M60050.000299
MCAS EL TORO
SSIC #5090.3

Summary Report

Site Verification at Former Washrack near Building 317
Solid Waste Management Unit (SWMU) Number 253
Petroleum Corrective Action Program
Marine Corps Air Station, El Toro, California

30 November 1998

Prepared by
Southwest Division, Naval Facilities Engineering Command
BRAC Operations Office
1420 Kettner Boulevard, San Diego, CA 92101

TABLE OF CONTENTS

Section		Page
1	Introduction	1
2	Investigation Activities	1
3	Conclusions and Recommendations	4
4	References	5
Table 1.	Summary of Analytical Test Results	6

Figures
Figure 1. Vicinity Map
Figure 2. Tentative Reuse Parcel Locations
Figure 3. Sample Locations
Figure 4. Conceptual Site Model

Appendices
A Background Information
B Site Verification Documentation

Section 1
Introduction

This Summary Report summarizes the results of the site verification activities that were conducted in 1998 at the Former Washrack near Building 317 at the Marine Corps Air Station (MCAS), El Toro, California. The former washrack was identified during the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) as Solid Waste Management Unit (SWMU) 253. The washrack was taken out of service approximately 2 years ago.

The Marine Corps Air Station, El Toro, also known as the Station, comprises approximately 4,700 acres and is located in eastern Orange County, approximately 45 miles southeast of Los Angeles. Building 317, a supply building constructed in 1945, and SWMU 253 are located near the intersection of "M" Street and Perimeter Road in the southwest section of the Station as shown on Figure 1. The former washrack was located at the base of a concrete ramp at the loading dock on the northeast side of the building. The former washrack discharged to a storm drain inlet located northeast of the ramp, and the storm drain discharges to Bee Canyon Wash. The washrack drain is located in an unpaved area adjacent to the ramp. SWMU 253 is also located in close proximity to the abandoned railroad tracks northeast of Building 317. Photographs of the site and historical information are presented in Appendix A.

SWMU 253 is located within a parcel that has been tentatively identified as a cargo area in the El Toro Community Reuse Plan, 1997 Working Map, Land Uses/Conveyances (County of Orange, 1997) as shown on Figure 2.

The washrack was formerly used by personnel from Building 317 for the cleaning of floor cleaning equipment. Additionally, the Station's grounds maintenance contractors may have used this area, prior to approximately 2 years ago, for cleaning of equipment.

Section 2
Investigation Activities

Background information collected during the Remedial Investigation and the RFA and the data acquired during the site verification activities of 1998 will be presented in the following paragraphs.

2.1 Resource Conservation and Recovery Act (RCRA) Facility Assessment

The Former Washrack near Building 317 was investigated as Solid Waste Management Unit (SWMU) 253 during the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA). The results of the assessment are published in the *Installation Restoration Program, Final Resource Conservation and Recovery Act Facility Assessment Report* (JEG, 1993). RFA Boring 253H1, located in the unpaved area adjacent to the washrack drain, was advanced to a depth of five feet and two samples were collected from a depth of 2 feet and one sample was collected from a depth of 5 feet. Samples were analyzed by United States Environmental Protection Agency (EPA) Methods 418.1 for Total Recoverable Petroleum Hydrocarbons (TRPH) and for Volatile Organic Compounds. TRPH and VOCs were not detected at or above the laboratory reporting limits with two exceptions: methylene chloride and acetone were detected in field samples and in blanks. The boring location (estimated) is shown on Figure 3. Extracts from the RFA documentation are presented in Appendix A.

2.2 Ground Water Conditions

Ground water conditions were investigated near SWMU 253 during the Remedial Investigation of nearby Installation Restoration Program (IRP) Sites. IRP Site 21 – Materials Management Group – is located approximately 300 feet southeast of SWMU 253. A downgradient monitoring well, 21_DGMW90, with a screened interval from 95 to 135 feet below ground surface was constructed at the northwest side of IRP Site 21, approximately 300 feet southeast of and upgradient of SWMU 253. The depth to ground water at well 21_DGMW90 is approximately 90 feet.

A regional monitoring well, 18_PS1, was constructed approximately 1,100 feet northwest and downgradient of SWMU 253. The well is screened from 102 to 122 feet below ground surface, and the depth to ground water is approximately 86 feet.

Trichloroethylene (TCE) has been identified in water samples collected from wells 18_PS1 and 21_DGMW90 during routine ground water monitoring activities. TCE concentrations have varied from 1 to 4 micrograms per liter in well 21_DGMW90 and from 2 to 19 micrograms per liter in well 18_PS1.

Another regional monitoring well, 18_PS5, is located approximately 500 feet south-southeast of SWMU 253. TCE has not been reported at or above laboratory reporting limits in this well. Petroleum hydrocarbons were not detected at or above laboratory reporting limits in samples collected from this well.

Ground water levels and water quality data (CDM, 1997) are presented in Appendix A, and a conceptual site model is shown on Figure 4.

2.3 Site Verification Activities

Site verification activities were conducted by OHM Remediation Services Corporation under Navy Contract N68711-93-D-1459, Delivery Order Number 112 during September 1998. Sampling activities were conducted in accordance with the *Draft Work Plan, Remediation of Various Underground Storage Tanks at the Marine Corps Air Station, El Toro* (OHM, 1995). Soil samples were analyzed by EPA Methods 8015-Modified (Total Petroleum Hydrocarbons by purge and trap and by extraction), 8260 (Volatile Organic Compounds including Benzene, Toluene, Ethylbenzene, Xylenex, and Methyl Tertiary Butyl Ether (MTBE)), and 8081 (Organochlorine Pesticides).

Five (5) soil samples were collected from one shallow boring, 253-HA01, located in the unpaved area adjacent to the washrack drain. Boring 253-HA01 was advanced to a depth of approximately 20 feet using a hand auger, and samples were collected at depths of 5 feet, 10 feet, 15 feet (with field duplicate), and 20 feet. Sample locations are shown on Figure 3. The boring was filled with bentonite cement grout following the collection of soil samples, and the boring location was identified by land survey.

Petroleum hydrocarbons, BTEX compounds, chlorinated solvents, and MTBE were not detected at or above laboratory reporting limits in samples collected from boring 253-HA01. Organochlorine pesticides were detected in the 20-foot sample only with 5.4 micrograms per kilogram of 4,4'-DDD, 15 micrograms per kilogram of 4,4'-DDE, and 42 micrograms per kilogram of 4,4'-DDT. The reported levels of 4,4'-DDD, 4,4'DDE, and 4,4'DDT are lower than the United States Environmental Protection Agency Preliminary Remediation Goals (PRGs) as established in 1998. For example, the PRG for soil for 4,4'-DDT is 1.7 milligrams per kilogram for the residential land use scenario [Extracts from the PRG tables are presented in Appendix B]. Trichloroethylene (TCE) was reported as an estimated value ("J" qualifier) in two of the samples.

Analytical test results from the site verification activities are summarized in Table 1. Laboratory test reports and land survey data are presented in Appendix B.

The surface of the concrete wash area, at the base of the ramp to the loading dock, was visually inspected during the site verification activities, and no significant surface cracks were observed.

The washrack discharged to the storm sewer system which eventually discharges to Bee Canyon Wash. The sediments and surface waters of the surface drainage channels, including Bee Canyon Wash, were investigated during the Remedial Investigation of IRP Site 25 – the Major Drainages. A Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Record of Decision (ROD) that identified IRP Site 25 as a "No Action" site was completed in September 1997. An extract from the ROD is presented in Appendix A.

The Station currently monitors and reports on surface water quality in Bee Canyon Wash in accordance with the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit Number CAS 618006 for storm water management.

Section 3
Conclusions and Recommendations

Petroleum hydrocarbons, BTEX compounds, and MTBE were not detected in soil samples collected near the former washrack drain. A total of eight (8) samples were collected from two borings, a five-foot deep boring and a twenty-foot deep boring. TCE was reported as an estimated value in two of the samples.

4,4'-DDD, 4,4'-DDE, and 4,4'-DDT were detected above laboratory reporting limits in the sample collected at a depth of 20 feet. The concentrations of each compound were less than 1 milligram per kilogram. The reported concentrations are less than the USEPA Region IX Preliminary Remediation Goals (PRGs) for residential land use. The release does not appear to be laterally or vertically extensive, and the release is not anticipated to pose a significant threat to ground water quality.

The depth to ground water at SWMU 253 is approximately 90 feet, and the site overlies the Volatile Organic Compound (VOC) ground water plume that originates from IRP Site 24 – the VOC Source Area. The management of this ground water plume will be addressed under the Station's Installation Restoration Program.

Based upon the absence of evidence of a significant release and the depth to ground water at SWMU 253, it is recommended that the Station request *no further action* status for this site from the Regional Water Quality Control Board, Santa Ana Region.

Section 4
References

Bechtel National, Inc. 1997. Draft Final Phase II Remedial Investigation Report, Operable Unit 3A Sites, Marine Corps Air Station, El Toro, California. June. (Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, and 22) [Navy Contract N68711-92-D-4670, CTO 79]

California Regional Water Quality Control Board, Santa Ana Region. 1998. Statement of Basis, Renewal of Waste Discharge Requirements for Marine Corps Air Station, El Toro, Order Number 98-42 (NPDES Number CAS 618006). March.

CDM Federal Programs Corporation. 1997. Final Groundwater Monitoring Report, July 1997 Sampling Round, Groundwater Monitoring Program for Marine Corps Air Station, El Toro. October. [Navy Contract N68711-96-D-2029, Delivery Order 5]

County of Orange. 1997. Alternative A, El Toro Community Reuse Plan, 1997 Working Map, Land Uses/Conveyances, Gross Acres. [Prepared by P&D Consultants for the County of Orange, March 1997.]

Jacobs Engineering Group (JEG). 1993. Marine Corps Air Station, El Toro, El Toro, California, Installation Restoration Program, Final Resource Conservation and Recovery Act Facility Assessment Report. July. [Navy Contract N68711-89-D-9296, CTO 193]

OHM Remediation Services Corporation. 1998. Information Package for SWMU 253. [Navy Contract N68711-93-D-1459, Delivery Order 112]

OHM Remediation Services Corporation. 1995. Draft Work Plan, Remediation of Various Underground Storage Tanks at the Marine Corps Air Station, El Toro. [Navy Contract N68711-93-D-1459, Delivery Order 24]

State of California, Water Resources Control Board. 1989. Leaking Underground Fuel Tank Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure.

United States Marine Corps Air Station, El Toro. 1997. Draft Final Record of Decision, Operable Units 2A and 3A, No Action Sites, Marine Corps Air Station, El Toro, California. September.

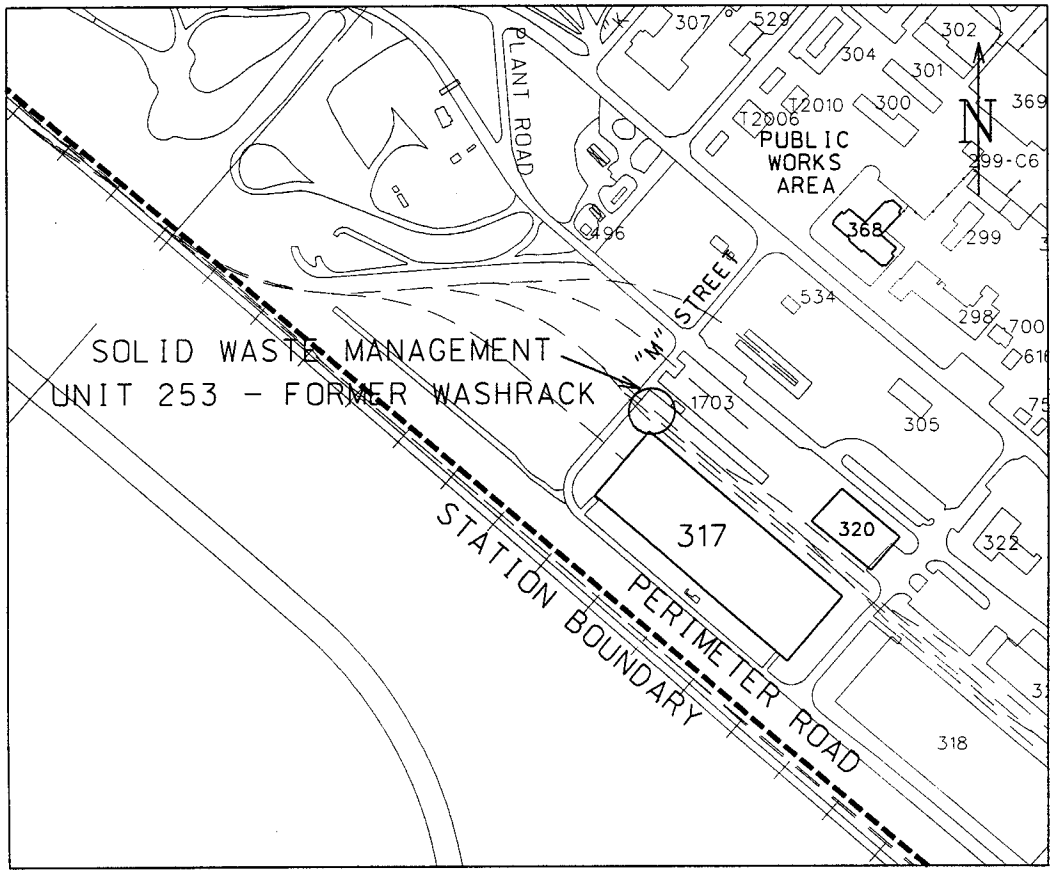
TABLE 1. Summary of Analytical Test Results for Solid Waste Management Unit (SWMU) 253- Former Washrack near Building 317

Marine Corps Air Station, El Toro

Soil Boring Number	Sample Depth (Feet Below Ground Surface)	Northing (feet) [North American Datum (NAD)]	Easting (feet) [North American Datum (NAD)]	Total Petroleum Hydrocarbons (TPH) (milligrams /kilogram) [Method 8015 Modified unless otherwise noted]	Benzene (B), Toluene (T), Ethylbenzene (E), and Xylenes (X), MTBE, and Other Analytes (as noted) (all concentrations in milligrams/kilogram unless otherwise noted)
Boring RFA253-HA01 (September 1998) Sample 20242-563	5	2188962	6107533	*Extractables* Diesel: ND JP-5: ND	BTEX: ND MTBE: ND Acetone: 7.1 ug/kg "J"
Sample 20242-564	10	"	"	*Extractables* Diesel: ND JP-5: ND	BTEX: ND MTBE: ND
Sample 20242-565	15	"	"	*Extractables* Diesel: ND JP-5: ND	BTEX: ND MTBE: ND TCE: 5.9 ug/kg "J" MIBK" 2.6 ug/kg "J"
Sample 20242-566 (field duplicate)	15	"	"	*Extractables* Diesel: ND JP-5: ND	BTEX: ND MTBE: ND Acetone: 6.9 ug/kg "J" TCE: 2.4 ug/kg "J"
Sample 20242-567	20	"	"	*Extractables* Diesel: ND JP-5: ND	BTEX: ND MTBE: ND Acetone: 7.1 ug/kg "J" 4,4'-DDE: 15 ug/kg 4,4'-DDD: 5.4 ug/kg 4,4'-DDT: 42 ug/kg

Explanation
ND Not Detected at or above laboratory reporting limit
J Result is below the laboratory reporting limit or is an estimated concentration

Figures



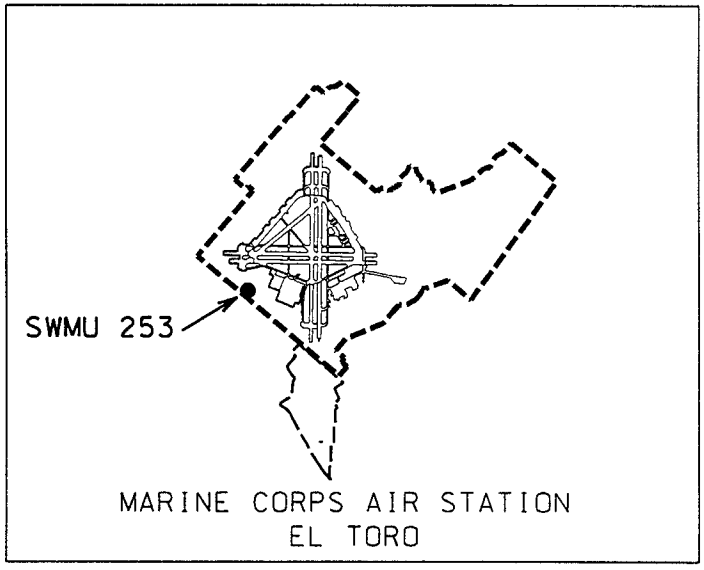
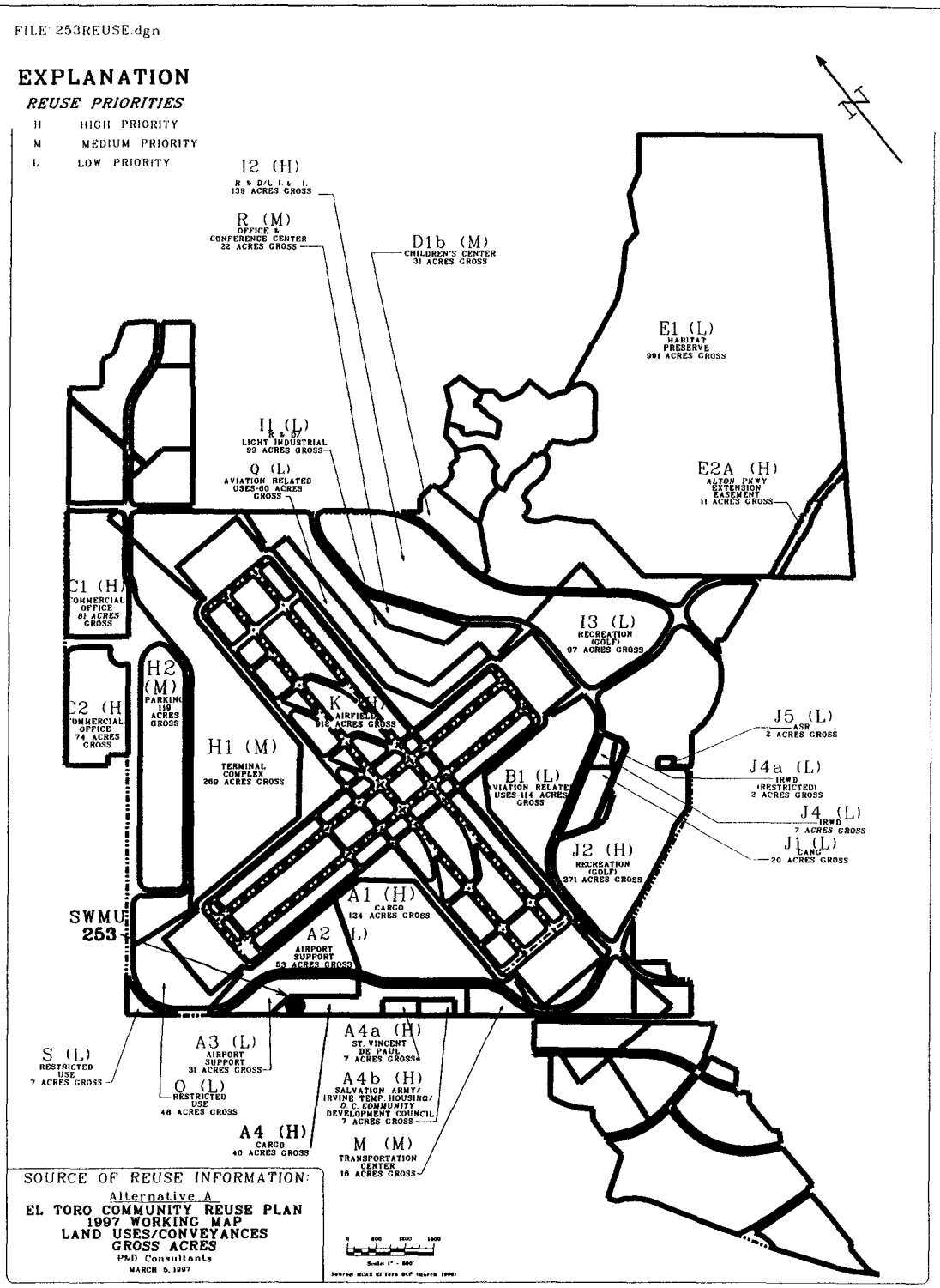


Figure 1.

