A to the ROD. EPA has determined that the activities contemplated by this Order will be consistent with the National Contingency Plan (NCP).

54. Except as provided in section 121(e) of CERCLA and the NCP, no permit shall be required for any portion of the Work conducted entirely on-Site. Where any portion of the Work requires a

Federal or state permit or approval, Respondents shall submit timely applications and take all other actions necessary to obtain and to comply with all such permits or approvals.

55. This Order is not, and shall not be construed to be, a permit issued pursuant to any Federal or state statute or regulation.

56. All materials removed from the Site shall be disposed of or treated at a facility approved by EPA's RPM and in accordance with section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3); with the requirements for the off-site management of CERCLA hazardous substances set forth in 40 CFR 300.440; and with all other applicable Federal, state, and local requirements.

XVIII. REMEDIAL PROJECT MANAGER

57. All communications, whether written or oral, from Respondents to EPA shall be directed to EPA's Remedial Project Manager or, if the RPM is unavailable, EPA's Alternate Remedial Project Manager. If neither of these persons is available, Respondents shall direct their communications to the EPA Section Chief. Respondents shall submit to EPA three copies of all documents, including plans, reports, and other correspondence, which are developed pursuant to this Order, and shall send these documents by overnight mail, unless otherwise specified by the RPM. At EPA's request, one or more of these copies shall be sent directly to the EPA support contractor for this project.

EPA's Remedial Project Manager is:

Dante Rodriguez
Remedial Project Manager
U.S. Environmental Protection Agency
75 Hawthorne Street (SFD 7-1)
San Francisco, CA 94105
(415) 744-2239

EPA's Alternate Remedial Project Manager is:

Jeff Dhont
Remedial Project Manager
U.S. Environmental Protection Agency
75 Hawthorne Street (SFD 7-1)
San Francisco, CA 94105
(415) 744-2399

EPA's Section Chief is:

Michael Montgomery
Chief, Arizona/California Cleanup Section
U.S. Environmental Protection Agency
75 Hawthorne Street (SFD 7-1)
San Francisco, CA 94105
(415) 744-2362

58. EPA has the unreviewable right to change its Remedial Project Manager, Alternate Remedial Project Manager, or Section Chief. If EPA changes its Remedial Project Manager, Alternate Remedial Project Manager, or Section Chief, EPA will inform Respondents in writing of the name, address, and telephone number of the new Remedial Project Manager, Alternate Remedial Project Manager, or Section Chief.

59. EPA's RPM, Alternate RPM, and Section Chief shall have the authority lawfully vested in a Remedial Project Manager (RPM) and On-Scene Coordinator (OSC) by the National Contingency Plan, 40 C.F.R. Part 300. EPA's RPM, Alternate RPM, or Section Chief shall have authority, consistent with the National Contingency Plan, to halt any work required by this Order, and to take any necessary response action.

60. Within ten (10) days after the effective date of this Order, Respondents shall designate a Project Coordinator and shall submit the name, address, and telephone number of the Project Coordinator to EPA for review and approval. Respondents' Project Coordinator shall be responsible for overseeing Respondents' implementation of this Order. If Respondents wish to change their Project Coordinator, Respondents shall provide written

notice to EPA, five (5) days prior to changing the Project Coordinator, of the name and qualifications of the new Project Coordinator. Respondents' selection of a Project Coordinator shall be subject to EPA approval.

XIX. ACCESS TO SITE NOT OWNED BY RESPONDENTS

61. If the Site, the off-Site area that is to be used for access, property where documents required to be prepared or maintained by this Order are located, or other property subject to or affected by the clean up, is owned in whole or in part by parties other than those bound by this Order, Respondents shall obtain, or use their best efforts to obtain, site access agreements from the present owners within thirty (30) days of the effective date of this Order. Such agreements shall provide access for EPA, its contractors and oversight officials, the state and its contractors, and Respondents or Respondents' authorized representatives and contractors, and such agreements shall specify that Respondents are not EPA's representatives with respect to liability associated with Site activities. Copies of such agreements shall be provided to EPA prior to Respondents' initiation of field activities. Respondents' best efforts shall include providing reasonable compensation to any off-Site property owner. If access agreements are not obtained within the time referenced above, Respondents shall immediately notify EPA of their failure to obtain access. Subject to EPA's non-reviewable discretion, EPA may use its legal authorities to obtain access for the Respondents, may perform those response actions with EPA contractors at the property in question, or may terminate the Order if Respondents cannot obtain access agreements. If EPA performs those tasks or activities with contractors and does not terminate the Order, Respondents shall perform all other activities not requiring access to that property. Respondents shall integrate the results of any such tasks undertaken by EPA into their reports and deliverables.

EPA reserves the right to bring an action against Respondents under section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of all response costs (including attorney fees) incurred by EPA to obtain access for Respondents and to perform response actions at the property.

XX. SITE ACCESS AND DATA/DOCUMENT AVAILABILITY

62. Respondents shall allow EPA and its authorized representatives and contractors to enter and freely move about all property at the Site and off-Site areas subject to or affected by the work under this Order or where documents required to be prepared or maintained by this Order are located, for the purposes of inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Site or Respondents and their representatives or contractors pursuant to this Order; reviewing the progress of the Respondents in carrying out the terms of this Order; conducting tests as EPA or its authorized representatives or contractors deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by Respondents. Respondents shall allow EPA and its authorized representatives to enter the Site, to inspect and copy all records, files, photographs, documents, sampling and monitoring data, and other writings related to work undertaken in carrying out this Order. Nothing herein shall be interpreted as limiting or affecting EPA's right of entry or inspection authority under Federal law.

63. Respondents may assert a claim of business confidentiality covering part or all of the information submitted to EPA pursuant to the terms of this Order under 40 C.F.R. § 2.203, provided such claim is not inconsistent with section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7) or other provisions of law. This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and

substantiated by Respondents at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA or the state without further notice to the Respondents. Respondents shall not assert confidentiality claims with respect to any data related to Site conditions, sampling, or monitoring.

64. Respondents shall maintain for the period during which this Order is in effect, an index of documents that Respondents claim contain confidential business information. The index shall contain, for each document, the date, author, addressee, and subject of the document. Upon written request from EPA, Respondents shall submit a copy of the index to EPA.

XXI. RECORD PRESERVATION

65. Respondents shall provide to EPA upon request, copies of all documents and information within their possession and/or control or that of their contractors or agents relating to activities at the Site or to the implementation of this Order, including but not limited to sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondents shall also make available to EPA for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

66. Until ten (10) years after EPA provides written notice to the Respondents that the Work has been completed, each Respondent shall preserve and retain all records and documents in its possession or control, including the documents in the possession

or control of their contractors and agents on and after the effective date of this Order that relate in any manner to the Site. At the conclusion of this document retention period, Respondents shall notify the United States at least ninety (90) calendar days prior to the destruction of any such records or documents, and upon request by the United States, Respondents shall deliver any such records or documents to EPA.

67. Until ten (10) years after EPA provides notice pursuant to paragraph 37 of this Order, Respondents shall preserve, and shall instruct their contractors and agents to preserve, all documents, records, and information of whatever kind, nature or description relating to the performance of the Work. Upon the conclusion of this document retention period, Respondents shall notify the United States at least ninety (90) days prior to the destruction of any such records, documents or information, and, upon request of the United States, Respondents shall deliver all such documents, records and information to EPA.

68. Within thirty (30) days after the effective date of this Order, Respondents shall submit a written certification to EPA's RPM that they have not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information relating to their potential liability with regard to the Waste Pits Operable Unit of the Site since notification of potential liability by the United States. Respondents shall not dispose of any such documents without prior approval by EPA. Respondents shall, upon EPA's request and at no cost to EPA, deliver the documents or copies of the documents to EPA.

XXII. DELAY IN PERFORMANCE

69. Any delay in performance of this Order that, in EPA's judgment, is not properly justified by Respondents under the terms of this paragraph shall be considered a violation of this Order. Any delay in performance of this Order shall not affect Respondents' obligations to fully perform all obligations under the terms and conditions of this Order.

70. Respondents shall notify EPA of any delay or anticipated delay in performing any requirement of this Order. Such notification shall be made by telephone to EPA's RPM, Alternate RPM, or Section Chief within forty eight (48) hours after Respondents first knew or should have known that a delay might occur. Respondents shall adopt all reasonable measures to avoid or minimize any such delay. Within five (5) business days after notifying EPA by telephone, Respondents shall provide written notification fully describing the nature of the delay, any justification for delay, any reason why Respondents should not be held strictly accountable for failing to comply with any relevant requirements of this Order, the measures planned and taken to minimize the delay, and a schedule for implementing the measures that will be taken to mitigate the effect of the delay. Increased costs or expenses associated with implementation of the activities called for in this Order is not a justification for any delay in performance.

XXIII. MODIFICATIONS

71. This Order may be amended or modified by EPA.

72. Such amendment or modification shall be in writing and shall be signed by the Director, Superfund Division, U.S. EPA Region IX.

73. No informal advice, guidance, suggestions or comments by EPA regarding reports, plans, specifications, schedules, or any other writing submitted by Respondents shall relieve Respondents of their obligations under this Order, and to comply with all applicable requirements of this Order unless it is formally modified.

XXIV. ASSURANCE OF ABILITY TO COMPLETE WORK

74. Respondents shall demonstrate their ability to complete the Work required by this Order and to pay all claims that arise from the performance of the Work by obtaining and presenting to EPA within thirty (30) days after the effective date of this Order, one of the following: (1) a performance bond; (2) a letter of credit; (3) a guarantee by a third party; or (4) internal financial information to allow EPA to determine that Respondents have sufficient assets available to perform the Work. Respondent(s) shall demonstrate financial assurance in an amount no less than the estimate of cost for the remedial design and remedial action contained in the Record of Decision for the Site. If Respondents seeks to demonstrate ability to complete the remedial action by means of internal financial information, or by guarantee of a third party, they shall re-submit such information annually, on the anniversary of the effective date of this Order. If EPA determines that such financial information is inadequate, Respondents shall, within thirty (30) days after receipt of EPA's notice of determination, obtain and present to EPA for approval one of the other three forms of financial assurance listed above.

75. At least seven (7) days prior to commencing any work at the Site pursuant to this Order, Respondents shall submit to EPA a certification that Respondents or their contractors and subcontractors have adequate insurance coverage or have indemnification for liabilities for injuries or damages to persons or property which may result from the activities to be

conducted by or on behalf of Respondents pursuant to this Order. Respondents shall ensure that such insurance or indemnification is maintained for the duration of the Work required by this Order.

XXV. REIMBURSEMENT OF RESPONSE COSTS

76. Respondents shall reimburse EPA, upon written demand, for all response costs incurred by EPA in overseeing Respondent's implementation of the requirements of this Order or in performing any response action which Respondents fail to perform in compliance with this Order. EPA may submit to Respondents on a periodic basis an accounting of all response costs incurred by the EPA with respect to this Order. EPA's certified Agency Financial Management System summary data (SPUR Reports), or such other summary as certified by EPA, shall serve as basis for payment demands.

77. Respondents shall, within thirty (30) days of receipt of each EPA accounting, remit a certified or cashier's check for the amount of those costs. A copy of the check shall be sent to the RPM. Interest shall accrue from the later of the date that payment of a specified amount is demanded in writing or the date of the expenditure. The interest rate is the rate established by the Department of the Treasury pursuant to 31 U.S.C. § 3717 and 4 C.F.R. § 102.13. Checks shall be made payable to the Hazardous Substances Superfund and shall reference the Del Amo Superfund Site Region IX, Waste Pits Operable Unit, Site ID # 0936 and the name and address of the party making the payment. Checks shall be forwarded to:

U.S. Environmental Protection Agency, Region IX
Attention: Superfund Accounting
P.O. Box 360863M
Pittsburgh, PA. 15251

XXVI. EPA NOT LIABLE

78. EPA, by issuance of this Order, assumes no liability for any injuries or damages to persons or property resulting from acts or omissions by Respondents, or their directors, officers, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order. EPA shall not be deemed a party to any contract entered into by Respondents or their directors, officers, employees, agents, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order.

