Final

Remedial Investigation and Focused Feasibility Study (RI/FFS) Report for the Defense Reutilization and Marketing Office

Former Mare Island Naval Shipyard, Vallejo, California

May 2, 2014

Prepared for:
Base Realignment and Closure
Program Management Office West
Naval Facilities Engineering Command
1455 Frazee Road, Suite 900
San Diego, CA 92108

Prepared by:
Battelle
505 King Avenue
Columbus, OH 43201

Prepared under:
Environmental Multiple Award Contract
Contract Number N62473-08-D-8824
Control Task Order 0005
DCN: BATL-8824-0005-0003

FINAL

Remedial Investigation and Focused Feasibility Study (RI/FFS) Report for the Defense Reutilization and Marketing Office, Former Mare Island Naval Shipyard, Vallejo, California

Contract Number N62473-08-D-8824
Control Task Order 0005
DCN: BATL-8824-0005-0003

May 2, 2014

Approved by: ______________________ Date: 5/2/2014
Ryan Wensink, P.E.
Battelle Project Manager

Reviewed by: ______________________ Date: 5/2/2014
Travis Williamson, P.E., PMP
Battelle Program Manager

REGISTERED PROFESSIONAL ENGINEER
TRAVIS WILLIAMSON
C 68119
EXP. 6/30/15
CIVIL
STATE OF CALIFORNIA

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

This Remedial Investigation and Focused Feasibility Study (RI/FFS) Report for the Defense Reutilization and Marketing Office (DRMO) was prepared to evaluate site conditions, estimate human health risks associated with residual chemicals in soil and groundwater, and evaluate remedial alternatives to address associated risks to human health. This RI/FFS Report was prepared pursuant to the Mare Island Naval Shipyard (MINS) Federal Facility Site Remediation Agreement (FFSRA) between the United States Environmental Protection Agency (U.S. EPA), the California Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (Water Board), San Francisco Bay Region. The FFSRA provides a framework for implementing appropriate environmental characterization and response actions at the former MINS.

This RI/FFS was developed using existing analytical results for soils that were collected as part of confirmation sampling activities during a Non-Time Critical Removal Action (NTCRA) conducted by the Navy at the DRMO between 2005 and 2008 (Weston Solutions, Inc., 2008). The soil dataset used for this RI/FFS Report consists of all confirmation samples that are representative of soil currently present at the site. The final dataset consists of 216 samples with 22 duplicates uniformly distributed throughout the DRMO. Groundwater was evaluated using historical groundwater data collected between 1994 and 2000, as well as a recent round of sampling conducted in November 2012 at 12 locations at the DRMO site. The evaluation of soil in this RI/FFS should be considered conservative since the final dataset does not reflect that roughly 150,455 cubic yards of soil across over one half of the surface area of the site were excavated and transported offsite in 2009 through 2010 in connection with a petroleum corrective action (PCA). The extensive excavation work conducted during the NTCRA and PCA resulted in the removal of a majority of previous sampling locations. Therefore, the confirmation sampling results are considered representative of current conditions and appropriate for use in the RI.

Based on the results of the RI for the DRMO, an FFS was determined appropriate based on the extensive excavation work conducted at DRMO during the NTCRA from 2005 to 2008 and PCA from 2009 to 2010 that resulted in an abbreviated list of contaminants of potential concern (COPCs) and eliminated soil as a media of concern. The FFS approach was also selected because the list of identified remedial actions was limited and did not include further active remediation.

Based on a review of historical information available for the DRMO, a site specific ecological risk assessment (ERA) was determined unnecessary and, therefore, was not conducted as part of this RI/FFS Report. The *Final Onshore Ecological Risk Assessment* (Tetra Tech EMI, Inc. [TtEMI], 2002b) concluded that the DRMO posed a potential risk to ecological receptors due to the presence of certain metals, including arsenic, cadmium, copper, lead, mercury, nickel, and zinc. Since that time, extensive remediation activities have been conducted at the DRMO, resulting in the excavation and removal of a majority of surface soil at the site. Based on a review of the updated soil sampling results (Weston Solutions, Inc., 2008), it was determined that the concentrations of arsenic, cadmium, copper, lead, mercury, nickel, and zinc (i.e., the metals that were determined to pose a potential risk to ecological receptors) remaining in soil are generally below concentrations for ambient fill (TtEMI, 2002a).

In addition, prior to the removal action activities, the DRMO site consisted of a developed area covered with gravel and asphalt and, based on historical observations, it was determined that no ecological features were present (TtEMI, 2002b); a biological reconnaissance survey (*Technical Memorandum: Biological Reconnaissance Survey of the DRMO Site* [CH2M HILL, 2004]) was conducted in January 2004 and concluded that no sensitive or special status species were observed at the site during the survey. The site is planned for transfer to the city of Vallejo for commercial/industrial land use and the existence of future ecological habitat at the DRMO is considered unlikely.

Site Location and Description

The DRMO lies within the boundary of the former MINS, which is located on a peninsula in Solano County, California, approximately 30 miles northeast of San Francisco. The former MINS occupies approximately 3.5 square miles and is bordered by the San Pablo Bay on the west, the Carquinez Strait on the south, and the Napa River on the east. Mare Island Strait (a portion of the Napa River) separates the former MINS from the city of Vallejo. Mare Island was originally an island composed of shale, siltstone, and sandstone covering approximately 1,000 acres, with surrounding wetlands of approximately 300 acres. Over time, the placement of fill materials and dredged sediments increased the size of the island to approximately 5,600 acres. The main entrance to Mare Island is via a causeway located at Tennessee Street and Wilson Avenue. A second entrance is from Highway 37 at the north end of the island.

The DRMO is located in the north-central portion of Mare Island. The site is shaped like a trapezoid and encompasses approximately 8.1 acres of land located at the southwestern corner of the intersection of Dump Road (an extension of A Street) and Azuar Drive (formerly Cedar Avenue). The fenced scrapyard area (FSA) of the DRMO occupies approximately 4.6 acres and was formerly used as a scrapyard. The remaining approximately 3.5 acres of the DRMO consists of land along the northern, western, and southern sides of the FSA. An asphalt-paved former truck maintenance area is to the south of the site, unpaved grassland areas are to the north and west; these areas currently remain the property of the Navy. The area east of the DRMO has been transferred to Lennar Mare Island and includes former Navy buildings that are not currently in use.

The DRMO remains inactive and after the completion of an NTCRA excavation (primarily within the FSA) conducted in 2005 and the PCA conducted in 2009 through 2010 now consists of grass planted over the former excavation area and fill material. Based on a summary of site demolition activities conducted as part of historical remediation, two steel Quonset huts in the southeast corner of the site are the only two surface features remaining at the DRMO.

Site Background

The Navy purchased Mare Island in 1853 and commenced shipbuilding operations the following year. The primary ship construction and maintenance area of MINS was established along the northeastern shore of the original island adjacent to the Mare Island Strait. The entire facility saw vast transformation during its years of operation as shipbuilding technologies advanced from wooden to steel construction and wind power to nuclear propulsion. In the early 1920s, the Navy initiated construction and maintenance of submarines at MINS. During World War II, MINS reached peak capacity for shipbuilding, repair, overhaul, and maintenance. Following the war, MINS was considered a primary station for construction and maintenance of the Navy's Pacific Fleet of submarines. However, because of changing Navy needs in a postwar environment, the shipyard activity decreased. MINS was closed on April 1, 1996 under the Base Realignment and Closure (BRAC) program.

Previous Removal Actions

In 1996, radiological materials including radioluminescent dials and thoriated metal items were removed from the unpaved areas of the DRMO, including the FSA. The remediation effort consisted of excavation and off-site disposal of 961,380 pounds of soil (Supervisor of Shipbuilding, Conversion & Repair, Portsmouth, Virginia—Environmental Detachment-Vallejo [SSPORTS], 1997). A follow-up survey was performed in late 1996 to verify the initial removal resulting in removal of additional discrete radioactive items that were containerized into a 30-gallon drum for off-site disposal. Site clearance for radiological materials was confirmed in the Final Release Report issued by the Navy in March 1997 and signed by DTSC and U.S. EPA in May 1997 (SSPORTS, 1997).

An NTCRA was initiated in 2005 to address near-surface munitions and explosives of concern (MEC) and chemical contaminants at the DRMO FSA. To meet the removal action objectives (RAOs) for the NTCRA, chemical-specific risk-based target cleanup goals (TCGs) were established based on U.S. EPA Region 9 preliminary remedial goals (PRGs) for the industrial land use scenarios (U.S. EPA, 2004b) and the ambient concentration of metals in Mare Island fill soil (TtEMI, 2002a). A benzo(a)pyrene equivalency factor for carcinogenic polycyclic aromatic hydrocarbons (PAHs) was also used as a TCG for soil. The primary objective of the NTCRA was to protect human health and the environment from chemical contaminants and MEC in surface and subsurface soil at the DRMO FSA. This objective was successfully achieved by excavating soil from ground surface to approximately 18 inches below ground surface (bgs) across the entire site, and by excavating portions of the site from the ground surface to approximately 8.5 ft bgs. With the exceptions of benzo(a)pyrene and benzo(a)pyrene equivalent concentration exceedances in several samples, all confirmation sampling results for metals, polychlorinated biphenyls (PCBs), pesticides and semi-volatile organic compounds (SVOCs) are less than their respective PRG for industrial soil, which were determined to be applicable based on the planned commercial/industrial land use for the DRMO. Arsenic concentrations exceeded the industrial PRG in soil at the majority of sample locations across the site; however, concentrations were below ambient fill concentrations for Mare Island. Total petroleum hydrocarbon (TPH) concentrations were analyzed in several samples across the DRMO FSA; however, TPH does not fall within the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) program and thus TPH results were not used for making decisions regarding the excavation. Lastly, based on the limited quantity of MEC encountered in the upper 18 inches of soil removed from the site, lack of any evidence of disposal pits, and since MEC was not encountered in deeper excavations during removal of additional soil for cleanup of chemical contaminants, no future land use restrictions relating to MEC or MPPEH are appropriate or planned for the DRMO FSA.

The PCA was conducted in 2009 through 2010 on 7.2 acres of land covering portions of the DRMO area and areas adjacent to the DRMO site to the north and east. A potable water line, a storm drain line and two buildings were also removed during this corrective action. Excavations were conducted in 50 ft by 50 ft grids over the 7.2 acres down to a depth ranging between 6 and 21 ft bgs. Confirmation samples were collected on the bottom of each excavation pit and the sidewalls at the boundaries of the planned excavation footprint. When TPH as bunker fuel was detected above the Tier 2 screening level of 5,000 milligram per kilogram (mg/kg), overexcavation was performed until TPH concentrations were below the screening level. Approximately 159,455 cubic yards of soil was excavated and disposed of in the Investigation Area HI Containment Area at MINS as subgrade beneath the engineered cover system.

Site Characterization

The ground surface at the DRMO site is generally flat, with elevations ranging from approximately 12 to 14 feet above mean sea level (amsl). No natural surface water features are present at the DRMO, however the site is prone to flooding during periods of heavy precipitation. Surface water drainage within the site infiltrates into the subsurface or is managed by an existing stormwater system. Rainwater runoff flows to stormwater drains, where it is discharged into the area west of the site. Runoff that is not managed via the stormwater system either immediately infiltrates into the subsurface or collects in low lying areas and either slowly infiltrates or evaporates.

The geology of Mare Island can be characterized as an eroded bedrock surface that is exposed in the southern part of the peninsula and overlain by a blanket of unconsolidated Quaternary sediments and artificial fill material at most other locations. The bedrock surface is irregular and deeply incised in some areas, and up to 160 ft of unconsolidated materials overlie the bedrock at some locations on the peninsula. The eroded bedrock forms a subsurface ridge, which appears to coincide with the original extent of Mare Island in 1869 and extends northwest along the axis of the Mare Island peninsula. Three principal geologic units have been identified at Mare Island, and the two uppermost units have been identified based on borings drilled at the site. From top to bottom stratigraphically, these are (1) artificial fill material, (2) unconsolidated natural deposits, and (3) bedrock.

Due to the extensive land reclamation activities at MINS, a highly heterogeneous surficial layer of fill material is ubiquitous at those locations outside of the original MINS footprint including the DRMO area. Portions of the surficial fill material at the DRMO were removed and replaced with imported backfill during the excavation and backfilling activities conducted between 2005 and 2008 as part of the NTCRA and in 2009 through 2010 as part of the PCA. A single, shallow, unconfined water-bearing zone has been identified beneath the DRMO. This zone extends downward from the water table to at least 28 ft bgs. DRMO monitoring wells were installed in this zone, at depths ranging from 12 to 15 ft. Well screens were installed in 10-ft sections and begin at depths of 2 to 5 ft below the top of casing. Historically, groundwater has been encountered at 2 to 6 ft bgs. This corresponds to elevations ranging from about 8 to 11 ft amsl with seasonal variations of about 3 ft. Groundwater generally flows in a northwesterly direction across the site. The groundwater gradient is low at approximately 0.007 ft/ft and there is no tidal influence on groundwater at the site.

Prior to removal action activities conducted between 2005 and 2010, the DRMO consisted of a developed area covered with gravel and asphalt. Based on historical observations, it was determined that no ecological features were present at the site. Nearby features include a wetlands area approximately 160 ft west of the DRMO. A biological reconnaissance survey was conducted in January 2004; no sensitive or special status species were observed during this survey. The results of the survey are provided in the *Technical Memorandum: Biological Reconnaissance Survey of the DRMO Site* (CH2M Hill, 2004). The site is planned for transfer to the city of Vallejo for commercial/industrial land use, which is consistent with historical use of the site. Therefore, the existence of future ecological habitat is also considered unlikely at the DRMO.

Nature and Extent of Contamination in Soil and Groundwater

A majority of chemicals that were previously present in soil at elevated concentrations were removed as part of the NTCRA conducted between 2005 and 2008 and PCA in 2009 through 2010. In general, arsenic and benzo(a)pyrene were the only two widespread chemicals that were detected above industrial PRGs in soil. Although arsenic concentrations represent an exceedance of the industrial PRG, the ambient concentration of arsenic in fill material at MINS was determined to be 36 mg/kg (TtEMI. 2002a), which exceeds both the industrial PRG and the average concentration of arsenic detected at the DRMO. In all cases, arsenic concentrations at DRMO were below ambient concentrations for arsenic in fill material (36 mg/kg) (TtEMI. 2002a), which suggests that the presence of arsenic in soil at the DRMO is attributable to ambient conditions and is not site-related. Benzo(a)pyrene was detected above the industrial PRGs in soil in four out of 238 samples (including duplicate samples). Benzo(a)pyrene is the only site-related chemical present in soil at levels that could pose a potential risk under the planned future use of the property (i.e., light commercial/industrial). One of the benzo(a)pyrene exceedances was in the excavation footprint of the PCA; therefore, any benzo(a)pyrene contaminated soil in that area has been removed and replaced with clean fill.

Prior to the development of this RI/FFS, groundwater had not been sampled since 2000. Therefore, in order to provide more recent groundwater data, groundwater sampling was conducted in 2012 to assess the current condition of groundwater at the DRMO site. Twelve grab samples and one duplicate were collected at 12 locations across the DRMO site. The screening levels used to support the nature and extent evaluation for groundwater have been based on maximum contaminant levels (MCLs) or regional screening levels (RSLs) if an MCL was not established for the specific chemical. The screening levels for metals in groundwater also consider background groundwater concentrations if they exceed the MCL and/or RSL. Since TPH does not have corresponding MCLs or RSLs, the screening levels for TPH are based on Water Board environmental screening levels (ESLs) for groundwater that is not a source of drinking water. The evaluation of the nature and extent of chemicals in groundwater indicated that PCBs and pesticides were not detected at concentrations that exceeded screening levels. Manganese exceeded its screening level in three of the 12 samples collected at the site and cobalt exceeded its screening level in one of 12 samples. Two SVOCs, 1-methynaphthalene and naphthalene, exceeded screening levels in DRMO-TMW06. One VOC, vinyl chloride, exceeded its MCL in one sample.

Human Health Risk Assessment

A human health risk assessment (HHRA) was performed post-2008 NTCRA to assess the potential for adverse effects resulting from human exposure to chemicals remaining in soil at the DRMO. In addition, groundwater samples were collected in November 2012 to assess the potential for adverse effects resulting from human exposure to chemicals remaining in groundwater at the DRMO. The results of the HHRA will be used to assist in making risk management decisions regarding the need for additional site characterization, risk assessment, remediation, or recommendation of no further action (NFA). The HHRA follows guidance provided in U.S. EPA's Risk Assessment Guidance for Superfund (RAGS) Volume I, Human Health Evaluation Manual (Part A) (U.S. EPA, 1989), RAGS Part D (U.S. EPA, 2001) and other appropriate U.S. EPA and Navy guidance, guidelines and policies. In addition, guidance provided by California Environmental Protection Agency's (CalEPA's) DTSC at http://www.dtsc.ca.gov has been incorporated where applicable.

The HHRA for soil assessed whether residual concentrations of chemicals would result in unacceptable risk for an industrial worker receptor, which is the most reasonable exposure scenario for current and planned future land use at the DRMO. Therefore, an industrial worker was evaluated under current and potential future exposure scenarios. The risk evaluation also included a potential future hypothetical residential scenario as a conservative measure to assist in making risk management decisions for the DRMO. In addition, a construction worker scenario was evaluated to determine whether precautionary measures are necessary when engaging in activities such as trenching or excavating at the site.

Incremental cancer risks and noncancer health hazards from site soils for the current and potential future industrial workers are below the cancer risk criterion of 1×10^{-6} and noncancer threshold value of 1.0. As summarized in Table ES-1, the calculated total incremental cancer risk and hazard index (HI) for the hypothetical adult and child resident are 2×10^{-6} and 1, respectively, suggesting that site soils are protective based on both residential and industrial land use scenarios.

Risks to industrial workers, construction/excavation workers and residential receptors were also evaluated using groundwater data resulting from the 2012 groundwater sampling event (see Table ES-1). The cancer risk and noncancer hazard for construction/excavation and industrial workers were below de minimis levels for direct contact with groundwater. The residential use evaluation involved contact through (1) potable use of site groundwater and (2) inhalation of chemicals from vapor intrusion into indoor air. Table ES-1 provides the contribution of the cancer and noncancer risk results associated with site groundwater for both exposure routes. The cancer risk for potable use of site groundwater was at the upper end of the risk management range of 10^{-6} to 10^{-4}; the primary driver of cancer risk was vinyl chloride (benzene and 1-methylnaphthalene also contributed to risk above 1×10^{-6}). The noncancer hazard for potable use of site groundwater was greater than the noncancer hazard target of 1; the driver of the noncancer hazard was manganese. The detections of manganese may or may not be associated with site activities since there are only six samples out of 38 with detections greater than background.

Table ES-1. HHRA Summary for Soil and Groundwater

Receptor		Total: Total Cancer Risk	Total: Hazard Index	Incremental Risk: Total Cancer Risk	Incremental Risk: Hazard Index
Soil					
Current	Industrial Worker	9×10^{-6}	0.1	7×10^{-7}	0.09
Potential Future	Residential Adult/Child	4×10^{-5}	2	2×10^{-6}	1
	Industrial Worker	1×10^{-5}	0.2	7×10^{-7}	0.1
	Construction Worker	3×10^{-6}	2	1×10^{-6}	2
Groundwater					
Current/Potential Future	Industrial Workers	2×10^{-7}	0.005	2×10^{-7}	0.005
	Construction/Excavation Worker	3×10^{-17}	0.00000000002	3×10^{-17}	0.00000000002
Potential Future	Residential - Potable Use/ Vapor Intrusion	5×10^{-4}/ 8×10^{-6}	100/ 0.05	1×10^{-4}/ 8×10^{-6}	70/ 0.05

The noncancer hazard for hypothetical residents due to vapor intrusion from groundwater was below the noncancer hazard target of 1. The cancer risk for hypothetical residents due to vapor intrusion from groundwater was at the low end of the risk management range of 10^{-4} to 10^{-6}, with vinyl chloride being the primary driver of cancer risk for hypothetical residents. Vinyl chloride was detected in two of the 12 samples at concentrations of 0.93 µg/L and 3.5 µg/L. The maximum detected concentration of vinyl chloride was used as the source term concentration (STC) in the vapor intrusion risk calculation. The maximum concentration was the only result that exceeded the MCL for vinyl chloride (2 µg/L) and the San Francisco Bay Regional Water Quality Control Board ESLs for vapor intrusion (1.8 µg/L) (Water Board, 2013). The 95% upper confidence limit (UCL) for vinyl chloride in groundwater is 1.7 µg/L, which is less than both the MCL and the ESL for vapor intrusion.

Based on this groundwater HHRA there are no unacceptable risks and no restrictions required for the commercial/industrial or construction/excavation workers. The residential assessment showed potentially unacceptable cancer risks from vinyl chloride and noncancer hazards from manganese, primarily related to the potable use of site groundwater.

Remedial Action Objectives

U.S. EPA guidance (U.S. EPA, 1988b) requires that RAOs be developed during the initial phase of the FFS and be used as the framework for developing the remedial alternatives. Based on the HHRA for soil presented in Section 6.1, site soil conditions do not pose an unacceptable risk to construction or industrial workers, and cancer risk for a hypothetical resident is at the low end of the risk management range while the HI for a hypothetical resident is equal to 1. When background soil concentrations are taken into consideration (e.g., arsenic in soil), the primary cancer risk driver in soil is benzo(a)pyrene, which corresponds to a cancer risk of 9×10^{-7}. Based on the HHRA for soil, there is no site-related COPC that results in a risk in excess of 1×10^{-6}. Given the additional improvement in site conditions that resulted from the PCA, the above analysis is considered conservative. Therefore, site soil is considered protective for future unrestricted use and the Navy has determined that NFA is required for soil at the DRMO.

Based on the HHRA, site groundwater does not pose an unacceptable risk to construction workers, industrial workers, or recreational users. For hypothetical residential receptors, the cancer risk is 1×10^{-4} and the HI is 70, which is primarily driven by potable use of site groundwater. Vinyl chloride, benzene, and 1-methylnapthalene are the primary cancer risk drivers and manganese in excess of site background is the primary driver of noncancer hazards. In a letter dated December 16, 2013, the Water Board issued an exception to drinking water policy (EDWP) for shallow groundwater at DRMO. While the EDWP eliminates the need to restore site groundwater to domestic/municipal standards, it may not fully eliminate the risk of exposure to site groundwater. Restricting the use of DRMO groundwater would effectively eliminate the groundwater exposure route that potentially results in an unacceptable risk to a hypothetical resident. Therefore, the following RAO has been established to ensure the DRMO is protective of potential future receptors:

- Prevent unacceptable risk resulting from potable use of site groundwater.

This FFS was prepared to evaluate potential alternatives to achieve the stated RAO.

Detailed Evaluation of Remedial Alternatives

The RI/FFS evaluates two remedial alternatives using the nine National Contingency Plan (NCP)/ CERCLA feasibility criteria. Historically, multiple removal and corrective actions have been undertaken at the DRMO, which have resulted in a majority of the site being excavated to depths ranging from 1.5 to 21 ft bgs. Based on the extensive excavation work that has been conducted and the HHRA results for soil, NFA is planned to address site soils. Based on the HHRA, groundwater has been identified as the primary medium of concern. This FFS evaluates remedial alternatives to achieve the site-specific RAO and ensure the site is protective of current and future receptors. The results of the HHRA for groundwater indicated that elevated cancer and noncancer risk are associated with the potable use of site groundwater. Based on the extensive remediation conducted at the DRMO, the absence of a continuing source of contamination, the lack of a reasonable exposure pathway that would result in potable use of site groundwater, and the EDWP granted by the Water Board, this FFS does not consider additional active remediation. Rather, two alternatives are being evaluated to achieve the RAO of preventing unacceptable risks from potable use of groundwater:

- Alternative 1: No Further Action
- Alternative 2: Institutional Controls

This RI/FFS provides a detailed evaluation of the two alternatives being considered based on the overall protection of human health and the environment; compliance with applicable or relevant and appropriate requirements (ARARs); long-term effectiveness; reduction of toxicity, mobility, and volume through treatment; short-term effectiveness; implementability; cost; community acceptance; and state acceptance. The evaluations of state acceptance and community acceptance cannot be completed until comments on the RI/FFS and Proposed Plan are received; they will be more thoroughly addressed in the Record of Decision (ROD) for the DRMO site. Table ES-2 provides a summary of the detailed evaluation for the DRMO site.

Table ES-2. Results Summary of the Detailed Evaluation of Remedial Alternatives

Alternative	Overall Protection of Human Health	Compliance with ARARs	Long-Term Effectiveness	Reduction in Toxicity, Mobility, and Volume through Treatment	Short-Term Effectiveness	Implementability	Cost
No Further Action	◓	N/A	○	○	○	●	●
Institutional Controls	●	●	●	○	●	●	●

○ - Low Performance
◓ - Moderate Performance
● - High Performance
N/A - Not Applicable

Conclusions and Recommendations

There are no ecological receptors at the DRMO site and as a result no ecological risk assessment was performed for this RI/FSS. Based on the results of the HHRA, a single RAO has been established to ensure the DRMO is protective of potential future receptors by preventing unacceptable risk resulting from potable use of site groundwater. The FFS evaluated an abbreviated list of potential alternatives to achieve the stated RAO, including: Alternative 1: No Further Action, and Alternative 2: Institutional Controls. Based on the detailed evaluation of alternatives presented in Section 8.0, Alternative 2 (Institutional Controls) was determined to provide a high degree of overall protection of human health, a high degree of short- and long-term effectiveness, a high degree of implementability, and to be most cost effective. Considering the extensive remediation that has already occurred at the DRMO and the results of the detailed evaluation of alternatives, Alternative 2 (Institutional Controls) would serve as an effective means to ensure the DRMO is protective of human health and the environment. If site conditions changed in the future and it could be demonstrated to the satisfaction of the Navy and the State that groundwater no longer posed an unacceptable risk to human health, the proposed institutional controls could be removed.

ABBREVIATIONS AND ACRONYMS

AC	average concentration
ACM	asbestos-containing material
ADAF	age-dependent adjustment factor
ADI	average daily intake
ALM	Adult Lead Model
amsl	above mean sea level
ARAR	Applicable or Relevant and Appropriate Requirement
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	below ground surface
BHC	benzene hexachloride
BRAC	Base Realignment and Closure
CalEPA	California Environmental Protection Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulation
CHHSL	California human health screening level
Co	cobalt
COC	chemical of concern
COPC	contaminant of potential concern
Cs	cesium
CSF	cancer slope factor
CSM	conceptual site model
DCE	dichloroethene
DHS	Department of Health Services
DMM	discarded military munition
DoD	U.S. Department of Defense
DON	Department of the Navy
DRMO	Defense Reutilization and Marketing Office
DTSC	Department of Toxic Substances Control
EDWP	exemption to drinking water policy
ELAP	Environmental Laboratory Accreditation Program
EPC	exposure point concentration
ERA	ecological risk assessment
ESL	environmental screening level
FFSRA	Federal Facility Site Remediation Agreement
FSA	fenced scrapyard area
HAZWOPER	Hazardous Waste Operations and Emergency Response
Hg	mercury
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
IAS	Initial Assessment Study

ID	identification
IRIS	Integrated Risk Information System
IUR	inhalation unit risk
Koc	organic carbon partitioning coefficient
Kow	octanol-water partitioning coefficient
LAC	lifetime average concentration
LADI	lifetime average daily intake
MCL	maximum contaminant level
MEC	munitions and explosives of concern
MINS	Mare Island Naval Shipyard
MMOA	mutagenic mode of action
MOA	memorandum of agreement
MPPEH	material potentially presenting an explosive hazard
MRL	minimal risk level
NCP	National Contingency Plan
NFA	no further action
NFESC	Naval Facilities Engineering Service Center
NOAA	National Oceanic and Atmospheric Administration
NTCRA	Non-Time Critical Removal Action
OEHHA	Office of Environmental Health Hazard Assessment
OSWER	Office of Solid Waste and Emergency Response
OSB	oil sump box
PAH	polycyclic aromatic hydrocarbon
PbB	blood lead
PCA	petroleum corrective action
PCB	polychlorinated biphenyl
PEF	particulate emission factor
PMO	Program Management Office
PPRTV	Provisional Peer-Reviewed Toxicity Value
PRC	PRC Environmental Management
PRG	Preliminary Remediation Goal
QA	quality assurance
QC	quality control
Ra	radium
RAGS	Risk Assessment Guidance for Superfund
RAO	remedial action objective
RBSL	risk based screening level
RCRA	Resource Conservation and Recovery
RfD	reference dose
RfC	inhalation reference concentration

ABBREVIATIONS AND ACRONYMS (Continued)

RI/FFS	Remedial Investigation and Focused Feasibility Study
RME	reasonable maximum exposure
ROD	Record of Decision
RSL	regional screening level
SAP	sampling and analysis plan
SARA	Superfund Amendments and Reauthorization Act
SF	slope factor
SFEP	San Francisco Estuary Project
SIM	selected ion monitoring
Sr	strontium
SSPORTS	Supervisor of Shipbuilding, Conversion, & Repair, Portsmouth, Virginia — Environmental Detachment-Vallejo
STC	source term concentration
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TBC	to be considered
TCG	target cleanup goal
TCE	trichloroethene
Th	thorium
TPH	total petroleum hydrocarbon
TPH-D	total petroleum hydrocarbon quantified as diesel
TPH-G	total petroleum hydrocarbon quantified as gasoline
TPH-MO	total petroleum hydrocarbon quantified as motor oil
TSCA	Toxic Substances Control Act
TtEMI	Tetra Tech EMI, Inc.
U.S. EPA	United State Environmental Protection Agency
UCL	upper confidence limit
UXO	unexploded ordnance
VOC	volatile organic compound
Water Board	Regional Water Quality Control Board

Section 1.0: INTRODUCTION

This report presents the Remedial Investigation and Focused Feasibility Study (RI/FFS) for the Defense Reutilization and Marketing Office (DRMO) Site at the former Mare Island Naval Shipyard (MINS), Vallejo, California. This document was prepared by Battelle for the Base Realignment and Closure (BRAC) Program Management Office (PMO) West under Contract Number N62473-07-D-3212, Delivery Order Number 005. Delivery of this document is pursuant to the MINS Federal Facility Site Remediation Agreement (FFSRA) between the United States Environmental Protection Agency (U.S. EPA), the California Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (Water Board), San Francisco Bay Region. The FFSRA provides a framework for implementing appropriate environmental characterization and response actions at the former MINS.

1.1 Purpose and Objectives of the Remedial Investigation/Focused Feasibility Study Report

The purpose of this RI/FFS is to utilize existing confirmation soil sampling results from a Non-Time Critical Removal Action (NTCRA) conducted from 2005 to 2008 (Weston Solutions, Inc., 2008) and groundwater samples collected in 2012 to assess site conditions in soil and groundwater and evaluate alternatives to the extent necessary to ensure site conditions do not pose an unacceptable risk to future receptors. The primary objectives of this RI/FFS report are to:

- Summarize information on site history, environmental settings, and previous investigations and remediation activities;
- Evaluate the nature and extent of hazardous substances in soil and groundwater;
- Evaluate the fate and transport of site contaminants in soil and groundwater and assess the potential to migrate and impact human receptors;
- Conduct and present the results of human health risk assessments (HHRAs) conducted using confirmation soil and groundwater sampling data;
- Define remedial action objectives (RAOs);
- Develop an abbreviated list of final remedial alternatives; and
- Revise and update the analysis of applicable and relevant or appropriate requirements (ARARs).

Based on a review of historical information available for the DRMO, a site specific ecological risk assessment (ERA) was determined unnecessary and was therefore not conducted as part of this RI/FFS Report. The *Final Onshore Ecological Risk Assessment* (Tetra Tech EMI, Inc. [TtEMI], 2002a) concluded that the DRMO posed a potential risk to ecological receptors due to the presence of certain metals, including arsenic, cadmium, copper, lead, mercury, nickel, and zinc. Since that time, extensive remediation activities have been conducted at the DRMO, resulting in the excavation and removal of a majority of surface soil at the site. Based on a review of the updated soil sampling results (Weston Solutions, Inc., 2008), it was determined that the concentrations of arsenic, cadmium, copper, lead, mercury, nickel, and zinc (i.e., the metals that were determined to pose a potential risk to ecological receptors) remaining in soil are generally below concentrations for ambient fill (TtEMI, 2002a). Additional remediation was conducted in 2009 through 2010, resulting in excavation and backfill of clean soil in approximately half of the DRMO area. The results of the analysis of fill material show metals concentrations in soil below ambient background concentrations.

In addition, prior to the removal action activities, the DRMO consisted of a developed area covered with gravel and asphalt and, based on historical observations, it was determined that no ecological features were present at the DRMO (TtEMI, 2002b). A biological reconnaissance survey (CH2M HILL, 2004) was conducted in January 2004 and concluded that no sensitive or special status species were observed at the site during the survey. Furthermore, the site is planned for transfer to the city of Vallejo for light commercial/industrial redevelopment and the existence of future ecological habitat at the DRMO is considered unlikely.

1.2 Report Organization

This report follows the suggested structure provided in applicable guidance documents, including the *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (U.S. EPA, 1988b) and the *Department of the Navy Environmental Restoration Program Manual* (U.S. Navy, 2006). Section 1.0 presents general information related to the RI/FFS Report and the objectives. Section 2.0 provides a comprehensive summary of background information relating to the DRMO and Section 3.0 includes a discussion of the site characteristics. Section 4.0 provides a summary of the nature and extent of chemicals in soil and groundwater at the site. Section 5.0 presents a discussion of the fate and transport of chemicals of concern in soil and groundwater. Section 6.0 presents the results of the HHRA for the site. Section 7.0 presents the development of RAOs. Section 8.0 presents the detailed analysis of an abbreviated list of remedial alternatives. Section 9.0 presents the conclusions and recommendations of this RI/FFS. Lastly, Section 10.0 lists the references cited throughout the report.

The appendices to this document include supporting information, including an analysis of ARARs (Appendix A), a summary of the final dataset characterizing conditions in soil (Appendix B) and groundwater (Appendix C), a collection of analytical reports for soil and groundwater results (Appendix D), supporting information related to the HHRA for soil (Appendix E), supporting information related to the HHRA for groundwater (Appendix F), a summary of the costs for each remedial alternative (Appendix G), a collection of historical borings logs used to characterize the geology at the DRMO (Appendix H), a letter documenting regulatory closure of radiological issues at the DRMO (Appendix I), the Internal Draft Investigation Area H2 Remedial Investigation Report (Appendix J) (TtEMI, 2000), and a summary of the 2012 groundwater investigation (Appendix K).

1.3 Site Location and Description

The DRMO lies within the boundary of the former MINS, which is located on a peninsula in Solano County, California, approximately 30 miles northeast of San Francisco (Figure 1-1). The former MINS occupies approximately 3.5 square miles and is bordered by San Pablo Bay on the west, Carquinez Strait on the south, and the Napa River on the east. Mare Island Strait (a portion of the Napa River) separates the former MINS from the city of Vallejo. Mare Island was originally an island composed of shale, siltstone, and sandstone covering a conducted approximately 1,000 acres, with surrounding wetlands of approximately 300 acres. Over time, the placement of fill materials and dredged sediments increased the size of the island to approximately 5,600 acres. The main entrance to Mare Island is via a causeway located at Tennessee Street and Wilson Avenue. A second entrance is from Highway 37 at the north end of the island.

The DRMO is located in the north-central portion of Mare Island. The site is shaped like a trapezoid and encompasses approximately 8.1 acres of land located in the southwestern corner of the intersection of Dump Road (an extension of A Street) and Azuar Drive (formerly Cedar Avenue) (Figure 1-2). An asphalt-paved former truck maintenance area is to the south of the site, and an unpaved grassland area with a dirt access road to the truck maintenance area is to the west; these areas currently remain the property of the Navy. The fenced scrapyard area (FSA) of the DRMO occupies approximately 4.6 acres and was formerly used as a scrapyard. The remaining approximately 3.5 acres of the DRMO consists of land along the northern, western, and southern sides of the FSA. The FSA was historically significant during operation of the DRMO because various scrap, with the potential to release contamination to the ground surface, was stored in this fenced area. Fencing around the FSA has been removed

Based on a summary of site demolition activities conducted as part of the NTCRA (CH2M Hill, 2006), nearly all surface features of the site were removed, including 76.1 tons of railroad track, 146.6 tons of wood debris and railroad ties, 62.4 tons of miscellaneous scrap metal, 2,599.9 tons of asphalt pavement, 1,578 tons of concrete, and 11.3 tons of building debris. During demolition activities, a sanitary sewer line from former Building 691 was removed to the eastern fenceline of the FSA and a grout plug was installed where the pipe exited. Two stormwater lines exiting at the western edge of the FSA and one stormwater line exiting at the eastern edge of the FSA were plugged with grout. Two catch basins near the corner of Dump Road and Azuar Drive were raised in elevation and were left operational. A secondary stormwater line, which ran out of the northernmost catch basin, was also plugged with grout. In the northern corner of the FSA, a section of an active 6-inch ductile water line was rerouted outside the northern limits of the FSA fenceline. Approximately 80 ft of new 6-inch ductile iron pipe was installed outside of the FSA fenceline. In 2007, a section of clay pipeline in grids FS-25 and FS-38, noted to contain viscous oil, was removed (Weston Solutions, Inc., 2008). In addition, a wood-lined sump in grid FS-25, which was also noted to contain free product, was subsequently removed during the PCA, demolished, and disposed of at the IA H1 landfill (Weston Solutions, Inc., 2008, 2010).

In 2009, additional utilities were removed to support the PCA, including a concrete-encased duct bank containing two live 12-kilovolt electrical conductor copper wires that ran underneath Azuar Drive adjacent to the FSA; a deactivated (disconnected) underground electrical bank that ran west from Azuar Drive through the excavation area north of Dump Road into IA-H1; approximately 880 linear feet of water line located underneath Azuar Drive; a manway located on Azuar Drive adjacent to the DRMO site used to discharge extracted groundwater from the IA-H1 containment area; a stormwater line parallel to Azuar Drive; a deactivated telephone line north of Dump Road; and a portion of the abandoned Industrial Wastewater Treatment Plant pipeline located north of Dump Road. In addition to the utilities described above, two buildings (Buildings 661 and 679) and two groundwater monitoring wells (DRMOW04 and 16W08) were removed. The potable water line and storm sewer were replaced during site restoration activities following the PCA. The industrial wastewater line was not in use and, therefore, was not replaced.

The DRMO remains inactive and after the completion of a NTCRA excavation and a petroleum corrective action (PCA), the site now consists of grass planted over the former excavation area and fill material. The DRMO has a relatively flat ground surface, with elevations ranging from approximately 10.5 to 12.5 ft above mean sea level (amsl). The two steel Quonset huts located in the southeast corner of the site are the only structures remaining at the DRMO and most underground utilities have been removed, as described above. Access to the DRMO is limited by more recently installed fencing that generally follows the outer boundaries of DRMO and DRMO South.

1.4 Applicable or Relevant and Appropriate Requirements and Guidance to Be Considered

Throughout the remedial action process, the Navy is required to comply with ARARs within the framework of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Superfund Amendments and Reauthorization Act (SARA), and the National Contingency Plan (NCP).

Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address circumstances at a CERCLA site. The requirement is applicable if the jurisdictional prerequisites of the standard show a direct correspondence when objectively compared to the conditions at the site. An applicable federal requirement is an ARAR. An applicable state requirement is an ARAR only if it is more stringent than federal ARARs.

If the requirement is not legally applicable, then the requirement is evaluated to determine whether it is relevant and appropriate. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not applicable, address problems or situations similar to the circumstances of the proposed remedial action and are well suited to the conditions of the site (U.S. EPA, 1988a). A requirement must be determined to be both relevant and appropriate to be considered an ARAR.

Nonpromulgated advisories or guidance issued by federal or state governments are not legally binding and do not have the status of ARARs. Such requirements may, however, be useful and are "to be considered" (TBC). TBC requirements (40 C.F.R. § 300.400[g][3]) complement ARARs but do not override them. They are useful for guiding decisions regarding cleanup levels or methodologies when regulatory standards are not available. The potential ARARs/advisories, criteria or guidance identified for the DRMO are evaluated in detail in Appendix A.

Section 2.0: SITE BACKGROUND

The Navy purchased Mare Island in 1853 and commenced shipbuilding operations the following year. The primary ship construction and maintenance area of MINS was established along the northeastern shore of the original island adjacent to the Mare Island Strait. The entire facility saw vast transformation during its years of operation as shipbuilding technologies advanced from wooden to steel construction and wind power to nuclear propulsion. In the early 1920s, the Navy initiated construction and maintenance of submarines at MINS. During World War II, MINS reached peak capacity for shipbuilding, repair, overhaul, and maintenance. Following the war, MINS was considered a primary station for construction and maintenance of the Navy's Pacific Fleet of submarines. However, because of changing Navy needs in a postwar environment, shipyard activity decreased. MINS was closed on April 1, 1996 under the BRAC program.

2.1 Site Use History

Historical maps of Mare Island indicate that the DRMO was submerged below the water line of San Pablo Bay until sometime between 1911 and 1920, when the DRMO was presumably filled with dredge material from the Mare Island Strait. A 1920 Navy map shows the site to be approximately 1,200 ft east of the western shoreline and does not identify any use of the site (see Figure 2-1). Prior to use of the site as the DRMO, additional fill was brought to the site to raise the grade to approximately 6 ft above the previous ground surface.

The 4.6-acre fenced portion of the site was developed for use as a scrapyard around 1942. Initial development of the scrapyard began with the construction of railroad spurs, scrap bins, and a warehouse storage building, Building 661 (Supervisor of Shipbuilding, Conversion, & Repair, Portsmouth, Virginia—Environmental Detachment-Vallejo [SSPORTS], 1997).

Additional structures that were constructed include:

- Building 675: a railroad scalehouse constructed in 1942
- Building 679: a warehouse constructed in 1942-43
- Building 691: a scrapyard office constructed in 1943; and
- Building 715: formerly used as a steel fabrication building until 1946 when its use changed to a storehouse (SSPORTS, 1997).

As shown in Figure 1-2, most aboveground structures and underground utilities have been removed from the DRMO.

2.2 Chemical History

Historical uses of the DRMO included storage of transformers, batteries, metal scrap, paper bailing, and handling of petroleum oils. The scrapyard also handled surplus material and scrap from the shipyard and other military facilities until mid-1995, when the remaining inventory was removed. In addition, the suspected application of pesticides along with maintenance and storage activities resulted in releases of chemicals to surface soil, including heavy metals, polychlorinated biphenyls (PCBs), and chlorinated pesticides. The DRMO storage facility, including the 4.6 acre fenced area and Building 661, were established as a solid waste management unit (SWMU) under the Resource Conservation and Recovery Act (RCRA) and was designated as SWMU 129 in the RCRA Facility Assessment conducted for Mare

Island. A majority of the DRMO, including the entire area designated as SWMU 129, has been excavated through a series of removal actions, which are discussed further in Section 2.6.

2.3 Ordnance History

Munitions and explosives of concern (MEC) were generally not handled as part of DRMO site operations. However, ordnance items were found at the site prior to and after the scrapyard was closed in 1995. Prior to closure, the site had a documented history of several incidents involving munitions (SSPORTS, 1998).

Ordnance items were recovered from the site from 1987 through 1996, both before and after site closure in 1995. Following closure of the DRMO in 1995 (removal of scrapyard items and cessation of active use), SSPORTS conducted a surface clearance of visible MEC items and removed a large quantity of ordnance-related materials. With the exception of a live projectile time fuze booster element discovered in 1995, all items recovered following closure of the DRMO were classified as inert. The presence of MEC items was the result of discarded military munitions (DMM) improperly sent to the DRMO or improperly classified and placed at the DRMO. Historical information indicated that ordnance-related materials were primarily present in surface and shallow subsurface soil (CH2M Hill, 2005).

Although munitions items were not typically processed at the DRMO FSA, several emergency removal actions were completed between 1987 and 1995 to remove a total of 15 MEC/material potentially presenting and explosive hazard (MPPEH) items encountered in scrap materials submitted to the facility for processing. One additional MEC item was recovered in surface debris immediately after closure of the DRMO facility in 1995.

Based on the emergency removal actions completed while the DRMO FSA was in active use, the presence of MEC/MPPEH items was attributed to unintentional disposal with other inert scrap materials sent to the DRMO FSA for processing and recycling. The upper 18 inches of soil within the entire DRMO FSA, comprising approximately 18,000 cubic yards, was excavated and mechanically screened for MEC/MPPEH as part of the 2005-2007 DRMO FSA NTCRA. Eleven MEC items were recovered during the NTCRA at depths ranging from the surface down to 18 inches. As shown on Figure 2-2, additional areas within and outside the DRMO FSA required further soil removal to meet the target cleanup goals for chemical contaminants as part of the NTCRA. No MEC or MPPEH items were found in the additional 21,700 cubic yards of soil excavated for chemical contamination during the NTCRA. Excavated soil was properly disposed of at either a permitted offsite facility or at the nearby Investigation Area H1 Containment Area. All MEC/MPPEH items recovered during the NTCRA were treated at the ordnance disposal range on MINS; items recovered during the prior emergency removal actions were transferred to Navy Explosive Ordnance Disposal Mobile Unit Nine for final disposition.

2.4 Radiological History

Although no radiological work was conducted at the DRMO, some of the equipment, material, and scrap processed through the yard contained radioactive material in the form of radioluminescent dials (clocks, compasses, depth gauges, altimeters, and gas, temperature and pressure gauges). Other items included radioluminescent deck markers, radioluminescent markers on sound-powered phones, used thoriated welding rods, spark initiators, thoriated-magnesium metal alloys, electron tubes, and counter-weights. The most likely radioactive elements were radium (Ra)-226 from radioluminescent items and thorium (Th)-230/232/234 from welding and thoriated metal items. SSPORTS concluded that there was a small possibility of strontium (Sr)-90 from radioluminescent applications and a remote possibility of cobalt (Co)-60 and cesium (Cs)-137 from doping of electron tube filaments (SSPORTS, 1997).

According to the Final Release Report (SSPORTS, 1997), radiological scan surveys were performed by the Navy from as early as 1977. Reports published in 1983 and 1984 reported that the scrapyard was monitored on a frequent basis and that radioactive materials, when encountered, were removed and sent to a central storage location pending disposal. In 1996, radiological materials including radioluminescent dials and thoriated metal items were removed from the unpaved areas of the DRMO, including the FSA. The remediation effort consisted of excavation and off-site disposal of 961,380 pounds of soil (SSPORTS, 1997). A follow-up survey was performed in late 1996 to verify the initial removal resulting in removal of additional discrete radioactive items that were containerized into a 30-gallon drum for off-site disposal. Site clearance for radiological materials was confirmed in the Final Release Report issued by the Navy in March 1997 and signed by DTSC and U.S. EPA in May 1997 (SSPORTS, 1997).

Based on the results of the radiological removal action, the Department of the Navy (DON) and regulatory agencies concluded that all radiological contamination had been removed from the DRMO (see Appendix I).

2.5 Previous Investigations

Environmental conditions at the former MINS have been investigated in studies beginning in 1981. The primary focus of the initial studies involved identifying potentially contaminated areas, characterizing soil and groundwater conditions, and implementing environmental compliance programs. These studies were developed in conjunction with the FFSRA, with input from DTSC, U.S. EPA, and the Water Board. This section presents an overview of various environmental activities that have been conducted at MINS relevant to the DRMO.

Initial Assessment Study, 1983. An Initial Assessment Study (IAS) was conducted in March 1983 to identify environmental contamination potentially resulting from past hazardous materials operations at MINS through the evaluation of personnel interviews, field inspections, and reviews of historical records and aerial photographs (Ecology and Environment, 1983). The IAS report included the DRMO Scrapyard in an area identified as Landfill (Site 1). Areas to the east and northeast of the DRMO Scrapyard are shown as landfilled in the early 1900s to the 1930s. A review of boring logs along with the historical maps indicates that although fill was placed at the DRMO Scrapyard from 1911 to the 1940s, the fill does not contain significant amounts of construction debris, trash, or other non-soil waste materials. It is likely that the earliest fill was dredge material.

The IAS also reported that the DRMO Scrapyard handled transformers with PCB-containing oil and submarine battery elements. Containerization and handling of the disposal of waste oil solvents was also conducted from approximately 1963 to 1983. The liquids and sludges were previously disposed of in open sump pits west and northwest of the DRMO Scrapyard. PCB-containing oils were also reportedly used on the road leading to the landfill (Dump Road) to control dust.

Preliminary Investigation of Lead Contamination, 1985. A preliminary investigation was conducted in the Landfill (Site 1) area to identify areas of lead battery storage and disposal and to assess whether battery storage had affected nearby groundwater (Aqua Terra Technologies, 1985). During a site reconnaissance at the DRMO Scrapyard, no battery debris was noted but a small area of stained asphalt was observed at the former location of Building 715, a battery storage area and electrical transformer station that was demolished in 1975. No intrusive sampling was conducted in 1985 because of access limitations, but the stained asphalt area was removed in 1992 (see “Lead Oxide Study, 1992” below).

Phase I Remedial Investigation, 1990-1992. From 1990 to 1992, a Phase I RI that included the DRMO as a portion of the IR01 Developed Area was conducted. The scope of the Phase I RI included collection and analyses of soil, residue, concrete, and groundwater samples, followed by data evaluation to identify contaminants of potential concern (COPCs) at each site. The results of the Phase I RI are documented in the *Phase I Remedial Investigation Site Characterization Summary for Mare Island Naval Shipyard* (IT Group, 1992) and in the *Internal Draft Investigation Area H2 Remedial Investigation Report* (TtEMI, 2000; discussed below).

Lead Oxide Study, 1992. In 1987, the Navy was asked by the California Department of Health Services (DHS) to characterize a number of lead oxide sites, including the area within the DRMO Scrapyard that was designated as IR16 Subsite 715. As a result, a sampling and analysis plan (SAP) was prepared (Kaman Sciences Corporation, 1988) and in 1992, based on this plan, PRC Environmental Management (PRC) conducted a lead oxide study at IR16 Subsite 715 (PRC, 1992). Asphalt, soil, and groundwater samples were collected. Elevated concentrations of lead and copper were detected in samples from the stained asphalt area, which was removed in 1992 (SSPORTS, 1996).

Phase II Remedial Investigation, 1993-1996. The purpose of the Phase II RI was to assess the extent of previously reported chemicals and to identify potential migration pathways. IR16 Subsite 715, located within the DRMO site boundaries, was included in the Phase II RI. Based on the RI findings, accelerated actions or management strategies were identified for each site. IR16 Subsite 715 was designated for future inclusion in the overall environmental restoration process for the DRMO Scrapyard (PRC, 1997a).

Historical Survey of Mare Island Naval Complex, 1994-1995. Existing buildings at the site were surveyed for their historical significance. Buildings 661, 679, and 691 were categorized as "noncontributing buildings," which means they are of little or no historical interest with regard to preservation.

Examination of Groundwater at Mare Island Naval Shipyard for Municipal and Domestic Supply, 1995. Quarterly groundwater monitoring results from 1992 through 1994 were used to assess the potability of the shallow groundwater at Mare Island (PRC, 1995). The assessment concluded that groundwater at Mare Island is unsuitable for use as a drinking water source. This determination was based on the inadequacy of groundwater production rates (less than 150 gallons per day) and elevated concentrations of naturally occurring total dissolved solids relative to both state and federal criteria for salinity.

Basewide Environmental Baseline Survey, Supplement for Zone 02, 1996. This survey of MINS obtained information on the DRMO Scrapyard buildings, asbestos survey results, PCB-containing equipment, tanks, and spill history, and identified problems and the associated corrective actions implemented (SSPORTS, 1996). It was reported that asbestos-containing material (ACM) was presumed to be present at Buildings 675, 679, and 691 as the result of the use of typical historical construction materials. No unacceptable risk was posed by Building 675 because the ACM in this building was not damaged or friable, whereas corrective action remained to be implemented at Buildings 679 and 691. A subsequent survey conducted by the Navy confirmed the presence of asbestos in portions of Building 691. Abatement of Building 691 was subsequently conducted as part of site demolition associated with the NTCRA discussed in Section 2.6.2 and was documented in the Final Interim Closure Report (CH2M Hill, 2006). As part of the PCA, two ACM surveys were conducted on Building 679 and an adjacent building, Building 661. Building 679 was determined to not contain ACM. Building 661 was confirmed to contain ACM and abatement was immediately conducted. Extensive petroleum contamination found beneath the foundation of both Buildings 661 and 679 necessitated their removal. The abatement and demolition activities conducted during the PCA (Weston Solutions, Inc., 2009) have been documented in the Completion Report for the PCA (Weston Solutions, Inc., 2010).

With regard to IR16 Subsite 715, the 1996 survey noted that (a) lead concentrations in the stained asphalt area described above had been high, but the area had been removed in 1992; and (b) asphalt samples from the non-stained areas at Subsite 715 contained low lead concentrations, indicating the likelihood of no significant lead contamination in these areas. In addition, the asphalt provided a barrier inhibiting the downward migration of lead (SSPORTS, 1996).

Onshore Ecological Risk Assessment, 1996-1999. An ERA for the area surrounding the DRMO was conducted to evaluate risks to ecological receptors from site-specific stressors present in onshore areas (PRC, 1996, 1997b; TtEMI, 2002b). The DRMO was not included in the ERA because no suitable or viable habitat exists, and the planned light industrial/commercial reuse will prevent habitat development in the future.

Assessment of the Potential Beneficial Uses of Mare Island Groundwater, 1997. As defined in the San Francisco Bay Basin (Region 2) Water Quality Control Plan (California Water Board, 1995), the potential beneficial uses of groundwater at Mare Island include municipal and domestic water supply, industrial water supply, industrial process water supply, agricultural water supply, and freshwater replenishment to surface water. A technical memorandum evaluated the potential beneficial uses of Mare Island's groundwater (PRC, 1997c). The memorandum concluded that the groundwater at Mare Island is unsuitable for domestic, industrial, and agricultural purposes. It also concluded that the only identified beneficial use of Mare Island groundwater is its potential role in the freshwater replenishment of Mare Island's wetlands.

Basewide Polychlorinated Biphenyl Confirmation Sampling, 1998. As documented in a summary report (TtEMI, 1998), PCB-containing transformers were removed just north of Building 691 at the DRMO, and asphalt and soil that contained PCBs were removed and disposed of offsite. PCB-containing oil was also noted to have been released onto the slab in the southeastern portion of Building 691. As is discussed in Section 2.6, Building 691 and its slab were removed and the underlying soil was excavated to depths ranging from 1.5 ft bgs to 3.5 ft bgs during NTCRA activities conducted in 2007. Three confirmation samples, DRMO061-01-1.5, DRMO-FS62-1.5-SW-W, and DRMO-FS62-2, were collected around the footprint of former Building 691 at 1.5 ft, 3 ft, and 3.5 ft below the original ground surface, respectively. Each sample was analyzed for PCBs and the results were below the target cleanup goals for the NTCRA. The former footprint of Building 691 was subsequently excavated to 13.5 ft below the original ground surface in 2009 during the PCA. Based on the removal of Building 691 and the excavation of underlying soil to 13.5 ft below the original ground surface, no further action (NFA) is required to address PCBs associated with former Building 691.

Investigation Area H, Unexploded Ordnance Preliminary Assessment, 1998. An investigation of unexploded ordnance (UXO) was conducted by SSPORTS at the DRMO. The resulting report (SSPORTS, 1998) documents a surface clearance of the DRMO during a post-closure cleanup operation. A number of MEC items were removed; however, all items recovered in 1998 were classified as inert with the exception of a live projectile time fuze booster element.

Remedial Investigation of Investigation Area H2, 1999-2000. This RI was conducted to characterize conditions at the DRMO and other sites within the H2 Investigation Area (TtEMI, 2000). The RI report included the findings and results from RI sampling conducted from 1999-2000, and also reported the findings of previous investigations conducted at the site. Metals (primarily lead), PCBs, polycyclic aromatic hydrocarbons (PAHs), and pesticides in the soil were determined to pose an unacceptable risk for both industrial and residential land use scenarios. A total of 130 soil samples were collected and analyzed from the ground surface to a maximum depth of approximately 6 ft below ground surface (bgs) at the DRMO site during the RI (TtEMI, 2000).

Of the 130 soil samples collected during the RI, 43 were collected from the surface soil, 22 were collected from 0.5 to 1.5 ft bgs, and the remaining 65 samples were collected from between 1.5 to 6 ft bgs. The majority of the samples with at least one exceedance of the U.S. EPA Region 9 industrial preliminary remediation goal (PRG) (or background concentration for arsenic) were collected from the surface soil (i.e., 24 of the 31 samples with exceedances). Eleven analytes exceeded their respective industrial PRG in one or more soil samples. The following compounds had an exceedance in only one sample: arsenic, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and aldrin. The remaining analytes exceeded the industrial PRG in two or more samples including: 4,4-DDT (two samples), dieldrin (five samples), Aroclor 1254 (five samples), benzo(a)pyrene (six samples), Aroclor 1260 (19 samples), and lead (20 samples).

There were only seven industrial PRG exceedances in the subsurface samples. Between 0.5 and 1.5 ft bgs, only lead exceeded the industrial PRG in two samples. Five samples collected between 1.5 and 6 ft bgs had one industrial PRG exceedance for lead (one sample), benzo(a)pyrene (two samples), Aroclor 1254 (one sample) and Aroclor 1260 (one sample).

Ambient Analyses of Metals in Soil and Groundwater, 1995-2002. As part of the ongoing environmental program at MINS, several assessments were conducted to determine ambient conditions in soil and groundwater at MINS. The resulting information was compiled into one document in 2002 (TtEMI, 2002a). The results of the analyses of ambient conditions in the artificial fill and native soil at Mare Island indicated that several metals occurred with 95% confidence (ambient limit) at levels greater than U.S. EPA Region 9 PRGs for the residential land use scenario, and that the arsenic ambient limit is greater than the Region 9 PRGs for both the residential and industrial land use scenarios.

Railroad Track Corridor Sampling and Analysis, 2004. In January 2004, sampling and analysis of shallow soil were conducted in the Railroad Track Corridor area immediately south of Dump Road and within the DRMO (but outside the FSA). The purpose was to investigate the Railroad Track Corridor area. Twelve hand-augered boreholes were advanced and sampled at various depth intervals, producing a total of 35 discrete samples that were analyzed for metals, volatile and semivolatile organic compounds (VOCs and SVOCs), PCBs, pesticides, cyanide, and total petroleum hydrocarbons (TPH). Based on the findings of the investigation, the Railroad Track Corridor was included in the overall removal action for the FSA portion of the DRMO site, which is discussed below in Section 2.6.

Oil Sump Box Investigation, 2005-2006. The purpose of the oil sump box (OSB) investigation was to obtain field information to confirm the existence of the OSB, and aid in understanding the nature and extent of free product originating from the OSB and potentially migrating from the DRMO site. The investigation confirmed the existence of the OSB and associated piping and identified the presence of free phase petroleum hydrocarbons along portions of Azuar Drive and Dump Road that were investigated. The OSB and associated piping were removed during the OSB investigation along Azuar Drive. Analysis of soil and free product samples from both Azuar Drive and Dump Road identified a hydrocarbon pattern resembling Bunker C Fuel (No. 6 Fuel Oil), which was a typical fuel used at MINS and now found at many subsurface locations at the former MINS. Based on visual observations, free product was reported to be largely confined to the metal debris layer commonly encountered in the trenches (CH2M HILL, 2009).

Geophysical Survey and Follow-on TPH Investigation of the DRMO Vicinity, 2007-2009. The objectives of the follow-on investigation included 1) gathering information needed to determine the lateral and vertical extent of free phase petroleum hydrocarbons, 2) determining the nature of scrap metal layers, 3) determining whether free-phase petroleum hydrocarbons were present in soil along the abandoned sanitary sewer line north of Dump Road and whether this pipeline and its backfill could represent a preferential pathway for migration, and 4) gathering additional information about the composition of petroleum product present at the DRMO site and vicinity. The objective of the geophysical survey was to develop a map to show the lateral extent of large accumulations of metallic debris in the subsurface along and perpendicular to Azuar Drive and Dump Road. The follow-on TPH investigation concluded that the physical characteristics of free-phase petroleum hydrocarbons found beneath the DRMO vicinity have been generally consistent and referred to the product as a heavy fuel oil. It was generally observed in fractures and root structures of fine-grained material located below bulk metal debris along Azuar Drive and Dump Road. Additionally, the former OSB was determined to be the probable source of the product along the west side of Azuar Drive, but not at all locations on the southeast side of Azuar Drive or along either side of Dump Road. The probable source of contamination along Dump Road was contributed to disposal, utility backfill, and release practices. The geophysical survey indicated that scrap metal layers observed in subsurface soil along Azuar Drive and Dump Road are not laterally contiguous (CH2M HILL, 2009).

Groundwater Sampling and Analysis, 2012. During November 13 and 14, 2012, 12 groundwater samples and one duplicate were collected at DRMO. The samples were analyzed for metals, PAHs, SVOCs, pesticides, PCBs, TPH, and VOCs. The results from this sampling event are presented in Section 4.0. These data were used to conduct a HHRA on groundwater at DRMO, which is discussed in Section 6.2.

2.6 Previous Removal Actions

Throughout the history of the DRMO, a variety of removal actions were conducted to address environmental concerns. This section provides a summary of each removal action conducted at the DRMO.

2.6.1 Radiological Removal Action. In 1996, radiological materials including radioluminescent dials and thoriated metal items were removed from the unpaved areas of the DRMO, including the FSA. The remediation effort consisted of excavation and off-site disposal of 961,380 pounds of soil (SSPORTS, 1997). A follow-up survey was performed to verify the initial removal in late 1996, resulting in removal of additional discrete radioactive items that were containerized into a 30-gallon drum for off-site disposal. Site clearance for radiological materials was confirmed in the Final Release Report issued by the Navy in March 1997 and signed by DTSC and U.S. EPA in May 1997 (SSPORTS, 1997) (see Appendix I).

2.6.2 Non-Time Critical Removal Action. An NTCRA was initiated in 2005 to address near-surface MEC and chemical contaminants at the DRMO FSA. To meet the RAOs for the NTCRA, chemical-specific risk-based TCGs were established based on U.S. EPA Region 9 PRGs for the industrial land use scenarios (U.S. EPA, 2004b) or Mare Island concentrations in fill soil for metals (TtEMI, 2002a) (see Table 2-1). A benzo(a)pyrene equivalency factor for carcinogenic PAHs was also used as a TCG for soil. The NTCRA activities initiated in 2005 involved removing the upper 18 inches of soil from the DRMO FSA. The excavated soil was mechanically screened to remove MEC. Confirmation sampling was performed on a 50 ft by 50 ft grid within the DRMO FSA (CH2M HILL, 2006). Additional soil was removed in 2006 from DRMO FSA grids with TCG exceedances based on the 2005 NTCRA excavation results. Following the 2006 NTCRA activities, there were no TCG exceedances in the bottom confirmation sample results from grids within the FSA; however, TCG exceedances remained in sidewall samples.

To address the sidewall exceedances, the NTCRA was expanded laterally outside the DRMO FSA. In 2007, additional soil was excavated from this adjacent area outside the FSA. As shown in Figure 2-2, the removal excavation and associated confirmation samples were advanced to the southwest of the DRMO site boundary to remove TCG exceedances. TCG exceedances of benzo(a)pyrene or the benzo(a)pyrene equivalency factor were noted in several confirmation samples, including excavation floor samples collected from FS-138 and FS Area 5 and sidewall samples collected from FS-132 and FS141. The final extent of the NTCRA excavation activities is presented in Figure 2-2. As shown in Figure 2-2, Building 691 and its slab were removed and the underlying soil was excavated to depths ranging from 1.5 ft bgs to 3.5 ft bgs.

Backfilling operations inside the DRMO FSA were conducted in March 2007 with the finished grade at 18 inches below the original (pre-NTCRA) ground surface. Backfilling operations outside the FSA were conducted from October 29, 2007 to December 13, 2007, until inclement weather halted the backfilling progress. The remaining backfilling activities were completed in the summer of 2008 (Weston Solutions, Inc., 2008).

The primary objective of the NTCRA was to protect human health and the environment from chemical contaminants and MEC in surface and subsurface soil at the DRMO FSA. This objective was successfully achieved by excavating soil from ground surface to approximately 18 inches bgs across the entire site, and by excavating portions of the site from the ground surface to approximately 8.5 ft bgs. With the exceptions of benzo(a)pyrene and benzo(a)pyrene equivalent concentration exceedances in several samples, all confirmation sampling results for metals, PCBs, pesticides and SVOCs were below their respective PRG for industrial soil, which were determined to be applicable based on the planned industrial use for the DRMO (Weston Solutions, Inc., 2008).

TPH concentrations were analyzed in several samples across the DRMO FSA; however, TPH does not fall within the CERCLA program and thus TPH results were not used for making decisions regarding the excavation. The Navy addressed TPH at the DRMO FSA under the MINS petroleum program which is discussed in Section 2.6.3 (Weston Solutions, Inc., 2010). Residual soil concentrations of PCBs, as regulated by the California Health and Safety Code Chapters 6.8 and 6.5 and Toxic Substances Control Act (TSCA), are below the regulatory limit required in 40 Code of Federal Regulations (CFR) Part 761.

2.6.3 Petroleum Corrective Action. A corrective action was performed under the MINS petroleum program in 2009 through 2010 to address petroleum contamination in soil at the site and areas surrounding the site. Approximately half of the site was excavated along Dump Road and Azuar Drive. The probable source of contamination on the western portion of the site, along Azuar Drive, was an OSB, which was located approximately 50 ft north of Building 661. The OSB and associated piping were removed during a 2006 investigation. In addition, a wood-lined sump in grid FS-25, noted to contain free product during the NTCRA, was subsequently removed during the PCA, demolished, and disposed of at the IA H1 landfill (Weston Solutions, Inc., 2008, 2010). Analytical results indicated that the OSB likely held Bunker C Fuel (No. 6 Fuel Oil). The probable source of contamination in the northern portion of the site, along Dump Road, was attributed to disposal, utility backfill, and release practices in this area. Buildings 661 and 679 were also demolished and two groundwater monitoring wells were abandoned under the PCA to remove contaminated soil under these buildings. Based on the PCA excavation extent and depth shown in Figure 2-3, the former footprint of Building 691 was excavated to a depth of 12 ft bgs (Weston Solutions, Inc., 2010).

Excavation of petroleum-impacted soil was conducted between August 2009 and March 2010. Excavation progressed in 50 ft by 50 ft grids in areas of known contamination until there were no signs of petroleum contamination. At that point, confirmation samples were collected on the bottom of the pits and on the sidewalls of the excavation boundary and analyzed for TPH as Bunker C Fuel and compared to the Tier 2 screening criteria of 5,000 milligram per kilogram (mg/kg). In the case of an exceedance of the screening criteria, the area around the samples was overexcavated as necessary. A total of 146,424 cubic yards of petroleum-contaminated soil and 13,031 cubic yards of non-impacted overburden was removed (Figure 2-3) and disposed of in the IA-H1 Containment Area located on MINS for use as subgrade below the engineering cap. The excavation was filled with imported soil pre-approved by DTSC for use as fill material (Weston Solutions, Inc., 2010).

Section 3.0: SITE CHARACTERISTICS

This section includes a description of site topography, surface water hydrology, geology, hydrogeology, and ecological conditions at the DRMO.

3.1 Topography and Surface Water Hydrology

Mare Island is located where the Mare Island Strait meets the Carquinez Strait, which is the confluence of the Sacramento and San Joaquin Rivers (Figure 1-1). The Sacramento and San Joaquin Rivers carry runoff from approximately 13,500 square miles of land, extending from headwaters in the Sierra Nevada and Klamath Mountains and the Cascade Range to the Golden Gate at the western edge of San Francisco Bay. The volume of fresh water carried by these rivers and reaching the Sacramento River Delta depends on the amount of precipitation, and therefore, varies dramatically from year to year. With heavy winter and spring storms, the waters of the delta may become completely fresh as far west as eastern San Pablo Bay. During summer and fall periods of low fresh water discharge, horizontal salinity gradients develop and stabilize over large areas of the delta.

The Napa River, which discharges through the Mare Island Strait, drains a 230-square-mile area to the north of the Mare Island peninsula. The river typically becomes brackish during periods of low discharge because of tidal influence where it becomes the Mare Island Strait, northeast of Mare Island. With seasonal variability in salinity, flow, and sediment deposition, the aquatic environment surrounding Mare Island is highly dynamic.

Tidal wetlands are areas influenced by tidal action and include both northern coastal salt marsh and brackish marsh areas at Mare Island. Wetland areas of Mare Island are typical of remaining tidal wetlands in San Pablo Bay, which have mostly formed along sloughs and bay-front dikes or are scattered in isolated patches (Josselyn, 1983). Mare Island's wetlands are regionally significant, representing approximately 2% of the Bay Area's remaining 127 square miles of tidal wetlands (San Francisco Estuary Project [SFEP], 1991).

The ground surface at the DRMO site is generally flat, with elevations ranging from approximately 12 to 14 feet amsl. No natural surface water features are present at the DRMO, however the site is prone to flooding during periods of heavy precipitation. Surface water drainage within the site infiltrates into the subsurface or is managed by an existing stormwater system. Rainwater runoff flows to stormwater drains, where it is discharged into the area west of the site. Runoff that is not managed via the stormwater system either immediately infiltrates into the subsurface or collects in low lying areas and either slowly infiltrates or evaporates.

3.2 Geology

The geology of Mare Island can be characterized as an eroded bedrock surface that is exposed in the southern part of the peninsula, overlain by a blanket of unconsolidated Quaternary sediments and artificial fill material at most other locations. The bedrock surface is irregular and deeply incised in some areas, and up to 160 ft of unconsolidated materials overlie the bedrock at some locations on the peninsula. The eroded bedrock forms a subsurface ridge, which appears to coincide with the original extent of Mare Island in 1869 and extends northwest along the axis of the Mare Island peninsula. Three principal geologic units have been identified at Mare Island, and the two uppermost units have been identified based on borings drilled at the site. From top to bottom stratigraphically, these are (1) artificial fill material, (2) unconsolidated natural deposits, and (3) bedrock.

Historical maps of Mare Island indicate that the DRMO was submerged below the water line of San Pablo Bay until sometime between 1911 and 1920, when the DRMO was presumably filled with dredge material from the Mare Island Strait. A 1920 Navy map shows the site to be approximately 1,200 ft east of the western shoreline and does not identify any use of the site (see Figure 2-1). Prior to use of the site by the DRMO, additional fill was brought to the site to raise the grade to approximately 6 ft above the previous ground surface.

Due to the extensive land reclamation activities at MINS, a highly heterogeneous surficial layer of fill material is ubiquitous at those locations outside of the original footprint of the island (e.g., the DRMO). The surficial fill material at the DRMO is further complicated by the excavation and backfilling activities that were conducted between 2005 and 2008 as part of the NTCRA or in 2010 as part of the PCA. In general, the artificial fill material occurs in three "layers" at the DRMO.

The uppermost geologic layer at the DRMO consists of fill material that was either placed during backfilling for the NTCRA or PCA, or was previously placed during land reclamation activities conducted during the 1940s. All backfill soils were approved by DTSC prior to placement.

The initial phase of the NTCRA involved removing surface soil to 18 inches bgs (i.e., 1.5 ft bgs) within the FSA. Subsequent activities involved overexcavating areas exceeding TCGs to as deep as 8.5 ft bgs. The current ground surface within the excavation footprint has been uniformly backfilled and graded to 1.5 ft below the former ground surface of the DRMO before NTCRA activities. During the NTCRA, backfilling operations were initiated after the July and August 2007 excavation confirmation samples were received. Backfill for excavations within the FSA consisted of soil from the Hiddenbrooke residential development project in Vallejo, California. Backfill material in the excavation adjacent to the FSA consisted of soil obtained from only the Vintage Ranch and Napa residential development projects located in American Canyon and Napa, California, respectively. Backfill for the PCA excavation was obtained from three sources including: Potrero Hills import site near Suisun City, California; a construction site in Hercules, California; and soil from a Highway 12 widening project near Suisun City, California.

Prior to excavation and backfilling activities, the uppermost geologic layer was mixed fill which consisted of gravel, sand, and silt fill from the ground surface to approximately 2 to 5 ft bgs, believed to have been placed sometime after 1940, but prior to construction of the DRMO. Due to the varying depths of the NTCRA and PCA excavations, various portions of this layer still exist at the site.

A 4 to 7 ft thick clayey fill layer exists between approximately 2 to 10 ft bgs. Due to NTCRA and PCA excavation activities, various portions of this layer have been intermittently excavated and replaced with backfill. Those that remain consist of fine-grained silts and clays that are most likely dredged materials placed sometime between 1911 and 1920. Wood pieces, glass, and metal shavings were occasionally noted in the borehole logs in the artificial fill materials (see Appendix H). Figure 3-1 presents the locations of two geologic cross-sections that transect the site. Geologic cross sections A-A' (Figure 3-2) and B-B' (Figure 3-3) depict the relationship between preexisting fill material and material placed during NTCRA and PCA backfilling activities.

Underlying the fill is a thick sequence of naturally deposited unconsolidated silts and clays with occasional sand lenses (commonly referred to as Bay Mud). This unit is distinguished from the overlying potential dredge fill materials by a layer of organic plant-type material that is indicative of the mudflats and occasional thin beds with shells.

The bedrock at Mare Island consists of steeply dipping brown, orange, and tan arkosic sandstone, siltstone, and micaceous shale. Bedrock outcrops exist in the hilly area at the southern end of the peninsula that is now occupied by the golf course, ammunition bunkers, and a residential area along Mesa

Avenue. The exposed bedrock at Mare Island is assigned to the undifferentiated Great Valley Sequence on Wagner and Bortungo's regional geologic map (Wagner and Bortungo, 1982). A more detailed map prepared by Dibblee (1981) identifies the bedrock as arkosic sandstone and micaceous shale of the Cretaceous Panoche Formation. Historically, bedrock was not encountered in any of the boreholes at the site, which were advanced to a maximum depth of 28 ft bgs.

3.3 Hydrogeology and Water Quality

A single, shallow, unconfined water-bearing zone has been identified beneath the DRMO. This zone extends downward from the water table to at least 28 ft bgs. DRMO monitoring wells were installed in this zone, at depths ranging from 12 to 15 ft. Well screens were installed in 10-ft sections and generally ranged between 2 and 15 ft bgs. Historically, groundwater has been encountered at 2 to 6 ft bgs. This corresponds to elevations ranging from approximately 8 to 11 ft amsl with seasonal variations of about 3 ft. As shown in Figure 3-4, groundwater generally flows in a northwesterly direction across the site. The groundwater gradient is low at approximately 0.007 ft/ft and there is no tidal influence on groundwater at the site. As shown in Figure 3-5, based on historical water levels collected from the site, shallow groundwater from the DRMO is expected to flow into a wetland located approximately 500 northwest of the site boundary.

Ambient groundwater quality is poor, which is evidenced by high concentrations of total dissolved solids and water chemistry parameters such as calcium and sodium (TtEMI, 2002a). Based on the results of groundwater sampling conducted in 2012, total dissolved solids in groundwater ranged from 3,750 mg/L to 16,900 mg/L at DRMO. Groundwater yield is likely to be low, as indicated by test results conducted on the east side of Azuar Drive (CH2M HILL, 2003) and the presence of fine-grained soil within the saturated zone underlying the site (see Figures 3-2 and 3-3). Precipitation is the most significant source of water at the site. Mean annual precipitation in 2008 was 15.65 inches and although much of the rainfall runs off and is captured by the storm drain system, a large portion leaves the site via evapotranspiration (National Oceanic and Atmospheric Administration [NOAA], 2009).

3.4 Ecology

Prior to removal action activities conducted between 2005 and 2010, the DRMO consisted of a developed area covered with gravel and asphalt. Based on historical observations, it was determined that no ecological features were present at the site (TtEMI, 2002b). The nearby features include a wetlands area approximately 160 ft west of the DRMO. A biological reconnaissance survey was conducted in January 2004; no sensitive or special status species were observed during this survey. The results of the survey are provided in the *Technical Memorandum: Biological Reconnaissance Survey of the DRMO Site* (CH2M HILL, 2004). The site is planned for transfer to the city of Vallejo for commercial/industrial land use, which is consistent with historical usage of the site. Therefore, the existence of future ecological habitat is also considered unlikely at the DRMO.

Additionally, the *Final Onshore Ecological Risk Assessment* (TtEMI, 2002b) which concluded that the DRMO posed a potential risk to ecological receptors due to the presence of certain metals, including arsenic, cadmium, copper, lead, mercury, nickel, and zinc, included an initial screening of soil concentrations against ambient concentrations to identify chemicals that may pose a potential risk to ecological receptors. Since that time, extensive remediation activities have been conducted at the DRMO and have resulted in the excavation and removal of a majority of surface soil at the site. Based on a review of the updated soil sampling results (Weston Solutions, Inc., 2008), it was determined that the concentrations of arsenic, cadmium, copper, lead, mercury, nickel, and zinc (i.e., the metals that were determined to pose a potential risk to ecological receptors) remaining in soil are generally below ambient concentrations (TtEMI, 2002a).

Section 4.0: NATURE AND EXTENT OF CONTAMINATION

This section summarizes the presence of chemicals remaining in soil after the completion of the NTCRA (Weston Solutions, Inc., 2008). In addition, the results of groundwater sampling conducted in 2012 are presented. Conditions in site soils have improved due to excavation and backfilling activities conducted as part of the PCA from 2009 through 2010.