SOLID WASTE MANAGEMENT UNIT (SWMU)
NUMBER 253 - FORMER WASHRACK

VICINITY MAP

MARINE CORPS AIR STATION, EL TORO



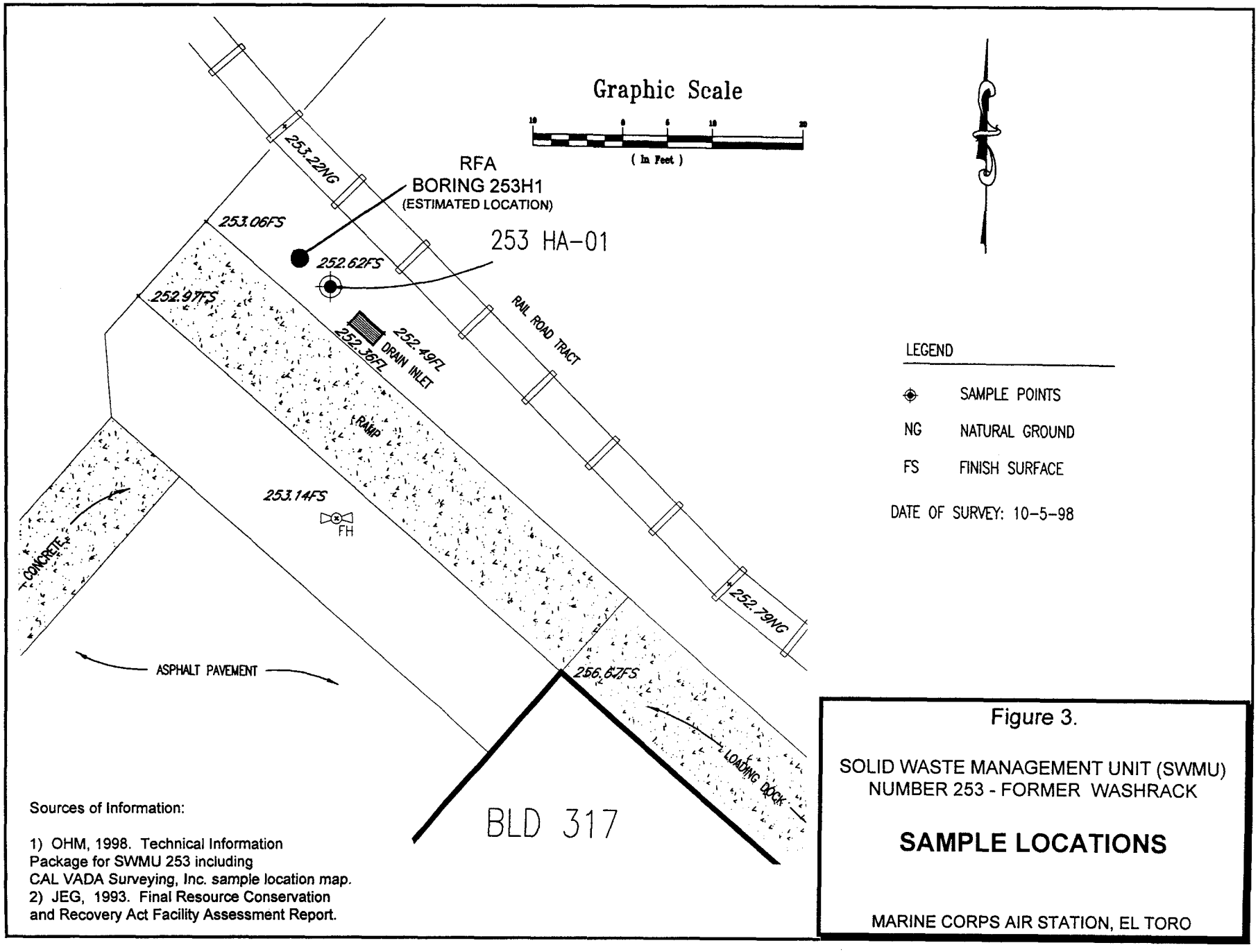
SOURCE:
COUNTY OF ORANGE, 1997.

Figure 2.

SOLID WASTE MANAGEMENT UNIT (SWMU) NUMBER 253 - FORMER WASHRACK

TENTATIVE REUSE PARCEL LOCATIONS

MARINE CORPS AIR STATION, EL TORO



Sources of Information:

1) OHM, 1998. Technical Information Package for SWMU 253 including CAL VADA Surveying, Inc. sample location map.
2) JEG, 1993. Final Resource Conservation and Recovery Act Facility Assessment Report.

Figure 3.

SOLID WASTE MANAGEMENT UNIT (SWMU) NUMBER 253 - FORMER WASHRACK

SAMPLE LOCATIONS

MARINE CORPS AIR STATION, EL TORO

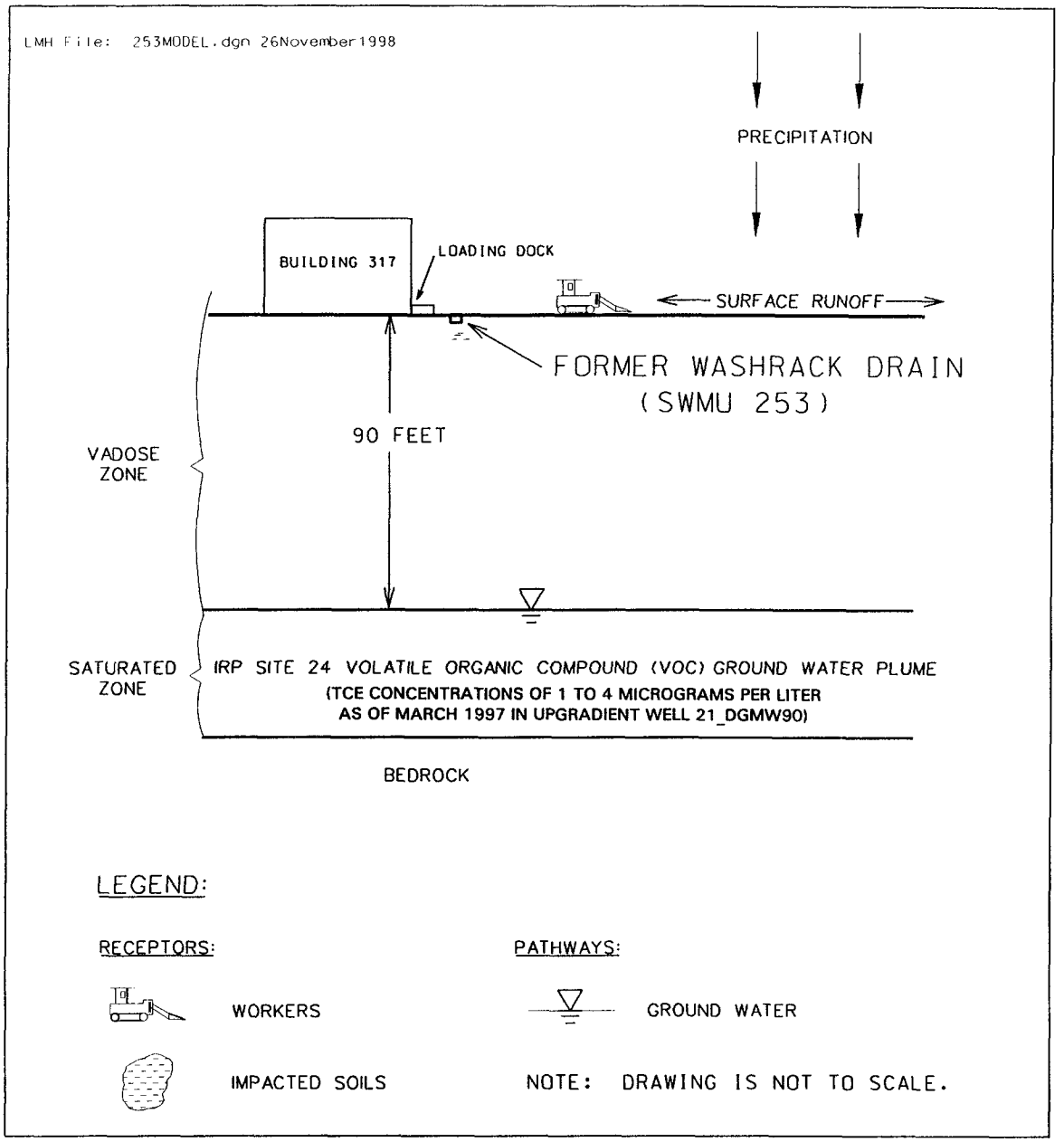


Figure 4.

SOLID WASTE MANAGEMENT UNIT (SWMU)
NUMBER 253 - FORMER WASHRACK

CONCEPTUAL SITE MODEL

MARINE CORPS AIR STATION, EL TORO

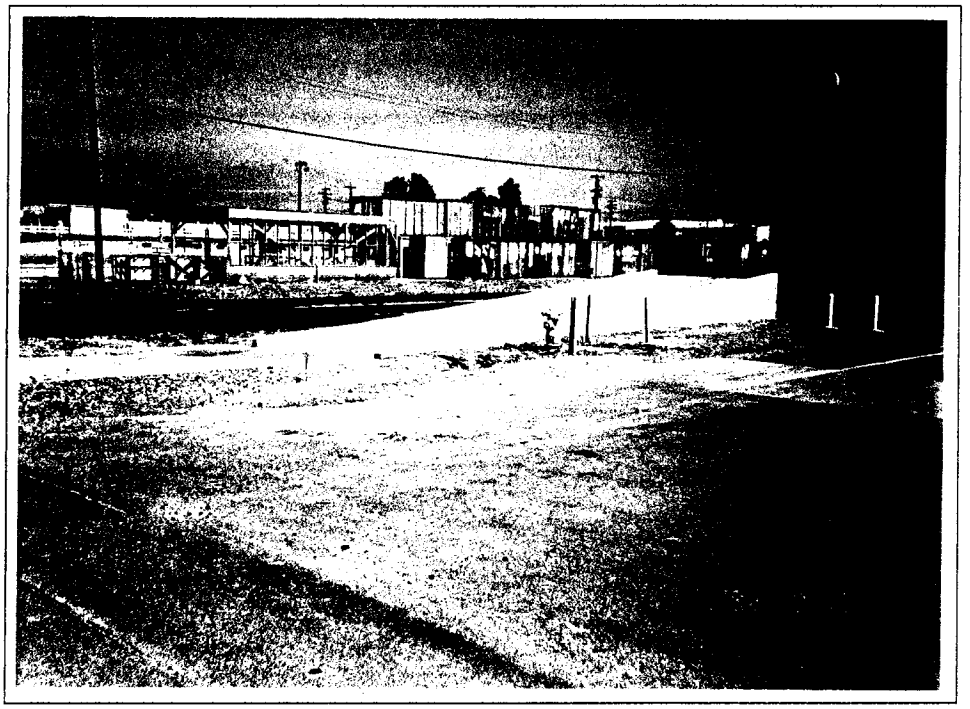
Appendices

Appendix A

Background Information

Site Photographs
Resource Conservation and Recovery Act Information
Extracts from the Comprehensive Environmental Response, Compensation, and Liability Act Record of Decision for No Action Sites, MCAS El Toro
Ground Water Information
Storm Sewer Locations
Building 317 Facility Information

Petroleum Corrective Action Program
Marine Corps Air Station, El Toro



Photograph 1. Former Washrack Site at Left End of Loading Dock
(Solid Waste Management Unit (SWMU) Number 253)
Date of Photograph: September 1998

Photograph 2. Former Washrack Drain (Storm Sewer Inlet) at Center of Photograph (SWMU 253)
Date of Photograph: September 1998

MARINE CORPS AIR STATION EL TORO
EL TORO, CALIFORNIA
INSTALLATION RESTORATION PROGRAM
FINAL RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) FACILITY ASSESSMENT REPORT

VOLUME I

16 July 1993

EXTRACTS

PREPARED BY:
Southwest Division, Naval Facilities
Engineering Command
1220 Pacific Highway
San Diego, California 92132-5190

THROUGH:
CONTRACT #N68711-89-D-9296
CTO #193
DOCUMENT CONTROL NO:
CLE-C01-01F193-S2-0001

WITH:
Jacobs Engineering Group Inc.
3655 Nobel Drive, Suite 200
San Diego, California 92122

In association with:
International Technology Corporation
CH2M HILL

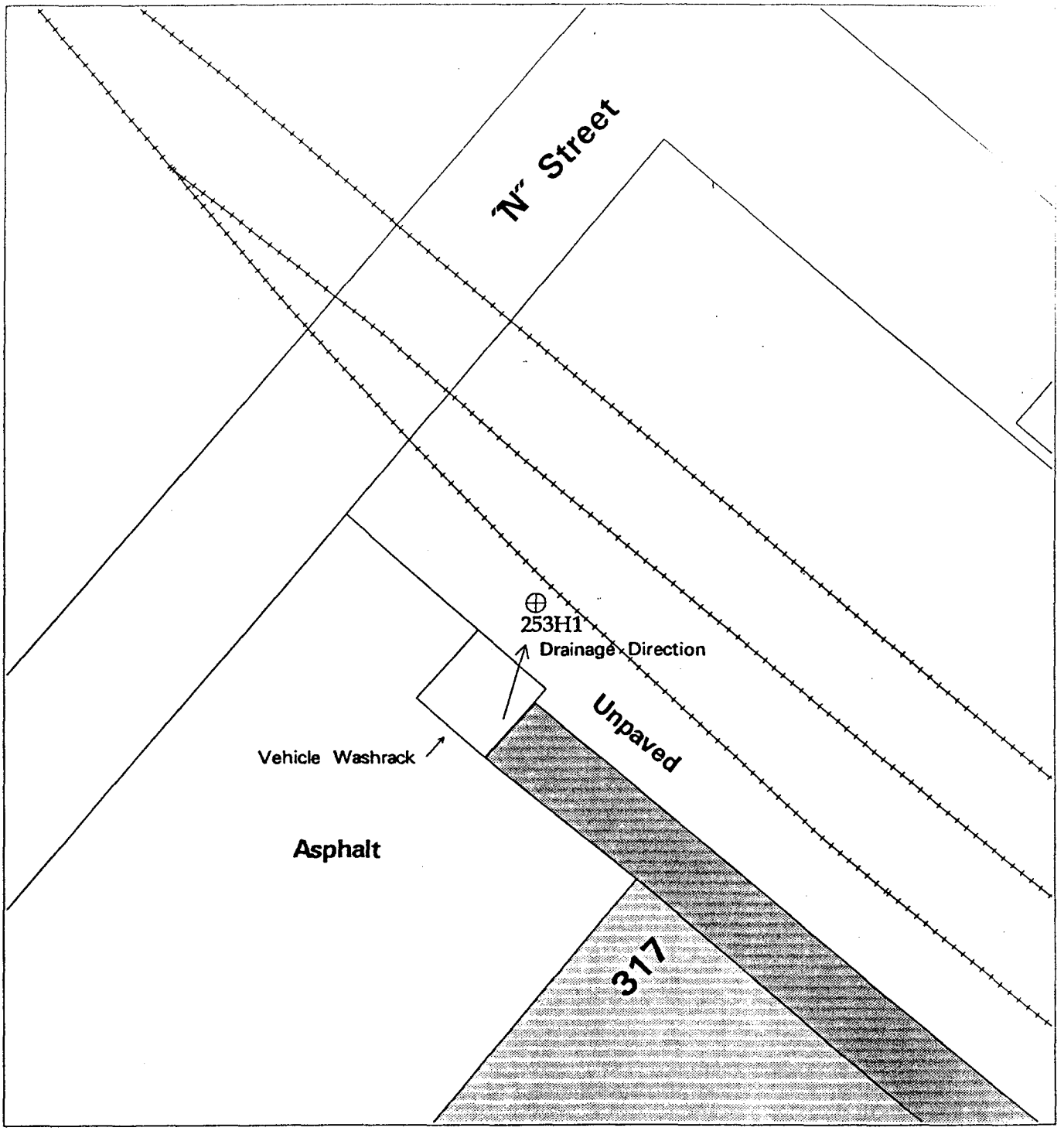


Figure 75 Sample Location Map

SWMU/AOC Number and Type:
253 - Vehicle Washrack

Boring Location and Number:

- 123H4 5′ Deep Boring
- 123B4 25′ Deep Boring
- 123A4 60′ Long, Angle Boring

Features:

- Building
- Concrete
- Fence
- Railroad

Scale

0 10 20 40 Feet

MCAS El Toro
RCRA Facility Assessment

MCAS EL TORO RCRA FACILITY ASSESSMENT – SAMPLING VISIT RESULTS

SWMU/AOC NUMBER	SWMU/AOC TYPE (FIGURE)	BORING NUMBER	SAMPLE DEPTH (FEET)	ANALYTICAL TEST RESULTS							RECOMMENDATIONS	
				TPH (mg/kg)	TFH (mg/kg)		VOCs (ug/kg)	SVOCs (ug/kg)	PESTICIDES/PCBs (ug/kg)	METALS (mg/kg)	Action	Rationale
					Gasoline	Diesel						
253	Wash Rack (75)	H1	2	ND	NA	NA	Methylene Chloride-11 BJ * Acetone-26 B *	NA	NA	NA	NFA	TPH/TFH < 100 ppm VOCs < CRDL
			2 (Duplicate)	ND	NA	NA	Methylene Chloride-12 B * Acetone-18 B *	NA	NA	NA		
			5	ND	NA	NA	Methylene Chloride-11 B * Acetone-20 B *	NA	NA	NA		CRDL - Contract Required Detection Limit

Evaluation Form
SWMU/Area of Concern
Number 253

Name: Vehicle Washrack

Location: Near Building 317

Size: Approximately 100 sq ft

Date of Site Visit: 01 May 1991

Unit Characteristics

A vehicle wash area was discovered during the visual site inspection for Building 317. Floor cleaning vehicles are washed at the base of the ramp leading to the loading dock near the northeast corner of Building 317. The vehicles use Tenant Detergent to clean the floor of the warehouse.