XXV. ENFORCEMENT AND RESERVATIONS

79. EPA reserves the right to bring an action against Respondent Shell Oil Company, and/or Respondent Dow Chemical Company, and/or Respondent Michelin North America Inc., on behalf of itself or Uniroyal Goodrich Tire Company, and/or Goodyear Tire and Rubber Company under section 107 of CERCLA, 42 U.S.C. § 9607, or to assert an administrative claim against Respondent GSA, for recovery of any response costs incurred by EPA related to this Order or to the Site (including but not limited to the Waste Pits Area). This reservation shall include but not be limited to past costs, direct costs, indirect costs, the costs of oversight, the costs of compiling the cost documentation to support oversight cost demand, as well as accrued interest as provided in section 107(a) of CERCLA.

80. Notwithstanding any other provision of this Order, at any time during the response action, EPA may perform its own studies, or elect to complete the response action (or any portion of the response action) as provided in CERCLA and the NCP, and seek

reimbursement from Respondents for its costs, or seek any other appropriate relief.

81. Nothing in this Order shall preclude EPA from taking any additional enforcement actions, including modification of this Order or issuance of additional Orders, and/or additional remedial or removal actions as EPA may deem necessary, or from requiring Respondents in the future to perform additional activities pursuant to CERCLA, 42 U.S.C. § 9606(a), et seq., or any other applicable law.

82. Notwithstanding any provision of this Order, the EPA hereby retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, RCRA and any other applicable statutes or regulations.

83. EPA reserves the right to seek to compel enforcement of this Order and to collect civil penalties under section 106(b) of CERCLA, 42 U.S.C. § 9606(b), of not more than $27,500 for each day in which Respondents willfully violate, or fail or refuse to comply with this Order without sufficient cause. In addition, failure to properly provide response action under this Order, or any portion hereof, without sufficient cause, may result in liability under section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), for punitive damages in an amount at least equal to, and not more than three times the amount of any costs incurred by the Fund as a result of such failure to take proper action.

84. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person for any liability it may have arising out of or relating in any way to the Site.

85. If a court issues an order that invalidates any provision of this Order or finds that Respondents have sufficient cause not to comply with one or more provisions of this Order, Respondents shall remain bound to comply with all applicable provisions of this Order not invalidated by the court's order.

XXVIII. ADMINISTRATIVE RECORD

86. Upon request by EPA, Respondents must submit to EPA all technical documents produced in complying with this Order for possible inclusion in the administrative record file.

XXIX. EFFECTIVE DATE AND COMPUTATION OF TIME

87. This Order shall be effective ten (10) days after the Order is signed by the Director, Superfund Division, U.S. EPA Region IX. All times for performance of ordered activities shall be calculated from this effective date.

XXX. OPPORTUNITY TO CONFER

88. Respondents may, within ten (10) days after the date this Order is signed, request a conference to discuss this Order with EPA at its Region IX offices located at 75 Hawthorne Street in San Francisco, California. If requested, the conference shall occur on May 17, 1999 at 1 pm at 75 Hawthorne Street, San Francisco, California. Only one conference will be held with Respondents with respect to this order.

89. The purpose and scope of the conference shall be limited to issues involving the implementation of the Work required by this Order and the extent to which Respondents intend to comply with this Order. This conference is not an evidentiary hearing, and

Order and the extent to which Respondents intend to comply with this Order. This conference is not an evidentiary hearing, and does not constitute a proceeding to challenge this Order. It does not give Respondents a right to seek review of this Order, or to seek resolution of potential liability, and no official stenographic record of the conference will be made. At any conference held pursuant to Respondents' request, Respondents may appear in person or by an attorney or other representative. Regardless of whether a conference is held, Respondents may submit any information, arguments or comments in writing to EPA within two (2) business days following the conference, or within seven (7) business days after the Order is signed if no conference is requested.

90. Requests for a conference must be by telephone followed by written confirmation mailed that day to Michele S. Benson , Assistant Regional Counsel at (415) 744-1369, EPA Region IX, 75 Hawthorne Street, Mail Code ORC-3, San Francisco, California 94105

So Ordered, this 3 day of May, 1999.

BY: Keith Takata

Keith Takata, Director
Superfund Division
U.S. Environmental Protection Agency
Region IX

LEAD SHEET

00-1521450

RECORDED/FILED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA
11:21 AM SEP 27 2000

SPACE ABOVE THIS LINE FOR RECORDERS USE

TITLE(S)

FEE	D.T.T.
FREE V	
CODE 20	
CODE 19	
CODE 9___	

Assessor's Identification Number (AIN)
To Be Completed By Examiner OR Title Company In Black Ink

Number of Parcels Shown

THIS FORM IS NOT TO BE DUPLICATED

00-1521450

2

Recording Requested by: David J. Earle Law Offices of David J. Earle 138 North Brand Boulevard Suite 303 Glendale, California 91203 818.242.4700 When Recorded Return to: Department of Toxic Substances Control Southern California Branch Site Mitigation Cleanup Operations 5796 Corporate Avenue Cypress, CA 90630 Attention: Nennet Alvarez, Chief	

Space Above For L.A. County Recorder's Use Only

COVENANT TO RESTRICT USE OF PROPERTY

(Health and Safety Code section 25355.5)

ENVIRONMENTAL RESTRICTIONS

(Civil Code section 1471)

WHEREAS, Triton Diagnostics, Inc., a wholly-owned subsidiary of Shell Oil Company, (the "Covenantor"), is the owner of certain real property (the "Property") in the County of Los Angeles which is legally described below; and

WHEREAS, the Department of Toxic Substances Control (the "Department"), pursuant to Civil Code section 1471, has determined that the Covenants contained herein are reasonably necessary to protect present or future human health or safety or the environment as a result of the presence on the Property of hazardous materials as defined in Health and Safety Code ("H&SC") section 25260.

NOW THEREFORE, The Covenantor and the Department, collectively referred to as the "Parties", hereby agree, pursuant to Civil Code section 1471 and H&SC section 25355.5 that the use of the Property be restricted as set forth in this Covenant and that this Covenant shall run with the land. The Parties further intend that the provisions of this Covenant also be for the benefit of, and be enforceable by, the U.S. Environmental Protection Agency ("U.S. EPA") as a third party beneficiary.

ARTICLE I
STATEMENT OF FACTS

1.01. The property subject to these restrictions (the "Property") is legally described as follows:

Lot 36 of Tract 4671, in the City of Los Angeles, as per map recorded in Book 56, Pages 30 and 31 of Maps, in the office of the County Recorder of the County of Los Angeles.

Together with the Westerly 62 feet of Lot 37 of said Tract, together with those portions of Lot 13 of said Tract and Rosemead Street, shown and dedicated upon said Tract and vacated by the Board of Supervisors of said County, a copy of which vacation recorded in Book 6142, Page 206 of the Official Records of said County which lie easterly of a line parallel with distant Westerly 100 feet from the center line of said Rosemead Street.

EXCEPT from the above mentioned Lots and Street a 100 foot strip of land described in the deed to the Department of Water and Power of the City of Los Angeles recorded in Book 19574, Page 48, in the Official Records of Los Angeles County.

1.02. Attached hereto as Exhibit "A" is a true and exact depiction of a limited portion of the Property that is to be covered by a RCRA-equivalent cap, as more particularly described below; hereinafter referred to as the "Capped Property." The Capped Property is legally described as follows:

Those portions of Lots 36 and 37 of said Tract 4671 in the City of Los Angeles, County of Los Angeles, State of California described as follows:

Beginning at the Southwest corner of said Lot 36; thence North along the West line of said Lot 36 N00°04'55"W a distance of 83.30 feet; thence leaving said West line N89°55'05"E a distance of 2.51 feet to the True Point of Beginning; thence N00°11'01" a distance of 134.77 feet; thence N89°53'45" a distance of 819.11 feet to a point on the West line of said Lot 37, said point being distant N00°04'55"W a distance of 217.31 feet from the Southwest corner of said Lot 37; thence N89°53'45"E a distance of 297 feet; thence S00°35'22"W a distance of 136.11 feet; thence S89°a distance of 295.91 feet to a point on the West line of said Lot 37, said point being N00°04'55"W a distance of 81.58 feet from the Southwest corner of said Lot 37; thence S89°57'50"W a distance of 819.74 feet to the true point of beginning.

The above described property consists of 151,162.93 square feet (3.47 acres).

1.03. The Property is currently being remediated, as more particularly set forth in Section 1.04, below, pursuant to a Record of Decision ("ROD") issued by the U.S. EPA on

September 5, 1997, on which the Department has given its concurrence. Under the authority vested in the President of the United States by virtue of Section 106(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, ("CERCLA") and as delegated, the U.S. EPA has issued a Unilateral Administrative Order for Remedial Action ("UAORA") in which the U.S. EPA has ordered Shell Oil Company, The Dow Chemical Company, Michelin North America, Inc. on behalf of itself and Uniroyal Goodrich Tire Company, and the Goodyear Tire and Rubber Company (collectively, "Respondents") to implement a remedial action for the remedy described in the ROD. The entire UAORA was recorded on August 3, 1999 in the official records of the Los Angeles County Recorder as Document No. 99-1453930.

1.04. Hazardous substances, as defined in H&SC section 25316 and section 101(14) of the CERCLA (42 U.S.C. § 9601(14)), remain on portions of the Property in soil and groundwater, including but not limited to: volatile organic compounds (benzene, toluene, ethyl benzene and styrene) and semi-volatile organic compounds (anthracene, chrysene, fluorene, naphthalene and phenanthrene). These substances are also hazardous materials as defined in H&SC section 25260. Hydrogen sulfide gas also remains in the soil in and under portions of the Property[1]. To preclude potential residential exposure to these hazardous substances, the ROD provides that a deed restriction prohibiting future residential use of the Waste Pits Area (as defined in the UAORA) and prohibiting any future use that could threaten the integrity of the RCRA equivalent cap be required as part of the site remediation. All of the Property is within the Waste Pits Area. Site remediation also includes the following:

(1) Installation and maintenance of a synthetic membrane cover ("Cap") over the Capped Property and associated soil gas monitoring. The Cap consists of a low permeability synthetic membrane and other associated layers as more particularly described in Exhibit "B" attached hereto;

(2) Installation of surface water controls to prevent ponding of water on the Cap and to prevent runoff of water onto adjacent properties;

(3) Installation and operation of a soil vapor extraction system ("SVE") beneath the Waste Pits Area to achieve the interim soil remediation standards specified in the ROD;

(4) Installation of security fencing around the treatment units associated with the Cap and the SVE systems; and

(5) Long-term operation and maintenance of all of the above and related components of the remedy selected in the ROD.

1.05 Risk Assessment. A thorough Risk Assessment of the Property was prepared by Dames & Moore as part of its Final Focused Feasibility Study Report ("FFFSR"), published

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[1] Contamination of the groundwater (approximately 60 ft. below surface grade) underlying the Property, which is known to be contaminated with hazardous substances, including benzene, ethyl benzene and phenol, is being addressed by U.S. EPA as a separate Operable Unit.

on September 4, 1996. Copies of the FFFSR are on file in the Region 9 Office of the U.S. EPA, Superfund Records Center, currently located at 95 Hawthorne Street, San Francisco, CA 94105, at the Torrance Public Library and at the Law Offices of David J. Earle.

ARTICLE II
DEFINITIONS

2.01. Department. "Department" means the California Department of Toxic Substances Control and includes its successor agencies, if any.

2.02. Owner. "Owner" means the Covenantor, its successors in interest, and their successors in interest, including heirs and assigns, who at any time hold title to all or any portion of the Property.

2.03. Occupant. "Occupant" means Owners and any person or entity entitled by ownership, leasehold, or other legal relationship to the right to occupy any portion of the Property.