4.1 Nature and Extent of Chemicals in Soil

Historical use of the DRMO included storage of metal scrap, electrical parts, batteries, and miscellaneous parts used at the shipyard. In addition, the suspected application of pesticides, along with maintenance and storage activities, resulted in releases of chemicals to surface soil, including heavy metals, SVOCs, PCBs, and pesticides. As discussed in Section 2.6.2, an NTCRA was conducted between 2005 and 2008 to address impacts in surface soil at the site. Chemical-specific risk-based TCGs were established based on U.S. EPA Region 9 PRGs for the industrial land use scenario (U.S. EPA, 2004b) or Mare Island ambient concentrations in fill soil for metals (TtEMI, 2002a) (see Table 2-1). The first phase of the excavation was conducted in 2005 and consisted of removing the upper 18 inches of soil from the DRMO FSA. Additional soil was removed in 2006 from excavation grids exhibiting TCG exceedances based on the 2005 confirmation sampling results. Following the 2006 NTCRA activities, there were no TCG exceedances in floor confirmation samples; however, TCG exceedances remained in sidewall samples. The NTCRA was expanded laterally to address the remaining exceedances. Upon completion of the NTCRA in 2008, TCGs had been achieved for all chemicals with the exception of benzo(a)pyrene, for which a limited number of exceedances remained in soil at the DRMO. Additional excavation was conducted in the eastern and western portions of the site in 2009 through 2010 to remove petroleum-contaminated soil (Weston Solutions, Inc., 2010).

4.1.1 Confirmation Sampling and Analysis. The sampling and analysis requirements for NTCRA confirmation sampling are detailed in the Removal Action Plan, the associated SAP (CH2M Hill, 2005) and the Final Addendum 1 to SAP (Weston Solutions, Inc., 2007). The documents provide the analytical and sampling procedures, quality control (QC) and quality assurance (QA) requirements, and data gathering methods for all field sampling conducted during the NTCRA. Confirmation sampling was based on 50-by-50-ft excavation grids that were established for the removal action. Analytical detection limits were established to meet the data quality needs of post-excavation risk evaluations. The following analyses were included for confirmation samples:

- Metals analysis by U.S. EPA Method 6010B/7000A
- SVOC (including PAHs) analysis by U.S. EPA Method 625 and 8270C with selected ion monitoring (SIM)
- PCB analysis by U.S. EPA Method 8082
- Organochlorine pesticides by U.S. EPA Method 8081A

The analytical laboratories selected to analyze samples were Severn Trent Laboratories located in West Sacramento, California, and Curtis and Tompkins located in Berkeley, California. Both laboratories were certified by the California DHS through the Environmental Laboratory Accreditation Program (ELAP) for all of the analytical methods required for the project. In addition, the laboratories successfully completed the Naval Facilities Engineering Service Center (NFESC) Laboratory Evaluation Program prior to sampling activities and maintained current status throughout the duration of the project. Appendix D presents the analytical data and validation reports for confirmation sampling conducted during the NTCRA.

In addition to the CERCLA NTCRA described in Section 2.6.2, the Navy conducted a PCA to address an approximate 7.2-acre area located within and in the vicinity of the former DRMO (Weston Solutions, Inc., 2010). This corrective action, conducted under the Mare Island petroleum program, has resulted in the excavation of additional soil within the boundaries of the DRMO and has further improved site conditions.

4.1.2 Data Quality and Usability. All confirmation sampling data were reviewed and validated by a third party validation company (Analytical Quality Solutions, Ogden, Utah) in accordance with the procedures, methods, and criteria specified in the SAP (CH2M Hill, 2005; Weston Solutions, Inc., 2007). Based on a previous data quality assessment conducted and presented in the *Final Non-Time-Critical Removal Action Completion Report* (Weston Solutions, Inc., 2008), it was determined that the project data quality objectives were met. No data were rejected due to laboratory or field procedure deficiencies. A few data points were qualified as estimated values ("J" flag), but values did not influence the data usability. Several duplicate soil sample analytes were reported with precision results exceeding the 50% criterion, which is attributable to the heterogeneity of the soil matrix.

The following conclusions were made regarding the data quality and usability assessment:

- The data are of acceptable accuracy and precision as determined in the course of data validation.
- The sample holding time was met for all analyses.
- The sampling completeness was 100%.
- Field sampling procedures, sample handling and storage were adequate and samples were representative of the sampled matrix.

The data are accurate, precise, complete, and representative of the sampled matrix and can be used as intended. Appendix D includes all analytical data for soil samples along with the third party data validation report.

4.1.3 Field Sampling Results. The dataset used to characterize the nature and extent of chemicals in soil represents a subset of the confirmation samples that were collected during NTCRA activities conducted between 2005 and 2008. The final soil dataset for the DRMO consists of all confirmation samples that are representative of soil present at the site after the completion of the NTCRA. In cases where the advancement of the NTCRA excavation resulted in the removal of additional soil, the corresponding confirmation sample was removed from the dataset. Figure 4-1 presents a site map detailing the location of soil samples that were determined to be representative of post-NTCRA conditions at the DRMO. In all, the final dataset for the DRMO consists of 216 samples with 22 duplicates uniformly distributed throughout the NTCRA excavation boundary.

4.1.3.1 Metals. Table 4-1 summarizes the analytical results for the 25 metals detected in soil at the DRMO. Metals that were detected in soil include aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, tin, vanadium, and zinc.

Arsenic and lead were the only metals detected in soil at concentrations exceeding the U.S. EPA Region 9 industrial PRG. The maximum detected concentration of lead (1,180 mg/kg in DRMO-A1-1.5-SW-NE at a depth of 4 ft bgs) was the only case in which lead exceeded its industrial PRG of 800 mg/kg. Arsenic concentrations consistently exceeded the industrial PRG of 1.60 mg/kg. Although arsenic concentrations generally exceed the industrial PRG, the 95th percentile of the ambient data set for arsenic in fill material at MINS was determined to be 36 mg/kg, which exceeds both the industrial PRG and the maximum concentration of arsenic detected at the DRMO.

Thallium was the only metal detected at concentrations that exceeded its ambient concentration in fill material, which was determined to correspond with the detection limit because thallium is not expected to be present in ambient fill (TtEMI, 2002a). At the DRMO, thallium was detected at a frequency of 18.1%, with an average concentration of 0.30 mg/kg and a maximum concentration of 4.6 mg/kg, both of which are below the industrial PRG of 66 mg/kg and the residential regional screening level (RSL) of 5.1 mg/kg.

Based on the metals results, arsenic is the only widespread chemical present in soil at levels that could pose a potential unacceptable risk under the planned future uses of the property (i.e., light commercial/industrial). However, in all cases, arsenic concentrations were below ambient concentrations for arsenic in fill material (36 mg/kg), which suggests that the presence of arsenic in soil at the DRMO is attributable to ambient conditions and is not site-related.

4.1.3.2 ***SVOCs.*** Table 4-2 summarizes the analytical results for the 28 SVOCs detected in soil at the DRMO. The SVOCs detected in soil include 1,1-biphenyl, 1,2,4-trichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 2-methylnaphthalene, 4-methylphenol, acenaphthene, anthracene, benzaldehyde, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenzo(a,h)anthracene, dibenzofuran, diethylphthalate, di-n-butylphthalate, di-n-octylphthalate, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, phenol, and pyrene.

Benzo(a)pyrene was the only SVOC detected above its industrial PRG (210 μg/kg) in soil at the DRMO. Benzo(a)pyrene exceeded the industrial PRG in four out of 238 samples (including duplicate samples), including DRMOA5-B-5.5 (230 J μg/kg), DRMO-FS-132-7.5-SW-N-1-DUP (420 J μg/kg), DRMO-FS-138-8-C (270 J μg/kg), and DRMO-FS-141-7.5-SW-S (230 μg/kg). Based on recent PCA activities, additional excavation conducted under the petroleum program has resulted in the removal of two of the four locations (i.e., DRMOA5-B-5.5 and DRMO-FS-132-7.5-SW-N-1) and the area near a third location (i.e., DRMO-FS-138-8-C) in which benzo(a)pyrene was detected above its industrial PRG. Based on the SVOC results, benzo(a)pyrene is the only chemical present in soil at levels that could pose a potential unacceptable risk under the planned future use of the property (i.e., light commercial/industrial). Figure 4-2 graphically depicts the general magnitude of benzo(a)pyrene detections by assigning each sampling location a symbol indicating whether the chemical was not detected, detected below the residential PRG (15 μg/kg), detected above the residential PRG (15 μg/kg) but below the industrial PRG (210 μg/kg), or detected above the industrial PRG (210 μg/kg).

4.1.3.3 ***PCBs.*** Table 4-3 summarizes the analytical results for the three PCB aroclors detected in soil at the DRMO. The PCBs detected in soil include aroclor-1016, aroclor-1254, and aroclor-1260. PCBs were not detected in soil at concentrations that exceeded corresponding industrial PRGs. Aroclor-1016 was detected in 5.9% of soil samples at an average concentration of 45.63 μg/kg and a maximum detected concentration of 600 μg/kg. Aroclor-1254 was detected in 7.1% of soil samples at an average concentration of 26.42 μg/kg and a maximum detected concentration of 180 μg/kg. Aroclor-1260 was detected in 38.8% of soil samples at an average concentration of 72.83 μg/kg and a maximum detected concentration of 740 J μg/kg. There were no sampling locations in which the total PCB concentration exceeded the TSCA screening level of 1 mg/kg.

4.1.3.4 Pesticides. Soil samples at the DRMO were analyzed for organochlorine pesticides. Table 4-4 summarizes the analytical results for the 13 pesticides detected in soil at the DRMO. The pesticides detected in soil include 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-benzene hexachloride (BHC), alpha-chlordane, dieldrin, endosulfan II, endosulfan sulfate, endrin, endrin ketone, gamma-chlordane, heptachlor, and heptachlor epoxide. In general, detections of pesticides were infrequent and there were no exceedances of industrial PRGs. Of the 13 pesticides detected, 4,4'-DDT and alpha-BHC were detected the most frequently, with each being detected in 5.9% and 17.2% of samples, respectively. 4,4'-DDT was detected at an average concentration of 6.06 µg/kg and a maximum concentration of 58 J µg/kg, which is below its industrial PRG of 7,000 µg/kg. Alpha-BHC was detected at an average concentration of 5.90 µg/kg and a maximum concentration of 130 J µg/kg, which is below its industrial PRG of 270 µg/kg. However, the maximum detected concentration of alpha-BHC (130 J µg/kg in DRMO-FS-38-4.5 at 4.5 ft bgs) exceeded its residential PRG of 77 µg/kg. This sample was excavated during the PCA and was the only case in which pesticides were detected above residential screening levels.

4.1.4 Conclusions. The evaluation of the nature and extent of chemicals in soil indicated that pesticides and PCBs were not detected at concentrations exceeding industrial PRGs. Arsenic was the only metal that was consistently detected above its industrial PRG. The average arsenic concentration was 12.98 mg/kg compared to an industrial PRG of 1.60 mg/kg. However, all detected concentrations of arsenic in soil were below the corresponding ambient concentration in fill material at MINS. Benzo(a)pyrene was the only SVOC detected above industrial PRGs in soil at the DRMO. Benzo(a)pyrene exceeded the industrial PRG in four out of 238 samples and, based on a review of the results, benzo(a)pyrene is the only SVOC present in soil at levels that could pose a potential unacceptable risk under the planned future use of the property (i.e., light commercial/industrial). Subsequent to the NTCRA, the PCA resulted in soil associated with two of the four benzo(a)pyrene exceedances being excavated to depths of 10 and 15 ft bgs. Therefore, the soil that produced the benzo(a)pyrene exceedances, along with significant underburden, were excavated during the PCA, supporting that this material was removed from the site. Although confirmation samples were not analyzed for benzo(a)pyrene, the contaminated soil from two of the four exceedances was likely removed at that time.

4.2 Nature and Extent of Chemicals in Groundwater

Prior to the development of this RI/FFS, groundwater had not been sampled since 2000 (see Section 4.2.1). Therefore, to provide more recent groundwater data, groundwater sampling was conducted in 2012 to assess the current condition of groundwater at the DRMO site. Twelve grab samples and one duplicate were collected at 12 locations across the DRMO site.

The sampling and analysis requirements for groundwater sampling are detailed in the SAP (Trevet, 2012). The document provides the analytical and sampling procedures, QC and QA requirements, and data gathering methods for all field sampling conducted during the groundwater sampling activities. Analytical detection limits were established to meet the data quality needs of risk evaluations. The following analyses were included for confirmation samples:

- Metals using U.S. EPA Methods 6010 and 7471A
- SVOCs (including PAHs) using U.S. EPA Methods 8270 and 8270C
- Pesticides using U.S. EPA Method 8081A
- PCBs using U.S. EPA Method 8082
- VOCs using U.S. EPA Method 8260B
- TPH using U.S. EPA Method 8015B

The analytical laboratories selected to analyze samples were Severn Trent Laboratories located in West Sacramento, California, and Curtis and Tompkins located in Berkeley, California. Appendix C presents the analytical data for groundwater sampling conducted in November 2012.

4.2.1 Historical Groundwater Sampling. Historical groundwater sampling consisted of collecting (1) 14 grab groundwater samples during the IR01 Phase I RI (IT Group, 1992), (2) 34 grab samples during RI sampling at the DRMO between 1997 and 1998, and (3) periodic sampling of six monitoring wells. The sample identifications (IDs) and general sample collection timeframe are summarized below, and sample locations are depicted on Figure 4-3.

IR01 Phase I RI Grab Samples:	IA-H1 RI Grab Samples:		DRMO Monitoring Wells:
• 01GB026 - Feb-94	• DRMOGB001 - Sep-97	• DRMOGB019 - Apr-98	• DRMOW01 - 1999-2000
• 01GB027 - Feb-94	• DRMOGB002 - Sep-97	• DRMOGB020 - Apr-98	• DRMOW02 - 1999-2000
• 01GB028 - Feb-94	• DRMOGB003 - Aug-98	• DRMOGB021 - Apr-98	• DRMOW03 - 1999-2000
• 01GB029 - Mar-94	• DRMOGB004 - Sep-97	• DRMOGB022 - Apr-98	• DRMOW04 - 1999-2000
• 01GB030 - Feb-94	• DRMOGB005 - Apr-98	• DRMOGB023 - Apr-98	• 01W56 - 1995-1999
• 01GB031 - Feb-94	• DRMOGB006 - Apr-98	• DRMOGB024 - Apr-98	• 16W08 - 1992-1999
• 01GB032 - Feb-94	• DRMOGB007 - Apr-98	• DRMOGB025 - Jul-98	
• 01GB033 - Feb-94	• DRMOGB008 - Apr-98	• DRMOGB026 - Jul-98	
• 01GB034 - Feb-94	• DRMOGB009 - Apr-98	• DRMOGB027 - Aug-98	
• 01GB036 - Feb-94	• DRMOGB010 - Apr-98	• DRMOGB028 - Aug-98	
• 01GB071 - Dec-94	• DRMOGB011 - Apr-98	• DRMOGB031 - Aug-98	
• 01GB073 - Dec-94	• DRMOGB012 - Apr-98	• DRMOGB032 - Aug-98	
• 01GB078 - Jan-95	• DRMOGB013 - Apr-98	• DRMOGB033 - Aug-98	
• 01VB016 - Aug-93	• DRMOGB014 - Apr-98	• DRMOGB034 - Aug-98	
	• DRMOGB015 - Apr-98	• DRMOGB035 - Aug-98	
	• DRMOGB016 - Apr-98	• DRMOGB036 - Aug-98	
	• DRMOGB017 - Apr-98	• DRMOGB037 - Aug-98	
	• DRMOGB018 - Apr-98	• DRMOGB038 - Jul-98	

Historical groundwater sampling was conducted within the shallow water bearing zone at the DRMO site and consisted of analyzing groundwater samples for metals (approximately 27 samples), VOCs (approximately 65 samples), SVOCs (approximately 58 samples), pesticides (approximately 34 samples), PCBs (approximately 36 total samples), and organotins (approximately seven samples). A summary of all historical results in groundwater at the DRMO is presented in Table 4-5.

4.2.2 2012 Field Sampling Results. The final dataset for the DRMO consisted of 12 samples (with one duplicate) uniformly distributed across the DRMO site and collected from within the shallow water bearing zone. The screening levels used to support the nature and extent evaluation for groundwater were based on maximum contaminant levels (MCLs) or RSLs if an MCL was not established for the specific chemical. The screening levels for metals in groundwater also consider background groundwater concentrations if they exceed the MCL and/or RSL. Since TPH does not have corresponding MCLs or RSLs, the screening levels for TPH are based on Water Board environmental screening levels (ESLs) for groundwater that is not a source of drinking water. Table 4-6 provides a summary of all chemicals detected in site groundwater and chemical-specific screening levels. Figure 4-4 provides a graphical summary of all detections that exceeded respective screening levels in site groundwater. PCBs were not detected in DRMO groundwater and are not discussed in this section.

4.2.2.1 Metals. Table 4-6 summarizes the analytical results for the 15 metals detected in groundwater at the DRMO. Metals that were detected in groundwater include antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, vanadium, and zinc. Detected metals concentrations were compared to the ambient background concentration which was the 95th percentile concentration presented in the *Compilation of Technical Memoranda on Ambient Analysis of Metals in Soil and Groundwater, Mare Island, California* (TtEMI, 2002a).

Cobalt and manganese were the only metals detected in groundwater at concentrations exceeding screening levels. The maximum detected concentration of cobalt (159 µg/L in DRMO-TMW04) was the only case in which cobalt exceeded its background concentration of 100 µg/L. Manganese exceeded the ambient background concentration of 5,400 µg/L in three of the 12 groundwater samples (22,800 µg/L in DRMO-TMW11; 31,200 µg/L in DRMO TMW03; and 49,000 µg/L in DRMO TMW04). Manganese concentrations ranged from 472 to 49,000 µg/L, with an average detected concentration of 9,838 µg/L. Prior to groundwater sampling conducted in 2012, manganese had been observed in groundwater in 27 out of 27 samples, with a maximum detected concentration of 4,430 µg/L, which is below the ambient concentration for manganese in groundwater. Elevated detections of manganese observed in groundwater collected in 2012 are likely attributable to the approved fill material that was placed at the DRMO during the PCA conducted from 2009 through 2010. During the PCA, backfill was obtained from three different sources, which explains why manganese was elevated in some, but not all of the wells installed in backfill. Figure 4-4 shows the three locations in which manganese was detected in excess of its ambient concentration, all of which are located within the footprint of the PCA excavation.

4.2.2.2 SVOCs. Table 4-6 summarizes the analytical results for the seven SVOCs detected in groundwater at the DRMO. The SVOCs detected in groundwater include 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, fluorene, naphthalene, and phenanthrene. As is discussed below in Section 4.2.2.5, TPH quantified as diesel (TPH-D) and TPH quantified as motor oil (TPH-MO) were detected in all 12 sampling locations and thus, were collocated with detected SVOCs. However, the magnitude of TPH detections in groundwater did not appear to have any clear correlation to the relative presence of SVOCs at the same sampling location. While detected concentrations of SVOCs are likely associated with dissolution from petroleum free product, the PCA effectively removed the source such that detected SVOCs represent residual contaminant mass in groundwater that will attenuate over time. Five of the seven SVOCs detected in groundwater at the DRMO were low concentrations that were either below screening levels or associated with an SVOC for which no established screening level was available (i.e., acenaphthylene and phenanthrene).

During 2012 groundwater sampling, 1-methylnaphthalene and naphthalene were the only two SVOCs in groundwater detected above their U.S. EPA Region 9 RSLs (see Figure 4-4). The maximum detected concentration of 1-methylnaphthalene (4.4 µg/L in DRMO-TMW06) was the only case in which 1-methylnaphthalene exceeded its U.S. EPA Region 9 RSL of 0.98 µg/L. In addition, the maximum detected concentration of naphthalene (0.18 µg/L in DRMO-TMW06) was also the only case in which naphthalene exceeded its U.S. EPA Region 9 RSL of 0.14 µg/L.

4.2.2.3 Pesticides. Only one pesticide (endosulfan I) was detected in one of the 12 groundwater samples at a concentration of 0.14 µg/L, which is slightly above the reporting limit and well below the U.S. EPA Region 9 RSL of 78 µg/L. The single detection of endosulfan I was observed in groundwater collected from DRMO-TMW02 in the northern portion of the FSA.

4.2.2.4 VOCs. Eight VOCs were detected in groundwater including benzene, carbon disulfide, chloromethane, 1,1-dichloroethene (DCE), cis-1,2-DCE, trichloroethene (TCE), vinyl chloride, and o-xylene. The presence of low concentrations of VOCs in groundwater are likely related to small, incidental releases from scrap material stored at the DRMO during its operation. Vinyl chloride was the only VOC detected above screening levels. Vinyl chloride concentrations exceeded its MCL of 2 µg/L in one of the 12 groundwater samples (3.5 µg/L in DRMO-TMW11). Cis-1,2-DCE, a parent compound to vinyl chloride, was detected at three locations with a maximum detected concentration of 3.9 µg/L at

DRMO-TMW09, compared to a screening level of 7 µg/L (U.S. EPA MCL). Vinyl chloride was also detected at DRMO-TW09, but at an estimated concentration that was below its screening level. Degradation of parent compounds to vinyl chloride is not considered a concern for the DRMO because detectable concentrations of TCE and cis-1,2-DCE are low and not widespread. Therefore, the residual mass of TCE and cis-1,2-DCE in DRMO groundwater does not have the potential to alter the magnitude of vinyl chloride concentrations through degradation of parent compounds in the future. This is further supported by comparing historical groundwater results to recent monitoring results, where the maximum detected concentration of vinyl chloride has decreased from 26 µg/L to 3.5 µg/L.

As shown in Table 4-6, most detected VOCs were present at low concentrations that were generally more than an order of magnitude below screening levels:

- Benzene: maximum detected concentration of 0.16 J µg/L compared to a screening level of 5 µg/L (U.S. EPA MCL).
- Carbon disulfide: maximum detected concentration of 0.22 J µg/L compared to a screening level of 720 µg/L (U.S. EPA Region 9 RSL).
- Chloromethane: maximum detected concentration of 1.0 J µg/L compared to a screening level of 190 µg/L (U.S. EPA Region 9 RSL).
- 1,1-DCE: maximum detected concentration of 0.47 J µg/L compared to a screening level of 5 µg/L (U.S. EPA MCL).
- TCE: maximum detected concentration of 0.18 J µg/L compared to a screening level of 5 µg/L (U.S. EPA MCL).
- o-Xylene: maximum detected concentration of 0.13 J compared to a screening level of 190 (U.S. EPA Region 9 RSL).

4.2.2.5 TPH. As shown in Table 4-6, TPH-D and TPH-MO were detected in all 12 sampling locations. TPH-D exceeded its screening level of 640 µg/L in nine of 12 sampling locations, with detected concentrations ranging from 350 µg/L to 5,300 µg/L. TPH-MO exceeded its screening level of 640 µg/L in four of 12 sampling locations, with detected concentrations ranging from 92 µg/L to 1,800 µg/L. Figure 4-4 provides a site map detailing the location of all TPH-D and TPH-MO detections that exceeded groundwater screening levels. TPH quantified as gasoline (-G) was not detected in any of the 12 groundwater sampling locations sampled. Widespread detections of TPH-D and TPH-MO are likely associated with dissolution from petroleum free product. Since the PCA effectively removed the source, TPH remaining in groundwater represents residual contaminant mass that will attenuate over time.

4.2.3 Conclusions. The evaluation of the nature and extent of chemicals in groundwater indicated that PCBs were not detected and pesticides were not detected at concentrations exceeding screening levels. Manganese exceeded its screening level in three of the 12 samples collected at the site and cobalt exceeded its screening level in one of 12 samples. Two SVOCs, 1-methynaphthalene and naphthalene, exceeded screening levels in DRMO-TMW06. One VOC, vinyl chloride, exceeded its MCL in one sample.

Section 5.0: CONTAMINANT FATE AND TRANSPORT

This section describes the potential fate and transport associated with the nature and extent of chemicals in the environment at the DRMO described in Section 4.0. Several mechanisms and processes that control the fate of contaminants are discussed, including both physical and chemical processes and mobilization/immobilization mechanisms.

5.1 Partitioning in Soil

Hydrophobic, monopolar organic contaminants tend to adsorb to solid matrix particles. In large part, the adsorption of contaminants to solid matrix particles is controlled by the organic carbon content of the solid matrix, but also is related to the presence and contaminant-binding capacity of finer grain size particles (i.e., clays). The octanol-water partitioning coefficient (Kow) of a compound is often used as a surrogate for the organic carbon partitioning coefficient (Koc), and expresses the tendency of the compound to partition into the octanol phase of an octanol-water system. The octanol fraction of an octanol-water system can be considered as a representation of organic carbon in the solid matrix. As such, Kow values can be used to estimate the tendency of a compound to preferentially adsorb to organic matter in the solid matrix. Compounds with higher Kow values tend to more strongly sorb to solid matrix material. In general, soil and sediment with higher organic carbon content tend to have a higher capacity to adsorb contaminants. In addition, smaller grain sizes such as clays have higher capacities to adsorb contaminants through electrostatic interactions and natural binding capacities. Due to the extensive excavation of the DRMO, sources of chemicals in soil are considered to have been removed from the site. Based on the soil data described in Section 4.0, there is a low potential for residual concentrations to persist in areas that have not been excavated.

5.2 Aqueous Dissolution

Dissolution from a solid matrix into the aqueous phase can strongly influence the concentration of a constituent in groundwater. Dissolution into the aqueous matrix is controlled largely by a compound's aqueous solubility, which is a measure of the maximum mass of a compound that could be dissolved in a given volume of water. Compounds with solubilities less than 1 mg/L are generally considered insoluble, and compounds with solubilities greater than 10,000 mg/L are generally considered highly soluble. Based on the groundwater results presented in Section 4.0, low concentrations of VOCs and SVOCs were detected at concentrations that exceeded U.S. EPA Region 9 tap water RSLs, including methylnaphthalene, naphthalene and vinyl chloride. Metals were detected in groundwater at concentrations that were generally consistent with background. There were a few elevated concentrations of manganese that are likely associated with backfill material placed during the PCA. Based on field parameters measured during 2012 groundwater sampling, the three lowest pH values were measured in wells exhibiting elevated manganese concentrations which had an average pH of 5.97, compared to an average pH of 7.05 in wells with manganese concentrations at or below background concentrations for fill soils. It is suspected that the localized geochemistry in these locations is favoring the dissolution of naturally occurring manganese into groundwater. Therefore, elevated concentrations of manganese in certain monitoring wells are considered a background condition that is not related to previous activities or releases at the DRMO. Overall, the DRMO data demonstrate that there are residual concentrations, but no site-related sources of contamination remaining in groundwater at the DRMO.

5.3 Volatilization

Volatilization from the aqueous phase can transform an aqueous contaminant into an airborne contaminant. The volatilization of a compound is controlled by its vapor pressure and Henry's law constant (H). Generally, vapor pressures greater than 1 mm mercury (Hg) indicate volatility, and vapor pressures between 0.001 and 1 mm Hg indicate semivolatility. Vapor pressures less than 0.001 mm Hg suggest that a compound is not volatile. It should be noted that these general rules for characterizing the volatility of a compound on the basis of vapor pressure do not necessarily correlate to laboratory classifications. In some instances, a compound assessed using analytical SVOC methodologies might be volatile, whereas a compound assessed using analytical VOC methodologies might actually be only semivolatile. Conversely, some SVOCs can have relatively low vapor pressures and are considered non-volatile. Henry's law constant describes the tendency of a compound to volatilize from an aqueous solution, and higher constants tend to describe compounds that more readily volatilize. Contaminants also can be volatilized in the unsaturated zone directly from the solid matrix. Vinyl chloride is highly volatile and the presence of residual concentrations in groundwater would be expected to result in volatilization into soil vapor and the atmosphere, which would be limited by the low to non-detect concentrations of vinyl chloride detected in groundwater at the DRMO.

5.4 Degradation

Biological degradation can lead to destruction of some environmental contaminants. Under appropriate conditions, metals and organic compounds can serve as terminal electron acceptors in the oxidation process of indigenous bacteria, and therefore can be degraded or transformed to more inert products or otherwise immobilized in the oxidation pathway. Cometabolism is a process where organisms degrade a substrate fortuitously while consuming another substrate as an energy source. Highly chlorinated VOCs, petroleum hydrocarbons, and pesticides are compound classes that can undergo cometabolic degradation. Degradation of parent compounds to vinyl chloride is not considered a concern for the DRMO because detectable concentrations of TCE and cis-1,2-DCE are low and not widespread. Therefore, the residual mass of TCE and cis-1,2-DCE in DRMO groundwater does not have the potential to alter the magnitude of vinyl chloride concentrations through degradation of parent compounds in the future. This is further supported by comparing historical groundwater results to recent monitoring results, where the maximum detected concentration of vinyl chloride has decreased from 26 µg/L to 3.5 µg/L. In addition, fungi have been shown to be capable of mediating the degradation of various organic contaminants, including pesticides and PCBs, through enzymatic peroxidation, and some plants are known to be capable of sequestering contaminants. The specific occurrence of biodegradation pathways has not been closely evaluated at DRMO, but several of the contaminant classes detected at the site are known to be degraded through various biodegradation pathways.

5.5 Bioaccumulation

Plants and vegetables can absorb chemicals from soils through their root systems or directly through leaf surfaces (Agency for Toxic Substances and Disease Registry [ATSDR], 1997). Uptake rates are governed by concentration, water solubility, soil type, physicochemical state (vapor or particulate), particle size, plant species, and molecular weight (ATSDR, 1997; Eisler, 1987). Based on the extensive remediation that has been conducted at the DRMO, bioaccumulation of site-related chemicals is considered an insignificant fate and transport pathway for residual concentrations in both soil and groundwater.

Section 6.0: RISK ASSESSMENT

A post-2008 NTCRA excavation HHRA was performed to assess the potential for adverse effects resulting from human exposure to chemicals remaining in soil at the DRMO. In addition, groundwater samples were collected in November 2012 to assess the potential for adverse effects resulting from human exposure to chemicals remaining in groundwater at the DRMO. The results of the HHRA will be used to assist in making risk management decisions regarding the need for additional site characterization, risk assessment, remediation, or recommendation of NFA. The HHRA follows guidance provided in U.S. EPA's Risk Assessment Guidance for Superfund (RAGS) Volume I, Human Health Evaluation Manual (Part A) (U.S. EPA, 1989), RAGS Part D (U.S. EPA, 2001) and other appropriate U.S. EPA guidance, guidelines and policies. In addition, guidance provided by California Environmental Protection Agency's (CalEPA's) DTSC at http://www.dtsc.ca.gov has been incorporated where applicable. As explained previously, based on a review of historical information available for the DRMO, a site specific ERA was determined unnecessary and, therefore, was not conducted as part of this RI/FFS Report.

6.1 Human Health Risk Assessment for Soil

6.1.1 Identification of Chemicals of Potential Concern. The HHRA was performed using a "post-excavation" dataset which reflects a uniform distribution of soil samples that are representative of current soil conditions (see Section 4.0). The HHRA was performed using a dataset that resulted from the collection of confirmation samples during the NTCRA conducted by the Navy at the DRMO between 2005 and 2008 (Weston Solutions, Inc., 2008). The dataset includes those confirmation samples that define the final excavation extent and represent the current conditions in soil at the DRMO. It should also be noted that the DON conducted a PCA in 2009 through 2010 to address an approximate 7.2-acre area located within, and in the vicinity of the former DRMO (Weston Solutions, Inc., 2009). This corrective action, conducted under the Mare Island petroleum program, has resulted in the excavation of additional soil within the boundaries of the DRMO and has further improved site conditions. The improvements resulting from this PCA are not reflected in this HHRA because TPH was the only compound analyzed in the confirmation samples collected during this corrective action.

COPCs were identified from a screening process whereby maximum concentrations of chemicals detected in soil samples were compared to residential risk based screening levels (RBSLs). All chemicals reported in at least one soil sample were included in the screening process. Table E-1 in Appendix E provides summary statistics, screening criteria, and rationale for selection or deletion of a COPC for all chemicals detected in soil. The risk-based screening provides an efficient means to identify constituents that are not likely to be risk drivers (i.e., detected constituents that have a maximum concentration below the screening value are not likely to be risk drivers in the HHRA) and constituents that could be risk drivers (i.e., constituents that have a maximum concentration greater than the RBSL). The constituents detected in soil that are not likely to be risk drivers are represented with an "N" on Table E-1 in Appendix E because the maximum concentration detected was below the RBSL; the constituents that could be a risk driver are indicated with a "Y" because the maximum concentration detected was above the RBSL. In addition, Table E-1 in Appendix E identifies those constituents with a low frequency of detection of 5% or less, which is not used to omit chemicals as COPCs, but rather to further support the elimination of detected chemicals as COPCs based on the comparison to risk-based screening numbers.

Ambient background concentrations were determined for metals in fill soil at the DRMO (TtEMI, 2002a). Background values determined for metals are also shown on Table E-1 in Appendix E. For screening purposes, metals that were detected at concentrations that could potentially pose a risk (i.e., exceeded RBSLs) were retained as COPCs, regardless of whether they exceeded ambient background concentrations. For instance, the maximum concentration of arsenic in soil was less than the ambient background level, but exceeded the RBSL; therefore, this metal was selected as a COPC. The maximum concentrations of iron and lead in soil were higher than ambient background levels and greater than the RBSL, thus these two metals were selected as COPCs. Cobalt does not have an ambient background level in soil and therefore was selected as a COPC because the maximum concentration exceeded the RBSL.

Based on the comparison to RBSLs, only 11 of the chemicals detected in soil had maximum concentrations that exceeded screening criteria. The 11 chemicals detected in soil that were selected as COPCs include:

- Arsenic
- Cobalt
- Iron
- Lead
- alpha-BHC
- Aroclor 1254
- Aroclor 1260
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Indeno(1,2,3-cd)pyrene

6.1.2 Exposure Assessment

6.1.2.1 Conceptual Site Model. As described in Section 2.0, the DRMO was historically used for storage of transformers, batteries, metal scrap, paper bailing, and possible handling of petroleum oils. In addition, a portion of the DRMO was a scrapyard that handled surplus material and scrap from the shipyard and other military facilities until mid-1995. Planned future reuse of the site includes commercial/industrial land use.

The exposure assessment is based on receptor scenarios that define the conditions of exposure to chemical contamination, and therefore the historical use and potential future use of the site are both equally important in identifying exposure pathways. An exposure pathway defines the most probable path in which a receptor may come in contact with contaminated environmental media. In order for an exposure pathway to be complete, the following four elements must be present:

- A (primary) source of contamination;
- Contamination accumulation in and/or release/transport to a location or medium (e.g., air, soil, water) where exposure can occur;
- An individual or population engaged in an activity at or near the site that results in contact with the impacted media; and,
- A route of exposure (e.g., inhalation, dermal contact, ingestion) that leads to intake of contaminants by the individuals in the exposed population.

The risk assessment conceptual site model (CSM) for the site is shown in Figure 6-1. The purpose of the CSM is to summarize the assumed sources of contaminants, routes of contaminant transport, contaminated media, routes of exposures, and receptors. The primary source of contamination is from the storage of transformers, batteries, metal scrap, paper bailing, and possible handling of petroleum oils and the use of the site as a scrapyard for storing surplus and scrap from the shipyard. Contamination of the soil most likely resulted from spills and leaks of stored product/material and leaching of metal from the scrap metals and other shipyard waste. Chemicals in soil and fugitive dust emissions from this soil are the mechanisms through which contaminants are released, and exposure to soil and air are therefore the media through which individuals come into contact with the chemicals.

6.1.2.2 Potential Receptors and Routes of Exposure. Current and potential future receptors were evaluated in the risk assessment. Historically, the site has been used for industrial-type activities, including storage of materials and use as a scrapyard. The planned future use of the site is commercial/industrial land use (City of Vallejo, 1994; Lennar Mare Island, 2000). The DRMO is currently inactive and after the completion of an NTCRA excavation (primarily within the FSA) now consists of grass planted over fill material. No structures remain at the DRMO.

The current receptor includes an industrial worker, and assumes that the DRMO remains as is and that there is no major redevelopment of the land which would include excavation and redistribution of the soil. Potential future receptors include an industrial worker, a residential receptor, and construction worker. The potential future exposure scenarios assume that redevelopment of the land will occur, including excavation of soil such that subsurface soil may be brought to the surface. The selection of exposure pathways is provided in Table E-2. In general, the potential routes of exposure evaluated for all of the current and future receptors are:

- Incidental ingestion
- Dermal contact
- Inhalation of dust in outdoor air.

COPCs identified at the DRMO consist of SVOCs and metals. Inhalation of volatile chemicals in indoor air was not selected as a current or potential future exposure route of concern for the SVOC COPCs present in soil because these compounds are not considered to be volatile according to U.S. EPA (2008a) and the Water Board (2008). In general, U.S. EPA (2008a) defines a compound as volatile if the molecular weight is less than 200 g/mole and the Henry's Law Constant is greater than $1.\times 10^{-5}$ atm-m^3/mole. None of the COPCs identified meet these criteria and therefore inhalation of volatile chemicals in indoor air was not selected as a potential future exposure route.

6.1.2.1.1 Residential Receptors. As a conservative measure to assist in making risk management decisions for the DRMO, a hypothetical residential scenario has been provided to evaluate the risks associated with exposure to chemicals in soil. The residential receptors evaluated in the risk assessment include a standard default residential scenario for an adult and child. This exposure scenario evaluated an age-adjusted adult/child receptor (24 years as an adult and 6 years as a child, for a total of 30 years) for exposure to carcinogens and a child receptor (age 0-6 years) for noncarcinogens to depict a scenario resulting in the most conservative cancer and noncancer risks. As stated previously, future development of the DRMO is slated for commercial/industrial land use (City of Vallejo, 1994; Lennar Mare Island, 2000). Thus, the most appropriate current and future receptor for the site is an industrial worker.

6.1.2.1.2 Industrial Worker. An industrial exposure is the most reasonable exposure scenario for current and future land use at the DRMO. This receptor is assumed to primarily work indoors and to be onsite for approximately 8 hours per day, 250 days per year for 25 years.

6.1.2.1.3 Construction Worker. Construction workers who are involved in reconstruction of the DRMO area may be exposed to COPCs in soil directly via incidental ingestion and dermal contact, or indirectly via inhalation of particulates from soil in outdoor air.

6.1.2.3 Calculation of Exposure Point Concentrations. The concentrations of chemicals in the exposure medium at the exposure point are termed exposure point concentrations (EPCs). The EPC represents the average exposure contracted over the exposure period; therefore, the EPC is estimated by using an average value and not the maximum observed concentration (U.S. EPA, 1989, 1992, and 2007). The average concentration is regarded as a reasonable estimate of the concentration likely to be contacted over time (U.S. EPA, 1989). EPCs were developed to model exposures under the reasonable maximum exposure (RME) scenario, which is defined as the highest exposure that is reasonably expected to occur at a site (U.S. EPA, 1989). RME estimates are calculated using a combination of upper bound values for exposure parameters (e.g., ingestion rate and inhalation rate) and an estimate of the mean EPC. Risk decisions are based on the RME consistent with the NCP (U.S. EPA, 1985).

The EPCs for this evaluation were calculated using the ProUCL (version 4.00.02) software package developed by U.S. EPA (2007) and represent an upper confidence limit (UCL) of the population mean (i.e., measure of the central tendency of a data distribution). ProUCL 4.0 contains statistical methods to address various environmental issues for both full datasets without nondetects and for datasets with nondetects (also known as left-censored datasets).

For soil, a sampling depth interval of 1 to 2 ft was used for the current industrial worker to represent surficial soil that this receptor would most likely come into contact with. As described in Section 4.0, analytical data for an interval of 0 to 1 ft does not exist because soil was excavated from the upper 18 inches across the entire site and backfilled with clean soil. For potential future exposure scenarios (e.g., residential, industrial, and construction), the surface and subsurface soil (1 to 8.5 ft bgs) were combined, assuming that future redevelopment of the site could potentially bring subsurface soil to the surface during excavation and regrading activities that would be undertaken to install utility corridors, building footers, or any other similar type structures associated with redevelopment.

The EPCs for each of the COPCs within both sampling intervals are summarized in Appendix E, along with the summary statistic outputs from ProUCL.

6.1.2.3.1 Calculation of Exposure Concentrations in Air. COPC concentrations in outdoor air that a receptor could be exposed to were estimated from the soil EPC using the methodology provided in the *Soil Screening Guidance: Technical Background Document* (U.S. EPA, 1996) and *Supplemental Guidance* (U.S. EPA, 2002a). The total concentration of a chemical in outdoor air is the result of wind suspension of impacted soil. The total concentration in air can be calculated by dividing the chemical's concentration in soil by a particulate emission factor (PEF), as follows:

$$C_{air} = \frac{C_s}{PEF} \qquad (6\text{-}1)$$

where: C_{air} = concentration of COPC in outdoor air that receptor can be exposed to (mg/m^3)

C_s = EPC (mg/kg) [chemical specific]

PEF= particulate emission factor (m^3/kg) (a DTSC default PEF of 1.32×10^9 m^3/kg was used for the residential and industrial exposure scenarios, while a PEF of 1.0×10^9 m^3/kg was used for the construction exposure scenario [California DTSC, 2005]).

Tables E-5 and E-6 in Appendix E provide summaries of the concentrations of COPCs in outdoor air.

6.1.2.4 Exposure Parameters/Equations. The equations that were used to quantify cancer risk and noncancer health hazards are described in this section. Parameter values for the variables used in the risk equations are defined in Table E-7 of Appendix E for each of the receptors.

Cancer risk and noncancer hazard quotients (HQs) resulting from exposure to soil via ingestion were calculated using the following equations:

$$\text{Risk} = \left(\frac{C_s \times EF \times ED \times IR_{soil}}{BW \times AT \times 365 \frac{d}{yr}} \right) \times SF_o \times 10^{-6} \frac{kg}{mg} \quad (6\text{-}2)$$

$$\text{HQ} = \left(\frac{C_s \times EF \times ED \times IR_{soil}}{BW \times AT \times 365 \frac{d}{yr}} \right) \times \frac{1}{RfD_o} \times 10^{-6} \frac{kg}{mg} \quad (6\text{-}3)$$

where:

C_s = chemical concentration in soil (mg/kg)
Risk = probability of contracting cancer (unitless)
HQ = hazard quotient (unitless)
BW = body weight (kg)
AT = averaging time (yr)
EF = exposure frequency (d/yr)
ED = exposure duration (yr)
IR_{soil} = ingestion rate of soil (mg/d)
SF_o = oral cancer slope factor $(mg/kg\text{-}d)^{-1}$
RfD_o = oral reference dose (mg/kg-d).

Risk resulting from exposure to soil via dermal contact was calculated using the following equations:

$$\text{Risk} = \left(\frac{C_s \times EF \times ED \times EV \times SA \times AF \times ABS}{BW \times AT \times 365 \frac{d}{yr}} \right) \times SF_d \times 10^{-6} \frac{kg}{mg} \quad (6\text{-}4)$$

$$\text{HQ} = \left(\frac{C_s \times EF \times ED \times EV \times SA \times AF \times ABS}{BW \times AT \times 365 \frac{d}{yr}} \right) \times \frac{1}{RfD_d} \times 10^{-6} \frac{kg}{mg} \quad (6\text{-}5)$$

where: C_s = chemical concentration in soil (mg/kg)
Risk = probability of contracting cancer (unitless)
HQ = hazard quotient (unitless)
BW = body weight (kg)

AT	=	averaging time (yr)
EF	=	exposure frequency (d/yr) or (events/yr)
ED	=	exposure duration (yr)
SA	=	skin surface area available for contact (cm^2)
EV	=	dermal contact event frequency (events/d)
AF	=	soil-to-skin adherence factor (mg/cm^2-event)
ABS	=	dermal absorption factor (unitless)
SF_d	=	dermal cancer slope factor $(mg/kg\text{-}d)^{-1}$
RfD_d	=	dermal reference dose (mg/kg-d).

Dermal absorption was evaluated per the methodology in the U.S. EPA dermal guidance: RAGS Part E, *Supplemental Guidance for Dermal Risk Assessment* (U.S. EPA, 2004a). However, chemical-specific dermal absorption factors were used in the development of U.S. EPA's RSLs (U.S. EPA, 2008a).

Risks resulting from exposure to particulates in outdoor air were determined by the following equations:

$$Risk = \left(\frac{C_{air} \times IR_{inh} \times ET \times EF \times ED}{BW \times AT \cdot 365 \frac{d}{yr}} \right) \times SF_i \qquad (6\text{-}6)$$

and

$$HQ = \left(\frac{C_{air} \times IR_{inh} \times ET \times EF \times ED}{BW \times AT \cdot 365 \frac{d}{yr}} \right) \times \frac{1}{RfD_i} \qquad (6\text{-}7)$$

where:

C_{air}	=	concentration of chemical in ambient air (mg/m^3)
Risk	=	probability of contracting cancer (unitless)
HQ	=	hazard quotient or noncancer risk (unitless)
SF_i	=	chemical-specific inhalation slope factor $(mg/kg\ day)^{-1}$
RfD_i	=	chemical-specific reference concentration (mg/kg day)
EF	=	exposure frequency (d/yr)
ED	=	exposure duration (yr)
ET	=	exposure time (hour)
IR_{inh}	=	inhalation rate (m^3/hour)
AT	=	averaging time (yr).

6.1.3 Toxicity Assessment. The toxicity assessment determines the relationship between the magnitude of exposure to a COPC and the nature and magnitude of adverse health effects that may result from such exposure. For purposes of this assessment, COPCs are classified into two broad categories: noncarcinogens and carcinogens. Toxicity studies with laboratory animals or epidemiological studies of human populations provide the data used to develop toxicity criteria.

Carcinogens are agents that induce cancer. Potential carcinogenic effects are expressed as the probability that an individual will develop cancer over a lifetime based on the exposure assumptions used in the risk assessment. The cancer slope factor (CSF) is a plausible upper bound estimate of carcinogenic potency used to calculate cancer risk from exposure to carcinogens, by relating estimates of lifetime average chemical intake to the incremental probability of an individual developing cancer over a lifetime. CSFs are derived based on an analysis of the animal and/or human data to determine the most appropriate model to use in the extrapolation from animal to humans or direct use of human epidemiological studies. Chemical-specific CSFs use data to determine whether a threshold exists or if the chemical is a nonthreshold carcinogen (U.S. EPA, 2005a). The slope factor is protective and assumes that exposure to any concentration of a carcinogen has the potential to produce an increased risk. The CSFs developed by U.S. EPA are plausible upper-bound estimates, which means that U.S. EPA is reasonably confident that the actual cancer risk will not exceed the estimated risk calculated using the CSF. Cancer risks from exposure to multiple carcinogens and multiple pathways are assumed to be additive (U.S. EPA, 1989; 2000).

Noncarcinogenic health effects were evaluated using reference doses (RfDs) developed by U.S. EPA. An RfD is an estimate of a daily oral exposure for a given duration to the human population (including susceptible subgroups) likely to be without an appreciable risk of adverse health effects over a lifetime (U.S. EPA's Integrated Risk Information System [IRIS] definition). RfDs are expressed in milligrams of contaminant per kilogram of body weight per day (mg/kg-day). The RfD is a health-based criterion based on the assumption that thresholds exist for noncancer health effects (e.g., liver or kidney damage) over a length of time of exposure (e.g., chronic). Chronic RfDs are specifically developed to be protective against long-term exposure to a contaminant.

Tables E-8 through E-11 in Appendix E summarize the toxicity criteria, target organ, weight of evidence classifications, uncertainty factors, and other relevant information for each chemical for noncancer and cancer toxicity. Toxicity criteria have been selected according to the U.S. EPA Office of Solid Waste and Emergency Response (OSWER) Directive 9285.7-53 (2003), which recommends a hierarchy of human health toxicity values for use in risk assessments at Superfund sites. The hierarchy is as follows: (1) U.S. EPA's IRIS; (2) U.S. EPA's Provisional Peer-Reviewed Toxicity Values (PPRTV) (Office of Research and Development, National Center for Environmental Assessment, Superfund Health Risk Technical Support Center); and (3) other sources of information, such as toxicity values from CalEPA and the ATSDR's minimal risk levels (MRLs) for noncarcinogenic constituents.

6.1.4 Methodology for Risk Assessment of Lead. U.S. EPA has determined that it is inappropriate to develop an RfD for inorganic lead compounds. In contrast to risk assessment techniques for most other chemicals, the toxic effects of lead usually are correlated with observed or predicted blood lead concentrations rather than with calculated intakes or doses. Consequently, exposures to lead were evaluated using DTSC's LeadSpread 8 Model, which incorporates a modified version of U.S. EPA's Adult Lead Model (ALM) (California DTSC, 2011). The LeadSpread model estimates blood lead concentrations from exposure to lead in soil via ingestion, dermal contact, and dust inhalation for a child, whereas the ALM estimates blood lead concentrations in a pregnant adult worker from exposures to lead in soil via ingestion of outdoor soil and indoor dust.

The models calculate blood lead concentrations and compare the calculated concentration to a target level of 1 μg/dL, which is accepted as the blood lead concentration below any observation of toxic effects. The input parameters used for modeling in LeadSpread are shown in Figures E-1 and E-2 of Appendix E. DTSC default values were used except for the "Lead in Soil/Dust" parameter. For the input parameter "Lead in Soil/Dust", the calculated EPC was used.

The EPC value used in each model varies between the current and potential future use scenarios. As defined previously, surface soil is defined as the 1 to 2 ft depth interval and is used to represent current conditions (i.e., the adult industrial worker) and surface and subsurface soil combined as being defined as the 1 to 8.5 ft depth interval which is used to evaluate exposure to potential future receptors (i.e., the child receptor). Therefore, soil lead concentrations of 62 mg/kg and 81 mg/kg were used to represent current and future exposures, respectively.

6.1.5 Risk Characterization. Risk characterization involves estimating the magnitude of the potential adverse health effects associated with the COPCs. It also involves making summary judgments about the nature of the human health threat to the defined receptor populations. The risk characterization combines the results of the dose-response (toxicity assessment) and exposure assessment to calculate cancer risks and noncancer health hazards. In accordance with U.S. EPA's guidelines for evaluating the potential toxicity of complex mixtures (U.S. EPA, 1986; 2000), this assessment assumes that the effects of all constituents are additive through a specific pathway within an exposure scenario (U.S. EPA, 1986; 2000).

Risks are estimated as probabilities for COPCs that elicit a carcinogenic response. The excess lifetime cancer risk is the incremental increase in the probability of developing cancer associated with exposures to contaminated media at the site. A risk of 10^{-6}, for example, represents the probability that one person in one million exposed to a carcinogen over a lifetime (70 years) will develop cancer. The upper-bound excess lifetime cancer risks derived in this assessment are compared to the regulation of the NCP that includes a risk range of 10^{-4} (one in ten thousand) to 10^{-6} (one in one million) (U.S. EPA, 1990).

Typically, chemical-specific HQs are summed to calculate pathway hazard index (HI) values. The HI is calculated by summing all HQs for all noncarcinogenic constituents through an exposure pathway. When the HI exceeds unity, there may be a concern for health effects (U.S. EPA, 1989). This approach can result in a situation where HI values exceed 1 even though no chemical-specific HQs exceed 1 (i.e., adverse systemic health effects would be expected to occur only if the receptor was exposed to several contaminants simultaneously). In this case, HQs are segregated based on the noncancer health effect that is associated with exposure to the chemical, and a separate HI value is derived by summing HQs with similar health effects (U.S. EPA, 1989). If any of the separate HI values exceed 1, then adverse, noncarcinogenic health effects are possible. It is important to note, however, that an HI exceeding 1 does not predict a specific disease.

6.1.6 Risk/Hazard Results. Total cancer risks and noncancer HIs are summarized in Table 6-1 for all of the current and potential future receptors. Detailed risk/hazard calculations are provided in Appendix E, Tables E-12 through E-29, and summaries of risk/hazard are presented in Tables E-30 through E-34 of Appendix E. Recall that arsenic was selected as a COPC even though the maximum concentration of arsenic in soil was less than the ambient background level. Therefore, to gain a better understanding of site-related risks/hazards and those more likely attributable to ambient concentrations of arsenic in the fill material at former MINS, two sets of estimates are provided. One set encompasses the contribution from all of the COPCs selected for this evaluation and the second set of estimates has been revised by eliminating the contribution of metals that were detected below their respective background concentrations.

6.1.6.1 Risk/Hazard Estimates for the Current Industrial Worker. The total cancer risk and noncancer HI associated with the current industrial worker are 9×10^{-6} and 0.1, respectively. The total cancer risk is within the risk range of 10^{-4} and 10^{-6} (U.S. EPA, 1990) and the noncancer HI is below 1. Ingestion and dermal contact with arsenic in soil were the primary exposure pathways and COPC contributing to the excess risk. The approximate contribution of arsenic to the total risk is 92%. Individual risk levels for all other COPCs were less than 1×10^{-6}. The ambient fill value for arsenic at former MINS was determined to be 36 mg/kg (TtEMI, 2002a). All detected concentrations of arsenic at the DRMO were below the ambient fill value for MINS. Based on the DRMO soil results, metals, including arsenic, are associated with the ambient fill material at former MINS and are not site-related.

Eliminating the contribution of metals that were detected below their respective ambient concentrations results in an incremental cancer risk of 7×10^{-7} and an incremental HIof 0.09. Once ambient metals are eliminated as COPCs, approximately 41% of the total cancer risk is attributable to benzo(a)pyrene.

6.1.6.2 Risk/Hazard Estimates for Potential Future Residential Receptor. The calculated total cancer risk for the hypothetical adult resident (estimated for a 30-year exposure duration by summing the risks for the adult [based on 24-year exposure] and the hypothetical child resident [based on 6-year exposure]) is 4×10^{-5}. For noncarcinogens, a hypothetical residential child receptor (age 0-6 years) was evaluated to depict a scenario resulting in the most conservative noncancer health hazards. The HI for the residential child is 2. The cancer risk is within the risk range, but the noncancer HI of 2 is above the U.S. EPA criterion of 1. Ingestion and dermal contact with arsenic in soil were the primary exposure pathways and COPC contributing to the excess risk. The approximate contribution of arsenic to the total risk is 95%. Individual risk levels for all other COPCs were less than 1×10^{-6}.

Ingestion of arsenic, cobalt, and iron combined contributed to an HI of 2; however, each of these metals affect different primary target organs (see Table E-33 in Appendix E); thus, the effects are not additive. Therefore, the target organ specific HI is below 1.0.

Eliminating the contribution of metals that were detected below their respective background concentrations would result in an incremental cancer risk of 2×10^{-6} and an incremental HI of 1. When background metals are taken into consideration, benzo(a)pyrene is the primary risk driver, with an individual cancer risk of 9×10^{-7}, which accounts for 46% to the total cancer risk.

6.1.6.3 Risk/Hazard Estimates for Potential Future Industrial Worker. The total cancer risk and noncancer HI associated with the future industrial worker are 1×10^{-5} and 0.2, respectively. The cancer risk is within the risk range and the noncancer HI is below 1. Ingestion and dermal contact with arsenic in soil were the primary exposure pathways and COPC contributing to the excess risk. The approximate contribution of arsenic to the total risk is 93%. Individual risk levels for all other COPCs were less than 1×10^{-6}.

Eliminating the contribution of metals that were detected below their respective background concentrations would result in an incremental cancer risk of 7×10^{-7} and an incremental HI of 0.1. When background metals are taken into consideration, benzo(a)pyrene is the primary risk driver, which accounts for 48% to the total cancer risk.

6.1.6.4 Risk/Hazard Estimates for Potential Future Construction Worker. The total cancer risk and noncancer HI associated with the future construction worker are 3×10^{-6} and 2, respectively. The cancer risk is within the risk range and the noncancer HI is above 1. Exposure to arsenic and cobalt in soil contributed to the excess risk. The approximate contribution of arsenic to the total risk is 61% and 35% for cobalt. Individual risk levels for all other COPCs were less than 1×10^{-6}. Inhalation of cobalt was the primary contributor to the excess health hazard. The HQs for all other COPCs were below 1.

The cancer risk associated with the arsenic background under a construction worker exposure scenario is 5×10^{-6}, which is greater than the site-related risk for arsenic (see Tables E-28 and E-29 in Appendix E for detailed risk calculations for background). If metals were detected below their ambient fill material at Mare Island, and not site-related, then arsenic would be eliminated as a COPC and the total cancer risk would be reduced to 1×10^{-6}. The HI remains at 2 because the primary contributor is cobalt. An ambient fill material value for cobalt was not determined (TtEMI, 2002a).

6.1.6.5 Results of Lead Risk Assessment. Lead EPC values for the surface soil (62 mg/kg) and for the combined surface and subsurface soil (81 mg/kg) are all below the California DTSC's residential PRG of 150 mg/kg and U.S. EPA's recommended RSL of 400 mg/kg. The background concentration for lead in fill soil at Mare Island is 59 mg/kg (TtEMI. 2002a). Based on the lead California human health screening levels (CHHSLs) of 80 mg/kg and 320 mg/kg, the CHHSL plus background screening values for lead are 139 mg/kg and 379 mg/kg for residential and commercial/industrial receptors, respectively. Based on the EPCs listed above for the DRMO, lead concentrations do not exceed CHHSL plus background for either residential or commercial/industrial land use. The results of the LeadSpread 8 modeling are shown in Figures E-1 and E-2 of Appendix E.

6.1.7 Uncertainty Associated with Human Health Evaluation. This risk assessment is consistent with U.S. EPA guidance, guidelines, and policies. The application of these procedures is designed to reduce potential uncertainty and ensure consistency.

A qualitative evaluation is provided in this section to address uncertainties associated with the estimates of risk/hazard presented in this report. Risk results are best estimates based on the most recent information and techniques available for predicting risk. Two primary sources of uncertainty associated with risk estimates are:

- Model uncertainty (i.e., methods/models used to calculate EPCs and risk); and,
- Parameter uncertainty (i.e., uncertainty in model input parameter exposure variables).

For the assessment of risk in response to existing concentrations, model uncertainty is not discussed because standard, accepted exposure and risk models have been employed in this assessment; therefore, it is assumed that the formulations of the models used to predict exposure and risk are valid at this time. Large uncertainties can often arise in risk estimates that are based on models that simulate the fate/transport of contaminants. However, risks here are based on measured contaminant data, and there is no dependency on the use of fate/transport modeling to predict EPCs.

Conversely, parameter uncertainty is discussed here because this type of uncertainty is the most likely source of uncertainty impacting the calculated cancer risks and noncancer health hazards. Parameters involved in the risk assessment are categorized according to the step in which they occur (i.e., exposure assessment, toxicity assessment, and risk characterization). The various parameter uncertainties and the likely impact of these uncertainties on the calculated risks are summarized in Table 6-2.

For this risk assessment, COPCs were selected based on a comparison of maximum concentrations to residential PRGs. The planned future use of the DRMO is commercial/industrial land use and the COPC screening process is therefore considered conservative based on the planned future use of the site. However, it should be noted that there is a potential for the COPC selection process to underestimate risk based on a residential use scenario.

6.1.8 Soil Conclusions. The purpose of this HHRA was to determine if exposure to chemicals remaining in soil at this site would result in unacceptable risk for an industrial worker receptor, which is the most reasonable exposure scenario for current and planned future land use at the DRMO. Therefore, an industrial worker was evaluated under current and potential future exposure scenarios. The risk evaluation also included a potential future hypothetical residential scenario as a conservative measure to assist in making risk management decisions for the DRMO. In addition, a construction worker scenario was evaluated for site workers engaging in activities such as trenching or excavating at the site.

For soil, a sampling depth interval of 1 to 2 ft was used for the current industrial worker to represent surficial soil that this receptor would most likely contact. For potential future exposure scenarios, including residential, industrial, and construction, the surface and subsurface soil (1 to 8.5 ft bgs) were combined, assuming future redevelopment of the site could potentially bring subsurface soil to the surface. The COPCs were identified based on a screening process whereby maximum concentrations of chemicals detected in soil samples were compared to residential RBSLs. Eleven COPCs were evaluated in the risk assessment: arsenic, cobalt, iron, lead, alpha-BHC, Aroclor 1254, Aroclor 1260, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene.

The total cancer risks and noncancer health hazards (i.e., all COPCs summed across exposure pathways) for the current and future industrial receptors are summarized in Table 6-1. Eliminating the contribution of metals that were detected below their respective background concentrations results in incremental cancer risk below the cancer risk criterion of 10^{-6} and noncancer threshold value of 1. The calculated incremental cancer risk and HI for the hypothetical adult and child resident are 2×10^{-6} and 1, respectively, suggesting that site soils are protective based on both residential and industrial land use scenarios.

6.2 Human Health Risk Assessment for Groundwater

The HHRA for groundwater addresses potential threats to human health under commercial/industrial worker, construction/excavation worker, hypothetical residential, and recreational user scenarios from exposure to groundwater. There is currently no active use of the site and, therefore, no anticipated on-site human health risks for current conditions. The HHRA considers the following exposure pathways: groundwater domestic beneficial use (i.e., ingestion, dermal contact, vapor inhalation), groundwater direct contact through construction excavation activities (i.e., ingestion, dermal contact, vapor inhalation) and inhalation of indoor air vapors from groundwater.

The HHRA was prepared according to risk assessment guidelines recommended by U.S. EPA and the CalEPA, including the Office of Environmental Health Hazard Assessment (OEHHA). The technical methods are based on practice guidelines recommended by the U.S. EPA (U.S. EPA, 1989) and the DTSC (California DTSC, 2011a).

6.2.1 Hazard Identification. This section describes the selection of COPCs for the site and the data evaluation procedures to characterize COPC source term concentrations. A CSM illustrating potential pathways between COPC sources and human receptors is also described in this section.

6.2.1.1 Project Dataset. The target analyte list for the site included metals, PAHs, SVOCs, pesticides, TPH, and VOCs. The dataset consisted of an analysis of groundwater samples.

During November 13 and 14, 2012, 12 groundwater monitoring wells on the DRMO scrapyard were sampled and 12 grab groundwater samples and one duplicate sample were collected. Sampling locations used in the HHRA are presented in Figure 4-4.

The dataset for manganese in groundwater from the DRMO consists of 38 samples. Additional data for manganese were included in the risk assessment because three detections from the 2012 dataset appeared to be anomalous. Historical results for manganese which were collected between 1993 and 2000 as data presented in the Draft Final RI/FS for DRMO (Battelle, 2010) has been included in this analysis. Additionally, the three wells that showed elevated manganese in 2012 were resampled in 2013 and those data are also included.

Groundwater samples were analyzed for the following constituents:

- California Assessment Manual 17 Metals using U.S. EPA Methods 6020 and 7471A - Filtered (metals include aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc)
- PAHs using U.S. EPA Method 8270C (Selective Ion Monitoring)
- SVOCs using U.S. EPA Method 8270C
- Pesticides using U.S. EPA Method 8081A
- PCBs using U.S. EPA Method 8082 (full suite of Aroclors, including 1016, 1221, 1232, 1242, 1248, 1254, and 1260)
- TPH using U.S. EPA Method 8015B. Laboratory reports provided a total for gasoline range organics (TPH-G; C6-C10), TPH-D (C10-C24), and TPH-MO (C24-C36)
- VOCs using U.S. EPA Test Method 8260B.

6.2.1.2 Constituents of Potential Concern. Detected analytes in groundwater from the site characterization data obtained in November 2012 were evaluated in the HHRA. Additional data were used to evaluate manganese. A statistical summary of detected analytes and analytical summary tables are presented in Appendix F. Specific details by chemical class are provided below.

- Metals: All detected metals were evaluated in the total risk estimate. An analysis of background metals in groundwater was presented in *Compilation of Technical Memoranda on Ambient Analysis of Metals in Soils and Groundwater, Mare Island, California* (TtEMI, 2002a). Incremental contribution of site activities to on-site metals concentrations was evaluated by subtracting the 95th percentile background metals concentrations from the 95% UCL metals concentration on site. The incremental site contribution of metals was used to calculate the incremental risk, or the risk attributable to site activities.
- PAHs: All detected PAHs were evaluated in the HHRA.
- SVOCs: One SVOC was detected in sample DRMO-TMW08, however the detection was rejected during data validation review. All other analyzed SVOCs were non-detect.
- Pesticides: One detected pesticide was evaluated in the HHRA.
- PCBs: All analyzed PCBs were non-detect, and therefore PCBs were not further evaluated in this risk assessment.
- VOCs: Each detected VOC was evaluated in the HHRA.
- TPH was detected in groundwater. However, TPH was not included in the risk assessment. TPH data represent a wide range of petroleum-related chemicals. The current composition of TPH may vary from the composition of original sources due to weathering over time, which generally leads to a relative decrease in the lighter hydrocarbons that volatilize and retention of the heavier hydrocarbons. Laboratory reports provided a total for TPH-G (C6-C10), TPH-D (C10-C24), and TPH-MO (C24-C36). TPH-G was not detected in any samples. Due to uncertainty associated with the composition of TPH and the inclusion of PAH and VOC analyses, which are expected to

detect the more toxic components of TPH, TPH was excluded from the quantitative risk calculations.

6.2.1.3 Conceptual Site Model. Although several complete exposure pathways may exist for a particular receptor, not all pathways are comparable in magnitude or significance. The significance of a pathway as a mode of exposure depends on the identity and nature of the COPCs involved and the magnitude of the likely exposure dose. The human health CSM diagram illustrates the origin of the COPCs, release mechanisms into secondary sources, the resulting exposure media, and the receptors considered in this HHRA. The importance of each of the exposure routes associated with the receptor scenarios for this site is represented on the CSM diagram by a solid circle for potentially complete pathways and by "IC" for pathways which are incomplete for the designated receptor and exposure route. Figure 6-2 presents the human health CSM.

Receptors associated with unrestricted future land use that were evaluated in the HHRA include:

- Commercial/industrial workers
- Construction/excavation workers
- Hypothetical residents
- Recreational users.

Planned land use adjacent to the site includes recreation use.

The four human health exposure scenarios are described below:

Commercial/Industrial Workers: Commercial/industrial workers occupying the site in the future potentially could come into indirect contact with groundwater. It is assumed that groundwater is not used for domestic beneficial uses in this risk scenario. However, VOCs in groundwater beneath a building could migrate into the building and a commercial/industrial worker could be exposed via inhalation of indoor air. The commercial/industrial worker scenario assumes the receptor is at the site 8 hours a day for 250 days a year.

Construction/Excavation Workers: This receptor scenario addresses workers who may be engaged in earthmoving or subsurface operations in trenches or excavations without strict adherence to the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard specified in 29 CFR Part 1910.120. Assuming groundwater enters the hypothetical trench, the construction/excavation worker receptor could be exposed to groundwater via incidental ingestion (to account for splashing and hand-to-mouth contact), dermal exposure to groundwater and inhalation of vapors in the trench originating from groundwater. However, current construction practices implement dewatering methods in areas where work will occur below the ground surface and proximate to the groundwater table. Thus, ingestion and dermal contact with groundwater in a construction trench were not considered to be a significant pathway and were excluded from the HHRA. Potential chronic health effects for this receptor scenario were evaluated based on intermediate-term exposure (e.g., one-year job duration on site).

Hypothetical Residents: This receptor was used to evaluate future unrestricted use of groundwater at the site. Residents are assumed to be exposed for 30 years; 24 years as an adult and 6 years as a child. The potential for vapor intrusion into a residence (indoor air) from COPCs in groundwater was evaluated. The unrestricted use scenario also assumes that groundwater is used for domestic beneficial use in a residence where direct contact exposure routes include incidental ingestion, dermal contact, and inhalation of vapors from volatile COPCs. During domestic use of groundwater, volatile chemicals may be emitted into the residence during showering, hand washing, preparing meals and household activities such as dish washing. Volatile emissions of VOCs from groundwater to air, and the resulting EPCs, were estimated using the methodology described in Chapter 3 of *Development of Risk-Based Preliminary Remediation Goals* (U.S. EPA, 1991) and in accordance with U.S. EPA guidance (U.S. EPA, 2009a).

Recreational Users: The site may be used for recreational uses in the future, including hiking and other outdoor activities. Groundwater does not seep out of the ground to the surface. Groundwater is not pumped for domestic beneficial uses such as a drinking fountain in this re-use scenario. Therefore, the only complete exposure pathway at the site is volatilization of VOCs in groundwater to outdoor air. This exposure pathway is evaluated qualitatively.

6.2.2 Exposure Assessment. The end product of the exposure assessment is an estimate of chemical intake (i.e., a calculated dose) that integrates exposure parameters for the receptors (e.g., contact rates, exposure frequency, and duration) with exposure concentrations for the media of concern. The resulting chemical intakes are used in conjunction with chemical-specific toxicity values to evaluate potential health risks for the receptors.

6.2.2.1 Representative Media Concentrations

6.2.2.1.1 Source Term Concentrations. COPC source term concentration (STC) values are used to evaluate both direct contact and cross-media COPC exposures. For direct contact exposure routes, the exposure point occurs directly at the source (e.g., tap or trench water). Cross-media exposures may result from the transfer of COPCs from source media (groundwater) to secondary exposure points, such as indoor air.

Data Evaluation and Statistical Analysis
Data analysis was performed in accordance with risk assessment statistics guidance from U.S. EPA (2002b). The higher values of duplicate samples were selected as representative of the sample and in the HHRA statistical calculations. To quantitatively evaluate potential COPC exposures for each receptor, representative COPC STCs were assigned using either the maximum detected concentration or the 95th percentile UCL on the arithmetic mean concentration (95% UCL).

Two key data statistics for each COPC that were used as source concentrations are as follows:

- Maximum detected values: The maximum detected value was tabulated for each COPC.

- 95% UCL: The 95% UCL was calculated for each detected COPC with U.S. EPA ProUCL 4.1 software (U.S. EPA, 2010). This software reflects the latest U.S. EPA guidance (2002a) on the use of a 95% UCL concentration, based on data distribution, data skewness, and sample size. The 95% UCL represents an upper-bound estimate of the mean concentration of a COPC in a particular medium.

For evaluation of vapor intrusion risk the maximum detected concentration was used because unrestricted future land use could include the construction of a building over a contamination hot spot. For evaluation of direct contact with groundwater the 95% UCL concentration was used because receptors were assumed to come into contact with groundwater mixed from across the site. Because the 95% UCL concentration may be greater than the maximum detected concentration for reasons such as high variability in the data, the maximum detected concentration was used when the 95% UCL value was greater.

6.2.2.1.2 Background Metals. An analysis of background metals in groundwater was presented in *Compilation of Technical Memoranda on Ambient Analysis of Metals in Soils and Groundwater, Mare Island, California* (TtEMI, 2002a). The comparison of site concentrations with facility background groundwater concentrations is used in the risk characterization. Maximum detected concentrations onsite were compared to the 95th percentile background concentrations in Appendix F.

Incremental contribution of site activities to on-site metals concentrations was evaluated by subtracting the 95th percentile background metals concentrations from the 95% UCL metals concentration onsite (Appendix F). The incremental site contribution of metals was used to calculate the incremental risk, or the risk attributable to site activities.

6.2.2.1.3 Exposure Point Concentrations. The EPC is the concentration of the agent at the exposure point (location of physical contact) to which a receptor potentially could be exposed. The EPC values used in evaluating potential human health risks should be representative of the exposure area being evaluated and take into account the degree to which COPCs could migrate from source media (e.g., tap or trench water) to the actual points of human exposure (e.g., nose, mouth, skin, etc.). As explained previously, the source term concentrations were used to evaluate potential human exposures onsite. For potential chemical releases into secondary exposure media, receptors' EPC values were estimated using chemical fate and transport models. The fate and transport models are described below and can be seen in Appendix F.

Indoor Air Vapor Intrusion from VOCs in Groundwater

The potential for VOCs to migrate from groundwater to indoor air was evaluated using DTSC's *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (California DTSC, 2011a). The potential for volatile compounds to migrate from groundwater to indoor air in a commercial or residential building was evaluated based on the approach used in the Johnson and Ettinger model. The spreadsheet version of the "GW-SCREEN" (Version 3.0) model provided by DTSC was applied (California DTSC, 2011b). The model was run using default physical soil property values for clay loam for the soil column directly above the water table and in the vadose zone. Soils at the site are predominantly silty clay with sand 4 to 15 ft bgs and lean clay with sand from the surface to 4 ft bgs.

A building ventilation rate ($Q_{building}$) of 6.78×10^4 cubic centimeter per second (cm^3/s), which corresponds to an air exchange rate of 1/hour, was used for the commercial scenario. A building ventilation rate ($Q_{building}$) of 3.39×10^4 cm^3/s, which corresponds to an air exchange rate of 0.5/hour, was used for the residential scenario. Depth to groundwater was assumed to be 400 centimeter (cm) (13 ft) bgs for the model. See Appendix F for a summary of the inputs and an example of the model. For each COPC, the spreadsheet model was used to calculate an intermediate transfer factor called the alpha (α) value, which represents the ratio of the indoor air concentration to the subsurface groundwater STC.

Dermal Absorption through Groundwater Contact

In order to evaluate residents' potential long-term maximum exposures to COPCs in groundwater through dermal contact, dermal absorption was modeled using the methodology provided in Chapter 3 of *Supplemental Guidance for Dermal Risk Assessment* (U.S. EPA, 2004a). The exposure assumptions used for evaluating this pathway were based on default guideline values recommended by U.S. EPA. This calculation is presented as part of the risk calculation tables in Appendix F.

Inhalation of Vapor Emissions from Groundwater Use

During domestic use of groundwater, volatile chemicals may be emitted into the residence during showering or dish washing. Volatile emissions of VOCs from groundwater to air, and the resulting EPCs, were estimated using the methodology described in Chapter 3 of *Development of Risk-Based Preliminary Remediation Goals* (U.S. EPA, 1991) and in accordance with U.S. EPA guidance (U.S. EPA, 2009a). For each VOC, a volatilization factor of 0.5 liter per cubic meter (L/m^3) was used. The assumption is that half of the concentration of each volatile compound in water is transferred into air by all water uses. The volatile emissions EPCs were then calculated for chronic health effects assessments. The exposure time is modified from the 24 hours a day residential exposure for inhalation exposure from vapor intrusion (U.S. EPA, 2009a) to 3.5 hours/day. This value was derived using the following assumptions:

> Adult (15 -older): shower (0.58 hrs/day) + eating and drinking (1.23 hrs/day) + housework (0.61 hrs/day) + food preparation and cleanup (0.53 hrs/day) = 2.95 hours/day (Table 16-79 from U.S. EPA [2011]).
>
> Child (6-8 years old): bath (1 hrs/day) + eating, drinking, household work and home art project time (3.02 hrs/day) = 4.02 hrs/day (Table 16-75 from U.S. EPA [2011]). The simple average between the adult and child values = 3.5 hrs/day.

Trench/Enclosed Space Air Modeling from Groundwater
VOCs could volatilize from groundwater and migrate through subsurface soil into the air of partially enclosed spaces during construction or utility-line activities. This exposure pathway was evaluated using the same process developed previously in the health risk assessment for Installation Restoration Site 17 and the Building 503 Area. Estimation of trench air concentrations was conducted via a two-step process: the first was estimation of VOC emissions from the soil, and the second was the mixing of that emission with trench air. Emission rates were estimated using the VLEACH model (Ravi and Johnson, 1996), while the air mixing was simulated using a basic air-dispersion (box) model. Chemical-specific properties used in the VLEACH model and simulation parameter values are provided in Appendix F. Detected concentrations of VOCs in groundwater were the source concentrations and, for these simulations, groundwater is assumed to be an infinite source. The VLEACH model starts with the source concentration and distributes the VOC among groundwater, soil, and air phases by estimating diffusion out of, and advection into, each phase. For volatile compounds, equilibrium is reached relatively quickly within the time-step iterations of the model, and one of the output variables is an annualized steady-state emission rate from the soil modeled to overlie the VOC-containing groundwater. The emission rate, with some unit-conversion factors, is an input for the air-dispersion model which predicts the air EPCs for a construction or utility worker. Appendix F also includes the derivation of EPCs for trench air (and supporting VLEACH output). The EPCs also serve as inputs to the noncancer hazard and risk estimation calculations provided in Appendix F.

6.2.2.2 Exposure Estimates

6.2.2.2.1 Intake and Dose Estimation for Direct Contact. Two types of intake dose values were calculated for direct contact exposures (i.e., ingestion and dermal contact). For noncarcinogenic health effects, the applicable measure of intake for chronic toxicants is referred to as the average daily intake (ADI) and for most receptors is a less-than-lifetime exposure. For chemicals that produce carcinogenic effects, intakes are averaged over an entire lifetime and are referred to as the lifetime average daily intake (LADI). A generalized form of the equation that is used to calculate the (L)ADI for each COPC is given below:

$$(L)ADI = EPC \cdot \frac{RIF \cdot EF \cdot ED}{BW \cdot AT}$$

where:

(L)ADI = (lifetime) average daily intake [mg/kg-day])

EPC = exposure point concentration (units vary by media)

RIF = route-specific intake factor (milligram per day [mg/day])

EF = exposure frequency (days/year)

ED = exposure duration (years)

BW = body weight (kilogram [kg])

AT = averaging time (days).

For ingestion, RIF equals the water ingestion rate (IR-W). For dermal contact, RIF = SA * EV * DA_{event}, where SA = skin surface area, EV = events per day, and DA_{event} = absorbance per event (chemical specific). The exposure parameters used to calculate the (lifetime) average daily intake for the future commercial/industrial workers, construction workers and hypothetical residents under standard RME scenarios are provided in Appendix F.

6.2.2.2.2 Exposure Assessment for Inhalation Pathways. Using methods described in U.S. EPA (2009), average concentrations (ACs) for noncarcinogens or lifetime average concentrations (LACs) for carcinogens are derived using the following equation for the inhalation pathway:

$$(L)AC = EPC \cdot \frac{EF \cdot ED \cdot ET}{AT \cdot CF}$$

where:

(L)AC = (lifetime) average concentration (microgram per cubic meter [$\mu g/m^3$])

EPC = exposure point concentration (milligram per cubic meter [mg/m^3])

EF = exposure frequency (days/year)

ED = exposure duration (years)

ET = exposure time (hours/day)

AT = averaging time (days)

CF = conversion factor (24 hours/day).

The exposure parameters for commercial/industrial workers, construction/excavation workers, and hypothetical residents were taken from DTSC (2011c).