No drains exist near where the vehicles are washed. The water either evaporates from the concrete wash area or flows onto unpaved ground near the railroad tracks. There is a dark stain on the concrete ramp where the vehicles are washed.

Waste Characteristics

Oily water
Waste Tenant detergent

Possible Migration Pathways

Surface soil

Evidence of Release

Stained concrete ramp

Evaluation Form
SWMU/Area of Concern
Number 253

Exposure Potential

On-Station personnel

Recommendations

A sampling visit is recommended for this wash area since there is no containment of oily wash water which is able to reach unpaved soil.

TABLE 4-1
COMPREHENSIVE LIST OF SWMUs AND AREAS OF CONCERN
IDENTIFIED DURING THE PRELIMINARY REVIEW/VISUAL SITE INSPECTION
MCAS EL TORO RFA

SWMU	SMWU TYPE	SOURCE (1)	LOCATION/BUILDING	COMMENTS	DATE	SIZE	MATERIAL	CONTENTS
241	Drum Storage Area	k	155					
242	Hazardous Waste Storage Area	k	371					
243	Washrack	k	96					
244	PCB Spill Area	I	457					
245	Golf Course	I	464					
246	Golf Course Irrigation Tank	I	459					
247	Pipe Line	I	See Figure 1-2 of PR/VSI	From Sewage treatment plant to irrigation tank				
248	Oil/Water Separator	k	463					
249	Underground Storage Tank	k	463					
250	Underground Storage Tank	k	655					
251	Drum Storage Area	k	388					
252	Hazardous Waste Storage Area	k	398					
253	Vehicle Washrack	k	317					
254	Drum Storage Area	k	359					
255	Hazardous Waste Storage Area	k	606					
256	Hazardous Waste Storage Area	k	441					
257	Wash Water Runoff Site	k	575					
258	Wash Water Runoff Site	k	577					
259	Drum Storage Area	k	389					
260	Aboveground Storage Tank	k	389					
261	Drum Storage Area	k	390					
262	Fuel Storage Area	k	390					
263	Underground Storage Tank	k	374					
264	Equipment Storage Area	k	DRMO LOT #3					
265	Metal Plating Sewer Lines	I	See Figure 1-2 of PR/VSI					
266	Drum Storage Area	k	765					
267	Drop Tank Fuel Storage Area	k	605					
268	Vehicle Wash Rack	k	240					
269	Flammable Storage Locker	k	314					
270	Washrack	k	817					

TABLE 4-1
COMPREHENSIVE LIST OF SWMUs AND AREAS OF CONCERN
IDENTIFIED DURING THE PRELIMINARY REVIEW/VISUAL SITE INSPECTION
MCAS EL TORO RFA

SWMU	SMWU TYPE	SOURCE (1)	LOCATION/BUILDING	COMMENTS	DATE	SIZE	MATERIAL	CONTENTS
301	Mark Arrest System	m	East side of Runway 34R					
302	Mark Arrest System	m	West side of Runway 34R					
303	Underground Storage Tank	m	359					
304	Trenches inside Building 359	m	359					
305	Septic Tank	l	601			2,000 gal	Concrete	Sanitary Waste
306	Septic Tank	l	687			2,000 gal	Concrete	Sanitary Waste
307	Septic Tank	l	819		1986	2,200 gal	Concrete	Sanitary Waste

NOTES:

(1) SOURCE:

Current - Based on site visits Jan-Feb 1991

Past - Based on agency records review and miscellaneous records for MCAS El Toro as identified below:

a - Regional Water Quality Control Board, letter to Lt. Rehor (June 23, 1989)
b - SPCC map (no date)
c - Department of Health Services, 1980 Photographs
d - EPA, Region IX, Compliance Inspection Report, May 1987
e - interview
f - UST list EG & G Idaho, Inc., November 1990
l - Department of Conservation, California Division of Oil and Gas, Long Beach
j - Per MCAS El Toro List of Oil/Water Separators
k - Observed during VSI
l - Other
m - Per Navy direction (added during SV)

(2) SWMU/AOC was not able to be accurately located and/or identified from the records review information and the site visits.

EXTRACTS

DRAFT FINAL
RECORD OF DECISION
OPERABLE UNITS 2A AND 3A
NO ACTION SITES
MARINE CORPS AIR STATION
EL TORO, CALIFORNIA

SEPTEMBER 1997

DECLARATION

DECLARATION

SITE NAME AND LOCATION

Marine Corps Air Station (MCAS) El Toro
Operable Unit-3A, Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, and 22
Operable Unit-2A, Site 25
Orange County, California

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, 22, and 25 at MCAS El Toro in Orange County, California. The document was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the administrative record file for these sites.

The State of California (through the California Environmental Protection Agency, Department of Toxic Substances Control, and Santa Ana Regional Water Quality Control Board) and the U.S. Environmental Protection Agency concur with the selected remedy.

DESCRIPTION OF THE SELECTED REMEDY: NO ACTION

The selected remedy for Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, 22, and 25 is no action. In selecting the no action remedy for these sites, the Navy has determined that the existing condition of the sites is protective of human health and the environment.

Although no deed restrictions are required because of chemicals present in soils at the no action sites, shallow groundwater underlying Sites 9, 10, 13, 15, 21, 22, and portions of Site 25 is contaminated by trichloroethene and tetrachloroethene. Remedial investigations have shown that the contamination does not originate from these sites but from Site 24, the volatile organic compound source area. Use restrictions for several sites (including Site 24 and the no action sites listed above) prohibiting drilling of wells and/or extraction of groundwater and allowing access for groundwater monitoring and maintenance of equipment associated with groundwater remediation will be addressed in the Proposed Plan(s) and Record(s) of Decision for Operable Unit-1 and -2A regarding groundwater.

DECLARATION STATEMENT

Based on extensive field investigations, laboratory analyses, and a thorough assessment of potential human-health risks at each location and of potential ecological risks at Site 25, the Navy has determined that no remedial action is necessary to assure the protection of human health and the environment at Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, 22, and 25. The Remedial Investigations of these sites show that contamination is limited to the shallow soil interval (Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, and 22) and to sediment and

surface water (Site 25). The human health and ecological risk assessments show that the chemicals present in these media do not present an unacceptable risk to human health or the environment. Therefore, no remedial action is required at these sites. Since hazardous substances are not present at concentrations above unacceptable levels, CERCLA Section 121 cleanup standards do not apply.

Signature: _____ Date: Sept 23, 1997
Mr. Joseph Joyce
Base Closure and Realignment Environmental Coordinator
Marine Corps Air Station El Toro

Signature: _____ Date: Sept. 26, 1997
Mr. John E. Scandifio, Chief
Southern California Operations
Office of Military Facilities
Department of Toxic Substances Control

Signature: _____ Date: 9/29/97
Mr. Daniel D. Opalski, Chief
Federal Facilities Cleanup Branch
United States Environmental Protection Agency, Region IX

Signature: _____ Date: 9/30/97
Mr. Gerald J. Thiebesult
Executive Officer
Regional Water Quality Control Board, Santa Ana Region

surface water (Site 25). The human health and ecological risk assessments show that the chemicals present in these media do not present an unacceptable risk to human health or the environment. Therefore, no remedial action is required at these sites. Since hazardous substances are not present at concentrations above unacceptable levels, CERCLA Section 121 cleanup standards do not apply.

Signature: _____ Date:_____

Mr. Joseph Joyce
Base Closure and Realignment Environmental Coordinator
Marine Corps Air Station El Toro

Signature: _____ Date:_____

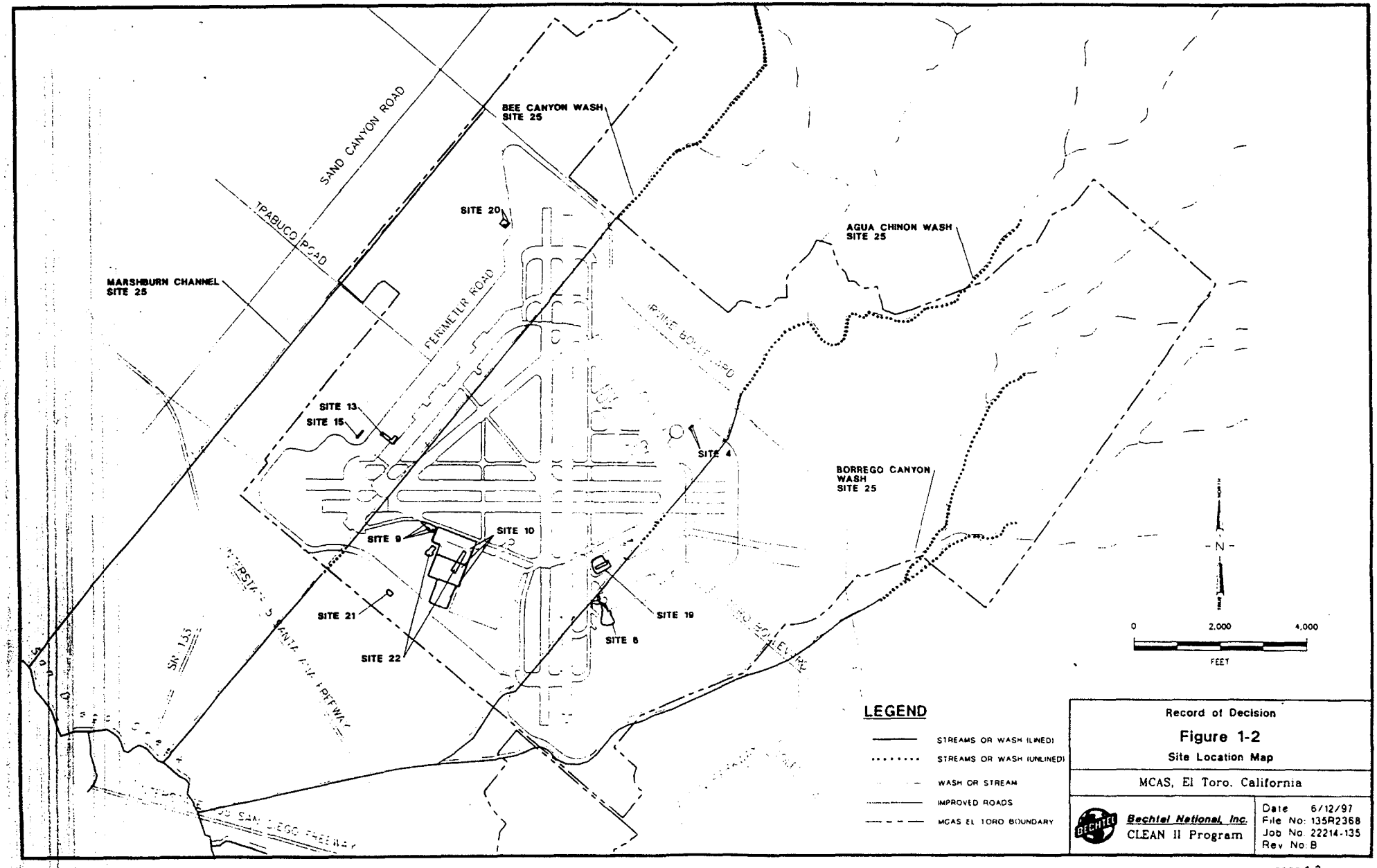
Mr. John E. Scandura, Chief
Southern California Operations
Office of Military Facilities
Department of Toxic Substances Control

Signature: _____ Date:_____

Mr. Daniel D. Opalski, Chief
Federal Facilities Cleanup Branch
United States Environmental Protection Agency, Region IX

Signature: _____ Date:_____

Mr. Gerald J. Thiebeault
Executive Officer
Regional Water Quality Control Board, Santa Ana Region



Record of Decision

Figure 1-2

Site Location Map

MCAS, El Toro, California

Bechtel National, Inc.
CLEAN II Program

Date 6/12/97
File No: 135R2368
Job No: 22214-135
Rev No: B

Table 5-10 (continued)

Chemical	Number of Analyses	Number of Detections	Range of Positive Detections	Arithmetic Mean
UNIT 2				
Volatile Organic Compounds				
2-butanone	3	3	0.003 – 0.005	0.00367
2-hexanone	1	1	0.004	0.004
2-methylnaphthalene	10	2	8.3 – 29	4.03
Naphthalene	12	1	5.4	0.737
Toluene	8	1	0.009	0.00613
Semivolatile Organic Compounds				
Isophorone	9	1	7.1	1.12
Metals				
Aluminum	8	8	5,170 – 18,000	11,000
Barium	8	8	57 – 178	130
Chromium	8	8	4.4 – 16.3	11.1
Cobalt	8	8	3.5 – 13.6	7.2
Copper	8	8	3.5 – 11.7	8
Manganese	8	8	94.5 – 319	239
Nickel	8	8	4.2 – 13.4	9.06
Vanadium	8	8	12.7 – 52.8	35.4
Zinc	8	8	17.7 – 63.5	45.5

Site 22 included VOCs, SVOCs, TPH, pesticides, and metals above MCAS El Toro background levels.

5.11 SITE 25

Site 25 consists of four main drainage channels that flow through or adjacent to the Station. The site was included in the IRP because it was not known whether the major drainages were acting as a source of regional VOC contamination in the Irvine Groundwater Subbasin. Investigation data presented in the draft final Phase II RI for Site 24 demonstrated that Site 24, not Site 25, is responsible for the observed VOC groundwater contamination.

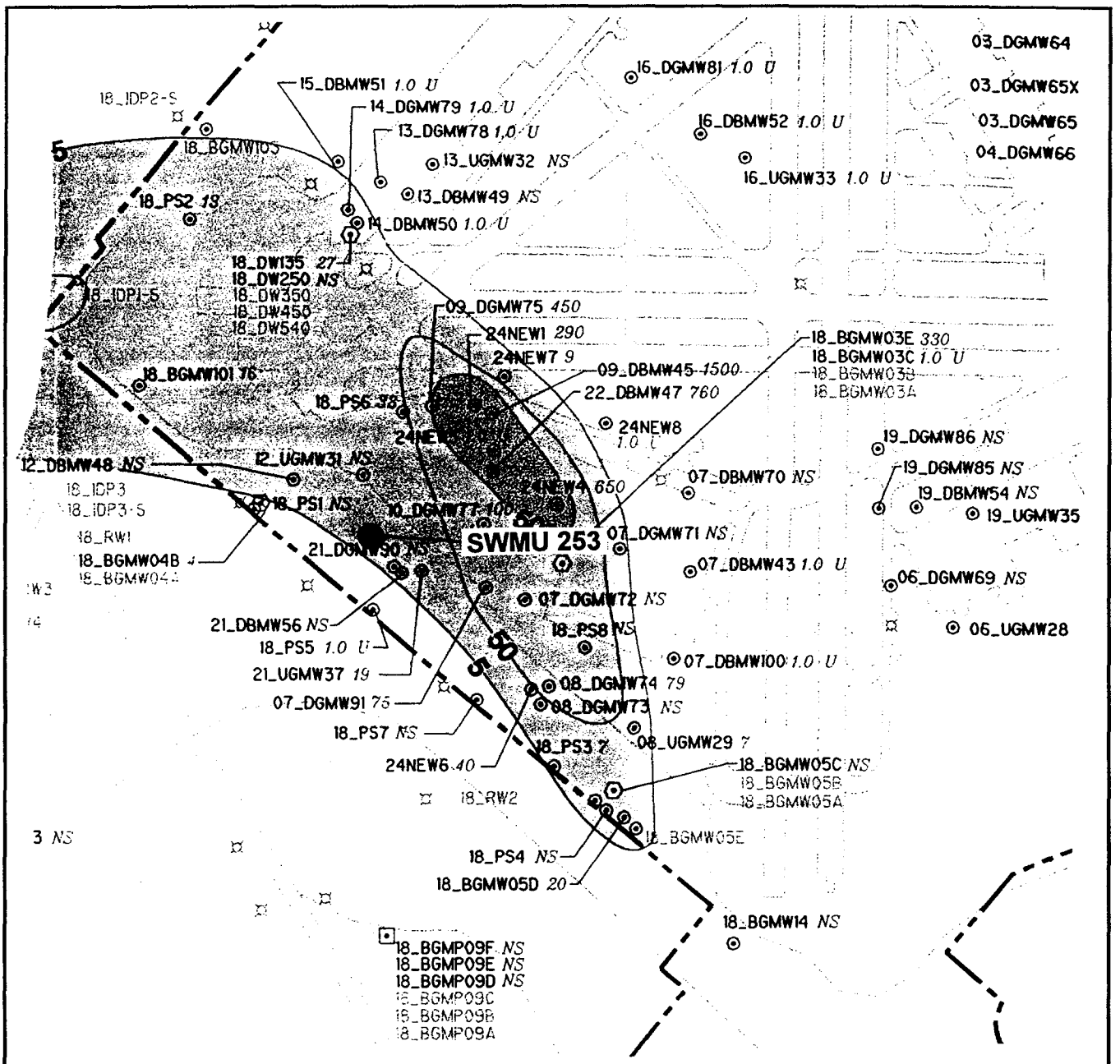
Phase I sampling consisted of 36 surface water samples, 29 sediment samples, and 60 soil samples. Soil gas samples were also collected at depths between 5 and 30 feet bgs at 27 locations near Agua Chinon and Bee Canyon Washes. Phase II samples were taken in the same media to confirm and supplement Phase I results.