2.04. Del Amo Participating Party. "Del Amo Participating Party" shall mean Shell Oil Company.

2.05. U.S. EPA. "U.S. EPA" means the United States Environmental Protection Agency, and includes its successor agencies, if any.

2.06. CERCLA Lead Agency. "CERCLA Lead Agency" means the governmental entity having the designated lead responsibility to implement response action under the National Contingency Plan ("NCP"), 40 C.F.R. Part 300. U.S. EPA is the CERCLA Lead Agency at the time of the recording of this instrument.

2.07 Monitoring Agent. The Del Amo Participating Party is hereby appointed the "Monitoring Agent" for the environmental covenants and restrictions created herein. By execution of this document, the Del Amo Participating Party has agreed to be responsible for the ongoing monitoring and enforcement of the environmental covenants and restrictions created herein and shall serve in such capacity until replaced by mutual agreement of Triton Diagnostics, Inc. (or the then current owner of the Property), the Department, U.S. EPA and the Del Amo Participating Party. In the event of such replacement, Triton Diagnostics, Inc. (or the then current owner of the Property) shall cause a notice of such replacement to be recorded in the Office of the County Recorder for Los Angeles County, which notice shall reference the Property. The Monitoring Agent shall also be responsible for making a current copy of a site map of the Property which identifies the location of all SVE wells and monitoring wells available for inspection by all owners, tenants and any others with any interest in the Property.

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ARTICLE III
GENERAL PROVISIONS

3.01. Restrictions to Run with the Land. This Covenant sets forth protective provisions, covenants, restrictions, and conditions (collectively referred to as "Restrictions"), subject to which the Property and every portion thereof shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, and/or conveyed. Each and every Restriction: (a) runs with the land pursuant to H&SC section 25355.5(a)(1)(C) and Civil Code section 1471; (b) inures to the benefit of and passes with each and every portion of the Property, (c) is for the benefit of, and is enforceable by the Department and U.S. EPA, as a third party beneficiary, and (d) is imposed upon the entire Property unless expressly stated as applicable only to a specific portion thereof.

3.02. Binding upon Owners/Occupants. Pursuant to H&SC section 25355.5(a)(1)(C), this Covenant binds all owners of the Property, their heirs, successors, and assignees, and the agents, employees, and lessees of the owners, heirs, successors, and assignees. Pursuant to Civil Code section 1471(b), all successive owners of the Property are expressly bound hereby for the benefit of the Department and U.S. EPA.

3.03. Written Notice of the Presence of Hazardous Substances. Prior to the sale, lease or sublease of the Property, or any portion thereof, the owner, lessor, or sublessor shall give the buyer, lessee, or sublessee notice that hazardous substances are located on or beneath the Property, as required by H&SC section 25359.7.

3.04. Incorporation into Deeds and Leases. The Restrictions set forth herein and the UAORA shall be incorporated by reference in each and all deeds, leases, assignments, or other transfers, of all or any portion of the Property. Further, each Owner or Occupant shall include in any instrument conveying any interest in all or any portion of the Property, including but not limited to deeds, leases, and mortgages, a notice which is in substantially the following form:

> NOTICE: THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL RESTRICTION AND COVENANT TO RESTRICT USE OF PROPERTY, RECORDED IN THE PUBLIC LAND RECORDS ON __[DATE]__, IN BOOK ____, PAGE ____, IN FAVOR OF AND ENFORCEABLE BY THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL AND THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

3.05. Conveyance of Property. The Owner shall provide notice to the Department and U.S. EPA not later than thirty (30) days after any conveyance of any ownership interest in the Property (excluding mortgages, liens, and other non-possessory encumbrances). The Department and U.S. EPA shall not, by reason of this Covenant, have authority to approve, disapprove, or otherwise affect any proposed conveyance, except as otherwise provided by law, by administrative order, or by a specific provision of this Covenant, including but not limited to Section 2.07.

ARTICLE IV
RESTRICTIONS

4.01. Prohibited Uses. The Property shall not be used for any of the following purposes:

(a) A residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation.

(b) A hospital for humans.

(c) A public or private school for persons under 21 years of age.

(d) A day care center for children.

4.02. Non-Interference with Cap and SVE and Monitoring Systems. Covenantor agrees with respect to the Property:

(a) Activities that may disturb the Cap (e.g. excavation, grading, removal, trenching, filling, earth movement, or mining) shall not be permitted on the Property without prior review and written approval by the Monitoring Agent and the CERCLA Lead Agency.

(b) Activities that may disturb the effectiveness of the SVE system (e.g. excavation, grading, removal, trenching, filling, earth movement, or mining) shall not be permitted on the Property without prior review and written approval by the Monitoring Agent and the CERCLA Lead Agency. Whether or not a particular activity may disturb the effectiveness of the SVE system shall be determined by the CERCLA Lead Agency.

(c) Activities that may disturb the effectiveness of the Monitoring well system for either the vadose zone or the groundwater (e.g. excavation, grading, removal, trenching, filling, earth movement, or mining) shall not be permitted on the Property without prior review and written approval by the Monitoring Agent and the CERCLA Lead Agency. Whether or not a particular activity may disturb the effectiveness of the Monitoring well system shall be determined by the CERCLA Lead Agency.

(d) All uses and development of the Property shall preserve the integrity of the Cap and SVE system.

(e) The Cap shall not be altered without prior written approval by the CERCLA Lead Agency.

(f) Covenantor shall notify the CERCLA Lead Agency of each of the following: (i) the type, cause, location and date of any damage to the Cap and (ii) the type and date of repair of such damage. Notification to the

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CERCLA Lead Agency shall be made as provided below within ten (10) working days of both the discovery of any such disturbance and the completion of any repairs. Timely and accurate notification by any Owner or Occupant shall satisfy this requirement on behalf of all other Owners and Occupants.

4.05. Access for Department and U.S. EPA. The Department and U.S. EPA shall have reasonable right of entry and access to the Property for inspection, monitoring, periodic review, and other activities consistent with the purposes of this Covenant as deemed necessary by the Department and U.S. EPA in order to protect the public health or safety, or the environment. Nothing in this instrument shall limit or otherwise affect U.S. EPA's right of entry and access, or U.S. EPA's authority to take response actions under CERCLA, the National Contingency Plan, 40 C.F.R. Part 300 and its successor provisions, and/or other federal law.

4.06. Access for Implementing Operation and Maintenance. The entity or person responsible for implementing an Operation and Maintenance Agreement with the U.S. EPA or the CERCLA lead agency shall have reasonable right of entry and access to the Property for the purpose of implementing the Operation and Maintenance Agreement until the CERCLA Lead Agency determines such activities are no longer required.

4.07 Access for Monitoring Agent. The Monitoring Agent and Del Amo Participating Party shall have reasonable right of entry and access to the Property for the purpose of ongoing monitoring and enforcement of the environmental covenants and restrictions herein pursuant to paragraph 2.07.

ARTICLE V
ENFORCEMENT

5.01. Enforcement. The Department and/or U.S. EPA shall be entitled to enforce the terms of this instrument by resort to specific performance or legal process. This Covenant shall be enforceable by the Department pursuant to H&SC, Division 20, Chapter 6.5, Article 8 (commencing with section 25180). Failure of the Covenantor, Owner or Occupant to comply with any of the Restrictions specifically applicable to it shall be grounds for the Monitoring Agent and/or the Department and/or U.S. EPA to require that the Covenantor or Owner modify or remove any improvements ("Improvements" herein shall mean all buildings, roads, driveways, and paved parking areas) constructed or placed upon any portion of the Property in violation of the Restrictions. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity, including CERCLA, and violation of this Covenant shall be grounds for the Department and/or U.S. EPA to file civil or criminal actions as provided by law or equity, including but not limited to, nuisance or abatement against the Owner or Occupant as provided by law. In addition, the State of California and the Department shall have all remedies as provided in California Civil Code Section 815.7 as that enactment may be from time to time amended.

ARTICLE VI
VARIANCE, TERMINATION, AND TERM

6.01 Variance. Covenantor, or any other aggrieved person, may apply to the Department for a written variance from the provisions of this Covenant. Such application shall be made in accordance with H&SC section 25233. Unless and until the State of California assumes CERCLA Lead Agency responsibility for Site operation and maintenance, no variance may be granted under this paragraph 6.01 without prior review and prior written concurrence of the variance by U.S. EPA. If requested by the Department or U.S. EPA, any approved variance shall be recorded in the land records by the person or entity granted the variance.

6.02 Termination. Covenantor, or any other aggrieved person, may apply to the Department for a termination of the Restrictions or other terms of this Covenant as they apply to all or any portion of the Property. Such application shall be made in accordance with H&SC section 25234. Unless and until the State of California assumes CERCLA Lead Agency responsibility for Site operation and maintenance, no termination may be granted under this Paragraph 6.02 without prior review and prior written concurrence of the termination by U.S. EPA.

6.03 Term. Unless ended in accordance with the Termination paragraph above, by law, or by the Department in the exercise of its discretion, after review and prior written concurrence by U.S. EPA, this Covenant shall continue in effect in perpetuity.

ARTICLE VII
MISCELLANEOUS

7.01. No Dedication or Taking Intended. Nothing set forth in this Covenant shall be construed to be a gift or dedication, or offer of a gift or dedication, of the Property, or any portion thereof to the general public or anyone else for any purpose whatsoever. Further, nothing set forth in this Covenant shall be construed to effect a taking under Federal or state law.

7.02. Department References. All references to the Department include successor agencies/departments or other successor entity.

7.03. Recordation. The Covenantor shall record this Covenant, with all referenced Exhibits, in the County of Los Angeles within ten (10) days of the Covenantor's receipt of a fully executed original.

7.04. Notices. Whenever any person gives or serves any Notice ("Notice" as used herein includes any demand or other communication with respect to this Covenant), each such Notice shall be in writing and shall be deemed effective (1) when delivered, if personally delivered to the person being served or to an officer of a corporate party being served, or (2)

three (3) business days after deposit in the mail, if mailed by United States mail, postage paid, certified, return receipt requested:

To Owner: Triton Diagnostics
c/o David J. Earle
Law Offices of David J. Earle
138 North Brand Blvd., Suite 303
Glendale, CA 91203

To Monitoring Agent: Shell Oil Company
Post Office Box 2463
Houston, Texas 77252
Attention: Associate General Counsel
Safety, Environmental and Technology
Legal Organization

With copy to: Chuck Paine, Remediation Manager
Shell Oil Company
4482 Barranca Pkwy, Suite 180 PMB 171
Irvine, California 92604

To Department: Department of Toxic Substances Control
Southern California Branch
Site Mitigation Cleanup Operations
5796 Corporate Avenue
Cypress, CA 90630-4732
Attention: Nennet Alvarez, Chief

Larry McDaniel
Staff Counsel
Department of Toxic Substances Control
400 P. Street, 4th floor
P.O. Box 806
Sacramento, CA 95812

To U.S. EPA: U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901
Attn: Dante Rodriguez, SFD-7-1
Re: Del Amo Superfund Site

Michele S. Benson
Office of Regional Counsel, ORC-3
U.S. EPA Region IX

75 Hawthorne Street
San Francisco, CA 94105-3901
Re: Del Amo Superfund Site

Any party may change its address or the individual to whose attention a Notice is to be sent by giving written Notice in compliance with this paragraph.

7.05. Partial Invalidity. If any portion of the Restrictions or other term set forth herein, or the application of it to any person or circumstance, is determined by a court of competent jurisdiction to be invalid for any reason, the surviving portions of this Covenant, or the application of such portions to persons or circumstances other than those to which it is found to be invalid, shall remain in full force and effect as if such portion found invalid had not been included herein.

7.06. Statutory References. All statutory refcrences include successor provisions.

7.07. Liberal Construction. Any general rule of construction to the contrary notwithstanding, this instrument shall be liberally construed to effect the purpose of this instrument and the policy and purpose of CERCLA. If any provision of this instrument is found to be ambiguous, an interpretation consistent with the purpose of this instrument that would render the provision valid shall be favored over any interpretation that would render it invalid.