6.2.3 Toxicity Assessment. The toxicity assessment step in a health risk evaluation characterizes the relationship between the magnitude of exposure to a COPC and the nature and magnitude of adverse health effects that may result from such exposure (i.e., dose-response relationships). Chronic toxicity criteria were selected from U.S. EPA preferred sources. The following sources of toxicity values were used, listed in order of preference:

- U.S. EPA IRIS (U.S. EPA, 2012b);
- U.S. EPA's hierarchy as evidenced in the RSLs (U.S. EPA, 2012a): PPRTVs, the ATSDR's minimal risk levels, values from U.S. EPA's Environmental Criteria and Assessment Office, and then other sources (screening values from "PPRTV Attachment" sources and other specific individual toxicity values); and
- CalEPA OEHHA Toxicity Criteria Database (OEHHA, 2012) and CalEPA OEHHA Chronic Reference Exposure Levels (OEHHA, 2008).

Toxicity criteria used in the HHRA are presented in Appendix F.

6.2.3.1 Carcinogenic Toxicity Assessment. Based on the evidence that a chemical is a known or probable human carcinogen, a toxicity value, the slope factor (SF), is developed to quantitatively express the dose response relationship. SFs for oral exposures are expressed in units of risk per ingestion exposure $(mg/kg\text{-}d)^{-1}$, while SFs for inhalation exposures are mathematically rearranged to express the carcinogenic risk as a function of air concentration, that is, as an "inhalation unit risk" (IUR) expressed in units of $(\mu g/m^3)^{-1}$ (which assumes continuous exposure to COPC-laden air).

6.2.3.2 Noncancer Toxicity Assessment. The toxicity information most often used to evaluate noncarcinogenic, or threshold, effects in risk assessments is the reference dose or concentration. Reference doses are route-specific and can be an ingestion-based oral dose (RfDo) or a dermally-absorbed reference dose (RfDd), expressed as milligrams of chemical per unit of body weight per day (mg/kg-day). An inhalation reference concentration (RfC), expressed as microgram (µg) of COPC per cubic meter of air, is an air concentration and is assumed to be for continuous exposure.

6.2.3.3 Inorganic Lead. Inorganic lead toxicity is characterized on the basis of the predicted lead concentration in a receptor's bloodstream, rather than on the basis of an exposure concentration (e.g., an RfC) or an ingested or absorbed dose (e.g., an RfD) like the other COPCs (i.e., there is no risk or hazard level). The currently accepted 90^{th} percentile blood lead concentration is 1 µg/dL (the 2007 CalEPA OEHHA incremental change criterion for lead). 1 µg/dL is the estimated incremental increase in children's blood lead level that would reduce IQ by up to one point (DTSC, 2011d).

DTSC's LeadSpread 7.0 model was used as a screening tool to estimate the potential blood lead level that could occur in adults and children under a typical receptor exposure scenario. When evaluating lead exposure from groundwater using DTSC's LeadSpread 7.0 model, all other media were evaluated separately under the soil media evaluation in Section 6.1.

6.2.4 Risk Characterization. The methods used to characterize potential health risks are specific to carcinogenic and noncancer toxicity. The risk characterization methods applied for each type of chemical toxicity are described below.

6.2.4.1 Cancer Risk. Cancer risks are expressed as the upper-bound, increased likelihood of an individual developing cancer because of exposure to a particular chemical. For example, a cancer risk of 10^{-4} refers to an upper-bound increased chance of one in 10,000 individuals exposed, of developing cancer over a lifetime (0.01% risk). The following equation is used to estimate the excess cancer risk (a unitless probability):

$$Excess\ Cancer\ Risk = LADI \times CSF \text{ or } LAC \times IUR$$

where:

$LADI$ = lifetime average daily intake (mg/kg-day)

CSF = cancer slope factor $(mg/kg\text{-}day)^{-1}$

LAC = lifetime average concentration $(\mu g/m^3)$

IUR = inhalation unit risk $(\mu g/m^3)^{-1}$.

Cancer risk estimates for individual chemicals are summed to generate an estimate of cumulative risk (i.e., multiple carcinogenic chemicals, potentially via multiple routes of exposure), and it is this cumulative risk estimate that forms the basis for remedial decision-making. In the NCP, U.S. EPA states that: "[f]or known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper-bound lifetime cancer risk to an individual between 10^{-6} and 10^{-4}." Cancer risks less than 10^{-6} are generally considered de minimis. Results presented in this document are rounded to a single significant figure.

Mutagenic Mode of Action

The Supplemental Guidance for Assessing Susceptibility from Early-Life Exposures to Carcinogens published by the U.S. EPA (2005b) evaluated cancer risks from early-life exposure and compared them to cancer risks associated with exposures occurring later in life. It concluded that additional safety factors should be used when childhood cancer risks are quantitatively evaluated. Age-dependent adjustment factors (ADAFs) are typically applied to cancer risk calculations for chemicals with a mutagenic mode of action (MMOA) and for receptor scenarios that have childhood exposure.

Within the list of detected COPCs, TCE and vinyl chloride were determined to have a MMOA. However, as stated in IRIS (U.S. EPA, 2012b): "As illustrated in the detailed example calculation for oral drinking water exposures to TCE in Section 5.2.3.3.2 of the *Toxicological Review of Trichloroethylene* (U.S. EPA, 2011), because the ADAF adjustment applies only to the kidney cancer component of the total cancer risk estimate, the impact of the adjustment on full lifetime risk is minimal and the adjustment might reasonably be omitted, given the greater complexity of the ADAF calculations for TCE." MMOA adjustments are therefore not made for TCE.

The lifetime average concentration for vinyl chloride was adjusted for childhood exposures in the residential scenarios. Cancer risk for vinyl chloride was calculated based on equations specifically for vinyl chloride in the U.S. EPA RSL Users Guide (U.S. EPA, 2012a), which takes into account mutagenic mode of action for vinyl chloride. These equations were used instead of ADAFs.

The following equation was used to calculate vinyl chloride's ADI for ingestion:

$$ADIingestionmgkg-d=Cwater\times CFO\times EFr\times EDc\times IRWcBWc+EDa\times IRWaBWaATc+IRWcBWc$$

where:

C_{water} = concentration of vinyl chloride in groundwater
EF_r = residential exposure frequency
$ED_{c/a}$ = exposure duration for a child or an adult
$IRW_{c/a}$ = water ingestion rate for a child or an adult
$BW_{c/a}$ = body weight of a child or an adult
AT_c = averaging time for carcinogen.

The following equation was used to calculate vinyl chloride's ADI for dermal contact:

$$ADIdermalmgkg-d=EVr\times DAevent,child\times EFr\times EDc\times SAcBWc\times AT\boldsymbol{c}+DAevent,adult\times EFr\times EDa\times SAa\ BWa\times AT\boldsymbol{c}+DAevent,child\times SAcBWc$$

where:

C_{water} = concentration of vinyl chloride in groundwater
EV_r = events per day for residents
DA_{event} = amount absorbed per event for a child or an adult
EF_r = residential exposure frequency
$ED_{c/a}$ = exposure duration for a child or an adult
$SA_{c/a}$ = exposed surface area of the body of child or an adult
$BW_{c/a}$ = body weight of a child or an adult
AT_c = averaging time for carcinogen.

The following equation was used to calculate vinyl chloride's LAC for vapor inhalation:

$$LACvapor = Cair \times (1000 ugmg) EDr \times EFr \times ETrAT\mathbf{c} \times 24\ hours/day + 1$$

where:

C_{air} = exposure point concentration of vinyl chloride in air
ET_r = residential exposure time
EF_r = residential exposure frequency
ED_r = residential exposure duration
AT_c = averaging time for carcinogen.

6.2.4.2 Noncancer Hazard. The potential for noncancer effects resulting from exposure to a particular chemical are expressed as an HQ. An HQ is the ratio of the estimated intake (ADI) or AC of a chemical to the corresponding chemical-specific RfD or RfC:

$$Hazard\ Quotient = \frac{ADI}{RfD}\ or\ \frac{AC}{RfC}$$

Chemical- and pathway-specific HQs can be combined to form an HI, which is then compared to a typically accepted benchmark level of 1. If the HI exceeds 1, then combined site-specific exposures exceed the RfDs and/or RfCs, meaning that there is potential for noncancer adverse effects to result from exposure to site COPCs under the evaluated receptor scenario(s). Results presented in this document are rounded to a single significant figure.

6.2.4.3 Risk Characterization Results. The exposure assessment and risk characterization procedures described above were used to calculate potential risks to human health from exposure to COPCs by recreational users, commercial/industrial workers, construction/excavation workers, and hypothetical residents. A summary of the chronic health risk assessment results by receptor is presented in Table 6-3. A summary of health risks due to lead in groundwater is presented in Appendix F. Detailed risk assessment calculation worksheets for chronic risks are presented in Appendix F. The health risk characterization developed for each receptor is described in this section.

Inorganic Lead
Potential health risks from total inorganic lead associated with direct contact with groundwater was evaluated for residents using DTSC's LeadSpread 7.0 model. The 90th percentile blood lead levels for children and adults were both 0.04 µg/dL. Both are below the currently accepted 90th percentile blood lead concentration of 1 µg/dL. However, inorganic lead in groundwater is below background and not attributable to site activities.

Construction/Excavation Worker

Groundwater – Inhalation of Trench Air
The noncancer hazard for construction/excavation workers from inhalation of trench was 2×10^{-11}. This is significantly below the noncancer hazard target of 1. The cancer risk for construction/excavation workers from inhalation of trench air was 3×10^{-17}, which is below the risk management range.

Commercial/Industrial Worker

Groundwater – Vapor Intrusion
The noncancer hazard for commercial/industrial workers due to vapor intrusion from groundwater was 0.005. This is below the noncancer hazard target of 1. The cancer risk for commercial/industrial workers due to vapor intrusion from groundwater was 2×10^{-7}, which is below the risk management range.

Hypothetical Resident

Groundwater – Direct Contact
The noncancer incremental hazard for residents from direct contact with groundwater was 70. This is above the noncancer hazard target of 1. The driver of the noncancer hazard was manganese. The incremental cancer risk for residential receptors from direct contact with groundwater was 1×10^{-4}. The primary cancer risk driver was vinyl chloride with 1-methylnaphthalene and benzene also contributing to risk. The total noncancer hazard was 100 with contributions from cobalt and arsenic not included in the incremental risk because their site concentrations were less than background. The total cancer risk was 5×10^{-4} with contributions from arsenic in addition to vinyl chloride.

The 95% UCL concentrations were compared to the U.S. EPA MCLs (U.S. EPA, 2009b) (see Appendix F). If the MCL was not available, U.S. EPA tap water RSLs (U.S. EPA, 2012a) were used. Both benzene and vinyl chloride were identified as contributing to cancer risk; however, their 95% UCL concentrations are both below MCLs. 1-Methylnaphthalene had a 95% UCL concentration greater than its screening values.

Groundwater – Vapor Intrusion
The noncancer hazard for residents due to vapor intrusion from groundwater was 0.05. This is below the noncancer hazard target of 1. The cancer risk for residents due to vapor intrusion from groundwater was 8×10^{-6}, which is in the risk management range. Vinyl chloride was the cancer risk driver. However, the 95% UCL concentration of vinyl chloride in groundwater (1.7 µg/L) was below the San Francisco Bay Water Board ESLs for vapor intrusion of 1.8 µg/L (Water Board, 2013). The maximum detected concentration of 3.5 µg/L was used in the vapor intrusion risk calculation. Vinyl chloride was only detected in two out of 12 samples and was above the ESL in only one sample. The maximum detected concentration may be an overly conservative representation of the STC at the site.

Recreational User

Volatilization of VOCs in groundwater into outdoor air is considered the only complete exposure scenario for this receptor. The cancer risk and HI for this receptor are considered to be de minimis because the cancer risk and HI for commercial/industrial workers from vapor intrusion into indoor air from groundwater were de minimis. Exposure time and frequency for the recreational user are expected to be lower than for the commercial/industrial worker. Additionally, there would be greater mixing in outdoor air compared to indoor air and, therefore, the EPC would be lower for the recreational user compared to the commercial/industrial worker. The risks for the recreational user receptor due to volatilization of COPCs in groundwater are expected to be lower than risks for commercial/industrial workers.

6.2.5 Uncertainty Assessment. The HHRA was prepared in a manner consistent with that generally used in the professional practice and in accordance with State guidance at the time it was prepared. The assessment is based on site-specific data, laboratory analytical results, area-specific data, and assumed values and conditions. Although careful professional judgment was used in the selection of exposure assumptions, some argument can be made about the validity of key assumptions. The purpose of this section is to provide information concerning the validity of each assumption, including the effect of the assumptions on the overall risk, the major data gaps, and the effect of these data gaps on the accuracy or reasonableness of the risk assessment.

Site Data Uncertainties

Chemical analytical data are subject to uncertainty associated with sampling and analysis. Sample analysis is subject to uncertainty associated with precision, accuracy, and detection of chemicals at low concentrations. In the risk assessment, it was assumed that samples collected were representative of conditions to which various populations may be exposed. However, the collected samples may not be completely representative due to biases in sampling and due to random variability of samples. In general, sampling was biased toward areas of suspected elevated chemical concentrations, which will lead to an overestimation of risk.

Manganese was identified as the primary driver of the noncancer hazard at the site. However, there is uncertainty about whether this chemical of concern (COC) is related to site activities. Background metals data presented in *Compilation of Technical Memoranda on Ambient Analysis of Metals in Soils and Groundwater, Mare Island, California* (TtEMI, 2002a) show the 95th percentile metals concentration for manganese to be 5, 400 μg/L. All of the samples taken from site from 1993 through 2000 (Battelle, 2010) were below background. In 2012, three samples showed elevated concentrations of manganese. The monitoring wells (TMW03, TMW04 and TMW11) were resampled in 2013 and continued to show elevated manganese concentrations. The dataset for manganese in groundwater used for this HHRA consisted of 38 samples. In 2012 and 2013, manganese was detected in groundwater at elevated concentrations that exceeded ambient groundwater conditions for former MINS. Based on field parameters measured during recent groundwater sampling, the three lowest pH values were measured in wells exhibiting elevated manganese concentrations which had an average pH of 5.97, compared to an average pH of 7.05 in wells with manganese concentrations at or below ambient concentrations for fill soils. It is suspected that the localized geochemistry in these locations is favoring the dissolution of naturally occurring manganese into groundwater. Therefore, elevated concentrations of manganese in certain monitoring wells are likely a background condition that is not related to previous activities or releases at the DRMO.

Exposure Assessment Uncertainties

Risk assessments require assumptions to assess potential human exposure. This risk assessment includes assumptions about general characteristics and potential patterns of human exposure at the site. The assumptions made in this assessment were based on DTSC and other agency guidance. The indoor air exposure assessment methods applied in this risk assessment are consistent with DTSC approaches for evaluating indoor air vapor intrusion risks. While the modeling approaches applied herein are considered reasonable and consistent with State guidance, it should be recognized that other exposure assessment and/or risk management approaches may be applied in the future to address potential health risks from vapor intrusion to indoor air and direct exposure.

Vinyl chloride was the cancer risk driver for the vapor inhalation of indoor air from groundwater exposure pathway for the hypothetical resident. The maximum detected concentration of 3.5 μg/L was used as the STC in the vapor intrusion risk calculation, which results in the risk assessment assuming the worst case scenario in all areas of the DRMO, even though it was only detected in two out of 12 sampling locations. The 95% UCL concentration of vinyl chloride in groundwater (1.7 μg/L) was below the San Francisco Bay Water Board ESLs for vapor intrusion of 1.8 μg/L (Water Board, 2013), supporting that vapor intrusion risk from vinyl chloride in groundwater is likely overestimated.

Toxicity Assessment Uncertainties
In order to evaluate the potential adverse effects associated with exposure to chemicals, the relationship between the dose of each chemical and the probability of an adverse health effect in an exposed population must be determined. This is known as dose-response assessment and is based on data collected from animal studies and theoretical precepts about what might occur in humans. This risk assessment considers both carcinogenic and noncarcinogenic health effects associated with chemical exposures based on dose-response criteria published by various regulatory agencies. Sources of uncertainty related directly to toxicity data include:

- The use of dose-response data from experiments on homogeneous, sensitive animal populations to predict effects in heterogeneous human populations with a wide range of sensitivities.
- Extrapolation of data from: (1) high-dose animal studies to low-dose human exposures; (2) acute or sub-chronic to chronic exposure; and (3) one exposure route to another (e.g., from ingestion to inhalation or dermal absorption).
- Use of single-chemical test data that do not account for multiple exposures or synergistic and antagonistic responses.

Cobalt is included in the residential total evaluation, but is considered below background and is not included in the incremental evaluation. There is a high level of uncertainty associated with the risk and hazard estimates for cobalt that may have the potential to overestimate risk. The uncertainty pertains to the toxicity values for cobalt which are drawn from U.S. EPA's current PPRTVs (U.S. EPA, 2008b). The recommended PPRTVs for cobalt are an oral RfD of 3×10^{-4} mg/kg-day and inhalation RfC of 6×10^{-6} mg/m^3 and an IUR of 9×10^{-3} (µg/m^3)$^{-1}$. These values assume a level of toxicity for cobalt that is one to two orders of magnitude higher than previously estimated (U.S. EPA, 2004b). U.S. EPA's level of confidence in both the noncancer reference values is rated as low. The critical effect for the oral RfD is decreased iodine uptake in humans. For the inhalation RfC, the critical effects are decreased pulmonary function and respiratory tract irritation based on human exposure to metallic cobalt dust. U.S. EPA identified numerous limitations and deficiencies in the available database such as inadequate exposure data, insufficient dose-response evidence, and potentially confounding exposure to other chemicals. U.S. EPA does not provide a level of confidence for the IUR value which is derived from a study of respiratory tract neoplasms in mice and rats when exposed to cobalt sulfate hexahydrate. However, several key limitations and uncertainties are identified regarding carcinogenic potential and cancer mode of action. The IUR is based on animal data since reliable human carcinogenicity data were not available. No direct evidence was found linking cobalt-induced mutagenesis to the development of cancer and the mutagenic potential of cobalt in respiratory cells has not been evaluated.

Risk Characterization Uncertainties
As there are uncertainties in each step of the risk assessment process, these uncertainties may be magnified in the final risk characterization. To minimize the consequences of uncertainty in the estimation of health risk, conservative assumptions were used in every step of the process (exposure assumptions, toxicity assessment and risk characterization) in an effort to not underestimate potential risks.

The 95% UCL STC concentration was compared to U.S. EPA MCLs (U.S. EPA, 2009b). If MCLs were not available, U.S. EPA tap water RSLs were used (U.S. EPA, 2012a) (see Appendix F). Manganese, benzene, and vinyl chloride were identified as potential risk drivers for direct contact exposures. However, the 95% UCL for these COPCs were below their respective screening levels. These COPCs may not present risks for direct contact.

Summary
Because the HHRA contains multiple sources of uncertainty, simplifying assumptions are often made so that health risks can be estimated quantitatively. Since the exact amount of uncertainty cannot be quantified, the HHRA evaluation is intended to overestimate rather than underestimate probable risk. The results of this assessment, therefore, are likely to be protective of health despite inherent uncertainties in the process.

6.2.6 Groundwater Conclusions. The cancer risk and noncancer hazard for construction/excavation workers were below de minimis levels for direct contact with groundwater. The cancer risk for residential receptors for direct contact with groundwater was at the upper end of the risk management range of 10^{-6} to 10^{-4}. The primary driver of the cancer risk for direct contact with groundwater was vinyl chloride. Vinyl chloride was detected in two of the 12 groundwater samples (0.86 µg/L and 3.5 µg/L) and the MCL is 2.0 µg/L. Benzene and 1-methylnaphthalene also contributed to the risk. Benzene was detected at concentrations less than the MCL. An MCL is not available for 1-methylnapthalene; however, it was detected above its RSL. The noncancer hazard for residential receptors for direct contact with groundwater was greater than the noncancer hazard target of 1. The driver of the noncancer hazard was manganese. Manganese was detected at a concentration greater than the background statistic in six (two samples were collected in the same three locations) of the 38 groundwater samples and it is likely that the risk from manganese is overestimated.

The cancer risk and noncancer hazard for commercial/industrial workers due to vapor intrusion into indoor air from groundwater were below de minimis levels. The noncancer hazard for hypothetical residents due to vapor intrusion from groundwater was below the noncancer hazard target of 1. The cancer risk for hypothetical residents due to vapor intrusion from groundwater was in the risk management range of 10^{-4} to 10^{-6}. The driver of the cancer for hypothetical residents was vinyl chloride. The maximum detected concentration of 3.5 µg/L was used as the STC in the vapor intrusion risk calculation. However, the 95% UCL concentration of vinyl chloride in groundwater (1.7 µg/L) was below the San Francisco Bay Regional Water Quality Control Board ESLs for vapor intrusion of 1.8 µg/L (Water Board, 2013). Volatilization of VOCs in groundwater into outdoor air is considered the only complete exposure scenario for the recreational receptor. The cancer risk and hazard index for this receptor are considered to be de minimis because the cancer risk and HI for commercial/industrial workers from vapor intrusion into indoor air from groundwater were de minimis. The risk for the recreational user receptor due to volatilization of COPCs in groundwater to outdoor air is expected to be lower than risks for commercial/industrial workers.

Based on this groundwater HHRA there are no restrictions for the recreational receptor, commercial/industrial or construction/excavation workers. The residential assessment which assumed potable use of groundwater showed potential cancer risks from vinyl chloride and noncancer hazards from manganese.

Section 7.0: DEVELOPMENT OF REMEDIAL ACTION OBJECTIVES

U.S. EPA guidance (U.S. EPA, 1988b) requires that RAOs be developed during the initial phase of the FS and be used as the framework for developing the remedial alternatives. Based on the HHRA for soil presented in Section 6.1, site soil conditions do not pose an unacceptable risk to construction or industrial workers, and cancer risk for a hypothetical resident is at the low end of the risk management range while the HI for a hypothetical resident is equal to 1. When background soil concentrations are taken into consideration (e.g., arsenic in soil), the primary cancer risk driver in soil is benzo(a)pyrene, which corresponds to a cancer risk of 9×10^{-7}. Based on the HHRA for soil, there is no site-related COPC that results in a risk in excess of 1×10^{-6}. Given the additional improvement in site conditions that resulted from the PCA, the above analysis is considered conservative. Therefore, site soil is considered protective for future unrestricted use and the Navy has determined that NFA is required for soil at the DRMO.

Based on the HHRA, site groundwater does not pose an unacceptable risk to construction workers, industrial workers, or recreational users. For hypothetical residential receptors, the cancer risk is 1×10^{-4} and the HI is 70, which is primarily driven by potable use of site groundwater. Vinyl chloride, benzene, and 1-methylnapthalene are the primary cancer risk drivers and manganese in excess of site background is the primary driver of noncancer hazards. In a letter dated December 16, 2013, the Water Board issued an exemption to drinking water policy (EDWP) for shallow groundwater at the DRMO based on recent pumping and total dissolved solids data obtained during groundwater sampling conducted at the site in 2012. These results supported that shallow groundwater at the DRMO is unsuitable for municipal/domestic uses. While the EDWP eliminates the need to restore site groundwater to domestic/municipal standards, it may not fully eliminate the risk of exposure to site groundwater. Restricting the use of DRMO groundwater would effectively eliminate the groundwater exposure route that potentially results in an unacceptable risk to a hypothetical resident. Therefore, the following RAO has been established to ensure the DRMO is protective of potential future receptors:

- Prevent unacceptable risk resulting from potable use of site groundwater.

This FFS was prepared to evaluate potential alternatives to achieve the stated RAO.

Section 8.0: DEVELOPMENT AND DETAILED EVALUATION OF REMEDIAL ALTERNATIVES

As required by the NCP and recommended by U.S. EPA (1988b) guidance, acceptable engineering practices that relate to site-specific conditions were considered during development of the RAOs. As discussed in Section 2.0, multiple removal and corrective actions have been undertaken at the DRMO, which have resulted in a majority of the site being excavated to depths ranging from 1.5 to 21 ft bgs. Extensive remediation has resulted in the excavation of a majority of the DRMO, including the entire area designated as SWMU 129. Additionally, Building 691 and its slab (i.e., where PCB-containing oil was historically observed) were demolished and the underlying soil was excavated to 12 ft bgs. All soil observed to contain elevated concentrations of chemicals has been removed and replaced with clean backfill. Based on historical remediation and the HHRA results for soil, NFA is required to address site soils and no remedial alternatives addressing site soils were identified or evaluated. Based on the HHRA, groundwater has been identified as the only medium of concern. This FFS evaluates remedial alternatives to achieve the site-specific RAO and ensure the site is protective of current and future receptors. The results of the HHRA for groundwater indicated that elevated cancer and noncancer risk are associated with potable use of site groundwater in an unrestricted reuse scenario. Currently, the site is planned for future commercial/industrial use and there are no plans to install production wells at the site. As a result, potable use of site groundwater in the future is not likely. Additionally, in a letter dated December 16, 2013, the Water Board issued an EDWP for shallow groundwater at the DRMO. Based on the extensive remediation conducted at the DRMO, the absence of a continuing source of contamination, and the lack of a reasonable exposure pathway that would result in potable use of site groundwater, this FFS does not consider additional active remediation. Rather, two alternatives are being evaluated to achieve the RAO:

- Alternative 1: No Further Action
- Alternative 2: Institutional Controls

This section provides a detailed analysis of these two remedial alternatives based on the nine NCP/CERCLA feasibility criteria, including: overall protection of human health and the environment; compliance with ARARs; long-term effectiveness; reduction of toxicity, mobility, and volume through treatment; short-term effectiveness; implementability; cost; community acceptance; and state acceptance. The evaluations of state acceptance and community acceptance cannot be completed until comments on the RI/FFS and Proposed Plan are received; they will be more thoroughly addressed in the Record of Decision (ROD) for the DRMO site. Table 8-1 provides a summary of the detailed evaluation for the DRMO site.

8.1 Alternative 1: No Further Action

In accordance with the NCP, the NFA alternative is generally carried through the entire FFS to serve as the baseline condition for remediation. Alternative 1 would entail no additional active remediation of soil or groundwater at the site. Natural attenuation processes, engineering and institutional controls, and long-term monitoring are not components of this alternative and no costs are associated with Alternative 1.

8.1.1 Overall Protection of Human Health and the Environment. Alternative 1 would not address impacted groundwater at the DRMO and would not actively manage the risks that exist at the site.

8.1.2 Compliance with ARARs. Pursuant to CERCLA Section 121, the requirement to meet ARARs applies only when a response action is taken. Alternative 1 would not generate project ARARs because there is no remedial action.

8.1.3 Long-Term Effectiveness. Alternative 1 would not reduce existing risks related to groundwater at the site. Therefore, the long-term effectiveness of this alternative in meeting the RAOs would be low. No control measures are contemplated for the NFA alternative.

8.1.4 Reduction of Toxicity, Mobility, and Volume through Treatment. The toxicity, mobility, and volume of contaminated groundwater would not be reduced through treatment under the NFA alternative.

8.1.5 Short-Term Effectiveness. Given that no remedial action would be undertaken in executing the NFA alternative, implementation of this alternative would impose no short-term risks to the community, the environment, and/or site workers. However, Alternative 1 would not be effective in the short term because it would do nothing to control short-term risks present at the site.

8.1.6 Implementability. No equipment, manpower, or resources would be required to implement Alternative 1. No operations would be conducted and no administrative efforts would be required. As such, the NFA alternative would be readily implementable.

8.1.7 Cost. There would be no capital, permitting, monitoring, or operation and maintenance costs associated with the NFA alternative.

8.1.8 Community Acceptance. Community acceptance will be evaluated during the review and comment period on the RI/FFS and during assembly of the proposed plan, and will be thoroughly addressed in the ROD.

8.1.9 State Acceptance. As with community acceptance, State acceptance will be evaluated during the review and comment period on the RI/FFS and during assembly of the proposed plan, and will be thoroughly addressed in the ROD.

8.2 Alternative 2: Institutional Controls

Institutional controls are legal and administrative mechanisms that are used to limit the exposure of future landowner(s) and user(s) of the property to hazardous substances present on the property and to ensure the integrity of the remedial action. Institutional controls are required on a property where site conditions may not allow for unrestricted use. Institutional controls would be maintained until it is demonstrated that site conditions allow for unrestricted use. Implementation of institutional controls includes requirements for monitoring and inspections and reporting to ensure compliance with land use or activity restrictions.

Legal mechanisms include proprietary controls such as restrictive covenants, negative easements, equitable servitudes, and deed notices. Administrative mechanisms include notices, adopted local land use plans and ordinances, construction permitting, or other existing land use management systems that are intended to ensure compliance with land use or activity restrictions. For the DRMO, this alternative involves implementing institutional controls to achieve the stated RAO of eliminating exposure to unacceptable risks from potable use of site groundwater. If site conditions changed in the future and it could be demonstrated to the Navy and the State that institutional controls were no longer needed, institutional controls could be removed.

Legal Framework

The Navy relies upon proprietary controls in the form of environmental restrictive covenants as provided in the “Memorandum of Agreement between the United States Department of the Navy and the California Department of Toxic Substances Control” and attached covenant models (Navy and DTSC 2000;

hereinafter referred to as "Navy/DTSC MOA"). More specifically, land use and activity restrictions are typically incorporated into two separate legal instruments as provided in the Navy/DTSC MOA:

- Restrictive covenants included in one or more Quitclaim Deeds from the Navy to the property recipient.
- Restrictive covenants included in one or more "Covenant to Restrict Use of Property" entered into by the Navy and DTSC as provided in the Navy/DTSC MOA and consistent with the substantive provisions of 22 CCR § 67391.1.

The "Covenant(s) to Restrict Use of Property" incorporate the land use restrictions into environmental restrictive covenants that run with the land and that are enforceable by DTSC against future transferees. The Quitclaim Deed(s) include the identical land use and activity restrictions in environmental restrictive covenants that run with the land and that will be enforceable by the Navy against future transferees.

The activity restrictions in the "Covenant(s) to Restrict Use of Property" and Deed(s) would be implemented through a land use control remedial design report that would be reviewed and approved by the FFSRA signatories. The DRMO land use control remedial design report would be referenced in the applicable Covenant to Restrict Use of Property and Deed. In addition to being set forth in the "Covenant(s) to Restrict Use of Property" and Quitclaim Deed(s) as described above, restrictions applied to specified portions of the property are described in findings of suitability for transfer.

Institutional controls for groundwater include administrative restrictions. Administrative restrictions include legal restrictions for prohibitions on drilling of water wells and/or use of groundwater within the DRMO. Restricting potable use of groundwater at the DRMO site will prevent future receptors from being exposed to unacceptable risk associated with residual concentrations of chemicals in site groundwater.

Access

The Deed and Covenant would provide that the Navy and FFSRA Signatories and their authorized agents, employees, contractors, and subcontractors shall have the right to enter upon the DRMO to conduct investigations, tests, or surveys.

Implementation

The Navy would address and describe implementation of institutional controls and maintenance actions, including periodic inspections, and reporting requirements in the preliminary and final remedial design reports to be developed and submitted to the FFSRA Signatories for review and approval pursuant to the FFSRA (see "Navy Principles and Procedures for Specifying, Monitoring and Enforcement of Land Use Controls and Other Post-ROD Actions" attached to January 16, 2004 Department of Defense memorandum titled "CERCLA ROD and Post-ROD Policy" [DoD, 2004]).

Although the Navy may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Navy retains ultimate responsibility for remedy integrity.

Restricted Land Uses

Based on the results of the risk assessment, no restrictions on the type of future land use are required.

Restricted Activities
During the implementation of institutional controls, the following activities would be restricted throughout DRMO in accordance with the Covenant(s) to Restrict Use of Property, Quitclaim Deed(s), and the land use control remedial design report:

- Installation of groundwater wells and/or potable use of groundwater unless approved by the Navy and DTSC.

The area requiring institutional controls, which would include the entire DRMO, could be modified or removed entirely by the DTSC and the Navy if it is determined that site conditions improve to acceptable levels over time.

8.2.1 Overall Protection of Human Health and the Environment. Under Alternative 2, water wells would not be installed and groundwater would not be used for potable uses at the DRMO site. Alternative 2 provides restrictions that would ensure that the exposure pathway resulting in unacceptable cancer and noncancer hazards for future residential use remains incomplete. Based on the results of the HHRA, Alternative 2 would provide a high degree of overall protection of human health by ensuring that water wells are not installed.

8.2.2 Compliance with ARARs. Alternative 2 would be compliant with all identified ARARs. The restrictive covenants that would be implemented under Alternative 2 would be protective of human health.

8.2.3 Long-Term Effectiveness. Under Alternative 2, risks to human health would be addressed through institutional controls. Implementation of this alternative would restrict potable use of site groundwater and, in doing so, would ensure site conditions are protective. Through the restrictive covenant, DTSC would have the ability to enforce the restrictions against future transferees. Ongoing effectiveness of institutional controls would be verified through annual inspections and documented through the five year review process. Alternative 2 would be effective in the long term at mitigating risk, and mechanisms would be in place to ensure its continued effectiveness.

8.2.4 Reduction of Toxicity, Mobility, and Volume through Treatment. Alternative 2 would not alter the toxicity and volume of soil or groundwater contaminants through treatment. Risks to human health would be addressed through institutional controls and there would be no need for active remediation to reduce risk.

8.2.5 Short-Term Effectiveness. Since there is no active remediation associated with Alternative 2, the local community would not experience nuisances or risks (e.g., construction noise, physical hazards such as traffic and heavy equipment, and potential exposures to site contaminants) in the short term. Furthermore, the land use controls described for Alternative 2 would restrict potable use of site groundwater, which would ensure risks to human health are within acceptable limits. Overall, the short-term effectiveness of Alternative 2 would be high.

8.2.6 Implementability. The technical implementability of this alternative would be high. The land use controls described for Alternative 2 are relatively standard, and have been implemented at similar DON sites in the past. Additionally, the planned future use for the site does not include plans for the installation of water wells or potable use of site groundwater. Future monitoring, inspecting, reporting, and enforcing of land use controls have been successfully conducted at similar DON sites and could be accomplished by establishing a streamlined monitoring and reporting process to ensure that the interim institutional controls are adhered to. Overall, Alternative 2 would be highly implementable.

8.2.7 Cost. Based on the assumptions in this RI/FFS, the total cost for Alternative 2 is considered low at $350,000. Appendix G provides a cost breakdown for Alternative 2. This cost includes all planning (including a Remedial Design describing institutional controls and institutional control maintenance), administrative, legal, and regulatory support to develop, negotiate, and implement an institutional control for the DRMO to restrict the installation of water wells and potable use of site groundwater. Additionally, costs have been included for annual compliance monitoring and Five Year Reviews over a 30-year period.

8.2.8 Community Acceptance. Community acceptance will be evaluated during the review and comment period on this RI/FFS, during public comment period on the proposed plan, and will be thoroughly addressed in the ROD. Community acceptance of Alternative 2 would be based on the community's understanding that excavation has been conducted over a majority of the DRMO site and that residual risks associated with site groundwater can effectively be managed by ensuring groundwater is not pumped for future potable use unless approved by the Navy and DTSC. The public would likely understand that appropriate institutional controls would achieve this objective and be protective of human health.

8.2.9 State Acceptance. As with community acceptance, State acceptance will be evaluated during the review and comment period on this RI/FFS and the Proposed Plan, and will be thoroughly addressed in the ROD. State acceptance of Alternative 2 likely would be based on regulators' understanding of the same issues described above for community acceptance. In addition, close coordination with regulatory agencies would be necessary to satisfactorily implement Alternative 2.

Section 9.0: CONCLUSIONS AND RECOMMENDATIONS

Throughout the history of the DRMO, a variety of removal actions have been conducted to address environmental concerns. Extensive remediation has resulted in the excavation of a majority of the DRMO, including the entire area designated as SWMU 129, and has effectively removed all former sources. Sampling results for the DRMO have demonstrated that only low, residual concentrations of chemicals remain in soil and groundwater. The SVOC benzo(a)pyrene was the only COC detected above the industrial PRGs in soil at the DRMO and two of the four exceedances correspond to areas that were subsequently excavated during the PCA.

The evaluation of the nature and extent of chemicals in groundwater indicated that PCBs were not detected and pesticides were not detected at concentrations that exceeded screening levels. Manganese exceeded its screening level in three of the 12 groundwater samples collected at the site and cobalt exceeded its screening level in one of 12 groundwater samples. Two SVOCs, 1-methynaphthalene and naphthalene, exceeded screening levels in DRMO-TMW06. One VOC, vinyl chloride, exceeded its MCL in one sample.

Based on the HHRA for soil presented in Section 6.1, incremental cancer risk for a hypothetical resident is 2×10^{-6} and the incremental HI is 1. Based on the low risk associated with site soils, and the additional improvement in site conditions resulting from the PCA, site soil is considered protective for future unrestricted use. Based on the HHRA for groundwater, the cancer risk is 1×10^{-4} and the HI is 70 for hypothetical residential receptors, with approximately 92.6% of cancer risk and 99.9% of noncancer hazards related to the potable use of site groundwater. Vinyl chloride, benzene, and 1-methylnapthalene are the primary cancer risk drivers and manganese in excess of site background is the primary driver of noncancer hazards.

The DRMO is not used for residential purposes, nor will it be used for residential housing in the future and the Water Board issued an EDWP for the DRMO (letter dated December 16, 2013) on the basis of poor groundwater quality, including high total dissolved solids. Restricting the future use of DRMO groundwater would effectively eliminate the groundwater exposure routes that result in an unacceptable risk to a hypothetical resident.

Based on the results of the HHRA, a single RAO has been established to ensure the DRMO is protective of potential future receptors by preventing unacceptable risk resulting from potable use of site groundwater. The FFS evaluated an abbreviated list of potential alternatives to achieve the stated RAO including: Alternative 1: No Further Action, and Alternative 2: Institutional Controls. Based on the detailed evaluation of alternatives presented Section 8.0, Alternative 2 (Institutional Controls) was determined to provide a high degree of overall protection of human health, a high degree of short- and long-term effectiveness, a high degree of implementability, and was determined to be cost effective. Considering the extensive remediation that has already occurred at the DRMO and the results of the detailed evaluation of alternatives, Alternative 2 (Institutional Controls) would serve as an effective means to ensure the DRMO is protective of human health and the environment. If site conditions changed in the future and it could be demonstrated to the satisfaction of the Navy and the State that groundwater no longer posed an unacceptable risk to human health, the proposed institutional controls could be removed.

Section 10: REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR). 1997. *Toxicological Profile for Polycyclic Aromatic Hydrocarbons*. U.S. Department of Health and Human Services, Public Health Service, Atlanta, Georgia.

Aqua Terra Technologies. 1985. *Preliminary Investigation, Lead Contamination, Mare Island Shipyard*, September.

Battelle. 2010. *Draft Final Remedial Investigation and Feasibility Study Report for the Defense Reutilization and Marketing Office, Former Mare Island Naval Shipyard, Vallejo, California.* January 15.

California Department of Toxic Substances Control (DTSC). 2005. *Human Health Risk Assessment (HHRA) Note 1: Recommended DTSC Default Exposure Factors for Use in Risk Assessment at California Military Facilities*. Human and Ecological Risk Division (HERD). October 27.

California Department of Toxic Substances Control (DTSC). 2011a. Recommended *DTSC Default Exposure Factors for Use in Risk Assessment at California Hazardous Waste Sites and Permitted Facilities*. HERO HHRA Notes (Note #1), DTSC Office of Human and Ecological Risk (HERO).

California Department of Toxic Substances Control (DTSC). 2011b. *Users Guide to LeadSpread 8 and Recommendations for Evaluation of Lead Exposures in Adults*. Human and Ecological Risk Office. September.

California Department of Toxic Substances Control (DTSC). 2011c. *HHRA Note #1 Recommended DTSC Default Exposure Factors for Use in Risk Assessment at California Hazardous Waste Sites and Permitted Facilities*. HERO HHRA Notes, DTSC Office of Human and Ecological Risk (HERO).

California Department of Toxic Substances Control (DTSC). 2011d. *Users Guide to LeadSpread 8 and Recommendations for Evaluation of Lead Exposures in Adults*. Human and Ecological Risk Office. September 2011.

California Department of Toxic Substances Control (DTSC). 1999. LeadSpread. http://www.dtsc.ca.gov/ScienceTechnology/ledspred.html.

California Office of Environmental Health Hazard Assessment (OEHHA). 2008. OEHHA Acute, 8-hour and Chronic Reference Exposure Levels (RELs). Online table (http://www.oehha.org/ir/allrels.html). December.

California Office of Environmental Health Hazard Assessment (OEHHA). 2012. OEHHA Toxicity Criteria Database, Office of Environmental Health Hazard Assessment, California Environmental Protection Agency.

California Regional Water Quality Control Board (Water Board), San Francisco Bay Region. 1995. *Water Quality Control Plan for the San Francisco Bay Basin*.

CH2M HILL. 2003. *Draft Investigation Area B Remedial Investigation Report*, June.

CH2M HILL. 2004. *Technical Memorandum: Biological Reconnaissance Survey of the DRMO Site*, March 10.

CH2M HILL. 2005. *Final Engineering Evaluation/Cost Analysis and Removal Action Plan, Non-Time-Critical Removal Action for the Fenced Scrapyard Area of the Defense Reutilization and Marketing Office Site, Former Mare Island Naval Shipyard, Vallejo, California.* July 8.

CH2M HILL. 2006. *Interim Closure Report Non-Time-Critical Removal Action for the Fenced Scrapyard Area of the Defense Reutilization and Marketing Office Site, Former Mare Island Naval Shipyard, Vallejo, California*. November 20.

City of Vallejo. 1994. *Mare Island Final Reuse Plan*, July.

Department of Defense (DoD). 2004. CERCLA ROD and Post-ROD Policy. January 16.

Dibblee, Thomas. 1981. *Preliminary Geologic Map of Mare Island Quadrangle, Solano and Contra Costa County, California*. U.S. Geological Survey Open File Report 81-0234.

Ecology and Environment. 1983. *Initial Assessment Study of Naval Shipyard, Mare Island, California*, March.

Eisler, R. 1987. *Polycyclic Aromatic Hydrocarbon Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. U.S. Fish and Wildlife Service Biological Report 85 (1.11)*. Contaminant Hazard Reviews Report No. 11.

IT Group. 1992. *Phase I Remedial Investigation Site Characterization Summary for Mare Island Naval Shipyard.*

Josselyn, M. 1983. *The Ecology of San Francisco Bay Tidal Marshes*, October.

Kaman Sciences Corporation. 1988. *Sampling and Analysis Plan, Health and Safety Plan, Lead Oxide Contaminated Areas, Mare Island Naval Shipyard*, September 30.

Lennar Mare Island. 2000. *Preliminary Land Use Plan*, May 23.

National Oceanic and Atmospheric Administration (NOAA). 2009. *National Climate Data Center*. U.S. Department of Commerce. Available at http://www.ncdc.noaa.gov/oa/ncdc.htmlAvailable at http://www.ncdc.noaa.gov/oa/ncdc.html

Navy and California Department of Toxic Substances Control. 2000. *Memorandum of Agreement Between the United States Department of the Navy and the California Department of Toxic Substances Control, Use of Model 'Covenant to Restrict Use of Property' at Installations Being Closed and Transferred by the United States Department of the Navy*. March 10.

PRC Environmental Management (PRC). 1992. *Draft Lead Oxide Study Report, Mare Island Naval Shipyard, Vallejo, California*, July 17.

PRC Environmental Management (PRC). 1995. *Technical Memorandum: Examination of Groundwater at Mare Island Naval Shipyard for Municipal and Domestic Supply*, April 20.

PRC Environmental Management (PRC). 1996a. *Final Phase I ERA Work Plan for MINS, Vallejo, California*, March 7.

PRC Environmental Management (PRC). 1996b. *Technical Memorandum: Estimation of Ambient Concentrations in Shallow Groundwater at Mare Island Naval Shipyard, Vallejo, California*. November 22.

PRC Environmental Management (PRC). 1997a. *Draft Final Remedial Investigation Report, Operable Unit Number 2, Mare Island, California*, January 31.

PRC Environmental Management (PRC). 1997b. *Final Phase I Ecological Risk Assessment Field Sampling and Analysis Plan, Onshore Areas*, June 19.

PRC Environmental Management (PRC). 1997c. *Final Technical Memorandum: Assessment of Beneficial Uses of Groundwater, MINS, Vallejo, California*, November 24.

Ravi, V. and J.A. Johnson. 1996. *VLEACH, A One-Dimensional Finite Difference Vadose Zone Leaching Model*. Version 2.2. Developed for U.S. Environmental Protection Agency, Office of Research and Development, Robert S. Kerr Environmental Research Laboratory. Ada, Oklahoma.

Regional Water Quality Control Board, San Francisco Bay Region (Water Board). 2008. *Interim Final Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*.

Regional Water Quality Control Board, San Francisco Bay Region (Water Board). 2013. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater: Volume 1 Summary Tier 1 Lookup Tables. Revised February 2013.

San Francisco Estuary Project (SFEP). 1991. *Status and Trends of Wetlands and Related Habitats in the San Francisco Estuary.*

SulTech. 2006. *Final Remedial Investigation for Installation Restoration Site 17 and Building 503 Area, Investigation Area A1, Mare Island, Vallejo, California*. January 27.

Supervisor of Shipbuilding, Conversion, & Repair, Portsmouth, Virginia—Environmental Detachment-Vallejo (SSPORTS). 1996. *Basewide Environmental Baseline Survey, Supplement for Zone 02, Mare Island Naval Shipyard*, August 8.

Supervisor of Shipbuilding, Conversion, & Repair, Portsmouth, Virginia—Environmental Detachment-Vallejo (SSPORTS). 1997. *Defense Material Reutilization and Marketing Organization (DRMO) Original Scrapyard Final Release Report*, March 27.

Supervisor of Shipbuilding, Conversion, & Repair, Portsmouth, Virginia—Environmental Detachment-Vallejo (SSPORTS). 1998. *Investigation Area "H", Mare Island, Vallejo, California, Unexploded Ordnance Preliminary Assessment, Final*, September 11.

Tetra Tech EM, Inc. (TtEMI). 1998. *Basewide Polychlorinated Biphenyl Confirmation Sampling Summary Report, Mare Island, California*, February 13.

Tetra Tech EM, Inc. (TtEMI). 2000. *Internal Draft Investigation Area H2 Remedial Investigation, Mare Island, Vallejo, California*, December 1.

Tetra Tech EM, Inc. (TtEMI). 2002a. *Final Compilation of Technical Memoranda on Ambient Analyses of Metals in Soils and Groundwater, Mare Island, California*, April 19.

Tetra Tech EM, Inc. (TtEMI). 2002b. *Final Onshore Ecological Risk Assessment, Mare Island, Vallejo, California*, July.

U.S. Department of the Navy. 2006. *Department of Navy Environmental Restoration Program Manual*. August.

United States Environmental Protection Agency (U.S. EPA). 1985. "National Oil and Hazardous Substances Pollution Contingency Plan." Final Rule. 50 *Federal Register* 47912, November 20.

United States Environmental Protection Agency (U.S. EPA). 1986. Superfund Public Health Evaluation Manual. USEPA/540/1-86/060. Prepared by Office of Emergency and Remedial Response, Washington, DC.

United States Environmental Protection Agency (U.S. EPA). 1988a. *CERCLA Compliance with Other Laws Manual.*

United States Environmental Protection Agency (U.S. EPA). 1988b. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final.*

United States Environmental Protection Agency (U.S. EPA). 1989. *Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation*. Manual (Part A, Baseline Risk Assessment). U.S. EPA/540/1-89/002. Office of Emergency and Remedial Response, Washington, DC.

United States Environmental Protection Agency (U.S. EPA). 1990. *National Oil and Hazardous Substances Pollution Contingency Plan*, Final Rule, codified as amended at 40 C.F.R. Part 300.

United States Environmental Protection Agency (U.S. EPA). 1991. *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals), Interim Guidance*. Washington, DC. Office of Emergency and Remedial Response.

United States Environmental Protection Agency (U.S. EPA). 1992. *Supplemental Guidance to RAGS: Calculating the Concentration Term*. Publication 9285.7-08I. May.

United States Environmental Protection Agency (U.S. EPA). 1996. *Soil Screening Guidance: Technical Background Document*. EPA/540/R-95/128. Office of Emergency and Remedial Response, Washington, DC. May.

United States Environmental Protection Agency (U.S. EPA). 2000. *Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures. Risk Assessment Forum*, Washington, DC, USEPA/630/R-00/002, 2000.

United States Environmental Protection Agency (U.S. EPA). 2001. *Risk Assessment Guidance for Superfund: Volume I Human Health Evaluation Manual* (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments). Final. December.

United States Environmental Protection Agency (U.S. EPA). 2002a. *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites*. Office of Emergency and Remedial Response. OSWER 9355.4-24. December.

United States Environmental Protection Agency (U.S. EPA). 2002b. *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites*. Office of Solid Waste and Emergency Response. 9285.6-19. December.

United States Environmental Protection Agency (U.S. EPA). 2003. "Human Health Toxicity Values in Superfund Risk Assessments." Memorandum from Michael B. Cook, Director Office of Superfund Remediation and Technology Innovation to Superfund National Policy Managers, Regions 1-10. OSWER Directive 9285.7-53. December 5.

United States Environmental Protection Agency (U.S. EPA). 2004a. *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual* (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. EPA/540/R/99/005. OSWER 9285.7-02EP. July.

United States Environmental Protection Agency (U.S. EPA). 2004b. *Region 9 Preliminary Remediation Goals.* October. Available at http://www.epa.gov/region09/waste/sfund/prg/index.htmlAvailable at http://www.epa.gov/region09/waste/sfund/prg/index.html.

United States Environmental Protection Agency (U.S. EPA). 2005a. *Guidelines for Carcinogen Risk Assessment.* Risk Assessment Forum, Washington, D.C.. EPA/630/P-03/001F. March.

United States Environmental Protection Agency (U.S. EPA). 2005b. *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*. Risk Assessment Forum, Washington, D.C. EPA/630/R-03/003F.

United States Environmental Protection Agency (U.S. EPA). 2007. ProUCL Version 4.0 Technical Guidance. EPA/600/R-07/041. April. Available at http://www.epa.gov/esd/tsc/software.htmAvailable at http://www.epa.gov/esd/tsc/software.htm.

United States Environmental Protection Agency (U.S. EPA). 2008a. Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites. RSL Table Update. September (available at http://www.epa.gov/region09/waste/sfund/prg/index.htmlhttp://www.epa.gov/region09/waste/sfund/prg/index.html).

United States Environmental Protection Agency (U.S. EPA). 2008b. *Provisional Peer Reviewed Toxicity Values for Cobalt*. Superfund Health Risk Technical Support Center, National Center for Environmental Assessment, Cincinnati, OH.

United States Environmental Protection Agency (U.S. EPA). 2009a. *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment).* Final. Washington, D.C. Office of Superfund Remediation and Technology Innovation, Environmental Protection Agency.

United States Environmental Protection Agency (U.S. EPA). 2009b. *National Primary Drinking Water Regulations*. May.

United States Environmental Protection Agency (U.S. EPA). 2010. Software for Calculating Upper Confidence Limits, ProUCL Version 4.1.

United States Environmental Protection Agency (U.S. EPA). 2011. Toxicological Review of Trichloroethylene (CAS No. 79-01-6), In Support of Summary Information on the Integrated Risk Information System (IRIS). EPA/635/R-09/011F. September.

United States Environmental Protection Agency (U.S. EPA). 2012a. Regional Screening Levels (RSLs). On Line: http://www.epa.gov/region9/superfund/prg/index.htmlhttp://www.epa.gov/region9/superfund/prg/index.html.

United States Environmental Protection Agency (U.S. EPA). 2012b. Integrated Risk Information System (IRIS). National Center for Environmental Assessment (NCEA).

Wagner, D.L., and E.J. Bortungo. 1982. *Geological Map of the Santa Rosa Quadrangle, California*. California Division of Mines.

Water Board. 2008. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final*. May.

Weston Solutions, Inc. 2007. *Final Addendum 1 to Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) for Time-Critical Removal Action Installation Restoration Site 05 Parcel XVI Paint Waste Area, and Horse Stables Area Former Mare Island Naval Shipyard Vallejo, California and Non-Time-Critical Removal Action Defense Reutilization and Marketing Office Scrapyard, Former Mare Island Naval Shipyard Vallejo, California.* September.

Weston Solutions, Inc. 2008. *Final Non-Time-Critical Removal Action Completion Report Defense Reutilization and Marketing Office Former Mare Island Naval Shipyard Vallejo, California*. August.

Weston Solutions, Inc. 2009. *Final Petroleum Corrective Action Plan for the Defense Reutilization and Marketing Office Former Mare Island Naval Shipyard Vallejo, California*.

Weston Solutions, Inc. 2010. *Final Petroleum Corrective Action Completion Report Defense Reutilization and Marketing Office Site and Vicinity Former Mare Island Naval Shipyard, Vallejo, California,* October 22.

FIGURES

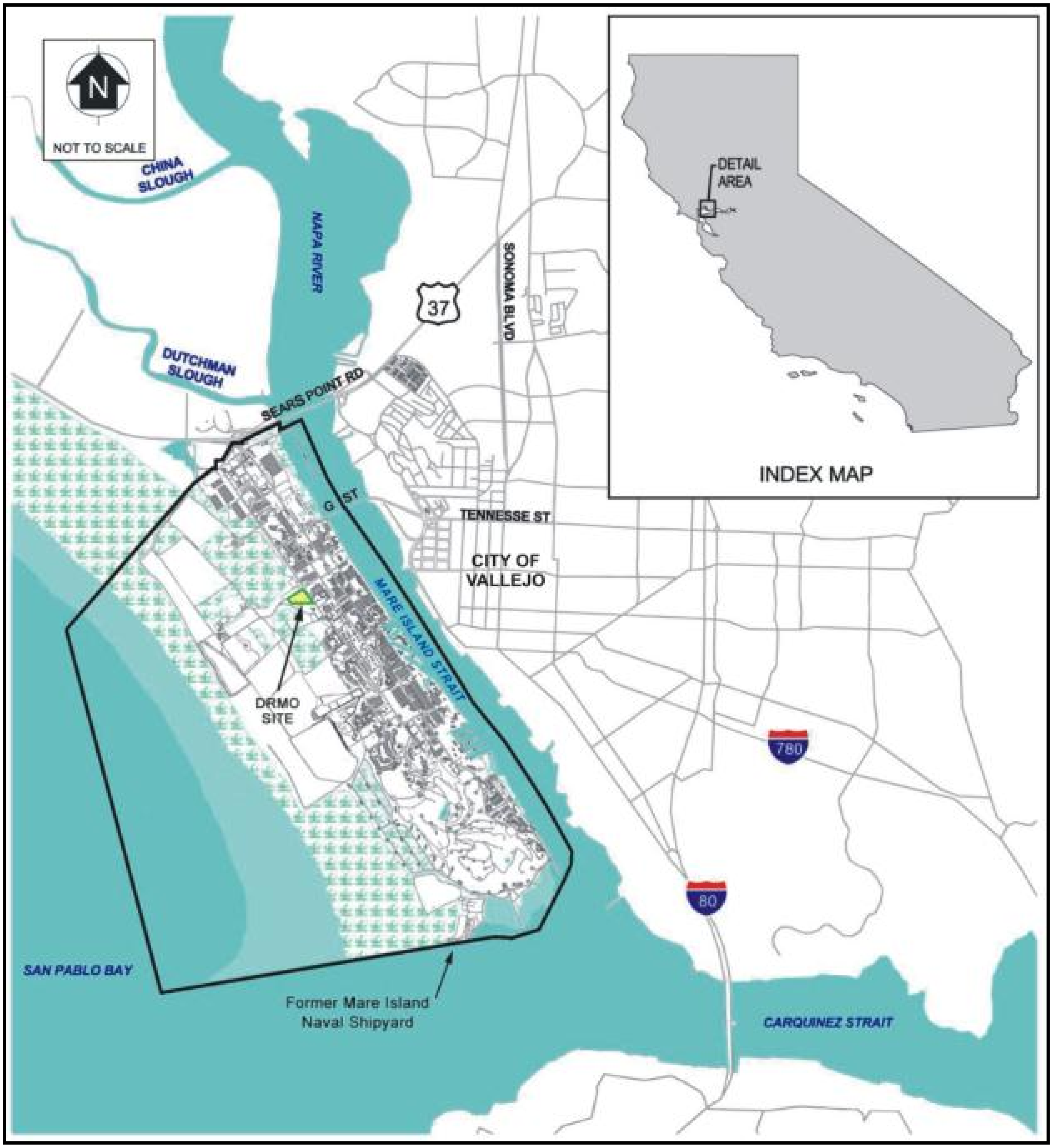

Figure 1-1. Location of Former Mare Island Naval Shipyard and the DRMO

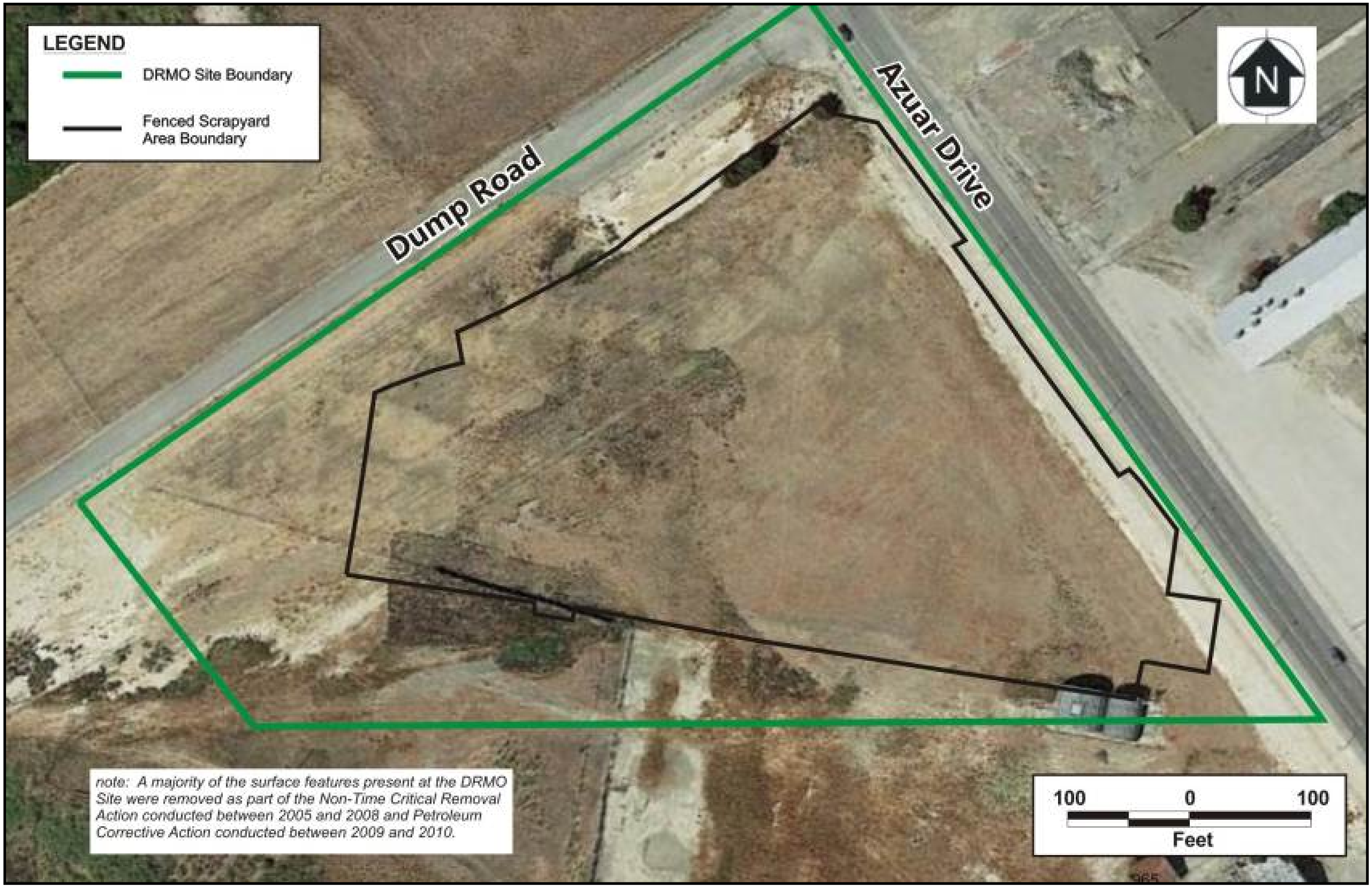

Figure 1-2. DRMO Site Map

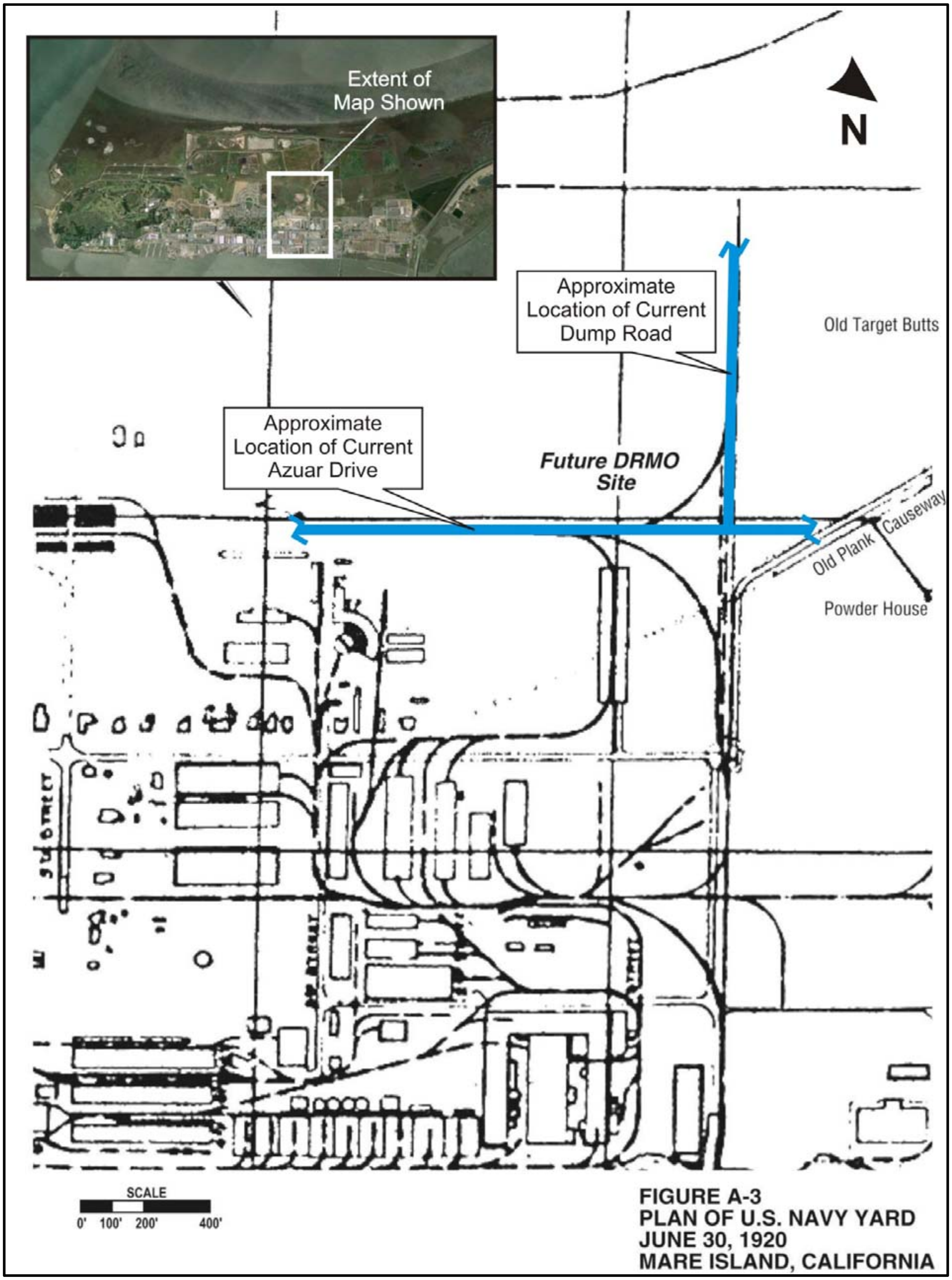

Figure 2-1. Historical Site Map Detailing the Location of the DRMO in 1920

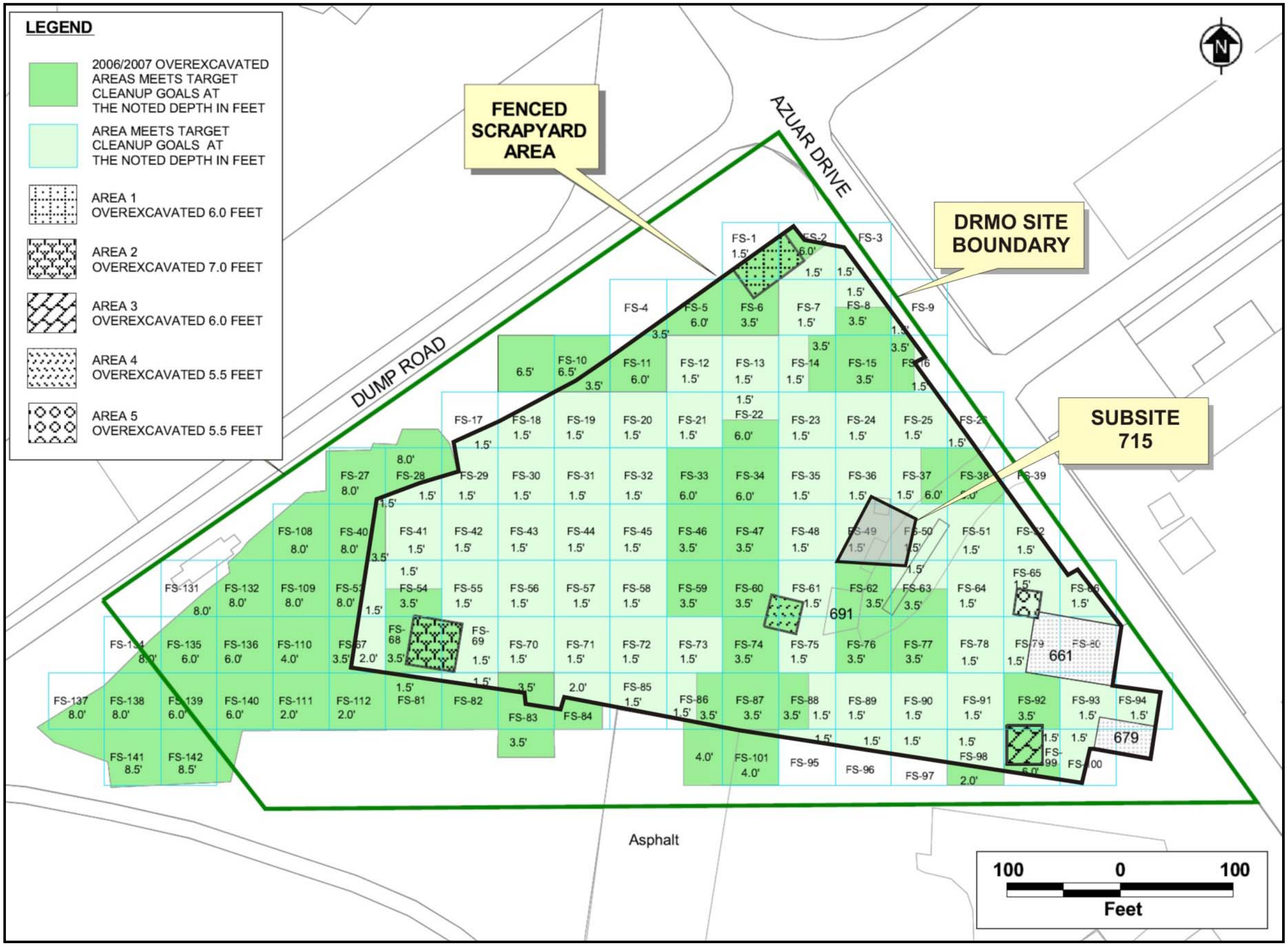

Figure 2-2. Site Map Detailing the Non-Time Critical Removal Action Excavation Area (Weston Solutions, Inc., 2008)

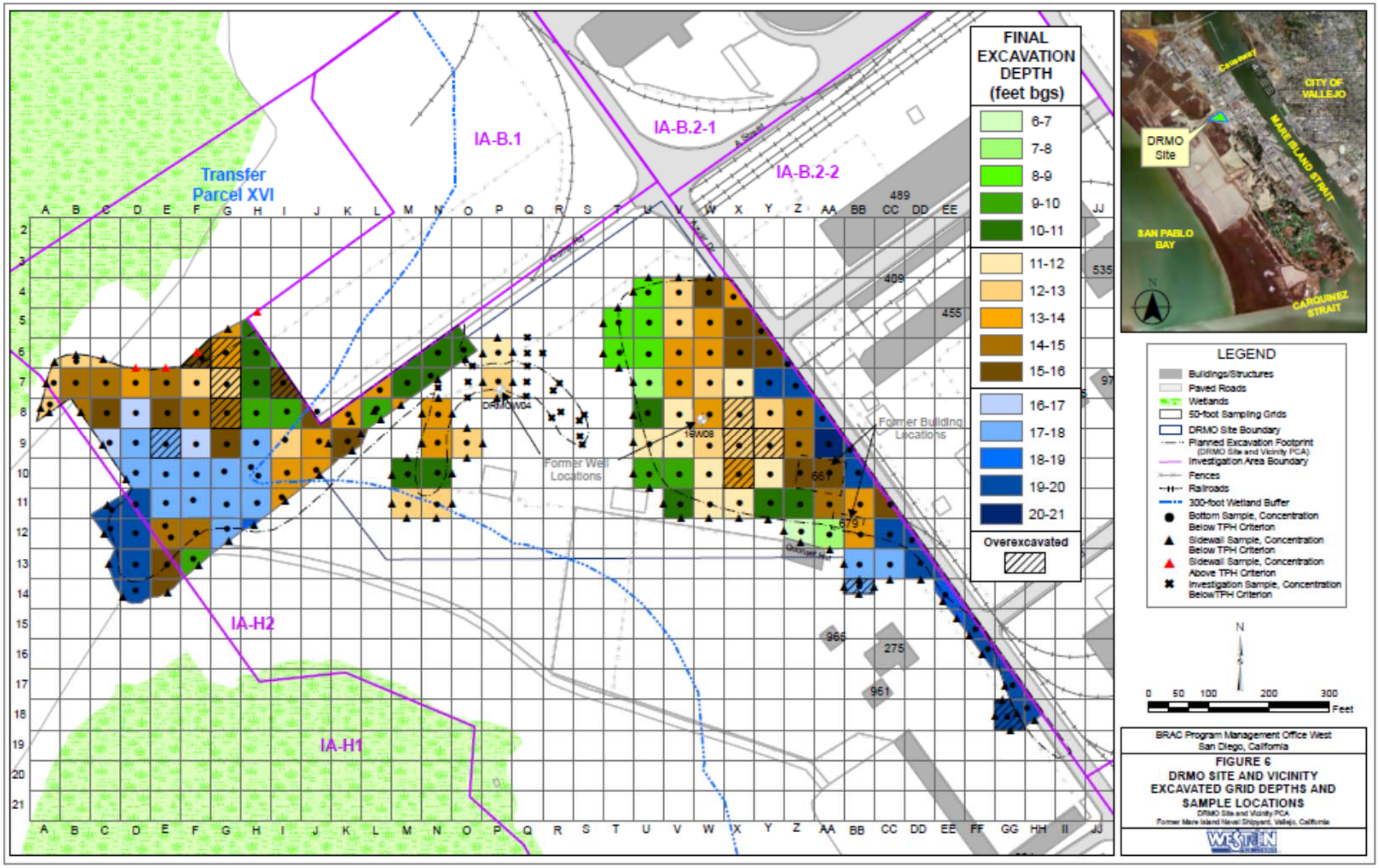

Figure 2-3. Site Map Detailing the Petroleum Corrective Action Excavation Area (Weston Solutions, Inc., 2010)

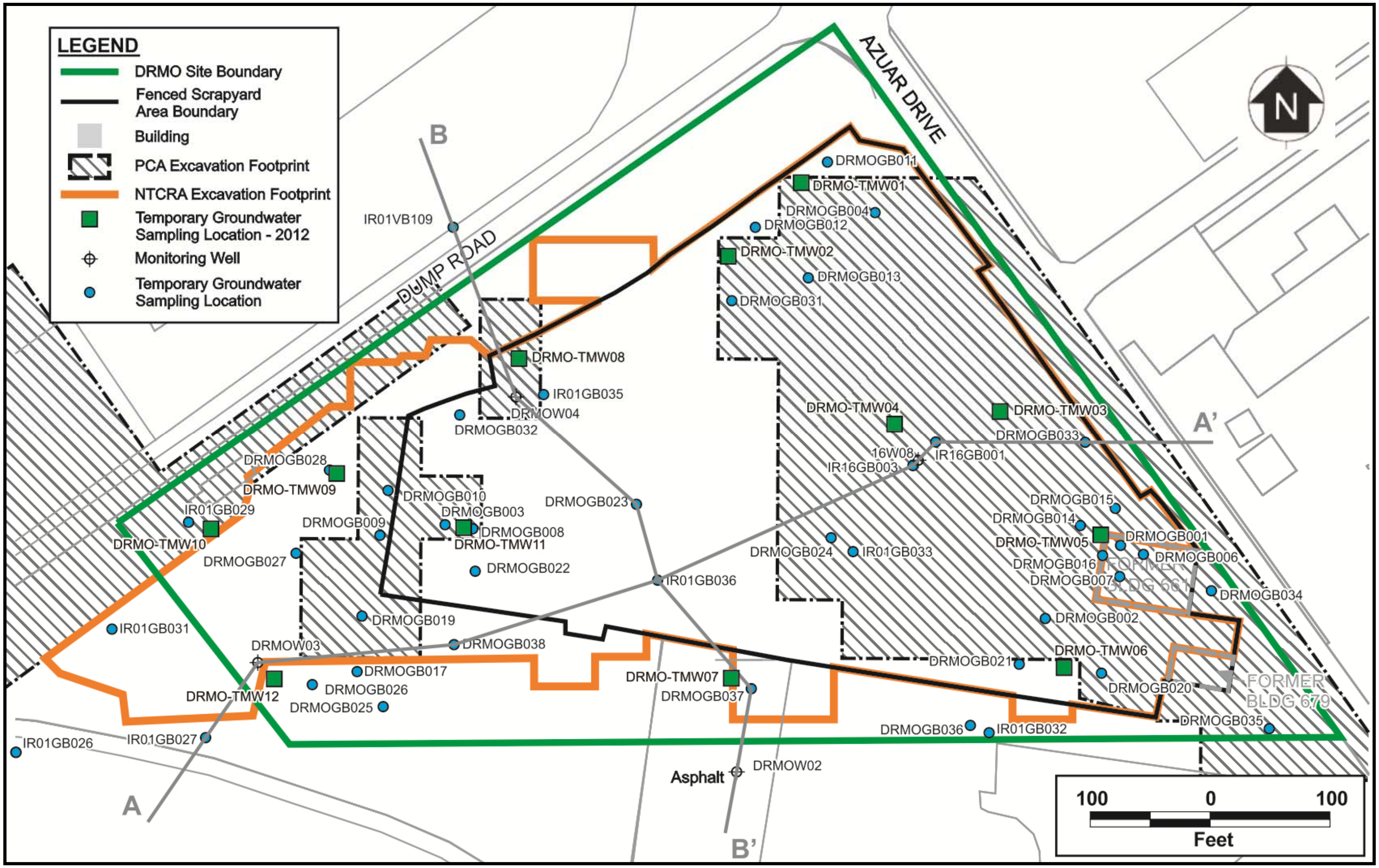

Figure 3-1. Site Map Detailing the Locations of Geologic Cross Sections A-A' and B-B'

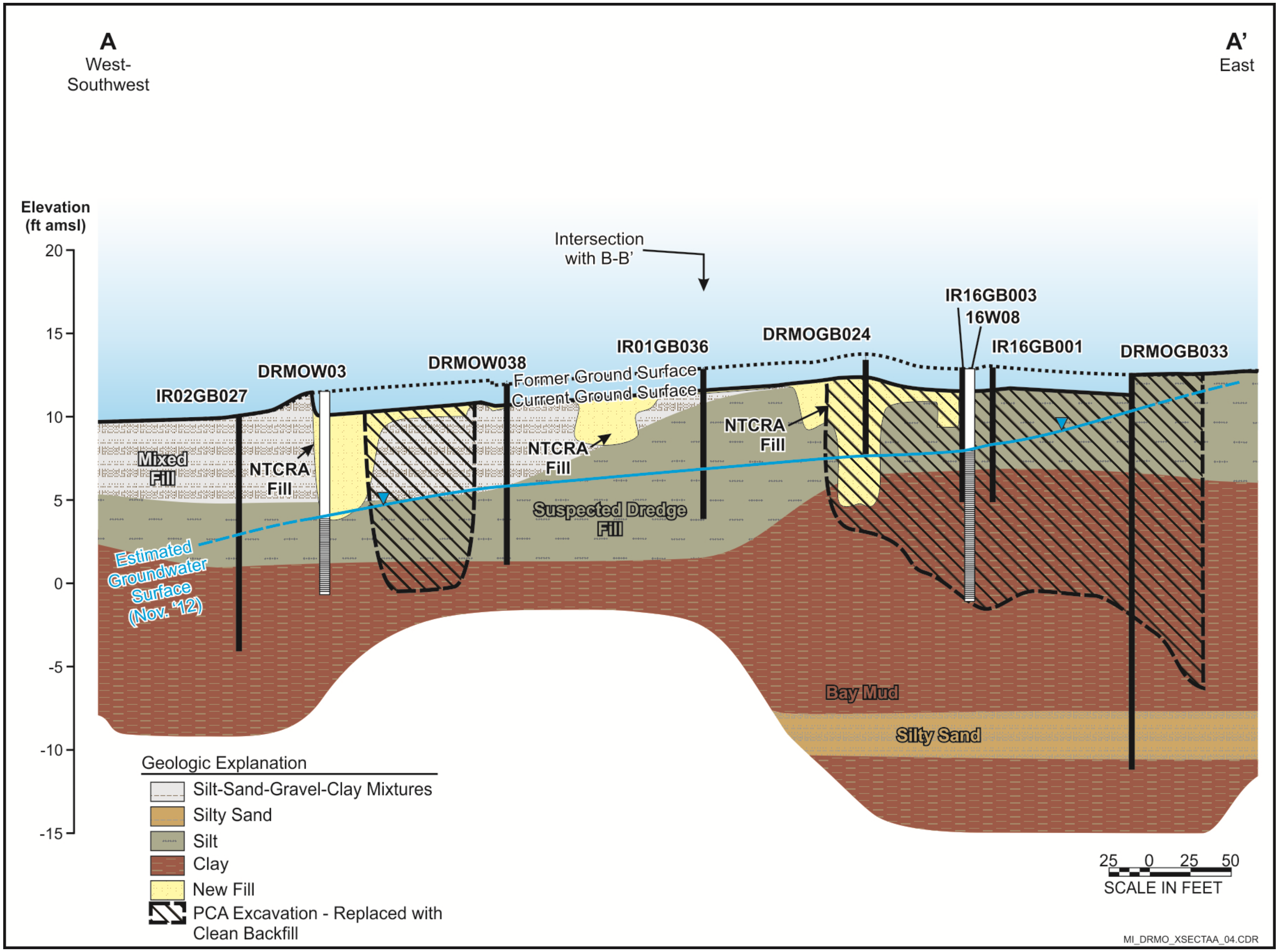

Figure 3-2. Geologic Cross Section A-A'