- Thirteen surface water samples were taken from all four drainages. Both upstream and downstream locations were sampled in order to evaluate the impact of runoff from the Station.

- Sediment samples were collected at two locations along Marshburn Channel.
- Thirty-four soil samples were collected from four soil borings. Three of the four borings were located adjacent to the downstream end of Agua Chinon Wash. The fourth boring was located near the downstream end of Bee Canyon Wash.
- Ten soil gas samples were taken from three locations along Agua Chinon Wash at depths between 47 and 90 feet bgs. Soil gas samples were used to assess potential contribution of the drainages to the regional VOC contamination.

Tables 5-11 and 5-12 summarize the results of surface-water sampling at San Diego Creek and sediment sampling at Agua Chinon Wash, Bee Canyon Wash, Borrego Canyon Wash, and Marshburn Channel, respectively. These data were used for the human-health and ecological risk assessments as discussed in Section 6. Results of soil sampling are not presented because, as discussed in Section 6 of this report, there is no complete exposure pathway to chemicals in soil below 2 feet at Site 25.

Soil and soil gas analytical results were evaluated to characterize the potential contribution of the Site 25 drainages to the regional VOC groundwater contamination. Of the 94 soil samples collected during the Phase I and Phase II RIs, none had reportable concentrations of TCE or PCE. Chemicals detected in soil gas included TCE, PCE, cis-1,2-dichloroethene, trans-1,2-dichloroethene, toluene, xylenes, and total volatile hydrocarbons. TCE was reported in 3 of 68 soil gas samples at a maximum concentration of 53.1 micrograms per liter (µg/L). PCE was reported in 1 of 68 soil gas samples at a maximum concentration of 1.6 µg/L. Based on these findings and the high concentrations of TCE and PCE in soil and soil gas at Site 24, it was concluded that Site 24, not Site 25, is the source of the regional groundwater contamination.



NOTE: CONTOURS REPRESENT TCE CONCENTRATIONS IN MICROGRAMS PER LITER IN GROUND WATER AS OF JULY 1997.
SOURCE OF DATA: CDM, 1997.

Approximate Scale: 1 inch = 1,500 feet

EXHIBIT A-1.

SOLID WASTE MANAGEMENT UNIT (SWMU) NUMBER 253 - FORMER WASHRACK

GROUND WATER CONDITIONS

MARINE CORPS AIR STATION, EL TORO

FINAL

EXTRACTS

GROUNDWATER MONITORING REPORT
JULY 1997 SAMPLING ROUND

GROUNDWATER MONITORING PROGRAM
FOR
MARINE CORPS AIR STATION EL TORO
EL TORO, CALIFORNIA

Contract No. N68711-96-D-2029
Delivery Order 005

Prepared for:

SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 Pacific Highway
San Diego, California 92132

Prepared by:

CDM FEDERAL PROGRAMS CORPORATION
3760 Convoy Street, Suite 210
San Diego, California 92111

October 1997

Table 4-2: RESULTS OF TOTAL PETROLEUM HYDROCARBON ANALYSES
MCAS El Toro Groundwater Monitoring Program

			TPH Analyses		
Well No.	Screen Interval (ft BGS)	Sample Date	**Gasoline** PQL= 50 ug/L	**Diesel** PQL= 250 ug/L	BTEX Compounds Detected
18_BGMW12	165 - 205	25-Nov-96	ND	ND	none
		20-Mar-97	ND	ND	none
18_BGMW16	223 - 263	14-Nov-96	ND	ND	none
		26-Mar-97	ND	ND	none
18_BGMW18	140 - 180	9-Jan-97	ND	ND	none
18_BGMW22	247 -287	14-Nov-96	ND	ND	none
		20-Mar-97	ND	ND	none
18_BGMW19B	400 - 420	4-Nov-96	ND	ND	none
		10-Mar-97	ND	ND	none
18_BGMW19E	98 - 138	20-Nov-96	ND	ND	none
		20-Mar-97	ND	ND	none
18_DW250	215 - 250	5-Nov-96	ND	ND	none
		7-Mar-97	ND	ND	none
18_DW350	310 - 350	6-Nov-96	ND	ND	none
		6-Mar-97	ND	ND	none
18_DW450	420 - 460	5-Nov-96	ND	ND	none
		6-Mar-97	ND	ND	none
18_PS5	106 - 126	11-Nov-96	ND	ND	none
		17-Mar-97	ND	ND	none
		17-Mar-97	ND	ND	none
20_UGMW36	183 - 223	14-Nov-96	ND	ND	none
		27-Mar-97	ND	ND	none

EXPLANATION

TPH = Total Petroleum Hydrocarbons, results in micrograms per liter (ug/L)

BTEX = benzene, toluene, ethylbenzene, and xylenes

PQL = practical quantitation limit, ND = not detected at or above the PQL

Table 4-1: SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS
MCAS El Toro Groundwater Monitoring Program

Station ID	Base Screen Depth (Ft BGS)	Sample Date	PRIMARY VOCs DETECTED AND REGULATORY STANDARDS – All Results in Micrograms per Liter (ug/L)												OTHER VOCs DETECTED	
			TCE 5.0	PCE 5.0	CCl_4 0.5	1,1-DCE 6.0	1,2-DCE (total)	Chloroform 100.0	Chloro-methane	Benzene 1.0	Toluene 100.0	Ethyl-benzene 680.0	Xylenes (total) 1750.0	Freon-113	Compound	Concent.
18_MCAS10	375	11-Jul-89	0.5 U	0.5 U	0.5 U		0.5 U	9.7			0.5 U	0.5 U				
		7-Nov-89	0.5 U	0.5 U	0.5 U		0.5 U	9.7			0.5 U	0.5 U				
		31-Jan-90	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		20-Jul-90	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		18-Nov-90	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		3-Feb-91	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		2-Mar-91	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		12-Jul-91	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		7-Dec-91	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		12-Feb-92	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		8-May-92	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		5-Aug-92	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		27-Aug-92	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		2-Dec-92	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		11-Apr-93	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 J	1.0 U	1.0 U	1.0 U	1.0 U			
		23-Apr-93	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
		29-Nov-94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
		6-Jul-95	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
		19-Jan-96	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	16.0	1.0 U	1.0 U	10.0 U		
		24-Jan-96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
		14-Jul-96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
		19-Nov-96	3.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		19-Jan-97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
		18-Mar-97	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		18-Mar-97	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		14-Jul-97	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
18_PS1	122	15-Dec-88	19.0	0.5 U	0.3		0.5 U	0.5 U			0.5 U	0.5 U			CHLOROBENZENE	0.3
		22-Jan-89	7.0	0.5 U	0.4		0.5 U	0.5 U			0.5 U	0.5 U				
		7-Feb-93	3.0	0.8 J	1.0 J	1.0 U	1.0 U	2.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		19-Jan-96	2.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	18.0	1.0 U	1.0 U	10.0 U		
		25-Nov-96	15.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		17-Mar-97	3.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		17-Mar-97	3.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
18_PS2	133	16-Dec-88	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		22-Jan-89	0.5 U	0.5 U	0.5 U		0.5 U	0.2			0.5 U	0.5 U				
		15-Dec-92	0.9 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		7-Dec-93	2.0	1.0 U	1.0 U	1.0 U	1.0 U	0.7 J	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		18-Jan-96	4.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	35.0	1.0 U	1.0 U	10.0 U		
		25-Nov-96	2.0	1.0 U	1.0 U	1.0 U	0.7 J	1.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		25-Mar-97	[illegible]	0.5 J	1.0 U	1.0 U	1.0 U	1.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		7-Jul-97	[illegible]	1.0 U	1.0 U	1.0 U	0.7 J	1.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		

Table 4-1: SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS
MCAS El Toro Groundwater Monitoring Program

Station ID	Base Screen Depth (Ft BGS)	Sample Date	PRIMARY VOCs DETECTED AND REGULATORY STANDARDS – All Results in Micrograms per Liter (ug/L)												OTHER VOCs DETECTED	
			TCE 5.0	PCE 5.0	CCl_4 0.5	1,1-DCE 6.0	1,2-DCE (total)	Chloroform 100.0	Chloro-methane	Benzene 1.0	Toluene 100.0	Ethyl-benzene 680.0	Xylenes (total) 1750.0	Freon-113	Compound	Concent.
18_PS3	122	13-Dec-88	[illegible]	[illegible]	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		23-Jan-89	[illegible]	[illegible]	0.4		0.5 U	12.0			0.5 U	0.5 U			1,1,2-TRICHLOROETHANE	0.9 J
		12-Oct-92	[illegible]	[illegible]	1.0 U	0.4 J	2.0	2.0	0.8 J	1.0 U	1.0 U	1.0 U	1.0 U			
		6-Jul-93	[illegible]	[illegible]	1.0 U	1.0 U	1.0 U	2.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		1,1,2-TRICHLOROETHANE	2.0
		22-Feb-96	[illegible]	[illegible]	1.0 U	1.0 U	1.0 U	3.0	10.0 U	1.0 U	5.0	1.0 U	1.0 U	10.0 U	BROMODICHLOROMETHANE	2.0
		8-Jan-97	[illegible]	[illegible]	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	METHYLENE CHLORIDE	2.0
		14-Mar-97	[illegible]	[illegible]	1.0 U	1.0 U	0.7 J	3.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		11-Jul-97	[illegible]	[illegible]	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
18_PS4	118	22-Jan-89	[illegible]	[illegible]	0.5 U		0.5 U	3.1			0.5 U	0.5 U				
		12-Nov-92	[illegible]	[illegible]	1.0 U	1.0 U	3.0	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		1,1,2-TRICHLOROETHANE	0.6 J
		6-Jul-93	[illegible]	[illegible]	1.0 U	1.0 U	1.0 U	0.9 J	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		21-Feb-96	[illegible]	[illegible]	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	4.0	1.0 U	1.0 U	10.0 U		
		5-Dec-96	[illegible]	[illegible]	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	METHYLENE CHLORIDE	2.0
		5-Dec-96	[illegible]	[illegible]	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	METHYLENE CHLORIDE	1.0
		14-Mar-97	[illegible]	[illegible]	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
18_PS5	126	23-Jan-89	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			0.5 U	0.5 U				
		16-Dec-92	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		6-Aug-93	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	0.8 J	1.0 U	1.0 U		BROMODICHLOROMETHANE	0.6 J
		22-Jan-96	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	19.0	1.0 U	1.0 U	10.0 U		
		11-Nov-96	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 J		
		17-Mar-97	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		17-Mar-97	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		11-Jul-97	1.0 U	4.0	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
18_PS6	150	23-Jan-89	11.0	0.4	1.3		0.5 U	7.7			0.5 U	0.5 U				
		15-Dec-92	3.0	1.0	1.0	1.0 U	1.0 U	2.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		26-Jan-96	[illegible]	3.0	1.0 U	1.0 U	1.0 U	1.0	10.0 U	1.0 U	9.0	1.0 U		10.0 U		
		25-Nov-96	[illegible]	[illegible]	0.8 J	1.0 U	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		25-Nov-96	[illegible]	[illegible]	1.0 J	1.0 U	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		25-Mar-97	[illegible]	[illegible]	2.0 U	2.0 U	2.0 U	2.0 J	20.0 U	2.0 U	2.0 U	2.0 U	2.0 U	20.0 U	METHYLENE CHLORIDE	10.0
		1-Jul-97	[illegible]	[illegible]	0.9 J	1.0 U	1.0 U	1.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
18_PS7	126	23-Jan-89	0.5 U	0.5 U	0.5 U		0.5 U	0.1			0.5 U	0.5 U				
		16-Dec-92	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		7-Feb-93	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		22-Jan-96	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	23.0	1.0 U	1.0 U	10.0 U		
		8-Nov-96	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		14-Mar-97	0.6 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	METHYLENE CHLORIDE	1.0

Table 4-1: SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS
MCAS El Toro Groundwater Monitoring Program

Station ID	Base Screen Depth (Ft BGS)	Sample Date		PRIMARY VOCs DETECTED AND REGULATORY STANDARDS – All Results in Micrograms per Liter (ug/L)												OTHER VOCs DETECTED	
				TCE 5.0	PCE 5.0	CCl_4 0.5	1,1-DCE 6.0	1,2-DCE (total)	Chloroform 100.0	Chloro-methane	Benzene 1.0	Toluene 100.0	Ethyl-benzene 680.0	Xylenes (total) 1750.0	Freon-113	Compound	Concent.
21_DBMW56	132	18-Nov-92		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0	1.0 U	1.0 U	1.0 U	1.0 U			
		24-Jun-93		0.7 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0					3.0 JN		
		15-Feb-96		[illegible]	1.0	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	7.0	1.0 U	1.0 U	10.0 U		
		13-Nov-96		[illegible]	4.0	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		25-Mar-97		[illegible]	4.0	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
21_DGMW90	135	18-Dec-92		1.0	0.8 J	1.0 U	1.0 U	1.0 U	0.6 J	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		METHYLENE CHLORIDE	0.6 J
		6-Oct-93		3.0	1.0	1.0 U	1.0 U	1.0 U	3.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		2-Feb-96		3.0	2.0	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		26-Nov-96	*	3.0	2.0	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 J	METHYLENE CHLORIDE	1.0
		20-Mar-97	*	4.0	3.0	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
21_UGMW37	130	13-Nov-92		[illegible]	7.0	1.0 U	1.0 U	1.0 U	1.0	4.0	1.0 U	1.0 U	1.0 U	1.0 U			
		7-Jul-93		[illegible]	4.0	1.0 U	1.0 U	1.0 U	0.8 J	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		12-Feb-96		[illegible]	4.0	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	12.0	1.0 U	1.0 U	10.0 U		
		11-Nov-96		[illegible]	[illegible]	1.0 U	1.0 U	2.0	1.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	METHYLENE CHLORIDE	1.0
		25-Mar-97		[illegible]	[illegible]	1.0 U	1.0 U	2.0	1.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		9-Jul-97		[illegible]	[illegible]	1.0 U	1.0 U	1.0	1.0 J	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		9-Jul-97		[illegible]	[illegible]	1.0 U	1.0 U	0.8 J	1.0 J	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
22_DBMW47	156	29-Sep-92		[illegible]	7.0	5.0	1.0 U	1.0 U	3.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		13-Jul-93		[illegible]	4.0	5.0	2.0	1.0 U	2.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		15-Feb-96		[illegible]	2.0	3.0	1.0	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		2-Dec-96		[illegible]	5.0	3.0	3.0	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	15.0		
		24-Mar-97		[illegible]	3.0	3.0	3.0	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.0 J		
		8-Jul-97		[illegible]	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U		
		8-Jul-97		[illegible]	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U	10.0 U	10.0 U	10.0 U	10.0 U	100.0 U		
24_NEW1	245	30-Oct-95		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0	10.0 U	0.4 J	0.8 J	1.0 U	0.3 J	10.0 U	ACETONE	5.0
																BROMODICHLOROMETHANE	2.0
																BROMOFORM	0.5 J
																DIBROMOCHLOROMETHANE	2.0
		2-Nov-95		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.4 J	10.0 U	1.0 U	2.0	0.6 J	3.0	10.0 U	DIBROMOCHLOROMETHANE	0.4 J
		2-Dec-96		[illegible]	2.0	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		24-Mar-97		[illegible]	0.8 J	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		10-Jul-97		[illegible]	1.0	1.0 U	1.0 U	1.0 U	0.8 J	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 J		

Table B-1: WATER LEVEL MEASUREMENTS AND GROUNDWATER ELEVATIONS
MCAS El Toro Groundwater Monitoring Program