IN WITNESS WHEREOF, the Parties execute this Covenant.

00-1521450

Executed this 23 day of June, 2000 at Irvine, California.

TRITON DIAGNOSTICS, INC.

Chuck Paine

By: CHUCK PAINE
Its: AGENT

DEL AMO PARTICIPATING PARTY

SHELL OIL COMPANY

Chuck Paine

By: CHUCK PAINE
Its: REMEDIATION MGR.

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Nemesio V. Alvarez

By: Nemesio Alvarez
Its: Branch Chief

THE U.S. EPA

Keith Takata

By: KEITH TAKATA
Its: DIRECTOR
SUPERFUND DIVISION

State of California)
County of Los Angeles) ss.

On June 23, 2000, before me, Mindy Marie Ritchie personally appeared Chuck Paine, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity and that by his/her signature on the instrument the person(s) or the entity upon behalf of which the person acted, executed the instrument.
WITNESS my hand and official seal. [NOTARY SEAL]

Mindy Marie Ritchie
Signature of Notary

MINDY MARIE RITCHIE
COMM. # 1213950
NOTARY PUBLIC-CALIFORNIA
ORANGE COUNTY
COMM. EXP. MARCH 26, 2003

State of California)
County of ~~Los Angeles~~ San Francisco) ss.

On 17 July 2000, before me, William Decker Clarke personally appeared Hiroh Takata, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity and that by his/her signature on the instrument the person(s) or the entity upon behalf of which the person acted, executed the instrument.
WITNESS my hand and official seal. [NOTARY SEAL]

Signature of Notary

WILLIAM DECKER CLARKE
Commission # 1204673
Notary Public - California
San Francisco County
My Comm. Expires Dec 13, 2002

State of California)
County of Los Angeles) ss.

On August 11, 2000, before me, J. P. Joseph C. Cully personally appeared Noriel A Alvarez, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity and that by his/her signature on the instrument the person(s) or the entity upon behalf of which the person acted, executed the instrument.
WITNESS my hand and official seal. [NOTARY SEAL]

Joseph Andrew Cully
Signature of Notary

JOSEPH ANDREW CULLY
Comm. # 1158352
NOTARY PUBLIC - CALIFORNIA
Los Angeles County
My Comm. Expires Sept 27, 2001

14

00-1521450

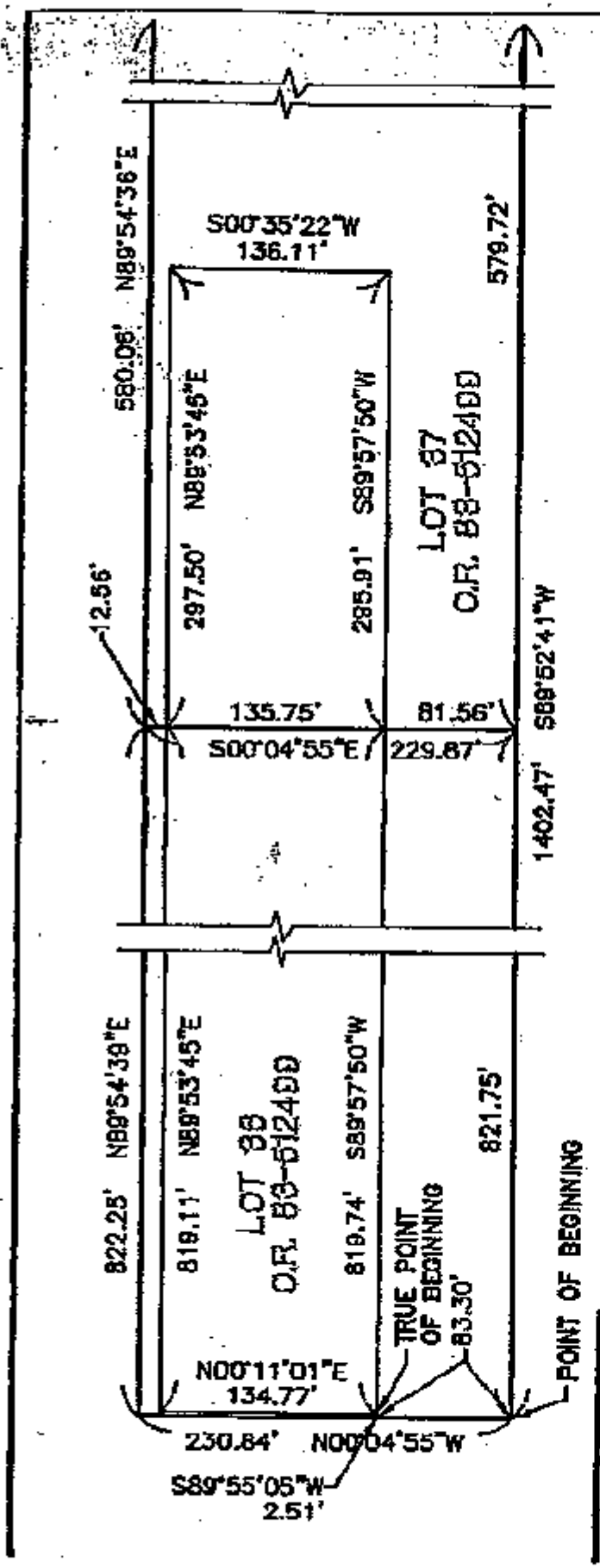


EXHIBIT "A"

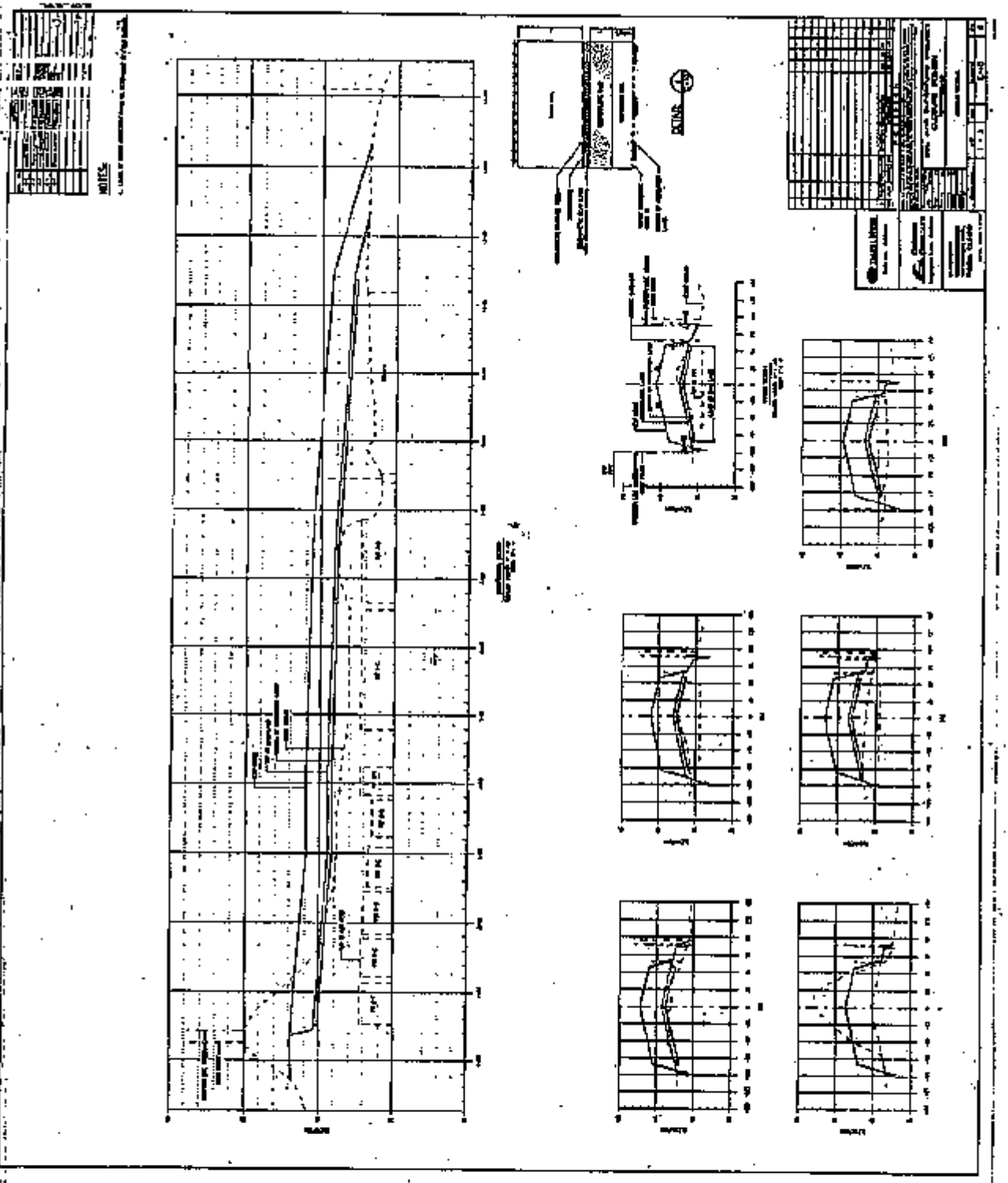
SCALE: 1"=100'

DEL AMO WASTE PITS

CAP EXTENT BASED ON LINER BOUNDARY LEGAL DESCRIPTION EXHIBIT

LOS ANGELES, CALIFORNIA

DRC Development Resource Consultants, Inc.



Sep 29 10:21:47 1998 S18-B11B2 F:\PARSONS\PLOTS\QUEUES\B11B2\CEC10.PRF

EXHIBIT "B" 00-1521450

RECORDER'S MEMO:
POOR RECORD IS DUE TO
QUALITY OF ORIGINAL DOCUMENT

16

00-1521450

ILLEGIBLE NOTARY SEAL DECLARATION

GOVERNMENT CODE 27361.7

I certify under penalty of perjury that the notary seal on the document to which this statement is attached reads as follows:

Name of Notary Joseph Andrew Gully

Date Commission Expires Sept 22, 2001

Notary Identification Number 1156352
(For Notaries commissioned after 1-1-1992)

Manufacturer/ Vendor Identification Number VS II
(For Notaries commissioned after 1-1-1992)

Place of Execution of this Declaration Norwalk

Date 9/22/00

Signature (Firm name (if any)

R747 1/92

This page is part of your document - DO NOT DISCARD

05 1252930

RECORDED/FILED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA

11:01 AM MAY 27 2005

TITLE(S) :

LEAD SHEET

FEE

FEE $ 52.00 ZZ
DAF $ 2.00
C-20 16

D.T.T

CODE
20

CODE
19

CODE
9____

Assessor's Identification Number (AIN)
To be completed by Examiner OR Title Company in black ink. Number of AIN's Shown

THIS FORM NOT TO BE DUPLICATED

2

RECORDING REQUEST BY

WHEN RECORDED MAIL TO

NAME: Del Almo Landfill, LLC
c/o Waste Management, Inc.
Closed Sites Management Group

MAILING ADDRESS: 8310 South Valley Highway Road
Suite 200

CITY, STATE ZIP CODE: Englewood, CO 80112

05 1252930

SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE

TITLE(S)

COVENANT TO RESTRICT USE OF PROPERTY

ENVIRONMENTAL RESTRICTIONS

3

Recording Requested by:
DEL ALMO LANDFILL, LLC
c/o Waste Management, Inc.
Closed Sites Management Group
8310 South Valley Highway Road, Suite 200
Englewood, CO 80112

When Recorded Return to:
Department of Toxic Substances Control
Southern California Branch Site Mitigation
Cleanup Operations 5796 Corporate Avenue
Cypress, CA 90630
Attention: Thomas Cota, Chief

Space Above for L.A County Recorder's Use Only

COVENANT TO RESTRICT USE OF PROPERTY
(Health and Safety Code section 25355.5)

ENVIRONMENTAL RESTRICTIONS
(Civil Code Section 1471)

WHEREAS, Del Almo Landfill, LLC, (the "Covenantor"), is the owner of certain real property (the "Property") in the County of Los Angeles which is legally described below; and

WHEREAS, the Department of Toxic Substances Control (the "Department"), pursuant to Civil Code section 1471, has determined that the Covenants contained herein are reasonably necessary to protect present or future human health or safety or the environment as a result of the presence on the Property of hazardous materials as defined in Health and Safety Code ("H&SC") section 25260.