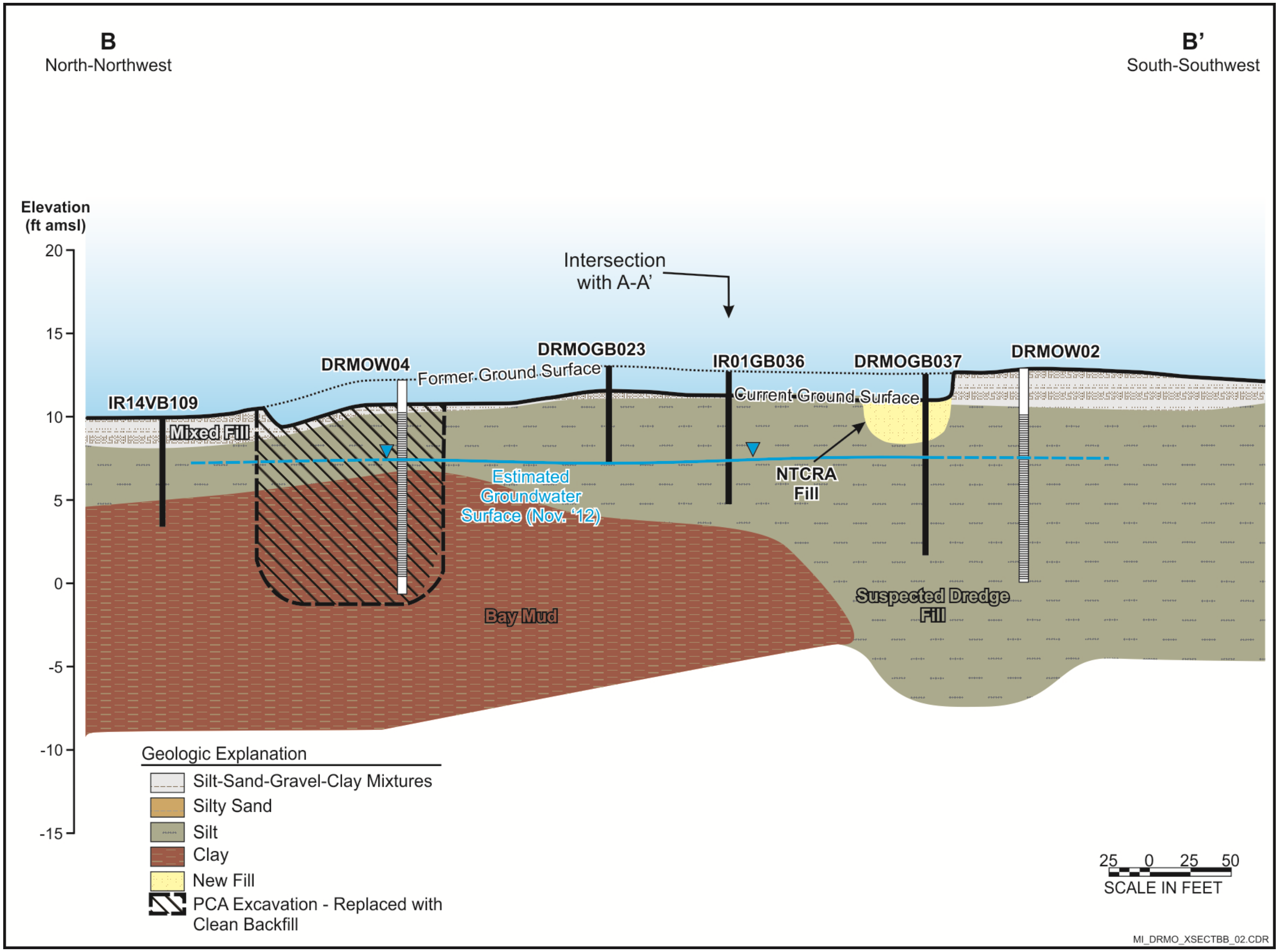

Figure 3-3. Geologic Cross Section B-B'

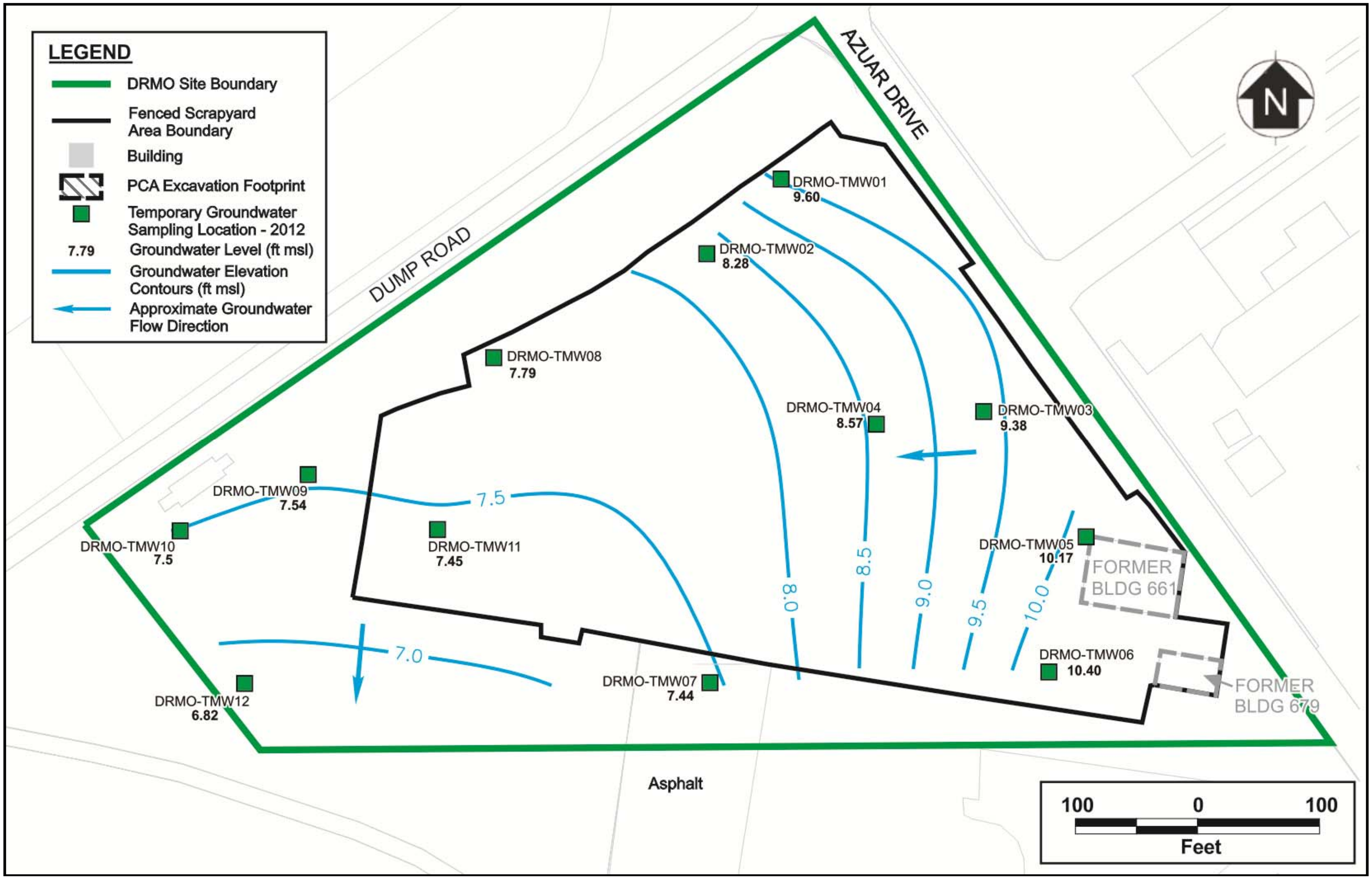

Figure 3-4. Site Map Detailing the Water Level Surface at the DRMO

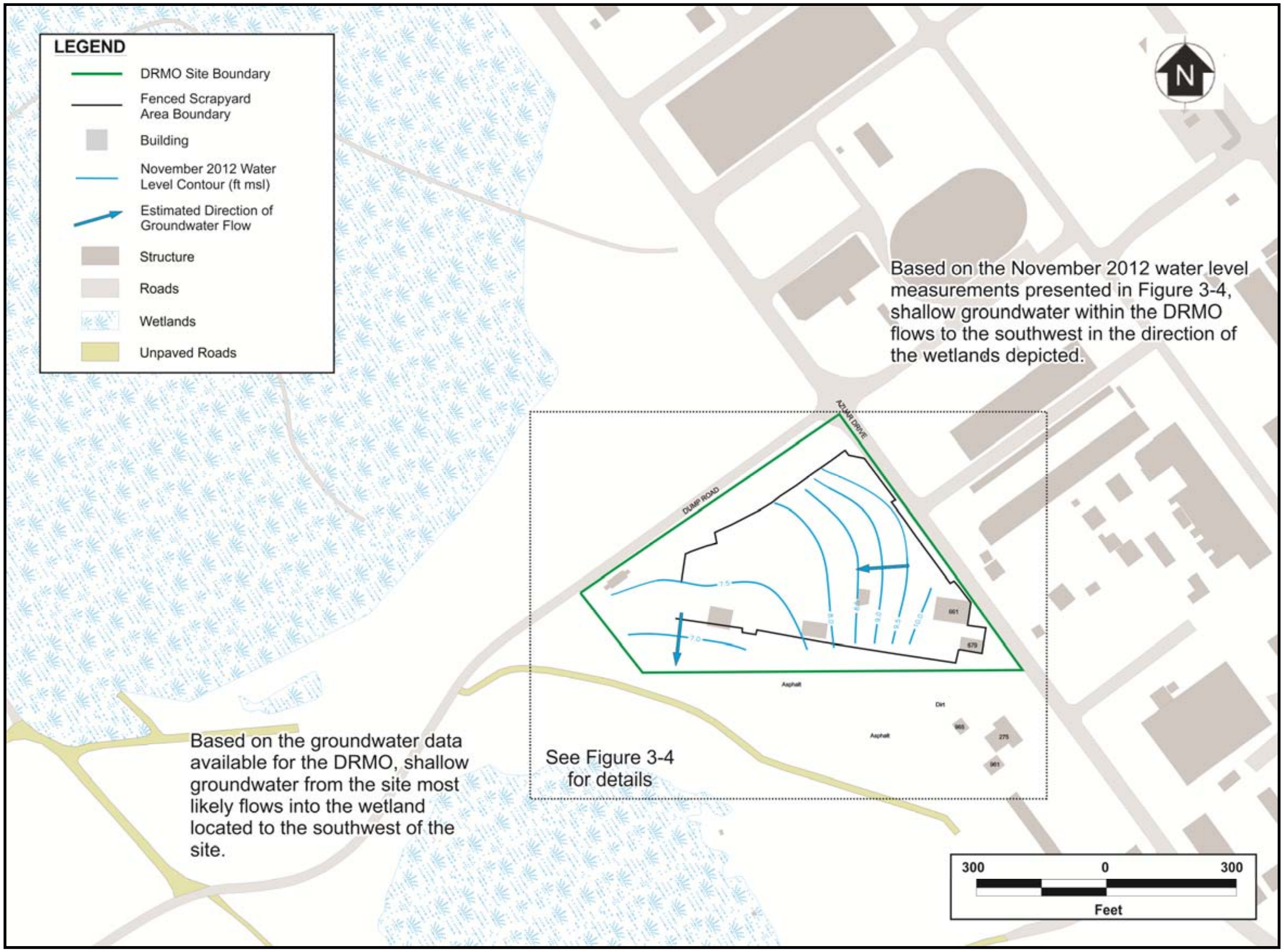

Figure 3-5. Qualitative Evaluation of Groundwater Fate and Transport at the DRMO

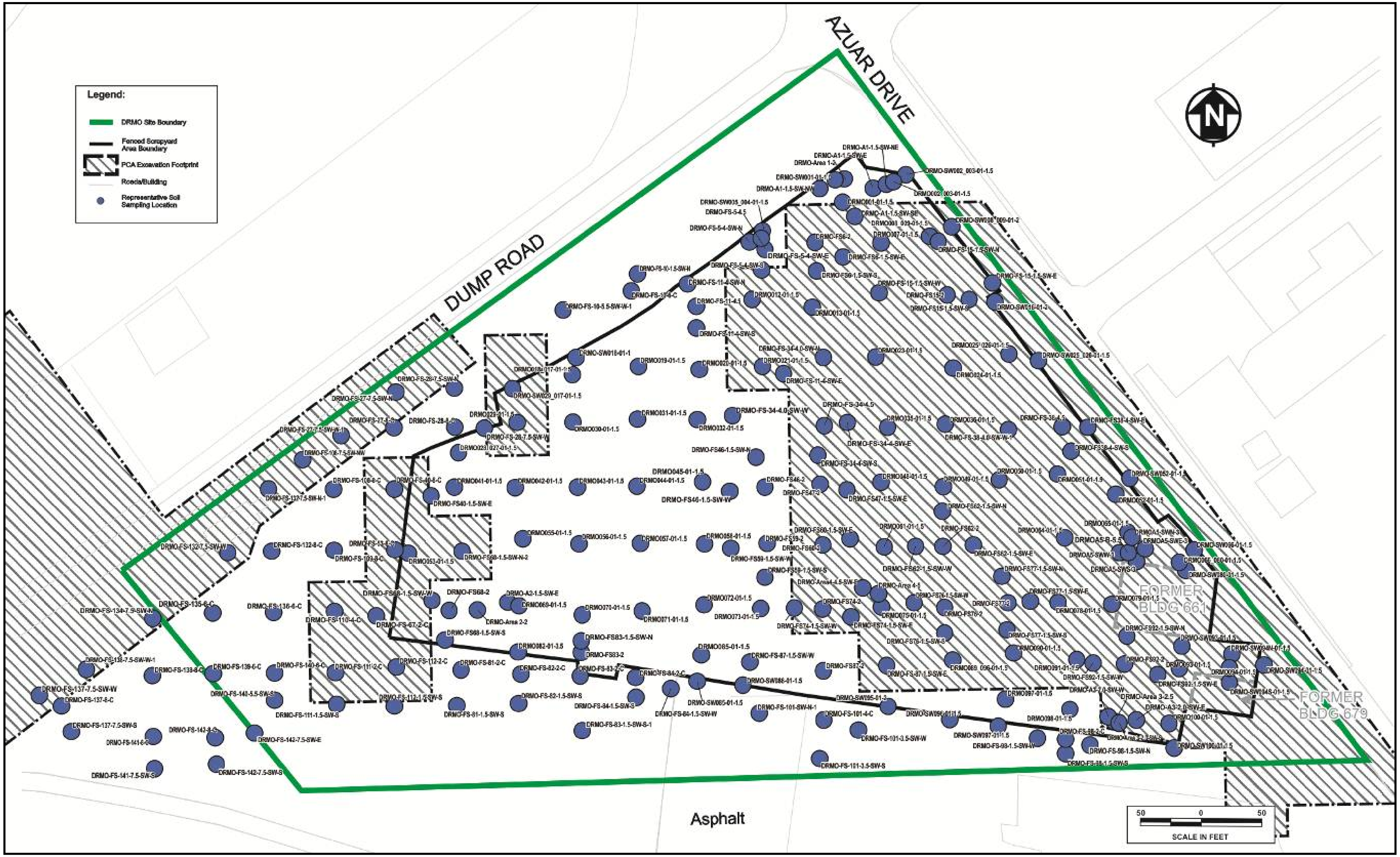

Figure 4-1. Site Map Detailing the Location of Soil Samples Representative of Post-NTCRA Conditions at the DRMO

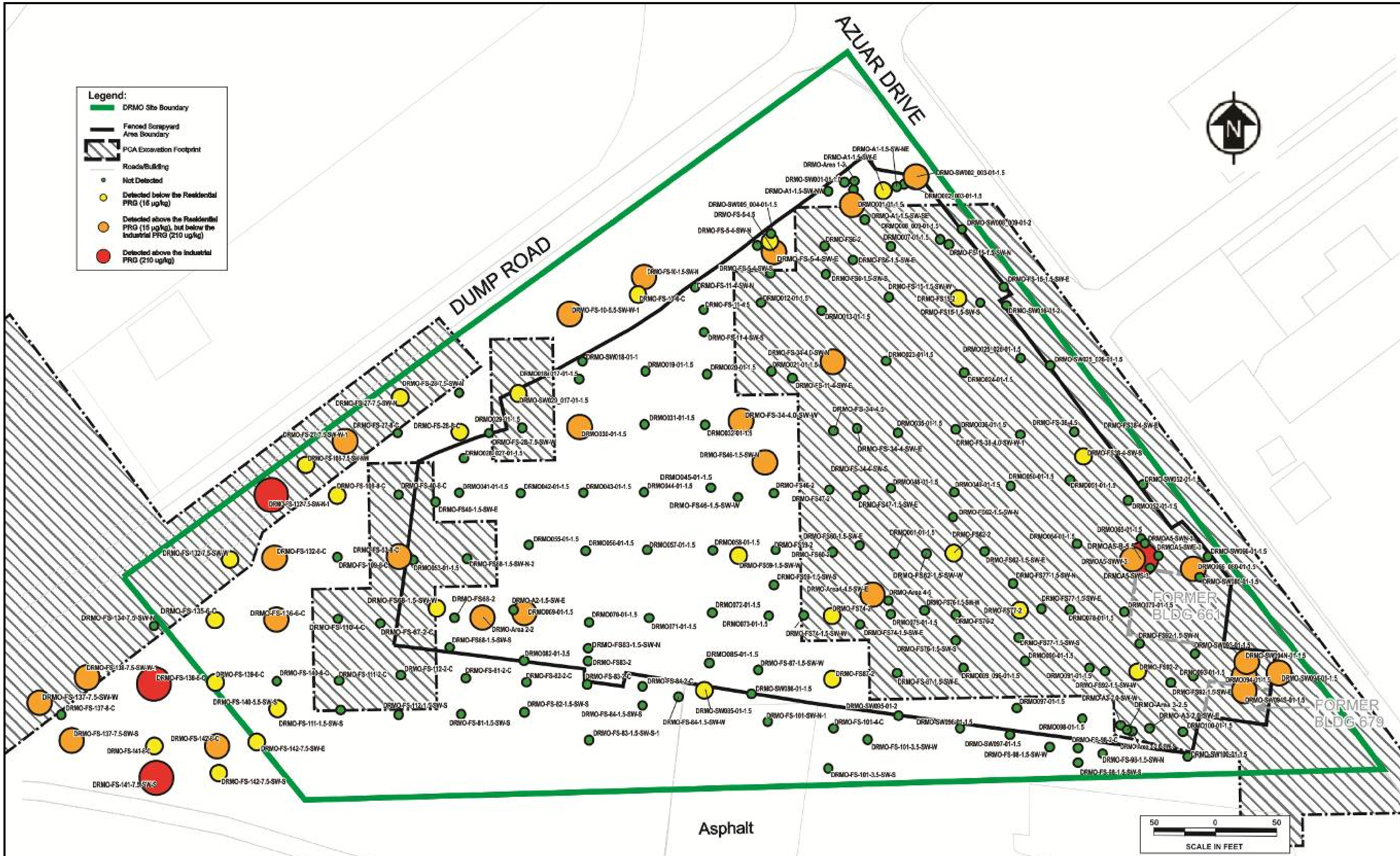

Figure 4-2. Site Map Detailing the Spatial Distribution of Benzo(a)pyrene in Soil at the DRMO

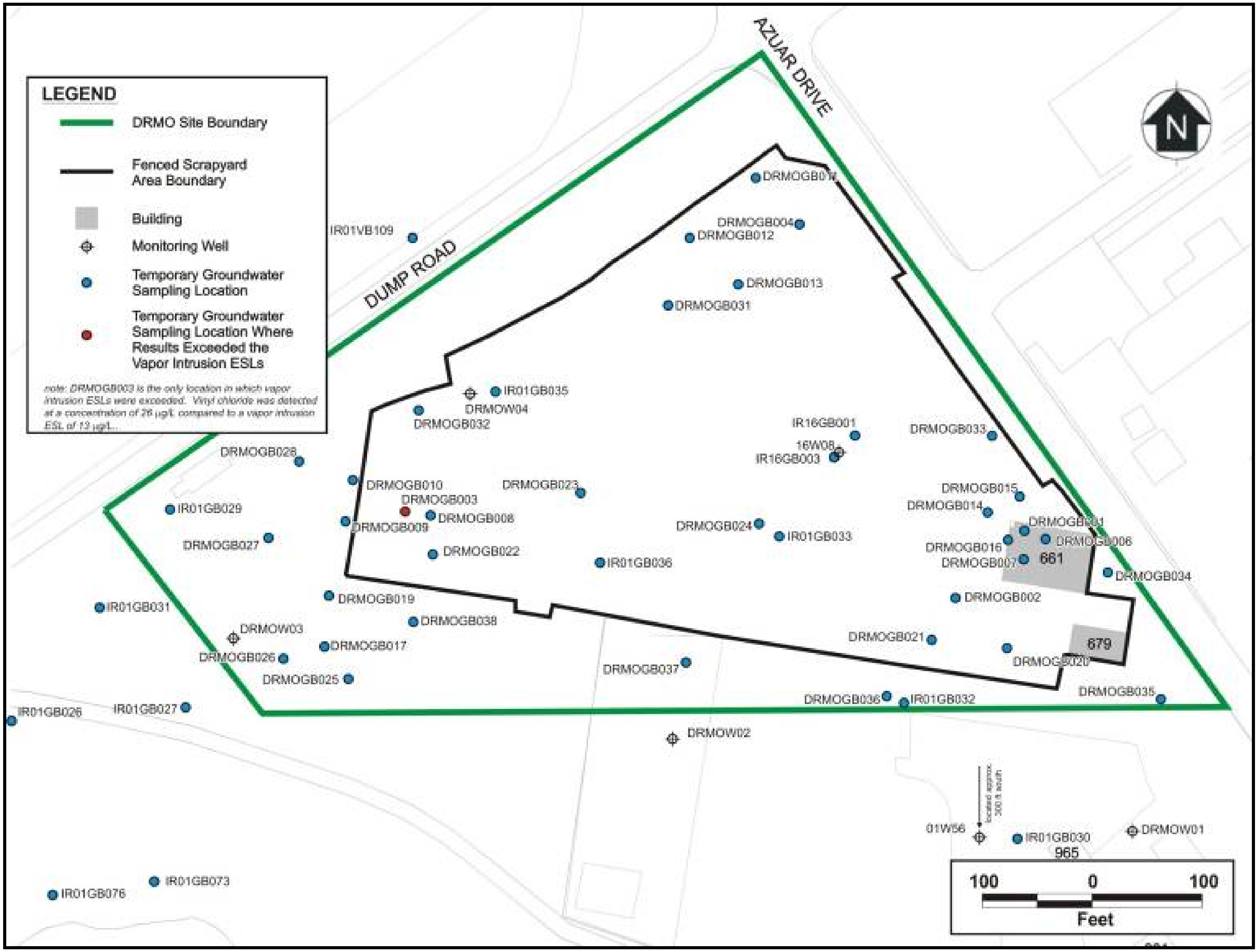

Figure 4-3. Site Map Detailing Historical Groundwater Sampling Locations

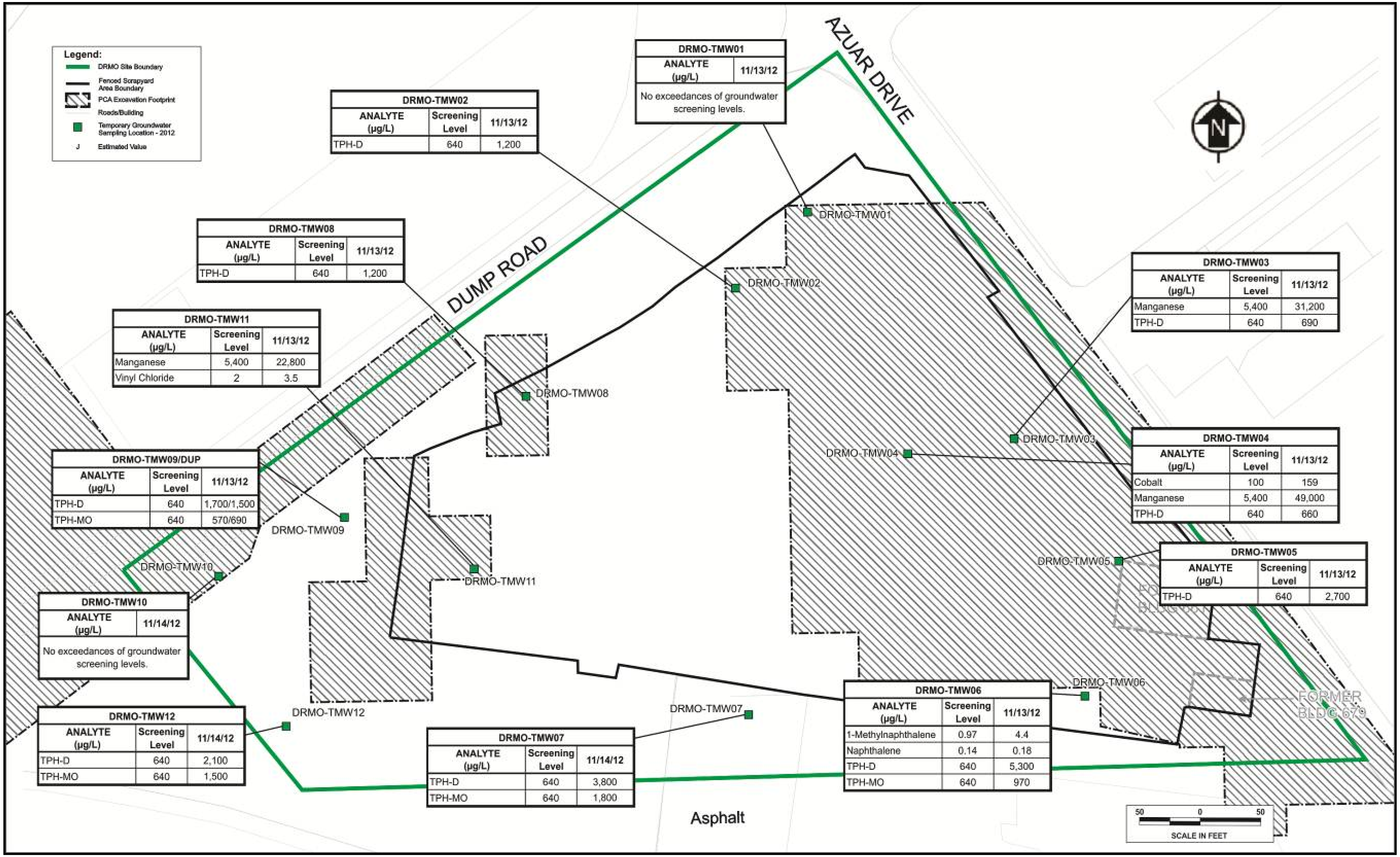

Figure 4-4. Site Map Detailing 2012 Groundwater Sampling Locations and Results that Exceeded Screening Levels

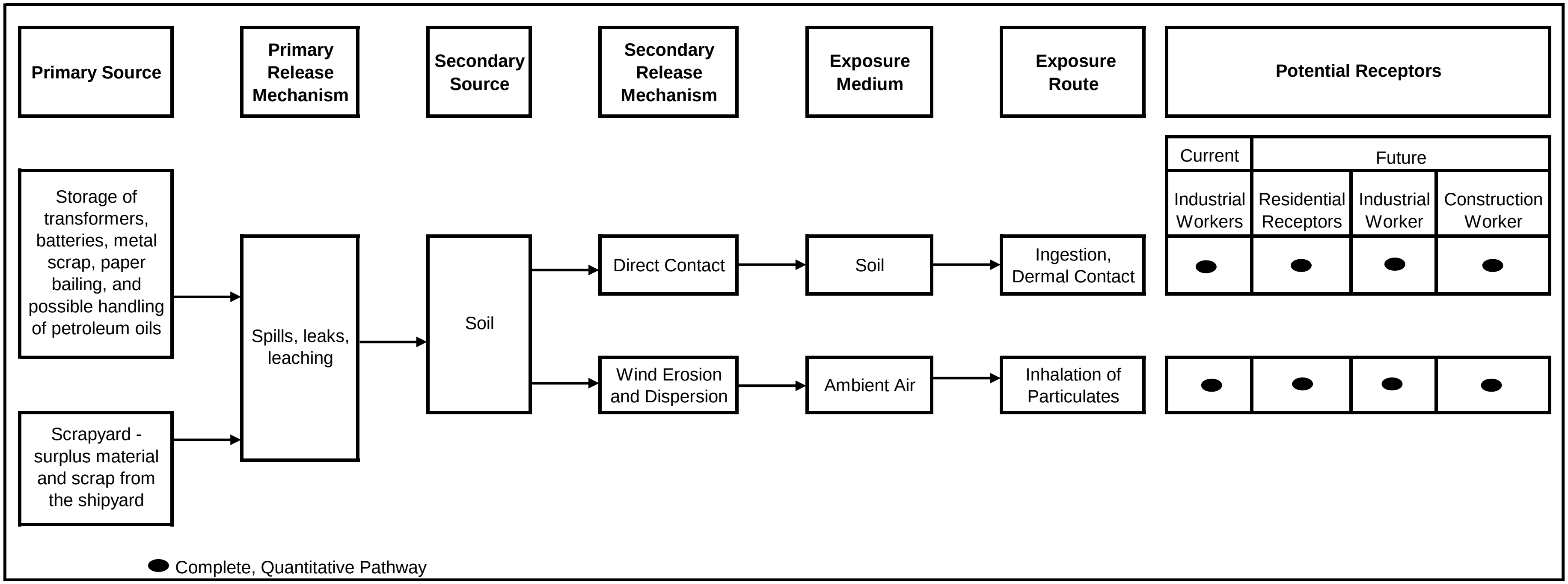

Figure 6-1. Conceptual Site Model for Soil Exposure at the DRMO

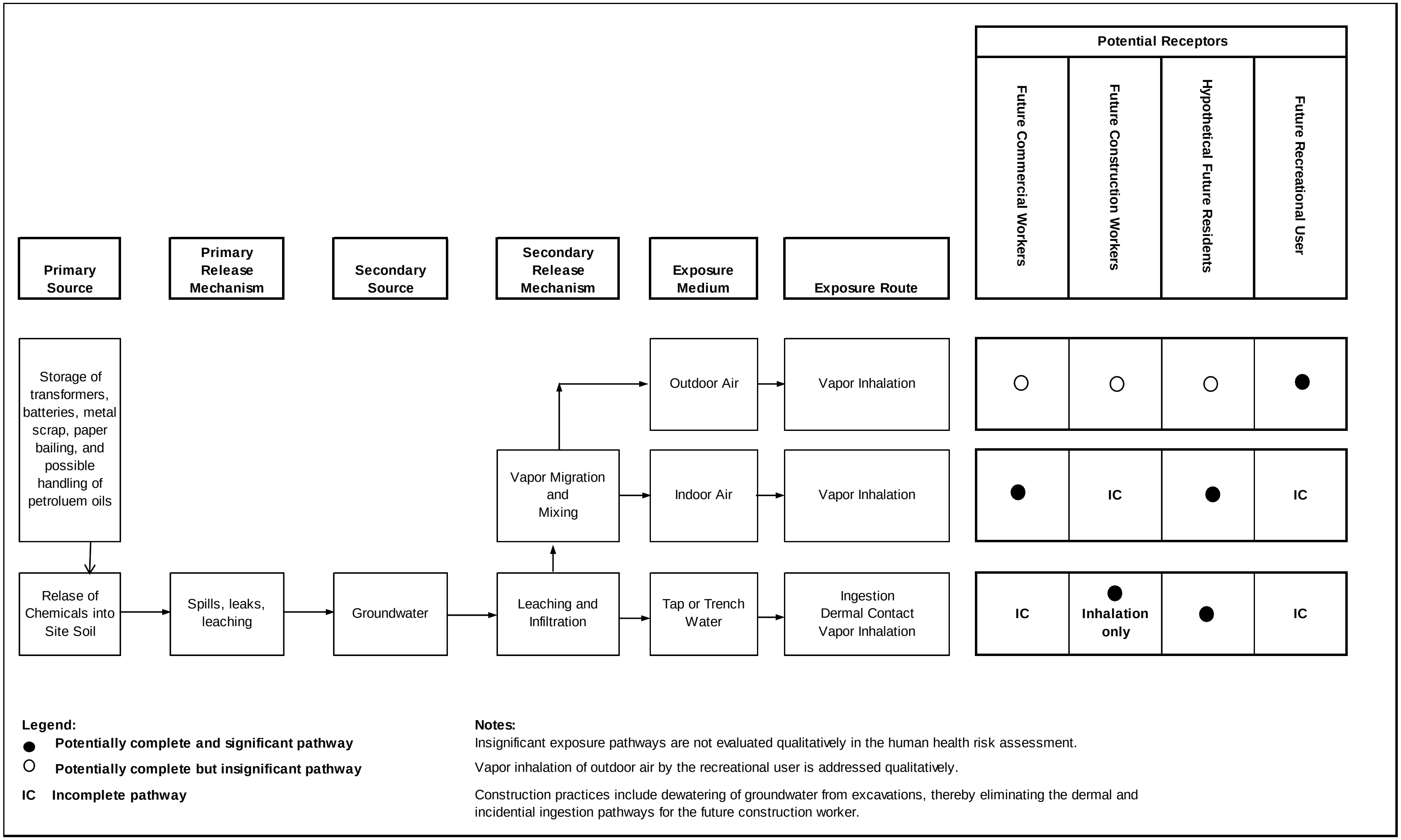

Figure 6-2. Conceptual Site Model for Groundwater Exposure at the DRMO

TABLES

Table 2-1. Target Cleanup Goals for the DRMO Non-Time Critical Removal Action

Chemical	Target Cleanup Goal (mg/kg)[a]	Source[b]
Metals		
Aluminum	100,000	PRG
Antimony	409	PRG
Arsenic	36	Ambient fill value
Beryllium	1,900	PRG
Cadmium	450	PRG
Chromium, total	450	PRG
Copper	41,000	PRG
Iron	100,000	PRG
Lead	800	PRG
Manganese	19,000	PRG
Mercury	310	PRG
Nickel	20,000	PRG
Vanadium	1,000	PRG
Zinc	100,000	PRG
Semivolatiles		
Acenaphthene	29,000	PRG
Anthracene	100,000	PRG
Benzo(a)anthracene	2.1	PRG
Benzo(a)pyrene	0.21	PRG
Benzo(b)fluoranthene	2.1	PRG
Benzo(k)fluoranthene	1.3	California Modified PRG
Chrysene	13	California Modified PRG
Dibenz(a,h)anthracene	0.21	PRG
Fluoranthene	22,000	PRG
Fluorene	26,000	PRG
Indeno(1,2,3-cd)pyrene	2.1	PRG
Naphthalene	190	PRG
Pyrene	29,000	PRG
PCBs		
Aroclor 1016	21	PRG
Aroclor 1221	0.74	PRG
Aroclor 1232	0.74	PRG
Aroclor 1242	0.74	PRG
Aroclor 1248	0.74	PRG
Aroclor 1254	0.74	PRG
Aroclor 1260	0.74	PRG

Table 2-1. Target Cleanup Goals for the DRMO Non-Time Critical Removal Action (Continued)

Chemical	Target Cleanup Goal (mg/kg)[a]	Source[b]
Pesticides		
4,4'-DDD	10	PRG
4,4'-DDE	7	PRG
4,4'-DDT	7	PRG
Aldrin	0.1	PRG
Alpha-BHC	0.36	PRG
Beta-BHC	1.3	PRG
Dieldrin	0.11	PRG
Endosulfan I	3,700	PRG
Endrin	180	PRG
Gamma-BHC (Lindane)	1.7	PRG
Heptachlor	0.38	PRG
Heptachlor epoxide A	0.19	PRG
Methoxychlor	3,100	PRG
Toxaphene	1.6	PRG

Notes:

(a) The TCG is the greater of the U.S. EPA Region 9 PRG for the industrial land use scenario (U.S. EPA, 2004b) or the Mare Island ambient concentration in fill soil (TtEMI, 2002), unless otherwise noted. All available PRGs were greater than the corresponding ambient fill values, with the exception of arsenic.

(b) Indicates whether the value is the PRG or the Mare Island ambient concentration in fill soil.

Table 4-1. Metals Detected in Soil at the DRMO Site

Parameter Name	Sample Date	Sample Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	77,000	31	0.39	15,000	160	70	NE	280	23
Industrial PRGs	--	--	990,000	410	1.60	190,000	2,000	810	NE	1,400	300
Ambient Fill Concentration	--	--	35,000	9	36	NE	1	5	NE	140	NE
DRMO001-01-1.5	9/27/2005	0	**20,300**	**1.8** J	**15.2**	**251**	**0.74** J	0.3 U	**20,800**	**37.1**	**12.2**
DRMO002_003-01-1.5	9/27/2005	0	**24,000**	**1.2** J	**11.1**	**268**	**0.71** J	0.31 U	**11,000**	**41.7**	**12.8**
DRMO007-01-1.5	9/27/2005	0	**12,100**	**2.3** J	**7**	**138**	**0.81**	**0.89**	**5,630**	**29.1**	**10.3**
DRMO008_009-01-1.5	9/27/2005	0	**12,500**	**1.1** J	**3.9**	**497**	**1.2**	1.4 U	**1,820**	**20.3**	**12.6**
DRMO012-01-1.5	9/27/2005	0	**14,300**	**1.4** J	**12.6**	**518**	**0.54** J	0.29 U	**4,720**	**26.4**	**9.1**
DRMO012-01-1.5-DUP	9/27/2005	0	**15,000**	**1.3** J	**11**	**187**	**0.48** J	0.29 U	**5,190**	**28.8**	**8.7** J
DRMO013-01-1.5	9/27/2005	0	**15,000**	**1** J	**6.8**	**212**	**0.28** J	0.31 U	**5,490**	**24.9**	**9.1** J
DRMO018_017-01-1.5	9/27/2005	0	**10,600**	**1.9** J	**16.7**	**146**	**0.43** J	**3.4**	**2,150**	**23.9**	**10.9**
DRMO019-01-1.5	9/27/2005	0	**14,300**	**1.1** J	**8.9**	**329**	**0.51** J	0.32 U	**3,310**	**26.1**	**9.7**
DRMO019-01-1.5-DUP	9/27/2005	0	**13,900**	**0.81** J	**8**	**202**	**0.54** J	0.3 U	**2,790**	**24.1**	**11.4**
DRMO020-01-1.5	10/1/2005	0	**15,200**	**1.6** J	**11.8**	**133**	**0.63** J	1.4 U	**4,510**	**27.9**	**8.8**
DRMO021-01-1.5	10/1/2005	0	**16,400**	3.8 U	**9.9**	**180** J	**0.55** J	0.32 U	**2,240**	**27.5**	**9.6**
DRMO023-01-1.5	10/1/2005	0	**18,100**	**1.3** J	**12**	**274**	**0.65** J	1.4 U	**4,040**	**36.8**	**11.4**
DRMO024-01-1.5	10/15/2005	0	**18,900**	**2** J	**11.5**	**503**	**0.64** J	1.6 U	**7,300**	**46.3**	**12.6**
DRMO025_026-01-1.5	10/7/2005	0	**27,300**	3.9 U	**8.5**	**270**	**0.65** J	1.6 U	**13,900**	**47**	**17.2**
DRMO028_027-01-1.5	10/1/2005	0	**6,210**	**2.5** J	**3.6**	**61.9**	**1.1**	**2.7**	**1,260**	**62.4**	**4.1** J
DRMO029-01-1.5	9/27/2005	0	**13,600**	**1.8** J	**10.4**	**199**	**0.51** J	0.3 U	**3,030**	**27.9**	**8.4** J
DRMO029-01-1.5-DUP	9/27/2005	0	**19,100**	**1.2** J	**11.7**	**315**	**0.57** J	0.29 U	**3,020**	**33.4**	**9.2**
DRMO030-01-1.5	9/27/2005	0	**11,500**	**1.6** J	**8.6**	**169**	**0.81** J	**0.59** J	**2,580**	**25.4**	**6.9** J
DRMO031-01-1.5	9/27/2005	0	**16,300**	**0.84** J	**9.5**	**295**	**0.57** J	0.3 U	**7,330**	**29.8**	**11.1**
DRMO032-01-1.5	10/1/2005	0	**10,100**	**0.82** J	**6.7**	**87.2**	**0.61** J	0.3 U	**2,910**	**17.8**	**7.2** J
DRMO035-01-1.5	9/27/2005	0	**23,100**	**2.6** J	**16**	**615**	**0.92**	1.5 U	**5,020**	**46**	**15.2**
DRMO036-01-1.5	10/15/2005	0	**24,900**	**2.3** J	**11.1**	**281**	**0.54** J	1.5 U	**13,700**	**60**	**19.3**
DRMO041-01-1.5	10/1/2005	0	**12,700**	3.6 U	**8.7**	**175** J	**0.47** J	0.3 U	**6,330**	**25.6**	**9.2**
DRMO042-01-1.5	10/8/2005	0	**15,500**	**0.58** J	**8.5**	**243**	**0.74** J	0.31 U	**2,810**	**32.3**	**9.6**
DRMO043-01-1.5	10/8/2005	0	**15,500**	3.7 U	**11**	**242**	**0.66** J	0.31 U	**2,930**	**31.1**	**10.7**
DRMO044-01-1.5	10/8/2005	0	**14,600**	3.8 U	**8.3**	**163** J	**0.55** J	0.32 U	**7,190**	**25.9**	**9.7**
DRMO045-01-1.5	10/15/2005	0	**33,700**	**3.1** J	**15.2**	**72.4**	**0.77** J	1.6 U	**2,310**	**51**	**7.3** J
DRMO048-01-1.5	10/7/2005	0	**29,300**	**2.9** J	**14.1**	**113**	**0.94**	1.5 U	**7,900**	**49.7**	**17.7**
DRMO049-01-1.5	10/7/2005	0	**32,100**	**0.84** J	**9.6**	**380**	**0.82** J	1.5 U	**14,800**	**60.4**	**18.6**
DRMO049-01-1.5-DUP	10/7/2005	0	**26,700**	**1.4** J	**13.7**	**302**	**0.72** J	1.5 U	**15,700**	**62.1**	**19.5**
DRMO050-01-1.5	10/15/2005	0	**17,600**	**0.71** J	**9.4**	**184** J	**0.47** J	0.31 U	**12,500**	**37.4**	**11.5**
DRMO051-01-1.5	10/15/2005	0	**21,500**	**1.7** J	**7.5**	**414**	**0.52** J	0.32 U	**24,800**	**49.9**	**14.1**
DRMO052-01-1.5	10/1/2005	0	**19,600**	3.9 U	**12.6**	**183** J	**0.68** J	0.32 U	**7,210**	**45.7**	**11.8**
DRMO053-01-1.5	10/1/2005	0	**14,300**	**0.45** J	**8.3**	**174** J	**0.66** J	0.31 U	**1,940**	**28.5**	**11.2**
DRMO055-01-1.5	10/15/2005	0	**26,300**	**1.7** J	**12**	**153**	**0.73** J	1.6 U	**3,440**	**42.3**	**12.1**
DRMO056-01-1.5	10/15/2005	0	**15,100**	**1.5** J	**8.1**	**133**	**0.44** J	0.29 U	**2,250**	**27.2**	**9.3**

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	77,000	31	0.39	15,000	160	70	NE	280	23
Industrial PRGs	--	--	990,000	410	1.60	190,000	2,000	810	NE	1,400	300
Ambient Fill Concentration	--	--	35,000	9	36	NE	1	5	NE	140	NE
DRMO057-01-1.5	9/8/2005	0	16,800	1.6 J	11.7	146	0.47 J	0.33 U	2,720	28.5	11.7
DRMO058-01-1.5	9/8/2005	0	16,100	3.4 J	12.3	131	0.62 J	0.31 U	2,730	35.1	11.5
DRMO061-01-1.5	12/15/2005	0	15,600	0.97 J	10.1	258	0.52 J	0.32 U	7,490	37.8	11.7
DRMO064-01-1.5	10/29/2005	0	26,600	0.93 J	9.6	405	0.64 J	0.32 U	9,030	64.1	15.9
DRMO065-01-1.5	12/17/2005	0	23,300	1 J	11.2	508	0.62 J	0.32 U	14,500	57.9	15.4
DRMO066_080-01-1.5	10/1/2005	0	24,700	1.2 J	9.5	184	0.65 J	0.3 U	6,680	47.4	9.7
DRMO069-01-1.5	11/7/2005	0	29,400	0.46 J	6.5	291	0.66 J	0.16 J	40,700	50.8	13.9
DRMO069-01-1.5-DUP	11/7/2005	0	27,900	0.73 J	6.4	278	0.63 J	0.24 J	37,400	49.2	13.2
DRMO070-01-1.5	9/8/2005	0	14,500	1.3 J	7.9	107	0.43 J	0.07 J	2,870	29.5	10.6
DRMO071-01-1.5	9/8/2005	0	16,600	1.9 J	11.9	199	0.49 J	0.23 J	3,730	35.1	10.9
DRMO072-01-1.5	9/8/2005	0	14,700	1.5 J	9	235	0.49 J	0.31 U	3,990	32.1	10.3
DRMO073-01-1.5	11/7/2005	0	9,540	3.9 U	9.5	127	0.41 J	0.33 U	3,300	19	4.1 J
DRMO075-01-1.5	9/8/2005	0	14,100	1.5 J	5.6	116	0.33 J	0.36 J	2,330	28.5	10.6 J
DRMO078-01-1.5	12/15/2005	0	16,600	0.93 J	8.3	116	0.58 J	0.27 U	2,130	29.4	7.7 J
DRMO079-01-1.5	10/29/2005	0	15,700	1.6 J	11.4	154	0.66 J	0.19 J	4,380	30.3	11.6
DRMO079-01-1.5-DUP	10/29/2005	0	17,400	0.64 J	10.7	180	0.64 J	0.2 J	4,740	31.6	10.7
DRMO082-01-3.5	9/20/2005	2	13,300	1.3 J	9.4	176	0.85 J	0.29 U	3,310	27.6	11.5
DRMO085-01-1.5	9/8/2005	0	15,100	2.3 J	16.7	148	0.67 J	0.33 U	3,510	36.9	12.5
DRMO089_096-01-1.5	9/8/2005	0	13,300	1.9 J	15.4	209	0.67 J	0.31 U	4,910	33.1	11.7
DRMO090-01-1.5	12/17/2005	0	10,800	0.61 J	7.3	142	0.62 J	0.3 U	1,970	22.3	11.9
DRMO091-01-1.5	11/7/2005	0	14,500	1.7 J	11.4	176	0.64 J	0.28 J	4,500	30.6	9.2 J
DRMO091-01-1.5-DUP	11/7/2005	0	16,400	3.8 U	11	159	0.61 J	0.3 J	6,270	31.9	9.7
DRMO093-01-1.5	10/21/2005	0	15,900	1.4 J	10.3	153	0.53 J	0.31 U	5,610	28.7	10.4
DRMO094-01-1.5	10/21/2005	0	22,400	1.5 J	13.4	209	0.55 J	0.3 U	40,700	36.7	9.7
DRMO097-01-1.5	12/17/2005	0	16,400	1.6 J	11.2	145	0.74 J	0.31 U	3,240	29.2	9.9
DRMO098-01-1.5	12/15/2005	0	16,600	1.1 J	10.7	248	0.47 J	0.65 J	3,230	34	9.3 J
DRMO100-01-1.5	12/10/2005	0	18,000	2.9 J	17.6	293	0.95	1.5 U	6,360	41.9	17.6
DRMOA5-B-5.5	5/17/2006	4	38,100	1.1 J	24.2	157	0.69 J	0.4 U	4,420	97.2	23.5
DRMOA5-SWE-3	5/17/2006	1.5	35,000	0.59 J	21.4	166	0.73 J	1.1 J	10,500	84.9	20.1
DRMOA5-SWN-3	5/17/2006	1.5	47,300	0.63 J	26.2	158	0.84 J	10.5	4,680	121	26.2
DRMOA5-SWS-3	5/17/2006	1.5	25,700	1.2 J	11.2	444	0.7 J	0.33 U	19,700	66.1	17.9
DRMOA5-SWW-3	5/17/2006	1.5	26,000	1.5 J	24.2	300	0.62 J	0.33 U	8,430	61.5	21.4
DRMO-SW001-01-1.0	9/21/2005	0	15,600	1.7 J	10.9	187	0.89 J	0.3 U	19,700	30.7	8.9 J
DRMO-SW002_003-01-1.5	9/21/2005	0	8,680	1.1 J	6.6	179	1.1	0.31 J	3,630	17	5.9 J
DRMO-SW005_004-01-1.5	9/21/2005	0	11,800	2.3 J	6.4	194	0.89	0.88	7,310	39.9	13.7
DRMO-SW008_009-01-2	10/1/2005	0.5	18,100	2.9 J	10	237	0.59 J	0.32 J	53,300	37.8	11.9
DRMO-SW008_009-01-2-DUP	10/1/2005	0	20,600	1.6 J	11	241	0.63 J	0.3 U	25,000	42.8	13.9
DRMO-SW016-01-2	10/1/2005	0	26,200	3.6 U	7	271	0.48 J	1.5 U	16,500	42.5	17.3

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	77,000	31	0.39	15,000	160	70	NE	280	23
Industrial PRGs	--	--	990,000	410	1.60	190,000	2,000	810	NE	1,400	300
Ambient Fill Concentration	--	--	35,000	9	36	NE	1	5	NE	140	NE
DRMO-SW018-01-1	9/27/2005	0	5,290	4.9 J	5.5	230	0.14 J	0.54 J	726 J	22.6	1.1 J
DRMO-SW025_026-01-1.5	10/7/2005	0	28,200	3.5 U	1 J	83.5	0.2 J	1.4 U	13,500	23.4	30.8
DRMO-SW029_017-01-1.5	10/1/2005	0	9,060	7.6 J	7.5	113	0.56 J	0.3 U	1,670	59.2	5.6 J
DRMO-SW052-01-1.5	10/1/2005	0	24,700	1.8 J	13.7	166	0.6 J	0.32 U	5,660	63.3	17.3
DRMO-SW066-01-1.5	10/1/2005	0	21,100	1.7 J	12.5	353	0.77 J	0.3 U	15,000	45.1	12.4
DRMO-SW080-01-1.5	10/29/2005	0	37,900	3.5 U	14.4	378	0.89	15.9	20,000	58.7	18.5
DRMO-SW085-01-1.5	9/20/2005	0	12,500	2.4 J	14	134	0.84	0.27 U	2,450	42.1	9
DRMO-SW086-01-1.5	1/6/2006	0	19,000	3.6 J	9.8	97.2	0.5 J	0.31 U	4,050	32	5.9 J
DRMO-SW093-01-1.5	10/29/2005	0	18,800	3.6 U	7	183	0.53 J	0.17 J	13,400	31.1	10.6
DRMO-SW093-01-1.5-DUP	10/29/2005	0	17,700	0.82 J	8.1	202	0.49 J	0.36 J	13,500	30.1	10.6
DRMO-SW094-01-1.5	10/29/2005	0	42,200	0.57 J	12	150	0.77 J	0.4 U	5,540	106	14.5
DRMO-SW094N-01-1.5	10/29/2005	0	30,400	1.5 J	8.6	227	0.76 J	0.34 J	33,500	50.5	10.9
DRMO-SW094S-01-1.5	10/29/2005	0	19,100	0.79 J	9.9	192	0.63 J	0.29 U	10,100	34.8	9.7
DRMO-SW095-01-2	9/15/2005	0.5	11,300	1.8 J	13.2	163	0.46 J	0.16 J	2,640	27.1	7.2 J
DRMO-SW096-01-1.5	9/20/2005	0	13,900	1.6 J	8.8	161	0.78 J	0.3 U	3,280	27.5	11
DRMO-SW097-01-1.5	12/17/2005	0	15,600	1.8 J	11	288	0.67 J	0.31 U	2,400	29.5	15.1
DRMO-SW100-01-1.5	12/10/2005	0	13,900	2.4 J	8.4	379	0.33 J	0.29 J	3,100	32.5	6.2 J
DRMO-A1-1.5-SW-E	1/5/2007	4	14,100	0.64 J	9.6	246	0.58	0.13 U	20,600	28.7	7.1
DRMO-A1-1.5-SW-NE	11/17/2006	4	14,000	0.74 U	13.5	257	0.57 J	0.27 J	12,900	33.4	10.2
DRMO-A1-1.5-SW-NW	11/17/2006	4	14,100	0.89 U	14.2	268	0.61 J	0.12 U	14,300	33.1	11.6
DRMO-A1-1.5-SW-SE	11/17/2006	4	17,300	0.78 U	12.4	403	0.84	0.1 U	8,330	33.8	10.8
DRMO-A2-1.5-SW-E	11/17/2006	5	40,500	0.96 U	30.9	121	0.91 J	0.13 U	5,200	117	22.6
DRMO-A3-2.0-SW-E	11/17/2006	4	11,000	0.7 U	10.4	150	0.33 J	0.51 J	4,360	22.2	7.1
DRMO-A3-2.0-SW-W	11/17/2006	4	13,400	0.75 U	15.1	228	0.43 J	0.99	6,460	27.7	8.5
DRMO-Area 1-2	10/23/2006	4.5	10,800	0.6 U	8	154	0.49	0.13 J	28,800	21.9	6.6
DRMO-Area 2-2	10/24/2006	5.5	20,800	0.51 J	15.6	58.6	0.47	0.56	2,600	63.2	12.5
DRMO-Area 3-2.0-SW-S	1/4/2007	4	11,500	0.57 U	8.5	313	0.43	0.11 U	2,700	26	6.1
DRMO-Area 3-2.5	10/23/2006	4.5	8,680	0.59 U	11.9	175	0.52	0.12 U	16,300	20.6	7
DRMO-Area 4-5	10/24/2006	4	20,000	0.5 U	16.3	63.3	0.45	0.78	2,510	59.2	13.2
DRMO-Area4-4.5-SW-E	11/16/2006	3	40,600	1 U	33.2	120	0.83 J	0.35 J	5,370	118	23.8
DRMO-FS-11-4.5	12/13/2006	4.5	27,100	1.5 J	33.7	109	0.68	0.72	3,280	90.8	20.5
DRMO-FS-11-4.5-DUP	12/13/2006	4.5	22,500	0.85 U	20.8	303	0.81	0.28 J	3,990	59.4	13.8
DRMO-FS-11-4-SW-E	1/5/2007	4	27,000	0.82 U	20.3	99	0.69	0.56	3,810	83.8	18.5
DRMO-FS-11-4-SW-N	12/13/2006	4	13,000	0.94 J	14.4	192	0.63	0.22 J	3,480	28.1	9.3
DRMO-FS-11-4-SW-S	12/13/2006	4	22,300	1.2 J	18.8	106	0.53	0.18 J	3,390	68.8	11.6
DRMO-FS-15-1.5-SW-E	1/4/2007	1.5	14,200	0.62 U	6.9	177	0.47	0.12 U	14,500	26.2	11.8
DRMO-FS-15-1.5-SW-N	1/4/2007	1.5	12,200	0.63 U	6.4	209	0.4	0.25	12,900	31.1	10.2
DRMO-FS15-1.5-SW-S	11/17/2006	1.5	21,700	0.72 U	16	211	0.64 J	0.097 U	10,300	54.1	15.6

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	77,000	31	0.39	15,000	160	70	NE	280	23
Industrial PRGs	--	--	990,000	410	1.60	190,000	2,000	810	NE	1,400	300
Ambient Fill Concentration	--	--	35,000	9	36	NE	1	5	NE	140	NE
DRMO-FS-15-1.5-SW-W	1/4/2007	1.5	**13,300**	0.61 U	**8.2**	**530**	**0.43**	0.12 U	**6,460**	**39.4**	**10.3**
DRMO-FS-15-1.5-SW-W-DUP	1/4/2007	1.5	**15,600**	0.65 U	**7**	**2700**	**0.47**	0.13 U	**21,200**	**43.3**	**12**
DRMO-FS15-2	10/23/2006	2	**16,500**	0.53 U	**9**	**274**	**0.61**	0.11 U	**25,600**	**38.5**	**14.2**
DRMO-FS15-2-DUP	10/23/2006	2	**16,000**	0.53 U	**7.4**	**245**	**0.68**	**0.23**	**22,600**	**43.3**	**14.9**
DRMO-FS-34-4.0-SW-N	1/4/2007	4	**27,100**	0.9 U	**19.9**	**201**	**0.7**	**0.35** J	**33,300**	**76.3**	**21.1**
DRMO-FS-34-4.0-SW-N-DUP	1/4/2007	4	**27,100**	0.83 U	**29.2**	**124**	**0.67**	**0.78**	**4,370**	**83.3**	**21.9**
DRMO-FS-34-4.0-SW-W	1/4/2007	4	**28,900**	0.85 U	**21.8**	**99.5**	**0.71**	**0.56**	**3,160**	**85.5**	**19.2**
DRMO-FS-34-4.5	12/11/2006	4.5	**26,000**	0.79 U	**21.9**	**92.6**	**0.73**	**0.46**	**4,290**	**84**	**17.6**
DRMO-FS-34-4-SW-E	12/11/2006	4	**19,100**	0.62 U	**10.9**	**307**	**0.58**	**0.12** J	**25,100**	**45.6**	**23.7**
DRMO-FS-34-4-SW-S	12/11/2006	4	**18,700**	0.66 U	**11.8**	**272**	**0.58**	**0.19** J	**15,100**	**47.8**	**16.9**
DRMO-FS-38-4.0-SW-W-1	2/7/2007	4	**13,800**	0.6 U	**6.2**	**178**	**0.43**	0.12 U	**12,800**	**37.8**	**11.5**
DRMO-FS-38-4.5	12/11/2006	4.5	**22,800**	0.75 U	**22.5**	**96.4**	**0.63**	**0.53**	**4,250**	**69.8**	**15.9**
DRMO-FS38-4-SW-E	12/11/2006	4	**10,300**	0.62 U	**7.5**	**156**	**0.51**	0.12 U	**16,400**	**22.1**	**9.9**
DRMO-FS38-4-SW-S	12/11/2006	4	**16,300**	0.68 U	**6.6**	**186**	**0.61**	0.14 U	**12,900**	**33.5**	**10.2**
DRMO-FS40-1.5-SW-E	11/17/2006	1.5	**11,200**	0.7 U	**10.5**	**247**	**0.48** J	0.093 U	**2,900**	**26.3**	**9.3**
DRMO-FS46-1.5-SW-N	1/4/2007	1.5	**28,000**	0.84 U	**21.6**	**131**	**0.76**	**0.34**	**3,800**	**84.9**	**17.5**
DRMO-FS46-1.5-SW-W	11/16/2006	1.5	**22,700**	0.73 U	**11.6**	**270**	**0.62** J	0.098 U	**3,400**	**38.3**	**9.5**
DRMO-FS46-2	10/24/2006	2	**12,400**	0.5 U	**8**	**153**	**0.48**	**0.11** J	**1,470**	**22.2**	**7.3**
DRMO-FS47-1.5-SW-E	11/16/2006	1.5	**23,100**	0.77 U	**12.4**	**241**	**0.83** J	0.1 U	**13,800**	**46.7**	**15.7**
DRMO-FS47-2	10/24/2006	2	**9,410**	0.5 U	**5.6**	**268**	**0.35**	0.1 U	**4,530**	**23.5**	**8.2**
DRMO-FS-5-4.5	12/13/2006	4.5	**24,100**	**0.96** J	**16.6**	**168**	**0.65**	**0.23** J	**4,380**	**64.7**	**14.3**
DRMO-FS-5-4-SW-E	12/13/2006	4	**12,000**	**1.3**	**11.7**	**415**	**0.5**	**0.15** J	**5,120**	**26.5**	**9.6**
DRMO-FS-5-4-SW-N	12/13/2006	4	**13,900**	**0.94** J	**12.9**	**159**	**0.55**	**0.14** J	**4,780**	**34.8**	**8.7**
DRMO-FS-5-4-SW-S	12/13/2006	4	**12,200**	0.72 U	**7.1**	**220**	**0.46**	0.14 U	**7,510**	**21.8**	**7.4**
DRMO-FS59-1.5-SW-S	11/16/2006	1.5	**16,900**	0.73 U	**20.2**	**179**	**0.56** J	**0.1** J	**6,290**	**33.3**	**12.4**
DRMO-FS59-1.5-SW-W	11/16/2006	1.5	**13,200**	0.73 U	**8.5**	**295**	**0.52** J	0.098 U	**1,950**	**28.8**	**7.6**
DRMO-FS59-2	10/24/2006	2	**7,720**	0.5 U	**9.2**	**129**	**0.33**	0.1 U	**1,320**	**16**	**5.7**
DRMO-FS60-1.5-SW-E	11/16/2006	1.5	**20,200**	0.72 U	**18.3**	**298**	**0.67** J	**0.26** J	**17,000**	**61.8**	**13.2**
DRMO-FS60-1.5-SW-E-DUP	11/16/2006	1.5	**19,900**	0.71 U	**23**	**233**	**0.66** J	0.094 U	**19,700**	**49.8**	**12.8**
DRMO-FS60-2	10/24/2006	2	**11,900**	0.5 U	**9.2**	**172**	**0.39**	**0.17** J	**5,400**	**30.2**	**9.2**
DRMO-FS6-1.5-SW-E	11/17/2006	1.5	**11,400**	0.7 U	**12.1**	**163**	**0.43** J	0.094 U	**3,480**	**25.5**	**8.5**
DRMO-FS6-1.5-SW-E-DUP	11/17/2006	1.5	**11,000**	0.69 U	**13.9**	**180**	**0.5** J	0.092 U	**3,830**	**22.7**	**9.3**
DRMO-FS6-1.5-SW-S	11/17/2006	1.5	**11,200**	0.71 U	**13.7**	**200**	**0.33** J	0.095 U	**5,090**	**20.9**	**7.2**
DRMO-FS6-2	10/23/2006	2	**11,500**	0.56 U	**7.8**	**141**	0.11 U	**0.74**	**176,000**	**28.5**	**6.7**
DRMO-FS62-1.5-SW-E	11/16/2006	1.5	**21,600**	0.76 U	**13.2**	**256**	**0.72**	0.1 U	**16,800**	**59.1**	**14.1**
DRMO-FS62-1.5-SW-N	11/16/2006	1.5	**20,100**	0.71 U	**18.2**	**252**	**0.66**	0.095 U	**12,500**	**74.3**	**15.7**
DRMO-FS62-1.5-SW-W	11/16/2006	1.5	**18,000**	0.73 U	**10.7**	**433**	**0.62**	0.097 U	**15,800**	**46**	**13.2**
DRMO-FS62-1.5-SW-W-DUP	11/16/2006	1.5	**19,800**	0.72 U	**12.9**	**359**	**0.7**	0.095 U	**17,200**	**51.8**	**13.1**

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	77,000	31	0.39	15,000	160	70	NE	280	23
Industrial PRGs	--	--	990,000	410	1.60	190,000	2,000	810	NE	1,400	300
Ambient Fill Concentration	--	--	35,000	9	36	NE	1	5	NE	140	NE
DRMO-FS62-2	10/23/2006	2	11,400	0.55 U	8.6	216	0.45	0.11 U	6,320	27.7	8.6
DRMO-FS68-1.5-SW-N-2	1/25/2007	1.5	6,850	0.85 J	8.6	128	0.49	0.12 U	3,150	16.8	9.3
DRMO-FS68-1.5-SW-N-2-DUP	1/25/2007	1.5	7,050	0.6 U	8.2	157	0.47	0.12 U	3,150	17.4	9.1
DRMO-FS68-1.5-SW-S	11/17/2006	1.5	13,200	0.72 U	11.3	158	0.65 J	0.096 U	2,900	28.1	12
DRMO-FS68-1.5-SW-W	11/17/2006	1.5	14,100	0.74 U	13.9	166	0.64 J	0.098 U	2,680	31	10.8
DRMO-FS68-2	10/24/2006	2	8,520	0.71 J	8.8	346	0.5	0.21	5,090	18.9	6.9
DRMO-FS74-1.5-SW-E	11/16/2006	1.5	15,300	0.75 U	12.8	907	0.52 J	0.1 U	4,940	32.3	8.9
DRMO-FS74-1.5-SW-W	11/16/2006	1.5	15,700	0.77 U	12.1	173	0.55 J	0.1 U	1,810	28.5	7.2
DRMO-FS74-2	10/24/2006	2	7,300	0.5 U	7.9	141	0.41	0.18 J	1,980	15.8	7.5
DRMO-FS76-1.5-SW-S	11/16/2006	1.5	9,530	0.73 U	12.1	107	0.52 J	0.098 U	1,260	21.1	7
DRMO-FS76-1.5-SW-W	11/16/2006	1.5	14,500	0.74 U	12.1	102	0.69	0.099 U	2,160	32.8	7.7
DRMO-FS76-2	10/23/2006	2	11,400	0.59 U	12	609	0.73	0.12 U	3,440	24.3	9.3
DRMO-FS77-1.5-SW-E	11/16/2006	1.5	15,700	0.72 U	11.5	142	0.55 J	0.097 U	2,080	28.8	6.9
DRMO-FS77-1.5-SW-N	1/4/2007	1.5	15,500	0.62 U	8.9	241	0.49	0.12 U	4,830	43.1	12.9
DRMO-FS77-1.5-SW-S	11/16/2006	1.5	14,600	0.73 U	9.1	124	0.53 J	0.097 U	3,530	31.4	7.7
DRMO-FS77-2	10/23/2006	2	30,900	0.79 U	21.9	134	0.74	0.63	4,580	94.5	18.9
DRMO-FS83-1.5-SW-N	11/17/2006	1.5	15,800	0.73 U	14.5	329	0.58 J	0.098 U	8,930	35.3	6.9
DRMO-FS83-1.5-SW-N-DUP	11/17/2006	1.5	15,600	0.71 U	13.4	198	0.67 J	0.095 U	4,690	33.1	8.2
DRMO-FS83-2	10/24/2006	2	7,980	0.5 U	9.9	150	0.49	0.15 J	4,250	18.9	6.1
DRMO-FS-87-1.5-SW-E	1/5/2007	1.5	13,700	1 J	15.3	155	0.58	1.3	5,050	40.3	9.9
DRMO-FS-87-1.5-SW-W	1/5/2007	0	6,640	1.2 U	24.8	98.2	0.33	0.45	5,020	21.2	4.2
DRMO-FS87-2	10/24/2006	2	7,210	1.9	13.3	151	0.46	1.1	2,440	17.7	5.6
DRMO-FS92-1.5-SW-E	11/17/2006	1.5	14,400	0.74 U	10	176	0.55 J	0.098 U	7,810	26.6	8.1
DRMO-FS92-1.5-SW-N	11/17/2006	1.5	12,500	0.65 U	6.1	142	0.43 J	0.087 U	13,000	23.5	7.4
DRMO-FS92-1.5-SW-W	11/17/2006	1.5	12,200	0.74 U	13.1	132	0.51 J	0.098 U	5,390	25.9	7.2
DRMO-FS92-2	10/23/2006	2	30,400	0.8 U	23.4	100	0.78	0.69	4,530	95.1	21.5
DRMO-FS-10-1.5-SW-N	7/19/2007	4	9,700	2.3	9	120	0.49	0.55	3,100	29	9.9
DRMO-FS-101-3.5-SW-S	7/20/2007	2	24,000	3.1	17	120	0.66	0.0036 U	3,800	74	17
DRMO-FS-101-3.5-SW-W	7/20/2007	2	28,000	2.5	19	130	0.71	0.62	4,400	81	19
DRMO-FS-101-4-C	7/20/2007	2.5	30,000	2.2	22	87	0.82	0.52	4,200	91	19
DRMO-FS-101-4-C-DUP	7/20/2007	2.5	28,000	2.4	22	76	0.79	0.87	3,700	87	18
DRMO-FS-101-SW-N-1	12/19/2007	2	14,000	0.52 J	14	220	0.55	0.08 J	2,900	27	9.7
DRMO-FS-10-5.5-SW-W-1	8/1/2007	4	29,000	0.041 U	22	73	0.77	0.59	3,800	81	19
DRMO-FS-10-6-C	8/1/2007	5	29,000	0.04 U	21	78	0.78	0.0039 U	3,200	81	19
DRMO-FS-10-6-C-DUP	8/1/2007	5	30,000	0.044 U	22	77	0.82	0.0042 U	3,200	85	20
DRMO-FS-108-7.5-SW-NW	8/27/2007	6	25,000	0.13 U	19	150	0.69	0.035 U	3,400	72	18
DRMO-FS-108-8-C	11/20/2007	6.5	27,000	0.15 U	9.8	61	0.66	0.23 J	2,200	72	13
DRMO-FS-109-8-C	7/30/2007	6.5	28,000	0.037 U	20	69	0.71	0.47	2,100	71	15

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	77,000	31	0.39	15,000	160	70	NE	280	23
Industrial PRGs	--	--	990,000	410	1.60	190,000	2,000	810	NE	1,400	300
Ambient Fill Concentration	--	--	35,000	9	36	NE	1	5	NE	140	NE
DRMO-FS-110-4-C	8/22/2007	2.5	29,000	1.8	24	83	0.7	0.52	3,200	85	18
DRMO-FS-111-1.5-SW-S	7/27/2007	0	14,000	0.031 U	9.9	120	0.5	0.29	3,600	34	8.6
DRMO-FS-111-2-C	7/27/2007	0.5	11,000	0.029 U	9.7	72	0.64	0.0028 U	1,100	22	5.3
DRMO-FS-112-1.5-SW-S	7/24/2007	0	11,000	3.8	9.2	130	0.43	0.63	9,500	25	7.2
DRMO-FS-112-2-C	7/24/2007	0.5	11,000	0.088 U	17	220	0.5	0.024 U	1,600	22	6.8
DRMO-FS-132-7.5-SW-N-1	8/27/2007	6	10,000	0.11 U	14	330	0.56	0.34	4,300	24	8.7
DRMO-FS-132-7.5-SW-N-1-DUP	8/27/2007	6	27,000	0.16 U	29	56	0.71	0.043 U	4,700	75	18
DRMO-FS-132-7.5-SW-W	7/27/2007	6	15,000	0.043 U	12	200	0.34	1.4	4,800	46	9.2
DRMO-FS-132-8-C	7/30/2007	7	29,000	0.041 U	19	90	0.7	0.004 U	2,700	79	16
DRMO-FS-134-7.5-SW-N	7/27/2007	6	17,000	0.032 U	9.5	200	0.66	1.4	7,500	29	11
DRMO-FS-135-6-C	8/1/2007	5	31,000	0.042 U	18	62	0.83	0.004 U	2,200	84	19
DRMO-FS-135-7.5-SW-NW	7/27/2007	6	15,000	0.033 U	17	230	0.53	9.2	3,700	38	10
DRMO-FS-136-6-C	8/1/2007	4.5	28,000	0.044 U	31	66	0.77	0.0043 U	2,500	84	30
DRMO-FS-137-7.5-SW-S	8/27/2007	6	23,000	0.13 U	20	73	0.69	0.036 U	2,400	73	19
DRMO-FS-137-7.5-SW-W	8/27/2007	6	24,000	0.12 U	15	64	0.6	0.034 U	2,100	64	13
DRMO-FS-137-8-C	8/27/2007	6.5	21,000	0.16 U	15	54	0.63	0.045 U	2,200	63	14
DRMO-FS-138-7.5-SW-W-1	8/27/2007	6	29,000	0.16 U	18	97	0.72	0.55	3,000	75	15
DRMO-FS-138-8-C	8/22/2007	6.5	30,000	2.8	17	61	0.71	0.0048 U	2,300	76	12
DRMO-FS-139-6-C	8/1/2007	4.5	28,000	0.042 U	22	80	0.81	0.004 U	2,300	84	18
DRMO-FS-140-5.5-SW-S	8/1/2007	4	28,000	0.038 U	21	72	0.72	0.0037 U	2,500	78	16
DRMO-FS-140-6-C	8/1/2007	4.5	25,000	0.038 U	19	68	0.63	0.0037 U	2,400	73	14
DRMO-FS-141-7.5-SW-S	8/22/2007	6	26,000	2.3	15	61	0.7	0.0045 U	2,400	74	15
DRMO-FS-141-8-C	8/22/2007	6.5	29,000	2.2	14	60	0.69	0.0045 U	2,300	73	16
DRMO-FS-142-7.5-SW-E	8/22/2007	6	28,000	1.7	18	61	0.73	0.0049 U	2,900	78	15
DRMO-FS-142-7.5-SW-E-DUP	8/22/2007	6	27,000	2.4	12	60	0.67	0.0047 U	2,300	71	10
DRMO-FS-142-7.5-SW-S	8/22/2007	6	28,000	2.1	22	58	0.71	0.0049 U	2,100	76	15
DRMO-FS-142-8-C	8/22/2007	6.5	25,000	1.3	17	61	0.74	0.0047 U	2,100	76	13
DRMO-FS-27-7.5-SW-N	7/27/2007	6	34,000	0.038 U	19	83	0.8	0.0036 U	3,400	88	20
DRMO-FS-27-7.5-SW-W-1	8/27/2007	6	22,000	0.13 U	19	130	0.64	1.6	3,400	68	15
DRMO-FS-27-8-C	7/30/2007	6.5	33,000	0.047 U	19	69	0.81	0.0045 U	2,600	86	18
DRMO-FS-28-7.5-SW-N	7/30/2007	6	20,000	0.039 U	12	200	0.67	0.64	17,000	41	13
DRMO-FS-28-7.5-SW-W	7/27/2007	6	36,000	0.04 U	19	100	0.81	0.52	3,100	93	16
DRMO-FS-28-8-C-TPH	9/11/2007	6.5	15,000	0.031 U	14	270	0.65	0.36	5,100	30	10
DRMO-FS-40-8-C	7/30/2007	6.5	24,000	0.039 U	17	110	0.65	0.0038 U	3,500	67	15
DRMO-FS-53-8-C	8/1/2007	6.5	33,000	0.042 U	32	77	0.88	1	2,200	91	16
DRMO-FS-67-2-C	7/24/2007	2	10,000	0.75	9.2	140	0.52	0.024 U	2,200	21	6.6
DRMO-FS-81-1.5-SW-S	7/24/2007	0	9,000	0.1 U	5.9	87	0.36	0.027 U	2,000	14	5.4
DRMO-FS-81-2-C	7/24/2007	0.5	12,000	0.094 U	9.7	150	0.5	0.44	36,000	19	7.5

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	77,000	31	0.39	15,000	160	70	NE	280	23
Industrial PRGs	--	--	990,000	410	1.60	190,000	2,000	810	NE	1,400	300
Ambient Fill Concentration	--	--	35,000	9	36	NE	1	5	NE	140	NE
DRMO-FS-82-1.5-SW-S	7/24/2007	0	12,000	3	8.7	110	0.68	0.025 U	2,100	22	9.8
DRMO-FS-82-2-C	7/24/2007	0.5	9,500	0.098 U	7.4	260	0.51	0.027 U	1,200	15	10
DRMO-FS-83-1.5-SW-S-1	8/22/2007	1.5	12,000	2.7	3.1	46	0.21	0.0031 U	18,000	15	12
DRMO-FS-83-2-C	7/24/2007	2	10,000	1.2	12	130	0.53	0.029 U	2,300	20	6.6
DRMO-FS-84-1.5-SW-S	7/27/2007	0	9,300	0.029 U	9.4	240	0.51	0.0028 U	3,200	18	7.3
DRMO-FS-84-1.5-SW-W	7/27/2007	0	11,000	0.028 U	8.2	190	0.47	0.0027 U	4,600	20	6.7
DRMO-FS-84-2-C	7/27/2007	0.5	10,000	0.029 U	7.8	100	0.47	0.0028 U	1,900	19	6.1
DRMO-FS-98-1.5-SW-N	7/20/2007	0	8,400	1.2	5.9	170	0.38	0.0032 U	1,700	14	7.5
DRMO-FS-98-1.5-SW-S	7/20/2007	0	11,000	2.1	6.5	170	0.47	0.0028 U	22,000	23	9.2
DRMO-FS-98-1.5-SW-W	7/20/2007	0	11,000	2.7	7.9	190	0.5	0.0029 U	8,100	22	8.7
DRMO-FS-98-2-C	7/20/2007	0.5	8,000	2	5.9	110	0.32	0.003 U	5,200	21	7.3
Summary Statistics	Percent Detection		100.0%	48.3%	100.0%	100.0%	99.6%	36.1%	100.0%	100.0%	100.0%
	Maximum		47,300	7.60	33.70	2700	1.20	15.90	176000	121	30.80
	Minimum		5,290	0.03	1	46	0.11	0.0027	726	14	1.10
	Average		18,629	1.02	12.98	203	1	0.43	8151.41	44	12
	Median		16,200	0.82	11.70	169.5	0.62	0.29	4330	34.40	11
	Standard Deviation		7931.69	1.00	5.85	198.66	0.16	1.39	13555.08	23.89	4.79