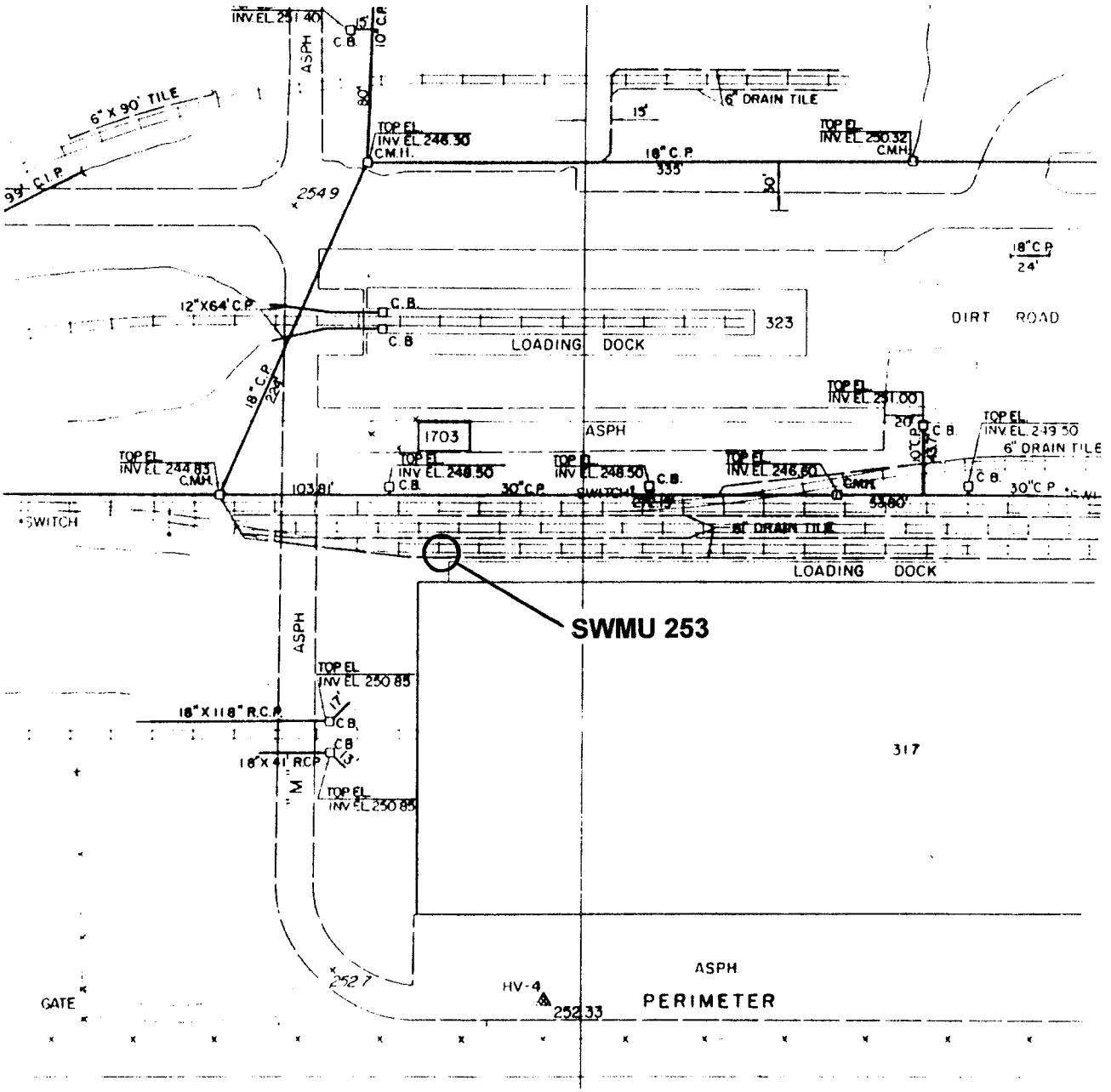
STATION ID	WELL TYPE	SCREEN INTERVAL (feet BGS)	TOP OF CASING (feet MSL)	MEASUREMENT DATE	DEPTH TO WATER (feet TOC)	WATER LEVEL ELEVATION (feet MSL)	CHANGE FROM PRIOR (+ or - feet)
18_MCAS09	DP	372 - 445	77.50	12-Jan-96	4.89	72.61	
			77.50	16-Jan-96	6.63	70.87	-1.74
			77.50	27-Mar-96	6.63	70.87	0.00
			77.50	27-Nov-96	25.42	52.08	-18.79
			77.50	26-Dec-96	26.10	51.40	-0.68
			77.50	26-Jan-97	23.90	53.60	2.20
			77.50	26-Feb-97	3.80	73.70	20.10
			77.50	27-Mar-97	25.00	52.50	-21.20
			77.50	26-Jun-97	42.65	34.85	-17.65
			77.50	11-Aug-97	55.65	21.85	-13.00
18_MCAS10	DP	355 - 375	102.10	11-Jan-96	16.06	86.04	
			102.10	19-Jan-96	18.47	83.63	-2.41
			102.10	27-Mar-96	16.12	85.98	2.35
			102.10	1-Nov-96	56.65	45.45	-40.53
			102.10	27-Nov-96	38.68	63.42	17.97
			102.10	27-Dec-96	39.20	62.90	-0.52
			102.10	26-Jan-97	38.85	63.25	0.35
			102.10	26-Feb-97	18.09	84.01	20.76
			102.10	27-Mar-97	37.90	64.20	-19.81
			102.10	26-Jun-97	53.40	48.70	-15.50
			102.10	11-Aug-97	64.70	37.40	-11.30
18_PS1	SH	102 - 122	247.99	11-Jan-96	86.98	161.01	
			247.99	19-Jan-96	86.90	161.09	0.08
			247.99	26-Feb-96	86.65	161.34	0.25
			247.99	27-Mar-96	86.41	161.58	0.24
			247.99	31-Oct-96	86.61	161.38	-0.20
			247.99	26-Nov-96	86.36	161.63	0.25
			247.99	26-Dec-96	86.42	161.57	-0.06
			247.99	23-Jan-97	86.12	161.87	0.30
			247.99	27-Mar-97	85.68	162.31	0.44
			247.99	26-Jun-97	86.02	161.97	-0.34
			247.99	11-Aug-97	86.25	161.74	-0.23
18_PS2	SH	103 - 133	246.73	11-Jan-96	99.50	147.23	
			246.73	18-Jan-96	99.42	147.31	0.08
			246.73	26-Feb-96	98.96	147.77	0.46
			246.73	27-Mar-96	98.62	148.11	0.34
			246.73	31-Oct-96	99.18	147.55	-0.56
			246.73	27-Nov-96	99.08	147.65	0.10
			246.73	26-Dec-96	99.04	147.69	0.04
			246.73	23-Jan-97	98.58	148.15	0.46
			246.73	27-Feb-97	97.91	148.82	0.67
			246.73	27-Mar-97	89.10	157.63	8.81
			246.73	26-Jun-97	98.68	148.05	-9.58
			246.73	11-Aug-97	98.86	147.87	-0.18
18_PS3	SH	102 - 122	266.47	11-Jan-96	87.30	179.17	
			266.47	22-Feb-96	84.10	182.37	3.20
			266.47	28-Feb-96	84.06	182.41	0.04
			266.47	27-Mar-96	83.84	182.63	0.22
			266.47	26-Feb-97	83.30	183.17	0.54
			266.47	27-Jun-97	83.56	182.91	-0.26
			266.47	12-Aug-97	83.66	182.81	-0.10

Table B-1: WATER LEVEL MEASUREMENTS AND GROUNDWATER ELEVATIONS
MCAS El Toro Groundwater Monitoring Program

STATION ID	WELL TYPE	SCREEN INTERVAL (feet BGS)	TOP OF CASING (feet MSL)	MEASUREMENT DATE	DEPTH TO WATER (feet TOC)	WATER LEVEL ELEVATION (feet MSL)	CHANGE FROM PRIOR (+ or - feet)
18_PS4	SH	98 - 118	264.53	12-Jan-96	79.85	184.68	
			264.53	21-Feb-96	76.50	188.03	3.35
			264.53	28-Feb-96	76.45	188.08	0.05
			264.53	27-Mar-96	76.25	188.28	0.20
			264.53	31-Oct-96	77.26	187.27	-1.01
			264.53	27-Nov-96	77.75	186.78	-0.49
			264.53	26-Dec-96	76.40	188.13	1.35
			264.53	24-Jan-97	76.13	188.40	0.27
			264.53	26-Feb-97	75.84	188.69	0.29
			264.53	27-Mar-97	75.70	188.83	0.14
			264.53	27-Jun-97	75.96	188.57	-0.26
			264.53	12-Aug-97	76.08	188.45	-0.12
18_PS5	SH	106 - 126	255.14	12-Jan-96	88.01	167.13	
			255.14	22-Jan-96	88.11	167.03	-0.10
			255.14	28-Feb-96	87.90	167.24	0.21
			255.14	27-Mar-96	87.62	167.52	0.28
			255.14	31-Oct-96	87.89	167.25	-0.27
			255.14	27-Nov-96	88.25	166.89	-0.36
			255.14	26-Dec-96	87.76	167.38	0.49
			255.14	24-Jan-97	87.43	167.71	0.33
			255.14	26-Feb-97	86.90	168.24	0.53
			255.14	27-Mar-97	86.93	168.21	-0.03
			255.14	27-Jun-97	87.22	167.92	-0.29
			255.14	12-Aug-97	87.65	167.49	-0.43
18_PS6	SH	130 - 150	269.09	11-Jan-96	111.45	157.64	
			269.09	26-Jan-96	111.34	157.75	0.11
			269.09	26-Feb-96	110.97	158.12	0.37
			269.09	27-Mar-96	110.70	158.39	0.27
			269.09	1-Nov-96	112.52	156.57	-1.82
			269.09	27-Nov-96	110.80	158.29	1.72
			269.09	26-Dec-96	110.82	158.27	-0.02
			269.09	24-Jan-97	110.31	158.78	0.51
			269.09	27-Feb-97	109.83	159.26	0.48
			269.09	27-Mar-97	110.07	159.02	-0.24
			269.09	26-Jun-97	110.60	158.49	-0.53
			269.09	11-Aug-97	110.70	158.39	-0.10
18_PS7	SH	106 - 126	260.00	11-Jan-96	88.10	171.90	
			260.00	22-Jan-96	87.28	172.72	0.82
			260.00	28-Feb-96	87.06	172.94	0.22
			260.00	27-Mar-96	86.85	173.15	0.21
			260.00	31-Oct-96	87.11	172.89	-0.26
			260.00	27-Nov-96	87.75	172.25	-0.64
			260.00	26-Dec-96	86.98	173.02	0.77
			260.00	24-Jan-97	86.66	173.34	0.32
			260.00	26-Feb-97	86.38	173.62	0.28
			260.00	27-Mar-97	86.22	173.78	0.16
			260.00	27-Jun-97	86.50	173.50	-0.28
			260.00	12-Aug-97	86.60	173.40	-0.10
18_PS8	SH	125 - 145	282.84	11-Jan-96	103.82	179.02	
			282.84	26-Jan-96	103.18	179.66	0.64
			282.84	26-Feb-96	103.42	179.42	-0.24
			282.84	27-Mar-96	103.57	179.27	-0.15
			282.84	1-Nov-96	105.10	177.74	-1.53
			282.84	27-Nov-96	103.04	179.80	2.06
			282.84	26-Dec-96	103.15	179.69	-0.11
			282.84	24-Jan-97	102.80	180.04	0.35
			282.84	26-Feb-97	102.66	180.18	0.14
			282.84	27-Mar-97	102.36	180.48	0.30
			282.84	26-Jun-97	102.52	180.32	-0.16
			282.84	12-Aug-97	102.59	180.25	-0.07

Table B-1: WATER LEVEL MEASUREMENTS AND GROUNDWATER ELEVATIONS
MCAS El Toro Groundwater Monitoring Program

STATION ID	WELL TYPE	SCREEN INTERVAL (feet BGS)	TOP OF CASING (feet MSL)	MEASUREMENT DATE	DEPTH TO WATER (feet TOC)	WATER LEVEL ELEVATION (feet MSL)	CHANGE FROM PRIOR (+ or - feet)
21_DBMW56	WT	92 - 132	256.06	11-Jan-96	90.07	165.99	
			256.06	15-Feb-96	89.84	166.22	0.23
			256.06	27-Feb-96	89.84	166.22	0.00
			256.06	27-Mar-96	89.60	166.46	0.24
			256.06	30-Oct-96	89.58	166.48	0.02
			256.06	26-Nov-96	89.44	166.62	0.14
			256.06	26-Dec-96	89.53	166.53	-0.09
			256.06	26-Feb-97	88.95	167.11	0.58
			256.06	27-Mar-97	88.85	167.21	0.10
			256.06	26-Jun-97	89.04	167.02	-0.19
			256.06	11-Aug-97	89.19	166.87	-0.15
21_DGMW90	WT	95 - 135	255.35	11-Jan-96	90.08	165.27	
			255.35	2-Feb-96	90.16	165.19	-0.08
			255.35	27-Feb-96	90.08	165.27	0.08
			255.35	27-Mar-96	89.78	165.57	0.30
			255.35	30-Oct-96	89.68	165.67	0.10
			255.35	26-Nov-96	89.78	165.57	-0.10
			255.35	26-Dec-96	89.64	165.71	0.14
			255.35	23-Jan-97	89.40	165.95	0.24
			255.35	26-Feb-97	88.88	166.47	0.52
			255.35	27-Mar-97	88.84	166.51	0.04
			255.35	26-Jun-97	89.20	166.15	-0.36
			255.35	11-Aug-97	89.34	166.01	-0.14
21_UGMW37	WT	89 - 130	257.87	11-Jan-96	91.28	166.59	
			257.87	12-Feb-96	90.93	166.94	0.35
			257.87	27-Feb-96	89.95	167.92	0.98
			257.87	27-Mar-96	90.68	167.19	-0.73
			257.87	30-Oct-96	90.68	167.19	0.00
			257.87	26-Nov-96	90.50	167.37	0.18
			257.87	26-Dec-96	90.60	167.27	-0.10
			257.87	23-Jan-97	90.24	167.63	0.36
			257.87	26-Feb-97	90.00	167.87	0.24
			257.87	25-Mar-97	89.94	167.93	0.06
			257.87	26-Jun-97	90.10	167.77	-0.16
			257.87	11-Aug-97	90.25	167.62	-0.15
22_DBMW47	WT	116 - 156	277.83	11-Jan-96	114.43	163.40	
			277.83	15-Feb-96	113.95	163.88	0.48
			277.83	28-Feb-96	114.01	163.82	-0.06
			277.83	27-Mar-96	113.66	164.17	0.35
			277.83	30-Oct-96	113.93	163.90	-0.27
			277.83	26-Nov-96	113.57	164.26	0.36
			277.83	26-Dec-96	113.58	164.25	-0.01
			277.83	23-Jan-97	113.08	164.75	0.50
			277.83	27-Feb-97	112.45	165.38	0.63
			277.83	27-Mar-97	112.70	165.13	-0.25
			277.83	26-Jun-97	113.30	164.53	-0.60
			277.83	11-Aug-97	113.36	164.47	-0.06
24_NEW01	SH	225 - 245	281.10	31-Oct-96	123.51	157.59	
			281.10	26-Nov-96	118.78	162.32	4.73
			281.10	26-Dec-96	116.70	164.40	2.08
			281.10	23-Jan-97	115.26	165.84	1.44
			281.10	27-Feb-97	114.18	166.92	1.08
			281.10	27-Mar-97	120.28	160.82	-6.10
			281.10	26-Jun-97	122.25	158.85	-1.97
			281.10	12-Aug-97	122.44	158.66	-0.19



Approximate Scale: 1 inch = 100 feet

Source of Information:

1) MCAS El Toro. Storm Sewer Map for Area 27.

EXHIBIT A-2.

SOLID WASTE MANAGEMENT UNIT (SWMU) NUMBER 253 - FORMER WASHRACK

STORM SEWER LOCATIONS

MARINE CORPS AIR STATION, EL TORO

BLDG C L A S S 2 P R O P E R T Y R E C O R D

TIME: 04:29:27 DATE: 95/07/01

(004) UIC..M60050
MCAS EL TORO SANTA ANA CA

(001) PR NO.....200525
(005) FACILITY NO..317 ←
(106) SPEC AREA....

(604) EXCESS CODE..
(605) EXCESS DATE..

PR LAST UPDATED....14 JUN 1995

L O C A T I O N

(101) COUNTRY..US UNITED STATES
(102) STATE....06 CALIFORNIA
(103) COUNTY...059 ORANGE
(104) CITY.....0000
(107) MAP GRID.U7

GENERAL I N F O R M A T I O N

(007) ACTION.....CAP-IMPROV
(008) FAM HOUSING....NO
(009) EE DATE.....08 MAR 1993
(011) PR REVIEW DATE.18 MAY 1990
+(010) FACILITY NAME..
DECA ADMIN

A C Q U I S I T I O N

(201) ESTATE.....11 MCON
(202) ACQ CONTRACT...NOY10151
(203) ACQ DATE.....01 APR 1945
(204) GOVT COST..... $813,730
(CONST, DESIGN, OVERHEAD & OTHER)
(205) APPR/EST.....
(206) APPR/EST DATE..
(207) LAND CCN.....91140
(014) NATO JFAI.....

I N G R A N T S

(208) DOD INSTL.....
(209) RENT PAID.....
(210) REF PR NO.....
(211) IG EFF DATE....
(212) IG EXP DATE....
(213) IG MAX TERM....
(233) IG EFD CONTR...
(234) IG LESSOR NAME.

M E A S U R E M E N T S

		ENGLISH	METRIC
(301)	LENGTH....	603 FT	184 M
(302)	WIDTH.....	232 FT	71 M
(303)	HEIGHT....	39 FT	12 M
(304)/(308)	AREA/UM...	126,322 SF	11,735 m2
(305)	STORIES...	01	
(307)	IRREGULAR.	YES	

C O N S T R U C T I O N

(401) YEAR BUILT.....1945
(402) CONSTRUCTION TYPE..SEMI-PERM
(403) YEAR IMPROVED.....1990
(404) ABMP CODE.....
(409) CURR PROJ ID...
(411) ORIG PROJ ID...
(410) HISTORIC IND...

M A I N T E N A N C E

(701) MAINT UIC..M60050 (702) PRIME USE....44111 (703) MFC...4 USMC

BLDG C L A S S 2 P R O P E R T Y R E C O R D

TIME: 04:29:27 DATE: 95/07/01

(C-O-N-T-I-N-U-A-T-I-O-N)

(004) UIC..M60050
MCAS EL TORO SANTA ANA CA

(001) PR NO.....200525
(005) FACILITY NO..317
(106) SPEC AREA....

(604) EXCESS CODE..
(605) EXCESS DATE..