NOW THEREFORE, The Covenantor and the Department, collectively referred to as the "Parties", hereby agree, pursuant to Civil Code section 1471 and H&SC section 25355.5 that the use of the Property be restricted as set forth in this Covenant and that this Covenant shall run with the land. The Parties further intend that the provisions of this Covenant also be for the benefit of, and be enforceable by, the U.S. Environmental Protection Agency ("U.S. EPA") as a third party beneficiary.

1. Statement of Facts.

1.1. Property. The property subject to these restrictions (the "Property") is legally described as follows:

05 1252930

All that certain real property situated in the City of Los Angeles, County of Los Angeles, State of California, and being Lot 37 as said Lot is shown on that certain map entitled "Tract No. 4671", recorded in Book 56 of Maps, at Pages 30 and 31, Official Records of said County, together with that portion of Vermont Avenue adjoining said Lot 37 abandoned as a public street by Order of the Board of Supervisors of the County of Los Angeles, recorded in Book 6142 at Page 206, Official Records of said County.

EXCEPTING THEREFROM the westerly 62 feet of the hereinabove described parcel.[1]

ALSO EXCEPTING THEREFROM the northerly 100 feet of the hereinabove described parcel.[2]

ALSO EXCEPTING THEREFROM that portion of the hereinabove described parcel described as follows:

Beginning at the intersection of a line parallel with and 50 feet westerly, measured at right angles, from the center line of Vermont Avenue with the easterly prolongation of the northerly line of the southerly 4 feet of said lot; thence South 89° 56' 00" west along said easterly prolongation and said northerly line 27.73 feet to the beginning of a curve concave to the northwest, having a radius of 27 feet; tangent to said northerly line and tangent to said parallel line; thence Northeasterly along said curve 43.13 feet to said parallel line; thence South 1° 37' 25" East along said parallel line 27.73 feet to the point of beginning, as condemned in Superior Court, Los Angeles County Case No. C-294442, a certified copy thereof being recorded October 7, 1982, as instrument No. 82-1015540, Official Records.[3]

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[1] This 62-foot strip was initially a part of Section 37, but was reconveyed back to the original owner, Cadillac Fairview/California, Inc. as part of the Covenant and Agreement to Hold Property as One Parcel, dated April 5, 1983, recorded as Instrument No. 83-375484, and the Corporation Grant Deed dated May 9, 1983, recorded as Instrument No. 83-512499. The purpose for the reconveyance was to give all legal title and responsibility for Waste Pit 1B to Cadillac Fairview.

[2] This 100-foot strip was acquired in fee by the Los Angeles Department of Water and Power on June 18, 1942, recorded September 3, 1942 in Book 19574, Page 48, Official Records of Los Angeles County. Neither the waste pits nor any remedial structures are located on this property.

[3] This parcel was obtained by the County of Los Angeles pursuant to an order of condemnation in Los Angeles County Superior Court Case No. C294 442, recorded October 7, 1992 as Instrument No. 82-1015540. The public purpose was to obtain land for improvements to Vermont Avenue. Neither the waste pits nor any remedial structures are located on this parcel.

1.2. Capped Property. Attached hereto as Exhibit "A" is a true and exact depiction of a limited portion of the Property that is covered by a RCRA-equivalent cap, as more particularly described below; hereinafter referred to as the "Capped Property." The Capped Property is described as follows:

> Those portions of Lots 36 (an adjacent parcel to the property) and 37 of said Tract 4671 in the City of Los Angeles, County of Los Angeles, State of California described as follows: Beginning at the Southwest corner of said Lot 36; thence North along the West of line of said Lot 36 N00°04'55"W a distance of 83.30 feet; thence leaving said West line N89°55'05"E a distance of 2.51 feet to the True Point of Beginning; thence N00°11'01" a distance of 134.77 feet; thence N89°53'45" a distance of 819.11 feet to a point on the West line of said Lot 37, said point being distance N00°04'55"W a distance of 217.31 feet from the Southwest corner of said Lot 37; thence N89°53'45"E a distance of 295.91 feet to a point on the West line of said Lot 37, said point being N00°04'55"W a distance of 81.58 feet from the Southwest corner of said Lot 37; thence S89° a distance of 295.91 feet to a point on the West line of said Lot 37, said point being N00°04'55"W a distance of 81.58 feet from the Southwest corner of said Lot 37; thence S89° a distance of 295.91 feet to a point on the West line of said Lot 37; thence S89°57'50" W a distance of 819.74 feet to the true point of beginning.
>
> The above-described property consists of 151,162.93 square feet (3.47 acres). A map depicting the location of the Capped Property is attached hereto as Attachment A.

1.3. Remediation. The Capped Property is currently being remediated, as more particularly set forth in Section 1.4, below, pursuant to a Record of Decisions ("ROD") issued by the U.S. EPA on September 5, 1997, on which the Department has given its concurrence. Under the authority vested in the President of the United States by virtue of Section 106(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA") and as delegated, the U.S. EPA has issued a Unilateral Administrative Order for Remedial Action ("UAORA") in which the U.S. EPA has ordered Shell Oil Company, The Dow Chemical Company, Michelin North America, Inc. on behalf of itself and Uniroyal Goodrich Tire Company, and the Goodyear Tire and Rubber Company (collectively, "Respondents") to implement a remedial action for the remedy described in the ROD. The entire UAORA was recorded on August 3, 1999 in the official records of the Los Angeles County Recorder as Document No. 99-1453930.

1.4. Site Characteristics. Hazardous substances, as defined in H&SC section 25316 and section 101(14) of the CERCLA (42 U.S.C. § 9601(14)), may remain on portions of the Property in soil and groundwater, including but not limited to: volatile organic

compounds (benzene, toluene, ethyl benzene and styrene) and semi-volatile organic compounds (anthracene, chrysene, fluorine, naphthalene and phenanthrene). These substances are also hazardous materials as defined in H&SC section 25260. Hydrogen sulfide gas may also remain in the soil in and under portions of the Property[4]. To preclude potential residential exposure to these hazardous substances, the ROD provides that a deed restriction prohibiting future residential use of the Waste Pits Area (as defined in the UAORA) and prohibiting any future use that could threaten the integrity of the RCRA equivalent cap be required as part of the site remediation. Site remediation also includes the following:

> Installation and maintenance of a synthetic membrane cover ("Cap") over the Capped Property and associated soil gas monitoring. The Capped Property consists of a low permeability synthetic membrane and other associated layers as more particularly described in Exhibit "B" attached hereto;
>
> Installation of surface water controls to prevent ponding of water on the Cap and to prevent runoff of water onto adjacent properties.
>
> Installation and operation of a soil vapor extraction system ("SVE") beneath the Waste Pits Area to achieve the interim soil remediation standards specified in the ROD;
>
> Installation of security fencing around the treatment units associated with the Cap and SVE systems; and
>
> Long-term operation and maintenance of all of the above and related components of the remedy selected in the ROD.

1.5. Risk Assessment. A thorough Risk Assessment of the Property was prepared by Dames & Moore as part of its Final Focused Feasibility Study Report ("FFFSR"), published on September 4, 1996. Copies of the FFFSR are on file in the Region 9 Office of the U.S. EPA, Superfund Records Center, currently located at 95 Hawthorne Street, San Francisco, CA 94105, at the Torrance Public Library and at the Law Offices of Bois & Macdonald.

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[4] Contamination of the groundwater (approximately 60 ft. below surface grade) underlying the Property, which is known to be contaminated with hazardous substances, including benzene, ethyl benzene and phenol, is being addressed by U.S. EPA as a separate Operable Unit.

2. Definitions.

2.1. Department. "Department means the California Department of Toxic Substances Control and includes its successor agencies, if any.

2.2. Owner. "Owner" means the Covenantor, its successors in interest, and their successors in interest, including heirs and assigns, who at any time hold title to all or any portion of the Property.

2.3. Occupant. "Occupant means Owners and any person or entity entitled by ownership, leasehold, or other legal relationship to the right to occupy any portion of the Property.

2.4. Del Amo Participating Party. "Del Amo Participating Party" shall mean Shell Oil Company, and its successors in interest. It may also mean Shell's assigns if the CERCLA Lead Agency has approved the assigned entity for performance of the obligations of operations and maintenance on the cap and remedy elements or the implementation and enforcement requirements for this land use restriction as set forth under the UAORA or other enforceable order/agreement between that entity and U.S. EPA or the Department. In the event of such approved assignment/replacement by the CERCLA Lead Agency, Shell Oil Company, or the then current Del Amo Participating Party, shall cause a notice of such assignment/replacement to be recorded in the Office of the County Recorder for Los Angeles County, and the notice shall reference the Property and the recording information of this land use covenant and any modifications thereto.

2.5. U.S. EPA. "U.S. EPA" means the United States Environmental Protection Agency, and includes its successor agencies, if any.

2.6. CERCLA Lead Agency. "CERCLA Lead Agency" means the governmental entity having the designated lead responsibility to implement response action under the National Contingency Plan ("NCP"), 40 C.F.R. Part 300. U.S. EPA is the CERCLA Lead Agency at the time of the recording of this instrument.

3. General Provisions.

3.1. Restrictions to Run with the Land. This Covenant sets forth protective provisions, covenants, restrictions, and conditions (collectively referred to as "Restrictions"), subject to which the Property and every portion thereof shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, and/or conveyed. Each and every Restriction: (a) runs with the land pursuant to H&SC section 25355.5(a)(I)(C) and Civil Code section 1471; (b) inures to the benefit of and passes with each and every portion of the Property, (c) is for the benefit of, and is enforceable by the Department and U.S. EPA, as third party beneficiary, and (d) is imposed upon a specific portion of the Property (see Exhibit A).

3.2. Binding upon Owners/Occupants. Pursuant to H&SC section 25355.5(a)(1)(C), this Covenant binds all owners of the Property, their heirs, successors, and assignees, and the agents, employees, lessees of the owners, heirs, successors, invitees and assignees. Pursuant to Civil Code section 1471, all successive owners of the Property are expressly bound hereby for the benefit of the Department and U.S. EPA.

3.3. Written Notice of the Presence of Hazardous Substances. Prior to the sale, lease or sublease of the Property, or any portion thereof, the owner, lessor, or sublessor shall give the buyer, lessee, or sublessee notice that hazardous substances may be located on or beneath the Property, as required by H&SC section 25359.7.

3.4. Incorporation into Deeds and Leases. The Restrictions set forth herein and the UAORA shall be incorporated by reference in each and all deeds, leases, assignments, or other transfers, of all or any portion of the Property. Further, each Owner or Occupant shall include in any instrument conveying any interest in all or any portion of the Property, including but not limited to deeds, leases, and mortgages, a notice which is in substantially the following form:

> NOTICE: THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL RESTRICTION AND COVENANT TO RESTRICT USE OF PROPERTY, RECORDED IN THE PUBLIC LAND RECORDS ON ____[DATE]___, IN BOOK ____, PAGE ___, IN FAVOR OF AND ENFORCEABLE BY THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL AND THE U.S. ENVIRONMENTAL PROTECTION AGENCY AS A THIRD PARTY BENEFICIARY.

3.5. Conveyance of Property. The Owner shall provide notice to the Department and U.S. EPA not later than thirty (30) days after any conveyance of any ownership interest in the Property (excluding mortgages, liens, and other non-possessory encumbrances). The Department and U.S. EPA shall not, by reason of this Covenant, have authority to approve, disapprove, or otherwise affect any proposed conveyance, except as

otherwise provided by law, by administrative order, or by a specific provision of this Covenant.