[shaded box] Detected concentration exceeds the Industrial PRG
Detected results are marked in **bold**
U - not detected above the method detection limit
J - estimated value
NE - not established
NA - not analyzed
PRG - preliminary remediation goal
DUP - duplicate sample
µg/kg - micrograms per kilogram
ft bgs - feet below ground surface

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	3,100	55,000	400	NE	1,800	7	390	1,600
Industrial PRGs	--	--	41,000	720,000	800	NE	23,000	28	5,100	20,000
Ambient Fill Concentration	--	--	120	62,000	59	NE	1,600	2	NE	130
DRMO001-01-1.5	9/27/2005	0	38	30,600	18.1	6,040	307	0.03 J	NA	35.4
DRMO002_003-01-1.5	9/27/2005	0	33.1	29,600	15.2	5,310	220	0.04 U	NA	38.7
DRMO007-01-1.5	9/27/2005	0	234	36,000	188	3,260	1070	0.83	NA	32.3
DRMO008_009-01-1.5	9/27/2005	0	156	40,300	46.9	2,590	1590	0.17	NA	31.1
DRMO012-01-1.5	9/27/2005	0	40.8	26,300	32.7	5,660	507	0.19	NA	22.5
DRMO012-01-1.5-DUP	9/27/2005	0	35.2	24,200	30.3	5,200	241	0.27	NA	20.9
DRMO013-01-1.5	9/27/2005	0	25.6	23,200	17.5	5,840	190	0.04 U	NA	23.5
DRMO018_017-01-1.5	9/27/2005	0	146	14,100	67.2	1,640	372	0.27	NA	45.2
DRMO019-01-1.5	9/27/2005	0	23.7	26,100	11	4,020	235	0.04 U	NA	22.1
DRMO019-01-1.5-DUP	9/27/2005	0	19.4	26,000	8.9	4,220	236	0.04 U	NA	23.2
DRMO020-01-1.5	10/1/2005	0	26	33,700	16.2	4,330	252	0.08 J	NA	20.8
DRMO021-01-1.5	10/1/2005	0	23	27,700	12.6	5,020	214	0.04 U	NA	20.4
DRMO023-01-1.5	10/1/2005	0	76.4	35,700	17.2	5,860	352	0.06 J	NA	29.8
DRMO024-01-1.5	10/15/2005	0	26.3	37,000	13.4	6,990	371	0.03 J	NA	42.9
DRMO025_026-01-1.5	10/7/2005	0	119	44,800	38	9,870	470	0.14	NA	39.6
DRMO028_027-01-1.5	10/1/2005	0	292	24,000	105	1,330	738	0.66	NA	16.1
DRMO029-01-1.5	9/27/2005	0	37.2	26,200	15.1	4,860	268	0.04 J	NA	21.4
DRMO029-01-1.5-DUP	9/27/2005	0	31.4	28,900	13	5,460	233	0.04 J	NA	23.2
DRMO030-01-1.5	9/27/2005	0	43	23,800	36.2	3,400	402	0.15	NA	24
DRMO031-01-1.5	9/27/2005	0	27.9	27,400	10.7	6,120	247	0.04 U	NA	28.6
DRMO032-01-1.5	10/1/2005	0	21.4	21,200	15.6	3,750	252	0.03 J	NA	18.2
DRMO035-01-1.5	9/27/2005	0	54.2	46,400	26.4	6,830	488	0.03 J	NA	38.2
DRMO036-01-1.5	10/15/2005	0	93.5	41,200	13.1	11,900	1020	0.04 J	NA	61.3
DRMO041-01-1.5	10/1/2005	0	25.3	23,500	11.6	3,700	271	0.04 U	NA	24.7
DRMO042-01-1.5	10/8/2005	0	33.2	25,100	14.9	3,850	330	0.19	NA	31
DRMO043-01-1.5	10/8/2005	0	66.4	28,100	42.8	4,290	219	0.92	NA	32.2
DRMO044-01-1.5	10/8/2005	0	22.4	22,200	9.8	5,750	263	0.04 U	NA	21.4
DRMO045-01-1.5	10/15/2005	0	88.8	41,800	16.1	4,530	138	0.04 U	NA	24.2
DRMO048-01-1.5	10/7/2005	0	71.4	41,700	12.5	9,540	791	0.06 J	NA	50.7
DRMO049-01-1.5	10/7/2005	0	66	42,500	28.9	9,790	575	0.04 J	NA	57.9
DRMO049-01-1.5-DUP	10/7/2005	0	71.4	43,700	46.3	9,810	628	0.22	NA	58.1
DRMO050-01-1.5	10/15/2005	0	64.8	29,600	28.8	6,340	348	0.04 U	NA	34
DRMO051-01-1.5	10/15/2005	0	73.4	28,500	12	7,580	936	0.04 U	NA	50
DRMO052-01-1.5	10/1/2005	0	115	27,500	76.8	6,140	291	0.72	NA	41.9
DRMO053-01-1.5	10/1/2005	0	27.9	29,100	17.7	3,220	465	0.04 U	NA	26.8
DRMO055-01-1.5	10/15/2005	0	49	33,700	14	4,630	459	0.04 U	NA	29
DRMO056-01-1.5	10/15/2005	0	79	22,400	21.7	3,710	226	0.05 J	NA	21.1

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	3,100	55,000	400	NE	1,800	7	390	1,600
Industrial PRGs	--	--	41,000	720,000	800	NE	23,000	28	5,100	20,000
Ambient Fill Concentration	--	--	120	62,000	59	NE	1,600	2	NE	130
DRMO057-01-1.5	9/8/2005	0	30.2	27,200	35.8	4,190	674	0.05 J	NA	25
DRMO058-01-1.5	9/8/2005	0	36.1	25,800	26	4,680	292	0.04 U	NA	35.7
DRMO061-01-1.5	12/15/2005	0	102	25,700	47.6	5,540	369	0.06 J	NA	40.8
DRMO064-01-1.5	10/29/2005	0	40.9	35,800	10.3	10,700	350	0.09 J	NA	56.4
DRMO065-01-1.5	12/17/2005	0	43.4	35,700	9.1	10,200	324	0.06 J	NA	57.5
DRMO066_080-01-1.5	10/1/2005	0	81.2	29,500	63.6	4,410	333	0.27	NA	38.6
DRMO069-01-1.5	11/7/2005	0	65.2	32,400	65.7	6,280	408	0.14	NA	49.2
DRMO069-01-1.5-DUP	11/7/2005	0	86.7	30,900	95.9	6,090	401	0.12 J	NA	46.2
DRMO070-01-1.5	9/8/2005	0	22.8	21,200	11.4	4,270	310	0.04 U	NA	26.3
DRMO071-01-1.5	9/8/2005	0	32.7	25,400	31.8	4,320	325	0.04 U	NA	27.8
DRMO072-01-1.5	9/8/2005	0	30.2	23,900	14.4	3,940	283	0.04 U	NA	28.9
DRMO073-01-1.5	11/7/2005	0	18.8	17,000	8.9	2,350	135	0.03 J	NA	10
DRMO075-01-1.5	9/8/2005	0	25.4	19,200	11.6	3,720	212	0.04 U	NA	32.4
DRMO078-01-1.5	12/15/2005	0	21.5	24,100	9.9	2,780	151	0.04 U	NA	17.3
DRMO079-01-1.5	10/29/2005	0	29.3	27,500	26.1	4,190	314	0.14	NA	26.4
DRMO079-01-1.5-DUP	10/29/2005	0	31.7	27,900	31.9	4,540	388	0.13	NA	30.7
DRMO082-01-3.5	9/20/2005	2	35.3	25,200	25.5	3,230	313	0.06 J	NA	34.6
DRMO085-01-1.5	9/8/2005	0	41.7	38,000	21.5	3,640	481	0.04 U	NA	35.3
DRMO089_096-01-1.5	9/8/2005	0	47.4	36,200	64.4	4,300	381	0.04 J	NA	41.9
DRMO090-01-1.5	12/17/2005	0	24.9	22,200	9.5	3,370	196	0.04 J	NA	25.6
DRMO091-01-1.5	11/7/2005	0	220	27,000	119	4,550	300	0.17	NA	25.4
DRMO091-01-1.5-DUP	11/7/2005	0	295	27,100	134	5,080	288	0.04 J	NA	27.4
DRMO093-01-1.5	10/21/2005	0	263	22,900	25.3	3,720	233	0.1 J	NA	27.1
DRMO094-01-1.5	10/21/2005	0	25.9	28,200	12.7	4,800	260	0.02 J	NA	31.2
DRMO097-01-1.5	12/17/2005	0	57	27,500	54	4,270	291	0.08 J	NA	26.5
DRMO098-01-1.5	12/15/2005	0	45	31,300	30.4	5,120	276	0.03 J	NA	29.6
DRMO100-01-1.5	12/10/2005	0	46.1	34,500	15.6	6,010	335	0.04 U	NA	40
DRMOA5-B-5.5	5/17/2006	4	88.8	45,900	52.6	10,700	730	1.7	NA	93.5
DRMOA5-SWE-3	5/17/2006	1.5	98.7	45,800	80.8	10,200	826	0.82	NA	89.3
DRMOA5-SWN-3	5/17/2006	1.5	108	54,500	58.5	13,800	733	1	NA	117
DRMOA5-SWS-3	5/17/2006	1.5	51.8	39,400	14.6	12,000	536	0.06 J	NA	66.2
DRMOA5-SWW-3	5/17/2006	1.5	109	34,700	91.6	9,050	584	0.66	NA	59.6
DRMO-SW001-01-1.0	9/21/2005	0	54.7	21,300	39.3	4,220	310	0.82	NA	25.4
DRMO-SW002_003-01-1.5	9/21/2005	0	142	22,000	160	2,010	941	1.2	NA	24.3
DRMO-SW005_004-01-1.5	9/21/2005	0	86.5	25,500	100	4,590	1000	0.74	NA	30.7
DRMO-SW008_009-01-2	10/1/2005	0.5	90.2	24,200	99.2	5,280	893	0.64	NA	38.2
DRMO-SW008_009-01-2-DUP	10/1/2005	0	89.2	28,100	99.9	6,060	797	0.73	NA	45.3
DRMO-SW016-01-2	10/1/2005	0	49.2	46,100	17.6	10,500	544	0.14	NA	36.1

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	3,100	55,000	400	NE	1,800	7	390	1,600
Industrial PRGs	--	--	41,000	720,000	800	NE	23,000	28	5,100	20,000
Ambient Fill Concentration	--	--	120	62,000	59	NE	1,600	2	NE	130
DRMO-SW018-01-1	9/27/2005	0	41.9	9,030	347	384 J	55.6	0.12	NA	10.9
DRMO-SW025_026-01-1.5	10/7/2005	0	64.7	74,300	25.4	16,300	1070	0.12	NA	22.7
DRMO-SW029_017-01-1.5	10/1/2005	0	99.7	22,000	168	2,630	408	0.58	NA	31
DRMO-SW052-01-1.5	10/1/2005	0	66.1	37,300	35.1	8,470	356	0.33	NA	67.4
DRMO-SW066-01-1.5	10/1/2005	0	45.5	31,000	98.7	5,830	316	0.41	NA	41.5
DRMO-SW080-01-1.5	10/29/2005	0	31.5	47,500	12.1	7,880	427	0.07 J	NA	54.6
DRMO-SW085-01-1.5	9/20/2005	0	60.3	31,600	24.3	4,010	253	0.1	NA	105
DRMO-SW086-01-1.5	1/6/2006	0	23.4	26,100	10.6	3,810	167	0.04 U	NA	19.5
DRMO-SW093-01-1.5	10/29/2005	0	19.1	23,400	10.7	3,710	345	0.13	NA	30.6
DRMO-SW093-01-1.5-DUP	10/29/2005	0	21	22,800	77.6	3,760	283	0.1 J	NA	29.4
DRMO-SW094-01-1.5	10/29/2005	0	45.7	47,400	12.5	11,100	386	0.19	NA	76.3
DRMO-SW094N-01-1.5	10/29/2005	0	42.1	32,300	22.8	5,900	327	0.16	NA	42.1
DRMO-SW094S-01-1.5	10/29/2005	0	63.4	27,000	15.1	5,170	366	0.1 J	NA	30.3
DRMO-SW095-01-2	9/15/2005	0.5	1630	21,100	156	3,110	182	6.3	NA	23.6
DRMO-SW096-01-1.5	9/20/2005	0	23.5	25,200	42.6	4,640	349	0.03 U	NA	25.5
DRMO-SW097-01-1.5	12/17/2005	0	28.8	27,600	16.8	3,820	665	0.04 U	NA	44.5
DRMO-SW100-01-1.5	12/10/2005	0	77.5	24,000	52.7	4,510	221	0.04 U	NA	28.2
DRMO-A1-1.5-SW-E	1/5/2007	4	29.2	22,000	12	4,990	129	0.092	NA	31.2
DRMO-A1-1.5-SW-NE	11/17/2006	4	42.6	28,600	1180	5,330	280	0.09 J	NA	35.9
DRMO-A1-1.5-SW-NW	11/17/2006	4	68.6	28,700	32.4	5,490	346	0.72	NA	33.2
DRMO-A1-1.5-SW-SE	11/17/2006	4	24.1	26,500	12.7	4,400	217	0.07 J	NA	40.2
DRMO-A2-1.5-SW-E	11/17/2006	5	99.3	51,000	35.2 J	14,300	956	1	NA	124
DRMO-A3-2.0-SW-E	11/17/2006	4	49.6	22,900	9.9	3,930	198	0.029 J	NA	23
DRMO-A3-2.0-SW-W	11/17/2006	4	132	29,200	35.5	4,640	256	0.045 J	NA	26.4
DRMO-Area 1-2	10/23/2006	4.5	26.3	21,800	12.8	4,150	928	0.12	NA	21.4
DRMO-Area 2-2	10/24/2006	5.5	58.5	27,400	23.8	8,680	536	1.2 J	NA	69.1
DRMO-Area 3-2.0-SW-S	1/4/2007	4	23.3	20,600	12.4	4,280	194	0.038 J	NA	28.6
DRMO-Area 3-2.5	10/23/2006	4.5	24	25,500	10.3	6,550	750	0.085	NA	20.4
DRMO-Area 4-5	10/24/2006	4	58.4	26,900	28.8	7,760	1110	1.3 J	NA	62
DRMO-Area4-4.5-SW-E	11/16/2006	3	105	50,100	38 J	14,200	917	1.1	NA	124
DRMO-FS-11-4.5	12/13/2006	4.5	284	50,400	55.7	10,300	668	0.61	NA	117
DRMO-FS-11-4.5-DUP	12/13/2006	4.5	64.9	35,100	47.8	8,070	547	0.26	NA	60.5
DRMO-FS-11-4-SW-E	1/5/2007	4	78.6	38,200	32.5	12,400	765	0.67	NA	96.2
DRMO-FS-11-4-SW-N	12/13/2006	4	68.3	28,900	35.7	5,470	390	0.085	NA	30.9
DRMO-FS-11-4-SW-S	12/13/2006	4	51.5	24,200	78.5	6,500	326	0.41	NA	56.1
DRMO-FS-15-1.5-SW-E	1/4/2007	1.5	60	32,700	48.2	7,960	1210	0.48	NA	30
DRMO-FS-15-1.5-SW-N	1/4/2007	1.5	72.6	24,100	43.8	5,270	525	0.27	NA	33.7
DRMO-FS15-1.5-SW-S	11/17/2006	1.5	125	32,900	96.1 J	9,840	586	0.84	NA	57

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	3,100	55,000	400	NE	1,800	7	390	1,600
Industrial PRGs	--	--	41,000	720,000	800	NE	23,000	28	5,100	20,000
Ambient Fill Concentration	--	--	120	62,000	59	NE	1,600	2	NE	130
DRMO-FS-15-1.5-SW-W	1/4/2007	1.5	**31.8**	**22,900**	**7.2**	**7,540**	**293**	**0.041** J	NA	**39.9**
DRMO-FS-15-1.5-SW-W-DUP	1/4/2007	1.5	**37.1**	**26,700**	**8.6**	**8,820**	**381**	**0.087**	NA	**47.6**
DRMO-FS15-2	10/23/2006	2	**43.2**	**24,500**	**18.1**	**6,690**	**945**	**0.15**	NA	**44.5**
DRMO-FS15-2-DUP	10/23/2006	2	**164**	**25,900**	**70.6**	**7,020**	**458**	**0.52**	NA	**47.7**
DRMO-FS-34-4.0-SW-N	1/4/2007	4	**81.6**	**41,100**	**33.8**	**12,100**	**1610**	**1.2** J	NA	**83.7**
DRMO-FS-34-4.0-SW-N-DUP	1/4/2007	4	**91.9**	**41,200**	**64.4**	**11,900**	**852**	**0.6**	NA	**95.1**
DRMO-FS-34-4.0-SW-W	1/4/2007	4	**81.9**	**37,400**	**37.4**	**11,500**	**537**	**0.62**	NA	**89.9**
DRMO-FS-34-4.5	12/11/2006	4.5	**86**	**38,300**	**40.5**	**11,700**	**981**	**1.8** J	NA	**86.8**
DRMO-FS-34-4-SW-E	12/11/2006	4	**70.8**	**31,700**	**15.3**	**9,860**	**781**	**0.072**	NA	**61.4**
DRMO-FS-34-4-SW-S	12/11/2006	4	**58.4**	**32,200**	**16.6**	**9,510**	**654**	**0.42**	NA	**57.9**
DRMO-FS-38-4.0-SW-W-1	2/7/2007	4	**30.8**	**22,600**	**7.7**	**7,610**	**331**	**0.038** J	NA	**39.9**
DRMO-FS-38-4.5	12/11/2006	4.5	**71.5**	**34,100**	**81.1**	**9,790**	**483**	**1.6** J	NA	**78.1**
DRMO-FS38-4-SW-E	12/11/2006	4	**27**	**17,800**	**10.6**	**3,960**	**188**	**0.23**	NA	**25.2**
DRMO-FS38-4-SW-S	12/11/2006	4	**37.8**	**19,400**	**116**	**4,030**	**118**	**0.21**	NA	**35.5**
DRMO-FS40-1.5-SW-E	11/17/2006	1.5	**30.3**	**21,400**	**10.6**	**4,120**	**317**	0.023 U	NA	**28.8**
DRMO-FS46-1.5-SW-N	1/4/2007	1.5	**86.9**	**39,200**	**46.1**	**11,700**	**592**	**0.86**	NA	**86.6**
DRMO-FS46-1.5-SW-W	11/16/2006	1.5	**27.7**	**29,200**	**10.1** J	**4,860**	**141**	0.024 U	NA	**24.8**
DRMO-FS46-2	10/24/2006	2	**24.1**	**19,400**	**9.8**	**2,920**	**238**	**0.083**	NA	**17.8**
DRMO-FS47-1.5-SW-E	11/16/2006	1.5	**58.4**	**38,300**	**45.9** J	**8,330**	**680**	**0.2**	NA	**47.6**
DRMO-FS47-2	10/24/2006	2	**27.7**	**16,200**	**9.1**	**4,270**	**159**	**0.18**	NA	**26.6**
DRMO-FS-5-4.5	12/13/2006	4.5	**65.5**	**32,100**	**73.3**	**8,460**	**512**	**0.32**	NA	**66.3**
DRMO-FS-5-4-SW-E	12/13/2006	4	**39.5**	**22,800**	**54.6**	**5,680**	**293**	**0.15**	NA	**29.8**
DRMO-FS-5-4-SW-N	12/13/2006	4	**48.5**	**24,200**	**54.6**	**5,210**	**284**	**0.051**	NA	**37.2**
DRMO-FS-5-4-SW-S	12/13/2006	4	**24**	**22,300**	**9.2**	**6,560**	**214**	**0.052** J	NA	**19.1**
DRMO-FS59-1.5-SW-S	11/16/2006	1.5	**118**	**26,900**	**197** J	**5,670**	**371**	**3**	NA	**35.1**
DRMO-FS59-1.5-SW-W	11/16/2006	1.5	**43**	**20,400**	**41.4** J	**3,740**	**223**	**0.062** J	NA	**25.2**
DRMO-FS59-2	10/24/2006	2	**21**	**18,900**	**15.4**	**3,340**	**156**	**0.093**	NA	**15.7**
DRMO-FS60-1.5-SW-E	11/16/2006	1.5	**86.7**	**33,000**	**35.1** J	**8,610**	**383**	**3**	NA	**72.7**
DRMO-FS60-1.5-SW-E-DUP	11/16/2006	1.5	**111**	**32,800**	**41.8** J	**7,940**	**334**	**2.6**	NA	**47**
DRMO-FS60-2	10/24/2006	2	**120**	**22,300**	**12.9**	**5,610**	**270**	**0.16**	NA	**31.9**
DRMO-FS6-1.5-SW-E	11/17/2006	1.5	**31**	**25,100**	**12.7**	**5,670**	**202**	**0.041** J	NA	**18.8**
DRMO-FS6-1.5-SW-E-DUP	11/17/2006	1.5	**27.3**	**26,000**	**14**	**5,500**	**191**	**0.024** J	NA	**23.9**
DRMO-FS6-1.5-SW-S	11/17/2006	1.5	**25.9**	**21,900**	**117**	**5,280**	**191**	**0.034** J	NA	**18.4**
DRMO-FS6-2	10/23/2006	2	**24.1**	**18,400**	**8.5**	**8,670**	**506**	**0.11**	NA	**24.3**
DRMO-FS62-1.5-SW-E	11/16/2006	1.5	**46.7**	**35,600**	**13.4**	**9,930**	**395**	**0.028** J	NA	**57.4**
DRMO-FS62-1.5-SW-N	11/16/2006	1.5	**178**	**54,300**	**122**	**7,530**	**546**	**0.54**	NA	**160**
DRMO-FS62-1.5-SW-W	11/16/2006	1.5	**39**	**27,700**	**15.8**	**8,090**	**449**	**0.051** J	NA	**45.7**
DRMO-FS62-1.5-SW-W-DUP	11/16/2006	1.5	**44.1**	**31,700**	**17.4**	**9,190**	**417**	**0.037** J	NA	**51.8**

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	3,100	55,000	400	NE	1,800	7	390	1,600
Industrial PRGs	--	--	41,000	720,000	800	NE	23,000	28	5,100	20,000
Ambient Fill Concentration	--	--	120	62,000	59	NE	1,600	2	NE	130
DRMO-FS62-2	10/23/2006	2	41	19,900	32.3	5,310	238	0.18	NA	30.1
DRMO-FS68-1.5-SW-N-2	1/25/2007	1.5	28.3	18,300	9.1	3,210	657	0.038 J	NA	34.9
DRMO-FS68-1.5-SW-N-2-DUP	1/25/2007	1.5	29.1	18,700	10	3,230	508	0.02 J	NA	34.9
DRMO-FS68-1.5-SW-S	11/17/2006	1.5	26.7	28,000	11.7 J	2,840	255	0.076 J	NA	29.8
DRMO-FS68-1.5-SW-W	11/17/2006	1.5	35.4	24,100	23.2 J	3,520	268	0.14	NA	36.1
DRMO-FS68-2	10/24/2006	2	29.9	20,700	28.5	2,950	261	0.17	NA	24.5
DRMO-FS74-1.5-SW-E	11/16/2006	1.5	79.1	25,000	27.8 J	4,160	233	0.081 J	NA	29.5
DRMO-FS74-1.5-SW-W	11/16/2006	1.5	22.8	25,200	8.4 J	3,890	185	0.026 U	NA	20.2
DRMO-FS74-2	10/24/2006	2	21.4	16,600	7.9	2,880	215	0.11	NA	27.7
DRMO-FS76-1.5-SW-S	11/16/2006	1.5	22.7	23,000	7.9	2,650	136	0.024 U	NA	18.6
DRMO-FS76-1.5-SW-W	11/16/2006	1.5	24.9	28,800	8.6	4,000	161	0.031 J	NA	29.2
DRMO-FS76-2	10/23/2006	2	35.2	22,000	13.2	4,700	252	0.14	NA	26
DRMO-FS77-1.5-SW-E	11/16/2006	1.5	24.5	25,900	10.2	4,840	195	0.024 U	NA	16.3
DRMO-FS77-1.5-SW-N	1/4/2007	1.5	34.3	27,500	13.4	8,770	441	0.097	NA	43.8
DRMO-FS77-1.5-SW-S	11/16/2006	1.5	49.5	22,000	31.7	3,840	207	0.18	NA	26.2
DRMO-FS77-2	10/23/2006	2	83.3	42,600	33.5	13,300	1000	1.2	NA	103
DRMO-FS83-1.5-SW-N	11/17/2006	1.5	35.8	34,000	38.5 J	3,000	260	0.038 J	NA	23.4
DRMO-FS83-1.5-SW-N-DUP	11/17/2006	1.5	43.4	28,000	29.3 J	3,500	240	0.19	NA	27.8
DRMO-FS83-2	10/24/2006	2	27.1	20,500	23.6	2,640	170	0.067	NA	20.4
DRMO-FS-87-1.5-SW-E	1/5/2007	1.5	54.9	25,600	129	5,250	259	0.5	NA	42.5
DRMO-FS-87-1.5-SW-W	1/5/2007	0	238	15,200	112	2,420	119	20.2 J	NA	13.8
DRMO-FS87-2	10/24/2006	2	168	23,200	408	2,210	168	0.077	NA	23.5
DRMO-FS92-1.5-SW-E	11/17/2006	1.5	21.5	22,400	10.2	3,950	187	0.025 U	NA	26.9
DRMO-FS92-1.5-SW-N	11/17/2006	1.5	12.8	17,600	5	3,520	126	0.022 U	NA	27.2
DRMO-FS92-1.5-SW-W	11/17/2006	1.5	30.2	26,600	21.9	3,810	219	0.041 J	NA	22.8
DRMO-FS92-2	10/23/2006	2	87.1	40,800	38.5	13,400	840	0.81	NA	106
DRMO-FS-10-1.5-SW-N	7/19/2007	4	55	26,000	67	3,800	370	0.57	2.5999999	39
DRMO-FS-101-3.5-SW-S	7/20/2007	2	71	41,000	31	12,000	560	1	1.2	87
DRMO-FS-101-3.5-SW-W	7/20/2007	2	77	46,000	32	14,000	1100	0.94	1.3	91
DRMO-FS-101-4-C	7/20/2007	2.5	90	50,000	49	14,000	1200	1	1.2	100
DRMO-FS-101-4-C-DUP	7/20/2007	2.5	91	46,000	38	13,000	1100	1.3	0.96	96
DRMO-FS-101-SW-N-1	12/19/2007	2	24	28,000	12	6,000	280	0.006 U	0.73	28
DRMO-FS-10-5.5-SW-W-1	8/1/2007	4	76	40,000	39	11,000	1100	0.68	0.48	82
DRMO-FS-10-6-C	8/1/2007	5	65	41,000	40	10,000	630	0.6	0.033 U	81
DRMO-FS-10-6-C-DUP	8/1/2007	5	71	45,000	32	11,000	770	0.65	0.035 U	82
DRMO-FS-108-7.5-SW-NW	8/27/2007	6	85	40,000	32	11,000	430	0.68	0.59	78
DRMO-FS-108-8-C	11/20/2007	6.5	52	36,000	20	7,400	470	0.5	0.77	63
DRMO-FS-109-8-C	7/30/2007	6.5	67	42,000	40	9,800	470	0.54	0.03 U	69

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	3,100	55,000	400	NE	1,800	7	390	1,600
Industrial PRGs	--	--	41,000	720,000	800	NE	23,000	28	5,100	20,000
Ambient Fill Concentration	--	--	120	62,000	59	NE	1,600	2	NE	130
DRMO-FS-110-4-C	8/22/2007	2.5	**74**	**45,000**	**32**	**14,000**	**720**	**1.2**	0.035 U	**94**
DRMO-FS-111-1.5-SW-S	7/27/2007	0	**79**	**37,000**	**46**	**4,300**	**260**	**0.19**	**0.85**	**51**
DRMO-FS-111-2-C	7/27/2007	0.5	**16**	**25,000**	**7.5**	**2,700**	**130**	0.0051 U	0.023 U	**20**
DRMO-FS-112-1.5-SW-S	7/24/2007	0	**41**	**24,000**	**54**	**4,300**	**320**	0.0049 U	**0.79**	**22**
DRMO-FS-112-2-C	7/24/2007	0.5	**27**	**32,000**	**13**	**3,200**	**230**	**0.068**	**1.2**	**15**
DRMO-FS-132-7.5-SW-N-1	8/27/2007	6	**71**	**28,000**	**30**	**5,300**	**410**	**0.19**	**0.74**	**30**
DRMO-FS-132-7.5-SW-N-1-DUP	8/27/2007	6	**80**	**47,000**	**28**	**12,000**	**1800**	**0.68**	0.091 U	**78**
DRMO-FS-132-7.5-SW-W	7/27/2007	6	**170**	**28,000**	**580**	**4,900**	**230**	**1.2**	0.035 U	**78**
DRMO-FS-132-8-C	7/30/2007	7	**81**	**42,000**	**62**	**10,000**	**360**	**0.78**	**0.62**	**86**
DRMO-FS-134-7.5-SW-N	7/27/2007	6	**38**	**25,000**	**30**	**4,700**	**380**	**0.12**	0.026 U	**35**
DRMO-FS-135-6-C	8/1/2007	5	**48**	**43,000**	**30**	**11,000**	**350**	**0.53**	0.034 U	**85**
DRMO-FS-135-7.5-SW-NW	7/27/2007	6	**180**	**32,000**	**340**	**6,000**	**590**	**5.4**	**0.51**	**53**
DRMO-FS-136-6-C	8/1/2007	4.5	**58**	**40,000**	**25**	**9,800**	**540**	**0.67**	**0.69**	**110**
DRMO-FS-137-7.5-SW-S	8/27/2007	6	**66**	**40,000**	**24**	**10,000**	**390**	**0.72**	0.076 U	**78**
DRMO-FS-137-7.5-SW-W	8/27/2007	6	**60**	**38,000**	**32**	**10,000**	**270**	**0.55**	0.072 U	**72**
DRMO-FS-137-8-C	8/27/2007	6.5	**48**	**32,000**	**17**	**7,400**	**680**	**0.4**	0.095 U	**61**
DRMO-FS-138-7.5-SW-W-1	8/27/2007	6	**120**	**50,000**	**92**	**12,000**	**1100**	**8**	**0.52**	**85**
DRMO-FS-138-8-C	8/22/2007	6.5	**44**	**34,000**	**32**	**8,500**	**200**	**0.52**	0.04 U	**69**
DRMO-FS-139-6-C	8/1/2007	4.5	**56**	**43,000**	**25**	**11,000**	**380**	**0.58**	0.034 U	**85**
DRMO-FS-140-5.5-SW-S	8/1/2007	4	**55**	**41,000**	**23**	**9,800**	**820**	**0.59**	0.031 U	**73**
DRMO-FS-140-6-C	8/1/2007	4.5	**49**	**37,000**	**21**	**9,100**	**420**	**0.53**	0.031 U	**69**
DRMO-FS-141-7.5-SW-S	8/22/2007	6	**55**	**40,000**	**38**	**9,600**	**490**	**0.53**	0.038 U	**73**
DRMO-FS-141-8-C	8/22/2007	6.5	**43**	**37,000**	**19**	**7,600**	**680**	**0.47**	0.038 U	**78**
DRMO-FS-142-7.5-SW-E	8/22/2007	6	**45**	**48,000**	**37**	**8,800**	**660**	**0.48**	0.041 U	**75**
DRMO-FS-142-7.5-SW-E-DUP	8/22/2007	6	**39**	**40,000**	**29**	**8,100**	**380**	**0.54**	0.04 U	**62**
DRMO-FS-142-7.5-SW-S	8/22/2007	6	**44**	**41,000**	**25**	**8,900**	**310**	**0.54**	0.041 U	**77**
DRMO-FS-142-8-C	8/22/2007	6.5	**44**	**37,000**	**26**	**8,200**	**450**	**0.59**	0.04 U	**72**
DRMO-FS-27-7.5-SW-N	7/27/2007	6	**79**	**45,000**	**33**	**12,000**	**480**	**0.82**	0.03 U	**91**
DRMO-FS-27-7.5-SW-W-1	8/27/2007	6	**78**	**36,000**	**40**	**10,000**	**450**	**0.73**	**0.74**	**73**
DRMO-FS-27-8-C	7/30/2007	6.5	**62**	**46,000**	**25**	**12,000**	**440**	**0.52**	**0.5**	**85**
DRMO-FS-28-7.5-SW-N	7/30/2007	6	**160**	**39,000**	**220**	**4,700**	**690**	**1.3**	0.031 U	**48**
DRMO-FS-28-7.5-SW-W	7/27/2007	6	**71**	**46,000**	**39**	**13,000**	**660**	**1.3**	0.032 U	**95**
DRMO-FS-28-8-C-TPH	9/11/2007	6.5	**53**	**30,000**	**190**	**5,500**	**420**	**0.31**	0.025 U	**32**
DRMO-FS-40-8-C	7/30/2007	6.5	**56**	**40,000**	**27**	**8,900**	**430**	**0.52**	0.032 U	**85**
DRMO-FS-53-8-C	8/1/2007	6.5	**89**	**43,000**	**74**	**13,000**	**300**	**1.4**	0.034 U	**94**
DRMO-FS-67-2-C	7/24/2007	2	**26**	**24,000**	**9.4**	**2,800**	**120**	**0.046**	**0.46**	**22**
DRMO-FS-81-1.5-SW-S	7/24/2007	0	**12**	**20,000**	**4.2**	**4,100**	**200**	0.0055 U	**0.29**	**15**
DRMO-FS-81-2-C	7/24/2007	0.5	**27**	**26,000**	**29**	**3,800**	**710**	**0.036**	**0.45**	**20**

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel
Reporting Units	**--**	**ft bgs**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Residential PRGs	**--**	**--**	**3,100**	**55,000**	**400**	**NE**	**1,800**	**7**	**390**	**1,600**
Industrial PRGs	**--**	**--**	**41,000**	**720,000**	**800**	**NE**	**23,000**	**28**	**5,100**	**20,000**
Ambient Fill Concentration	**--**	**--**	**120**	**62,000**	**59**	**NE**	**1,600**	**2**	**NE**	**130**
DRMO-FS-82-1.5-SW-S	7/24/2007	0	**28**	**23,000**	**13**	**3,900**	**280**	**0.11**	**0.5**	**23**
DRMO-FS-82-2-C	7/24/2007	0.5	**15**	**23,000**	**6.9**	**2,900**	**230**	0.0049 U	**0.71**	**25**
DRMO-FS-83-1.5-SW-S-1	8/22/2007	1.5	**38**	**31,000**	**15**	**7,700**	**430**	**1.3**	0.026 U	**17**
DRMO-FS-83-2-C	7/24/2007	2	**23**	**25,000**	**7.6**	**2,800**	**250**	0.0052 U	**0.7**	**20**
DRMO-FS-84-1.5-SW-S	7/27/2007	0	**21**	**26,000**	**22**	**3,400**	**250**	**0.11**	**0.39**	**21**
DRMO-FS-84-1.5-SW-W	7/27/2007	0	**19**	**22,000**	**13**	**3,700**	**270**	**0.035**	**0.32**	**21**
DRMO-FS-84-2-C	7/27/2007	0.5	**17**	**19,000**	**8.9**	**3,600**	**180**	**0.028**	**0.53**	**15**
DRMO-FS-98-1.5-SW-N	7/20/2007	0	**18**	**20,000**	**7.5**	**3,900**	**140**	**0.027**	**0.32**	**18**
DRMO-FS-98-1.5-SW-S	7/20/2007	0	**53**	**25,000**	**160**	**4,100**	**320**	**0.21**	**0.54**	**29**
DRMO-FS-98-1.5-SW-W	7/20/2007	0	**220**	**26,000**	**160**	**4,100**	**240**	**0.47**	**0.6**	**24**
DRMO-FS-98-2-C	7/20/2007	0.5	**21**	**16,000**	**50**	**4,600**	**230**	**0.1**	**0.38**	**27**
Summary Statistics	**Percent Detection**		**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**84.0%**	**52.5%**	**100.0%**
	Maximum		**1630**	**74300**	**1180**	**16300**	**1800**	**20.20**	**2.60**	**160**
	Minimum		**12**	**9030**	**4.20**	**384**	**55.60**	**0.0049**	**0.023**	**10**
	Average		**69.26**	**30689.20**	**50**	**6,496**	**441.04**	**0.51**	**0**	**45**
	Median		**48.25**	**28000**	**28.25**	**5395**	**349.5**	**0.13**	**0.32**	**34.90**
	Standard Deviation		**113.05**	**9363.03**	**97.18**	**3232.78**	**287.15**	**1.54**	**0.47**	**27.13**

[shaded box] Detected concentration exceeds the Industrial PRG
Detected results are marked in **bold**
U - not detected above the method detection limit
J - estimated value
NE - not established
NA - not analyzed
PRG - preliminary remediation goal
DUP - duplicate sample
µg/kg - micrograms per kilogram
ft bgs - feet below ground surface

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
Reporting Units	**--**	**ft bgs**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Residential PRGs	**--**	**--**	**NE**	**390**	**390**	**NE**	**5**	**47,000**	**550**	**23,000**
Industrial PRGs	**--**	**--**	**NE**	**5,100**	**5,100**	**NE**	**66**	**610,000**	**7,200**	**310,000**
Ambient Fill Concentration	**--**	**--**	**NE**	**NE**	**NE**	**NE**	**0**	**NE**	**190**	**230**
DRMO001-01-1.5	9/27/2005	0	**1,470**	**0.87** J	0.6 U	295.3 U	0.6 U	NA	**61.6**	**72.9**
DRMO002_003-01-1.5	9/27/2005	0	**1,250**	**0.98**	0.63 U	**24.4** J	0.63 U	NA	**61.6**	**56**
DRMO007-01-1.5	9/27/2005	0	**991**	**1.3**	0.53 U	269.3 U	2.7 U	NA	**47.3**	**380**
DRMO008_009-01-1.5	9/27/2005	0	**2,050**	1.4 U	0.53 U	272.7 U	2.7 U	NA	**50.8**	**112**
DRMO012-01-1.5	9/27/2005	0	**1,740**	**1.4**	0.57 U	**17.9** J	2.9 U	NA	**47.3**	**114**
DRMO012-01-1.5-DUP	9/27/2005	0	**1,690**	**0.86** J	0.57 U	**30** J	2.9 U	NA	**49.5**	**104**
DRMO013-01-1.5	9/27/2005	0	**1,540**	**0.82** J	0.63 U	**368** J	0.63 U	NA	**46.8**	**59.5**
DRMO018_017-01-1.5	9/27/2005	0	**799** J	**1.1**	0.6 U	293 U	2.9 U	NA	**36.1**	**178**
DRMO019-01-1.5	9/27/2005	0	**1,530**	**1.6**	0.63 U	**184** J	0.63 U	NA	**49.4**	**53.8**
DRMO019-01-1.5-DUP	9/27/2005	0	**1,560**	**1.4**	0.6 U	**165** J	0.6 U	NA	**47.7**	**55.4**
DRMO020-01-1.5	10/1/2005	0	**1,900**	**3.3**	0.57 U	**161** J	0.57 U	NA	**53.9**	**69.5**
DRMO021-01-1.5	10/1/2005	0	**2,030**	**2.7**	0.63 U	**332** J	0.63 U	NA	**51.4**	**59.2**
DRMO023-01-1.5	10/1/2005	0	**2,320**	**3.5**	0.57 U	286.7 U	0.57 U	NA	**57.8**	**90**
DRMO024-01-1.5	10/15/2005	0	**2,180**	**1.8**	0.63 U	323.3 U	0.63 U	NA	**62.4**	**77**
DRMO025_026-01-1.5	10/7/2005	0	**2,060**	**2.4** J	0.7 U	**573** J	**4.6** J	NA	**111**	**209**
DRMO028_027-01-1.5	10/1/2005	0	**496** J	**2.6**	0.63 U	319.7 U	3.2 U	NA	**17.8**	**693**
DRMO029-01-1.5	9/27/2005	0	**1,700**	**1.6**	0.6 U	**181** J	0.6 U	NA	**48.6**	**68.4**
DRMO029-01-1.5-DUP	9/27/2005	0	**2,140**	**1.3**	0.57 U	**226** J	0.57 U	NA	**57.2**	**62.4**
DRMO030-01-1.5	9/27/2005	0	**1,240**	**1**	0.57 U	280 U	0.57 U	NA	**51.7**	**150**
DRMO031-01-1.5	9/27/2005	0	**1,920**	**1.1**	0.6 U	**84.4** J	0.6 U	NA	**55**	**65.1**
DRMO032-01-1.5	10/1/2005	0	**1,400**	**2.4**	0.6 U	300.7 U	0.6 U	NA	**38.5**	**101**
DRMO035-01-1.5	9/27/2005	0	**3,080**	1.5 U	0.6 U	302 U	3 U	NA	**64.5**	**213**
DRMO036-01-1.5	10/15/2005	0	**2,730**	1.5 U	0.63 U	**42.7** J	3.1 U	NA	**86.3**	**97.2**
DRMO041-01-1.5	10/1/2005	0	**1,850**	**1**	0.6 U	**418** J	0.6 U	NA	**42.5**	**57.1**
DRMO042-01-1.5	10/8/2005	0	**1,830**	**1.2**	0.63 U	313 U	0.63 U	NA	**45.3**	**78.4**
DRMO043-01-1.5	10/8/2005	0	**1,930**	**1.2**	0.6 U	**44.5** J	**1.3** J	NA	**51.5**	**106**
DRMO044-01-1.5	10/8/2005	0	**1,870**	**0.81** J	0.63 U	**257** J	**1.7** J	NA	**50.1**	**59.9**
DRMO045-01-1.5	10/15/2005	0	**1,450**	1.6 U	0.63 U	**516** J	3.1 U	NA	**89.6**	**55.9**
DRMO048-01-1.5	10/7/2005	0	**3,040**	**3.1** J	0.6 U	293.3 U	2.9 U	NA	**80.2**	**111**
DRMO049-01-1.5	10/7/2005	0	**2,580**	**3.3** J	0.6 U	**421** J	3.1 U	NA	**95.1**	**149**
DRMO049-01-1.5-DUP	10/7/2005	0	**2,480**	**2.1** J	0.63 U	**34.9** J	3.1 U	NA	**89.2**	**327**
DRMO050-01-1.5	10/15/2005	0	**1,870**	**3.3**	0.63 U	**646** J	0.63 U	NA	**63.6**	**73.9**
DRMO051-01-1.5	10/15/2005	0	**1,340**	**1.7**	0.63 U	**1180**	3.2 U	NA	**61.3**	**54.5**
DRMO052-01-1.5	10/1/2005	0	**2,100**	**1.3**	0.7 U	324.3 U	**1.2** J	NA	**61.3**	**195**
DRMO053-01-1.5	10/1/2005	0	**1,720**	**1.1**	0.63 U	**72.9** J	0.63 U	NA	**45.7**	**65.8**
DRMO055-01-1.5	10/15/2005	0	**1,440**	**2.7**	0.63 U	**1390**	0.63 U	NA	**70.7**	**55**
DRMO056-01-1.5	10/15/2005	0	**1,440**	**2.4**	0.57 U	**431** J	0.57 U	NA	**48.1**	**59.3**

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
Reporting Units	**--**	**ft bgs**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Residential PRGs	**--**	**--**	**NE**	**390**	**390**	**NE**	**5**	**47,000**	**550**	**23,000**
Industrial PRGs	**--**	**--**	**NE**	**5,100**	**5,100**	**NE**	**66**	**610,000**	**7,200**	**310,000**
Ambient Fill Concentration	**--**	**--**	**NE**	**NE**	**NE**	**NE**	**0**	**NE**	**190**	**230**
DRMO057-01-1.5	9/8/2005	0	**1,740**	**2.7**	0.7 U	**264** J	3.4 U	NA	**54.1**	**72.9**
DRMO058-01-1.5	9/8/2005	0	**2,150**	**3**	0.63 U	313 U	0.63 U	NA	**54.6**	**94.7**
DRMO061-01-1.5	12/15/2005	0	**1,490**	**2.1**	0.7 U	**405** J	0.7 U	NA	**55.9**	**110**
DRMO064-01-1.5	10/29/2005	0	**2,250**	**2**	0.63 U	**951**	0.63 U	NA	**78**	**64.5**
DRMO065-01-1.5	12/17/2005	0	**2,170**	**2.7**	0.63 U	**669** J	3.2 U	NA	**73.1**	**87.4**
DRMO066_080-01-1.5	10/1/2005	0	**1,530**	**1.5**	0.6 U	**130** J	0.6 U	NA	**60.8**	**172**
DRMO069-01-1.5	11/7/2005	0	**2,550**	**2.1**	0.63 U	316.7 U	3.2 U	NA	**64.7**	**115**
DRMO069-01-1.5-DUP	11/7/2005	0	**2,450**	**1.9**	0.63 U	317.7 U	3.2 U	NA	**63.2**	**126**
DRMO070-01-1.5	9/8/2005	0	**2,120**	**1.6**	0.57 U	**388** J	0.57 U	NA	**41.8**	**66.4**
DRMO071-01-1.5	9/8/2005	0	**2,220**	**2**	0.63 U	310.7 U	0.63 U	NA	**56.1**	**72.6**
DRMO072-01-1.5	9/8/2005	0	**1,810**	**2.5**	0.63 U	312.7 U	0.63 U	NA	**47.5**	**69.8**
DRMO073-01-1.5	11/7/2005	0	**1,560**	**2.1**	0.7 U	**325** J	0.7 U	NA	**34.9**	**31**
DRMO075-01-1.5	9/8/2005	0	**1,990**	**1.6**	0.7 U	356.7 U	0.7 U	NA	**44.9**	**63.7**
DRMO078-01-1.5	12/15/2005	0	**901**	**2.4**	0.53 U	273 U	2.7 U	NA	**48.9**	**41.2**
DRMO079-01-1.5	10/29/2005	0	**1,990**	**2.2**	0.57 U	**478** J	0.57 U	NA	**53.3**	**81.8**
DRMO079-01-1.5-DUP	10/29/2005	0	**2,110**	**2.2**	0.57 U	**485** J	0.57 U	NA	**57.7**	**87.6**
DRMO082-01-3.5	9/20/2005	2	**1,340**	**2**	0.6 U	**271** J	3 U	NA	**45**	**87.2**
DRMO085-01-1.5	9/8/2005	0	**1,730**	**3.8**	0.7 U	328 U	0.7 U	NA	**75.7**	**87.6**
DRMO089_096-01-1.5	9/8/2005	0	**2,270**	**3.2**	0.63 U	309.3 U	0.63 U	NA	**59.9**	**85.4**
DRMO090-01-1.5	12/17/2005	0	**1,510**	**1.8**	0.6 U	304.3 U	0.6 U	NA	**37.6**	**60**
DRMO091-01-1.5	11/7/2005	0	**1,750**	**2.2**	0.63 U	321.7 U	0.63 U	NA	**50**	**403**
DRMO091-01-1.5-DUP	11/7/2005	0	**1,780**	**2.1**	0.63 U	319.7 U	0.63 U	NA	**52**	**358**
DRMO093-01-1.5	10/21/2005	0	**1,510**	**2.4**	0.63 U	314 U	0.63 U	NA	**53.9**	**67.6**
DRMO094-01-1.5	10/21/2005	0	**1,820**	**2.7**	0.6 U	**314** J	0.6 U	NA	**63.3**	**56.9**
DRMO097-01-1.5	12/17/2005	0	**1,480**	**2.3**	0.63 U	**538** J	3.1 U	NA	**49.8**	**112**
DRMO098-01-1.5	12/15/2005	0	**1,460**	**2.6**	0.63 U	310 U	3.1 U	NA	**55.9**	**940**
DRMO100-01-1.5	12/10/2005	0	**2,390**	**2.5**	0.6 U	304 U	**0.92** J	NA	**59.5**	**97.3**
DRMOA5-B-5.5	5/17/2006	4	**3,280**	**3.9**	**0.19** J	**1500**	3.8 U	NA	**108**	**193**
DRMOA5-SWE-3	5/17/2006	1.5	**3,450**	**9.9**	0.7 U	**1210**	3.5 U	NA	**106**	**210**
DRMOA5-SWN-3	5/17/2006	1.5	**4,280**	**16.7**	**0.16** J	**1870**	4 U	NA	**136**	**233**
DRMOA5-SWS-3	5/17/2006	1.5	**3,030**	**3.8**	0.7 U	**251** J	0.7 U	NA	**80.5**	**81.8**
DRMOA5-SWW-3	5/17/2006	1.5	**3,310**	**3.8**	0.7 U	**1110**	3.3 U	NA	**78.1**	**233**
DRMO-SW001-01-1.0	9/21/2005	0	**952**	**0.89** J	0.6 U	302.3 U	0.6 U	NA	**43.8**	**98.8**
DRMO-SW002_003-01-1.5	9/21/2005	0	**588** J	**2**	**0.11** J	277 U	2.8 U	NA	**28.3**	**386**
DRMO-SW005_004-01-1.5	9/21/2005	0	**973**	**1.4**	0.57 U	275.7 U	2.8 U	NA	**50**	**520**
DRMO-SW008_009-01-2	10/1/2005	0.5	**2,090**	**2.3**	0.6 U	295.7 U	3 U	NA	**55.8**	**222**
DRMO-SW008_009-01-2-DUP	10/1/2005	0	**2,190**	**1.2**	0.6 U	299 U	3 U	NA	**62.2**	**209**
DRMO-SW016-01-2	10/1/2005	0	**1,880**	**2.2** J	0.6 U	**378** J	3 U	NA	**116**	**98.6**

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	NE	390	390	NE	5	47,000	550	23,000
Industrial PRGs	--	--	NE	5,100	5,100	NE	66	610,000	7,200	310,000
Ambient Fill Concentration	--	--	NE	NE	NE	NE	0	NE	190	230
DRMO-SW018-01-1	9/27/2005	0	**370** J	**0.84**	0.57 U	280.7 U	0.57 U	NA	**29.4**	**71.3**
DRMO-SW025_026-01-1.5	10/7/2005	0	**1,110**	**7.5**	0.57 U	**490** J	3.8 U	NA	**219**	**140**
DRMO-SW029_017-01-1.5	10/1/2005	0	**919**	**1.2**	0.6 U	299 U	0.6 U	NA	**33.3**	**431**
DRMO-SW052-01-1.5	10/1/2005	0	**2,330**	**1.8**	0.63 U	**518** J	0.63 U	NA	**79.3**	**131**
DRMO-SW066-01-1.5	10/1/2005	0	**1,600**	**1.1**	0.6 U	297.3 U	0.6 U	NA	**59.9**	**111**
DRMO-SW080-01-1.5	10/29/2005	0	**3,440**	**10.8**	0.6 U	**603** J	3 U	NA	**103**	**97.4**
DRMO-SW085-01-1.5	9/20/2005	0	**1,640**	**2.9**	0.53 U	268.3 U	0.53 U	NA	**46.6**	**120**
DRMO-SW086-01-1.5	1/6/2006	0	**1,180**	**3.2**	0.63 U	**502** J	**0.74** J	NA	**54.4**	**44.4**
DRMO-SW093-01-1.5	10/29/2005	0	**1,400**	**0.92**	0.6 U	**390** J	0.6 U	NA	**50.7**	**47.4**
DRMO-SW093-01-1.5-DUP	10/29/2005	0	**1,450**	**1.3**	0.57 U	**471** J	0.57 U	NA	**50.4**	**49.9**
DRMO-SW094-01-1.5	10/29/2005	0	**4,550**	**2.8**	0.8 U	**1010** J	0.8 U	NA	**108**	**93.1**
DRMO-SW094N-01-1.5	10/29/2005	0	**2,260**	**2.1**	0.63 U	**841** J	3.2 U	NA	**72.4**	**69.5**
DRMO-SW094S-01-1.5	10/29/2005	0	**1,400**	**1.6**	0.57 U	**417** J	0.57 U	NA	**58.3**	**161**
DRMO-SW095-01-2	9/15/2005	0.5	**1,510**	**2.4**	**0.16** J	**172** J	0.63 U	NA	**37.5**	**382**
DRMO-SW096-01-1.5	9/20/2005	0	**1,540**	**2**	0.6 U	**762** J	0.6 U	NA	**49.4**	**64.5**
DRMO-SW097-01-1.5	12/17/2005	0	**1,590**	**2.6**	0.6 U	305.3 U	3.1 U	NA	**50.4**	**681**
DRMO-SW100-01-1.5	12/10/2005	0	**1,730**	**1.7**	0.63 U	309.3 U	**0.86** J	NA	**48.3**	**326**
DRMO-A1-1.5-SW-E	1/5/2007	4	**838**	0.76 U	0.13 U	**761**	0.64 U	NA	**42.5**	**45**
DRMO-A1-1.5-SW-NE	11/17/2006	4	NA	0.62 U	0.12 U	NA	**1.1** J	NA	**46.3**	**107**
DRMO-A1-1.5-SW-NW	11/17/2006	4	NA	0.74 U	0.15 U	NA	**1.1** J	NA	**51.5**	**136**
DRMO-A1-1.5-SW-SE	11/17/2006	4	NA	0.65 U	0.13 U	NA	**0.97** J	NA	**49.2**	**47.9**
DRMO-A2-1.5-SW-E	11/17/2006	5	NA	0.8 U	0.16 U	NA	**2.4**	NA	**115**	**181**
DRMO-A3-2.0-SW-E	11/17/2006	4	NA	0.59 U	0.12 U	NA	**0.94** J	NA	**38.7**	**349**
DRMO-A3-2.0-SW-W	11/17/2006	4	NA	0.63 U	0.13 U	NA	**1** J	NA	**53.3**	**289**
DRMO-Area 1-2	10/23/2006	4.5	**1,120**	0.73 U	0.12 U	**686**	0.6 U	NA	**33.2**	**52.9**
DRMO-Area 2-2	10/24/2006	5.5	**2,090**	0.6 U	**0.24** J	**2310**	0.5 U	NA	**59.7**	**110** J
DRMO-Area 3-2.0-SW-S	1/4/2007	4	**1,030**	0.69 U	0.11 U	**453**	0.57 U	NA	**37.9**	**47.4**
DRMO-Area 3-2.5	10/23/2006	4.5	**1,560**	0.71 U	0.12 U	**302**	0.59 U	NA	**47.2**	**62.6**
DRMO-Area 4-5	10/24/2006	4	**2,050**	0.6 U	**0.29** J	**1200**	0.5 U	NA	**60.9**	**121** J
DRMO-Area4-4.5-SW-E	11/16/2006	3	NA	0.84 U	0.17 U	NA	**2.2**	NA	**119**	**206**
DRMO-FS-11-4.5	12/13/2006	4.5	**2,800**	**2.2**	**0.22** J	**3490**	0.85 U	NA	**81.9**	**162**
DRMO-FS-11-4.5-DUP	12/13/2006	4.5	**2,320**	1 U	0.17 U	**1130**	0.85 U	NA	**71.7**	**129**
DRMO-FS-11-4-SW-E	1/5/2007	4	**2,710**	0.98 U	**0.26** J	**2640**	0.82 U	NA	**80.1**	**148**
DRMO-FS-11-4-SW-N	12/13/2006	4	**2,170**	0.78 U	0.13 U	**389**	0.65 U	NA	**42.9**	**113**
DRMO-FS-11-4-SW-S	12/13/2006	4	**2,490**	1 U	**0.3** J	**1210**	0.84 U	NA	**58.6**	**70.2**
DRMO-FS-15-1.5-SW-E	1/4/2007	1.5	**971**	0.75 U	**0.12** J	**545**	0.62 U	NA	**63.2**	**123**
DRMO-FS-15-1.5-SW-N	1/4/2007	1.5	**823**	0.75 U	0.13 U	**401**	0.63 U	NA	**46.4**	**144**
DRMO-FS15-1.5-SW-S	11/17/2006	1.5	NA	0.6 U	0.12 U	NA	**1.4**	NA	**72.7**	**214**

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
Reporting Units	**--**	**ft bgs**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Residential PRGs	**--**	**--**	**NE**	**390**	**390**	**NE**	**5**	**47,000**	**550**	**23,000**
Industrial PRGs	**--**	**--**	**NE**	**5,100**	**5,100**	**NE**	**66**	**610,000**	**7,200**	**310,000**
Ambient Fill Concentration	**--**	**--**	**NE**	**NE**	**NE**	**NE**	**0**	**NE**	**190**	**230**
DRMO-FS-15-1.5-SW-W	1/4/2007	1.5	**834**	0.73 U	0.12 U	**846**	0.61 U	NA	**43**	**55.6**
DRMO-FS-15-1.5-SW-W-DUP	1/4/2007	1.5	**1,100**	0.77 U	0.13 U	**965**	0.65 U	NA	**51.2**	**66.4**
DRMO-FS15-2	10/23/2006	2	**1,190**	0.64 U	0.11 U	**1410**	0.53 U	NA	**49**	**68.6**
DRMO-FS15-2-DUP	10/23/2006	2	**1,400**	**1** J	0.11 U	**1320**	0.53 U	NA	**58.4**	**146**
DRMO-FS-34-4.0-SW-N	1/4/2007	4	**2,690**	1.1 U	**0.21** J	**2700**	0.9 U	NA	**84.3**	**140**
DRMO-FS-34-4.0-SW-N-DUP	1/4/2007	4	**2,660**	1 U	**0.45** J	**2580**	0.83 U	NA	**83.5**	**221**
DRMO-FS-34-4.0-SW-W	1/4/2007	4	**3,000**	1 U	**0.28** J	**2400**	0.85 U	NA	**88.7**	**142**
DRMO-FS-34-4.5	12/11/2006	4.5	**2,610**	0.94 U	**0.24** J	**1050** J	0.79 U	NA	**89.7**	**161**
DRMO-FS-34-4-SW-E	12/11/2006	4	**1,880**	0.74 U	0.12 U	**1120** J	0.62 U	NA	**58.6**	**97.2**
DRMO-FS-34-4-SW-S	12/11/2006	4	**1,780**	0.8 U	0.13 U	**984** J	0.66 U	NA	**58.4**	**94**
DRMO-FS-38-4.0-SW-W-1	2/7/2007	4	**1,150**	0.72 U	0.12 U	**1110**	0.6 U	NA	**43.5**	**58.3**
DRMO-FS-38-4.5	12/11/2006	4.5	**2,600**	0.9 U	0.15 U	**2990** J	0.75 U	NA	**82.3**	**167**
DRMO-FS38-4-SW-E	12/11/2006	4	**1,020**	0.75 U	0.12 U	**714** J	0.62 U	NA	**34.6**	**47.5**
DRMO-FS38-4-SW-S	12/11/2006	4	**1,640**	0.82 U	0.14 U	**2810** J	0.68 U	NA	**50.3**	**96**
DRMO-FS40-1.5-SW-E	11/17/2006	1.5	NA	0.58 U	0.12 U	NA	**1.2**	NA	**37**	**62.3**
DRMO-FS46-1.5-SW-N	1/4/2007	1.5	**3,000**	1 U	**0.34** J	**2510**	0.84 U	NA	**90.7**	**150**
DRMO-FS46-1.5-SW-W	11/16/2006	1.5	NA	0.61 U	0.12 U	NA	**1.5**	NA	**61**	**60.8**
DRMO-FS46-2	10/24/2006	2	**982**	0.6 U	0.1 U	**694**	0.5 U	NA	**37.2**	**40.3** J
DRMO-FS47-1.5-SW-E	11/16/2006	1.5	NA	0.65 U	0.13 U	NA	**1.8**	NA	**61.6**	**117**
DRMO-FS47-2	10/24/2006	2	**1,180**	0.6 U	0.1 U	**418**	0.5 U	NA	**31.4**	**48.8** J
DRMO-FS-5-4.5	12/13/2006	4.5	**2,240**	0.94 U	0.16 U	**1090**	0.78 U	NA	**70.7**	**132**
DRMO-FS-5-4-SW-E	12/13/2006	4	**2,180**	0.79 U	0.13 U	**1050**	0.66 U	NA	**37.9**	**93.2**
DRMO-FS-5-4-SW-N	12/13/2006	4	**1,840**	0.75 U	0.13 U	**320**	0.63 U	NA	**46.6**	**112**
DRMO-FS-5-4-SW-S	12/13/2006	4	**1,900**	0.86 U	0.14 U	**869**	0.72 U	NA	**40.2**	**62.2**
DRMO-FS59-1.5-SW-S	11/16/2006	1.5	NA	0.61 U	0.12 U	NA	**1.5**	NA	**56.4**	**390**
DRMO-FS59-1.5-SW-W	11/16/2006	1.5	NA	0.61 U	0.12 U	NA	**1.6**	NA	**42.3**	**149**
DRMO-FS59-2	10/24/2006	2	**1,560**	0.6 U	0.1 U	**321**	0.5 U	NA	**27.5**	**48** J
DRMO-FS60-1.5-SW-E	11/16/2006	1.5	NA	0.6 U	0.12 U	NA	**1.8**	NA	**68.9**	**212**
DRMO-FS60-1.5-SW-E-DUP	11/16/2006	1.5	NA	0.59 U	0.12 U	NA	**1.8**	NA	**65**	**206**
DRMO-FS60-2	10/24/2006	2	**1,420**	0.6 U	0.1 U	**546**	0.5 U	NA	**40.8**	**74.3** J
DRMO-FS6-1.5-SW-E	11/17/2006	1.5	NA	0.59 U	0.12 U	NA	**1.4**	NA	**53**	**71**
DRMO-FS6-1.5-SW-E-DUP	11/17/2006	1.5	NA	0.58 U	0.12 U	NA	**1.2**	NA	**45.3**	**69.8**
DRMO-FS6-1.5-SW-S	11/17/2006	1.5	NA	0.59 U	0.12 U	NA	**0.81** J	NA	**39.2**	**71.5**
DRMO-FS6-2	10/23/2006	2	**1,080**	0.68 U	0.11 U	**494**	0.56 U	NA	**46.1**	**51.7**
DRMO-FS62-1.5-SW-E	11/16/2006	1.5	NA	0.64 U	0.13 U	NA	**1.9**	NA	**72.3**	**85.4**
DRMO-FS62-1.5-SW-N	11/16/2006	1.5	NA	0.59 U	0.12 U	NA	**3.2**	NA	**68.9**	**158**
DRMO-FS62-1.5-SW-W	11/16/2006	1.5	NA	0.61 U	0.12 U	NA	**1** J	NA	**53.2**	**69.1**
DRMO-FS62-1.5-SW-W-DUP	11/16/2006	1.5	NA	0.6 U	0.12 U	NA	**1.9**	NA	**62.5**	**82.9**

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
Reporting Units	--	ft bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Residential PRGs	--	--	NE	390	390	NE	5	47,000	550	23,000
Industrial PRGs	--	--	NE	5,100	5,100	NE	66	610,000	7,200	310,000
Ambient Fill Concentration	--	--	NE	NE	NE	NE	0	NE	190	230
DRMO-FS62-2	10/23/2006	2	1,510	0.66 U	0.11 U	400	0.55 U	NA	38.3	90.9
DRMO-FS68-1.5-SW-N-2	1/25/2007	1.5	1,400	0.72 U	0.12 U	1030	0.6 U	NA	27.9	58.5
DRMO-FS68-1.5-SW-N-2-DUP	1/25/2007	1.5	1,470	0.71 U	0.12 U	1150	0.6 U	NA	28.4	58.3
DRMO-FS68-1.5-SW-S	11/17/2006	1.5	NA	0.6 U	0.12 U	NA	1.3	NA	45	67.1
DRMO-FS68-1.5-SW-W	11/17/2006	1.5	NA	0.61 U	0.12 U	NA	0.92 J	NA	49.7	83.4
DRMO-FS68-2	10/24/2006	2	1,210	0.6 U	0.1 U	386	0.5 U	NA	31.2	74.1 J
DRMO-FS74-1.5-SW-E	11/16/2006	1.5	NA	0.63 U	0.13 U	NA	1.5	NA	50.1	95.9
DRMO-FS74-1.5-SW-W	11/16/2006	1.5	NA	0.64 U	0.13 U	NA	1.1 J	NA	52.8	60.9
DRMO-FS74-2	10/24/2006	2	1,340	0.6 U	0.1 U	254	0.5 U	NA	27.5	51.2 J
DRMO-FS76-1.5-SW-S	11/16/2006	1.5	NA	0.61 U	0.12 U	NA	0.85 J	NA	43.5	55.5
DRMO-FS76-1.5-SW-W	11/16/2006	1.5	NA	0.62 U	0.12 U	NA	2	NA	50.3	77.2
DRMO-FS76-2	10/23/2006	2	1,390	0.71 U	0.12 U	499	0.59 U	NA	37.7	71.4
DRMO-FS77-1.5-SW-E	11/16/2006	1.5	NA	0.6 U	0.12 U	NA	1.9	NA	47.4	68.9
DRMO-FS77-1.5-SW-N	1/4/2007	1.5	1,580	0.74 U	0.12 U	728	0.62 U	NA	50.3	65.1
DRMO-FS77-1.5-SW-S	11/16/2006	1.5	NA	0.6 U	0.12 U	NA	0.98 J	NA	41.8	136
DRMO-FS77-2	10/23/2006	2	2,750	1.2 J	0.28 J	1940	0.79 U	NA	88.6	155
DRMO-FS83-1.5-SW-N	11/17/2006	1.5	NA	0.61 U	0.12 U	NA	1.7	NA	53.2	73.4
DRMO-FS83-1.5-SW-N-DUP	11/17/2006	1.5	NA	0.59 U	0.12 U	NA	1.4	NA	49	91.3
DRMO-FS83-2	10/24/2006	2	1,420	0.6 U	0.1 U	718	0.5 U	NA	30.7	81.7 J
DRMO-FS-87-1.5-SW-E	1/5/2007	1.5	1,690	0.89 U	0.15 U	551	0.75 U	NA	46.7	251
DRMO-FS-87-1.5-SW-W	1/5/2007	0	1,200	1.2 U	0.6 U	325	1.2 U	NA	24.6	158
DRMO-FS87-2	10/24/2006	2	1,600	0.6 U	0.11 J	381	0.5 U	NA	27.4	465 J
DRMO-FS92-1.5-SW-E	11/17/2006	1.5	NA	0.61 U	0.12 U	NA	0.61 U	NA	45.7	51
DRMO-FS92-1.5-SW-N	11/17/2006	1.5	NA	0.55 U	0.11 U	NA	0.89 J	NA	36	36.8
DRMO-FS92-1.5-SW-W	11/17/2006	1.5	NA	0.62 U	0.12 U	NA	1.3	NA	50.8	109
DRMO-FS92-2	10/23/2006	2	2,810	0.96 U	0.29 J	2810	0.8 U	NA	89.1	164
DRMO-FS-10-1.5-SW-N	7/19/2007	4	660	0.086 U	0.02 U	260	0.038 U	2.6	44	110
DRMO-FS-101-3.5-SW-S	7/20/2007	2	2,400	0.11 U	0.025 U	1100	0.046 U	0.23 U	76	130
DRMO-FS-101-3.5-SW-W	7/20/2007	2	2,400	0.11 U	0.026 U	1100	0.05 U	0.25 U	83	150
DRMO-FS-101-4-C	7/20/2007	2.5	3,000	0.13 U	0.029 U	1800	0.055 U	0.27 U	92	160
DRMO-FS-101-4-C-DUP	7/20/2007	2.5	2,900	0.13 U	0.03 U	1700	0.057 U	0.28 U	88	210
DRMO-FS-101-SW-N-1	12/19/2007	2	2,100	0.56 J	0.023 U	630	0.044 U	NA	53	73
DRMO-FS-10-5.5-SW-W-1	8/1/2007	4	2,500	1	0.027 U	2700	0.051 U	0.25 U	88	160
DRMO-FS-10-6-C	8/1/2007	5	2,700	0.11 U	0.027 U	1600	1	0.25 U	91	110
DRMO-FS-10-6-C-DUP	8/1/2007	5	2,900	1.2	0.029 U	1700	0.055 U	0.27 U	95	100
DRMO-FS-108-7.5-SW-NW	8/27/2007	6	2,600	0.069 U	0.084 U	1500	0.13 U	0.15 U	83	200
DRMO-FS-108-8-C	11/20/2007	6.5	2,600	0.24 J	0.098 U	3500	0.15 U	NA	85	68
DRMO-FS-109-8-C	7/30/2007	6.5	2,500	0.11 U	0.025 U	3800	0.046 U	0.23 U	80	110

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
Reporting Units	**--**	**ft bgs**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Residential PRGs	**--**	**--**	**NE**	**390**	**390**	**NE**	**5**	**47,000**	**550**	**23,000**
Industrial PRGs	**--**	**--**	**NE**	**5,100**	**5,100**	**NE**	**66**	**610,000**	**7,200**	**310,000**
Ambient Fill Concentration	**--**	**--**	**NE**	**NE**	**NE**	**NE**	**0**	**NE**	**190**	**230**
DRMO-FS-110-4-C	8/22/2007	2.5	**2,700**	0.12 U	0.029 U	**4600**	0.054 U	0.27 U	**85**	**150**
DRMO-FS-111-1.5-SW-S	7/27/2007	0	**1,400**	0.088 U	0.02 U	**280**	0.039 U	**3.1**	**53**	**130**
DRMO-FS-111-2-C	7/27/2007	0.5	**810**	0.082 U	0.019 U	**1200**	0.036 U	0.18 U	**38**	**40**
DRMO-FS-112-1.5-SW-S	7/24/2007	0	**1,800**	0.087 U	0.063 U	**640**	0.038 U	0.11 U	**36**	**130**
DRMO-FS-112-2-C	7/24/2007	0.5	**3,700**	0.079 U	0.058 U	**400**	0.035 U	0.1 U	**53**	**49**
DRMO-FS-132-7.5-SW-N-1	8/27/2007	6	**2,800**	0.058 U	0.07 U	**350**	0.1 U	0.12 U	**41**	**130**
DRMO-FS-132-7.5-SW-N-1-DUP	8/27/2007	6	**2,700**	0.085 U	0.1 U	**2800**	0.15 U	0.18 U	**81**	**130**
DRMO-FS-132-7.5-SW-W	7/27/2007	6	**1,400**	0.12 U	0.029 U	**1200**	0.054 U	**14**	**63**	**940**
DRMO-FS-132-8-C	7/30/2007	7	**2,700**	0.07 U	0.027 U	**2300**	0.051 U	0.25 U	**88**	**180**
DRMO-FS-134-7.5-SW-N	7/27/2007	6	**1,300**	0.09 U	0.021 U	**2200**	0.04 U	0.2 U	**48**	**85**
DRMO-FS-135-6-C	8/1/2007	5	**3,200**	0.12 U	0.028 U	**3300**	0.052 U	0.26 U	**89**	**95**
DRMO-FS-135-7.5-SW-NW	7/27/2007	6	**2,200**	0.093 U	0.022 U	**770**	0.041 U	**25**	**54**	**1800**
DRMO-FS-136-6-C	8/1/2007	4.5	**3,100**	0.13 U	0.029 U	**1500**	0.055 U	0.27 U	**84**	**110**
DRMO-FS-137-7.5-SW-S	8/27/2007	6	**3,000**	0.07 U	0.085 U	**1200**	0.13 U	0.15 U	**86**	**350**
DRMO-FS-137-7.5-SW-W	8/27/2007	6	**2,300**	0.067 U	0.081 U	**1400**	0.12 U	0.14 U	**76**	**90**
DRMO-FS-137-8-C	8/27/2007	6.5	**2,200**	0.088 U	0.11 U	**3900**	0.16 U	0.19 U	**73**	**69**
DRMO-FS-138-7.5-SW-W-1	8/27/2007	6	**3,000**	0.084 U	0.1 U	**2800**	0.15 U	**22**	**83**	**420**
DRMO-FS-138-8-C	8/22/2007	6.5	**2,800**	0.14 U	0.033 U	**3300**	0.062 U	0.31 U	**81**	**75**
DRMO-FS-139-6-C	8/1/2007	4.5	**3,000**	0.12 U	0.028 U	**1800**	0.052 U	0.26 U	**93**	**110**
DRMO-FS-140-5.5-SW-S	8/1/2007	4	**3,000**	**1.6**	0.025 U	**2000**	0.047 U	0.24 U	**89**	**92**
DRMO-FS-140-6-C	8/1/2007	4.5	**2,700**	0.11 U	0.025 U	**1700**	0.048 U	0.24 U	**83**	**88**
DRMO-FS-141-7.5-SW-S	8/22/2007	6	**2,800**	0.13 U	0.031 U	**1800**	0.059 U	0.29 U	**82**	**110**
DRMO-FS-141-8-C	8/22/2007	6.5	**2,500**	0.13 U	0.031 U	**3500**	0.058 U	0.29 U	**78**	**72**
DRMO-FS-142-7.5-SW-E	8/22/2007	6	**2,800**	0.14 U	0.034 U	**4300**	0.064 U	0.32 U	**87**	**82**
DRMO-FS-142-7.5-SW-E-DUP	8/22/2007	6	**2,600**	0.14 U	0.032 U	**4100**	0.061 U	0.3 U	**80**	**70**
DRMO-FS-142-7.5-SW-S	8/22/2007	6	**2,800**	0.14 U	0.034 U	**4600**	0.064 U	0.32 U	**82**	**81**
DRMO-FS-142-8-C	8/22/2007	6.5	**2,700**	0.14 U	0.032 U	**3800**	0.061 U	0.3 U	**85**	**78**
DRMO-FS-27-7.5-SW-N	7/27/2007	6	**3,200**	0.11 U	0.025 U	**1600**	0.047 U	0.23 U	**99**	**150**
DRMO-FS-27-7.5-SW-W-1	8/27/2007	6	**2,500**	0.072 U	0.087 U	**670**	0.13 U	0.15 U	**80**	**160**
DRMO-FS-27-8-C	7/30/2007	6.5	**3,000**	0.13 U	0.031 U	**2500**	0.058 U	0.29 U	**95**	**100**
DRMO-FS-28-7.5-SW-N	7/30/2007	6	**2,100**	0.11 U	0.025 U	**420**	0.048 U	**11**	**60**	**300**
DRMO-FS-28-7.5-SW-W	7/27/2007	6	**3,300**	0.11 U	0.026 U	**4100**	0.049 U	0.25 U	**100**	**200**
DRMO-FS-28-8-C-TPH	9/11/2007	6.5	**2,200**	0.088 U	0.02 U	**880**	0.039 U	**14**	**50**	**170**
DRMO-FS-40-8-C	7/30/2007	6.5	**2,400**	0.067 U	0.026 U	**2500**	0.049 U	0.24 U	**78**	**100**
DRMO-FS-53-8-C	8/1/2007	6.5	**3,700**	0.12 U	0.028 U	**5000**	**1.2**	**7.2**	**97**	**400**
DRMO-FS-67-2-C	7/24/2007	2	**1,400**	**1.1**	0.057 U	**1300**	0.034 U	0.1 U	**32**	**47**
DRMO-FS-81-1.5-SW-S	7/24/2007	0	**1,600**	0.089 U	0.066 U	**600**	0.039 U	0.12 U	**31**	**45**
DRMO-FS-81-2-C	7/24/2007	0.5	**1,600**	**1.7**	0.062 U	**790**	0.037 U	0.11 U	**34**	**120**

Table 4-1. Metals Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Potassium		Selenium		Silver		Sodium		Thallium		Tin		Vanadium		Zinc	
Reporting Units	--	ft bgs	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Residential PRGs	--	--	NE		390		390		NE		5		47,000		550		23,000	
Industrial PRGs	--	--	NE		5,100		5,100		NE		66		610,000		7,200		310,000	
Ambient Fill Concentration	--	--	NE		NE		NE		NE		0		NE		190		230	
DRMO-FS-82-1.5-SW-S	7/24/2007	0	**1,600**		**1.7**		0.059	U	**600**		0.035	U	0.1	U	**38**		**72**	
DRMO-FS-82-2-C	7/24/2007	0.5	**1,600**		0.087	U	0.064	U	**590**		0.039	U	0.11	U	**28**		**71**	
DRMO-FS-83-1.5-SW-S-1	8/22/2007	1.5	**580**		0.09	U	0.021	U	**730**		0.04	U	0.2	U	**71**		**66**	
DRMO-FS-83-2-C	7/24/2007	2	**1,400**		**1.4**		0.069	U	**930**		0.042	U	0.12	U	**36**		**47**	
DRMO-FS-84-1.5-SW-S	7/27/2007	0	**1,400**		0.082	U	0.019	U	**810**		0.036	U	0.18	U	**31**		**74**	
DRMO-FS-84-1.5-SW-W	7/27/2007	0	**1,500**		0.079	U	0.018	U	**1700**		0.035	U	0.17	U	**36**		**66**	
DRMO-FS-84-2-C	7/27/2007	0.5	**1,500**		0.082	U	0.019	U	**1000**		0.036	U	0.18	U	**33**		**45**	
DRMO-FS-98-1.5-SW-N	7/20/2007	0	**1,800**		0.095	U	0.022	U	**1200**		0.042	U	0.21	U	**28**		**54**	
DRMO-FS-98-1.5-SW-S	7/20/2007	0	**950**		0.083	U	0.019	U	**690**		0.037	U	**5.3**		**39**		**130**	
DRMO-FS-98-1.5-SW-W	7/20/2007	0	**900**		0.085	U	0.02	U	**1200**		0.038	U	**25**		**41**		**170**	
DRMO-FS-98-2-C	7/20/2007	0.5	**880**		0.089	U	0.021	U	**800**		0.039	U	0.2	U	**30**		**75**	

Summary Statistics		Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc
Summary Statistics	**Percent Detection**	**100.0%**	**42.0%**	**7.6%**	**80.8%**	**18.1%**	**16.9%**	**100.0%**	**100.0%**
	Maximum	**4550**	**16.70**	**0.8**	**5000**	**4.60**	**25**	**219**	**1800**
	Minimum	**370**	**0.06**	**0.02**	**17.90**	**0.03**	**0.10**	**17.80**	**31**
	Average	**1963.19**	**1.12**	**0**	**1,001**	**0.30**	**2.28**	**60**	**141**
	Median	**1850**	**0.80**	**0.13**	**590**	**0.63**	**0.25**	**53.60**	**95.45**
	Standard Deviation	**748.75**	**1.71**	**0.13**	**1080.19**	**0.69**	**5.93**	**23.83**	**165.54**