PR LAST UPDATED....14 JUN 1995

S T A T U S / U T I L I Z A T I O N

+(502) CATEGORY CODE...44111 (501) USE..MC PROPERTY GROUP
(510) USER UIC.....M60050.....MCAS EL TORO SANTA ANA CA
(511) USE LAST UPDATED.14 JUN 1995

ENGLISH	AREA/SF*	OTHER/TC		ALT/SH		DEF CODES
ADEQ(515)	...105,460.00	(516)		(517)		(524)
SBST(518)		(519)		(520)		(525)
INAD(521)		(522)		(523)		(526)
TOTAL	105,460.00					

METRIC	AREA/m2*	OTHER/m3		ALT/m		
ADEQ(515)	.....9,797.55	(516)		(517)		(524)
SBST(518)		(519)		(520)		(525)
INAD(521)		(522)		(523)		(526)
TOTAL METRIC	9,797.55					

---

(502) CATEGORY CODE...61010 (501) USE..ADMIN OFF/DECA
(510) USER UIC.....M60050.....MCAS EL TORO SANTA ANA CA
(511) USE LAST UPDATED.13 MAR 1995

ENGLISH	AREA/SF*	OTHER/		ALT/		DEF CODES
ADEQ(515)	....20,862.00	(516)		(517)		(524)
SBST(518)		(519)		(520)		(525)
INAD(521)		(522)		(523)		(526)
TOTAL	20,862.00					

METRIC	AREA/m2*	OTHER/		ALT/		
ADEQ(515)	.....1,938.14	(516)		(517)		(524)
SBST(518)		(519)		(520)		(525)
INAD(521)		(522)		(523)		(526)
TOTAL METRIC	1,938.14					

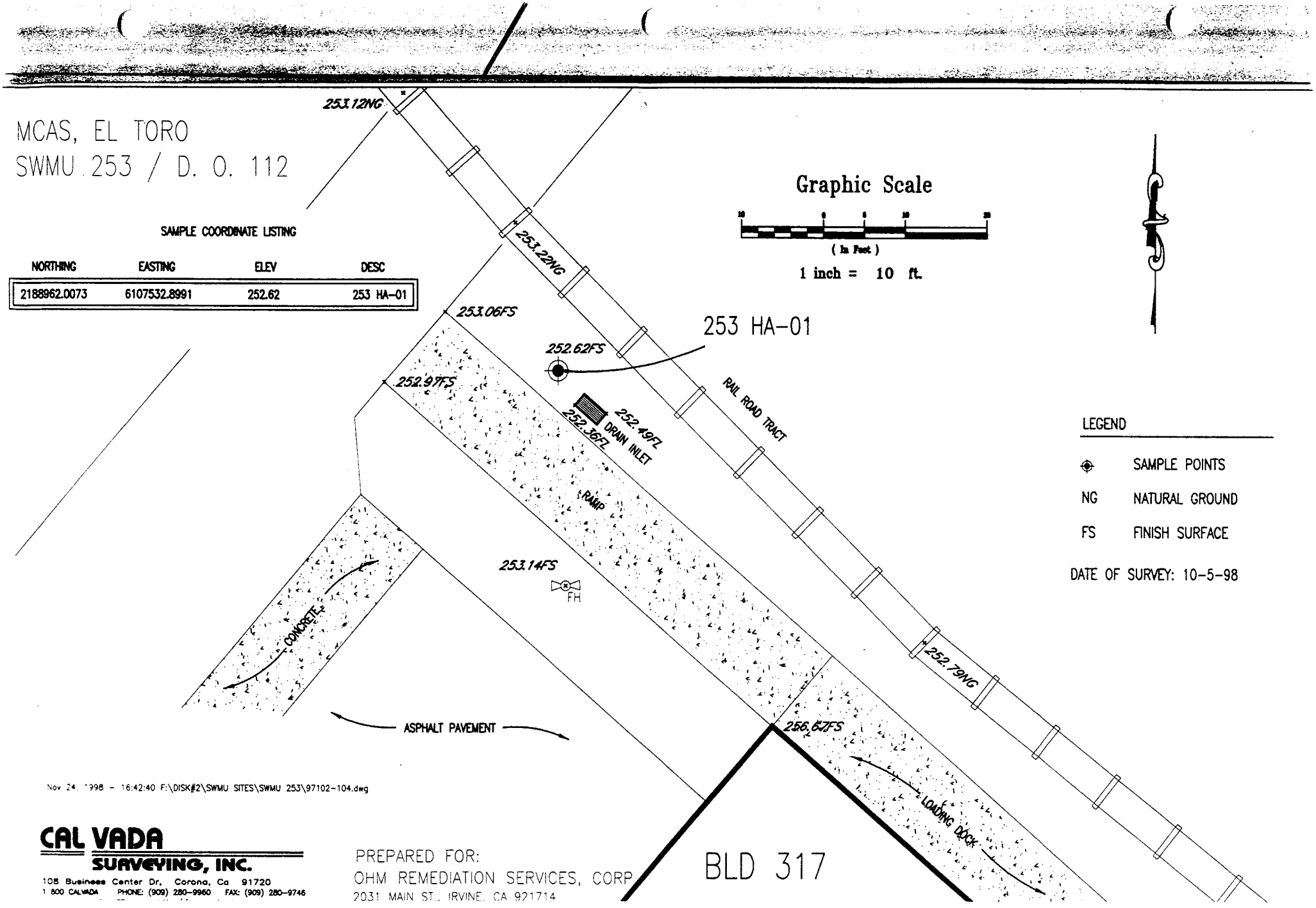
Appendix B

Site Verification Documentation

MCAS, EL TORO
SWMU 253 / D. O. 112

SAMPLE COORDINATE LISTING

NORTHING	EASTING	ELEV	DESC
2188962.0073	6107532.8991	252.62	253 HA-01



Nov 24, 1998 - 16:42:40 F:\DISK#2\SWMU SITES\SWMU 253\97102-104.dwg

CAL VADA SURVEYING, INC.
108 Business Center Dr, Corona, Ca 91720
1 800 CALVADA PHONE: (909) 280-9960 FAX: (909) 280-9746

PREPARED FOR:
OHM REMEDIATION SERVICES, CORP
2031 MAIN ST., IRVINE, CA 921714

Quanterra Incorporated
1721 South Grand Avenue
Santa Ana, California 92705

714 258-8610 Telephone
714 258-0921 Fax

ORIGINAL

Quanterra
Environmental Services

RECEIVED
OCT 21 1998

October 15, 1998

QUANTERRA INCORPORATED PROJECT NUMBER: 134105
PO/CONTRACT: El Toro MCAS, DO# 112, Project 20242

Mary Schneider
OHM Remediation Services
2031 Main Street
Irvine, CA 92714-6509

Dear Ms. Schneider,

This report contains the analytical results for the six samples received under chain of custody by Quanterra Incorporated on September 21, 1998. These samples are associated with your El Toro MCAS DO# 112 project.

The case narrative is an integral part of this report.

Preliminary results were sent via facsimile on September 28, 1998.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Keith Aleckson
Project Manager

CC: Project File

COMPLETED 9/25

OHM Remediation Services Corp.
Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

PROJECT DATA MANAGER'S COPY
217207
FORM 0019 REV. 2-97

OHM's LAB COORDINATOR: D. Ishida	LAB COORDINATOR'S PHONE: (714) 263-1146	LAB COORDINATOR'S FAX: 475-5433	LABORATORY SERVICE ID: 134105	LABORATORY CONTACT:	MAIL REPORT (COMPANY NAME): OHM
PROJECT NAME: SWMU 253	PROJECT LOCATION: MCAS El Toro	PROJECT NUMBER: 20242	LABORATORY PHONE:	LABORATORY FAX:	RECIPIENT NAME: Mary Schneider
PROJECT CONTACT: D. Ishida	PROJECT PHONE NUMBER: (714) 451-1667	PROJECT FAX: 451-1672	LABORATORY ADDRESS:		ADDRESS: 2031 Main St.
PROJECT ADDRESS: MCAS El Toro	CITY, STATE AND ZIPCODE: El Toro, CA	CLIENT: SWDIV	CITY, STATE AND ZIPCODE: Santa Ana, CA		CITY, STATE, AND ZIPCODE: Irvine, CA 92614
PROJECT MANAGER: Bill Sedlak	PROJECT MANAGER'S PHONE: 263-1146	PROJECT MANAGER'S FAX: 263-1147			Quanterra

Item #	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	T.A.T.	Analyses: ~~Total Petroleum~~	~~TPH - Ext~~	~~VOA + MTBE~~	8021 (post)	8260				Comments
1	20242-562	W	9/21/96	1230	4°/HCl	4	III	5d		X		X	X				
2	20242-563	S	↓	1245	4°	1	III	↓		X		X	X				
3	20242-564	S	↓	1314	4°	1	IV	↓		X		X	X				
4	20242-565	↓	↓	1345	↓	↓	III	↓		X		X	X				
5	20242-566	↓	↓	1346	↓	↓	↓	↓		X		X	X				
6	20242-567	↓	↓		↓	↓	↓	↓		X		X	X				
7																	
8																	
9																	
10																	

9/21/96

SAMPLES COLLECTED BY: D. Ishida
COURIER AND AIR BILL NUMBER: by OHM
COOLER TEMPERATURE UPON RECEIPT:

RELINQUISHED BY	RECEIVED BY	DATE	TIME	SAMPLE'S CONDITION UPON RECEIPT
		9/21/96	1530	

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

Project Information Section
For Project Personnel Only
Do Not Submit to Laboratory

SWMU

Sample Point Location	Sample Type G	C	F	QC
1 Rinsate				X
2 253-HA01 @ 5'			X	
3 253-HA01 @ 10'			X	
4 @ 15'			X	
5 @ 15' (field dup)				X
6 @ 20'			X	

Comments

Sample Type: G - Grab, C - Composite, F - Field Sample, QC - Quality Control Sample

OHM Remediation Services Corp
Subsidiary of OHM Corporation
U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY
217207
FORM 0019 REV. 2-97

OHM's LAB COORDINATOR: D. Ishida	LAB COORDINATOR'S PHONE: (714) 263-1146	LAB COORDINATOR'S FAX: 475-5433	LABORATORY SERVICE ID	LABORATORY CONTACT	MAIL REPORT (COMPANY NAME): OHM
PROJECT NAME: SWMU 253	PROJECT LOCATION: MCAS El Toro	PROJECT NUMBER: 20242	LABORATORY PHONE	LABORATORY FAX	RECIPIENT NAME: Mary Schneider
PROJECT CONTACT: D. Ishida	PROJECT PHONE NUMBER: (714) 451-1667	PROJECT FAX: 451-1672	LABORATORY ADDRESS		ADDRESS: 2031 Main St.
PROJECT ADDRESS: MCAS El Toro	CITY, STATE AND ZIPCODE: El Toro, CA	CLIENT: SWDIV	CITY, STATE AND ZIPCODE: Santa Ana, CA		CITY, STATE AND ZIPCODE: Irvine, CA 92614
PROJECT MANAGER: Bill Sedlak	PROJECT MANAGER'S PHONE: 263-1146	PROJECT MANAGER'S FAX: 263-1147			Quanterra

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	T.A.T	Analyses: ~~TPH - purgeable~~	~~TPH - ext~~	~~BTEX + MTBE~~	8081 (pest)	8260				Comments
1	20242-562	W	9/21/98	1230	4°/HCl	4	III	5d		X		X	X				
2	20242-563	S		1245	4°	1	III			X		X	X				
3	20242-564	S		1314	4°	1	IV			X		X	X				
4	20242-565			1345			III			X		X	X				
5	20242-566			1346						X		X	X				
6	20242-567									X		X	X				
7																	
8																	
9																	
10																	

9/21/98

SAMPLES COLLECTED BY: D. Ishida
COURIER AND AIR BILL NUMBER: by OHM
COOLER TEMPERATURE UPON RECEIPT:

RELINQUISHED BY	RECEIVED BY	DATE	TIME	SAMPLE'S CONDITION UPON RECEIPT
		9/21/98	150	
		9/21/98		

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

-5-

Total Extractable Petroleum Hydrocarbons
Method SW8015-Mod.

Client Name: OHM Remediation Services
Client ID: 20242-562
LAB ID: 134105-0001-SA
Matrix: WATER Sampled: 21 SEP 98 Received: 21 SEP 98
Authorized: 21 SEP 98 Prepared: 22 SEP 98 Analyzed: 23 SEP 98
Instrument: GC/FID-HOA Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Diesel Fuel #2	ND		1.0	0.10	mg/L
Jet Fuel-JP5	ND		1.0	0.10	mg/L
Unknown hydrocarbon	0.27	Jy1	1.0	--	mg/L

Surrogate	Recovery		Acceptable Range
Benzo(a)pyrene	102	%	65 - 125

1 = Carbon range= C10 to C22
J = Result is detected below the reporting limit or is an estimated concentration.
y = Chromatographic profile is not consistent with pattern(s) exhibited by reference fuel standards. Quantitation of unknown hydrocarbons in sample is based on diesel fuel.
ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method SW8015 Mod.

Client Name:	OHM Remediation Services		
Client ID:	20242-563		
LAB ID:	134105-0002-SA		
Matrix:	SOIL	Sampled: 21 SEP 98	Received: 21 SEP 98
Authorized:	21 SEP 98	Prepared: 22 SEP 98	Analyzed: 24 SEP 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	MDL	Units
Diesel Fuel #2	ND		11	5.6	mg/kg
Jet Fuel-JP5	ND		11	5.6	mg/kg
Unknown hydrocarbon	ND		11	--	mg/kg

Surrogate	Recovery		Acceptable Range
Benzo(a)pyrene	91	%	65 - 125

Percent moisture is 10.7%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method SW8015 Mod.

Client Name:	OHM Remediation Services		
Client ID:	20242-564		
LAB ID:	134105-0003-SA		
Matrix:	SOIL	Sampled: 21 SEP 98	Received: 21 SEP 98
Authorized:	21 SEP 98	Prepared: 22 SEP 98	Analyzed: 24 SEP 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	MDL	Units
Diesel Fuel #2	ND		11	5.7	mg/kg
Jet Fuel-JP5	ND		11	5.7	mg/kg
Unknown hydrocarbon	ND		11	--	mg/kg

Surrogate	Recovery		Acceptable Range
Benzo(a)pyrene	94	%	65 - 125

Percent moisture is 12.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method SW8015 Mod.

Client Name:	OHM Remediation Services		
Client ID:	20242-565		
LAB ID:	134105-0004-SA		
Matrix:	SOIL	Sampled: 21 SEP 98	Received: 21 SEP 98
Authorized:	21 SEP 98	Prepared: 22 SEP 98	Analyzed: 24 SEP 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	MDL	Units
Diesel Fuel #2	ND		12	6.1	mg/kg
Jet Fuel-JP5	ND		12	6.1	mg/kg
Unknown hydrocarbon	ND		12	--	mg/kg

Surrogate	Recovery		Acceptable Range
Benzo(a)pyrene	98	%	65 - 125

Percent moisture is 18.5%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method SW8015 Mod.

Client Name: OHM Remediation Services
Client ID: 20242-566
LAB ID: 134105-0005-SA
Matrix: SOIL Sampled: 21 SEP 98 Received: 21 SEP 98
Authorized: 21 SEP 98 Prepared: 22 SEP 98 Analyzed: 24 SEP 98
Instrument: GC/FID-HOA Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Diesel Fuel #2	ND		12	6.0	mg/kg
Jet Fuel-JP5	ND		12	6.0	mg/kg
Unknown hydrocarbon	ND		12	--	mg/kg

Surrogate	Recovery		Acceptable Range
Benzo(a)pyrene	100	%	65 - 125

Percent moisture is 16.9%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method SW8015 Mod.

Client Name: OHM Remediation Services
Client ID: 20242-567
LAB ID: 134105-0006-SA
Matrix: SOIL Sampled: 21 SEP 98 Received: 21 SEP 98
Authorized: 21 SEP 98 Prepared: 22 SEP 98 Analyzed: 24 SEP 98
Instrument: GC/FID-HOA Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Diesel Fuel #2	ND		11	5.6	mg/kg
Jet Fuel-JP5	ND		11	5.6	mg/kg
Unknown hydrocarbon	ND		11	--	mg/kg

Surrogate	Recovery		Acceptable Range
Benzo(a)pyrene	95	%	65 - 125

Percent moisture is 10.7%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Volatile Organic Compounds
Method SW8260B

Client Name: OHM Remediation Services
Client ID: 20242-562
LAB ID: 134105-0001-SA
Matrix: WATER Sampled: 21 SEP 98 Received: 21 SEP 98
Authorized: 21 SEP 98 Prepared: 25 SEP 98 Analyzed: 25 SEP 98
Instrument: GC/MS-MC Dilution: 5.0

Parameter	Result	Qualifier	RL	MDL	Units
Chloromethane	ND		10	1.5	ug/L
Vinyl chloride	ND		10	1.5	ug/L
Bromomethane	ND		10	2.5	ug/L
Chloroethane	ND		10	1.5	ug/L
Acetone	340		50	10	ug/L
1,1-Dichloroethene	ND		5.0	1.0	ug/L
Methylene chloride	ND		5.0	1.0	ug/L
Carbon disulfide	ND		5.0	1.5	ug/L
trans-1,2-Dichloroethene	ND		5.0	1.5	ug/L
1,1-Dichloroethane	ND		5.0	1.0	ug/L
cis-1,2-Dichloroethene	ND		5.0	1.5	ug/L
Chloroform	ND		5.0	1.0	ug/L
1,1,1-Trichloroethane	ND		5.0	1.0	ug/L
2-Butanone (MEK)	140		25	15	ug/L
Carbon tetrachloride	ND		5.0	1.5	ug/L
Vinyl acetate	ND		10	5.0	ug/L
1,2-Dichloroethane	ND		5.0	1.0	ug/L
Benzene	ND		5.0	1.5	ug/L
Trichloroethene	ND		5.0	1.0	ug/L
1,2-Dichloropropane	ND		5.0	1.0	ug/L
Bromodichloromethane	ND		5.0	1.0	ug/L
cis-1,3-Dichloropropene	ND		5.0	1.0	ug/L
Toluene	ND		5.0	1.0	ug/L
trans-1,3-Dichloropropene	ND		5.0	1.0	ug/L
2-Chloroethyl vinyl ether	ND		50	5.0	ug/L
1,1,2-Trichloroethane	ND		5.0	1.0	ug/L
4-Methyl-2-pentanone (MIBK)	ND		25	10	ug/L
MTBE	ND		25	2.5	ug/L
2-Hexanone	41		25	5.0	ug/L
Tetrachloroethene	ND		5.0	1.0	ug/L
Dibromochloromethane	ND		5.0	1.0	ug/L
Chlorobenzene	ND		5.0	1.5	ug/L
Ethylbenzene	ND		5.0	1.0	ug/L
Xylenes (total)	ND		5.0	3.5	ug/L
Styrene	ND		5.0	1.0	ug/L
Bromoform	ND		5.0	1.5	ug/L
1,1,2,2-Tetrachloroethane	ND		5.0	1.0	ug/L