3.6. Costs of Administering the Deed Restriction to be paid by Owner. The terms of this deed restriction run with the land and will continue in perpetuity unless a variance is granted pursuant to section 5.1, or unless terminated pursuant to section 5.2. The Department has already incurred and will in the future incur costs associated with the administration of this deed restriction. Therefore, the Owner hereby covenants for himself and for all subsequent owners that, pursuant to Title 22 California Code of Regulations section 67391.1(h), the property owner agrees to pay the Department's costs in administering the deed restriction. In the event that property ownership changes between the time that the Department's administrative costs were incurred and the invoice for such costs is received, each owner of the property for the period covered by the invoice, as well as the current owner is responsible for such costs.

4. Restrictions.

4.1. Prohibited Uses. The Property shall not be used for any of the following purposes:

4.1.1. A residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation.

4.1.2. A hospital for humans.

4.1.3. A public or private school for persons under 21 years of age.

4.1.4. A day care center for children.

4.2. Non-Interference with Cap and SVE and Monitoring Systems. Covenantor agrees with respect to the Property:

4.2.1. Activities that may disturb the Cap (e.g. excavation, grading, removal, trenching, filling, earth movement, or mining) shall not be permitted on the Capped Property without prior notice to the Department and U.S. EPA, with a copy of such notice to the Del Amo Participating Party, followed by review and written approval by the CERCLA Lead Agency.

4.2.2. Activities that may disturb the effectiveness of the SVE System (e.g. excavation, grading, removal, trenching, filling, earth movement, or mining) shall not be permitted on the Capped Property so long as the SVE System is operational without prior notice to the Department and U.S. EPA, with a copy of such notice to the Del Amo Participating Party, followed by review and written approval by the CERCLA Lead Agency. Whether or not a particular activity may disturb the effectiveness of the SVE System shall be determined by the CERCLA Lead Agency.

4.2.3. Activities that may disturb the effectiveness of the Monitoring Well System for either the vadose zone or the groundwater (e.g. excavation, grading, removal, trenching, filling, earth movement, or mining) shall not be permitted on the Capped Property without prior notice to the Department and U.S. EPA, with a copy of such notice to the Del Amo Participating Party, followed by review and written approval by the CERCLA Lead Agency. Whether or not a particular activity may disturb the effectiveness of the Monitoring Well System shall be determined by the CERCLA Lead Agency.

4.2.4. All uses and development of the Property shall preserve the integrity of the Cap, SVE System and Monitoring Well System.

4.2.5. The Cap shall not be altered without prior notice to the Department and U.S. EPA, with a copy of such notice to the Del Amo Participating Party, followed by written approval by the CERCLA Lead Agency.

4.2.6. Covenantor shall notify the Del Amo Participating Party and the Department and U.S. EPA of each of the following: (i) the type, cause, location and date of material damage to the Cap, SVE System or Monitoring Well System and (ii) the type and date of proposed repair of such damage. Notification to the Department and U.S. EPA and the Del Amo Participating Party shall be made as provided below within ten (10) working days of both the discovery of any such disturbance and within ten (10) working days of the completion of any repairs. Timely and accurate notification by any Owner or Occupant shall satisfy this requirement on behalf of all other Owners and Occupants.

4.3. Access for Department The Department, through such agency staff or its designees, shall have reasonable right of entry and access to the Property for inspection, monitoring, periodic review, and other activities consistent with the purposes of this Covenant as deemed necessary by the Department and U.S. EPA in order to protect the public health or safety, or the environment. Nothing in this instrument shall limit of otherwise affect U.S. EPA's right of entry and access, or U.S. EPA's authority to take response actions under CERCLA, the National Contingency Plan, 40 C.F.R. Part 300 and its successor provisions, and/or other federal law.

4.4. Access for Implementing Operation and Maintenance. The entity or person responsible for implementing an Operation and Maintenance Agreement with the U.S. EPA or the Department shall have reasonable right of entry and access to the Property for the purpose of implementing the Operation and Maintenance Agreement until the Department and U.S. EPA determines such activities are no longer required.

4.5. Enforcement. The Department and/or U.S. EPA shall be entitled to enforce the terms of this instrument by resort to specific performance or legal process. The Covenant shall be enforceable by the Department pursuant to H&SC, Division 20, Chapter 6.5, Article 8 (commencing with section 25180). Failure of the Covenantor, Owner or Occupant to comply with any of the Restrictions specifically applicable to it will be grounds for the Department and/or U.S. EPA to require that the Covenantor or Owner modify or remove any Improvements ("Improvements" herein shall mean all buildings, roads, driveways, and paved parking areas) constructed or placed upon any portion of the Property in violation of the Restrictions. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity, including CERCLA, and violation of this Covenant shall be grounds for the Department and/or U.S. EPA to file civil or criminal actions as provided by law or equity, including but not limited to, nuisance or abatement against the Covenantor, Owner or Occupant as provided by law. In addition, the State of California and the Department shall have all remedies as provided in California Civil Code Section 815.7.

5. Variance, Termination and Term.

5.1. Variance. Covenantor, or any other aggrieved person, may apply to the Department for a written variance from the provisions of this Covenant and the U.S. EPA must be noticed on such applications. Such application shall be made in accordance with H&SC section 25233. Unless and until the State of California assumes CERCLA Lead Agency responsibility for Site operation and maintenance, no variance may be granted under this paragraph 5.1 without prior written notice to U.S.EPA of the application for the proposed variance and an opportunity to comment on the application by U.S. EPA. If requested by the Department or U.S. EPA, any approval of a variance shall be recorded in the land records by the person or entity granted the variance.

5.2. Termination. Covenantor, or any other aggrieved person, may apply to the Department for a termination of the Restrictions or other terms of this Covenant as they apply to all or any portion of the Property and the U.S. EPA must be noticed on such applications. Such application shall be made in accordance with H&SC section 25234. Unless and until the State of California assumes CERCLA Lead Agency responsibility for Site operation and maintenance, no termination may be granted under this Paragraph 5.2 without prior written notice to U.S.EPA of the application for termination and opportunity to comment on the application by U.S. EPA.

5.3. Term. Unless ended in accordance with the Termination paragraph above, by law, or by the Department in the exercise of its discretion, after written notice and opportunity to comment by U.S. EPA, this Covenant shall continue in effect in perpetuity.

6. Miscellaneous.

6.1. No Dedication or Taking Intended. Nothing set forth in this Covenant shall be construed to be a gift or dedication, or offer a gift or dedication, of the Property, or any portion thereof to the general public or anyone else for any purpose whatsoever. Further, nothing set forth in this Covenant shall be construed to effect a taking under Federal or state law.

6.2. Department References. All references to the Department include successor agencies/departments or other successor entity.

6.3. Recordation. The Covenantor shall be responsible for recording this Covenant, with all referenced Exhibits, in the County of Los Angeles, and Covenantor shall provide Del Amo Participating Party a fully executed original within ten (10) days of execution in full.

6.4. Notices.

6.4.1. Whenever any person gives or serves any Notice ("Notice" as used herein includes any demand or other communication with respect to this Covenant), each such Notice shall be in writing and shall be deemed effective: (1) when delivered, if personally delivered to the person being served or to an officer of a corporate party being served, or (2) three (3) business days after deposit in the mail, if mailed by United States mail, postage paid, certified, return receipt requested:

To Covenantor:

Steven D. Richtel, R.G.
Waste Management, Inc.
Closed Sites Management Group
8310 South Valley Highway Road, Suite 200
Englewood, CO 80112

With copy to:

Steven M. Morgan, Esq.
Vice President & Assistant General Counsel
Waste Management, Inc.
Legal Department
1001 Fannin, Suite 4000
Houston, TX 77002

To Del Amo Participating Party:

Shell Oil Company
Post Office Box 2463
Houston, Texas 77252
Attention: Associate General Counsel
Environmental & Regulatory
Legal Organization

With copy to:

George Landreth,
Remediation Manager
Shell Chemical LP
One Shell Plaza, Room 1770
910 Louisiana
Houston, TX 77002-4916

To Department:

Department of Toxic Substances Control
Southern California Branch Site Mitigation Cleanup Operations
5796 Corporate Avenue
Cypress, CA 90630-4732
Attention: Thomas Cota, Chief

With copy to:

Larry McDaniel
Staff Counsel
Department of Toxic Substances Control
400 P. Street, 4th Floor
P.O. Box 806
Sacramento, CA 95812

To U.S. EPA:

U.S. Environmental Protection Agency Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901
Attention: Dante Rodriguez, SFD-7-1
Re : Del Amo Superfund Site

With copy to:

Michele S. Benson
Office of Regional Counsel, ORC-3
U.S. EPA Region IX
75 Hawthorne Street San Francisco, CA 94105-3901
Re: Del Amo Superfund Site

6.4.2. Any party may change its address or the individual to whose attention a Notice is to be sent by giving written Notice in compliance with this paragraph.

6.5. Partial Invalidity. If any portion of the Restrictions or other term set forth herein, or the application of it to any person or circumstance, is determined by a court of competent jurisdiction to be invalid for any reason, the surviving portions of this Covenant, or the application of such portions to persons or circumstances other than those to which it is found to be invalid, shall remain in full force and effect as if such portion found invalid had not been included herein.

6.6. Statutory References. All statutory references include successor provisions.

6.7. Liberal Construction. Any general rule of construction to the contrary notwithstanding, this instrument shall be liberally construed to effect the purpose of this instrument and the policy and purpose of CERCLA. If any provision of this instrument is found to be ambiguous, an interpretation consistent with the purpose of this instrument that would render the provision valid shall be favored over any interpretation that would render it invalid.

05 1252930

IN WITNESS WHEREOF, the Parties execute this Covenant. Executed this 2nd day of March, 2005.

DEL ALMO LANDFILL, LLC

By: _____
Senior Real Estate
Its: Project Manager

STATE OF Illinois

COUNTY OF Will

In _____, on the 2nd day of March, 2005, before me, a Notary Public in and for the above state and county, personally appeared Gregory J. Mikes, known to me or proved to be the person named in and who executed the foregoing instrument, and being first duly sworn, such person acknowledged that he or she executed said instrument for the purposes therein contained as his or her free and voluntary act and deed.

Deborah L. Nendick
NOTARY PUBLIC

"OFFICIAL SEAL"
DEBORAH L. NENDICK
NOTARY PUBLIC STATE OF ILLINOIS
COMMISSION EXPIRES 01/24/06
SEAL

My Commission Expires: 1/24/2006

IN WITNESS WHEREOF, the Parties execute this Covenant. Executed this 2nd day of March, 2005.

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

By: _____

Its: Branch Chief

STATE OF CALIFORNIA

COUNTY OF ORANGE

In CYPRESS, on the 07 day of APRIL, 2005, before me, a Notary Public in and for the above state and county, personally appeared THOMAS COTA, ~~known to me or~~ proved to be the person named in and who executed the foregoing instrument, and being first duly sworn, such person acknowledged that he ~~or she~~ executed said instrument for the purposes therein contained as his ~~or her~~ free and voluntary act and deed.

_____

NOTARY PUBLIC

[SEAL]

My Commission Expires: NOV 06, 2005

CHRISTOPHER CHEEKIONG CHEW
Commission # 1328712
Notary Public - California
Orange County
My Comm. Expires Nov 6, 2005

IN WITNESS WHEREOF, the Parties execute this Covenant. Executed this 2nd day of March, 2005.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

By: _____
ELIZABETH ADAMS
Its: CHIEF, SITE CLEANUP BRANCH

STATE OF California

COUNTY OF San Francisco

In San Francisco, on the 27th day of April, 2005, before me, a Notary Public in and for the above state and county, personally appeared Elizabeth Adams, known to me or proved to be the person named in and who executed the foregoing instrument, and being first duly sworn, such person acknowledged that ~~he or~~ she executed said instrument for the purposes therein contained as ~~his or~~ her free and voluntary act and deed.