[shaded box] Detected concentration exceeds the Industrial PRG
Detected results are marked in **bold**
U - not detected above the method detection limit
J - estimated value
NE - not established
NA - not analyzed
PRG - preliminary remediation goal
DUP - duplicate sample
µg/kg - micrograms per kilogram
ft bgs - feet below ground surface

Table 4-2. SVOCs Detected in Soil at the DRMO Site

Parameter Name	Sample Date	Sample Depth	1,1-Biphenyl	1,2,4-Trichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Methylnaphthalene	4-Methylphenol	Acenaphthene	Anthracene	Benzaldehyde
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRG	**--**	**--**	**3,900,000**	**87,000**	**NE**	**2,600**	**310,000**	**310,000**	**3,400,000**	**17,000,000**	**7,800,000**
Industrial PRG	**--**	**--**	**51,000,000**	**400,000**	**NE**	**13,000**	**4,100,000**	**3,100,000**	**33,000,000**	**170,000,000**	**100,000,000**
DRMO001-01-1.5	9/27/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO002_003-01-1.5	9/27/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO007-01-1.5	9/27/2005	0	172 U	NA	NA	NA	172 U	172 U	172 U	172 U	172 U
DRMO008_009-01-1.5	9/27/2005	0	72 U	NA	NA	NA	72 U	72 U	72 U	72 U	72 U
DRMO012-01-1.5	9/27/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	38 U	38 U
DRMO012-01-1.5-DUP	9/27/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	38 U	38 U
DRMO013-01-1.5	9/27/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	38 U	38 U
DRMO018_017-01-1.5	9/27/2005	0	76 U	NA	NA	NA	76 U	76 U	76 U	76 U	76 U
DRMO019-01-1.5	9/27/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO019-01-1.5-DUP	9/27/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO020-01-1.5	10/1/2005	0	36 U	NA	NA	NA	36 U	36 U	36 U	36 U	36 U
DRMO021-01-1.5	10/1/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO023-01-1.5	10/1/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO024-01-1.5	10/15/2005	0	42 U	NA	NA	NA	42 U	42 U	42 U	42 U	42 U
DRMO025_026-01-1.5	10/7/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO028_027-01-1.5	10/1/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO029-01-1.5	9/27/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO029-01-1.5-DUP	9/27/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO030-01-1.5	9/27/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	**57** J	38 U
DRMO031-01-1.5	9/27/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO032-01-1.5	10/1/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO035-01-1.5	9/27/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO036-01-1.5	10/15/2005	0	42 U	NA	NA	NA	42 U	42 U	42 U	42 U	42 U
DRMO041-01-1.5	10/1/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	38 U	38 U
DRMO042-01-1.5	10/8/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	38 U	38 U
DRMO043-01-1.5	10/8/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO044-01-1.5	10/8/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO045-01-1.5	10/15/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO048-01-1.5	10/7/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO049-01-1.5	10/7/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO049-01-1.5-DUP	10/7/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO050-01-1.5	10/15/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO051-01-1.5	10/15/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO052-01-1.5	10/1/2005	0	44 U	NA	NA	NA	44 U	44 U	44 U	44 U	44 U
DRMO053-01-1.5	10/1/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	38 U	38 U
DRMO055-01-1.5	10/15/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO056-01-1.5	10/15/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO057-01-1.5	9/8/2005	0	220 U	NA	NA	NA	220 U	220 U	220 U	220 U	220 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	1,1-Biphenyl	1,2,4-Trichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Methylnaphthalene	4-Methylphenol	Acenaphthene	Anthracene	Benzaldehyde
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	3,900,000	87,000	NE	2,600	310,000	310,000	3,400,000	17,000,000	7,800,000
Industrial PRG	--	--	51,000,000	400,000	NE	13,000	4,100,000	3,100,000	33,000,000	170,000,000	100,000,000
DRMO058-01-1.5	9/8/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO061-01-1.5	12/15/2005	0	78 U	NA	NA	NA	78 U	78 U	78 U	78 U	78 U
DRMO064-01-1.5	10/29/2005	0	42 U	NA	NA	NA	42 U	42 U	42 U	42 U	42 U
DRMO065-01-1.5	12/17/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO066_080-01-1.5	10/1/2005	0	200 U	NA	NA	NA	200 U	200 U	200 U	200 U	200 U
DRMO069-01-1.5	11/7/2005	0	**60** J	NA	NA	NA	**51** J	200 U	**82** J	**76** J	200 U
DRMO069-01-1.5-DUP	11/7/2005	0	**47** J	NA	NA	NA	**47** J	200 U	**58** J	**77** J	200 U
DRMO070-01-1.5	9/8/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO071-01-1.5	9/8/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO072-01-1.5	9/8/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO073-01-1.5	11/7/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO075-01-1.5	9/8/2005	0	44 U	NA	NA	NA	44 U	44 U	44 U	44 U	44 U
DRMO078-01-1.5	12/15/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO079-01-1.5	10/29/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	38 U	38 U
DRMO079-01-1.5-DUP	10/29/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	38 U	38 U
DRMO082-01-3.5	9/20/2005	2	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	**47** J
DRMO085-01-1.5	9/8/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO089_096-01-1.5	9/8/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO090-01-1.5	12/17/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO091-01-1.5	11/7/2005	0	40 U	NA	NA	NA	**170** J	40 U	40 U	40 U	40 U
DRMO091-01-1.5-DUP	11/7/2005	0	196 U	NA	NA	NA	**210**	196 U	196 U	196 U	196 U
DRMO093-01-1.5	10/21/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO094-01-1.5	10/21/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO097-01-1.5	12/17/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO098-01-1.5	12/15/2005	0	400 U	NA	NA	NA	**340**	400 U	400 U	**500**	400 U
DRMO100-01-1.5	12/10/2005	0	42 U	NA	NA	NA	42 U	42 U	42 U	42 U	42 U
DRMOA5-B-5.5	5/17/2006	4	50 U	NA	NA	NA	**270**	50 U	**73** J	**87** J	**58** J
DRMOA5-SWE-3	5/17/2006	1.5	178 U	NA	NA	NA	**980**	178 U	**280** J	**410** J	178 U
DRMOA5-SWN-3	5/17/2006	1.5	50 U	NA	NA	NA	50 U	50 U	50 U	50 U	50 U
DRMOA5-SWS-3	5/17/2006	1.5	42 U	NA	NA	NA	42 U	42 U	42 U	42 U	42 U
DRMOA5-SWW-3	5/17/2006	1.5	44 U	NA	NA	NA	44 U	44 U	44 U	**46** J	44 U
DRMO-SW001-01-1.0	9/21/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO-SW002_003-01-1.5	9/21/2005	0	72 U	NA	NA	NA	72 U	72 U	72 U	72 U	72 U
DRMO-SW005_004-01-1.5	9/21/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	38 U	38 U
DRMO-SW008_009-01-2	10/1/2005	0.5	76 U	NA	NA	NA	**38** J	**86** J	76 U	76 U	76 U
DRMO-SW008_009-01-2-DUP	10/1/2005	0	76 U	NA	NA	NA	76 U	**66** J	76 U	76 U	76 U
DRMO-SW016-01-2	10/1/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO-SW018-01-1	9/27/2005	0	188 U	NA	NA	NA	188 U	188 U	188 U	188 U	188 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	1,1-Biphenyl	1,2,4-Trichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Methylnaphthalene	4-Methylphenol	Acenaphthene	Anthracene	Benzaldehyde
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	**3,900,000**	**87,000**	**NE**	**2,600**	**310,000**	**310,000**	**3,400,000**	**17,000,000**	**7,800,000**
Industrial PRG	--	--	**51,000,000**	**400,000**	**NE**	**13,000**	**4,100,000**	**3,100,000**	**33,000,000**	**170,000,000**	**100,000,000**
DRMO-SW025_026-01-1.5	10/7/2005	0	192 U	NA	NA	NA	192 U	192 U	192 U	192 U	192 U
DRMO-SW029_017-01-1.5	10/1/2005	0	184 U	NA	NA	NA	184 U	184 U	184 U	184 U	184 U
DRMO-SW052-01-1.5	10/1/2005	0	74 U	NA	NA	NA	74 U	74 U	74 U	74 U	74 U
DRMO-SW066-01-1.5	10/1/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO-SW080-01-1.5	10/29/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO-SW085-01-1.5	9/20/2005	0	36 U	NA	NA	NA	36 U	36 U	36 U	36 U	36 U
DRMO-SW086-01-1.5	1/6/2006	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO-SW093-01-1.5	10/29/2005	0	158 U	NA	NA	NA	158 U	158 U	158 U	158 U	158 U
DRMO-SW093-01-1.5-DUP	10/29/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO-SW094-01-1.5	10/29/2005	0	52 U	NA	NA	NA	52 U	52 U	52 U	52 U	52 U
DRMO-SW094N-01-1.5	10/29/2005	0	42 U	NA	NA	NA	42 U	42 U	42 U	42 U	42 U
DRMO-SW094S-01-1.5	10/29/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO-SW095-01-2	9/15/2005	0.5	82 U	NA	NA	NA	82 U	82 U	82 U	82 U	82 U
DRMO-SW096-01-1.5	9/20/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO-SW097-01-1.5	12/17/2005	0	38 U	NA	NA	NA	38 U	38 U	38 U	38 U	38 U
DRMO-SW100-01-1.5	12/10/2005	0	40 U	NA	NA	NA	40 U	40 U	40 U	40 U	40 U
DRMO-A1-1.5-SW-E	1/5/2007	4	NA	34 U	50 U	56 U	69 U	62 U	24 U	34 U	NA
DRMO-A1-1.5-SW-NE	11/17/2006	4	NA	33 U	48 U	54 U	66 U	60 U	23 U	33 U	NA
DRMO-A1-1.5-SW-NW	11/17/2006	4	NA	40 U	58 U	65 U	80 U	73 U	28 U	40 U	NA
DRMO-A1-1.5-SW-SE	11/17/2006	4	NA	35 U	50 U	57 U	69 U	63 U	24 U	35 U	NA
DRMO-A2-1.5-SW-E	11/17/2006	5	NA	210 U	310 U	350 U	430 U	390 U	**2,600** J	210 U	NA
DRMO-A3-2.0-SW-E	11/17/2006	4	NA	31 U	45 U	51 U	63 U	57 U	22 U	31 U	NA
DRMO-A3-2.0-SW-W	11/17/2006	4	NA	33 U	48 U	55 U	67 U	61 U	24 U	33 U	NA
DRMO-Area 1-2	10/23/2006	4.5	NA	33 U	47 U	53 U	65 U	59 U	23 U	33 U	NA
DRMO-Area 2-2	10/24/2006	5.5	NA	43 U	62 U	70 U	86 U	78 U	**38** J	43 U	NA
DRMO-Area 3-2.0-SW-S	1/4/2007	4	NA	31 U	45 U	50 U	62 U	56 U	22 U	31 U	NA
DRMO-Area 3-2.5	10/23/2006	4.5	NA	31 U	45 U	51 U	63 U	57 U	22 U	31 U	NA
DRMO-Area 4-5	10/24/2006	4	NA	39 U	56 U	63 U	77 U	70 U	27 U	39 U	NA
DRMO-Area4-4.5-SW-E	11/16/2006	3	NA	220 U	320 U	370 U	450 U	410 U	**160** UJ	220 U	NA
DRMO-FS-11-4.5	12/13/2006	4.5	NA	46 U	66 U	75 U	92 U	83 U	32 U	46 U	NA
DRMO-FS-11-4.5-DUP	12/13/2006	4.5	NA	46 U	66 U	75 U	92 U	83 U	32 U	46 U	NA
DRMO-FS-11-4-SW-E	1/5/2007	4	NA	220 U	310 U	350 U	**4,100**	390 U	**850** J	**450** J	NA
DRMO-FS-11-4-SW-N	12/13/2006	4	NA	35 U	51 U	57 U	70 U	64 U	25 U	35 U	NA
DRMO-FS-11-4-SW-S	12/13/2006	4	NA	46 U	66 U	74 U	91 U	83 U	32 U	46 U	NA
DRMO-FS-15-1.5-SW-E	1/4/2007	1.5	NA	34 U	49 U	55 U	67 U	61 U	24 U	34 U	NA
DRMO-FS-15-1.5-SW-N	1/4/2007	1.5	NA	34 U	49 U	55 U	68 U	61 U	24 U	34 U	NA
DRMO-FS15-1.5-SW-S	11/17/2006	1.5	NA	160 U	240 U	270 U	330 U	300 U	**2,000** J	160 U	NA
DRMO-FS-15-1.5-SW-W	1/4/2007	1.5	NA	33 U	48 U	54 U	66 U	60 U	23 U	33 U	NA

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	1,1-Biphenyl	1,2,4-Trichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Methylnaphthalene	4-Methylphenol	Acenaphthene	Anthracene	Benzaldehyde
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	**3,900,000**	**87,000**	**NE**	**2,600**	**310,000**	**310,000**	**3,400,000**	**17,000,000**	**7,800,000**
Industrial PRG	--	--	**51,000,000**	**400,000**	**NE**	**13,000**	**4,100,000**	**3,100,000**	**33,000,000**	**170,000,000**	**100,000,000**
DRMO-FS-15-1.5-SW-W-DUP	1/4/2007	1.5	NA	35 U	50 U	57 U	70 U	63 U	25 U	35 U	NA
DRMO-FS15-2	10/23/2006	2	NA	29 U	41 U	47 U	57 U	52 U	20 U	29 U	NA
DRMO-FS15-2-DUP	10/23/2006	2	NA	29 U	42 U	47 U	58 U	52 U	20 U	29 U	NA
DRMO-FS-34-4.0-SW-N	1/4/2007	4	NA	49 U	71 U	80 U	98 U	89 U	34 U	49 U	NA
DRMO-FS-34-4.0-SW-N-DUP	1/4/2007	4	NA	45 U	65 U	73 U	90 U	81 U	32 U	45 U	NA
DRMO-FS-34-4.0-SW-W	1/4/2007	4	NA	46 U	66 U	75 U	92 U	84 U	32 U	46 U	NA
DRMO-FS-34-4.5	12/11/2006	4.5	NA	42 U	61 U	69 U	85 U	77 U	30 U	42 U	NA
DRMO-FS-34-4-SW-E	12/11/2006	4	NA	33 U	48 U	54 U	67 U	61 U	24 U	33 U	NA
DRMO-FS-34-4-SW-S	12/11/2006	4	NA	36 U	52 U	58 U	72 U	65 U	25 U	36 U	NA
DRMO-FS-38-4.0-SW-W-1	2/7/2007	4	NA	32 U	47 U	53 U	65 U	59 U	23 U	32 U	NA
DRMO-FS-38-4.5	12/11/2006	4.5	NA	2,000 U	2,900 U	3,300 U	**10,000** J	3,700 U	**1,800** J	2,000 U	NA
DRMO-FS38-4-SW-E	12/11/2006	4	NA	34 U	48 U	55 U	67 U	61 U	24 U	34 U	NA
DRMO-FS38-4-SW-S	12/11/2006	4	NA	37 U	53 U	60 U	**86** J	67 U	26 U	37 U	NA
DRMO-FS40-1.5-SW-E	11/17/2006	1.5	NA	31 U	45 U	51 U	63 U	57 U	22 U	31 U	NA
DRMO-FS46-1.5-SW-N	1/4/2007	1.5	NA	45 U	66 U	74 U	91 U	82 U	32 U	45 U	NA
DRMO-FS46-1.5-SW-W	11/16/2006	1.5	NA	32 U	46 U	52 U	64 U	58 U	23 U	32 U	NA
DRMO-FS46-2	10/24/2006	2	NA	29 U	42 U	47 U	58 U	52 U	20 U	29 U	NA
DRMO-FS47-1.5-SW-E	11/16/2006	1.5	NA	35 U	50 U	57 U	70 U	63 U	25 U	35 U	NA
DRMO-FS47-2	10/24/2006	2	NA	32 U	46 U	52 U	64 U	58 U	23 U	32 U	NA
DRMO-FS-5-4.5	12/13/2006	4.5	NA	42 U	61 U	69 U	85 U	77 U	30 U	42 U	NA
DRMO-FS-5-4-SW-E	12/13/2006	4	NA	36 U	52 U	58 U	71 U	65 U	25 U	36 U	NA
DRMO-FS-5-4-SW-N	12/13/2006	4	NA	34 U	49 U	55 U	68 U	62 U	24 U	34 U	NA
DRMO-FS-5-4-SW-S	12/13/2006	4	NA	39 U	56 U	63 U	78 U	70 U	27 U	39 U	NA
DRMO-FS59-1.5-SW-S	11/16/2006	1.5	NA	33 U	47 U	54 U	66 U	60 U	23 U	33 U	NA
DRMO-FS59-1.5-SW-W	11/16/2006	1.5	NA	33 U	48 U	54 U	66 U	60 U	23 U	33 U	NA
DRMO-FS59-2	10/24/2006	2	NA	30 U	44 U	50 U	61 U	55 U	21 U	30 U	NA
DRMO-FS60-1.5-SW-E	11/16/2006	1.5	NA	160 U	230 U	260 U	320 U	290 U	**110** UJ	160 U	NA
DRMO-FS60-1.5-SW-E-DUP	11/16/2006	1.5	NA	160 U	230 U	260 U	310 U	290 U	**110** UJ	160 U	NA
DRMO-FS60-2	10/24/2006	2	NA	30 U	43 U	49 U	60 U	54 U	21 U	30 U	NA
DRMO-FS6-1.5-SW-E	11/17/2006	1.5	NA	32 U	46 U	52 U	63 U	57 U	22 U	32 U	NA
DRMO-FS6-1.5-SW-E-DUP	11/17/2006	1.5	NA	31 U	45 U	51 U	62 U	57 U	22 U	31 U	NA
DRMO-FS6-1.5-SW-S	11/17/2006	1.5	NA	32 U	46 U	52 U	64 U	58 U	22 U	32 U	NA
DRMO-FS6-2	10/23/2006	2	NA	29 U	42 U	47 U	58 U	52 U	20 U	29 U	NA
DRMO-FS62-1.5-SW-E	11/16/2006	1.5	NA	34 U	49 U	55 U	68 U	62 U	24 U	34 U	NA
DRMO-FS62-1.5-SW-N	11/16/2006	1.5	NA	160 U	230 U	260 U	320 U	290 U	110 U	160 U	NA
DRMO-FS62-1.5-SW-W	11/16/2006	1.5	NA	33 U	47 U	53 U	65 U	59 U	23 U	33 U	NA
DRMO-FS62-1.5-SW-W-DUP	11/16/2006	1.5	NA	32 U	46 U	52 U	64 U	58 U	22 U	32 U	NA
DRMO-FS62-2	10/23/2006	2	NA	29 U	43 U	48 U	59 U	53 U	21 U	29 U	NA

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	1,1-Biphenyl	1,2,4-Trichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Methylnaphthalene	4-Methylphenol	Acenaphthene	Anthracene	Benzaldehyde
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	3,900,000	87,000	NE	2,600	310,000	310,000	3,400,000	17,000,000	7,800,000
Industrial PRG	--	--	51,000,000	400,000	NE	13,000	4,100,000	3,100,000	33,000,000	170,000,000	100,000,000
DRMO-FS68-1.5-SW-N-2	1/25/2007	1.5	NA	32 U	47 U	53 U	65 U	59 U	23 U	32 U	NA
DRMO-FS68-1.5-SW-N-2-DUP	1/25/2007	1.5	NA	32 U	46 U	52 U	64 U	58 U	23 U	32 U	NA
DRMO-FS68-1.5-SW-S	11/17/2006	1.5	NA	32 U	47 U	53 U	65 U	59 U	23 U	32 U	NA
DRMO-FS68-1.5-SW-W	11/17/2006	1.5	NA	33 U	47 U	53 U	66 U	59 U	23 U	33 U	NA
DRMO-FS68-2	10/24/2006	2	NA	29 U	42 U	48 U	59 U	53 U	21 U	29 U	NA
DRMO-FS74-1.5-SW-E	11/16/2006	1.5	NA	170 U	240 U	270 U	340 U	310 U	**120** UJ	170 U	NA
DRMO-FS74-1.5-SW-W	11/16/2006	1.5	NA	34 U	49 U	56 U	68 U	62 U	24 U	34 U	NA
DRMO-FS74-2	10/24/2006	2	NA	31 U	44 U	50 U	61 U	56 U	22 U	31 U	NA
DRMO-FS76-1.5-SW-S	11/16/2006	1.5	NA	33 U	48 U	54 U	66 U	60 U	23 U	33 U	NA
DRMO-FS76-1.5-SW-W	11/16/2006	1.5	NA	33 U	48 U	54 U	67 U	61 U	24 U	33 U	NA
DRMO-FS76-2	10/23/2006	2	NA	31 U	45 U	51 U	63 U	57 U	22 U	31 U	NA
DRMO-FS77-1.5-SW-E	11/16/2006	1.5	NA	32 U	47 U	53 U	65 U	59 U	23 U	32 U	NA
DRMO-FS77-1.5-SW-N	1/4/2007	1.5	NA	33 U	48 U	55 U	67 U	61 U	24 U	33 U	NA
DRMO-FS77-1.5-SW-S	11/16/2006	1.5	NA	160 U	240 U	270 U	330 U	300 U	110 U	160 U	NA
DRMO-FS77-2	10/23/2006	2	NA	43 U	62 U	69 U	85 U	77 U	30 U	43 U	NA
DRMO-FS83-1.5-SW-N	11/17/2006	1.5	NA	33 U	47 U	53 U	65 U	59 U	23 U	33 U	NA
DRMO-FS83-1.5-SW-N-DUP	11/17/2006	1.5	NA	32 U	46 U	52 U	64 U	58 U	23 U	32 U	NA
DRMO-FS83-2	10/24/2006	2	NA	30 U	43 U	48 U	59 U	54 U	21 U	30 U	NA
DRMO-FS-87-1.5-SW-E	1/5/2007	1.5	NA	41 U	59 U	67 U	82 U	75 U	29 U	41 U	NA
DRMO-FS-87-1.5-SW-W	1/5/2007	0	NA	400 U	NA	NA	400 U	400 U	400 U	400 U	NA
DRMO-FS87-2	10/24/2006	2	NA	**180** J	**160** J	**290** J	58 U	53 U	**38** J	**56** J	NA
DRMO-FS92-1.5-SW-E	11/17/2006	1.5	NA	33 U	48 U	54 U	66 U	60 U	23 U	33 U	NA
DRMO-FS92-1.5-SW-N	11/17/2006	1.5	NA	29 U	43 U	48 U	59 U	53 U	21 U	29 U	NA
DRMO-FS92-1.5-SW-W	11/17/2006	1.5	NA	33 U	48 U	54 U	66 U	60 U	23 U	33 U	NA
DRMO-FS92-2	10/23/2006	2	NA	43 U	63 U	71 U	87 U	79 U	30 U	43 U	NA
DRMO-FS-10-1.5-SW-N	7/19/2007	4	NA	88 U	97 U	99 U	75 U	400 U	87 U	84 U	NA
DRMO-FS-101-3.5-SW-S	7/20/2007	2	NA	23 U	25 U	26 U	20 U	100 U	23 U	22 U	NA
DRMO-FS-101-3.5-SW-W	7/20/2007	2	NA	23 U	25 U	26 U	20 U	100 U	23 U	22 U	NA
DRMO-FS-101-4-C	7/20/2007	2.5	NA	25 U	27 U	28 U	21 U	110 U	25 U	24 U	NA
DRMO-FS-101-4-C-DUP	7/20/2007	2.5	NA	25 U	28 U	28 U	22 U	110 U	25 U	24 U	NA
DRMO-FS-101-SW-N-1	12/19/2007	2	NA	NA	NA	NA	17 U	88 U	19 U	18 U	NA
DRMO-FS-10-5.5-SW-W-1	8/1/2007	4	NA	32 U	37 U	38 U	26 U	150 U	25 U	29 U	NA
DRMO-FS-10-6-C	8/1/2007	5	NA	31 U	36 U	36 U	25 U	140 U	24 U	28 U	NA
DRMO-FS-10-6-C-DUP	8/1/2007	5	NA	33 U	39 U	39 U	27 U	150 U	26 U	30 U	NA
DRMO-FS-108-7.5-SW-NW	8/27/2007	6	NA	37 U	43 U	42 U	28 U	140 U	23 U	26 U	NA
DRMO-FS-108-8-C	11/20/2007	6.5	NA	NA	NA	NA	31 U	160 U	25 U	29 U	NA
DRMO-FS-109-8-C	7/30/2007	6.5	NA	32 U	37 U	37 U	26 U	150 U	25 U	29 U	NA
DRMO-FS-110-4-C	8/22/2007	2.5	NA	77 U	85 U	86 U	66 U	350 U	76 U	73 U	NA

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	1,1-Biphenyl	1,2,4-Trichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Methylnaphthalene	4-Methylphenol	Acenaphthene	Anthracene	Benzaldehyde
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRG	**--**	**--**	**3,900,000**	**87,000**	**NE**	**2,600**	**310,000**	**310,000**	**3,400,000**	**17,000,000**	**7,800,000**
Industrial PRG	**--**	**--**	**51,000,000**	**400,000**	**NE**	**13,000**	**4,100,000**	**3,100,000**	**33,000,000**	**170,000,000**	**100,000,000**
DRMO-FS-111-1.5-SW-S	7/27/2007	0	NA	600 U	690 U	690 U	480 U	2,700 U	460 U	530 U	NA
DRMO-FS-111-2-C	7/27/2007	0.5	NA	24 U	28 U	28 U	19 U	110 U	18 U	21 U	NA
DRMO-FS-112-1.5-SW-S	7/24/2007	0	NA	16 U	18 U	18 U	14 U	72 U	16 U	15 U	NA
DRMO-FS-112-2-C	7/24/2007	0.5	NA	16 U	18 U	18 U	14 U	73 U	16 U	15 U	NA
DRMO-FS-132-7.5-SW-N-1	8/27/2007	6	NA	31 U	35 U	35 U	23 U	120 U	19 U	21 U	NA
DRMO-FS-132-7.5-SW-N-1-DUP	8/27/2007	6	NA	220 U	260 U	250 U	170 U	860 U	140 U	160 U	NA
DRMO-FS-132-7.5-SW-W	7/27/2007	6	NA	24 U	27 U	27 U	21 U	110 U	24 U	23 U	NA
DRMO-FS-132-8-C	7/30/2007	7	NA	24 U	27 U	27 U	21 U	110 U	24 U	23 U	NA
DRMO-FS-134-7.5-SW-N	7/27/2007	6	NA	19 U	21 U	22 U	16 U	87 U	19 U	18 U	NA
DRMO-FS-135-6-C	8/1/2007	5	NA	35 U	41 U	41 U	28 U	160 U	27 U	31 U	NA
DRMO-FS-135-7.5-SW-NW	7/27/2007	6	NA	19 U	21 U	21 U	16 U	86 U	19 U	18 U	NA
DRMO-FS-136-6-C	8/1/2007	4.5	NA	34 U	40 U	40 U	28 U	160 U	27 U	31 U	NA
DRMO-FS-137-7.5-SW-S	8/27/2007	6	NA	39 U	45 U	44 U	30 U	150 U	24 U	27 U	NA
DRMO-FS-137-7.5-SW-W	8/27/2007	6	NA	23 U	25 U	25 U	19 U	100 U	22 U	21 U	NA
DRMO-FS-137-8-C	8/27/2007	6.5	NA	57 U	63 U	64 U	49 U	260 U	57 U	54 U	NA
DRMO-FS-138-7.5-SW-W-1	8/27/2007	6	NA	54 U	59 U	60 U	46 U	240 U	53 U	51 U	NA
DRMO-FS-138-8-C	8/22/2007	6.5	NA	86 U	95 U	96 U	74 U	390 U	85 U	82 U	NA
DRMO-FS-139-6-C	8/1/2007	4.5	NA	33 U	38 U	38 U	26 U	150 U	25 U	29 U	NA
DRMO-FS-140-5.5-SW-S	8/1/2007	4	NA	30 U	35 U	35 U	24 U	140 U	24 U	27 U	NA
DRMO-FS-140-6-C	8/1/2007	4.5	NA	33 U	38 U	38 U	26 U	150 U	25 U	29 U	NA
DRMO-FS-141-7.5-SW-S	8/22/2007	6	NA	52 U	57 U	58 U	45 U	240 U	51 U	49 U	NA
DRMO-FS-141-8-C	8/22/2007	6.5	NA	57 U	62 U	63 U	48 U	260 U	56 U	54 U	NA
DRMO-FS-142-7.5-SW-E	8/22/2007	6	NA	29 U	32 U	32 U	25 U	130 U	29 U	28 U	NA
DRMO-FS-142-7.5-SW-E-DUP	8/22/2007	6	NA	28 U	31 U	31 U	24 U	130 U	28 U	26 U	NA
DRMO-FS-142-7.5-SW-S	8/22/2007	6	NA	28 U	31 U	32 U	24 U	130 U	28 U	27 U	NA
DRMO-FS-142-8-C	8/22/2007	6.5	NA	56 U	62 U	63 U	48 U	250 U	56 U	53 U	NA
DRMO-FS-27-7.5-SW-N	7/27/2007	6	NA	23 U	25 U	26 U	20 U	100 U	23 U	22 U	NA
DRMO-FS-27-7.5-SW-W-1	8/27/2007	6	NA	49 U	54 U	54 U	42 U	220 U	48 U	46 U	NA
DRMO-FS-27-8-C	7/30/2007	6.5	NA	28 U	31 U	31 U	24 U	130 U	27 U	26 U	NA
DRMO-FS-28-7.5-SW-N	7/30/2007	6	NA	22 U	24 U	25 U	19 U	100 U	22 U	21 U	NA
DRMO-FS-28-7.5-SW-W	7/27/2007	6	NA	53 U	59 U	60 U	46 U	240 U	53 U	51 U	NA
DRMO-FS-28-8-C-TPH	9/11/2007	6.5	NA	19 U	21 U	21 U	16 U	86 U	19 U	18 U	NA
DRMO-FS-40-8-C	7/30/2007	6.5	NA	22 U	25 U	25 U	**110**	100 U	22 U	21 U	NA
DRMO-FS-53-8-C	8/1/2007	6.5	NA	33 U	38 U	38 U	26 U	150 U	25 U	29 U	NA
DRMO-FS-67-2-C	7/24/2007	2	NA	16 U	18 U	18 U	14 U	73 U	16 U	15 U	NA
DRMO-FS-81-1.5-SW-S	7/24/2007	0	NA	17 U	19 U	19 U	14 U	76 U	17 U	16 U	NA
DRMO-FS-81-2-C	7/24/2007	0.5	NA	18 U	20 U	20 U	15 U	81 U	18 U	17 U	NA
DRMO-FS-82-1.5-SW-S	7/24/2007	0	NA	17 U	18 U	19 U	14 U	75 U	16 U	16 U	NA

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	1,1-Biphenyl	1,2,4-Trichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Methylnaphthalene	4-Methylphenol	Acenaphthene	Anthracene	Benzaldehyde
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	3,900,000	87,000	NE	2,600	310,000	310,000	3,400,000	17,000,000	7,800,000
Industrial PRG	--	--	51,000,000	400,000	NE	13,000	4,100,000	3,100,000	33,000,000	170,000,000	100,000,000
DRMO-FS-82-2-C	7/24/2007	0.5	NA	17 U	18 U	19 U	14 U	75 U	16 U	16 U	NA
DRMO-FS-83-1.5-SW-S-1	8/22/2007	1.5	NA	90 U	100 U	100 U	77 U	410 U	89 U	86 U	NA
DRMO-FS-83-2-C	7/24/2007	2	NA	17 U	19 U	19 U	15 U	78 U	17 U	16 U	NA
DRMO-FS-84-1.5-SW-S	7/27/2007	0	NA	48 U	56 U	56 U	38 U	220 U	37 U	43 U	NA
DRMO-FS-84-1.5-SW-W	7/27/2007	0	NA	48 U	56 U	56 U	39 U	220 U	37 U	43 U	NA
DRMO-FS-84-2-C	7/27/2007	0.5	NA	24 U	27 U	28 U	19 U	110 U	18 U	21 U	NA
DRMO-FS-98-1.5-SW-N	7/20/2007	0	NA	19 U	20 U	21 U	16 U	84 U	18 U	18 U	NA
DRMO-FS-98-1.5-SW-S	7/20/2007	0	NA	85 U	94 U	95 U	73 U	390 U	84 U	81 U	NA
DRMO-FS-98-1.5-SW-W	7/20/2007	0	NA	18 U	20 U	20 U	15 U	82 U	18 U	17 U	NA
DRMO-FS-98-2-C	7/20/2007	0.5	NA	18 U	20 U	20 U	15 U	82 U	18 U	17 U	NA
Summary Statistics	**Percent Detection**		**2.2%**	**0.7%**	**0.7%**	**0.7%**	**5.0%**	**0.8%**	**4.2%**	**3.8%**	**2.2%**
	Maximum		**400**	**2,000**	**2,900**	**3,300**	**10,000**	**3,700**	**2,600**	**2,000**	**400**
	Minimum		**36**	**16**	**18**	**18**	**14**	**36**	**16**	**15**	**36**
	Average		**31.60**	**33.73**	**43.35**	**48.43**	**101.04**	**64.25**	**56.40**	**36.35**	**33.26**
	Median		**40**	**33**	**47**	**53**	**46.5**	**61.5**	**36.5**	**40**	**40**
	Standard Deviation		**28.65**	**88.90**	**125.23**	**142.79**	**700.20**	**151.93**	**246.61**	**83.86**	**30.29**

[shaded box] Detected concentration exceeds the Industrial PRG
Detected results are marked in **bold**
U - not detected above the method detection limit
J - estimated value
NE - not established
NA - not analyzed
PRG - preliminary remediation goal
DUP - duplicate sample
µg/kg - micrograms per kilogram
ft bgs - feet below ground surface

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Ethylhexyl)phthalate	Chrysene
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRG	**--**	**--**	**150**	**15**	**150**	**NE**	**1,500**	**35,000**	**15,000**
Industrial PRG	**--**	**--**	**2,100**	**210**	**2,100**	**NE**	**21,000**	**120,000**	**210,000**
DRMO001-01-1.5	9/27/2005	0	40 U	40 U	40 U	40 U	40 U	**160** J	40 U
DRMO002_003-01-1.5	9/27/2005	0	40 U	40 U	40 U	40 U	40 U	**65** J	40 U
DRMO007-01-1.5	9/27/2005	0	172 U	172 U	172 U	172 U	172 U	**140** J	172 U
DRMO008_009-01-1.5	9/27/2005	0	72 U	72 U	72 U	72 U	72 U	**480**	72 U
DRMO012-01-1.5	9/27/2005	0	38 U	38 U	**42** J	38 U	38 U	**76** J	38 U
DRMO012-01-1.5-DUP	9/27/2005	0	38 U	38 U	38 U	38 U	38 U	**67** J	38 U
DRMO013-01-1.5	9/27/2005	0	38 U	38 U	38 U	38 U	38 U	**55** J	38 U
DRMO018_017-01-1.5	9/27/2005	0	76 U	76 U	76 U	76 U	76 U	76 U	**410**
DRMO019-01-1.5	9/27/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO019-01-1.5-DUP	9/27/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO020-01-1.5	10/1/2005	0	36 U	36 U	36 U	36 U	36 U	**290**	**41** J
DRMO021-01-1.5	10/1/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO023-01-1.5	10/1/2005	0	40 U	40 U	40 U	40 U	40 U	**81** J	**87** J
DRMO024-01-1.5	10/15/2005	0	42 U	42 U	42 U	42 U	42 U	**51** J	42 U
DRMO025_026-01-1.5	10/7/2005	0	40 U	40 U	40 U	40 U	40 U	**60** J	40 U
DRMO028_027-01-1.5	10/1/2005	0	40 U	40 U	40 U	40 U	40 U	**80** J	40 U
DRMO029-01-1.5	9/27/2005	0	40 U	40 U	40 U	40 U	40 U	**71** J	40 U
DRMO029-01-1.5-DUP	9/27/2005	0	40 U	40 U	40 U	40 U	40 U	**66** J	40 U
DRMO030-01-1.5	9/27/2005	0	**87** J	**110** J	**220**	38 U	**57** J	**100** J	**88** J
DRMO031-01-1.5	9/27/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO032-01-1.5	10/1/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO035-01-1.5	9/27/2005	0	40 U	40 U	40 U	40 U	40 U	**52** J	40 U
DRMO036-01-1.5	10/15/2005	0	42 U	42 U	42 U	42 U	42 U	**51** J	42 U
DRMO041-01-1.5	10/1/2005	0	38 U	38 U	38 U	38 U	38 U	38 U	38 U
DRMO042-01-1.5	10/8/2005	0	38 U	38 U	38 U	38 U	38 U	38 U	38 U
DRMO043-01-1.5	10/8/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO044-01-1.5	10/8/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO045-01-1.5	10/15/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO048-01-1.5	10/7/2005	0	40 U	40 U	40 U	40 U	40 U	**120** J	40 U
DRMO049-01-1.5	10/7/2005	0	40 U	40 U	40 U	40 U	40 U	**55** J	40 U
DRMO049-01-1.5-DUP	10/7/2005	0	40 U	40 U	40 U	40 U	40 U	**57** J	40 U
DRMO050-01-1.5	10/15/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO051-01-1.5	10/15/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO052-01-1.5	10/1/2005	0	44 U	44 U	44 U	44 U	44 U	44 U	44 U
DRMO053-01-1.5	10/1/2005	0	38 U	38 U	38 U	38 U	38 U	**58** J	38 U
DRMO055-01-1.5	10/15/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO056-01-1.5	10/15/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO057-01-1.5	9/8/2005	0	220 U	220 U	220 U	220 U	220 U	220 U	220 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Benzo(a)anthracene		Benzo(a)pyrene		Benzo(b)fluoranthene		Benzo(g,h,i)perylene		Benzo(k)fluoranthene		bis(2-Ethylhexyl)phthalate		Chrysene	
Reporting Units	**--**	**ft bgs**	**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**	
Residential PRG	**--**	**--**	**150**		**15**		**150**		**NE**		**1,500**		**35,000**		**15,000**	
Industrial PRG	**--**	**--**	**2,100**		**210**		**2,100**		**NE**		**21,000**		**120,000**		**210,000**	
DRMO058-01-1.5	9/8/2005	0	40	U	40	U	40	U	40	U	40	U	**63**	J	40	U
DRMO061-01-1.5	12/15/2005	0	78	U	78	U	78	U	78	U	78	U	**180**	J	78	U
DRMO064-01-1.5	10/29/2005	0	42	U	42	U	42	U	42	U	42	U	**65**	J	42	U
DRMO065-01-1.5	12/17/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO066_080-01-1.5	10/1/2005	0	**44**	J	**87**	J	200	U	**120**	J	200	U	200	U	**100**	J
DRMO069-01-1.5	11/7/2005	0	**55**	J	200	U	200	U	200	U	200	U	**93**	J	**66**	J
DRMO069-01-1.5-DUP	11/7/2005	0	**93**	J	**74**	J	**100**	J	200	U	**50**	J	**87**	J	**85**	J
DRMO070-01-1.5	9/8/2005	0	40	U	40	U	40	U	40	U	40	U	**56**	J	40	U
DRMO071-01-1.5	9/8/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO072-01-1.5	9/8/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO073-01-1.5	11/7/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO075-01-1.5	9/8/2005	0	44	U	44	U	44	U	44	U	44	U	44	U	44	U
DRMO078-01-1.5	12/15/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO079-01-1.5	10/29/2005	0	38	U	38	U	38	U	38	U	38	U	38	U	38	U
DRMO079-01-1.5-DUP	10/29/2005	0	38	U	38	U	38	U	38	U	38	U	**45**	J	38	U
DRMO082-01-3.5	9/20/2005	2	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO085-01-1.5	9/8/2005	0	40	U	40	U	40	U	40	U	40	U	**78**	J	40	U
DRMO089_096-01-1.5	9/8/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO090-01-1.5	12/17/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO091-01-1.5	11/7/2005	0	40	U	40	U	40	U	40	U	40	U	**80**	J	**60**	J
DRMO091-01-1.5-DUP	11/7/2005	0	196	U	196	U	196	U	196	U	196	U	**84**	J	**44**	J
DRMO093-01-1.5	10/21/2005	0	40	U	40	U	40	U	40	U	40	U	**63**	J	40	U
DRMO094-01-1.5	10/21/2005	0	40	U	40	U	40	U	40	U	40	U	**84**	J	40	U
DRMO097-01-1.5	12/17/2005	0	40	U	40	U	**56**	J	40	U	40	U	40	U	**40**	J
DRMO098-01-1.5	12/15/2005	0	400	U	400	U	400	U	400	U	400	U	400	U	400	U
DRMO100-01-1.5	12/10/2005	0	42	U	42	U	42	U	42	U	42	U	**52**	J	42	U
DRMOA5-B-5.5	5/17/2006	4	**170**	J	**230**	J	**160**	J	**280**		**96**	J	50	U	**270**	
DRMOA5-SWE-3	5/17/2006	1.5	**460**	J	178	U	178	U	178	U	178	U	178	U	**780**	J
DRMOA5-SWN-3	5/17/2006	1.5	50	U	50	U	50	U	50	U	50	U	50	U	50	U
DRMOA5-SWS-3	5/17/2006	1.5	42	U	42	U	42	U	42	U	42	U	42	U	42	U
DRMOA5-SWW-3	5/17/2006	1.5	**150**	J	**190**	J	**120**	J	**210**	J	**73**	J	44	U	**220**	J
DRMO-SW001-01-1.0	9/21/2005	0	40	U	40	U	40	U	40	U	40	U	**58**	J	40	U
DRMO-SW002_003-01-1.5	9/21/2005	0	**88**	J	**65**	J	**96**	J	**68**	J	**61**	J	**190**		**100**	J
DRMO-SW005_004-01-1.5	9/21/2005	0	38	U	38	U	38	U	38	U	38	U	**73**	J	38	U
DRMO-SW008_009-01-2	10/1/2005	0.5	**39**	J	76	U	**50**	J	76	U	76	U	**150**	J	**48**	J
DRMO-SW008_009-01-2-DUP	10/1/2005	0	76	U	76	U	**44**	J	76	U	76	U	**140**	J	76	U
DRMO-SW016-01-2	10/1/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO-SW018-01-1	9/27/2005	0	188	U	188	U	188	U	188	U	188	U	188	U	**240**	J

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Ethylhexyl)phthalate	Chrysene
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	150	15	150	NE	1,500	35,000	15,000
Industrial PRG	--	--	2,100	210	2,100	NE	21,000	120,000	210,000
DRMO-SW025_026-01-1.5	10/7/2005	0	**44** J	192 U	192 U	192 U	192 U	**180** J	**77** J
DRMO-SW029_017-01-1.5	10/1/2005	0	**53** J	**47** J	**62** J	**74** J	184 U	**56** J	**110** J
DRMO-SW052-01-1.5	10/1/2005	0	74 U	74 U	**48** J	74 U	74 U	**59** J	**75** J
DRMO-SW066-01-1.5	10/1/2005	0	40 U	40 U	40 U	40 U	40 U	**42** J	40 U
DRMO-SW080-01-1.5	10/29/2005	0	40 U	40 U	40 U	40 U	40 U	**41** J	40 U
DRMO-SW085-01-1.5	9/20/2005	0	**41** J	**43** J	**200**	**42** J	**71** J	36 U	**130** J
DRMO-SW086-01-1.5	1/6/2006	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO-SW093-01-1.5	10/29/2005	0	158 U	158 U	158 U	158 U	158 U	**88** J	158 U
DRMO-SW093-01-1.5-DUP	10/29/2005	0	40 U	40 U	40 U	40 U	40 U	**68** J	40 U
DRMO-SW094-01-1.5	10/29/2005	0	52 U	52 U	52 U	52 U	52 U	52 U	52 U
DRMO-SW094N-01-1.5	10/29/2005	0	42 U	42 U	42 U	42 U	42 U	**47** J	42 U
DRMO-SW094S-01-1.5	10/29/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO-SW095-01-2	9/15/2005	0.5	82 U	82 U	82 U	82 U	82 U	**63** J	82 U
DRMO-SW096-01-1.5	9/20/2005	0	40 U	40 U	**49** J	40 U	40 U	40 U	**48** J
DRMO-SW097-01-1.5	12/17/2005	0	38 U	38 U	38 U	38 U	38 U	38 U	38 U
DRMO-SW100-01-1.5	12/10/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO-A1-1.5-SW-E	1/5/2007	4	22 U	25 U	32 U	28 U	18 U	30 U	110 U
DRMO-A1-1.5-SW-NE	11/17/2006	4	**22** J	**26** J	**68** J	27 U	**30** J	29 U	100 U
DRMO-A1-1.5-SW-NW	11/17/2006	4	25 U	30 U	37 U	33 U	21 U	**270** J	120 U
DRMO-A1-1.5-SW-SE	11/17/2006	4	22 U	26 U	32 U	28 U	18 U	31 U	110 U
DRMO-A2-1.5-SW-E	11/17/2006	5	130 U	160 U	200 U	170 U	110 U	190 U	660 U
DRMO-A3-2.0-SW-E	11/17/2006	4	20 U	23 U	29 U	26 U	16 U	28 U	98 U
DRMO-A3-2.0-SW-W	11/17/2006	4	21 U	25 U	31 U	27 U	17 U	30 U	100 U
DRMO-Area 1-2	10/23/2006	4.5	**66** J	**94** J	**40** J	**68** J	**82** J	29 U	100 U
DRMO-Area 2-2	10/24/2006	5.5	**41** J	**64** J	**59** J	**55** J	**45** J	38 U	130 U
DRMO-Area 3-2.0-SW-S	1/4/2007	4	19 U	23 U	29 U	25 U	16 U	27 U	96 U
DRMO-Area 3-2.5	10/23/2006	4.5	20 U	23 U	29 U	26 U	16 U	28 U	98 U
DRMO-Area 4-5	10/24/2006	4	**62** J	**120** J	**110** J	**150** J	**88** J	34 U	120 U
DRMO-Area4-4.5-SW-E	11/16/2006	3	140 U	170 U	210 U	180 U	120 U	**2,300** J	700 U
DRMO-FS-11-4.5	12/13/2006	4.5	29 U	34 U	42 U	37 U	24 U	41 U	140 U
DRMO-FS-11-4.5-DUP	12/13/2006	4.5	29 U	34 U	43 U	37 U	24 U	41 U	140 U
DRMO-FS-11-4-SW-E	1/5/2007	4	**490** J	160 U	200 U	180 U	110 U	190 U	**1,100** J
DRMO-FS-11-4-SW-N	12/13/2006	4	22 U	26 U	33 U	29 U	18 U	31 U	110 U
DRMO-FS-11-4-SW-S	12/13/2006	4	29 U	34 U	42 U	37 U	24 U	41 U	140 U
DRMO-FS-15-1.5-SW-E	1/4/2007	1.5	21 U	25 U	31 U	27 U	17 U	30 U	100 U
DRMO-FS-15-1.5-SW-N	1/4/2007	1.5	21 U	25 U	31 U	28 U	18 U	30 U	110 U
DRMO-FS15-1.5-SW-S	11/17/2006	1.5	100 U	120 U	150 U	130 U	85 U	140 U	510 U
DRMO-FS-15-1.5-SW-W	1/4/2007	1.5	21 U	24 U	30 U	27 U	17 U	29 U	100 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Benzo(a)anthracene		Benzo(a)pyrene		Benzo(b)fluoranthene		Benzo(g,h,i)perylene		Benzo(k)fluoranthene		bis(2-Ethylhexyl)phthalate		Chrysene	
Reporting Units	**--**	**ft bgs**	**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**	
Residential PRG	**--**	**--**	**150**		**15**		**150**		**NE**		**1,500**		**35,000**		**15,000**	
Industrial PRG	**--**	**--**	**2,100**		**210**		**2,100**		**NE**		**21,000**		**120,000**		**210,000**	
DRMO-FS-15-1.5-SW-W-DUP	1/4/2007	1.5	22	U	26	U	32	U	28	U	18	U	31	U	110	U
DRMO-FS15-2	10/23/2006	2	**39**	J	**31**	J	27	U	23	U	**15**	J	25	U	89	U
DRMO-FS15-2-DUP	10/23/2006	2	**19**	J	21	U	27	U	23	U	15	U	26	U	90	U
DRMO-FS-34-4.0-SW-N	1/4/2007	4	31	U	**43**	J	45	U	40	U	**30**	J	43	U	150	U
DRMO-FS-34-4.0-SW-N-DUP	1/4/2007	4	28	U	**89**	J	**74**	J	**88**	J	**78**	J	40	U	140	U
DRMO-FS-34-4.0-SW-W	1/4/2007	4	29	U	**78**	J	**86**	J	**120**	J	**61**	J	41	U	140	U
DRMO-FS-34-4.5	12/11/2006	4.5	27	U	31	U	39	U	**43**	J	22	U	38	U	130	U
DRMO-FS-34-4-SW-E	12/11/2006	4	21	U	25	U	31	U	27	U	17	U	30	U	100	U
DRMO-FS-34-4-SW-S	12/11/2006	4	23	U	27	U	33	U	29	U	19	U	32	U	110	U
DRMO-FS-38-4.0-SW-W-1	2/7/2007	4	20	U	24	U	30	U	26	U	17	U	29	U	100	U
DRMO-FS-38-4.5	12/11/2006	4.5	1,300	U	1,500	U	1,900	U	1,600	U	1,000	U	1,800	U	6,300	U
DRMO-FS38-4-SW-E	12/11/2006	4	21	U	25	U	31	U	27	U	17	U	30	U	100	U
DRMO-FS38-4-SW-S	12/11/2006	4	23	U	**28**	J	34	U	30	U	19	U	33	U	110	U
DRMO-FS40-1.5-SW-E	11/17/2006	1.5	20	U	23	U	29	U	25	U	16	U	28	U	97	U
DRMO-FS46-1.5-SW-N	1/4/2007	1.5	**78**	J	**69**	J	**57**	J	37	U	**33**	J	40	U	140	U
DRMO-FS46-1.5-SW-W	11/16/2006	1.5	20	U	24	U	30	U	26	U	17	U	**3,600**	J	100	U
DRMO-FS46-2	10/24/2006	2	18	U	21	U	27	U	24	U	15	U	26	U	90	U
DRMO-FS47-1.5-SW-E	11/16/2006	1.5	22	U	26	U	32	U	28	U	18	U	**2,600**	J	110	U
DRMO-FS47-2	10/24/2006	2	20	U	24	U	30	U	26	U	17	U	29	U	100	U
DRMO-FS-5-4.5	12/13/2006	4.5	**76**	J	**120**	J	**90**	J	**87**	J	**87**	J	38	U	130	U
DRMO-FS-5-4-SW-E	12/13/2006	4	**23**	J	**32**	J	33	U	29	U	**29**	J	32	U	110	U
DRMO-FS-5-4-SW-N	12/13/2006	4	21	U	25	U	31	U	28	U	18	U	30	U	110	U
DRMO-FS-5-4-SW-S	12/13/2006	4	**61**	J	29	U	36	U	32	U	20	U	34	U	120	U
DRMO-FS59-1.5-SW-S	11/16/2006	1.5	21	U	24	U	30	U	27	U	17	U	**1,700**	J	100	U
DRMO-FS59-1.5-SW-W	11/16/2006	1.5	**23**	J	**31**	J	**33**	J	**30**	J	**33**	J	**2,600**	J	100	U
DRMO-FS59-2	10/24/2006	2	19	U	23	U	28	U	25	U	16	U	27	U	95	U
DRMO-FS60-1.5-SW-E	11/16/2006	1.5	100	U	120	U	150	U	130	U	84	U	**2,300**	J	500	U
DRMO-FS60-1.5-SW-E-DUP	11/16/2006	1.5	99	U	120	U	150	U	130	U	82	U	**2,000**	J	490	U
DRMO-FS60-2	10/24/2006	2	19	U	22	U	28	U	24	U	15	U	27	U	93	U
DRMO-FS6-1.5-SW-E	11/17/2006	1.5	20	U	23	U	29	U	26	U	16	U	28	U	98	U
DRMO-FS6-1.5-SW-E-DUP	11/17/2006	1.5	20	U	23	U	29	U	25	U	16	U	28	U	97	U
DRMO-FS6-1.5-SW-S	11/17/2006	1.5	20	U	24	U	30	U	26	U	17	U	28	U	99	U
DRMO-FS6-2	10/23/2006	2	18	U	21	U	27	U	24	U	15	U	26	U	90	U
DRMO-FS62-1.5-SW-E	11/16/2006	1.5	21	U	25	U	31	U	28	U	18	U	30	U	110	U
DRMO-FS62-1.5-SW-N	11/16/2006	1.5	100	U	120	U	150	U	130	U	83	U	140	U	500	U
DRMO-FS62-1.5-SW-W	11/16/2006	1.5	20	U	24	U	30	U	27	U	17	U	29	U	100	U
DRMO-FS62-1.5-SW-W-DUP	11/16/2006	1.5	20	U	24	U	30	U	26	U	17	U	28	U	99	U
DRMO-FS62-2	10/23/2006	2	**52**	J	**45**	J	27	U	24	U	**23**	J	26	U	92	U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Ethylhexyl)phthalate	Chrysene
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRG	**--**	**--**	**150**	**15**	**150**	**NE**	**1,500**	**35,000**	**15,000**
Industrial PRG	**--**	**--**	**2,100**	**210**	**2,100**	**NE**	**21,000**	**120,000**	**210,000**
DRMO-FS68-1.5-SW-N-2	1/25/2007	1.5	20 U	24 U	30 U	26 U	17 U	29 U	100 U
DRMO-FS68-1.5-SW-N-2-DUP	1/25/2007	1.5	20 U	24 U	30 U	26 U	17 U	29 U	100 U
DRMO-FS68-1.5-SW-S	11/17/2006	1.5	20 U	24 U	**58** J	26 U	17 U	**63** J	100 U
DRMO-FS68-1.5-SW-W	11/17/2006	1.5	**70** J	**53** J	**120** J	27 U	**76** J	**47** J	100 U
DRMO-FS68-2	10/24/2006	2	**19** J	22 U	27 U	24 U	15 U	26 U	91 U
DRMO-FS74-1.5-SW-E	11/16/2006	1.5	110 U	120 U	160 U	140 U	87 U	**3,500** J	520 U
DRMO-FS74-1.5-SW-W	11/16/2006	1.5	21 U	25 U	32 U	28 U	18 U	**4,300** J	110 U
DRMO-FS74-2	10/24/2006	2	19 U	**30** J	28 U	25 U	16 U	27 U	96 U
DRMO-FS76-1.5-SW-S	11/16/2006	1.5	21 U	24 U	31 U	27 U	17 U	29 U	100 U
DRMO-FS76-1.5-SW-W	11/16/2006	1.5	21 U	25 U	31 U	27 U	17 U	30 U	100 U
DRMO-FS76-2	10/23/2006	2	20 U	23 U	29 U	26 U	16 U	28 U	98 U
DRMO-FS77-1.5-SW-E	11/16/2006	1.5	20 U	24 U	30 U	26 U	17 U	**65** J	100 U
DRMO-FS77-1.5-SW-N	1/4/2007	1.5	21 U	25 U	31 U	27 U	17 U	30 U	100 U
DRMO-FS77-1.5-SW-S	11/16/2006	1.5	100 U	120 U	150 U	130 U	85 U	150 U	510 U
DRMO-FS77-2	10/23/2006	2	**37** J	**54** J	**53** J	**55** J	**38** J	38 U	130 U
DRMO-FS83-1.5-SW-N	11/17/2006	1.5	21 U	24 U	30 U	27 U	17 U	**47** J	100 U
DRMO-FS83-1.5-SW-N-DUP	11/17/2006	1.5	20 U	24 U	30 U	26 U	17 U	**46** J	100 U
DRMO-FS83-2	10/24/2006	2	19 U	22 U	27 U	24 U	15 U	26 U	92 U
DRMO-FS-87-1.5-SW-E	1/5/2007	1.5	26 U	30 U	38 U	33 U	21 U	37 U	130 U
DRMO-FS-87-1.5-SW-W	1/5/2007	0	400 U	400 U	400 U	400 U	400 U	400 U	400 U
DRMO-FS87-2	10/24/2006	2	**79** J	**29** J	**32** J	24 U	**55** J	26 U	90 U
DRMO-FS92-1.5-SW-E	11/17/2006	1.5	21 U	25 U	31 U	27 U	17 U	29 U	100 U
DRMO-FS92-1.5-SW-N	11/17/2006	1.5	19 U	22 U	27 U	24 U	15 U	26 U	92 U
DRMO-FS92-1.5-SW-W	11/17/2006	1.5	21 U	24 U	30 U	27 U	17 U	29 U	100 U
DRMO-FS92-2	10/23/2006	2	**27** J	**38** J	40 U	35 U	**27** J	38 U	130 U
DRMO-FS-10-1.5-SW-N	7/19/2007	4	**87** J	**83** J	**270** J	99 U	85 U	110 U	83 U
DRMO-FS-101-3.5-SW-S	7/20/2007	2	20 U	18 U	22 U	26 U	22 U	27 U	21 U
DRMO-FS-101-3.5-SW-W	7/20/2007	2	20 U	18 U	22 U	26 U	22 U	27 U	22 U
DRMO-FS-101-4-C	7/20/2007	2.5	22 U	20 U	24 U	28 U	24 U	30 U	23 U
DRMO-FS-101-4-C-DUP	7/20/2007	2.5	22 U	20 U	24 U	28 U	24 U	30 U	24 U
DRMO-FS-101-SW-N-1	12/19/2007	2	17 U	16 U	19 U	22 U	19 U	23 U	18 U
DRMO-FS-10-5.5-SW-W-1	8/1/2007	4	**60** J	**82** J	**97** J	33 U	33 U	10 U	36 U
DRMO-FS-10-6-C	8/1/2007	5	**29** J	**49** J	**54** J	32 U	32 U	10 U	34 U
DRMO-FS-10-6-C-DUP	8/1/2007	5	**31** J	**53** J	**61** J	34 U	34 U	10 U	37 U
DRMO-FS-108-7.5-SW-NW	8/27/2007	6	**34** J	**58** J	**65** J	34 U	29 U	44 U	29 U
DRMO-FS-108-8-C	11/20/2007	6.5	**30** J	**36** J	**41** J	37 U	32 U	49 U	32 U
DRMO-FS-109-8-C	7/30/2007	6.5	26 U	29 U	31 U	33 U	33 U	10 U	35 U
DRMO-FS-110-4-C	8/22/2007	2.5	67 U	62 U	74 U	86 U	74 U	92 U	73 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Ethylhexyl)phthalate	Chrysene
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRG	**--**	**--**	**150**	**15**	**150**	**NE**	**1,500**	**35,000**	**15,000**
Industrial PRG	**--**	**--**	**2,100**	**210**	**2,100**	**NE**	**21,000**	**120,000**	**210,000**
DRMO-FS-111-1.5-SW-S	7/27/2007	0	490 U	540 U	570 U	610 U	610 U	190 U	660 U
DRMO-FS-111-2-C	7/27/2007	0.5	20 U	22 U	23 U	24 U	24 U	7 U	26 U
DRMO-FS-112-1.5-SW-S	7/24/2007	0	14 U	13 U	15 U	18 U	15 U	19 U	15 U
DRMO-FS-112-2-C	7/24/2007	0.5	14 U	13 U	16 U	18 U	16 U	19 U	15 U
DRMO-FS-132-7.5-SW-N-1	8/27/2007	6	21 U	23 U	23 U	28 U	24 U	36 U	24 U
DRMO-FS-132-7.5-SW-N-1-DUP	8/27/2007	6	**190** J	**420** J	**390** J	200 U	170 U	260 U	170 U
DRMO-FS-132-7.5-SW-W	7/27/2007	6	**39** J	**53** J	**54** J	27 U	23 U	29 U	23 U
DRMO-FS-132-8-C	7/30/2007	7	21 U	**120**	**120**	**110**	23 U	29 U	23 U
DRMO-FS-134-7.5-SW-N	7/27/2007	6	17 U	15 U	18 U	22 U	18 U	23 U	18 U
DRMO-FS-135-6-C	8/1/2007	5	**40** J	**59** J	**62** J	36 U	36 U	11 U	39 U
DRMO-FS-135-7.5-SW-NW	7/27/2007	6	17 U	15 U	18 U	21 U	18 U	23 U	18 U
DRMO-FS-136-6-C	8/1/2007	4.5	**68** J	**97** J	**92** J	35 U	35 U	11 U	38 U
DRMO-FS-137-7.5-SW-S	8/27/2007	6	**74** J	**110**	**120**	36 U	**44** J	46 U	30 U
DRMO-FS-137-7.5-SW-W	8/27/2007	6	**26** J	**37** J	**38** J	25 U	22 U	27 U	21 U
DRMO-FS-137-8-C	8/27/2007	6.5	50 U	46 U	55 U	64 U	55 U	69 U	54 U
DRMO-FS-138-7.5-SW-W-1	8/27/2007	6	**75** J	**100** J	**87** J	60 U	52 U	64 U	51 U
DRMO-FS-138-8-C	8/22/2007	6.5	**210** J	**270** J	**240** J	96 U	**120** J	100 U	81 U
DRMO-FS-139-6-C	8/1/2007	4.5	27 U	**31** J	**32** J	33 U	33 U	10 U	36 U
DRMO-FS-140-5.5-SW-S	8/1/2007	4	25 U	**28** J	29 U	31 U	31 U	10 U	34 U
DRMO-FS-140-6-C	8/1/2007	4.5	27 U	30 U	32 U	33 U	34 U	10 U	36 U
DRMO-FS-141-7.5-SW-S	8/22/2007	6	**170** J	**230**	**210** J	**260**	**71** J	62 U	49 U
DRMO-FS-141-8-C	8/22/2007	6.5	**67** J	**56** J	54 U	64 U	55 U	68 U	53 U
DRMO-FS-142-7.5-SW-E	8/22/2007	6	**61** J	**56** J	**54** J	33 U	28 U	35 U	27 U
DRMO-FS-142-7.5-SW-E-DUP	8/22/2007	6	**35** J	**31** J	**28** J	31 U	27 U	33 U	26 U
DRMO-FS-142-7.5-SW-S	8/22/2007	6	**57** J	**54** J	**54** J	32 U	27 U	34 U	27 U
DRMO-FS-142-8-C	8/22/2007	6.5	**100** J	**98** J	**97** J	63 U	54 U	67 U	53 U
DRMO-FS-27-7.5-SW-N	7/27/2007	6	**33** J	**50** J	**51** J	26 U	22 U	28 U	22 U
DRMO-FS-27-7.5-SW-W-1	8/27/2007	6	**46** J	**66** J	**64** J	55 U	47 U	58 U	46 U
DRMO-FS-27-8-C	7/30/2007	6.5	24 U	22 U	27 U	31 U	27 U	33 U	26 U
DRMO-FS-28-7.5-SW-N	7/30/2007	6	19 U	18 U	21 U	25 U	21 U	26 U	21 U
DRMO-FS-28-7.5-SW-W	7/27/2007	6	46 U	43 U	51 U	60 U	51 U	64 U	50 U
DRMO-FS-28-8-C-TPH	9/11/2007	6.5	**31** J	**54** J	**57** J	21 U	**18** J	23 U	18 U
DRMO-FS-40-8-C	7/30/2007	6.5	19 U	18 U	22 U	25 U	22 U	27 U	21 U
DRMO-FS-53-8-C	8/1/2007	6.5	**47** J	**63** J	**100** J	34 U	34 U	10 U	36 U
DRMO-FS-67-2-C	7/24/2007	2	14 U	13 U	15 U	18 U	15 U	19 U	15 U
DRMO-FS-81-1.5-SW-S	7/24/2007	0	15 U	14 U	16 U	19 U	16 U	20 U	16 U
DRMO-FS-81-2-C	7/24/2007	0.5	15 U	14 U	17 U	20 U	17 U	21 U	17 U
DRMO-FS-82-1.5-SW-S	7/24/2007	0	14 U	13 U	16 U	19 U	16 U	20 U	16 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Ethylhexyl)phthalate	Chrysene
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	150	15	150	NE	1,500	35,000	15,000
Industrial PRG	--	--	2,100	210	2,100	NE	21,000	120,000	210,000
DRMO-FS-82-2-C	7/24/2007	0.5	14 U	13 U	16 U	19 U	16 U	20 U	16 U
DRMO-FS-83-1.5-SW-S-1	8/22/2007	1.5	78 U	73 U	87 U	100 U	87 U	110 U	85 U
DRMO-FS-83-2-C	7/24/2007	2	15 U	14 U	17 U	19 U	17 U	21 U	16 U
DRMO-FS-84-1.5-SW-S	7/27/2007	0	40 U	44 U	46 U	49 U	49 U	15 U	53 U
DRMO-FS-84-1.5-SW-W	7/27/2007	0	40 U	44 U	47 U	49 U	49 U	15 U	53 U
DRMO-FS-84-2-C	7/27/2007	0.5	20 U	22 U	23 U	24 U	24 U	7 U	26 U
DRMO-FS-98-1.5-SW-N	7/20/2007	0	16 U	15 U	18 U	21 U	18 U	22 U	17 U
DRMO-FS-98-1.5-SW-S	7/20/2007	0	74 U	68 U	**82** J	96 U	82 U	100 U	80 U
DRMO-FS-98-1.5-SW-W	7/20/2007	0	16 U	14 U	**18** J	20 U	17 U	22 U	17 U
DRMO-FS-98-2-C	7/20/2007	0.5	16 U	14 U	17 U	20 U	17 U	22 U	17 U
Summary Statistics	**Percent Detection**		**22.7%**	**22.7%**	**22.3%**	**7.1%**	**11.3%**	**26.5%**	**9.2%**
	Maximum		**1,300**	**1,500**	**1,900**	**1,600**	**1,000**	**4,300**	**6,300**
	Minimum		**14**	**13**	**15**	**18**	**15**	**7.40**	**15**
	Average		**38.39**	**41.52**	**45.85**	**36.08**	**30.13**	**147.41**	**71.55**
	Median		**40**	**40**	**40**	**38**	**38**	**40**	**53**
	Standard Deviation		**67.83**	**67.72**	**78.15**	**65.45**	**45.31**	**548.66**	**225.73**

[shaded box] Detected concentration exceeds the Industrial PRG
Detected results are marked in **bold**
U - not detected above the method detection limit
J - estimated value
NE - not established
NA - not analyzed
PRG - preliminary remediation goal
DUP - duplicate sample
µg/kg - micrograms per kilogram
ft bgs - feet below ground surface

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Dibenzo(a,h)anthracene		Dibenzofuran		Diethylphthalate		Di-n-butylphthalate		Di-n-octylphthalate		Fluoranthene		Fluorene	
Reporting Units	**--**	**ft bgs**	**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**	
Residential PRG	**--**	**--**	**15**		**NE**		**49,000,000**		**6,100,000**		**NE**		**2,300,000**		**2,300,000**	
Industrial PRG	**--**	**--**	**210**		**NE**		**490,000,000**		**62,000,000**		**NE**		**22,000,000**		**22,000,000**	
DRMO001-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO002_003-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO007-01-1.5	9/27/2005	0	172	U	172	U	172	U	172	U	172	U	172	U	172	U
DRMO008_009-01-1.5	9/27/2005	0	72	U	72	U	72	U	72	U	72	U	72	U	72	U
DRMO012-01-1.5	9/27/2005	0	38	U	38	U	38	U	38	U	38	U	38	U	38	U
DRMO012-01-1.5-DUP	9/27/2005	0	38	U	38	U	38	U	38	U	38	U	38	U	38	U
DRMO013-01-1.5	9/27/2005	0	38	U	38	U	38	U	38	U	38	U	38	U	38	U
DRMO018_017-01-1.5	9/27/2005	0	76	U	76	U	76	U	76	U	76	U	76	U	**77**	J
DRMO019-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO019-01-1.5-DUP	9/27/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO020-01-1.5	10/1/2005	0	36	U	36	U	36	U	36	U	36	U	**45**	J	36	U
DRMO021-01-1.5	10/1/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO023-01-1.5	10/1/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO024-01-1.5	10/15/2005	0	42	U	42	U	42	U	42	U	42	U	42	U	42	U
DRMO025_026-01-1.5	10/7/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO028_027-01-1.5	10/1/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO029-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U	**59**	J	40	U
DRMO029-01-1.5-DUP	9/27/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO030-01-1.5	9/27/2005	0	38	U	38	U	38	U	38	U	38	U	**160**	J	38	U
DRMO031-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO032-01-1.5	10/1/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO035-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO036-01-1.5	10/15/2005	0	42	U	42	U	42	U	42	U	42	U	42	U	42	U
DRMO041-01-1.5	10/1/2005	0	38	U	38	U	38	U	38	U	38	U	38	U	38	U
DRMO042-01-1.5	10/8/2005	0	38	U	38	U	38	U	38	U	38	U	38	U	38	U
DRMO043-01-1.5	10/8/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO044-01-1.5	10/8/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO045-01-1.5	10/15/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO048-01-1.5	10/7/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO049-01-1.5	10/7/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO049-01-1.5-DUP	10/7/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO050-01-1.5	10/15/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO051-01-1.5	10/15/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO052-01-1.5	10/1/2005	0	44	U	44	U	44	U	44	U	44	U	44	U	44	U
DRMO053-01-1.5	10/1/2005	0	38	U	38	U	38	U	38	U	38	U	38	U	38	U
DRMO055-01-1.5	10/15/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO056-01-1.5	10/15/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO057-01-1.5	9/8/2005	0	220	U	220	U	220	U	220	U	220	U	220	U	220	U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Dibenzo(a,h)anthracene	Dibenzofuran	Diethylphthalate	Di-n-butylphthalate	Di-n-octylphthalate	Fluoranthene	Fluorene
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRG	**--**	**--**	**15**	**NE**	**49,000,000**	**6,100,000**	**NE**	**2,300,000**	**2,300,000**
Industrial PRG	**--**	**--**	**210**	**NE**	**490,000,000**	**62,000,000**	**NE**	**22,000,000**	**22,000,000**
DRMO058-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO061-01-1.5	12/15/2005	0	78 U	78 U	78 U	78 U	78 U	78 U	78 U
DRMO064-01-1.5	10/29/2005	0	42 U	42 U	42 U	42 U	42 U	42 U	42 U
DRMO065-01-1.5	12/17/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO066_080-01-1.5	10/1/2005	0	200 U	200 U	200 U	200 U	200 U	**52** J	200 U
DRMO069-01-1.5	11/7/2005	0	200 U	**130** J	200 U	200 U	200 U	**150** J	**190** J
DRMO069-01-1.5-DUP	11/7/2005	0	200 U	**110** J	200 U	200 U	200 U	**230**	**160** J
DRMO070-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO071-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO072-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO073-01-1.5	11/7/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO075-01-1.5	9/8/2005	0	44 U	44 U	44 U	44 U	44 U	44 U	44 U
DRMO078-01-1.5	12/15/2005	0	40 U	40 U	**50** J	40 U	40 U	40 U	40 U
DRMO079-01-1.5	10/29/2005	0	38 U	38 U	38 U	38 U	38 U	38 U	38 U
DRMO079-01-1.5-DUP	10/29/2005	0	38 U	38 U	38 U	38 U	38 U	38 U	38 U
DRMO082-01-3.5	9/20/2005	2	40 U	40 U	40 U	40 U	40 U	**40** J	40 U
DRMO085-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO089_096-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO090-01-1.5	12/17/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO091-01-1.5	11/7/2005	0	40 U	40 U	40 U	40 U	40 U	**110** J	40 U
DRMO091-01-1.5-DUP	11/7/2005	0	196 U	196 U	196 U	196 U	196 U	196 U	196 U
DRMO093-01-1.5	10/21/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO094-01-1.5	10/21/2005	0	40 U	40 U	**63** J	40 U	40 U	40 U	40 U
DRMO097-01-1.5	12/17/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO098-01-1.5	12/15/2005	0	400 U	400 U	400 U	400 U	400 U	400 U	**490**
DRMO100-01-1.5	12/10/2005	0	42 U	42 U	**2,000**	42 U	42 U	42 U	42 U
DRMOA5-B-5.5	5/17/2006	4	50 U	50 U	50 U	50 U	50 U	**280**	**110** J
DRMOA5-SWE-3	5/17/2006	1.5	178 U	178 U	178 U	178 U	178 U	**250** J	**580** J
DRMOA5-SWN-3	5/17/2006	1.5	50 U	50 U	50 U	50 U	50 U	50 U	50 U
DRMOA5-SWS-3	5/17/2006	1.5	42 U	42 U	42 U	42 U	42 U	42 U	42 U
DRMOA5-SWW-3	5/17/2006	1.5	44 U	44 U	44 U	44 U	44 U	**200** J	44 U
DRMO-SW001-01-1.0	9/21/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO-SW002_003-01-1.5	9/21/2005	0	72 U	72 U	72 U	72 U	72 U	**79** J	72 U
DRMO-SW005_004-01-1.5	9/21/2005	0	38 U	38 U	38 U	**270**	38 U	38 U	38 U
DRMO-SW008_009-01-2	10/1/2005	0.5	76 U	76 U	76 U	76 U	76 U	**53** J	76 U
DRMO-SW008_009-01-2-DUP	10/1/2005	0	76 U	76 U	76 U	76 U	76 U	76 U	76 U
DRMO-SW016-01-2	10/1/2005	0	40 U	40 U	40 U	40 U	40 U	40 U	40 U
DRMO-SW018-01-1	9/27/2005	0	188 U	188 U	188 U	188 U	188 U	188 U	188 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Dibenzo(a,h)anthracene		Dibenzofuran		Diethylphthalate		Di-n-butylphthalate		Di-n-octylphthalate		Fluoranthene		Fluorene	
Reporting Units	--	ft bgs	µg/kg		µg/kg		µg/kg		µg/kg		µg/kg		µg/kg		µg/kg	
Residential PRG	--	--	**15**		**NE**		**49,000,000**		**6,100,000**		**NE**		**2,300,000**		**2,300,000**	
Industrial PRG	--	--	**210**		**NE**		**490,000,000**		**62,000,000**		**NE**		**22,000,000**		**22,000,000**	
DRMO-SW025_026-01-1.5	10/7/2005	0	192	U	192	U	192	U	**110**	J	192	U	**49**	J	192	U
DRMO-SW029_017-01-1.5	10/1/2005	0	184	U	184	U	184	U	**63**	J	184	U	**82**	J	184	U
DRMO-SW052-01-1.5	10/1/2005	0	74	U	74	U	74	U	74	U	74	U	**52**	J	74	U
DRMO-SW066-01-1.5	10/1/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO-SW080-01-1.5	10/29/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO-SW085-01-1.5	9/20/2005	0	36	U	36	U	36	U	**42**	J	36	U	**130**	J	36	U
DRMO-SW086-01-1.5	1/6/2006	0	40	U	40	U	40	U	40	U	40	U	**42**	J	40	U
DRMO-SW093-01-1.5	10/29/2005	0	158	U	158	U	**71**	J	158	U	**4,000**	J	158	U	158	U
DRMO-SW093-01-1.5-DUP	10/29/2005	0	40	U	40	U	40	U	40	U	40	U	40	U	40	U
DRMO-SW094-01-1.5	10/29/2005	0	52	U	52	U	52	U	52	U	**91**	J	52	U	52	U
DRMO-SW094N-01-1.5	10/29/2005	0	42	U	42	U	42	U	42	U	42	U	42	U	42	U
DRMO-SW094S-01-1.5	10/29/2005	0	40	U	40	U	40	U	40	U	**1,000**		40	U	40	U
DRMO-SW095-01-2	9/15/2005	0.5	82	U	82	U	82	U	82	U	82	U	82	U	82	U
DRMO-SW096-01-1.5	9/20/2005	0	40	U	40	U	40	U	**58**	J	40	U	**100**	J	40	U
DRMO-SW097-01-1.5	12/17/2005	0	38	U	38	U	38	U	38	U	38	U	38	U	38	U
DRMO-SW100-01-1.5	12/10/2005	0	40	U	40	U	40	U	**41**	J	40	U	40	U	40	U
DRMO-A1-1.5-SW-E	1/5/2007	4	22	U	23	U	25	U	33	U	30	U	38	U	19	U
DRMO-A1-1.5-SW-NE	11/17/2006	4	21	U	22	U	24	U	32	U	29	U	37	U	18	U
DRMO-A1-1.5-SW-NW	11/17/2006	4	25	U	27	U	30	U	39	U	36	U	44	U	22	U
DRMO-A1-1.5-SW-SE	11/17/2006	4	22	U	23	U	26	U	33	U	31	U	39	U	19	U
DRMO-A2-1.5-SW-E	11/17/2006	5	130	U	140	U	160	U	200	U	190	U	240	U	120	U
DRMO-A3-2.0-SW-E	11/17/2006	4	20	U	21	U	23	U	30	U	28	U	35	U	17	U
DRMO-A3-2.0-SW-W	11/17/2006	4	21	U	22	U	25	U	32	U	30	U	37	U	19	U
DRMO-Area 1-2	10/23/2006	4.5	21	U	22	U	24	U	31	U	29	U	**63**	J	18	U
DRMO-Area 2-2	10/24/2006	5.5	27	U	29	U	32	U	41	U	38	U	**150**	J	**54**	J
DRMO-Area 3-2.0-SW-S	1/4/2007	4	19	U	21	U	23	U	30	U	27	U	34	U	17	U
DRMO-Area 3-2.5	10/23/2006	4.5	20	U	21	U	23	U	30	U	28	U	35	U	17	U
DRMO-Area 4-5	10/24/2006	4	24	U	26	U	29	U	37	U	34	U	**190**	J	21	U
DRMO-Area4-4.5-SW-E	11/16/2006	3	140	U	150	U	170	U	220	U	200	U	250	U	120	U
DRMO-FS-11-4.5	12/13/2006	4.5	29	U	31	U	34	U	44	U	41	U	51	U	**56**	J
DRMO-FS-11-4.5-DUP	12/13/2006	4.5	29	U	31	U	34	U	44	U	41	U	51	U	26	U
DRMO-FS-11-4-SW-E	1/5/2007	4	140	U	**850**	J	160	U	210	U	190	U	240	U	**2,500**	J
DRMO-FS-11-4-SW-N	12/13/2006	4	22	U	23	U	26	U	34	U	31	U	39	U	20	U
DRMO-FS-11-4-SW-S	12/13/2006	4	29	U	30	U	34	U	44	U	41	U	51	U	25	U
DRMO-FS-15-1.5-SW-E	1/4/2007	1.5	21	U	22	U	25	U	32	U	30	U	37	U	19	U
DRMO-FS-15-1.5-SW-N	1/4/2007	1.5	21	U	23	U	25	U	33	U	30	U	38	U	19	U
DRMO-FS15-1.5-SW-S	11/17/2006	1.5	100	U	110	U	120	U	160	U	140	U	180	U	91	U
DRMO-FS-15-1.5-SW-W	1/4/2007	1.5	21	U	22	U	24	U	32	U	29	U	37	U	18	U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Dibenzo(a,h)anthracene	Dibenzofuran	Diethylphthalate	Di-n-butylphthalate	Di-n-octylphthalate	Fluoranthene	Fluorene
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	15	NE	49,000,000	6,100,000	NE	2,300,000	2,300,000
Industrial PRG	--	--	210	NE	490,000,000	62,000,000	NE	22,000,000	22,000,000
DRMO-FS-15-1.5-SW-W-DUP	1/4/2007	1.5	22 U	23 U	26 U	34 U	31 U	39 U	19 U
DRMO-FS15-2	10/23/2006	2	18 U	19 U	21 U	28 U	25 U	**140** J	**41** J
DRMO-FS15-2-DUP	10/23/2006	2	18 U	19 U	21 U	28 U	26 U	32 U	**23** J
DRMO-FS-34-4.0-SW-N	1/4/2007	4	31 U	33 U	36 U	47 U	43 U	54 U	27 U
DRMO-FS-34-4.0-SW-N-DUP	1/4/2007	4	28 U	30 U	33 U	43 U	40 U	**57** J	25 U
DRMO-FS-34-4.0-SW-W	1/4/2007	4	29 U	31 U	34 U	44 U	41 U	**66** J	**26** J
DRMO-FS-34-4.5	12/11/2006	4.5	27 U	28 U	31 U	41 U	38 U	47 U	24 U
DRMO-FS-34-4-SW-E	12/11/2006	4	21 U	22 U	25 U	32 U	30 U	37 U	19 U
DRMO-FS-34-4-SW-S	12/11/2006	4	23 U	24 U	27 U	34 U	32 U	40 U	20 U
DRMO-FS-38-4.0-SW-W-1	2/7/2007	4	20 U	22 U	24 U	31 U	29 U	36 U	18 U
DRMO-FS-38-4.5	12/11/2006	4.5	1,300 U	1,300 U	1,500 U	1,900 U	1,800 U	2,200 U	**4,000** J
DRMO-FS38-4-SW-E	12/11/2006	4	21 U	22 U	25 U	32 U	30 U	37 U	19 U
DRMO-FS38-4-SW-S	12/11/2006	4	23 U	24 U	27 U	35 U	33 U	**57** J	**47** J
DRMO-FS40-1.5-SW-E	11/17/2006	1.5	20 U	21 U	23 U	30 U	28 U	35 U	17 U
DRMO-FS46-1.5-SW-N	1/4/2007	1.5	29 U	30 U	34 U	44 U	40 U	**73** J	**51** J
DRMO-FS46-1.5-SW-W	11/16/2006	1.5	20 U	21 U	24 U	31 U	28 U	36 U	18 U
DRMO-FS46-2	10/24/2006	2	18 U	19 U	21 U	28 U	26 U	32 U	16 U
DRMO-FS47-1.5-SW-E	11/16/2006	1.5	22 U	23 U	26 U	34 U	31 U	39 U	19 U
DRMO-FS47-2	10/24/2006	2	20 U	21 U	24 U	31 U	29 U	36 U	18 U
DRMO-FS-5-4.5	12/13/2006	4.5	27 U	28 U	31 U	41 U	38 U	**110** J	23 U
DRMO-FS-5-4-SW-E	12/13/2006	4	22 U	24 U	26 U	34 U	32 U	40 U	20 U
DRMO-FS-5-4-SW-N	12/13/2006	4	21 U	23 U	25 U	33 U	30 U	38 U	19 U
DRMO-FS-5-4-SW-S	12/13/2006	4	24 U	26 U	29 U	37 U	34 U	43 U	**92** J
DRMO-FS59-1.5-SW-S	11/16/2006	1.5	21 U	22 U	24 U	32 U	29 U	36 U	18 U
DRMO-FS59-1.5-SW-W	11/16/2006	1.5	21 U	22 U	24 U	32 U	29 U	37 U	18 U
DRMO-FS59-2	10/24/2006	2	19 U	20 U	23 U	29 U	27 U	**120** J	17 U
DRMO-FS60-1.5-SW-E	11/16/2006	1.5	100 U	110 U	120 U	160 U	140 U	180 U	90 U
DRMO-FS60-1.5-SW-E-DUP	11/16/2006	1.5	99 U	100 U	120 U	150 U	140 U	170 U	87 U
DRMO-FS60-2	10/24/2006	2	19 U	20 U	22 U	29 U	27 U	**89** J	17 U
DRMO-FS6-1.5-SW-E	11/17/2006	1.5	20 U	21 U	23 U	30 U	28 U	35 U	18 U
DRMO-FS6-1.5-SW-E-DUP	11/17/2006	1.5	20 U	21 U	23 U	30 U	28 U	35 U	17 U
DRMO-FS6-1.5-SW-S	11/17/2006	1.5	20 U	21 U	24 U	31 U	28 U	35 U	18 U
DRMO-FS6-2	10/23/2006	2	18 U	19 U	21 U	28 U	26 U	32 U	16 U
DRMO-FS62-1.5-SW-E	11/16/2006	1.5	21 U	23 U	25 U	33 U	30 U	38 U	19 U
DRMO-FS62-1.5-SW-N	11/16/2006	1.5	100 U	110 U	120 U	150 U	140 U	180 U	89 U
DRMO-FS62-1.5-SW-W	11/16/2006	1.5	20 U	22 U	24 U	31 U	29 U	36 U	18 U
DRMO-FS62-1.5-SW-W-DUP	11/16/2006	1.5	20 U	21 U	24 U	31 U	28 U	35 U	18 U
DRMO-FS62-2	10/23/2006	2	19 U	20 U	22 U	28 U	26 U	33 U	**410**