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	104	%	62 - 139
Bromofluorobenzene	99	%	75 - 125
Toluene-d8	106	%	75 - 125
Dibromofluoromethane	111	%	75 - 125

ND = Not Detected

Volatile Organic Compounds
Method SW8260A

Client Name: OHM Remediation Services
Client ID: 20242-563
LAB ID: 134105-0002-SA
Matrix: SOIL Sampled: 21 SEP 98 Received: 21 SEP 98
Authorized: 21 SEP 98 Prepared: 23 SEP 98 Analyzed: 23 SEP 98
Instrument: GC/MS-MD Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Chloromethane	ND		11	3.4	ug/kg
Vinyl chloride	ND		11	2.2	ug/kg
Bromomethane	ND		11	2.2	ug/kg
Chloroethane	ND		11	2.2	ug/kg
Acetone	7.1	J	22	2.2	ug/kg
1,1-Dichloroethene	ND		5.6	2.2	ug/kg
Carbon disulfide	ND		5.6	2.2	ug/kg
Methylene chloride	ND		5.6	1.1	ug/kg
trans-1,2-Dichloroethene	ND		5.6	2.2	ug/kg
1,1-Dichloroethane	ND		5.6	1.1	ug/kg
cis-1,2-Dichloroethene	ND		5.6	2.2	ug/kg
Chloroform	ND		5.6	1.1	ug/kg
1,1,1-Trichloroethane	ND		5.6	1.1	ug/kg
2-Butanone (MEK)	ND		22	3.4	ug/kg
2-Hexanone	ND		22	3.4	ug/kg
Carbon tetrachloride	ND		5.6	1.1	ug/kg
Vinyl acetate	ND		11	2.2	ug/kg
1,2-Dichloroethane	ND		5.6	1.1	ug/kg
Benzene	ND		5.6	2.2	ug/kg
Trichloroethene	ND		5.6	2.2	ug/kg
1,2-Dichloropropane	ND		5.6	1.1	ug/kg
Bromodichloromethane	ND		5.6	1.1	ug/kg
cis-1,3-Dichloropropene	ND		5.6	1.1	ug/kg
Toluene	ND		5.6	2.2	ug/kg
trans-1,3-Dichloropropene	ND		5.6	1.1	ug/kg
2-Chloroethyl vinyl ether	ND		56	5.6	ug/kg
1,1,2-Trichloroethane	ND		5.6	1.1	ug/kg
1,2-Dibromoethane (EDB)	ND		5.6	1.1	ug/kg
4-Methyl-2-pentanone (MIBK)	ND		22	2.2	ug/kg
MTBE	ND		22	1.1	ug/kg
Tetrachloroethene	ND		5.6	2.2	ug/kg
Dibromochloromethane	ND		5.6	1.1	ug/kg
Chlorobenzene	ND		5.6	2.2	ug/kg
Ethylbenzene	ND		5.6	2.2	ug/kg
Xylenes (total)	ND		11	5.6	ug/kg
Styrene	ND		5.6	2.2	ug/kg
Bromoform	ND		5.6	1.1	ug/kg
1,1,2,2-Tetrachloroethane	ND		5.6	2.2	ug/kg

Percent moisture is 10.7%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Volatile Organic Compounds
Method SW8260A

(cont.)

Client Name: OHM Remediation Services
Client ID: 20242-563
LAB ID: 134105-0002-SA
Matrix: SOIL — Sampled: 21 SEP 98 — Received: 21 SEP 98
Authorized: 21 SEP 98 — Prepared: 23 SEP 98 — Analyzed: 23 SEP 98
Instrument: GC/MS-MD — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	91	%	52 - 149
Bromofluorobenzene	98	%	65 - 135
Toluene-d8	97	%	65 - 135
Dibromofluoromethane	102	%	65 - 135

Percent moisture is 10.7%. All results and limits are reported on a dry weight basis.

Volatile Organic Compounds
Method SW8260A

Client Name: OHM Remediation Services
Client ID: 20242-564
LAB ID: 134105-0003-SA
Matrix: SOIL — Sampled: 21 SEP 98 — Received: 21 SEP 98
Authorized: 21 SEP 98 — Prepared: 23 SEP 98 — Analyzed: 23 SEP 98
Instrument: GC/MS-MD — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Chloromethane	ND		11	3.4	ug/kg
Vinyl chloride	ND		11	2.3	ug/kg
Bromomethane	ND		11	2.3	ug/kg
Chloroethane	ND		11	2.3	ug/kg
Acetone	ND		23	2.3	ug/kg
1,1-Dichloroethene	ND		5.7	2.3	ug/kg
Carbon disulfide	ND		5.7	2.3	ug/kg
Methylene chloride	ND		5.7	1.1	ug/kg
trans-1,2-Dichloroethene	ND		5.7	2.3	ug/kg
1,1-Dichloroethane	ND		5.7	1.1	ug/kg
cis-1,2-Dichloroethene	ND		5.7	2.3	ug/kg
Chloroform	ND		5.7	1.1	ug/kg
1,1,1-Trichloroethane	ND		5.7	1.1	ug/kg
2-Butanone (MEK)	ND		23	3.4	ug/kg
2-Hexanone	ND		23	3.4	ug/kg
Carbon tetrachloride	ND		5.7	1.1	ug/kg
Vinyl acetate	ND		11	2.3	ug/kg
1,2-Dichloroethane	ND		5.7	1.1	ug/kg
Benzene	ND		5.7	2.3	ug/kg
Trichloroethene	ND		5.7	2.3	ug/kg
1,2-Dichloropropane	ND		5.7	1.1	ug/kg
Bromodichloromethane	ND		5.7	1.1	ug/kg
cis-1,3-Dichloropropene	ND		5.7	1.1	ug/kg
Toluene	ND		5.7	2.3	ug/kg
trans-1,3-Dichloropropene	ND		5.7	1.1	ug/kg
2-Chloroethyl vinyl ether	ND		57	5.7	ug/kg
1,1,2-Trichloroethane	ND		5.7	1.1	ug/kg
1,2-Dibromoethane (EDB)	ND		5.7	1.1	ug/kg
4-Methyl-2-pentanone (MIBK)	ND		23	2.3	ug/kg
MTBE	ND		23	1.1	ug/kg
Tetrachloroethene	ND		5.7	2.3	ug/kg
Dibromochloromethane	ND		5.7	1.1	ug/kg
Chlorobenzene	ND		5.7	2.3	ug/kg
Ethylbenzene	ND		5.7	2.3	ug/kg
Xylenes (total)	ND		11	5.7	ug/kg
Styrene	ND		5.7	2.3	ug/kg
Bromoform	ND		5.7	1.1	ug/kg
1,1,2,2-Tetrachloroethane	ND		5.7	2.3	ug/kg

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	97	%	52 - 149
Bromofluorobenzene	102	%	65 - 135
Toluene-d8	103	%	65 - 135
Dibromofluoromethane	106	%	65 - 135

Percent moisture is 12.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Volatile Organic Compounds
Method SW8260A

Client Name: OHM Remediation Services
Client ID: 20242-565
LAB ID: 134105-0004-SA
Matrix: SOIL — Sampled: 21 SEP 98 — Received: 21 SEP 98
Authorized: 21 SEP 98 — Prepared: 22 SEP 98 — Analyzed: 23 SEP 98
Instrument: GC/MS-MD — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Chloromethane	ND		12	3.7	ug/kg
Vinyl chloride	ND		12	2.5	ug/kg
Bromomethane	ND		12	2.5	ug/kg
Chloroethane	ND		12	2.5	ug/kg
Acetone	ND		25	2.5	ug/kg
1,1-Dichloroethene	ND		6.1	2.5	ug/kg
Carbon disulfide	ND		6.1	2.5	ug/kg
Methylene chloride	ND		6.1	1.2	ug/kg
trans-1,2-Dichloroethene	ND		6.1	2.5	ug/kg
1,1-Dichloroethane	ND		6.1	1.2	ug/kg
cis-1,2-Dichloroethene	ND		6.1	2.5	ug/kg
Chloroform	ND		6.1	1.2	ug/kg
1,1,1-Trichloroethane	ND		6.1	1.2	ug/kg
2-Butanone (MEK)	ND		25	3.7	ug/kg
2-Hexanone	ND		25	3.7	ug/kg
Carbon tetrachloride	ND		6.1	1.2	ug/kg
Vinyl acetate	ND		12	2.5	ug/kg
1,2-Dichloroethane	ND		6.1	1.2	ug/kg
Benzene	ND		6.1	2.5	ug/kg
Trichloroethene	5.9	J	6.1	2.5	ug/kg
1,2-Dichloropropane	ND		6.1	1.2	ug/kg
Bromodichloromethane	ND		6.1	1.2	ug/kg
cis-1,3-Dichloropropene	ND		6.1	1.2	ug/kg
Toluene	ND		6.1	2.5	ug/kg
trans-1,3-Dichloropropene	ND		6.1	1.2	ug/kg
2-Chloroethyl vinyl ether	ND		61	6.1	ug/kg
1,1,2-Trichloroethane	ND		6.1	1.2	ug/kg
1,2-Dibromoethane (EDB)	ND		6.1	1.2	ug/kg
4-Methyl-2-pentanone (MIBK)	2.6	J	25	2.5	ug/kg
MTBE	ND		25	1.2	ug/kg
Tetrachloroethene	ND		6.1	2.5	ug/kg
Dibromochloromethane	ND		6.1	1.2	ug/kg
Chlorobenzene	ND		6.1	2.5	ug/kg
Ethylbenzene	ND		6.1	2.5	ug/kg
Xylenes (total)	ND		12	6.1	ug/kg
Styrene	ND		6.1	2.5	ug/kg
Bromoform	ND		6.1	1.2	ug/kg
1,1,2,2-Tetrachloroethane	ND		6.1	2.5	ug/kg

Percent moisture is 18.5%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Volatile Organic Compounds
Method SW8260A

(cont.)

Client Name: OHM Remediation Services
Client ID: 20242-565
LAB ID: 134105-0004-SA
Matrix: SOIL
Authorized: 21 SEP 98
Instrument: GC/MS-MD

Sampled: 21 SEP 98
Prepared: 22 SEP 98
Dilution: 1.0

Received: 21 SEP 98
Analyzed: 23 SEP 98

Parameter	Result	Qualifier	RL	MDL	Units

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	90	%	52 - 149
Bromofluorobenzene	104	%	65 - 135
Toluene-d8	102	%	65 - 135
Dibromofluoromethane	99	%	65 - 135

Percent moisture is 18.5%. All results and limits are reported on a dry weight basis.

Volatile Organic Compounds
Method SW8260A

Client Name: OHM Remediation Services
Client ID: 20242-566
LAB ID: 134105-0005-SA
Matrix: SOIL Sampled: 21 SEP 98 Received: 21 SEP 98
Authorized: 21 SEP 98 Prepared: 22 SEP 98 Analyzed: 23 SEP 98
Instrument: GC/MS-MD Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Chloromethane	ND		12	3.6	ug/kg
Vinyl chloride	ND		12	2.4	ug/kg
Bromomethane	ND		12	2.4	ug/kg
Chloroethane	ND		12	2.4	ug/kg
Acetone	6.9	J	24	2.4	ug/kg
1,1-Dichloroethene	ND		6.0	2.4	ug/kg
Carbon disulfide	ND		6.0	2.4	ug/kg
Methylene chloride	ND		6.0	1.2	ug/kg
trans-1,2-Dichloroethene	ND		6.0	2.4	ug/kg
1,1-Dichloroethane	ND		6.0	1.2	ug/kg
cis-1,2-Dichloroethene	ND		6.0	2.4	ug/kg
Chloroform	ND		6.0	1.2	ug/kg
1,1,1-Trichloroethane	ND		6.0	1.2	ug/kg
2-Butanone (MEK)	ND		24	3.6	ug/kg
2-Hexanone	ND		24	3.6	ug/kg
Carbon tetrachloride	ND		6.0	1.2	ug/kg
Vinyl acetate	ND		12	2.4	ug/kg
1,2-Dichloroethane	ND		6.0	1.2	ug/kg
Benzene	ND		6.0	2.4	ug/kg
Trichloroethene	2.4	J	6.0	2.4	ug/kg
1,2-Dichloropropane	ND		6.0	1.2	ug/kg
Bromodichloromethane	ND		6.0	1.2	ug/kg
cis-1,3-Dichloropropene	ND		6.0	1.2	ug/kg
Toluene	ND		6.0	2.4	ug/kg
trans-1,3-Dichloropropene	ND		6.0	1.2	ug/kg
2-Chloroethyl vinyl ether	ND		60	6.0	ug/kg
1,1,2-Trichloroethane	ND		6.0	1.2	ug/kg
1,2-Dibromoethane (EDB)	ND		6.0	1.2	ug/kg
4-Methyl-2-pentanone (MIBK)	ND		24	2.4	ug/kg
MTBE	ND		24	1.2	ug/kg
Tetrachloroethene	ND		6.0	2.4	ug/kg
Dibromochloromethane	ND		6.0	1.2	ug/kg
Chlorobenzene	ND		6.0	2.4	ug/kg
Ethylbenzene	ND		6.0	2.4	ug/kg
Xylenes (total)	ND		12	6.0	ug/kg
Styrene	ND		6.0	2.4	ug/kg
Bromoform	ND		6.0	1.2	ug/kg
1,1,2,2-Tetrachloroethane	ND		6.0	2.4	ug/kg

Percent moisture is 16.9%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Volatile Organic Compounds
Method SW8260A

(cont.)

Client Name: OHM Remediation Services
Client ID: 20242-566
LAB ID: 134105-0005-SA
Matrix: SOIL
Sampled: 21 SEP 98
Received: 21 SEP 98
Authorized: 21 SEP 98
Prepared: 22 SEP 98
Analyzed: 23 SEP 98
Instrument: GC/MS-MD
Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	84	%	52 - 149
Bromofluorobenzene	94	%	65 - 135
Toluene-d8	94	%	65 - 135
Dibromofluoromethane	93	%	65 - 135

Percent moisture is 16.9%. All results and limits are reported on a dry weight basis.

Volatile Organic Compounds
Method SW8260A

Client Name: OHM Remediation Services
Client ID: 20242-567
LAB ID: 134105-0006-SA
Matrix: SOIL — Sampled: 21 SEP 98 — Received: 21 SEP 98
Authorized: 21 SEP 98 — Prepared: 22 SEP 98 — Analyzed: 23 SEP 98
Instrument: GC/MS-MD — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
Chloromethane	ND		11	3.4	ug/kg
Vinyl chloride	ND		11	2.2	ug/kg
Bromomethane	ND		11	2.2	ug/kg
Chloroethane	ND		11	2.2	ug/kg
Acetone	7.1	J	22	2.2	ug/kg
1,1-Dichloroethene	ND		5.6	2.2	ug/kg
Carbon disulfide	ND		5.6	2.2	ug/kg
Methylene chloride	ND		5.6	1.1	ug/kg
trans-1,2-Dichloroethene	ND		5.6	2.2	ug/kg
1,1-Dichloroethane	ND		5.6	1.1	ug/kg
cis-1,2-Dichloroethene	ND		5.6	2.2	ug/kg
Chloroform	ND		5.6	1.1	ug/kg
1,1,1-Trichloroethane	ND		5.6	1.1	ug/kg
2-Butanone (MEK)	ND		22	3.4	ug/kg
2-Hexanone	ND		22	3.4	ug/kg
Carbon tetrachloride	ND		5.6	1.1	ug/kg
Vinyl acetate	ND		11	2.2	ug/kg
1,2-Dichloroethane	ND		5.6	1.1	ug/kg
Benzene	ND		5.6	2.2	ug/kg
Trichloroethene	ND		5.6	2.2	ug/kg
1,2-Dichloropropane	ND		5.6	1.1	ug/kg
Bromodichloromethane	ND		5.6	1.1	ug/kg
cis-1,3-Dichloropropene	ND		5.6	1.1	ug/kg
Toluene	ND		5.6	2.2	ug/kg
trans-1,3-Dichloropropene	ND		5.6	1.1	ug/kg
2-Chloroethyl vinyl ether	ND		56	5.6	ug/kg
1,1,2-Trichloroethane	ND		5.6	1.1	ug/kg
1,2-Dibromoethane (EDB)	ND		5.6	1.1	ug/kg
4-Methyl-2-pentanone (MIBK)	ND		22	2.2	ug/kg
MTBE	ND		22	1.1	ug/kg
Tetrachloroethene	ND		5.6	2.2	ug/kg
Dibromochloromethane	ND		5.6	1.1	ug/kg
Chlorobenzene	ND		5.6	2.2	ug/kg
Ethylbenzene	ND		5.6	2.2	ug/kg
Xylenes (total)	ND		11	5.6	ug/kg
Styrene	ND		5.6	2.2	ug/kg
Bromoform	ND		5.6	1.1	ug/kg
1,1,2,2-Tetrachloroethane	ND		5.6	2.2	ug/kg

Percent moisture is 10.7%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Volatile Organic Compounds
Method SW8260A

(cont.)

Client Name: OHM Remediation Services
Client ID: 20242-567
LAB ID: 134105-0006-SA
Matrix: SOIL
Sampled: 21 SEP 98
Received: 21 SEP 98
Authorized: 21 SEP 98
Prepared: 22 SEP 98
Analyzed: 23 SEP 98
Instrument: GC/MS-MD
Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	89	%	52 - 149
Bromofluorobenzene	99	%	65 - 135
Toluene-d8	100	%	65 - 135
Dibromofluoromethane	101	%	65 - 135

Percent moisture is 10.7%. All results and limits are reported on a dry weight basis.