Kathleen L. Kawakami
NOTARY PUBLIC

My Commission Expires: 9-9-2005

[SEAL]

KATHLEEN L. KAWAKAMI
Comm. # 1320466
NOTARY PUBLIC CALIFORNIA
City and County of San Francisco
My Comm Expires Sep 9, 2005

Appendix E
Interview Questions

List of potential interviewees:

- Ed Bourke, Principal (C2 REM)
- Stefan Klemm, Site Manager (C2 REM)
- Seamus McGeough, Project Engineer/Scientist (C2 REM)
- Ian Yusko, Project Engineer/Scientist (C2 REM)
- Shinta Aizawa, Project Engineer/Scientist (C2 REM)
- Tri Tran, Field Technician (C2 REM)

Interview questions:

- What is your current role and responsibilities as it relates to the site?
- What is your overall impression of the project, and what are the reasons for this impression?
- Based on your knowledge of the project, if you were starting over what changes and improvements would you make, and why?
- What are the design and operational criteria for the selected remedies?
    - Cover and Cap-Gas Collection and Treatment System
    - Soil Vapor Extraction/In-Situ Biodegradation Technology System
- What is the current performance of the remedies relative to these criteria?
    - Cover and Cap-Gas Collection and Treatment System
    - Soil Vapor Extraction/In-Situ Biodegradation Technology System
- When was installation of the SVE/IBT system completed? What problems or other difficulties were encountered during construction, startup, or initial operation of the SVE/IBT system? How were these problems/difficulties resolved?
- How is effectiveness of the SVE/IBT system evaluated, and have these evaluation measurements changed over the last five years?
- What does the current monitoring data show (for cap gas and SVE/IBT monitoring)? Are there any trends demonstrating a decrease (or increase) in contaminant concentrations? Have any new or emerging COCs been identified? If so, have they impacted the effectiveness of the remedies?
- Is there a continuous on-site O&M presence? If so, describe O&M activities and staff in charge of conducting the activities?
- What critical safety alarms are included with the system? What is the response action when each critical safety alarm is activated? How often are tests performed to confirm that the alarm settings are functioning?
- Describe site inspection and sampling frequency?
- Have there been any significant changes in O&M requirements, maintenance schedule and activities, or sampling routines since the last five year review (September 2005)? Has any equipment been replaced and/or modified since the last five year review? If so, do they affect the protectiveness or effectiveness of the selected remedies?
- What testing or evaluations are conducted to evaluate modifications to optimize system (cap gas and SVE/IBT) performance? Were any system (cap gas and SVE/IBT) optimization proposed and/or implemented in the past five years?

- Have there been unexpected O&M difficulties or costs changes at the site since the last five year review (September 2005)? What actions were taken to address the O&M difficulties?
- Are you aware of any institutional controls, site access controls, new ordinances in place, or changes in actual or projected land use?
- What regulatory permits and reporting requirements are associated with operating the system? Provide details on how the system has performed in compliance with these permits.
- Are you aware of any changes in the regulatory or site cleanup standards with regard to COCs at the site?
- Are you aware of any community concerns or complaints regarding the site or operation of the remediation treatment systems at the site? Do you provide informational updates to the community on the performance of the system?
- Have there been any other unusual activities at site?

Appendix F
C2 REM Submittals

Information presented in this appendix is comprised of supplemental data provided by C2 REM in response to ITSI's request for information regarding current groundwater conditions and monitoring, and performance measures for satisfying ROD objectives. Information and data provided herein **were** submitted directly to ITSI, and it is unknown whether the data contained herein were previously submitted for regulatory review or approval.

Edgardo Gillera

From: Stefan Klemm [SKlemm@c2rem.com]
Sent: Tuesday, April 20, 2010 7:13 PM
To: Kent Baugh; Edgardo Gillera
Cc: george.landreth@shell.com; Edmond Bourke
Subject: Additional Info for 5-Year Review
Attachments: Tables and Attachment.pdf

To: Kent Baugh, ITSI
Ed Gillera, ITSI

From: Stefan Klemm, C2 REM
Ed Bourke, C2 REM

Cc: George Landreth, Shell Oil Products US

Pursuant to your request during the site visit for the 5-Year Review on March 25, 2010, the following information has been attached for your review as it relates to components of the remedy and ongoing operation, maintenance, and monitoring (OM&M) activities conducted at the Del Amo Waste Pits Operable Unit (Waste Pits) site located in Torrance, California. Specifically, the following information has been provided:

1) Explanation of how SVE/IBT System in-line sensors and components are tested to ensure they are functioning correctly- The SVE/IBT System in-line sensors that require routine maintenance and monitoring include: O2, LEL, flow, temperature, relative humidity, pressure, and effluent PID meter. Additional SVE/IBT components that require routine maintenance are the O2 generator and blowers. From the period of May 1, 2006, through August 4, 2006, extensive pre-system start-up activities of the SVE/IBT System were conducted to identify any malfunction or non-responsiveness of the system's Programmable Logic Controller (PLC) unit, machinery such as the blowers, oxygen generator, automated check valves, sensors, and devices.

There are multiple levels of verification to ensure proper functioning of the in-line sensors. C2 REM performs daily visual confirmation of the functioning and trends of each component through accessing the VNC viewer remotely from the office to assure that these components are operating as designed and the SVE/IBT System is operating within the threshold parameters.

C2 REM conducts on-site semi-monthly visual observations of the SVE/IBT System's above-ground components and system enclosure to identify potential maintenance requirements and/or repairs. Routine maintenance items conducted on the SVE/IBT System in 2009 included replacement of sample ports, change-out of carbon, calibration/repair of in-line sensors, greasing of the O2 generator, changing of the O2 generator belts, and changing of the effluent PID lamp. C2 REM performs routine calibration of the O2, LEL, and effluent PID in-line sensors to ensure expected gas ranges are present in each meter. In some cases, the sensors have been returned to manufacturers for repair and calibration. In these instances, the manufacturer provides quality assurance statements and certificates of calibration that the instruments are functioning correctly.

Additionally, semi-monthly SVE/IBT field monitoring is conducted to validate the in-line sensors to readings with handheld field instruments in order to assess any significant deviations. Furthermore, tests and conditions to trigger automatic system shutdown have been conducted to verify that these

components and in-line sensors are functioning as designed. For example, a known concentration of benzene gas has been used to trigger the alarm settings of the effluent PID resulting in automatic system shut-down.

2) Discussion on groundwater monitoring results, source of data used to calculate initial average groundwater concentrations in each sub-area, and how the SVE/IBT System is meeting the ROD objective- Originally, 19 wells/piezometers (PZL0018, PZL0019, PZL0020, PZL0022, PZL0024, PZL0025, SWL0008, SWL0044, SWL0051, VWL0004, XDM-02, XMW-29, XP-02, CPT-13, CPT-14, CPT-18, CPL0078, VWL0001, and VWL0002) in the area encompassing the Waste Pits were used to calculate the initial average benzene groundwater concentration in each sub-area. The data used to calculate the average groundwater concentration was from the sampling event in January 1998 or from sampling during the Remedial Design Field Investigation (see Table 1.0). Based on the kriging of this data, the calculated average benzene groundwater concentrations were 100,000 ppb, 400,000 ppb, 170,000 ppb, and 16,000 ppb in Sub-Areas 1 through 4, respectively (see Table 2.0).

Some of these original well locations were one-time CPT locations while others were abandoned due to site modifications. Eleven (11) of the original 19 well locations remain in use. See Attachment 1 for the most current monitoring results for each of these wells. Groundwater in the vicinity of the Waste Pits generally flows to the south. The data suggests that groundwater conditions both within and down-gradient of the Waste Pits area have generally remained stable or are improving. An exception to this trend is monitoring well XMW-29 which is located up-gradient to the Waste Pits. The initial benzene concentration for XMW-29 was 5,700 ug/L; however, the most recent sampling result collected in October 2006 indicates a concentration of 380,000 ug/L [However, as illustrated in the attached data set, this concentration is down from a peak concentration of 580,000 ug/L in January 2004]. Groundwater monitoring activities are currently being conducted as part of a separate Operable Unit (OU) for area Groundwater. As new data becomes available, it will continue to be used to assess groundwater conditions.

The ROD specifies that the SVE System shall clean the unsaturated soils under the Waste Pits and above the water table to an interim soil standard and maintain the soil below that standard. The interim soil standard shall be sufficient to prevent 0.5% increase in Volatile Organic Compound (VOC) concentrations in groundwater from the waste and contaminated soils. The original Remedial Design had anticipated a high volume air movement system (i.e., 1,900 standard cubic feet per minute [scfm] through a thermal oxidation treatment system) without the benefit of addressing subsurface data which identified the occurrence of natural degradation. Subsequent to the 1997 ROD and original 1999 RD activities, the USEPA and Del Amo Respondents conducted several assessments to evaluate alternative technologies that resulted in the selection of the SVE/IBT System. Based on these new remedial conditions, Del Amo Respondents have been working with the USEPA on developing a revised performance monitoring program and RAOs that will be used to verify that the ROD objective is being satisfied. It is anticipated that data generated from the various OUs of the Del Amo Superfund Site will be used to demonstrate achievement of ROD objective.

The SVE/IBT System was designed to extract soil vapors from SVE wells, redirect a portion to carbon, augment the remaining vapor stream with generated O2, and re-inject the vapor into the pit vadose zone to promote natural biological degradation. The SVE/IBT System was designed to meet the ROD objective by extracting vapor at a greater rate than the injection rate, ensuring containment of contaminant vapors and preventing the migration to groundwater. There are 27 monitoring locations (Pressure Performance Wells A' through N' and Cluster Wells A" through M" [1-Series]) located throughout the site that are used to collect data to assess the pressure response to extraction throughout the targeted zone of remediation (+ 10 MSL). These wells were designed and located in areas to assess the influence of the SVE wells through direct measurement of pressure; therefore, demonstrating that

groundwater is protected from the downward flux of contaminants from the waste pits. Based on a review of the 2009 field monitoring data for the Pressure Performance Wells and Cluster Wells located at +10 MSL, (previously provided to ITSI via email dated April 9, 2010), a negative pressure was observed at these wells during quarterly sampling events with the following exceptions: Pressure Performance Well C' and N' and Cluster Well B" and L". The low positive pressure (on the order of 0.06 – 1.0 inches of water) detected at these 4 locations is most likely due to their close proximity to injection wells or localized variances in preferential vapor pathways where the well is located. Pressure Performance Well C' and N' and Cluster Well B" are located near an injection well that is influencing the pressure at these locations. Cluster Well L" is located adjacent to an extraction well.

When evaluating the potential for a downward migration in the area of the injection, we first revisited the groundwater vapor equivalent in this area and its value of 28,000 ppmv. The vapor injection concentration is on the order of 22,000 ppmv (approx. 40 scfm at 25,000 ppmv from system augmented with 5 scfm of generated O2). When comparing the groundwater equivalency concentration to the injected concentration, the vapor gradient would be from the groundwater to the vadose zone and further illustrates containment and compliance with the ROD standard.

Should you have any questions, please contact me at (949) 261-8098 or respond directly to this email. Thank you.