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Dibenzo(a,h)anthracene	Dibenzofuran	Diethylphthalate	Di-n-butylphthalate	Di-n-octylphthalate	Fluoranthene	Fluorene
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRG	**--**	**--**	**15**	**NE**	**49,000,000**	**6,100,000**	**NE**	**2,300,000**	**2,300,000**
Industrial PRG	**--**	**--**	**210**	**NE**	**490,000,000**	**62,000,000**	**NE**	**22,000,000**	**22,000,000**
DRMO-FS68-1.5-SW-N-2	1/25/2007	1.5	20 U	22 U	24 U	31 U	29 U	36 U	18 U
DRMO-FS68-1.5-SW-N-2-DUP	1/25/2007	1.5	20 U	21 U	24 U	31 U	29 U	36 U	18 U
DRMO-FS68-1.5-SW-S	11/17/2006	1.5	20 U	22 U	24 U	31 U	29 U	**60** J	18 U
DRMO-FS68-1.5-SW-W	11/17/2006	1.5	21 U	22 U	24 U	32 U	29 U	**170** J	18 U
DRMO-FS68-2	10/24/2006	2	18 U	20 U	22 U	28 U	26 U	**34** J	16 U
DRMO-FS74-1.5-SW-E	11/16/2006	1.5	110 U	110 U	120 U	160 U	150 U	190 U	94 U
DRMO-FS74-1.5-SW-W	11/16/2006	1.5	21 U	23 U	25 U	33 U	30 U	38 U	19 U
DRMO-FS74-2	10/24/2006	2	19 U	20 U	23 U	30 U	27 U	34 U	17 U
DRMO-FS76-1.5-SW-S	11/16/2006	1.5	21 U	22 U	24 U	32 U	29 U	37 U	18 U
DRMO-FS76-1.5-SW-W	11/16/2006	1.5	21 U	22 U	25 U	32 U	30 U	37 U	19 U
DRMO-FS76-2	10/23/2006	2	20 U	21 U	23 U	30 U	28 U	35 U	17 U
DRMO-FS77-1.5-SW-E	11/16/2006	1.5	20 U	22 U	24 U	31 U	29 U	36 U	18 U
DRMO-FS77-1.5-SW-N	1/4/2007	1.5	21 U	22 U	25 U	32 U	30 U	37 U	19 U
DRMO-FS77-1.5-SW-S	11/16/2006	1.5	100 U	110 U	120 U	160 U	150 U	180 U	91 U
DRMO-FS77-2	10/23/2006	2	27 U	28 U	32 U	41 U	38 U	**100** J	24 U
DRMO-FS83-1.5-SW-N	11/17/2006	1.5	21 U	22 U	24 U	31 U	29 U	36 U	18 U
DRMO-FS83-1.5-SW-N-DUP	11/17/2006	1.5	20 U	21 U	24 U	31 U	28 U	36 U	18 U
DRMO-FS83-2	10/24/2006	2	19 U	20 U	22 U	29 U	26 U	33 U	16 U
DRMO-FS-87-1.5-SW-E	1/5/2007	1.5	26 U	27 U	30 U	40 U	37 U	46 U	23 U
DRMO-FS-87-1.5-SW-W	1/5/2007	0	400 U	**96** J	400 U	400 U	400 U	400 U	400 U
DRMO-FS87-2	10/24/2006	2	18 U	**71** J	21 U	28 U	26 U	**410**	**84** J
DRMO-FS92-1.5-SW-E	11/17/2006	1.5	21 U	22 U	25 U	32 U	29 U	37 U	18 U
DRMO-FS92-1.5-SW-N	11/17/2006	1.5	19 U	20 U	22 U	28 U	26 U	33 U	16 U
DRMO-FS92-1.5-SW-W	11/17/2006	1.5	21 U	22 U	24 U	32 U	29 U	37 U	18 U
DRMO-FS92-2	10/23/2006	2	27 U	29 U	32 U	42 U	38 U	**69** J	24 U
DRMO-FS-10-1.5-SW-N	7/19/2007	4	76 U	490 U	88 U	100 U	80 U	89 U	85 U
DRMO-FS-101-3.5-SW-S	7/20/2007	2	20 U	130 U	23 U	26 U	21 U	23 U	22 U
DRMO-FS-101-3.5-SW-W	7/20/2007	2	20 U	130 U	23 U	26 U	21 U	23 U	**270**
DRMO-FS-101-4-C	7/20/2007	2.5	21 U	140 U	25 U	28 U	23 U	25 U	24 U
DRMO-FS-101-4-C-DUP	7/20/2007	2.5	22 U	140 U	25 U	29 U	23 U	25 U	24 U
DRMO-FS-101-SW-N-1	12/19/2007	2	17 U	110 U	19 U	22 U	18 U	20 U	19 U
DRMO-FS-10-5.5-SW-W-1	8/1/2007	4	31 U	160 U	34 U	32 U	40 U	**160**	29 U
DRMO-FS-10-6-C	8/1/2007	5	29 U	150 U	32 U	31 U	38 U	29 U	28 U
DRMO-FS-10-6-C-DUP	8/1/2007	5	32 U	160 U	35 U	33 U	41 U	31 U	30 U
DRMO-FS-108-7.5-SW-NW	8/27/2007	6	30 U	160 U	32 U	27 U	33 U	29 U	29 U
DRMO-FS-108-8-C	11/20/2007	6.5	33 U	180 U	35 U	30 U	37 U	32 U	32 U
DRMO-FS-109-8-C	7/30/2007	6.5	30 U	160 U	33 U	32 U	39 U	**140**	29 U
DRMO-FS-110-4-C	8/22/2007	2.5	66 U	430 U	77 U	87 U	70 U	78 U	74 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Dibenzo(a,h)anthracene		Dibenzofuran		Diethylphthalate		Di-n-butylphthalate		Di-n-octylphthalate		Fluoranthene		Fluorene	
Reporting Units	**--**	**ft bgs**	**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**	
Residential PRG	**--**	**--**	**15**		**NE**		**49,000,000**		**6,100,000**		**NE**		**2,300,000**		**2,300,000**	
Industrial PRG	**--**	**--**	**210**		**NE**		**490,000,000**		**62,000,000**		**NE**		**22,000,000**		**22,000,000**	
DRMO-FS-111-1.5-SW-S	7/27/2007	0	570	U	2,900	U	620	U	590	U	730	U	560	U	550	U
DRMO-FS-111-2-C	7/27/2007	0.5	23	U	120	U	25	U	24	U	29	U	23	U	22	U
DRMO-FS-112-1.5-SW-S	7/24/2007	0	14	U	89	U	16	U	18	U	14	U	16	U	15	U
DRMO-FS-112-2-C	7/24/2007	0.5	14	U	91	U	16	U	18	U	15	U	16	U	16	U
DRMO-FS-132-7.5-SW-N-1	8/27/2007	6	24	U	130	U	26	U	22	U	27	U	24	U	24	U
DRMO-FS-132-7.5-SW-N-1-DUP	8/27/2007	6	180	U	960	U	190	U	160	U	200	U	**630**		180	U
DRMO-FS-132-7.5-SW-W	7/27/2007	6	21	U	140	U	24	U	28	U	22	U	24	U	23	U
DRMO-FS-132-8-C	7/30/2007	7	21	U	140	U	24	U	28	U	22	U	**210**		23	U
DRMO-FS-134-7.5-SW-N	7/27/2007	6	16	U	110	U	19	U	22	U	17	U	19	U	18	U
DRMO-FS-135-6-C	8/1/2007	5	33	U	170	U	37	U	35	U	43	U	33	U	32	U
DRMO-FS-135-7.5-SW-NW	7/27/2007	6	16	U	110	U	19	U	22	U	17	U	19	U	18	U
DRMO-FS-136-6-C	8/1/2007	4.5	33	U	170	U	36	U	34	U	42	U	**160**		32	U
DRMO-FS-137-7.5-SW-S	8/27/2007	6	31	U	170	U	33	U	28	U	35	U	**160**		31	U
DRMO-FS-137-7.5-SW-W	8/27/2007	6	19	U	130	U	23	U	26	U	21	U	23	U	22	U
DRMO-FS-137-8-C	8/27/2007	6.5	49	U	320	U	57	U	65	U	52	U	58	U	55	U
DRMO-FS-138-7.5-SW-W-1	8/27/2007	6	46	U	300	U	54	U	61	U	49	U	54	U	52	U
DRMO-FS-138-8-C	8/22/2007	6.5	74	U	480	U	86	U	98	U	78	U	87	U	83	U
DRMO-FS-139-6-C	8/1/2007	4.5	31	U	160	U	34	U	32	U	40	U	31	U	30	U
DRMO-FS-140-5.5-SW-S	8/1/2007	4	29	U	150	U	32	U	30	U	37	U	29	U	28	U
DRMO-FS-140-6-C	8/1/2007	4.5	31	U	160	U	34	U	32	U	40	U	31	U	30	U
DRMO-FS-141-7.5-SW-S	8/22/2007	6	45	U	290	U	52	U	59	U	47	U	**410**		50	U
DRMO-FS-141-8-C	8/22/2007	6.5	49	U	320	U	57	U	64	U	52	U	57	U	54	U
DRMO-FS-142-7.5-SW-E	8/22/2007	6	25	U	160	U	29	U	33	U	26	U	29	U	28	U
DRMO-FS-142-7.5-SW-E-DUP	8/22/2007	6	24	U	160	U	28	U	32	U	25	U	28	U	27	U
DRMO-FS-142-7.5-SW-S	8/22/2007	6	24	U	160	U	28	U	32	U	26	U	29	U	27	U
DRMO-FS-142-8-C	8/22/2007	6.5	48	U	320	U	56	U	64	U	51	U	57	U	54	U
DRMO-FS-27-7.5-SW-N	7/27/2007	6	20	U	130	U	23	U	26	U	21	U	23	U	22	U
DRMO-FS-27-7.5-SW-W-1	8/27/2007	6	42	U	270	U	49	U	55	U	44	U	49	U	47	U
DRMO-FS-27-8-C	7/30/2007	6.5	24	U	160	U	28	U	32	U	25	U	**140**		27	U
DRMO-FS-28-7.5-SW-N	7/30/2007	6	19	U	120	U	22	U	25	U	20	U	**99**		21	U
DRMO-FS-28-7.5-SW-W	7/27/2007	6	46	U	300	U	53	U	60	U	48	U	54	U	51	U
DRMO-FS-28-8-C-TPH	9/11/2007	6.5	16	U	110	U	19	U	21	U	17	U	19	U	18	U
DRMO-FS-40-8-C	7/30/2007	6.5	19	U	130	U	22	U	25	U	20	U	23	U	22	U
DRMO-FS-53-8-C	8/1/2007	6.5	31	U	160	U	34	U	33	U	40	U	**120**		30	U
DRMO-FS-67-2-C	7/24/2007	2	14	U	90	U	16	U	18	U	15	U	16	U	15	U
DRMO-FS-81-1.5-SW-S	7/24/2007	0	15	U	95	U	17	U	19	U	15	U	17	U	16	U
DRMO-FS-81-2-C	7/24/2007	0.5	15	U	100	U	18	U	20	U	16	U	18	U	17	U
DRMO-FS-82-1.5-SW-S	7/24/2007	0	14	U	93	U	17	U	19	U	15	U	17	U	16	U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Dibenzo(a,h)anthracene	Dibenzofuran	Diethylphthalate	Di-n-butylphthalate	Di-n-octylphthalate	Fluoranthene	Fluorene
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRG	**--**	**--**	**15**	**NE**	**49,000,000**	**6,100,000**	**NE**	**2,300,000**	**2,300,000**
Industrial PRG	**--**	**--**	**210**	**NE**	**490,000,000**	**62,000,000**	**NE**	**22,000,000**	**22,000,000**
DRMO-FS-82-2-C	7/24/2007	0.5	14 U	93 U	17 U	19 U	15 U	17 U	16 U
DRMO-FS-83-1.5-SW-S-1	8/22/2007	1.5	78 U	510 U	90 U	100 U	82 U	91 U	87 U
DRMO-FS-83-2-C	7/24/2007	2	15 U	97 U	17 U	20 U	16 U	17 U	17 U
DRMO-FS-84-1.5-SW-S	7/27/2007	0	46 U	240 U	50 U	48 U	59 U	45 U	44 U
DRMO-FS-84-1.5-SW-W	7/27/2007	0	46 U	240 U	51 U	48 U	59 U	46 U	44 U
DRMO-FS-84-2-C	7/27/2007	0.5	23 U	120 U	25 U	23 U	29 U	22 U	22 U
DRMO-FS-98-1.5-SW-N	7/20/2007	0	16 U	100 U	19 U	21 U	17 U	19 U	18 U
DRMO-FS-98-1.5-SW-S	7/20/2007	0	73 U	480 U	85 U	97 U	77 U	86 U	82 U
DRMO-FS-98-1.5-SW-W	7/20/2007	0	16 U	100 U	18 U	20 U	16 U	18 U	17 U
DRMO-FS-98-2-C	7/20/2007	0.5	15 U	100 U	18 U	20 U	16 U	18 U	17 U
Summary Statistics	**Percent Detection**		**0.0%**	**2.1%**	**1.7%**	**2.5%**	**1.3%**	**19.3%**	**8.0%**
	Maximum		**1,300**	**2,900**	**2,000**	**1,900**	**4,000**	**2,200**	**4,000**
	Minimum		**14**	**19**	**16**	**18**	**14**	**16**	**15**
	Average		**27.04**	**56.38**	**37.70**	**33.43**	**52.05**	**54.11**	**59.74**
	Median		**34.5**	**40**	**36**	**40**	**40**	**40**	**38**
	Standard Deviation		**50.93**	**124.00**	**139.79**	**69.53**	**272.73**	**99.25**	**308.85**

Detected concentration exceeds the Industrial PRG
Detected results are marked in **bold**
U - not detected above the method detection limit
J - estimated value
NE - not established
NA - not analyzed
PRG - preliminary remediation goal
DUP - duplicate sample
µg/kg - micrograms per kilogram
ft bgs - feet below ground surface

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Indeno(1,2,3-cd)pyrene		Naphthalene		Phenanthrene		Phenol		Pyrene	
Reporting Units	**--**	**ft bgs**	**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**	
Residential PRG	**--**	**--**	**150**		**3,900**		**NE**		**18,000,000**		**1,700,000**	
Industrial PRG	**--**	**--**	**2,100**		**20,000**		**NE**		**180,000,000**		**17,000,000**	
DRMO001-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO002_003-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO007-01-1.5	9/27/2005	0	172	U	172	U	172	U	172	U	**72**	J
DRMO008_009-01-1.5	9/27/2005	0	72	U	72	U	72	U	72	U	72	U
DRMO012-01-1.5	9/27/2005	0	38	U	38	U	38	U	38	U	38	U
DRMO012-01-1.5-DUP	9/27/2005	0	38	U	38	U	38	U	38	U	38	U
DRMO013-01-1.5	9/27/2005	0	38	U	38	U	38	U	38	U	38	U
DRMO018_017-01-1.5	9/27/2005	0	76	U	76	U	**200**	J	76	U	**180**	J
DRMO019-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO019-01-1.5-DUP	9/27/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO020-01-1.5	10/1/2005	0	36	U	36	U	**61**	J	36	U	**75**	J
DRMO021-01-1.5	10/1/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO023-01-1.5	10/1/2005	0	40	U	40	U	40	U	40	U	**110**	J
DRMO024-01-1.5	10/15/2005	0	42	U	42	U	42	U	42	U	42	U
DRMO025_026-01-1.5	10/7/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO028_027-01-1.5	10/1/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO029-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	**42**	J
DRMO029-01-1.5-DUP	9/27/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO030-01-1.5	9/27/2005	0	**120**	J	38	U	**140**	J	38	U	**150**	J
DRMO031-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO032-01-1.5	10/1/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO035-01-1.5	9/27/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO036-01-1.5	10/15/2005	0	42	U	42	U	42	U	42	U	42	U
DRMO041-01-1.5	10/1/2005	0	38	U	38	U	38	U	38	U	38	U
DRMO042-01-1.5	10/8/2005	0	38	U	38	U	38	U	38	U	38	U
DRMO043-01-1.5	10/8/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO044-01-1.5	10/8/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO045-01-1.5	10/15/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO048-01-1.5	10/7/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO049-01-1.5	10/7/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO049-01-1.5-DUP	10/7/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO050-01-1.5	10/15/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO051-01-1.5	10/15/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO052-01-1.5	10/1/2005	0	44	U	44	U	44	U	44	U	44	U
DRMO053-01-1.5	10/1/2005	0	38	U	38	U	38	U	38	U	38	U
DRMO055-01-1.5	10/15/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO056-01-1.5	10/15/2005	0	40	U	40	U	40	U	40	U	40	U
DRMO057-01-1.5	9/8/2005	0	220	U	220	U	**200**	J	220	U	220	U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Phenol	Pyrene
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	**150**	**3,900**	**NE**	**18,000,000**	**1,700,000**
Industrial PRG	--	--	**2,100**	**20,000**	**NE**	**180,000,000**	**17,000,000**
DRMO058-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO061-01-1.5	12/15/2005	0	78 U	78 U	78 U	78 U	78 U
DRMO064-01-1.5	10/29/2005	0	42 U	42 U	42 U	42 U	42 U
DRMO065-01-1.5	12/17/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO066_080-01-1.5	10/1/2005	0	**64** J	200 U	**130** J	200 U	**230**
DRMO069-01-1.5	11/7/2005	0	200 U	200 U	**460**	200 U	**210**
DRMO069-01-1.5-DUP	11/7/2005	0	200 U	200 U	**470**	200 U	**250**
DRMO070-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO071-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO072-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO073-01-1.5	11/7/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO075-01-1.5	9/8/2005	0	44 U	44 U	44 U	44 U	44 U
DRMO078-01-1.5	12/15/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO079-01-1.5	10/29/2005	0	38 U	38 U	38 U	38 U	38 U
DRMO079-01-1.5-DUP	10/29/2005	0	38 U	38 U	38 U	38 U	38 U
DRMO082-01-3.5	9/20/2005	2	40 U	40 U	**41** J	**41** J	40 U
DRMO085-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO089_096-01-1.5	9/8/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO090-01-1.5	12/17/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO091-01-1.5	11/7/2005	0	40 U	**75** J	40 U	40 U	**110** J
DRMO091-01-1.5-DUP	11/7/2005	0	196 U	**95** J	196 U	196 U	**44** J
DRMO093-01-1.5	10/21/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO094-01-1.5	10/21/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO097-01-1.5	12/17/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO098-01-1.5	12/15/2005	0	400 U	400 U	400 U	400 U	**58** J
DRMO100-01-1.5	12/10/2005	0	42 U	42 U	42 U	42 U	42 U
DRMOA5-B-5.5	5/17/2006	4	**240** J	**97** J	**290**	50 U	**700**
DRMOA5-SWE-3	5/17/2006	1.5	178 U	178 U	**1,500**	178 U	**1,800**
DRMOA5-SWN-3	5/17/2006	1.5	50 U	50 U	50 U	50 U	**87** J
DRMOA5-SWS-3	5/17/2006	1.5	42 U	42 U	42 U	42 U	42 U
DRMOA5-SWW-3	5/17/2006	1.5	**150** J	44 U	**160** J	44 U	**490**
DRMO-SW001-01-1.0	9/21/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO-SW002_003-01-1.5	9/21/2005	0	72 U	72 U	**63** J	72 U	**170** J
DRMO-SW005_004-01-1.5	9/21/2005	0	38 U	38 U	38 U	38 U	**46** J
DRMO-SW008_009-01-2	10/1/2005	0.5	76 U	76 U	**56** J	76 U	**110** J
DRMO-SW008_009-01-2-DUP	10/1/2005	0	76 U	76 U	**39** J	76 U	**78** J
DRMO-SW016-01-2	10/1/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO-SW018-01-1	9/27/2005	0	188 U	188 U	188 U	188 U	188 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Phenol	Pyrene
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRG	**--**	**--**	**150**	**3,900**	**NE**	**18,000,000**	**1,700,000**
Industrial PRG	**--**	**--**	**2,100**	**20,000**	**NE**	**180,000,000**	**17,000,000**
DRMO-SW025_026-01-1.5	10/7/2005	0	192 U	192 U	**150** J	192 U	**140** J
DRMO-SW029_017-01-1.5	10/1/2005	0	184 U	184 U	**220**	184 U	**240**
DRMO-SW052-01-1.5	10/1/2005	0	74 U	74 U	**51** J	74 U	**160** J
DRMO-SW066-01-1.5	10/1/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO-SW080-01-1.5	10/29/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO-SW085-01-1.5	9/20/2005	0	36 U	36 U	**88** J	36 U	**110** J
DRMO-SW086-01-1.5	1/6/2006	0	40 U	40 U	40 U	40 U	40 U
DRMO-SW093-01-1.5	10/29/2005	0	158 U	158 U	158 U	158 U	158 U
DRMO-SW093-01-1.5-DUP	10/29/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO-SW094-01-1.5	10/29/2005	0	52 U	52 U	52 U	52 U	52 U
DRMO-SW094N-01-1.5	10/29/2005	0	42 U	42 U	42 U	42 U	42 U
DRMO-SW094S-01-1.5	10/29/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO-SW095-01-2	9/15/2005	0.5	82 U	82 U	82 U	82 U	**48** J
DRMO-SW096-01-1.5	9/20/2005	0	40 U	40 U	**59** J	40 U	**64** J
DRMO-SW097-01-1.5	12/17/2005	0	38 U	38 U	38 U	38 U	38 U
DRMO-SW100-01-1.5	12/10/2005	0	40 U	40 U	40 U	40 U	40 U
DRMO-A1-1.5-SW-E	1/5/2007	4	29 U	37 U	20 U	24 U	27 U
DRMO-A1-1.5-SW-NE	11/17/2006	4	28 U	36 U	20 U	23 U	26 U
DRMO-A1-1.5-SW-NW	11/17/2006	4	34 U	43 U	24 U	28 U	31 U
DRMO-A1-1.5-SW-SE	11/17/2006	4	30 U	37 U	21 U	24 U	27 U
DRMO-A2-1.5-SW-E	11/17/2006	5	180 U	230 U	130 U	150 U	170 U
DRMO-A3-2.0-SW-E	11/17/2006	4	27 U	34 U	19 U	22 U	24 U
DRMO-A3-2.0-SW-W	11/17/2006	4	29 U	36 U	20 U	24 U	26 U
DRMO-Area 1-2	10/23/2006	4.5	**49** J	35 U	**23** J	23 U	**94** J
DRMO-Area 2-2	10/24/2006	5.5	**57** J	46 U	**64** J	30 U	**210** J
DRMO-Area 3-2.0-SW-S	1/4/2007	4	26 U	33 U	18 U	22 U	24 U
DRMO-Area 3-2.5	10/23/2006	4.5	27 U	34 U	19 U	22 U	24 U
DRMO-Area 4-5	10/24/2006	4	**130** J	41 U	**56** J	27 U	**290** J
DRMO-Area4-4.5-SW-E	11/16/2006	3	190 U	240 U	130 U	160 U	**180** J
DRMO-FS-11-4.5	12/13/2006	4.5	39 U	49 U	**140** J	32 U	**84** J
DRMO-FS-11-4.5-DUP	12/13/2006	4.5	**280** J	49 U	**64** J	32 U	**46** J
DRMO-FS-11-4-SW-E	1/5/2007	4	180 U	230 U	**4,600**	150 U	**2,800**
DRMO-FS-11-4-SW-N	12/13/2006	4	30 U	38 U	21 U	25 U	27 U
DRMO-FS-11-4-SW-S	12/13/2006	4	39 U	49 U	27 U	32 U	35 U
DRMO-FS-15-1.5-SW-E	1/4/2007	1.5	29 U	36 U	20 U	24 U	26 U
DRMO-FS-15-1.5-SW-N	1/4/2007	1.5	29 U	36 U	20 U	24 U	26 U
DRMO-FS15-1.5-SW-S	11/17/2006	1.5	140 U	180 U	97 U	110 U	130 U
DRMO-FS-15-1.5-SW-W	1/4/2007	1.5	28 U	35 U	20 U	23 U	26 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Indeno(1,2,3-cd)pyrene		Naphthalene		Phenanthrene		Phenol		Pyrene	
Reporting Units	--	ft bgs	µg/kg		µg/kg		µg/kg		µg/kg		µg/kg	
Residential PRG	--	--	150		3,900		NE		18,000,000		1,700,000	
Industrial PRG	--	--	2,100		20,000		NE		180,000,000		17,000,000	
DRMO-FS-15-1.5-SW-W-DUP	1/4/2007	1.5	30	U	37	U	21	U	25	U	27	U
DRMO-FS15-2	10/23/2006	2	24	U	31	U	**140**	J	20	U	**260**	J
DRMO-FS15-2-DUP	10/23/2006	2	25	U	31	U	**59**	J	20	U	**43**	J
DRMO-FS-34-4.0-SW-N	1/4/2007	4	42	U	52	U	29	U	34	U	**93**	J
DRMO-FS-34-4.0-SW-N-DUP	1/4/2007	4	**90**	J	48	U	27	U	32	U	**100**	J
DRMO-FS-34-4.0-SW-W	1/4/2007	4	**84**	J	49	U	**33**	J	32	U	**230**	J
DRMO-FS-34-4.5	12/11/2006	4.5	**36**	J	46	U	25	U	30	U	**54**	J
DRMO-FS-34-4-SW-E	12/11/2006	4	28	U	36	U	20	U	24	U	26	U
DRMO-FS-34-4-SW-S	12/11/2006	4	31	U	38	U	21	U	25	U	28	U
DRMO-FS-38-4.0-SW-W-1	2/7/2007	4	28	U	35	U	19	U	23	U	25	U
DRMO-FS-38-4.5	12/11/2006	4.5	1,700	U	2,200	U	**8,000**	J	1,400	U	**3,500**	J
DRMO-FS38-4-SW-E	12/11/2006	4	29	U	36	U	20	U	24	U	26	U
DRMO-FS38-4-SW-S	12/11/2006	4	31	U	39	U	**150**	J	26	U	**110**	J
DRMO-FS40-1.5-SW-E	11/17/2006	1.5	27	U	34	U	19	U	22	U	24	U
DRMO-FS46-1.5-SW-N	1/4/2007	1.5	39	U	49	U	**120**	J	32	U	**330**	J
DRMO-FS46-1.5-SW-W	11/16/2006	1.5	27	U	34	U	19	U	23	U	25	U
DRMO-FS46-2	10/24/2006	2	25	U	31	U	17	U	20	U	22	U
DRMO-FS47-1.5-SW-E	11/16/2006	1.5	30	U	37	U	21	U	25	U	27	U
DRMO-FS47-2	10/24/2006	2	27	U	34	U	19	U	23	U	25	U
DRMO-FS-5-4.5	12/13/2006	4.5	**85**	J	45	U	**98**	J	30	U	**180**	J
DRMO-FS-5-4-SW-E	12/13/2006	4	30	U	38	U	21	U	25	U	28	U
DRMO-FS-5-4-SW-N	12/13/2006	4	29	U	36	U	20	U	24	U	26	U
DRMO-FS-5-4-SW-S	12/13/2006	4	33	U	42	U	**190**	J	27	U	**240**	J
DRMO-FS59-1.5-SW-S	11/16/2006	1.5	28	U	35	U	19	U	23	U	26	U
DRMO-FS59-1.5-SW-W	11/16/2006	1.5	28	U	35	U	20	U	23	U	**43**	J
DRMO-FS59-2	10/24/2006	2	26	U	33	U	**58**	J	21	U	**70**	J
DRMO-FS60-1.5-SW-E	11/16/2006	1.5	140	U	170	U	96	U	110	U	130	U
DRMO-FS60-1.5-SW-E-DUP	11/16/2006	1.5	130	U	170	U	93	U	110	U	120	U
DRMO-FS60-2	10/24/2006	2	25	U	32	U	18	U	21	U	**65**	J
DRMO-FS6-1.5-SW-E	11/17/2006	1.5	27	U	34	U	19	U	22	U	25	U
DRMO-FS6-1.5-SW-E-DUP	11/17/2006	1.5	27	U	34	U	18	U	22	U	24	U
DRMO-FS6-1.5-SW-S	11/17/2006	1.5	27	U	34	U	19	U	22	U	25	U
DRMO-FS6-2	10/23/2006	2	25	U	31	U	17	U	20	U	22	U
DRMO-FS62-1.5-SW-E	11/16/2006	1.5	29	U	37	U	20	U	24	U	26	U
DRMO-FS62-1.5-SW-N	11/16/2006	1.5	140	U	170	U	95	U	110	U	120	U
DRMO-FS62-1.5-SW-W	11/16/2006	1.5	28	U	35	U	19	U	23	U	25	U
DRMO-FS62-1.5-SW-W-DUP	11/16/2006	1.5	27	U	34	U	19	U	22	U	25	U
DRMO-FS62-2	10/23/2006	2	25	U	32	U	**540**		21	U	**61**	J

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Phenol	Pyrene
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRG	**--**	**--**	**150**	**3,900**	**NE**	**18,000,000**	**1,700,000**
Industrial PRG	**--**	**--**	**2,100**	**20,000**	**NE**	**180,000,000**	**17,000,000**
DRMO-FS68-1.5-SW-N-2	1/25/2007	1.5	28 U	35 U	19 U	23 U	25 U
DRMO-FS68-1.5-SW-N-2-DUP	1/25/2007	1.5	27 U	35 U	19 U	23 U	25 U
DRMO-FS68-1.5-SW-S	11/17/2006	1.5	28 U	35 U	19 U	23 U	**64** J
DRMO-FS68-1.5-SW-W	11/17/2006	1.5	**30** J	35 U	**31** J	23 U	**150** J
DRMO-FS68-2	10/24/2006	2	25 U	31 U	17 U	21 U	**66** J
DRMO-FS74-1.5-SW-E	11/16/2006	1.5	140 U	180 U	100 U	120 U	130 U
DRMO-FS74-1.5-SW-W	11/16/2006	1.5	29 U	37 U	20 U	24 U	27 U
DRMO-FS74-2	10/24/2006	2	26 U	33 U	18 U	22 U	24 U
DRMO-FS76-1.5-SW-S	11/16/2006	1.5	28 U	35 U	20 U	23 U	26 U
DRMO-FS76-1.5-SW-W	11/16/2006	1.5	28 U	36 U	20 U	24 U	26 U
DRMO-FS76-2	10/23/2006	2	27 U	34 U	19 U	22 U	24 U
DRMO-FS77-1.5-SW-E	11/16/2006	1.5	27 U	35 U	19 U	23 U	25 U
DRMO-FS77-1.5-SW-N	1/4/2007	1.5	29 U	36 U	20 U	24 U	26 U
DRMO-FS77-1.5-SW-S	11/16/2006	1.5	140 U	180 U	97 U	110 U	130 U
DRMO-FS77-2	10/23/2006	2	**50** J	46 U	25 U	30 U	**140** J
DRMO-FS83-1.5-SW-N	11/17/2006	1.5	28 U	35 U	19 U	23 U	25 U
DRMO-FS83-1.5-SW-N-DUP	11/17/2006	1.5	27 U	34 U	19 U	23 U	25 U
DRMO-FS83-2	10/24/2006	2	25 U	32 U	18 U	21 U	23 U
DRMO-FS-87-1.5-SW-E	1/5/2007	1.5	35 U	44 U	24 U	29 U	**61** J
DRMO-FS-87-1.5-SW-W	1/5/2007	0	400 U	400 U	400 U	400 U	**55** J
DRMO-FS87-2	10/24/2006	2	25 U	31 U	**510**	20 U	**260** J
DRMO-FS92-1.5-SW-E	11/17/2006	1.5	28 U	36 U	20 U	23 U	26 U
DRMO-FS92-1.5-SW-N	11/17/2006	1.5	25 U	32 U	17 U	21 U	23 U
DRMO-FS92-1.5-SW-W	11/17/2006	1.5	28 U	35 U	19 U	23 U	26 U
DRMO-FS92-2	10/23/2006	2	37 U	46 U	26 U	30 U	**100** J
DRMO-FS-10-1.5-SW-N	7/19/2007	4	81 U	87 U	92 U	400 U	87 U
DRMO-FS-101-3.5-SW-S	7/20/2007	2	21 U	23 U	24 U	100 U	22 U
DRMO-FS-101-3.5-SW-W	7/20/2007	2	21 U	23 U	**310**	100 U	23 U
DRMO-FS-101-4-C	7/20/2007	2.5	23 U	25 U	26 U	110 U	25 U
DRMO-FS-101-4-C-DUP	7/20/2007	2.5	23 U	25 U	26 U	110 U	25 U
DRMO-FS-101-SW-N-1	12/19/2007	2	18 U	NA	20 U	88 U	19 U
DRMO-FS-10-5.5-SW-W-1	8/1/2007	4	**38** J	27 U	30 U	160 U	**180**
DRMO-FS-10-6-C	8/1/2007	5	31 U	26 U	29 U	150 U	**100**
DRMO-FS-10-6-C-DUP	8/1/2007	5	33 U	28 U	31 U	170 U	**110**
DRMO-FS-108-7.5-SW-NW	8/27/2007	6	**47** J	9 U	30 U	120 U	**120**
DRMO-FS-108-8-C	11/20/2007	6.5	27 U	NA	**120**	130 U	31 U
DRMO-FS-109-8-C	7/30/2007	6.5	32 U	27 U	30 U	160 U	**180**
DRMO-FS-110-4-C	8/22/2007	2.5	71 U	76 U	80 U	350 U	76 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Phenol	Pyrene
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	150	3,900	NE	18,000,000	1,700,000
Industrial PRG	--	--	2,100	20,000	NE	180,000,000	17,000,000
DRMO-FS-111-1.5-SW-S	7/27/2007	0	600 U	510 U	550 U	3,000 U	590 U
DRMO-FS-111-2-C	7/27/2007	0.5	24 U	20 U	22 U	120 U	24 U
DRMO-FS-112-1.5-SW-S	7/24/2007	0	15 U	16 U	17 U	71 U	16 U
DRMO-FS-112-2-C	7/24/2007	0.5	15 U	16 U	17 U	73 U	16 U
DRMO-FS-132-7.5-SW-N-1	8/27/2007	6	20 U	7 U	24 U	97 U	23 U
DRMO-FS-132-7.5-SW-N-1-DUP	8/27/2007	6	**280** J	52 U	180 U	710 U	**860**
DRMO-FS-132-7.5-SW-W	7/27/2007	6	**33** J	24 U	25 U	110 U	**120**
DRMO-FS-132-8-C	7/30/2007	7	22 U	24 U	25 U	110 U	**240**
DRMO-FS-134-7.5-SW-N	7/27/2007	6	18 U	19 U	20 U	87 U	19 U
DRMO-FS-135-6-C	8/1/2007	5	**37** J	30 U	32 U	170 U	**120**
DRMO-FS-135-7.5-SW-NW	7/27/2007	6	18 U	19 U	20 U	86 U	19 U
DRMO-FS-136-6-C	8/1/2007	4.5	**52** J	29 U	32 U	170 U	**180**
DRMO-FS-137-7.5-SW-S	8/27/2007	6	**74** J	9 U	31 U	120 U	**170**
DRMO-FS-137-7.5-SW-W	8/27/2007	6	**30** J	22 U	24 U	100 U	22 U
DRMO-FS-137-8-C	8/27/2007	6.5	53 U	57 U	60 U	260 U	57 U
DRMO-FS-138-7.5-SW-W-1	8/27/2007	6	**68** J	53 U	56 U	240 U	53 U
DRMO-FS-138-8-C	8/22/2007	6.5	**130** J	85 U	89 U	390 U	85 U
DRMO-FS-139-6-C	8/1/2007	4.5	33 U	28 U	30 U	160 U	32 U
DRMO-FS-140-5.5-SW-S	8/1/2007	4	30 U	26 U	28 U	150 U	30 U
DRMO-FS-140-6-C	8/1/2007	4.5	33 U	28 U	30 U	160 U	32 U
DRMO-FS-141-7.5-SW-S	8/22/2007	6	**170** J	51 U	54 U	230 U	**460**
DRMO-FS-141-8-C	8/22/2007	6.5	52 U	56 U	59 U	260 U	56 U
DRMO-FS-142-7.5-SW-E	8/22/2007	6	27 U	29 U	30 U	130 U	29 U
DRMO-FS-142-7.5-SW-E-DUP	8/22/2007	6	26 U	28 U	29 U	130 U	28 U
DRMO-FS-142-7.5-SW-S	8/22/2007	6	**31** J	28 U	29 U	130 U	**120**
DRMO-FS-142-8-C	8/22/2007	6.5	**57** J	56 U	59 U	250 U	56 U
DRMO-FS-27-7.5-SW-N	7/27/2007	6	**43** J	23 U	24 U	100 U	23 U
DRMO-FS-27-7.5-SW-W-1	8/27/2007	6	**53** J	48 U	51 U	220 U	48 U
DRMO-FS-27-8-C	7/30/2007	6.5	26 U	28 U	29 U	130 U	**170**
DRMO-FS-28-7.5-SW-N	7/30/2007	6	20 U	22 U	23 U	100 U	**110**
DRMO-FS-28-7.5-SW-W	7/27/2007	6	49 U	53 U	55 U	240 U	53 U
DRMO-FS-28-8-C-TPH	9/11/2007	6.5	**40** J	19 U	20 U	85 U	19 U
DRMO-FS-40-8-C	7/30/2007	6.5	21 U	22 U	**160**	100 U	**160**
DRMO-FS-53-8-C	8/1/2007	6.5	**51** J	28 U	30 U	160 U	**130**
DRMO-FS-67-2-C	7/24/2007	2	15 U	16 U	17 U	73 U	16 U
DRMO-FS-81-1.5-SW-S	7/24/2007	0	16 U	17 U	18 U	76 U	17 U
DRMO-FS-81-2-C	7/24/2007	0.5	16 U	18 U	19 U	81 U	18 U
DRMO-FS-82-1.5-SW-S	7/24/2007	0	15 U	16 U	17 U	75 U	16 U

Table 4-2. SVOCs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Phenol	Pyrene
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRG	--	--	150	3,900	NE	18,000,000	1,700,000
Industrial PRG	--	--	2,100	20,000	NE	180,000,000	17,000,000
DRMO-FS-82-2-C	7/24/2007	0.5	15 U	17 U	17 U	75 U	16 U
DRMO-FS-83-1.5-SW-S-1	8/22/2007	1.5	83 U	89 U	94 U	410 U	89 U
DRMO-FS-83-2-C	7/24/2007	2	16 U	17 U	18 U	78 U	17 U
DRMO-FS-84-1.5-SW-S	7/27/2007	0	48 U	41 U	44 U	240 U	48 U
DRMO-FS-84-1.5-SW-W	7/27/2007	0	48 U	41 U	45 U	240 U	48 U
DRMO-FS-84-2-C	7/27/2007	0.5	24 U	20 U	22 U	120 U	24 U
DRMO-FS-98-1.5-SW-N	7/20/2007	0	17 U	18 U	19 U	84 U	18 U
DRMO-FS-98-1.5-SW-S	7/20/2007	0	79 U	84 U	89 U	380 U	84 U
DRMO-FS-98-1.5-SW-W	7/20/2007	0	17 U	18 U	19 U	81 U	18 U
DRMO-FS-98-2-C	7/20/2007	0.5	17 U	18 U	19 U	81 U	18 U
Summary Statistics	**Percent Detection**		**13.0%**	**1.3%**	**16.8%**	**0.4%**	**30.7%**
	Maximum		**1,700**	**2,200**	**8,000**	**3,000**	**3,500**
	Minimum		**15**	**7.10**	**17**	**20**	**16**
	Average		**38.44**	**33.32**	**102.41**	**49.73**	**96.60**
	Median		**40**	**40**	**40**	**40**	**40**
	Standard Deviation		**69.20**	**76.66**	**605.11**	**112.88**	**321.22**

[shaded box] Detected concentration exceeds the Industrial PRG
Detected results are marked in **bold**
U - not detected above the method detection limit
J - estimated value
NE - not established
NA - not analyzed
PRG - preliminary remediation goal
DUP - duplicate sample
µg/kg - micrograms per kilogram
ft bgs - feet below ground surface

Table 4-3. PCBs Detected in Soil at the DRMO Site

Parameter Name	Sample Date	Sample Depth	Aroclor-1016	Aroclor-1254	Aroclor-1260
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRGs	**--**	**--**	**3,900**	**220**	**220**
Industrial PRGs	**--**	**--**	**21,000**	**740**	**740**
DRMO001-01-1.5	9/27/2005	0	20 U	20 U	20 U
DRMO002_003-01-1.5	9/27/2005	0	20 U	20 U	20 U
DRMO007-01-1.5	9/27/2005	0	170 U	170 U	**560** J
DRMO008_009-01-1.5	9/27/2005	0	18 U	18 U	**100**
DRMO012-01-1.5	9/27/2005	0	19 U	19 U	**85**
DRMO012-01-1.5-DUP	9/27/2005	0	19 U	19 U	**100**
DRMO013-01-1.5	9/27/2005	0	19 U	19 U	19 U
DRMO018_017-01-1.5	9/27/2005	0	19 U	19 U	19 U
DRMO019-01-1.5	9/27/2005	0	20 U	20 U	20 U
DRMO019-01-1.5-DUP	9/27/2005	0	20 U	20 U	**13** J
DRMO020-01-1.5	10/1/2005	0	18 U	18 U	**51**
DRMO021-01-1.5	10/1/2005	0	20 U	20 U	**18** J
DRMO023-01-1.5	10/1/2005	0	20 U	20 U	**120**
DRMO024-01-1.5	10/15/2005	0	21 U	21 U	21 U
DRMO025_026-01-1.5	10/7/2005	0	20 U	20 U	20 U
DRMO028_027-01-1.5	10/1/2005	0	20 U	20 U	**10** J
DRMO029-01-1.5	9/27/2005	0	20 U	20 U	20 U
DRMO029-01-1.5-DUP	9/27/2005	0	20 U	20 U	**30** J
DRMO030-01-1.5	9/27/2005	0	19 U	19 U	**100**
DRMO031-01-1.5	9/27/2005	0	20 U	20 U	20 U
DRMO032-01-1.5	10/1/2005	0	20 U	20 U	**25** J
DRMO035-01-1.5	9/27/2005	0	195 U	195 U	**450** J
DRMO036-01-1.5	10/15/2005	0	21 U	21 U	21 U
DRMO041-01-1.5	10/1/2005	0	19 U	19 U	19 U
DRMO042-01-1.5	10/8/2005	0	19 U	**14** J	**21** J
DRMO043-01-1.5	10/8/2005	0	20 U	20 U	**16** J
DRMO044-01-1.5	10/8/2005	0	20 U	20 U	**48**
DRMO045-01-1.5	10/15/2005	0	20 U	20 U	20 U
DRMO048-01-1.5	10/7/2005	0	20 U	20 U	20 U
DRMO049-01-1.5	10/7/2005	0	20 U	20 U	**11** J
DRMO049-01-1.5-DUP	10/7/2005	0	20 U	20 U	20 U
DRMO050-01-1.5	10/15/2005	0	20 U	20 U	**74**
DRMO051-01-1.5	10/15/2005	0	20 U	20 U	**34** J
DRMO052-01-1.5	10/1/2005	0	22 U	22 U	22 U
DRMO053-01-1.5	10/1/2005	0	19 U	19 U	**29** J
DRMO055-01-1.5	10/15/2005	0	20 U	**86**	**110**
DRMO056-01-1.5	10/15/2005	0	20 U	20 U	**91** J
DRMO057-01-1.5	9/8/2005	0	22 U	**180**	**130** J
DRMO058-01-1.5	9/8/2005	0	20 U	**81**	**43** J
DRMO061-01-1.5	12/15/2005	0	10 U	**79**	**62**
DRMO064-01-1.5	10/29/2005	0	21 U	21 U	21 U
DRMO065-01-1.5	12/17/2005	0	10 U	10 U	10 U
DRMO066_080-01-1.5	10/1/2005	0	20 U	20 U	**30** J
DRMO069-01-1.5	11/7/2005	0	21 U	21 U	**27** J
DRMO069-01-1.5-DUP	11/7/2005	0	20 U	20 U	**19** J
DRMO070-01-1.5	9/8/2005	0	20 U	20 U	**74**
DRMO071-01-1.5	9/8/2005	0	20 U	20 U	**48**
DRMO072-01-1.5	9/8/2005	0	20 U	**57**	**50** J
DRMO073-01-1.5	11/7/2005	0	20 U	20 U	20 U
DRMO075-01-1.5	9/8/2005	0	22 U	22 U	**30** J
DRMO078-01-1.5	12/15/2005	0	10 U	10 U	**160**
DRMO079-01-1.5	10/29/2005	0	19 U	**18** J	19 U
DRMO079-01-1.5-DUP	10/29/2005	0	19 U	**13** J	19 U
DRMO082-01-3.5	9/20/2005	2	20 U	20 U	20 U
DRMO085-01-1.5	9/8/2005	0	20 U	20 U	20 U
DRMO089_096-01-1.5	9/8/2005	0	20 U	**13** J	**40**
DRMO090-01-1.5	12/17/2005	0	10 U	10 U	10 U
DRMO091-01-1.5	11/7/2005	0	20 U	**150** J	**80** J
DRMO091-01-1.5-DUP	11/7/2005	0	20 U	**110** J	**52** J
DRMO093-01-1.5	10/21/2005	0	20 U	20 U	20 U
DRMO094-01-1.5	10/21/2005	0	20 U	20 U	20 U
DRMO097-01-1.5	12/17/2005	0	10 U	10 U	**59**
DRMO098-01-1.5	12/15/2005	0	10 U	10 U	10 U
DRMO100-01-1.5	12/10/2005	0	11 U	11 U	11 U
DRMOA5-B-5.5	5/17/2006	4	13 U	13 U	13 U
DRMOA5-SWE-3	5/17/2006	1.5	11 U	11 U	11 U
DRMOA5-SWN-3	5/17/2006	1.5	13 U	13 U	13 U
DRMOA5-SWS-3	5/17/2006	1.5	11 U	11 U	11 U
DRMOA5-SWW-3	5/17/2006	1.5	11 U	11 U	NA
DRMO-SW001-01-1.0	9/21/2005	0	20 U	**22** J	**60**
DRMO-SW002_003-01-1.5	9/21/2005	0	18 U	18 U	**34** J
DRMO-SW005_004-01-1.5	9/21/2005	0	90 U	90 U	**190** J

Table 4-3. PCBs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Aroclor-1016		Aroclor-1254		Aroclor-1260	
Reporting Units	--	ft bgs	µg/kg		µg/kg		µg/kg	
Residential PRGs	--	--	3,900		220		220	
Industrial PRGs	--	--	21,000		740		740	
DRMO-SW008_009-01-2	10/1/2005	0.5	19	U	19	U	**44**	
DRMO-SW008_009-01-2-DUP	10/1/2005	0	19	U	19	U	**44**	
DRMO-SW016-01-2	10/1/2005	0	20	U	20	U	20	U
DRMO-SW018-01-1	9/27/2005	0	185	U	185	U	**740**	J
DRMO-SW025_026-01-1.5	10/7/2005	0	19	U	19	U	**18**	J
DRMO-SW029_017-01-1.5	10/1/2005	0	90	U	90	U	**540**	J
DRMO-SW052-01-1.5	10/1/2005	0	19	U	19	U	**220**	
DRMO-SW066-01-1.5	10/1/2005	0	20	U	20	U	**55**	
DRMO-SW080-01-1.5	10/29/2005	0	20	U	20	U	20	U
DRMO-SW085-01-1.5	9/20/2005	0	18	U	**24**	J	**140**	
DRMO-SW086-01-1.5	1/6/2006	0	10	U	10	U	10	U
DRMO-SW093-01-1.5	10/29/2005	0	20	U	20	U	20	U
DRMO-SW093-01-1.5-DUP	10/29/2005	0	20	U	20	U	20	U
DRMO-SW094-01-1.5	10/29/2005	0	26	U	26	U	26	U
DRMO-SW094N-01-1.5	10/29/2005	0	21	U	21	U	21	U
DRMO-SW094S-01-1.5	10/29/2005	0	20	U	20	U	20	U
DRMO-SW095-01-2	9/15/2005	0.5	20	U	20	U	20	U
DRMO-SW096-01-1.5	9/20/2005	0	20	U	20	U	**62**	
DRMO-SW097-01-1.5	12/17/2005	0	10	U	10	U	10	U
DRMO-SW100-01-1.5	12/10/2005	0	10	U	10	U	**41**	
DRMO-A1-1.5-SW-E	1/5/2007	4	**420**	J	110	U	110	U
DRMO-A1-1.5-SW-NE	11/17/2006	4	100	U	100	U	100	U
DRMO-A1-1.5-SW-NW	11/17/2006	4	120	U	120	U	120	U
DRMO-A1-1.5-SW-SE	11/17/2006	4	110	U	110	U	110	U
DRMO-A2-1.5-SW-E	11/17/2006	5	130	U	130	U	130	U
DRMO-A3-2.0-SW-E	11/17/2006	4	97	U	97	U	97	U
DRMO-A3-2.0-SW-W	11/17/2006	4	100	U	**130**	J	100	U
DRMO-Area 1-2	10/23/2006	4.5	10	U	10	U	10	U
DRMO-Area 2-2	10/24/2006	5.5	13	U	13	U	**95**	
DRMO-Area 3-2.0-SW-S	1/4/2007	4	**380**	J	95	U	95	U
DRMO-Area 3-2.5	10/23/2006	4.5	9.8	U	9.8	U	**14**	J
DRMO-Area 4-5	10/24/2006	4	12	U	12	U	12	U
DRMO-Area4-4.5-SW-E	11/16/2006	3	140	U	140	U	140	U
DRMO-FS-11-4.5	12/13/2006	4.5	140	U	140	U	140	U
DRMO-FS-11-4.5-DUP	12/13/2006	4.5	140	U	140	U	140	U
DRMO-FS-11-4-SW-E	1/5/2007	4	**540**	J	140	U	140	U
DRMO-FS-11-4-SW-N	12/13/2006	4	110	U	110	U	110	U
DRMO-FS-11-4-SW-S	12/13/2006	4	140	U	140	U	140	U
DRMO-FS-15-1.5-SW-E	1/4/2007	1.5	**410**	J	100	U	100	U
DRMO-FS-15-1.5-SW-N	1/4/2007	1.5	**410**	J	100	U	100	U
DRMO-FS15-1.5-SW-S	11/17/2006	1.5	100	U	100	U	100	U
DRMO-FS-15-1.5-SW-W	1/4/2007	1.5	**400**	J	100	U	100	U
DRMO-FS-15-1.5-SW-W-DUP	1/4/2007	1.5	**430**	J	110	U	110	U
DRMO-FS15-2	10/23/2006	2	8.8	U	8.8	U	8.8	U
DRMO-FS15-2-DUP	10/23/2006	2	8.9	U	8.9	U	8.9	U
DRMO-FS-34-4.0-SW-N	1/4/2007	4	**600**	J	150	U	150	U
DRMO-FS-34-4.0-SW-N-DUP	1/4/2007	4	**550**	J	140	U	140	U
DRMO-FS-34-4.0-SW-W	1/4/2007	4	**560**	J	140	U	140	U
DRMO-FS-34-4.5	12/11/2006	4.5	130	U	130	U	130	U
DRMO-FS-34-4-SW-E	12/11/2006	4	100	U	100	U	100	U
DRMO-FS-34-4-SW-S	12/11/2006	4	110	U	110	U	110	U
DRMO-FS-38-4.0-SW-W-1	2/7/2007	4	100	U	100	U	100	U
DRMO-FS-38-4.5	12/11/2006	4.5	120	U	120	U	120	U
DRMO-FS38-4-SW-E	12/11/2006	4	100	U	100	U	100	U
DRMO-FS38-4-SW-S	12/11/2006	4	110	U	110	U	110	U
DRMO-FS40-1.5-SW-E	11/17/2006	1.5	96	U	96	U	**510**	
DRMO-FS46-1.5-SW-N	1/4/2007	1.5	**550**	J	140	U	140	U
DRMO-FS46-1.5-SW-W	11/16/2006	1.5	100	U	100	U	100	U
DRMO-FS46-2	10/24/2006	2	8.9	U	8.9	U	8.9	U
DRMO-FS47-1.5-SW-E	11/16/2006	1.5	110	U	110	U	110	U
DRMO-FS47-2	10/24/2006	2	9.9	U	9.9	U	9.9	U
DRMO-FS-5-4.5	12/13/2006	4.5	130	U	130	U	130	U
DRMO-FS-5-4-SW-E	12/13/2006	4	110	U	110	U	110	U
DRMO-FS-5-4-SW-N	12/13/2006	4	100	U	100	U	100	U
DRMO-FS-5-4-SW-S	12/13/2006	4	120	U	120	U	120	U
DRMO-FS59-1.5-SW-S	11/16/2006	1.5	100	U	100	U	**490**	
DRMO-FS59-1.5-SW-W	11/16/2006	1.5	100	U	100	U	**300**	J
DRMO-FS59-2	10/24/2006	2	9.4	U	9.4	U	9.4	U
DRMO-FS60-1.5-SW-E	11/16/2006	1.5	99	U	99	U	99	U
DRMO-FS60-1.5-SW-E-DUP	11/16/2006	1.5	98	U	98	U	**140**	J
DRMO-FS60-2	10/24/2006	2	9.2	U	9.2	U	**29**	J
DRMO-FS6-1.5-SW-E	11/17/2006	1.5	97	U	97	U	97	U

Table 4-3. PCBs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Aroclor-1016	Aroclor-1254	Aroclor-1260
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg
Residential PRGs	--	--	3,900	220	220
Industrial PRGs	--	--	21,000	740	740
DRMO-FS6-1.5-SW-E-DUP	11/17/2006	1.5	96 U	96 U	96 U
DRMO-FS6-1.5-SW-S	11/17/2006	1.5	98 U	98 U	**140** J
DRMO-FS6-2	10/23/2006	2	9.4 U	9.4 U	9.4 U
DRMO-FS62-1.5-SW-E	11/16/2006	1.5	110 U	110 U	110 U
DRMO-FS62-1.5-SW-N	11/16/2006	1.5	98 U	98 U	**100** J
DRMO-FS62-1.5-SW-W	11/16/2006	1.5	100 U	100 U	100 U
DRMO-FS62-1.5-SW-W-DUP	11/16/2006	1.5	99 U	99 U	99 U
DRMO-FS62-2	10/23/2006	2	91 U	91 U	**510**
DRMO-FS68-1.5-SW-N-2	1/25/2007	1.5	99 U	99 U	99 U
DRMO-FS68-1.5-SW-N-2-DUP	1/25/2007	1.5	99 U	99 U	99 U
DRMO-FS68-1.5-SW-S	11/17/2006	1.5	100 U	100 U	100 U
DRMO-FS68-1.5-SW-W	11/17/2006	1.5	100 U	100 U	100 U
DRMO-FS68-2	10/24/2006	2	9 U	9 U	**13** J
DRMO-FS74-1.5-SW-E	11/16/2006	1.5	100 U	100 U	**300** J
DRMO-FS74-1.5-SW-W	11/16/2006	1.5	110 U	110 U	110 U
DRMO-FS74-2	10/24/2006	2	9.4 U	9.4 U	9.4 U
DRMO-FS76-1.5-SW-S	11/16/2006	1.5	100 U	100 U	100 U
DRMO-FS76-1.5-SW-W	11/16/2006	1.5	100 U	100 U	100 U
DRMO-FS76-2	10/23/2006	2	200 U	200 U	200 U
DRMO-FS77-1.5-SW-E	11/16/2006	1.5	100 U	100 U	100 U
DRMO-FS77-1.5-SW-N	1/4/2007	1.5	**410** J	100 U	100 U
DRMO-FS77-1.5-SW-S	11/16/2006	1.5	100 U	100 U	**640**
DRMO-FS77-2	10/23/2006	2	13 U	13 U	13 U
DRMO-FS83-1.5-SW-N	11/17/2006	1.5	100 U	100 U	100 U
DRMO-FS83-1.5-SW-N-DUP	11/17/2006	1.5	98 U	98 U	98 U
DRMO-FS83-2	10/24/2006	2	46 U	46 U	**58** J
DRMO-FS-87-1.5-SW-E	1/5/2007	1.5	**490** J	120 U	**330** J
DRMO-FS-87-1.5-SW-W	1/5/2007	0	**400** J	400 U	400 U
DRMO-FS87-2	10/24/2006	2	45 U	45 U	**330**
DRMO-FS92-1.5-SW-E	11/17/2006	1.5	100 U	100 U	100 U
DRMO-FS92-1.5-SW-N	11/17/2006	1.5	91 U	91 U	91 U
DRMO-FS92-1.5-SW-W	11/17/2006	1.5	100 U	100 U	100 U
DRMO-FS92-2	10/23/2006	2	13 U	13 U	13 U
DRMO-FS-10-1.5-SW-N	7/19/2007	4	3.1 U	1.7 U	**220**
DRMO-FS-101-3.5-SW-S	7/20/2007	2	4 U	2.2 U	4.1 U
DRMO-FS-101-3.5-SW-W	7/20/2007	2	4 U	2.2 U	**130**
DRMO-FS-101-4-C	7/20/2007	2.5	4.3 U	2.3 U	4.4 U
DRMO-FS-101-4-C-DUP	7/20/2007	2.5	4.4 U	2.4 U	4.5 U
DRMO-FS-101-SW-N-1	12/19/2007	2	1.5 U	1.6 U	4.2 U
DRMO-FS-10-5.5-SW-W-1	8/1/2007	4	3.5 U	1.7 U	**140**
DRMO-FS-10-6-C	8/1/2007	5	3.4 U	1.7 U	4.5 U
DRMO-FS-10-6-C-DUP	8/1/2007	5	3.6 U	1.8 U	4.8 U
DRMO-FS-108-7.5-SW-NW	8/27/2007	6	3.6 U	1.8 U	4.8 U
DRMO-FS-108-8-C	11/20/2007	6.5	4 U	2 U	5.3 U
DRMO-FS-109-8-C	7/30/2007	6.5	4.3 U	2.1 U	**61**
DRMO-FS-110-4-C	8/22/2007	2.5	4.3 U	5.8 U	5.5 U
DRMO-FS-111-1.5-SW-S	7/27/2007	0	2.6 U	1.3 U	**590**
DRMO-FS-111-2-C	7/27/2007	0.5	1 U	1.1 U	2.9 U
DRMO-FS-112-1.5-SW-S	7/24/2007	0	2.8 U	**83**	**150**
DRMO-FS-112-2-C	7/24/2007	0.5	2.8 U	2.1 U	**220**
DRMO-FS-132-7.5-SW-N-1	8/27/2007	6	2.9 U	1.4 U	**45**
DRMO-FS-132-7.5-SW-N-1-DUP	8/27/2007	6	4.2 U	2.1 U	5.6 U
DRMO-FS-132-7.5-SW-W	7/27/2007	6	1.5 U	1.7 U	**150**
DRMO-FS-132-8-C	7/30/2007	7	4.6 U	2.3 U	**140**
DRMO-FS-134-7.5-SW-N	7/27/2007	6	1.2 U	1.3 U	3.3 U
DRMO-FS-135-6-C	8/1/2007	5	3.8 U	1.9 U	5 U
DRMO-FS-135-7.5-SW-NW	7/27/2007	6	1.1 U	1.3 U	**82**
DRMO-FS-136-6-C	8/1/2007	4.5	3.8 U	1.9 U	5.2 U
DRMO-FS-137-7.5-SW-S	8/27/2007	6	3.8 U	1.9 U	5 U
DRMO-FS-137-7.5-SW-W	8/27/2007	6	3.4 U	1.7 U	4.6 U
DRMO-FS-137-8-C	8/27/2007	6.5	4.3 U	2.1 U	5.7 U
DRMO-FS-138-7.5-SW-W-1	8/27/2007	6	4.1 U	2 U	5.5 U
DRMO-FS-138-8-C	8/22/2007	6.5	5 U	2.7 U	5 U
DRMO-FS-139-6-C	8/1/2007	4.5	3.6 U	1.8 U	4.9 U
DRMO-FS-140-5.5-SW-S	8/1/2007	4	3.3 U	1.6 U	4.4 U
DRMO-FS-140-6-C	8/1/2007	4.5	3.6 U	1.8 U	4.7 U
DRMO-FS-141-7.5-SW-S	8/22/2007	6	4.6 U	2.5 U	**25**

Table 4-3. PCBs Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Aroclor-1016	Aroclor-1254	Aroclor-1260
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRGs	**--**	**--**	**3,900**	**220**	**220**
Industrial PRGs	**--**	**--**	**21,000**	**740**	**740**
DRMO-FS-141-8-C	8/22/2007	6.5	5 U	2.7 U	5.1 U
DRMO-FS-142-7.5-SW-E	8/22/2007	6	5.1 U	2.7 U	5.1 U
DRMO-FS-142-7.5-SW-E-DUP	8/22/2007	6	4.9 U	2.7 U	5 U
DRMO-FS-142-7.5-SW-S	8/22/2007	6	5.1 U	2.7 U	5.1 U
DRMO-FS-142-8-C	8/22/2007	6.5	4.9 U	2.7 U	5 U
DRMO-FS-27-7.5-SW-N	7/27/2007	6	1.4 U	1.5 U	**26**
DRMO-FS-27-7.5-SW-W-1	8/27/2007	6	3.7 U	2.3 U	**120**
DRMO-FS-27-8-C	7/30/2007	6.5	5.3 U	2.6 U	7 U
DRMO-FS-28-7.5-SW-N	7/30/2007	6	4.2 U	2.1 U	**50**
DRMO-FS-28-7.5-SW-W	7/27/2007	6	1.6 U	1.8 U	4.6 U
DRMO-FS-28-8-C-TPH	9/11/2007	6.5	1.1 U	1.3 U	**270**
DRMO-FS-40-8-C	7/30/2007	6.5	4.3 U	2.1 U	**290**
DRMO-FS-53-8-C	8/1/2007	6.5	3.6 U	1.8 U	4.7 U
DRMO-FS-67-2-C	7/24/2007	2	2.8 U	1.5 U	**210**
DRMO-FS-81-1.5-SW-S	7/24/2007	0	3 U	1.6 U	3 U
DRMO-FS-81-2-C	7/24/2007	0.5	3.1 U	2.2 U	3.7 U
DRMO-FS-82-1.5-SW-S	7/24/2007	0	2.9 U	**42**	**200**
DRMO-FS-82-2-C	7/24/2007	0.5	2.5 U	**120**	**260**
DRMO-FS-83-1.5-SW-S-1	8/22/2007	1.5	3 U	4.1 U	**400**
DRMO-FS-83-2-C	7/24/2007	2	3 U	2.2 U	3.6 U
DRMO-FS-84-1.5-SW-S	7/27/2007	0	1 U	1.2 U	**130**
DRMO-FS-84-1.5-SW-W	7/27/2007	0	1.1 U	1.2 U	**160**
DRMO-FS-84-2-C	7/27/2007	0.5	1 U	1.2 U	2.9 U
DRMO-FS-98-1.5-SW-N	7/20/2007	0	3.3 U	1.8 U	**15**
DRMO-FS-98-1.5-SW-S	7/20/2007	0	3 U	1.6 U	**14**
DRMO-FS-98-1.5-SW-W	7/20/2007	0	3.2 U	1.7 U	**76**
DRMO-FS-98-2-C	7/20/2007	0.5	3.1 U	1.7 U	3.2 U

Summary Statistics	**Percent Detection**	**5.9%**	**7.1%**	**38.8%**
	Maximum	**600**	**400**	**740**
	Minimum	**1**	**1.1**	**2.9**
	Average	**45.63**	**26.42**	**72.83**
	Median	**20**	**20**	**50**
	Standard Deviation	**109.58**	**32.53**	**118.89**

[shaded box] Detected concentration exceeds the Industrial PRG
Detected results are marked in **bold**
U - not detected above the method detection limit
J - estimated value
NE - not established
NA - not analyzed
PRG - preliminary remediation goal
DUP - duplicate sample
µg/kg - micrograms per kilogram
ft bgs - feet below ground surface

Table 4-4. Pesticides Detected in Soil at the DRMO Site

Parameter Name	Sample Date	Sample Depth	4,4'-DDD	4,4'-DDE	4,4'-DDT	Alpha-BHC	Alpha-chlordane	Dieldrin	Endosulfan II	Endosulfan Sulfate	Endrin
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRGs	--	--	2,000	1,400	1,700	77	NE	30	NE	NE	18,000
Industrial PRGs	--	--	7,200	5,100	7,000	270	NE	110	NE	NE	180,000
DRMO001-01-1.5	9/27/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO002_003-01-1.5	9/27/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO007-01-1.5	9/27/2005	0	17 U	17 U	17 U	9 U	9 U	17 U	17 U	17 U	17 U
DRMO008_009-01-1.5	9/27/2005	0	2 U	2 U	2 U	0.9 U	0.9 U	2 U	2 U	2 U	2 U
DRMO012-01-1.5	9/27/2005	0	2 U	2 U	2 U	0.95 U	0.95 U	2 U	2 U	2 U	2 U
DRMO012-01-1.5-DUP	9/27/2005	0	2 U	2 U	2 U	0.95 U	0.95 U	2 U	2 U	2 U	2 U
DRMO013-01-1.5	9/27/2005	0	2 U	2 U	2 U	0.95 U	0.95 U	2 U	2 U	2 U	2 U
DRMO018_017-01-1.5	9/27/2005	0	2 U	2 U	2 U	0.95 U	0.95 U	2 U	2 U	2 U	2 U
DRMO019-01-1.5	9/27/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO019-01-1.5-DUP	9/27/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO020-01-1.5	10/1/2005	0	2 U	2 U	2 U	0.9 U	0.9 U	2 U	2 U	2 U	2 U
DRMO021-01-1.5	10/1/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO023-01-1.5	10/1/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO024-01-1.5	10/15/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO025_026-01-1.5	10/7/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO028_027-01-1.5	10/1/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO029-01-1.5	9/27/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO029-01-1.5-DUP	9/27/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO030-01-1.5	9/27/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO031-01-1.5	9/27/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO032-01-1.5	10/1/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO035-01-1.5	9/27/2005	0	20 U	20 U	20 U	10 U	10 U	20 U	20 U	20 U	20 U
DRMO036-01-1.5	10/15/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO041-01-1.5	10/1/2005	0	2 U	2 U	2 U	0.95 U	0.95 U	2 U	2 U	2 U	2 U
DRMO042-01-1.5	10/8/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO043-01-1.5	10/8/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO044-01-1.5	10/8/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO045-01-1.5	10/15/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO048-01-1.5	10/7/2005	0	2 U	2 U	**4.9**	1 U	1 U	2 U	2 U	2 U	2 U
DRMO049-01-1.5	10/7/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO049-01-1.5-DUP	10/7/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO050-01-1.5	10/15/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO051-01-1.5	10/15/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO052-01-1.5	10/1/2005	0	2 U	2 U	2 U	1.1 U	1.1 U	2 U	2 U	2 U	2 U
DRMO053-01-1.5	10/1/2005	0	2 U	2 U	2 U	0.95 U	0.95 U	2 U	2 U	2 U	2 U
DRMO055-01-1.5	10/15/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO056-01-1.5	10/15/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO057-01-1.5	9/8/2005	0	2 U	2 U	2 U	1.15 U	1.15 U	2 U	2 U	2 U	2 U

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	4,4'-DDD	4,4'-DDE	4,4'-DDT	Alpha-BHC	Alpha-chlordane	Dieldrin	Endosulfan II	Endosulfan Sulfate	Endrin
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRGs	**--**	**--**	**2,000**	**1,400**	**1,700**	**77**	**NE**	**30**	**NE**	**NE**	**18,000**
Industrial PRGs	**--**	**--**	**7,200**	**5,100**	**7,000**	**270**	**NE**	**110**	**NE**	**NE**	**180,000**
DRMO058-01-1.5	9/8/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO061-01-1.5	12/15/2005	0	0.95 U	0.95 U	0.95 U	0.5 U	0.5 U	0.95 U	0.95 U	0.95 U	0.95 U
DRMO064-01-1.5	10/29/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO065-01-1.5	12/17/2005	0	1 U	1 U	1 U	0.5 U	0.5 U	1 U	1 U	1 U	1 U
DRMO066_080-01-1.5	10/1/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO069-01-1.5	11/7/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO069-01-1.5-DUP	11/7/2005	0	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO070-01-1.5	9/8/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO071-01-1.5	9/8/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO072-01-1.5	9/8/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO073-01-1.5	11/7/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO075-01-1.5	9/8/2005	0	2 U	2 U	2 U	1.1 U	1.1 U	2 U	2 U	2 U	2 U
DRMO078-01-1.5	12/15/2005	0	0.95 U	0.95 U	0.95 U	0.5 U	0.5 U	0.95 U	0.95 U	0.95 U	0.95 U
DRMO079-01-1.5	10/29/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO079-01-1.5-DUP	10/29/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO082-01-3.5	9/20/2005	2	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO085-01-1.5	9/8/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO089_096-01-1.5	9/8/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO090-01-1.5	12/17/2005	0	1 U	1 U	1 U	0.5 U	0.5 U	1 U	1 U	1 U	1 U
DRMO091-01-1.5	11/7/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO091-01-1.5-DUP	11/7/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO093-01-1.5	10/21/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO094-01-1.5	10/21/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO097-01-1.5	12/17/2005	0	0.95 U	0.95 U	0.95 U	0.5 U	0.5 U	0.95 U	0.95 U	0.95 U	0.95 U
DRMO098-01-1.5	12/15/2005	0	1 U	1 U	1 U	0.5 U	0.5 U	1 U	1 U	1 U	1 U
DRMO100-01-1.5	12/10/2005	0	1.05 U	1.05 U	1.05 U	0.55 U	0.55 U	1.05 U	1.05 U	1.05 U	1.05 U
DRMOA5-B-5.5	5/17/2006	4	1.25 U	1.25 U	1.25 U	0.65 U	0.65 U	1.25 U	1.25 U	1.25 U	1.25 U
DRMOA5-SWE-3	5/17/2006	1.5	1.1 U	1.1 U	1.1 U	0.55 U	0.55 U	1.1 U	1.1 U	1.1 U	1.1 U
DRMOA5-SWN-3	5/17/2006	1.5	1.25 U	1.25 U	1.25 U	0.65 U	0.65 U	1.25 U	1.25 U	1.25 U	1.25 U
DRMOA5-SWS-3	5/17/2006	1.5	1.05 U	1.05 U	1.05 U	0.55 U	0.55 U	1.05 U	1.05 U	1.05 U	1.05 U
DRMOA5-SWW-3	5/17/2006	1.5	1.1 U	1.1 U	1.1 U	0.55 U	0.55 U	1.1 U	1.1 U	1.1 U	1.1 U
DRMO-SW001-01-1.0	9/21/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW002_003-01-1.5	9/21/2005	0	2 U	2 U	2 U	0.9 U	0.9 U	2 U	2 U	2 U	2 U
DRMO-SW005_004-01-1.5	9/21/2005	0	9 U	9 U	9 U	5 U	5 U	9 U	9 U	9 U	9 U
DRMO-SW008_009-01-2	10/1/2005	0.5	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW008_009-01-2-DUP	10/1/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW016-01-2	10/1/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW018-01-1	9/27/2005	0	19 U	19 U	19 U	10 U	10 U	19 U	19 U	19 U	19 U

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	4,4'-DDD	4,4'-DDE	4,4'-DDT	Alpha-BHC	Alpha-chlordane	Dieldrin	Endosulfan II	Endosulfan Sulfate	Endrin
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRGs	--	--	2,000	1,400	1,700	77	NE	30	NE	NE	18,000
Industrial PRGs	--	--	7,200	5,100	7,000	270	NE	110	NE	NE	180,000
DRMO-SW025_026-01-1.5	10/7/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW029_017-01-1.5	10/1/2005	0	**3.6** J	**2.1** J	**26** J	5 U	5 U	9 U	9 U	9 U	9 U
DRMO-SW052-01-1.5	10/1/2005	0	2 U	2 U	2 U	0.95 U	0.95 U	2 U	2 U	2 U	2 U
DRMO-SW066-01-1.5	10/1/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW080-01-1.5	10/29/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW085-01-1.5	9/20/2005	0	2 U	2 U	2 U	0.95 U	0.95 U	2 U	2 U	2 U	2 U
DRMO-SW086-01-1.5	1/6/2006	0	1 U	1 U	1 U	0.5 U	0.5 U	1 U	1 U	1 U	1 U
DRMO-SW093-01-1.5	10/29/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW093-01-1.5-DUP	10/29/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW094-01-1.5	10/29/2005	0	3 U	3 U	3 U	1.3 U	1.3 U	3 U	3 U	3 U	3 U
DRMO-SW094N-01-1.5	10/29/2005	0	2 U	2 U	2 U	1.1 U	1.1 U	2 U	2 U	2 U	2 U
DRMO-SW094S-01-1.5	10/29/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW095-01-2	9/15/2005	0.5	2 U	2 U	2 U	1.05 U	1.05 U	2 U	2 U	2 U	2 U
DRMO-SW096-01-1.5	9/20/2005	0	2 U	2 U	2 U	1 U	1 U	2 U	2 U	2 U	2 U
DRMO-SW097-01-1.5	12/17/2005	0	0.95 U	0.95 U	0.95 U	0.5 U	0.5 U	0.95 U	0.95 U	0.95 U	0.95 U
DRMO-SW100-01-1.5	12/10/2005	0	1 U	1 U	1 U	0.5 U	0.5 U	1 U	1 U	1 U	1 U
DRMO-A1-1.5-SW-E	1/5/2007	4	3.3 U	2.8 U	**42** J	**22** J	2.5 U	4.1 U	8.4 U	2.8 U	3 U
DRMO-A1-1.5-SW-NE	11/17/2006	4	3.2 U	2.7 U	4.9 U	**2.7** UJ	2.5 U	4 U	8.2 U	2.7 U	3 U
DRMO-A1-1.5-SW-NW	11/17/2006	4	3.9 U	3.3 U	5.9 U	**3.3** UJ	3 U	4.7 U	9.8 U	3.3 U	3.6 U
DRMO-A1-1.5-SW-SE	11/17/2006	4	3.4 U	2.9 U	5.2 U	**2.9** UJ	2.6 U	4.2 U	8.6 U	2.9 U	3.1 U
DRMO-A2-1.5-SW-E	11/17/2006	5	4.1 U	3.5 U	6.4 U	**27** J	3.2 U	5.1 U	11 U	3.5 U	3.8 U
DRMO-A3-2.0-SW-E	11/17/2006	4	3.1 U	2.6 U	4.7 U	**2.6** UJ	2.3 U	3.8 U	7.8 U	2.6 U	2.8 U
DRMO-A3-2.0-SW-W	11/17/2006	4	3.3 U	2.8 U	5 U	**2.8** UJ	2.5 U	4 U	8.3 U	2.8 U	3 U
DRMO-Area 1-2	10/23/2006	4.5	6.3 U	5.3 U	9.7 U	5.3 U	4.8 U	7.7 U	16 U	5.3 U	5.8 U
DRMO-Area 2-2	10/24/2006	5.5	4.1 U	3.5 U	6.3 U	3.5 U	3.2 U	5.1 U	10 U	3.5 U	3.8 U
DRMO-Area 3-2.0-SW-S	1/4/2007	4	3 U	2.5 U	4.6 U	**19** J	2.3 U	3.7 U	7.5 U	2.5 U	2.7 U
DRMO-Area 3-2.5	10/23/2006	4.5	3.1 U	2.6 U	4.7 U	2.6 U	2.4 U	3.8 U	7.8 U	2.6 U	2.8 U
DRMO-Area 4-5	10/24/2006	4	3.7 U	3.1 U	5.7 U	3.1 U	2.9 U	4.6 U	9.4 U	3.1 U	3.4 U
DRMO-Area4-4.5-SW-E	11/16/2006	3	22 U	18 U	34 U	**18** UJ	17 U	27 U	55 U	18 U	20 U
DRMO-FS-11-4.5	12/13/2006	4.5	4.4 U	3.7 U	6.8 U	**29** J	3.4 U	5.4 U	11 U	3.7 U	4.1 U
DRMO-FS-11-4.5-DUP	12/13/2006	4.5	4.4 U	3.7 U	6.8 U	**29** J	3.4 U	5.4 U	11 U	3.7 U	4.1 U
DRMO-FS-11-4-SW-E	1/5/2007	4	4.3 U	3.6 U	**56** J	**28** J	3.3 U	5.2 U	11 U	3.6 U	3.9 U
DRMO-FS-11-4-SW-N	12/13/2006	4	3.4 U	2.9 U	5.2 U	**22** J	2.6 U	4.2 U	8.6 U	2.9 U	3.1 U
DRMO-FS-11-4-SW-S	12/13/2006	4	4.4 U	3.7 U	6.8 U	**29** J	3.4 U	5.4 U	11 U	3.7 U	4.1 U
DRMO-FS-15-1.5-SW-E	1/4/2007	1.5	3.1 U	2.7 U	4.8 U	**21** J	2.4 U	3.9 U	8 U	2.7 U	2.9 U
DRMO-FS-15-1.5-SW-N	1/4/2007	1.5	3.3 U	2.8 U	5 U	**21** J	2.5 U	4 U	8.3 U	2.8 U	3 U
DRMO-FS15-1.5-SW-S	11/17/2006	1.5	3.1 U	2.7 U	4.8 U	**21** J	2.4 U	3.9 U	8 U	2.7 U	2.9 U
DRMO-FS-15-1.5-SW-W	1/4/2007	1.5	3.2 U	2.7 U	4.9 U	**21** J	2.4 U	3.9 U	8.1 U	2.7 U	2.9 U

Table 4-4 Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	4,4'-DDD	4,4'-DDE	4,4'-DDT	Alpha-BHC	Alpha-chlordane	Dieldrin	Endosulfan II	Endosulfan Sulfate	Endrin
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRGs	--	--	2,000	1,400	1,700	77	NE	30	NE	NE	18,000
Industrial PRGs	--	--	7,200	5,100	7,000	270	NE	110	NE	NE	180,000
DRMO-FS-15-1.5-SW-W-DUP	1/4/2007	1.5	3.4 U	2.8 U	5.2 U	**22** J	2.6 U	4.1 U	8.5 U	2.8 U	3.1 U
DRMO-FS15-2	10/23/2006	2	5.5 U	4.7 U	8.5 U	4.7 U	4.2 U	6.8 U	14 U	4.7 U	5.1 U
DRMO-FS15-2-DUP	10/23/2006	2	5.5 U	4.7 U	8.5 U	4.7 U	4.3 U	6.8 U	14 U	4.7 U	5.1 U
DRMO-FS-34-4.0-SW-N	1/4/2007	4	4.7 U	4 U	NA	**31** J	3.6 U	5.8 U	12 U	4 U	4.3 U
DRMO-FS-34-4.0-SW-N-DUP	1/4/2007	4	4.3 U	3.6 U	**55** J	3.6 U	3.3 U	5.3 U	11 U	3.6 U	4 U
DRMO-FS-34-4.0-SW-W	1/4/2007	4	4.4 U	3.7 U	**58** J	**29** J	3.4 U	5.5 U	11 U	3.7 U	4.1 U
DRMO-FS-34-4.5	12/11/2006	4.5	4.1 U	3.5 U	6.3 U	**27** J	3.1 U	5 U	10 U	3.5 U	3.8 U
DRMO-FS-34-4-SW-E	12/11/2006	4	3.2 U	2.7 U	5 U	**21** J	**4.6** J	4 U	8.2 U	2.7 U	3 U
DRMO-FS-34-4-SW-S	12/11/2006	4	3.4 U	2.9 U	5.3 U	**23** J	2.7 U	4.2 U	8.8 U	2.9 U	3.2 U
DRMO-FS-38-4.0-SW-W-1	2/7/2007	4	3.1 U	2.6 U	4.8 U	2.6 U	2.4 U	3.8 U	7.9 U	2.6 U	2.9 U
DRMO-FS-38-4.5	12/11/2006	4.5	19 U	16 U	30 U	**130** J	15 U	24 U	49 U	16 U	18 U
DRMO-FS38-4-SW-E	12/11/2006	4	3.2 U	2.7 U	5 U	**21** J	2.5 U	4 U	8.2 U	2.7 U	3 U
DRMO-FS38-4-SW-S	12/11/2006	4	3.5 U	3 U	5.4 U	**23** J	2.7 U	4.4 U	9 U	3 U	3.3 U
DRMO-FS40-1.5-SW-E	11/17/2006	1.5	3 U	2.5 U	4.6 U	**2.5** UJ	2.3 U	3.7 U	7.6 U	2.5 U	2.8 U
DRMO-FS46-1.5-SW-N	1/4/2007	1.5	4.4 U	3.7 U	**58** J	**29** J	3.4 U	5.4 U	11 U	3.7 U	4 U
DRMO-FS46-1.5-SW-W	11/16/2006	1.5	3.2 U	2.7 U	4.9 U	**2.7** UJ	2.4 U	3.9 U	8.1 U	2.7 U	2.9 U
DRMO-FS46-2	10/24/2006	2	2.8 U	2.4 U	4.3 U	2.4 U	2.1 U	3.4 U	7.1 U	2.4 U	2.6 U
DRMO-FS47-1.5-SW-E	11/16/2006	1.5	3.4 U	2.8 U	5.2 U	**2.8** UJ	**4** J	4.1 U	8.5 U	2.8 U	3.1 U
DRMO-FS47-2	10/24/2006	2	6.2 U	5.2 U	9.5 U	**5.2** UJ	4.8 U	7.6 U	16 U	5.2 U	5.7 U
DRMO-FS-5-4.5	12/13/2006	4.5	4.1 U	3.4 U	6.3 U	**27** J	3.1 U	5 U	10 U	3.4 U	3.8 U
DRMO-FS-5-4-SW-E	12/13/2006	4	3.4 U	2.9 U	5.3 U	**22** J	2.6 U	4.2 U	8.7 U	2.9 U	3.2 U
DRMO-FS-5-4-SW-N	12/13/2006	4	3.3 U	2.8 U	5 U	**21** J	2.5 U	4 U	8.3 U	2.8 U	3 U
DRMO-FS-5-4-SW-S	12/13/2006	4	3.7 U	3.2 U	5.7 U	**24** J	2.9 U	4.6 U	9.5 U	3.2 U	3.4 U
DRMO-FS59-1.5-SW-S	11/16/2006	1.5	3.2 U	2.7 U	4.9 U	**2.7** UJ	2.4 U	3.9 U	8 U	2.7 U	2.9 U
DRMO-FS59-1.5-SW-W	11/16/2006	1.5	3.2 U	2.7 U	4.9 U	**2.7** UJ	2.4 U	3.9 U	8.1 U	2.7 U	2.9 U
DRMO-FS59-2	10/24/2006	2	2.9 U	2.5 U	4.5 U	**2.5** UJ	2.3 U	3.6 U	7.4 U	2.5 U	2.7 U
DRMO-FS60-1.5-SW-E	11/16/2006	1.5	3.1 U	2.6 U	4.8 U	**2.6** UJ	2.4 U	3.8 U	7.9 U	2.6 U	2.9 U
DRMO-FS60-1.5-SW-E-DUP	11/16/2006	1.5	3.1 U	2.6 U	4.7 U	**2.6** UJ	2.4 U	3.8 U	7.8 U	2.6 U	2.8 U
DRMO-FS60-2	10/24/2006	2	5.7 U	4.9 U	8.8 U	**4.9** UJ	4.4 U	7.1 U	15 U	4.9 U	5.3 U
DRMO-FS6-1.5-SW-E	11/17/2006	1.5	3 U	2.6 U	4.7 U	**2.6** UJ	2.3 U	3.8 U	7.7 U	2.6 U	2.8 U
DRMO-FS6-1.5-SW-E-DUP	11/17/2006	1.5	3 U	2.5 U	4.6 U	**2.5** UJ	2.3 U	3.7 U	7.6 U	2.5 U	2.8 U
DRMO-FS6-1.5-SW-S	11/17/2006	1.5	3.1 U	2.6 U	4.7 U	**2.6** UJ	2.4 U	3.8 U	7.8 U	2.6 U	2.8 U
DRMO-FS6-2	10/23/2006	2	0.59 U	0.5 U	0.9 U	0.5 U	0.45 U	0.72 U	1.5 U	0.5 U	0.54 U
DRMO-FS62-1.5-SW-E	11/16/2006	1.5	3.3 U	2.8 U	5.1 U	**22** J	2.5 U	4.1 U	8.4 U	2.8 U	3.1 U
DRMO-FS62-1.5-SW-N	11/16/2006	1.5	3.1 U	2.6 U	4.7 U	**20** J	2.4 U	3.8 U	7.8 U	2.6 U	2.8 U
DRMO-FS62-1.5-SW-W	11/16/2006	1.5	3.2 U	2.7 U	4.9 U	**21** J	2.4 U	3.9 U	8 U	2.7 U	2.9 U
DRMO-FS62-1.5-SW-W-DUP	11/16/2006	1.5	3.1 U	2.6 U	4.8 U	**20** J	2.4 U	3.8 U	7.9 U	2.6 U	2.9 U
DRMO-FS62-2	10/23/2006	2	2.8 U	2.4 U	4.4 U	2.4 U	2.2 U	3.5 U	7.2 U	2.4 U	2.6 U

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	4,4'-DDD	4,4'-DDE	4,4'-DDT	Alpha-BHC	Alpha-chlordane	Dieldrin	Endosulfan II	Endosulfan Sulfate	Endrin
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRGs	**--**	**--**	**2,000**	**1,400**	**1,700**	**77**	**NE**	**30**	**NE**	**NE**	**18,000**
Industrial PRGs	**--**	**--**	**7,200**	**5,100**	**7,000**	**270**	**NE**	**110**	**NE**	**NE**	**180,000**
DRMO-FS68-1.5-SW-N-2	1/25/2007	1.5	3.1 U	2.6 U	4.8 U	2.6 U	2.4 U	3.8 U	7.9 U	2.6 U	2.9 U
DRMO-FS68-1.5-SW-N-2-DUP	1/25/2007	1.5	3.1 U	2.6 U	4.8 U	2.6 U	2.4 U	3.8 U	7.8 U	2.6 U	2.9 U
DRMO-FS68-1.5-SW-S	11/17/2006	1.5	3.1 U	2.6 U	4.8 U	**20** J	2.4 U	3.8 U	7.9 U	2.6 U	2.9 U
DRMO-FS68-1.5-SW-W	11/17/2006	1.5	3.2 U	2.7 U	4.9 U	**21** J	2.5 U	3.9 U	8.1 U	2.7 U	2.9 U
DRMO-FS68-2	10/24/2006	2	5.6 U	4.8 U	8.7 U	**4.8** UJ	4.3 U	6.9 U	14 U	4.8 U	5.2 U
DRMO-FS74-1.5-SW-E	11/16/2006	1.5	3.3 U	2.8 U	5 U	**2.8** UJ	2.5 U	4 U	8.3 U	2.8 U	3 U
DRMO-FS74-1.5-SW-W	11/16/2006	1.5	3.3 U	2.8 U	5.1 U	**2.8** UJ	2.6 U	4.1 U	8.4 U	2.8 U	3.1 U
DRMO-FS74-2	10/24/2006	2	3 U	2.5 U	4.5 U	2.5 U	2.3 U	3.6 U	7.5 U	2.5 U	2.7 U
DRMO-FS76-1.5-SW-S	11/16/2006	1.5	3.2 U	2.7 U	4.9 U	**21** J	2.4 U	3.9 U	8.1 U	2.7 U	2.9 U
DRMO-FS76-1.5-SW-W	11/16/2006	1.5	3.2 U	2.7 U	4.9 U	**21** J	2.5 U	4 U	8.2 U	2.7 U	3 U
DRMO-FS76-2	10/23/2006	2	1.5 U	1.3 U	2.4 U	1.3 U	1.2 U	1.9 U	3.9 U	1.3 U	1.4 U
DRMO-FS77-1.5-SW-E	11/16/2006	1.5	3.1 U	2.7 U	4.8 U	**21** J	2.4 U	3.9 U	8 U	2.7 U	2.9 U
DRMO-FS77-1.5-SW-N	1/4/2007	1.5	3.2 U	2.7 U	5 U	**21** J	2.5 U	4 U	8.2 U	2.7 U	3 U
DRMO-FS77-1.5-SW-S	11/16/2006	1.5	3.1 U	2.7 U	4.8 U	**21** J	2.4 U	3.9 U	8 U	2.7 U	2.9 U
DRMO-FS77-2	10/23/2006	2	4.1 U	3.5 U	6.3 U	3.5 U	3.2 U	5 U	10 U	3.5 U	3.8 U
DRMO-FS83-1.5-SW-N	11/17/2006	1.5	3.2 U	2.7 U	4.9 U	**21** J	2.4 U	3.9 U	8 U	2.7 U	2.9 U
DRMO-FS83-1.5-SW-N-DUP	11/17/2006	1.5	3.1 U	2.6 U	4.7 U	**20** J	2.4 U	3.8 U	7.8 U	2.6 U	2.8 U
DRMO-FS83-2	10/24/2006	2	5.7 U	4.8 U	8.8 U	**4.8** UJ	4.4 U	7 U	15 U	4.8 U	5.3 U
DRMO-FS-87-1.5-SW-E	1/5/2007	1.5	3.9 U	3.3 U	**52** J	**25** J	3 U	4.8 U	9.8 U	3.3 U	3.6 U
DRMO-FS-87-1.5-SW-W	1/5/2007	0	41 U	41 U	**41** J	**20** J	20 U	41 U	41 U	41 U	41 U
DRMO-FS87-2	10/24/2006	2	5.6 U	4.7 U	8.6 U	**4.7** UJ	4.3 U	6.9 U	14 U	4.7 U	5.2 U
DRMO-FS92-1.5-SW-E	11/17/2006	1.5	3.2 U	2.7 U	4.9 U	**2.7** UJ	2.5 U	3.9 U	8.1 U	2.7 U	2.9 U
DRMO-FS92-1.5-SW-N	11/17/2006	1.5	2.8 U	2.4 U	4.4 U	**2.4** UJ	2.2 U	3.5 U	7.2 U	2.4 U	2.6 U
DRMO-FS92-1.5-SW-W	11/17/2006	1.5	3.2 U	2.7 U	4.9 U	**2.7** UJ	2.5 U	3.9 U	8.1 U	2.7 U	3 U
DRMO-FS92-2	10/23/2006	2	4.2 U	3.5 U	6.4 U	3.5 U	3.2 U	5.1 U	11 U	3.5 U	3.8 U
DRMO-FS-10-1.5-SW-N	7/19/2007	4	1.4 U	1.6 U	**45**	0.56 U	0.68 U	1.4 U	**12**	1.4 U	1.7 U
DRMO-FS-101-3.5-SW-S	7/20/2007	2	1.2 U	1.4 U	1.2 U	0.55 U	0.55 U	1.2 U	0.97 U	1.1 U	1.6 U
DRMO-FS-101-3.5-SW-W	7/20/2007	2	1.1 U	1.4 U	1.2 U	0.55 U	0.54 U	1.2 U	0.96 U	1.1 U	1.6 U
DRMO-FS-101-4-C	7/20/2007	2.5	1.2 U	1.5 U	1.3 U	0.59 U	0.59 U	1.2 U	1 U	1.2 U	1.8 U
DRMO-FS-101-4-C-DUP	7/20/2007	2.5	1.3 U	1.5 U	1.3 U	0.61 U	0.6 U	1.3 U	1.1 U	1.2 U	1.8 U
DRMO-FS-101-SW-N-1	12/19/2007	2	15 U	18 U	18 U	6.1 U	7.4 U	16 U	8.1 U	13 U	19 U
DRMO-FS-10-5.5-SW-W-1	8/1/2007	4	36 U	29 U	38 U	9.2 U	16 U	30 U	19 U	31 U	36 U
DRMO-FS-10-6-C	8/1/2007	5	35 U	28 U	37 U	8.9 U	15 U	29 U	19 U	30 U	35 U
DRMO-FS-10-6-C-DUP	8/1/2007	5	37 U	30 U	40 U	9.5 U	16 U	31 U	20 U	32 U	37 U
DRMO-FS-108-7.5-SW-NW	8/27/2007	6	18 U	15 U	20 U	4.7 U	8.2 U	15 U	9.9 U	16 U	18 U
DRMO-FS-108-8-C	11/20/2007	6.5	1.3 U	1.6 U	1.4 U	0.63 U	0.62 U	1.3 U	1.1 U	1.3 U	1.9 U
DRMO-FS-109-8-C	7/30/2007	6.5	35 U	29 U	38 U	9.1 U	16 U	30 U	19 U	31 U	35 U
DRMO-FS-110-4-C	8/22/2007	2.5	2 U	2.4 U	2.1 U	0.81 U	0.98 U	2.1 U	1.2 U	2 U	2.5 U

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	4,4'-DDD	4,4'-DDE	4,4'-DDT	Alpha-BHC	Alpha-chlordane	Dieldrin	Endosulfan II	Endosulfan Sulfate	Endrin
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRGs	**--**	**--**	**2,000**	**1,400**	**1,700**	**77**	**NE**	**30**	**NE**	**NE**	**18,000**
Industrial PRGs	**--**	**--**	**7,200**	**5,100**	**7,000**	**270**	**NE**	**110**	**NE**	**NE**	**180,000**
DRMO-FS-111-1.5-SW-S	7/27/2007	0	27 U	32 U	33 U	11 U	13 U	28 U	17 U	27 U	34 U
DRMO-FS-111-2-C	7/27/2007	0.5	26 U	32 U	32 U	11 U	13 U	28 U	17 U	27 U	34 U
DRMO-FS-112-1.5-SW-S	7/24/2007	0	0.8 U	0.96 U	0.84 U	0.38 U	0.38 U	**2.8** J	0.67 U	0.77 U	1.1 U
DRMO-FS-112-2-C	7/24/2007	0.5	0.82 U	0.98 U	**4.9**	0.39 U	0.39 U	**3.4** J	0.68 U	0.79 U	1.2 U
DRMO-FS-132-7.5-SW-N-1	8/27/2007	6	15 U	12 U	16 U	3.8 U	6.6 U	13 U	8.1 U	13 U	15 U
DRMO-FS-132-7.5-SW-N-1-DUP	8/27/2007	6	22 U	18 U	23 U	5.5 U	9.6 U	18 U	12 U	19 U	22 U
DRMO-FS-132-7.5-SW-W	7/27/2007	6	38 U	46 U	46 U	15 U	19 U	40 U	24 U	38 U	49 U
DRMO-FS-132-8-C	7/30/2007	7	38 U	31 U	41 U	9.8 U	17 U	32 U	21 U	33 U	38 U
DRMO-FS-134-7.5-SW-N	7/27/2007	6	30 U	36 U	37 U	12 U	15 U	32 U	19 U	30 U	38 U
DRMO-FS-135-6-C	8/1/2007	5	39 U	32 U	42 U	9.9 U	17 U	33 U	21 U	34 U	39 U
DRMO-FS-135-7.5-SW-NW	7/27/2007	6	29 U	36 U	36 U	12 U	15 U	31 U	18 U	30 U	38 U
DRMO-FS-136-6-C	8/1/2007	4.5	39 U	31 U	41 U	9.9 U	17 U	32 U	21 U	33 U	38 U
DRMO-FS-137-7.5-SW-S	8/27/2007	6	19 U	16 U	21 U	4.9 U	8.6 U	16 U	10 U	17 U	19 U
DRMO-FS-137-7.5-SW-W	8/27/2007	6	17 U	14 U	19 U	4.5 U	7.8 U	15 U	9.5 U	15 U	17 U
DRMO-FS-137-8-C	8/27/2007	6.5	22 U	18 U	24 U	5.7 U	9.8 U	19 U	12 U	19 U	22 U
DRMO-FS-138-7.5-SW-W-1	8/27/2007	6	21 U	17 U	23 U	5.4 U	9.4 U	18 U	11 U	18 U	21 U
DRMO-FS-138-8-C	8/22/2007	6.5	2.2 U	2.7 U	2.4 U	0.89 U	1.1 U	2.3 U	1.4 U	2.2 U	2.8 U
DRMO-FS-139-6-C	8/1/2007	4.5	37 U	30 U	39 U	9.4 U	16 U	31 U	20 U	32 U	36 U
DRMO-FS-140-5.5-SW-S	8/1/2007	4	34 U	28 U	37 U	8.8 U	15 U	29 U	18 U	30 U	34 U
DRMO-FS-140-6-C	8/1/2007	4.5	36 U	30 U	39 U	9.4 U	16 U	31 U	20 U	32 U	36 U
DRMO-FS-141-7.5-SW-S	8/22/2007	6	2 U	2.4 U	2.2 U	0.82 U	1 U	2.1 U	1.3 U	2 U	2.6 U
DRMO-FS-141-8-C	8/22/2007	6.5	2.2 U	2.7 U	2.4 U	0.9 U	1.1 U	2.4 U	1.4 U	2.2 U	2.8 U
DRMO-FS-142-7.5-SW-E	8/22/2007	6	2.2 U	2.7 U	2.4 U	0.91 U	1.1 U	2.4 U	1.4 U	2.2 U	2.9 U
DRMO-FS-142-7.5-SW-E-DUP	8/22/2007	6	2.2 U	2.6 U	2.3 U	0.89 U	1.1 U	2.3 U	1.4 U	2.2 U	2.8 U
DRMO-FS-142-7.5-SW-S	8/22/2007	6	2.2 U	2.7 U	2.4 U	0.91 U	1.1 U	2.4 U	1.4 U	2.2 U	2.9 U
DRMO-FS-142-8-C	8/22/2007	6.5	2.1 U	2.6 U	2.3 U	0.88 U	1.1 U	2.3 U	1.4 U	2.2 U	2.8 U
DRMO-FS-27-7.5-SW-N	7/27/2007	6	35 U	43 U	43 U	14 U	17 U	37 U	22 U	36 U	45 U
DRMO-FS-27-7.5-SW-W-1	8/27/2007	6	19 U	15 U	20 U	4.8 U	8.3 U	16 U	10 U	16 U	19 U
DRMO-FS-27-8-C	7/30/2007	6.5	43 U	35 U	47 U	11 U	19 U	36 U	23 U	38 U	43 U
DRMO-FS-28-7.5-SW-N	7/30/2007	6	35 U	28 U	37 U	8.9 U	15 U	29 U	19 U	30 U	34 U
DRMO-FS-28-7.5-SW-W	7/27/2007	6	41 U	50 U	50 U	17 U	20 U	44 U	26 U	42 U	53 U
DRMO-FS-28-8-C-TPH	9/11/2007	6.5	29 U	35 U	36 U	12 U	14 U	31 U	18 U	29 U	37 U
DRMO-FS-40-8-C	7/30/2007	6.5	35 U	29 U	38 U	9 U	16 U	30 U	19 U	30 U	35 U
DRMO-FS-53-8-C	8/1/2007	6.5	36 U	30 U	39 U	9.3 U	16 U	31 U	20 U	32 U	36 U
DRMO-FS-67-2-C	7/24/2007	2	0.8 U	0.95 U	0.83 U	0.38 U	0.38 U	**3.6**	0.67 U	0.77 U	1.1 U
DRMO-FS-81-1.5-SW-S	7/24/2007	0	1.3 U	1.1 U	1.4 U	0.34 U	0.58 U	1.1 U	0.71 U	1.1 U	1.3 U
DRMO-FS-81-2-C	7/24/2007	0.5	1.4 U	1.1 U	1.5 U	0.36 U	0.62 U	1.2 U	0.75 U	1.2 U	1.4 U
DRMO-FS-82-1.5-SW-S	7/24/2007	0	1.7 U	2 U	**7.2**	0.79 U	0.79 U	**3.9** J	1.4 U	1.6 U	2.4 U

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	4,4'-DDD	4,4'-DDE	4,4'-DDT	Alpha-BHC	Alpha-chlordane	Dieldrin	Endosulfan II	Endosulfan Sulfate	Endrin
Reporting Units	--	ft bgs	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Residential PRGs	--	--	2,000	1,400	1,700	77	NE	30	NE	NE	18,000
Industrial PRGs	--	--	7,200	5,100	7,000	270	NE	110	NE	NE	180,000
DRMO-FS-82-2-C	7/24/2007	0.5	1.3 U	1.1 U	**10**	0.33 U	0.57 U	**2.6** J	**6.4**	1.1 U	1.3 U
DRMO-FS-83-1.5-SW-S-1	8/22/2007	1.5	**53**	**43**	**37**	2.8 U	3.4 U	7.4 U	4.4 U	7 U	8.9 U
DRMO-FS-83-2-C	7/24/2007	2	1.3 U	1.1 U	1.4 U	0.35 U	0.6 U	1.1 U	0.73 U	1.2 U	1.3 U
DRMO-FS-84-1.5-SW-S	7/27/2007	0	26 U	32 U	32 U	11 U	13 U	28 U	17 U	27 U	34 U
DRMO-FS-84-1.5-SW-W	7/27/2007	0	27 U	33 U	33 U	11 U	13 U	29 U	17 U	27 U	35 U
DRMO-FS-84-2-C	7/27/2007	0.5	26 U	32 U	32 U	11 U	13 U	28 U	17 U	27 U	34 U
DRMO-FS-98-1.5-SW-N	7/20/2007	0	0.94 U	1.1 U	0.98 U	0.45 U	0.44 U	0.94 U	0.79 U	0.91 U	1.3 U
DRMO-FS-98-1.5-SW-S	7/20/2007	0	0.85 U	1 U	0.88 U	0.4 U	0.4 U	0.85 U	0.71 U	0.82 U	1.2 U
DRMO-FS-98-1.5-SW-W	7/20/2007	0	0.91 U	1.1 U	0.95 U	0.43 U	0.43 U	0.91 U	0.76 U	0.87 U	1.3 U
DRMO-FS-98-2-C	7/20/2007	0.5	0.9 U	1.1 U	0.94 U	0.43 U	0.43 U	0.9 U	0.75 U	0.87 U	1.3 U

Summary Statistics		4,4'-DDD	4,4'-DDE	4,4'-DDT	Alpha-BHC	Alpha-chlordane	Dieldrin	Endosulfan II	Endosulfan Sulfate	Endrin
Summary Statistics	**Percent Detection**	0.8%	0.8%	5.9%	17.2%	0.8%	2.1%	0.8%	0.0%	0.0%
	Maximum	53	50	58	130	20	44	55	42	53
	Minimum	0.59	0.50	0.83	0.33	0.38	0.72	0.67	0.50	0.54
	Average	3.72	3.47	6.06	5.90	1.89	3.57	3.73	3.23	3.69
	Median	3	2.60	4.70	2.5	2.30	3.65	7.45	2.5	2.80
	Standard Deviation	6.15	5.71	10.59	11.61	2.44	4.83	3.86	4.86	5.77

(shaded box) Detected concentration exceeds the Industrial PRG
Detected results are marked in **bold**
U - not detected above the method detection limit
J - estimated value
NE - not established
NA - not analyzed
PRG - preliminary remediation goal
DUP - duplicate sample
µg/kg - micrograms per kilogram
ft bgs - feet below ground surface

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Endrin Ketone	Gamma-chlordane	Heptachlor	Heptachlor Epoxide
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRGs	**--**	**--**	**NE**	**NE**	**110**	**53**
Industrial PRGs	**--**	**--**	**NE**	**NE**	**380**	**190**
DRMO001-01-1.5	9/27/2005	0	2 U	1 U	1 U	1 U
DRMO002_003-01-1.5	9/27/2005	0	2 U	1 U	1 U	1 U
DRMO007-01-1.5	9/27/2005	0	17 U	9 U	9 U	9 U
DRMO008_009-01-1.5	9/27/2005	0	2 U	0.9 U	0.9 U	0.9 U
DRMO012-01-1.5	9/27/2005	0	2 U	0.95 U	0.95 U	0.95 U
DRMO012-01-1.5-DUP	9/27/2005	0	2 U	0.95 U	0.95 U	0.95 U
DRMO013-01-1.5	9/27/2005	0	2 U	0.95 U	0.95 U	0.95 U
DRMO018_017-01-1.5	9/27/2005	0	2 U	0.95 U	0.95 U	0.95 U
DRMO019-01-1.5	9/27/2005	0	2 U	1 U	1 U	1 U
DRMO019-01-1.5-DUP	9/27/2005	0	2 U	1 U	1 U	1 U
DRMO020-01-1.5	10/1/2005	0	2 U	0.9 U	0.9 U	0.9 U
DRMO021-01-1.5	10/1/2005	0	2 U	1 U	1 U	1 U
DRMO023-01-1.5	10/1/2005	0	2 U	1 U	1 U	1 U
DRMO024-01-1.5	10/15/2005	0	2 U	1.05 U	1.05 U	1.05 U
DRMO025_026-01-1.5	10/7/2005	0	2 U	1.05 U	1.05 U	1.05 U
DRMO028_027-01-1.5	10/1/2005	0	2 U	1 U	1 U	1 U
DRMO029-01-1.5	9/27/2005	0	2 U	1 U	1 U	1 U
DRMO029-01-1.5-DUP	9/27/2005	0	2 U	1 U	1 U	1 U
DRMO030-01-1.5	9/27/2005	0	2 U	1 U	1 U	1 U
DRMO031-01-1.5	9/27/2005	0	2 U	1.05 U	1.05 U	1.05 U
DRMO032-01-1.5	10/1/2005	0	2 U	1 U	1 U	1 U
DRMO035-01-1.5	9/27/2005	0	20 U	10 U	10 U	10 U
DRMO036-01-1.5	10/15/2005	0	2 U	1.05 U	1.05 U	1.05 U
DRMO041-01-1.5	10/1/2005	0	2 U	0.95 U	0.95 U	0.95 U
DRMO042-01-1.5	10/8/2005	0	2 U	1 U	1 U	1 U
DRMO043-01-1.5	10/8/2005	0	2 U	1.05 U	1.05 U	1.05 U
DRMO044-01-1.5	10/8/2005	0	2 U	1.05 U	1.05 U	1.05 U
DRMO045-01-1.5	10/15/2005	0	2 U	1.05 U	1.05 U	1.05 U
DRMO048-01-1.5	10/7/2005	0	2 U	1 U	1 U	1 U
DRMO049-01-1.5	10/7/2005	0	2 U	1.05 U	1.05 U	1.05 U
DRMO049-01-1.5-DUP	10/7/2005	0	2 U	1 U	1 U	1 U
DRMO050-01-1.5	10/15/2005	0	2 U	1 U	1 U	1 U
DRMO051-01-1.5	10/15/2005	0	2 U	1.05 U	1.05 U	1.05 U
DRMO052-01-1.5	10/1/2005	0	2 U	1.1 U	1.1 U	1.1 U
DRMO053-01-1.5	10/1/2005	0	2 U	0.95 U	0.95 U	0.95 U
DRMO055-01-1.5	10/15/2005	0	2 U	1 U	1 U	1 U
DRMO056-01-1.5	10/15/2005	0	2 U	1 U	1 U	1 U
DRMO057-01-1.5	9/8/2005	0	2 U	1.15 U	1.15 U	1.15 U

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Endrin Ketone		Gamma-chlordane		Heptachlor		Heptachlor Epoxide	
Reporting Units	**--**	**ft bgs**	**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**	
Residential PRGs	**--**	**--**	**NE**		**NE**		**110**		**53**	
Industrial PRGs	**--**	**--**	**NE**		**NE**		**380**		**190**	
DRMO058-01-1.5	9/8/2005	0	2	U	1	U	1	U	1	U
DRMO061-01-1.5	12/15/2005	0	0.95	U	0.5	U	0.5	U	0.5	U
DRMO064-01-1.5	10/29/2005	0	2	U	1.05	U	1.05	U	1.05	U
DRMO065-01-1.5	12/17/2005	0	1	U	0.5	U	0.5	U	0.5	U
DRMO066_080-01-1.5	10/1/2005	0	2	U	1.05	U	1.05	U	1.05	U
DRMO069-01-1.5	11/7/2005	0	2	U	1.05	U	1.05	U	1.05	U
DRMO069-01-1.5-DUP	11/7/2005	0	2	U	1.05	U	1.05	U	1.05	U
DRMO070-01-1.5	9/8/2005	0	2	U	1	U	1	U	1	U
DRMO071-01-1.5	9/8/2005	0	2	U	1	U	1	U	1	U
DRMO072-01-1.5	9/8/2005	0	2	U	1	U	1	U	1	U
DRMO073-01-1.5	11/7/2005	0	2	U	1	U	1	U	1	U
DRMO075-01-1.5	9/8/2005	0	2	U	1.1	U	1.1	U	1.1	U
DRMO078-01-1.5	12/15/2005	0	0.95	U	0.5	U	0.5	U	0.5	U
DRMO079-01-1.5	10/29/2005	0	2	U	1	U	1	U	1	U
DRMO079-01-1.5-DUP	10/29/2005	0	2	U	1	U	1	U	1	U
DRMO082-01-3.5	9/20/2005	2	2	U	1	U	1	U	1	U
DRMO085-01-1.5	9/8/2005	0	2	U	1	U	1	U	1	U
DRMO089_096-01-1.5	9/8/2005	0	2	U	1	U	1	U	1	U
DRMO090-01-1.5	12/17/2005	0	1	U	0.5	U	0.5	U	0.5	U
DRMO091-01-1.5	11/7/2005	0	2	U	1	U	1	U	1	U
DRMO091-01-1.5-DUP	11/7/2005	0	2	U	1	U	1	U	1	U
DRMO093-01-1.5	10/21/2005	0	2	U	1	U	1	U	1	U
DRMO094-01-1.5	10/21/2005	0	2	U	1	U	1	U	1	U
DRMO097-01-1.5	12/17/2005	0	0.95	U	0.5	U	0.5	U	0.5	U
DRMO098-01-1.5	12/15/2005	0	1	U	0.5	U	0.5	U	0.5	U
DRMO100-01-1.5	12/10/2005	0	1.05	U	0.55	U	0.55	U	0.55	U
DRMOA5-B-5.5	5/17/2006	4	1.25	U	0.65	U	0.65	U	0.65	U
DRMOA5-SWE-3	5/17/2006	1.5	1.1	U	0.55	U	0.55	U	0.55	U
DRMOA5-SWN-3	5/17/2006	1.5	1.25	U	0.65	U	0.65	U	0.65	U
DRMOA5-SWS-3	5/17/2006	1.5	1.05	U	0.55	U	0.55	U	0.55	U
DRMOA5-SWW-3	5/17/2006	1.5	1.1	U	0.55	U	0.55	U	0.55	U
DRMO-SW001-01-1.0	9/21/2005	0	2	U	1	U	1	U	1	U
DRMO-SW002_003-01-1.5	9/21/2005	0	2	U	0.9	U	0.9	U	0.9	U
DRMO-SW005_004-01-1.5	9/21/2005	0	9	U	5	U	5	U	5	U
DRMO-SW008_009-01-2	10/1/2005	0.5	2	U	1	U	1	U	1	U
DRMO-SW008_009-01-2-DUP	10/1/2005	0	2	U	1	U	1	U	1	U
DRMO-SW016-01-2	10/1/2005	0	2	U	1	U	1	U	1	U
DRMO-SW018-01-1	9/27/2005	0	19	U	10	U	10	U	10	U

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Endrin Ketone		Gamma-chlordane		Heptachlor		Heptachlor Epoxide	
Reporting Units	--	ft bgs	µg/kg		µg/kg		µg/kg		µg/kg	
Residential PRGs	--	--	NE		NE		110		53	
Industrial PRGs	--	--	NE		NE		380		190	
DRMO-SW025_026-01-1.5	10/7/2005	0	2	U	1	U	1	U	1	U
DRMO-SW029_017-01-1.5	10/1/2005	0	9	U	5	U	5	U	5	U
DRMO-SW052-01-1.5	10/1/2005	0	2	U	0.95	U	0.95	U	0.95	U
DRMO-SW066-01-1.5	10/1/2005	0	2	U	1	U	1	U	1	U
DRMO-SW080-01-1.5	10/29/2005	0	2	U	1	U	1	U	1	U
DRMO-SW085-01-1.5	9/20/2005	0	2	U	0.95	U	0.95	U	0.95	U
DRMO-SW086-01-1.5	1/6/2006	0	1	U	0.5	U	0.5	U	0.5	U
DRMO-SW093-01-1.5	10/29/2005	0	2	U	1	U	1	U	1	U
DRMO-SW093-01-1.5-DUP	10/29/2005	0	2	U	1	U	1	U	1	U
DRMO-SW094-01-1.5	10/29/2005	0	3	U	1.3	U	1.3	U	1.3	U
DRMO-SW094N-01-1.5	10/29/2005	0	2	U	1.1	U	1.1	U	1.1	U
DRMO-SW094S-01-1.5	10/29/2005	0	2	U	1	U	1	U	1	U
DRMO-SW095-01-2	9/15/2005	0.5	2	U	1.05	U	1.05	U	1.05	U
DRMO-SW096-01-1.5	9/20/2005	0	2	U	1	U	1	U	1	U
DRMO-SW097-01-1.5	12/17/2005	0	0.95	U	0.5	U	0.5	U	0.5	U
DRMO-SW100-01-1.5	12/10/2005	0	1	U	0.5	U	0.5	U	0.5	U
DRMO-A1-1.5-SW-E	1/5/2007	4	4.3	U	4.2	U	2.4	U	1.5	U
DRMO-A1-1.5-SW-NE	11/17/2006	4	4.2	U	4.1	U	2.3	U	1.5	U
DRMO-A1-1.5-SW-NW	11/17/2006	4	5	U	4.9	U	2.8	U	1.799999952	U
DRMO-A1-1.5-SW-SE	11/17/2006	4	4.4	U	4.3	U	2.5	U	1.600000024	U
DRMO-A2-1.5-SW-E	11/17/2006	5	5.4	U	5.3	U	3	U	1.899999976	U
DRMO-A3-2.0-SW-E	11/17/2006	4	4	U	3.9	U	2.2	U	1.399999976	U
DRMO-A3-2.0-SW-W	11/17/2006	4	4.3	U	4.1	U	2.4	U	1.5	U
DRMO-Area 1-2	10/23/2006	4.5	8.2	U	8	U	4.6	U	2.900000095	U
DRMO-Area 2-2	10/24/2006	5.5	5.4	U	5.2	U	3	U	1.899999976	U
DRMO-Area 3-2.0-SW-S	1/4/2007	4	3.9	U	3.8	U	2.2	U	1.399999976	U
DRMO-Area 3-2.5	10/23/2006	4.5	4	U	3.9	U	2.2	U	1.399999976	U
DRMO-Area 4-5	10/24/2006	4	4.9	U	4.7	U	2.7	U	1.700000048	U
DRMO-Area4-4.5-SW-E	11/16/2006	3	29	U	28	U	16	U	10	U
DRMO-FS-11-4.5	12/13/2006	4.5	5.8	U	5.6	U	3.2	U	2	U
DRMO-FS-11-4.5-DUP	12/13/2006	4.5	5.8	U	5.6	U	3.2	U	2	U
DRMO-FS-11-4-SW-E	1/5/2007	4	5.6	U	5.4	U	3.1	U	2	U
DRMO-FS-11-4-SW-N	12/13/2006	4	4.4	U	4.3	U	2.5	U	1.600000024	U
DRMO-FS-11-4-SW-S	12/13/2006	4	5.7	U	5.6	U	3.2	U	2	U
DRMO-FS-15-1.5-SW-E	1/4/2007	1.5	4.1	U	4	U	2.3	U	1.399999976	U
DRMO-FS-15-1.5-SW-N	1/4/2007	1.5	4.3	U	4.1	U	2.4	U	1.5	U
DRMO-FS15-1.5-SW-S	11/17/2006	1.5	4.1	U	4	U	2.3	U	1.399999976	U
DRMO-FS-15-1.5-SW-W	1/4/2007	1.5	4.1	U	4	U	2.3	U	1.5	U

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Endrin Ketone		Gamma-chlordane		Heptachlor		Heptachlor Epoxide	
Reporting Units	**--**	**ft bgs**	**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**	
Residential PRGs	**--**	**--**	**NE**		**NE**		**110**		**53**	
Industrial PRGs	**--**	**--**	**NE**		**NE**		**380**		**190**	
DRMO-FS-15-1.5-SW-W-DUP	1/4/2007	1.5	4.4	U	4.3	U	2.5	U	1.5	U
DRMO-FS15-2	10/23/2006	2	7.2	U	7	U	4	U	2.5	U
DRMO-FS15-2-DUP	10/23/2006	2	7.3	U	7	U	4.1	U	2.599999905	U
DRMO-FS-34-4.0-SW-N	1/4/2007	4	6.1	U	6	U	3.4	U	2.200000048	U
DRMO-FS-34-4.0-SW-N-DUP	1/4/2007	4	5.6	U	5.5	U	3.2	U	2	U
DRMO-FS-34-4.0-SW-W	1/4/2007	4	5.8	U	5.6	U	3.2	U	2	U
DRMO-FS-34-4.5	12/11/2006	4.5	5.3	U	5.2	U	3	U	1.899999976	U
DRMO-FS-34-4-SW-E	12/11/2006	4	4.2	U	**5.6**	J	2.4	U	1.5	U
DRMO-FS-34-4-SW-S	12/11/2006	4	4.5	U	4.4	U	2.5	U	1.600000024	U
DRMO-FS-38-4.0-SW-W-1	2/7/2007	4	4.1	U	4	U	2.3	U	1.399999976	U
DRMO-FS-38-4.5	12/11/2006	4.5	25	U	25	U	14	U	9	U
DRMO-FS38-4-SW-E	12/11/2006	4	4.2	U	4.1	U	2.4	U	1.5	U
DRMO-FS38-4-SW-S	12/11/2006	4	4.6	U	4.5	U	2.6	U	1.600000024	U
DRMO-FS40-1.5-SW-E	11/17/2006	1.5	3.9	U	3.8	U	2.2	U	1.399999976	U
DRMO-FS46-1.5-SW-N	1/4/2007	1.5	5.7	U	5.5	U	3.2	U	2	U
DRMO-FS46-1.5-SW-W	11/16/2006	1.5	4.2	U	4	U	2.3	U	1.5	U
DRMO-FS46-2	10/24/2006	2	3.6	U	3.5	U	2	U	1.299999952	U
DRMO-FS47-1.5-SW-E	11/16/2006	1.5	4.4	U	4.3	U	2.5	U	1.5	U
DRMO-FS47-2	10/24/2006	2	8.1	U	7.8	U	4.5	U	2.900000095	U
DRMO-FS-5-4.5	12/13/2006	4.5	5.3	U	5.2	U	3	U	1.899999976	U
DRMO-FS-5-4-SW-E	12/13/2006	4	4.5	U	4.4	U	2.5	U	1.600000024	U
DRMO-FS-5-4-SW-N	12/13/2006	4	4.3	U	4.1	U	2.4	U	1.5	U
DRMO-FS-5-4-SW-S	12/13/2006	4	4.9	U	4.7	U	2.7	U	1.700000048	U
DRMO-FS59-1.5-SW-S	11/16/2006	1.5	4.1	U	4	U	2.3	U	1.5	U
DRMO-FS59-1.5-SW-W	11/16/2006	1.5	4.1	U	4	U	2.3	U	1.5	U
DRMO-FS59-2	10/24/2006	2	3.8	U	3.7	U	2.1	U	1.399999976	U
DRMO-FS60-1.5-SW-E	11/16/2006	1.5	4.1	U	4	U	2.3	U	1.399999976	U
DRMO-FS60-1.5-SW-E-DUP	11/16/2006	1.5	4	U	3.9	U	2.2	U	1.399999976	U
DRMO-FS60-2	10/24/2006	2	7.5	U	7.3	U	4.2	U	2.700000048	U
DRMO-FS6-1.5-SW-E	11/17/2006	1.5	4	U	3.9	U	2.2	U	1.399999976	U
DRMO-FS6-1.5-SW-E-DUP	11/17/2006	1.5	3.9	U	3.8	U	2.2	U	1.399999976	U
DRMO-FS6-1.5-SW-S	11/17/2006	1.5	4	U	3.9	U	2.2	U	1.399999976	U
DRMO-FS6-2	10/23/2006	2	0.77	U	0.74	U	0.43	U	0.270000011	U
DRMO-FS62-1.5-SW-E	11/16/2006	1.5	4.3	U	4.2	U	2.4	U	1.5	U
DRMO-FS62-1.5-SW-N	11/16/2006	1.5	4	U	3.9	U	2.2	U	1.399999976	U
DRMO-FS62-1.5-SW-W	11/16/2006	1.5	4.1	U	4	U	2.3	U	1.5	U
DRMO-FS62-1.5-SW-W-DUP	11/16/2006	1.5	4.1	U	3.9	U	2.3	U	1.399999976	U
DRMO-FS62-2	10/23/2006	2	3.7	U	3.6	U	2.1	U	**1.5**	J

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Endrin Ketone	Gamma-chlordane	Heptachlor	Heptachlor Epoxide
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRGs	**--**	**--**	**NE**	**NE**	**110**	**53**
Industrial PRGs	**--**	**--**	**NE**	**NE**	**380**	**190**
DRMO-FS68-1.5-SW-N-2	1/25/2007	1.5	4.1 U	3.9 U	2.3 U	1.399999976 U
DRMO-FS68-1.5-SW-N-2-DUP	1/25/2007	1.5	4 U	3.9 U	2.3 U	1.399999976 U
DRMO-FS68-1.5-SW-S	11/17/2006	1.5	4.1 U	4 U	2.3 U	1.399999976 U
DRMO-FS68-1.5-SW-W	11/17/2006	1.5	4.2 U	4 U	2.3 U	1.5 U
DRMO-FS68-2	10/24/2006	2	7.4 U	7.2 U	4.1 U	2.599999905 U
DRMO-FS74-1.5-SW-E	11/16/2006	1.5	4.3 U	4.1 U	2.4 U	1.5 U
DRMO-FS74-1.5-SW-W	11/16/2006	1.5	4.3 U	4.2 U	2.4 U	1.5 U
DRMO-FS74-2	10/24/2006	2	3.9 U	3.8 U	2.2 U	1.399999976 U
DRMO-FS76-1.5-SW-S	11/16/2006	1.5	4.2 U	4 U	2.3 U	1.5 U
DRMO-FS76-1.5-SW-W	11/16/2006	1.5	4.2 U	4.1 U	2.4 U	1.5 U
DRMO-FS76-2	10/23/2006	2	2 U	1.9 U	1.1 U	0.709999979 U
DRMO-FS77-1.5-SW-E	11/16/2006	1.5	4.1 U	4 U	2.3 U	1.399999976 U
DRMO-FS77-1.5-SW-N	1/4/2007	1.5	4.2 U	4.1 U	2.4 U	1.5 U
DRMO-FS77-1.5-SW-S	11/16/2006	1.5	4.1 U	4 U	2.3 U	**2.299999952** J
DRMO-FS77-2	10/23/2006	2	5.4 U	5.2 U	3 U	1.899999976 U
DRMO-FS83-1.5-SW-N	11/17/2006	1.5	4.1 U	4 U	2.3 U	1.5 U
DRMO-FS83-1.5-SW-N-DUP	11/17/2006	1.5	4 U	3.9 U	2.3 U	1.399999976 U
DRMO-FS83-2	10/24/2006	2	7.5 U	7.3 U	4.2 U	2.599999905 U
DRMO-FS-87-1.5-SW-E	1/5/2007	1.5	5.1 U	4.9 U	2.8 U	1.799999952 U
DRMO-FS-87-1.5-SW-W	1/5/2007	0	41 U	20 U	20 U	20 U
DRMO-FS87-2	10/24/2006	2	7.3 U	7.1 U	4.1 U	2.599999905 U
DRMO-FS92-1.5-SW-E	11/17/2006	1.5	4.2 U	4 U	2.3 U	1.5 U
DRMO-FS92-1.5-SW-N	11/17/2006	1.5	3.7 U	3.6 U	2.1 U	1.299999952 U
DRMO-FS92-1.5-SW-W	11/17/2006	1.5	4.2 U	4.1 U	2.3 U	1.5 U
DRMO-FS92-2	10/23/2006	2	5.5 U	5.3 U	3 U	1.899999976 U
DRMO-FS-10-1.5-SW-N	7/19/2007	4	1.3 U	0.75 U	0.72 U	0.75999999 U
DRMO-FS-101-3.5-SW-S	7/20/2007	2	1 U	0.52 U	0.62 U	0.600000024 U
DRMO-FS-101-3.5-SW-W	7/20/2007	2	1 U	0.52 U	0.61 U	0.589999974 U
DRMO-FS-101-4-C	7/20/2007	2.5	1.1 U	0.56 U	0.66 U	0.639999986 U
DRMO-FS-101-4-C-DUP	7/20/2007	2.5	1.1 U	0.58 U	0.68 U	0.660000026 U
DRMO-FS-101-SW-N-1	12/19/2007	2	14 U	8.3 U	6.1 U	8.300000191 U
DRMO-FS-10-5.5-SW-W-1	8/1/2007	4	32 U	18 U	15 U	16 U
DRMO-FS-10-6-C	8/1/2007	5	31 U	18 U	14 U	15 U
DRMO-FS-10-6-C-DUP	8/1/2007	5	33 U	19 U	15 U	16 U
DRMO-FS-108-7.5-SW-NW	8/27/2007	6	16 U	9.4 U	7.5 U	8 U
DRMO-FS-108-8-C	11/20/2007	6.5	1.2 U	0.6 U	**0.76** J	0.680000007 U
DRMO-FS-109-8-C	7/30/2007	6.5	32 U	18 U	14 U	15 U
DRMO-FS-110-4-C	8/22/2007	2.5	1.9 U	1.1 U	1 U	1.100000024 U

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Endrin Ketone		Gamma-chlordane		Heptachlor		Heptachlor Epoxide	
Reporting Units	**--**	**ft bgs**	**µg/kg**		**µg/kg**		**µg/kg**		**µg/kg**	
Residential PRGs	**--**	**--**	**NE**		**NE**		**110**		**53**	
Industrial PRGs	**--**	**--**	**NE**		**NE**		**380**		**190**	
DRMO-FS-111-1.5-SW-S	7/27/2007	0	25	U	15	U	14	U	15	U
DRMO-FS-111-2-C	7/27/2007	0.5	25	U	15	U	14	U	15	U
DRMO-FS-112-1.5-SW-S	7/24/2007	0	0.7	U	0.36	U	0.43	U	**0.409999996**	J
DRMO-FS-112-2-C	7/24/2007	0.5	**4.8**		0.37	U	0.44	U	0.419999987	U
DRMO-FS-132-7.5-SW-N-1	8/27/2007	6	13	U	7.7	U	6.1	U	6.5	U
DRMO-FS-132-7.5-SW-N-1-DUP	8/27/2007	6	19	U	11	U	8.8	U	9.5	U
DRMO-FS-132-7.5-SW-W	7/27/2007	6	36	U	21	U	20	U	21	U
DRMO-FS-132-8-C	7/30/2007	7	34	U	20	U	15	U	17	U
DRMO-FS-134-7.5-SW-N	7/27/2007	6	28	U	17	U	16	U	17	U
DRMO-FS-135-6-C	8/1/2007	5	35	U	20	U	16	U	17	U
DRMO-FS-135-7.5-SW-NW	7/27/2007	6	28	U	16	U	16	U	16	U
DRMO-FS-136-6-C	8/1/2007	4.5	35	U	20	U	16	U	17	U
DRMO-FS-137-7.5-SW-S	8/27/2007	6	17	U	9.9	U	7.8	U	8.399999619	U
DRMO-FS-137-7.5-SW-W	8/27/2007	6	16	U	9	U	7.1	U	7.599999905	U
DRMO-FS-137-8-C	8/27/2007	6.5	20	U	11	U	9	U	9.600000382	U
DRMO-FS-138-7.5-SW-W-1	8/27/2007	6	19	U	11	U	8.6	U	9.199999809	U
DRMO-FS-138-8-C	8/22/2007	6.5	2.1	U	1.2	U	1.2	U	1.200000048	U
DRMO-FS-139-6-C	8/1/2007	4.5	33	U	19	U	15	U	16	U
DRMO-FS-140-5.5-SW-S	8/1/2007	4	31	U	18	U	14	U	15	U
DRMO-FS-140-6-C	8/1/2007	4.5	33	U	19	U	15	U	16	U
DRMO-FS-141-7.5-SW-S	8/22/2007	6	1.9	U	1.1	U	1.1	U	1.100000024	U
DRMO-FS-141-8-C	8/22/2007	6.5	2.1	U	1.2	U	1.2	U	1.200000048	U
DRMO-FS-142-7.5-SW-E	8/22/2007	6	2.1	U	1.2	U	1.2	U	1.200000048	U
DRMO-FS-142-7.5-SW-E-DUP	8/22/2007	6	2.1	U	1.2	U	1.2	U	1.200000048	U
DRMO-FS-142-7.5-SW-S	8/22/2007	6	2.1	U	1.2	U	1.2	U	1.200000048	U
DRMO-FS-142-8-C	8/22/2007	6.5	2.1	U	1.2	U	1.1	U	1.200000048	U
DRMO-FS-27-7.5-SW-N	7/27/2007	6	33	U	19	U	19	U	20	U
DRMO-FS-27-7.5-SW-W-1	8/27/2007	6	17	U	9.7	U	7.6	U	8.199999809	U
DRMO-FS-27-8-C	7/30/2007	6.5	39	U	22	U	18	U	19	U
DRMO-FS-28-7.5-SW-N	7/30/2007	6	31	U	18	U	14	U	15	U
DRMO-FS-28-7.5-SW-W	7/27/2007	6	39	U	23	U	22	U	23	U
DRMO-FS-28-8-C-TPH	9/11/2007	6.5	28	U	16	U	15	U	16	U
DRMO-FS-40-8-C	7/30/2007	6.5	32	U	18	U	14	U	15	U
DRMO-FS-53-8-C	8/1/2007	6.5	33	U	19	U	15	U	16	U
DRMO-FS-67-2-C	7/24/2007	2	**4.1**		0.36	U	0.43	U	0.409999996	U

Table 4-4. Pesticides Detected in Soil at the DRMO Site (Continued)

Parameter Name	Sample Date	Sample Depth	Endrin Ketone	Gamma-chlordane	Heptachlor	Heptachlor Epoxide
Reporting Units	**--**	**ft bgs**	**µg/kg**	**µg/kg**	**µg/kg**	**µg/kg**
Residential PRGs	**--**	**--**	**NE**	**NE**	**110**	**53**
Industrial PRGs	**--**	**--**	**NE**	**NE**	**380**	**190**
DRMO-FS-82-2-C	7/24/2007	0.5	**8.7**	0.67 U	0.53 U	**1.299999952** J
DRMO-FS-83-1.5-SW-S-1	8/22/2007	1.5	6.6 U	3.8 U	3.7 U	3.900000095 U
DRMO-FS-83-2-C	7/24/2007	2	1.2 U	0.69 U	0.55 U	0.589999974 U
DRMO-FS-84-1.5-SW-S	7/27/2007	0	25 U	15 U	14 U	15 U
DRMO-FS-84-1.5-SW-W	7/27/2007	0	26 U	15 U	14 U	15 U
DRMO-FS-84-2-C	7/27/2007	0.5	25 U	15 U	14 U	15 U
DRMO-FS-98-1.5-SW-N	7/20/2007	0	0.82 U	0.43 U	0.5 U	0.49000001 U
DRMO-FS-98-1.5-SW-S	7/20/2007	0	0.74 U	0.38 U	0.45 U	0.439999998 U
DRMO-FS-98-1.5-SW-W	7/20/2007	0	0.8 U	0.41 U	0.49 U	0.469999999 U
DRMO-FS-98-2-C	7/20/2007	0.5	0.79 U	0.41 U	0.48 U	0.460000008 U
Summary Statistics	**Percent Detection**		**1.3%**	**0.4%**	**0.4%**	**1.7%**
	Maximum		**41**	**28**	**22**	**23**
	Minimum		**0.70**	**0.36**	**0.43**	**0.27**
	Average		**3.62**	**2.39**	**1.82**	**1.71**
	Median		**3.90**	**3.75**	**2.15**	**1.40**
	Standard Deviation		**4.83**	**2.89**	**2.39**	**2.53**

Detected concentration exceeds the Industrial PRG
Detected results are marked in **bold**
U - not detected above the method detection limit
J - estimated value
NE - not established
NA - not analyzed
PRG - preliminary remediation goal
DUP - duplicate sample
µg/kg - micrograms per kilogram
ft bgs - feet below ground surface

Table 4-5. Historical Summary of Results in Groundwater at the DRMO Site

Analyte	Number of Detections	Number of Analyses	Maximum Detected Concentration	Average Detected Concentration
Metals (μg/L)				
Aluminum	5	27	756 J	238
Antimony	0	27	ND	ND
Arsenic	27	27	174	56.4
Barium	25	27	600	133
Beryllium	1	27	0.8 J	0.8
Cadmium	2	27	0.75 J	0.66
Calcium	27	27	154,000	75,500
Chromium	8	27	5.6 J	3.2
Chromium (VI)	1	28	10	10
Cobalt	12	27	16.1	6.9
Copper	8	27	49.3	14.8
Iron	27	27	36.9	8.04
Lead	4	27	8	4
Magnesium	27	27	311,000	120,000
Manganese	27	27	4,430	1,740
Mercury	4	27	0.22	0.13
Molybdenum	6	27	35	14.7
Nickel	10	27	39	17.4
Potassium	27	27	171,000 J	55,700
Selenium	6	22	5.7	3.3
Silver	3	26	2.1 J	1.5
Sodium	27	27	3,820,000	1,400,000
Thallium	1	27	4.4 J	4.4
Vanadium	11	27	11.6 J	5.8
Zinc	13	27	40 J	13
VOCs (μg/L)				
1,2-dichloroethene	4	47	0.8 J	0.6
2-butanone	2	52	2 J	1
2-hexanone	1	63	2 J	2
4-methyl-2-pentanone	1	59	2 J	2
Acetone	5	57	88	51
Benzene	5	65	11	3
carbon disulfide	2	65	16	8
carbon tetrachloride	1	65	0.8	0.8
Chlorobenzene	1	65	170 J	170
Chloroform	2	65	0.8 J	0.6

Table 4-5. Historical Summary of Results in Groundwater at the DRMO Site (Continued)

Analyte	Number of Detections	Number of Analyses	Maximum Detected Concentration	Average Detected Concentration
Chloromethane	1	65	0.6 J	0.6
cis-1,2-dichloroethene	1	18	0.4 J	0.4
Dibromochloromethane	1	65	0.8 J	0.8
Ethylbenzene	2	65	1 J	0.8
methylene chloride	1	65	31	31
Styrene	1	65	1 J	1
Tetrachloroethene	1	65	0.6 J	0.6
Toluene	5	65	1	0.8
Trichloroethene	1	65	0.8 J	0.8
Vinyl Chloride	6	65	26	7
total xylenes	8	57	18	4
SVOCs (μg/L)				
1,2,4-trichlorobenzene	1	58	17	17
2-methlynaphthalene	7	58	10 J	4
4-methylphenol	2	58	2 J	1
4-nitrophenol	2	58	10 J	8
Acenaphthene	1	58	2 J	2
Fluorene	4	58	4 J	3
Isophorone	2	58	0.5 J	0.3
Naphthalene	4	58	2 J	1
Phenanthrene	5	58	6 J	3
Phenol	6	58	20	8
Pyrene	2	58	2 J	2
Pesticides (μg/L)				
4,4'-DDE	1	34	0.05 J	0.05
4,4'-DDT	1	32	0.05 J	0.05
Endosulfan II	1	32	0.1 J	0.1
Endrin Aldehyde	1	31	0.1 J	0.1
Gamma-BHC (Lindane)	1	33	0.03 J	0.03
PCBs (μg/L)				
Aroclor-1260	1	36	5 J	5
Organotins (ng/L)				
Dibutyltin	2	7	21	17

Notes:

(a) PRC. 1996b. *Technical Memorandum: Estimation of Ambient Concentrations in Shallow Groundwater at Mare Island Naval Shipyard, Vallejo, California*. November 22.

(b) The 99th percentile was identified as the ambient concentration of metals in groundwater.

J - estimated value ND - not detected μg/L - microgram per liter NE - not established
ng/L - nanogram per liter

Table 4-6. Analytes Detected in Groundwater at the DRMO Site

ANALYTE	Screening Level (µg/L)	Source	Units	DRMO-TMW01 11/13/12	DRMO-TMW02 11/13/12	DRMO-TMW03 11/13/12	DRMO-TMW04 11/13/12	DRMO-TMW05 11/13/12	DRMO-TMW06 11/13/12	DRMO-TMW07 11/14/12	DRMO-TMW08 11/13/12	DRMO-TMW09 11/13/12	DRMO-TMW09-DUP 11/13/12	DRMO-TMW10 11/14/12	DRMO-TMW11 11/13/12	DRMO-TMW12 11/14/12
Metals																
Antimony	6	MCL	µg/l	ND (<5.00)	ND (<5.00)	0.424 J	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	0.455 J	ND (<5.00)	1.54 J
Arsenic	78	Back-ground	µg/l	14.6	16.8	3.57	1.39 J	3.39 J	32.4	14.1	15.3	12.0	11.4	12.0	1.41 J	16.2
Barium	2,000	MCL	µg/l	118	105	110	136	143	352	57.7	86.2	328	323	78.3	112	117
Cadmium	16	Back-ground	µg/l	ND (<5.00)	ND (<5.00)	3.36	5.67	0.985 J	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<1.00)	0.926 J	ND (<5.00)
Chromium	100	MCL	µg/l	0.876 J	1.13 J	0.207 J	ND (<5.00)	ND (<5.00)	0.809 J	2.75 J	0.966 J	1.19 J	1.03 J	0.469 J	ND (<5.00)	2.98 J
Cobalt	100	Back-ground	µg/l	6.17	5.10	27.4	**159**	11.0	12.6	7.46	8.02	8.33	8.16	2.62	67.8	6.48
Copper	620	RSL	µg/l	ND (<5.00)	ND (<5.00)	ND (<1.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<1.00)	ND (<5.00)	14.0
Iron	140,000	Back-ground	µg/l	2240	1980	62.8 J	4590	257 J	11700	2060	391 J	748	727	205	10600	756
Lead	15	MCL	µg/l	ND (<5.00)	ND (<5.00)	0.188 J	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	ND (<5.00)	0.0710 J	ND (<5.00)	0.386 J
Manganese	5,400	Back-ground	µg/l	2,200	1,660	**31,200**	**49,000**	4,360	3,130	551	4,340	3,700	3,480	1,000	**22,800**	472
Molybdenum	78	RSL	µg/l	7.65 J	6.52 J	10.2	4.61 J	6.97 J	8.12 J	7.25 J	15.1	9.98 J	9.81 J	7.81	2.08 J	10.3
Nickel	300	RSL	µg/l	11.9	13.5	46.1	283	25.4	16.7	19.3	21.2	23.0	21.4	7.62	97.1	25.8
Selenium	50	MCL	µg/l	1.18 J	1.56 J	1.72	1.32 J	1.09 J	1.40 J	2.04 J	1.81 J	1.72 J	1.73 J	0.685 J	0.944 J	2.30 J
Vanadium	140	Back-ground	µg/l	4.35 J	6.13	2.73	ND (<5.00)	ND (<5.00)	3.28 J	10.6	6.34	3.81 J	3.87 J	2.66	ND (<5.00)	13.4
Zinc	4,700	RSL	µg/l	ND (<100)	ND (<100)	ND (<20.0)	233	43.1 J	ND (<100)	ND (<100)	ND (<100)	42.1 J	41.2 J	ND (<20.0)	61.6 J	ND (<100)
Pesticides																
Endosulfan I	78	RSL	µg/l	ND (<0.094)	0.14	ND (<0.11)	ND (<0.10)	ND (<0.098)	ND (<0.11)	ND (<0.099)	ND (<0.10)	ND (<0.10)	ND (<0.093)	ND (<0.11)	ND (<0.099)	ND (<0.098)
SVOCs																
Acenaphthene	400	RSL	µg/l	ND (<0.021)	0.028	ND (<0.021)	0.13	ND (<0.020)	0.38	ND (<0.021)	ND (<0.022)	ND (<0.020)	ND (<0.020)	ND (<0.022)	ND (<0.020)	ND (<0.022)
Acenaphthylene	NE	NA	µg/l	ND (<0.021)	ND (<0.020)	ND (<0.021)	ND (<0.020)	ND (<0.020)	0.083	ND (<0.021)	ND (<0.022)	ND (<0.020)	ND (<0.020)	ND (<0.022)	ND (<0.020)	ND (<0.022)
Fluorene	220	RSL	µg/l	ND (<0.021)	ND (<0.020)	ND (<0.021)	0.020 J	ND (<0.020)	0.47	ND (<0.021)	ND (<0.022)	ND (<0.020)	ND (<0.020)	ND (<0.022)	ND (<0.020)	ND (<0.022)
1-Methylnaphthalene	0.97	RSL	µg/l	ND (<0.021)	0.0085 J	0.0055 J	0.011 J	ND (<0.020)	**4.4**	ND (<0.021)	ND (<0.022)	ND (<0.020)	ND (<0.020)	ND (<0.022)	ND (<0.020)	0.013 J

Table 4-6. Analytes Detected in Groundwater at the DRMO Site (Continued)

ANALYTE	Screening Level (µg/L)	Source	Units	DRMO-TMW01	DRMO-TMW02	DRMO-TMW03	DRMO-TMW04	DRMO-TMW05	DRMO-TMW06	DRMO-TMW07	DRMO-TMW08	DRMO-TMW09	DRMO-TMW09-DUP	DRMO-TMW10	DRMO-TMW11	DRMO-TMW12
				11/13/12	11/13/12	11/13/12	11/13/12	11/13/12	11/13/12	11/14/12	11/13/12	11/13/12	11/13/12	11/14/12	11/13/12	11/14/12
2-Methylnaphthalene	27	RSL	µg/l	ND (<0.021)	ND (<0.020)	ND (<0.021)	ND (<0.020)	ND (<0.020)	0.32	ND (<0.021)	ND (<0.022)	ND (<0.020)	ND (<0.020)	ND (<0.022)	ND (<0.020)	0.022 J
Naphthalene	0.14	RSL	µg/l	ND (<0.021)	ND (<0.020)	ND (<0.021)	ND (<0.020)	ND (<0.020)	**0.18**	0.14	ND (<0.022)	ND (<0.020)	ND (<0.020)	0.092	ND (<0.020)	ND (<0.022)
Phenanthrene	NE	NA	µg/l	ND (<0.021)	0.029	ND (<0.021)	0.019 J	ND (<0.020)	0.24	ND (<0.021)	ND (<0.022)	ND (<0.020)	ND (<0.020)	ND (<0.022)	ND (<0.020)	ND (<0.022)
VOCs																
Benzene	5	MCL	µg/l	ND (<1.0)	ND (<1.0)	0.15 J	0.16 J	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	0.16 J	0.16 J	ND (<1.0)	ND (<1.0)	ND (<1.0)
Carbon disulfide	720	RSL	µg/l	ND (<1.0)	0.14 J	0.14 J	0.22 J	ND (<1.0)	0.14 J	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	0.14 J	ND (<1.0)
Chloromethane	190	RSL	µg/l	ND (<1.0)	ND (<1.0)	1.0 J	1.0 J	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	1.0 J	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)
1,1-Dichloroethene	7	MCL	µg/l	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	0.47 J	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)
cis-1,2-Dichloroethene	7	MCL	µg/l	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	0.24 J	ND (<1.0)	ND (<1.0)	ND (<1.0)	3.7	3.9	0.75 J	ND (<1.0)	ND (<1.0)
Trichloroethene	5	MCL	µg/l	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	0.18 J	ND (<1.0)	ND (<1.0)
Vinyl Chloride	2	MCL	µg/l	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	0.86 J	0.99 J	ND (<1.0)	**3.5 J**	ND (<1.0)
o-Xylene	190	RSL	µg/l	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	0.13 J	0.10 J	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)
TPH																
TPH (as Diesel)	640	ESL	µg/l	440 J	**1,200**	**690**	**660**	**2,700**	**5,300**	**3,800**	**1,200**	**1,700**	**1,500**	350 J	400 J	**2,100**
TPH (as Motor Oil)	640	ESL	µg/l	230 J	250 J	130 J	120 J	400 J	**970**	**1,800**	490 J	570	**690**	140 J	92 J	**1,500**

Notes:

Bolded values exceed groundwater screening levels

ND = not detected; DL = detection limit; NE = not established; NA = not applicable; MCL = U.S. EPA Maximum Contaminant Level;

RSL = U.S. EPA Region 9 Tap Water Risk Screening Level;

ESL = May 2013 Water Board Environmental Screening Level for Groundwater that is not a Potential Drinking Water Source;

Background = 95th percentile groundwater concentrations of metals from the *Compilation of Technical Memoranda on Ambient Analysis of Metals in Soil and Groundwater, Mare Island, California* (TtEMI, 2002a).

Table 6-1. Summary of Total Cancer Risk and Noncancer Hazard Indices in Soil

Receptor		Total Site Risk		Incremental Risk	
		Total Cancer Risk	Hazard Index	Total Cancer Risk	Hazard Index
Current	Industrial Worker	9×10^{-6}	0.1	7×10^{-7}	0.09
Potential Future	Residential Adult/Child	4×10^{-5}	2	2×10^{-6}	1
	Industrial Worker	1×10^{-5}	0.2	7×10^{-7}	0.1
	Construction Worker	3×10^{-6}	2	1×10^{-6}	2

Table 6-2. Sources of Uncertainty in the Risk Assessment and Impact on Calculated Risks/Hazards

Source of Uncertainty	Relative Level of Uncertainty	Impact on Calculated Risks
EPCs (for direct contact with soil)	Moderate to high. Based on measured data.	UCLs on the mean were used to calculate soil risks; therefore, risks are likely to be overestimated.
EPCs (for outdoor air)	Moderate to high. Outdoor air concentrations for the residential and occupational receptors were estimated using DTSC default PEF values.	Risks/hazards more likely to be overestimated because of conservative assumptions in the cross-media mass transfer equations, which include no biodegradation or other loss mechanism.
Exposure parameters for receptors	Low to Moderate. Most values are based on standard default exposure values recommended by U.S. EPA and CalEPA and derived from scientific studies.	Risks/hazards more likely to be overestimated because conservative default values were used. Exposures were derived under the RME scenario, which is defined as the highest exposure that is reasonably expected to occur at a site (U.S. EPA, 1989). RME estimates are calculated using a combination of upper bound values for exposure parameters (e.g., ingestion rate and inhalation rate).
Toxicity data	Moderate. Toxicity values are based on result of tests performed on animals and extrapolated to humans.	The toxicity values are designed to be protective of human health, and the potential exists that the risks/hazards estimated here may be overestimated.
Risk characterization	Moderate to High. The assessment did evaluate the potential cancer risks and noncancer health hazards based on background concentrations. The contributions from background concentrations are discussed in the risk assessment.	If background constituents are included in the risk assessment, the calculated risks/hazards overestimate the risk and health hazards attributed to chemical releases from the site.

Table 6-3. Summary of Total Cancer Risk and Noncancer Hazard Indices in Groundwater

Receptors	Exposure Media	Routes	Total Site Risk		Incremental Risk	
			Cancer Risk	Noncancer HI	Cancer Risk	Noncancer HI
Commercial/Industrial Workers	Indoor Air	Inhalation of Indoor Vapors from Groundwater	2×10^{-7}	0.005	2×10^{-7}	0.005
Construction/Excavation Workers	Groundwater Vapor Emission	Inhalation of Trench Vapors from Groundwater	3×10^{-17}	0.00000000002	3×10^{-17}	0.00000000002
Residential Adult/Child	Direct Contact (Potable Use)	Total Groundwater (Potable Use)	5×10^{-4}	100	1×10^{-4}	70
	Tap water	Groundwater Ingestion	5×10^{-4}	100	9×10^{-5}	70
	Tap water	Dermal Contact with Groundwater	1×10^{-5}	0.6	8×10^{-6}	0.5
	Tap water	Inhalation of Vapors from Groundwater	5×10^{-6}	0.03	5×10^{-6}	0.03
	Indoor Air	Inhalation of Indoor Vapors from Groundwater	8×10^{-6}	0.05	8×10^{-6}	0.05

Table 8-1. Results Summary of the Detailed Evaluation of Remedial Alternatives

Alternative	Overall Protection of Human Health	Compliance with ARARs	Long Term Effectiveness	Reduction in Toxicity, Mobility, and Volume through Treatment	Short Term Effectiveness	Implementability	Cost
No Further Action	◓	N/A	○	○	○	●	●
Institutional Controls	●	●	●	○	●	●	●

Low Performance: ○
Moderate Performance: ◓
High Performance: ●
N/A - Not Applicable

APPENDIX A

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)

APPENDIX B

SUMMARY OF SOIL RESULTS

APPENDIX C

SUMMARY OF GROUNDWATER RESULTS

APPENDIX D

ANALYTICAL REPORTS

APPENDIX E

SUPPORTING INFORMATION FOR THE SOIL HUMAN HEALTH RISK ASSESSMENT

APPENDIX F

SUPPORTING INFORMATION FOR THE GROUNDWATER HUMAN HEALTH RISK ASSESSMENT

APPENDIX G

DRMO FFS COST BREAKDOWN

APPENDIX H

HISTORICAL BORING LOGS

APPENDIX I

RADIOLOGICAL RELEASE CONCURRENCE LETTER

APPENDIX J

INTERNAL DRAFT INVESTIGATION AREA H2 REMEDIAL INVESTIGATION REPORT

APPENDIX K

SUMMARY OF THE 2012 GROUNDWATER INVESTIGATION