Table 1.0
Groundwater Monitoring Results
Del Amo Waste Pits

Sub-Area	Wells Associated with Each Sub-Area	Location Relative to the Waste Pits	Concentrations used to Calculate Average Benzene Concentration in GW (ug/L) [1]	Average Benzene Concentration in GW (ug/L)	Most Resent Benzene GW Result (ug/L)
1	XMW-29	Up Gradient	5,700	100,000	380,000 (10/06)
	PZL-0025	On-site	330		1.5 (1/04)
	XDM-02	Up Gradient	200,000		NA
2	PZL-0019	On-site	180,000	400,000	330,000 (7/00)
	PZL-0020	On-site	480,000		290,000 (10/06)
	SWL-0008	Down Gradient	25,000		21,000 (10/06)
	CPT-18	On-site	270,000		NA
	VWL-0001	On-site	690,000		NA
	VWL-0002	On-site	700,000		NA
	VWL-0004	On-site	610,000		NA
3	SWL-0044	On-site	55,000	170,000	56,000 (10/06)
	SWL-0051	Down Gradient	12		< 4 (10/06)
	XP-02	Up Gradient	0.41		7.6 (10/06)
	CPL-0078	On-site	300,000		NA
	CPT-13	On-site	44,000		NA
	CPT-14	On-site	30,000		NA
	PZL-0024	On-site	73,000		42,000 (7/00)
4	PZL-0018	Up Gradient	0.27	16000	1.4 (7/00)
	PZL-0022	On-site	0.5		< 0.5 (10/06)

Notes:
1- Wells sampled in January 1998 or during RD field investigation. Data used to calculate the original average benzene concentration in groundwater for each Sub-Area.
NA- Not Available (original well one-time location or abandoned due to site modification)

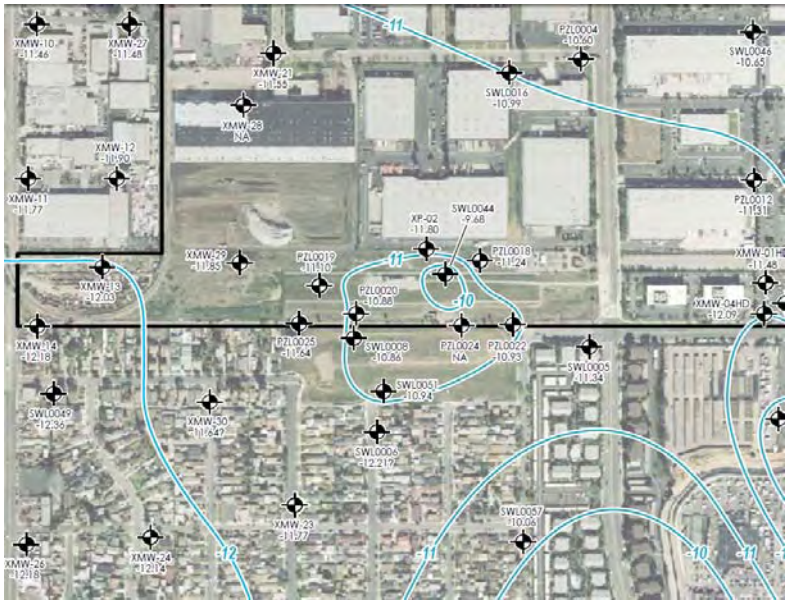
Table 2.0
Calculated Vapor Concentration in Equilibrium With GW
Del Amo Waste Pits

	Sub-Area 1	Sub-Area 2	Sub-Area 3	Sub-Area 4
Average Concentration In Groundwater (ug/L)	100,000	400,000	170,000	16,000
Vapor Concentration In Equilibrium With Groundwater (ppmv)	7,100	29,000	12,000	1,100

Notes:
Average benzene concentration calculated by kriging available data.

Attachment 1

Groundwater Elevations
Water Table
October 2006



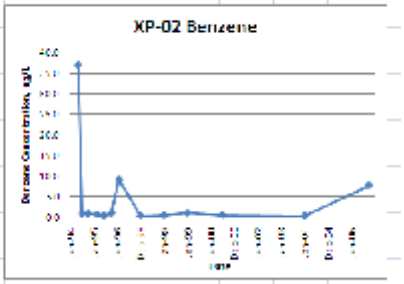
Dissolved Benzene Distribution
Water Table
October 2006

Based on groundwater elevations, groundwater in the vicinity of the Waste Pits OU flows to the south. Presented below is a summary of dissolved benzene concentrations in groundwater for monitor wells located hydraulically up-gradient of the Waste Pits OU site boundary, monitor wells located within the Waste Pits OU site boundary, and monitor wells located hydraulically down-gradient of the Waste Pits OU site boundary.

Up-Gradient Monitor Wells:

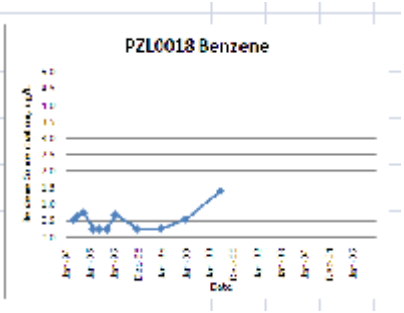
XP-02

	Date	Benzene Concentration (ug/L)
XP-02	May-94	37
	Jul-94	0.78
	Oct-94	0.8
	Mar-95	0.6
	Jun-95	0.25
	Oct-95	0.92
	Feb-96	9.1
	Jan-97	0.25
	Jun-98	0.41
	Jan-99	1
	Jul-00	0.3
	Jan-01	0.25
	Oct-06	7.6



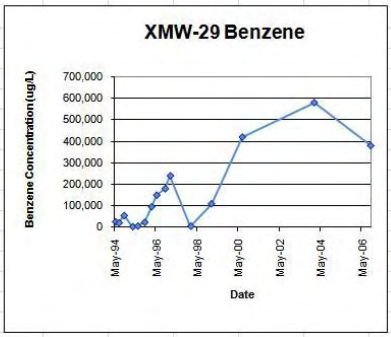
PZL0018

	Date	Benzene Concentration (ug/L)
PZL0018	May-94	0.51
	Jul-94	0.64
	Oct-94	0.75
	Mar-95	0.25
	Jun-95	0.25
	Oct-95	0.25
	Feb-96	0.68
	Jan-97	0.25
	Jun-98	0.27
	Jan-99	0.55
	Jul-00	1.4



XMW-29

XMW-29	Date	Benzene Concentration (ug/L)
	May-94	26,000
	Jul-94	21,000
	Oct-94	55,000
	Mar-95	3,700
	Jun-95	6,600
	Oct-95	24,000
	Feb-96	96,000
	May-96	150,000
	Oct-96	180,000
	Jan-97	240,000
	Jan-98	5,700
	Jan-99	110,000
	Jul-00	420,000
	Jan-04	580,000
	Oct-06	380,000

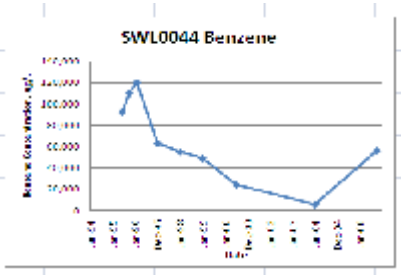


Results highlighted in yellow were ND above lab reporting limits. For creating figures, ½ of the reporting limit was used.

On-Site Monitor Wells:

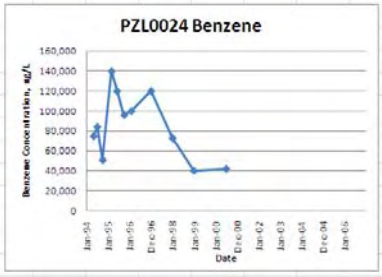
SWL0044

	Date	Benzene Concentration (ug/L)
SWL0044	Jun-95	92000
	Oct-95	110000
	Feb-96	120000
	Jan-97	68000
	Jan-98	55000
	Jan-99	49000
	Jul-00	2700
	Jan-04	5700
	Oct-06	56000



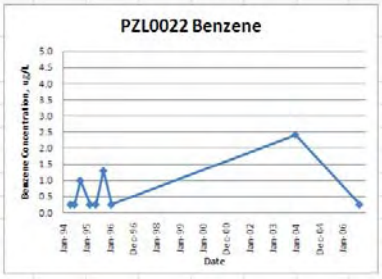
PZL0024

	Date	Benzene Concentration (ug/L)
PZL0024	May-94	75000
	Jul-94	84000
	Oct-94	51000
	Mar-95	140000
	Jun-95	120000
	Oct-95	96000
	Feb-96	100000
	Jan-97	120000
	Jan-98	73000
	Jan-99	40000
	Jul-00	42000



PZL0022

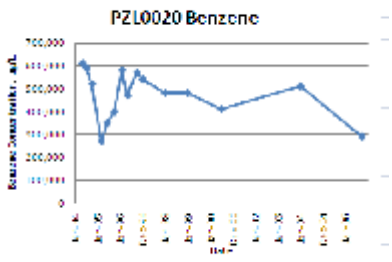
	Date	Benzene Concentration (ug/L)
PZL0022	May-94	0.25
	Jul-94	0.25
	Oct-94	1
	Mar-95	0.25
	Jun-95	0.25
	Oct-95	1.3
	Feb-96	0.25
	Jan-04	2.4
	Oct-06	0.25



PZL0020

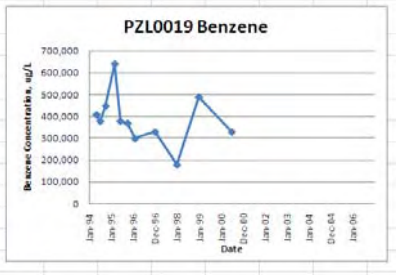
Results highlighted in yellow were ND above lab reporting limits. For creating figures, ½ of the reporting limit was used.

	Date	Benzene Concentration (ug/L)
PZL0020	May-94	610000
	Jul-94	590000
	Oct-94	[illegible]
	Mar-95	270000
	Jun-95	350000
	Oct-95	400000
	Feb-96	580000
	May-96	470000
	Oct-96	570000
	Jan-97	[illegible]
	Jan-98	480000
	Jan-99	480000
	Jul-00	410000
	Jan-01	510000
	Oct-06	290000



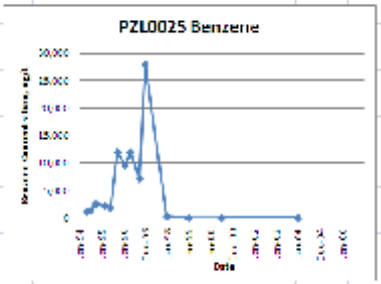
PZL0019

	Date	Benzene Concentration (ug/L)
PZL0019	May-94	410000
	Jul-94	380000
	Oct-94	450000
	Mar-95	640000
	Jun-95	380000
	Oct-95	370000
	Feb-96	300000
	Jan-97	330000
	Jan-98	180000
	Jan-99	490000
	Jul-00	330000



PZL0025

	Date	Benzene Concentration (ug/L)
PZL0025	May-94	1200
	Jul-94	1400
	Oct-94	2500
	Mar-95	2200
	Jun-95	1600
	Oct-95	12000
	Feb-96	9500
	May-96	12000
	Oct-96	7500
	Jan-97	28000
	Jan-98	950
	Jan-99	12
	Jul-00	0.5
	Jan-04	1.5

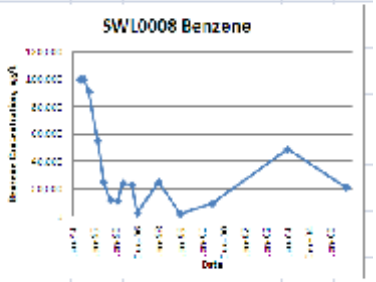


Down-Gradient Monitor Wells:

SWL0008

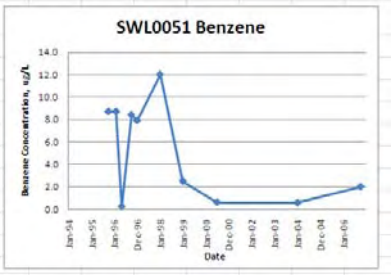
Results highlighted in yellow were ND above lab reporting limits. For creating figures, ½ of the reporting limit was used.

	Date	Benzene Concentration (ug/L)
SWL0008	May-94	100000
	Jul-94	100000
	Oct-94	91000
	Mar-95	55000
	Jun-95	25000
	Oct-95	12000
	Feb-96	11000
	May-96	24000
	Oct-96	28000
	Jan-97	2300
	Jan-98	25000
	Jan-99	1700
	Jul-00	8400
	Jan-04	49000
	Oct-06	21000



SWL0051

	Date	Benzene Concentration (ug/L)
SWL0051	Oct-95	8.7
	Feb-96	8.7
	May-96	0.25
	Oct-96	8.4
	Jan-97	7.9
	Jan-98	12
	Jan-99	2.5
	Jul-00	0.61
	Jan-04	0.57
	Oct-06	2



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