Organochlorine Pesticides
Method SW8081A

Client Name: OHM Remediation Services
Client ID: 20242-562
LAB ID: 134105-0001-SA
Matrix: WATER — Sampled: 21 SEP 98 — Received: 21 SEP 98
Authorized: 21 SEP 98 — Prepared: 23 SEP 98 — Analyzed: 24 SEP 98
Instrument: GC07 — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
alpha-BHC	ND		0.050	0.010	ug/L
gamma-BHC (Lindane)	ND		0.050	0.010	ug/L
beta-BHC	ND		0.050	0.010	ug/L
Heptachlor	ND		0.050	0.010	ug/L
delta-BHC	ND		0.050	0.010	ug/L
Aldrin	ND		0.050	0.010	ug/L
Heptachlor epoxide	ND		0.050	0.010	ug/L
Endosulfan I	ND		0.050	0.050	ug/L
4,4'-DDE	ND		0.050	0.020	ug/L
Dieldrin	ND		0.050	0.010	ug/L
Endrin	ND		0.050	0.030	ug/L
4,4'-DDD	ND		0.050	0.010	ug/L
Endosulfan II	ND		0.050	0.020	ug/L
4,4'-DDT	ND		0.050	0.020	ug/L
Endrin aldehyde	ND		0.050	0.020	ug/L
Endosulfan sulfate	ND		0.050	0.020	ug/L
Methoxychlor	ND		0.10	0.050	ug/L
alpha-Chlordane	ND		0.050	0.010	ug/L
gamma-Chlordane	ND		0.050	0.010	ug/L
Toxaphene	ND		2.0	1.0	ug/L

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	92	%	60 - 140
Decachlorobiphenyl	76	%	30 - 150

ND = Not Detected

Organochlorine Pesticides
Method SW8081A

Client Name: OHM Remediation Services
Client ID: 20242-563
LAB ID: 134105-0002-SA
Matrix: SOIL — Sampled: 21 SEP 98 — Received: 21 SEP 98
Authorized: 21 SEP 98 — Prepared: 22 SEP 98 — Analyzed: 23 SEP 98
Instrument: GC07 — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
alpha-BHC	ND		1.7	0.50	ug/kg
gamma-BHC (Lindane)	ND		1.7	0.50	ug/kg
beta-BHC	ND		1.7	0.50	ug/kg
Heptachlor	ND		1.7	0.50	ug/kg
delta-BHC	ND		1.7	0.50	ug/kg
Aldrin	ND		1.7	0.50	ug/kg
Heptachlor epoxide	ND		1.7	0.50	ug/kg
Endosulfan I	ND		1.7	1.0	ug/kg
4,4'-DDE	ND		1.7	0.50	ug/kg
Dieldrin	ND		1.7	0.50	ug/kg
Endrin	ND		1.7	0.50	ug/kg
4,4'-DDD	ND		1.7	0.50	ug/kg
Endosulfan II	ND		1.7	0.50	ug/kg
4,4'-DDT	ND		1.7	0.50	ug/kg
Endrin aldehyde	ND		1.7	0.50	ug/kg
Endosulfan sulfate	ND		1.7	0.50	ug/kg
Methoxychlor	ND		3.3	3.0	ug/kg
alpha-Chlordane	ND		1.7	0.50	ug/kg
gamma-Chlordane	ND		1.7	0.50	ug/kg
Toxaphene	ND		67	17	ug/kg

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	82	%	70 - 130
Decachlorobiphenyl	88	%	70 - 150

ND = Not Detected

Organochlorine Pesticides
Method SW8081A

Client Name: OHM Remediation Services
Client ID: 20242-564
LAB ID: 134105-0003-SA
Matrix: SOIL — Sampled: 21 SEP 98 — Received: 21 SEP 98
Authorized: 21 SEP 98 — Prepared: 23 SEP 98 — Analyzed: 24 SEP 98
Instrument: GC07 — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
alpha-BHC	ND		1.7	0.50	ug/kg
gamma-BHC (Lindane)	ND		1.7	0.50	ug/kg
beta-BHC	ND		1.7	0.50	ug/kg
Heptachlor	ND		1.7	0.50	ug/kg
delta-BHC	ND		1.7	0.50	ug/kg
Aldrin	ND		1.7	0.50	ug/kg
Heptachlor epoxide	ND		1.7	0.50	ug/kg
Endosulfan I	ND		1.7	1.0	ug/kg
4,4'-DDE	ND		1.7	0.50	ug/kg
Dieldrin	ND		1.7	0.50	ug/kg
Endrin	ND		1.7	0.50	ug/kg
4,4'-DDD	ND		1.7	0.50	ug/kg
Endosulfan II	ND		1.7	0.50	ug/kg
4,4'-DDT	ND		1.7	0.50	ug/kg
Endrin aldehyde	ND		1.7	0.50	ug/kg
Endosulfan sulfate	ND		1.7	0.50	ug/kg
Methoxychlor	ND		3.3	3.0	ug/kg
alpha-Chlordane	ND		1.7	0.50	ug/kg
gamma-Chlordane	ND		1.7	0.50	ug/kg
Toxaphene	ND		67	17	ug/kg

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	85	%	70 - 130
Decachlorobiphenyl	104	%	70 - 150

ND = Not Detected

Organochlorine Pesticides
Method SW8081A

Client Name: OHM Remediation Services
Client ID: 20242-565
LAB ID: 134105-0004-SA
Matrix: SOIL Sampled: 21 SEP 98 Received: 21 SEP 98
Authorized: 21 SEP 98 Prepared: 22 SEP 98 Analyzed: 23 SEP 98
Instrument: GC07 Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
alpha-BHC	ND		1.7	0.50	ug/kg
gamma-BHC (Lindane)	ND		1.7	0.50	ug/kg
beta-BHC	ND		1.7	0.50	ug/kg
Heptachlor	ND		1.7	0.50	ug/kg
delta-BHC	ND		1.7	0.50	ug/kg
Aldrin	ND		1.7	0.50	ug/kg
Heptachlor epoxide	ND		1.7	0.50	ug/kg
Endosulfan I	ND		1.7	1.0	ug/kg
4,4'-DDE	ND		1.7	0.50	ug/kg
Dieldrin	ND		1.7	0.50	ug/kg
Endrin	ND		1.7	0.50	ug/kg
4,4'-DDD	ND		1.7	0.50	ug/kg
Endosulfan II	ND		1.7	0.50	ug/kg
4,4'-DDT	ND		1.7	0.50	ug/kg
Endrin aldehyde	ND		1.7	0.50	ug/kg
Endosulfan sulfate	ND		1.7	0.50	ug/kg
Methoxychlor	ND		3.3	3.0	ug/kg
alpha-Chlordane	ND		1.7	0.50	ug/kg
gamma-Chlordane	ND		1.7	0.50	ug/kg
Toxaphene	ND		67	17	ug/kg

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	85	%	70 - 130
Decachlorobiphenyl	93	%	70 - 150

ND = Not Detected

Organochlorine Pesticides
Method SW8081A

Client Name: OHM Remediation Services
Client ID: 20242-566
LAB ID: 134105-0005-SA
Matrix: SOIL — Sampled: 21 SEP 98 — Received: 21 SEP 98
Authorized: 21 SEP 98 — Prepared: 22 SEP 98 — Analyzed: 23 SEP 98
Instrument: GC07 — Dilution: 1.0

Parameter	Result	Qualifier	RL	MDL	Units
alpha-BHC	ND		1.7	0.50	ug/kg
gamma-BHC (Lindane)	ND		1.7	0.50	ug/kg
beta-BHC	ND		1.7	0.50	ug/kg
Heptachlor	ND		1.7	0.50	ug/kg
delta-BHC	ND		1.7	0.50	ug/kg
Aldrin	ND		1.7	0.50	ug/kg
Heptachlor epoxide	ND		1.7	0.50	ug/kg
Endosulfan I	ND		1.7	1.0	ug/kg
4,4'-DDE	ND		1.7	0.50	ug/kg
Dieldrin	ND		1.7	0.50	ug/kg
Endrin	ND		1.7	0.50	ug/kg
4,4'-DDD	ND		1.7	0.50	ug/kg
Endosulfan II	ND		1.7	0.50	ug/kg
4,4'-DDT	ND		1.7	0.50	ug/kg
Endrin aldehyde	ND		1.7	0.50	ug/kg
Endosulfan sulfate	ND		1.7	0.50	ug/kg
Methoxychlor	ND		3.3	3.0	ug/kg
alpha-Chlordane	ND		1.7	0.50	ug/kg
gamma-Chlordane	ND		1.7	0.50	ug/kg
Toxaphene	ND		67	17	ug/kg

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	86	%	70 - 130
Decachlorobiphenyl	95	%	70 - 150

ND = Not Detected

Organochlorine Pesticides
Method SW8081A

Client Name: OHM Remediation Services
Client ID: 20242-567
LAB ID: 134105-0006-SA
Matrix: SOIL — Sampled: 21 SEP 98 — Received: 21 SEP 98
Authorized: 21 SEP 98 — Prepared: 22 SEP 98 — Analyzed: 23 SEP 98
Instrument: GC07 — Dilution: 2.0

Parameter	Result	Qualifier	RL	MDL	Units
alpha-BHC	ND		3.4	1.0	ug/kg
gamma-BHC (Lindane)	ND		3.4	1.0	ug/kg
beta-BHC	ND		3.4	1.0	ug/kg
Heptachlor	ND		3.4	1.0	ug/kg
delta-BHC	ND		3.4	1.0	ug/kg
Aldrin	ND		3.4	1.0	ug/kg
Heptachlor epoxide	ND		3.4	1.0	ug/kg
Endosulfan I	ND		3.4	2.0	ug/kg
4,4'-DDE	15		3.4	1.0	ug/kg
Dieldrin	ND		3.4	1.0	ug/kg
Endrin	ND		3.4	1.0	ug/kg
4,4'-DDD	5.4		3.4	1.0	ug/kg
Endosulfan II	ND		3.4	1.0	ug/kg
4,4'-DDT	42		3.4	1.0	ug/kg
Endrin aldehyde	ND		3.4	1.0	ug/kg
Endosulfan sulfate	ND		3.4	1.0	ug/kg
Methoxychlor	ND		6.6	6.0	ug/kg
alpha-Chlordane	ND		3.4	1.0	ug/kg
gamma-Chlordane	ND		3.4	1.0	ug/kg
Toxaphene	ND		130	34	ug/kg

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	94	%	70 - 130
Decachlorobiphenyl	98	%	70 - 150

ND = Not Detected

GENERAL INORGANICS

Client Name: OHM Remediation Services
Client ID: 20242-563
LAB ID: 134105-0002-SA
Matrix: SOIL
Authorized: 21 SEP 98

Sampled: 21 SEP 98
Prepared: See Below

Received: 21 SEP 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	11		1.0	0.10	%	D2216	NA	22 SEP 98

GENERAL INORGANICS

Client Name: OHM Remediation Services
Client ID: 20242-564
LAB ID: 134105-0003-SA
Matrix: SOIL Sampled: 21 SEP 98 Received: 21 SEP 98
Authorized: 21 SEP 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	12		1.0	0.10	%	D2216	NA	22 SEP 98

GENERAL INORGANICS

Client Name: OHM Remediation Services
Client ID: 20242-565
LAB ID: 134105-0004-SA
Matrix: SOIL Sampled: 21 SEP 98 Received: 21 SEP 98
Authorized: 21 SEP 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	18		1.0	0.10	%	D2216	NA	22 SEP 98

GENERAL INORGANICS

Client Name: OHM Remediation Services
Client ID: 20242-566
LAB ID: 134105-0005-SA
Matrix: SOIL
Authorized: 21 SEP 98

Sampled: 21 SEP 98
Prepared: See Below

Received: 21 SEP 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	17		1.0	0.10	%	D2216	NA	22 SEP 98

GENERAL INORGANICS

Client Name: OHM Remediation Services
Client ID: 20242-567
LAB ID: 134105-0006-SA
Matrix: SOIL Sampled: 21 SEP 98 Received: 21 SEP 98
Authorized: 21 SEP 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	11		1.0	0.10	%	D2216	NA	22 SEP 98

EPA United States Environmental Protection Agency Waste Programs

Region 9

Region 9 PRGs: Introduction

EXTRACTS

Region 9 Preliminary Remediation Goals (PRGs) are tools for evaluating and cleaning up contaminated sites. They are being used to streamline and standardize all stages of the risk decision-making process. This page includes an explanation of the use of PRGs, key equations for computing PRGs and a table of PRG values.

Table of Contents:

Letter to PRG Table Mailing List
Disclaimer
Introduction
Reading the PRG Table
Using the PRG Table
Technical Support Documentation
References

Download the Preliminary Remediation Goals Table in Excel or Lotus 123. Each of these files also includes a WordPerfect version of this document. Another available resource is EPA's Soil Screening Guidance.

Letter to PRG Table Mailing List

May 1, 1998
Subject: Region 9 Preliminary Remediation Goals (PRGs) 1998

From: Stanford J. Smucker, Ph.D.
Regional Toxicologist (SFD-8-B)
Technical Support Team

To: PRG Table Mailing List

Please find the annual update to the Region 9 PRG table. Risk-based PRGs presented in the "lookup" table are useful tools for evaluating and cleaning up contaminated sites. They are being used to streamline and standardize all stages of the risk decision-making process. If you are not currently on the PRG table mailing list but would like to be, please call Lynn Trujillo (415.744.2419) or email her (Trujillo.Dianna@epamail.epa.gov) and leave your name, address, and phone number.

EPA Region 9 has established a homepage on the World Wide Web which you can find at http://www.epa.gov/region09/. Once you reach our website, simply scroll down to and click on "Solid and Hazardous Waste Programs" followed by

"Preliminary Remediation Goals". You may want to set a bookmark to ease future access.

The PRG '98 table can be browsed online. It includes information not available in the hard copy sent out to folks on the mailing list. Additional information includes pathway specific PRGs, non-cancer PRGs for carcinogenic substances, and physical-chemical information used to estimate volatilization factors (VF). The table can also be downloaded for use with Lotus or Excel software. Please note that the downloadable files contain the same information as can be browsed online, though you will need to unzip the files and display the hidden columns to see all of the information.

Region 9 risk-based PRGs are "evergreen" and have evolved as new methodologies and parameters have been developed. Changes that have occurred from the 1996 table reflect one or more of the following: (1) updates in toxicity information, (2) revisions in dermal exposure factors, or (3) harmonization of physical-chemical information with Soil Screening Guidance issued by EPA's Office of Solid Waste and Emergency Response (OSWER), dated April 1996. These changes are described in the preamble (see below).

Updates to EPA toxicity values were obtained from IRIS, HEAST, or the National Center for Environmental Assessment (NCEA) through March 1998. To help users rapidly identify substances with new or revised toxicity values, the PRGs for these contaminants are printed in boldface type in the table.

Before relying on any number in the table, it is recommended that the user verify the numbers with an agency toxicologist or risk assessor because the toxicity / exposure information in the table may contain errors or default assumptions that need to be refined based on further evaluation. If you find an error please send me a note via email at smucker.stan@epamail.epa.gov or fax at 415.744.1916.

Top of Page

DISCLAIMER

Preliminary remediation goals (PRGs) focus on common exposure pathways and may not consider all exposure pathways encountered at CERCLA / RCRA sites (Exhibit 1-1). PRGs do not consider impact to groundwater or address ecological concerns. PRGs are specifically not intended as a (1) stand-alone decision-making tool, (2) as a substitute for EPA guidance for preparing baseline risk assessments, or (3) a rule to determine if a waste is hazardous under RCRA.

The guidance set out in this document is not final Agency action. It is not intended, nor can it be relied upon to create any rights enforceable by any party in litigation with the United States. EPA officials may decide to follow the guidance provided herein, or act at variance with the guidance, based on an analysis of specific circumstances. The Agency also reserves the right to change this guidance at any time without public notice.

Top of Page

1.0 INTRODUCTION

Region 9 Preliminary Remediation Goals (PRGs) are risk-based tools for

Key : i=IRIS h=HEAST n=NCEA x=WITHDRAWN o=Other EPA DOCUMENTS r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION									CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)						SOIL SCREENING LEVELS	
SFo 1/(mg/kg-d)	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)	V O C	skin abs soils		CAS No.			Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ambient Air (ug/m^3)		Tap Water (ug/l)		Migration to Ground Water DAF 20 (mg/kg)	DAF 1 (mg/kg)
	8.0E-04 h		8.0E-04 r	0	0.10		60238-56-4		Chlorthiophos	4.4E+01	nc	8.6E+02	nc	2.9E+00	nc	2.9E+01	nc		
		4.2E+01 i		0	0.01		n/a		Total Chromium (1/6 ratio Cr VI/Cr III)	2.1E+02	ca	4.5E+02	ca	1.6E-04	ca			3.8E+01	2.0E+00
	5.0E-03 i	2.9E+02 i		0	0.01		7440-47-3		Chromium VI	3.0E+01	ca*	6.4E+01	ca	2.3E-05	ca	1.8E+02	nc	3.8E+01	2.0E+00
									"CAL-Modified PRG" (PEA, 1994)	2.0E-01						1.6E-01			
	6.0E-02 x		5.7E-06 x	0	0.01		7440-48-4		Cobalt	3.3E+03	nc	2.9E+04	nc	2.1E-02	nc	2.2E+03	nc		
		2.2E+00 i		0	0.01		8007-45-2		Coke Oven Emissions					3.1E-03	ca				
	3.7E-02 h			0	0.01		7440-50-8		Copper and compounds	2.8E+03	nc	7.0E+04	nc			1.4E+03	nc		
1.9E+00 h	1.0E-02 x	1.9E+00 x	1.0E-02 r	1	0.10	S	123-73-9		Crotonaldehyde	5.3E-03	ca	1.1E-02	ca	3.5E-03	ca	5.9E-03	ca		
	1.0E-01 i		1.1E-01 i	1	0.10		98-82-8		Cumene (isopropylbenzene)	1.6E+02	nc	5.2E+02	nc	4.0E+02	nc	6.6E+02	nc		
8.4E-01 h	2.0E-03 h	8.4E-01 r	2.0E-03 r	0	0.10		21725-46-2		Cyanazine	5.3E-01	ca	3.6E+00	ca	8.0E-03	ca	8.0E-02	ca		
							n/a		Cyanides										
	1.0E-01 h			0	0.10		542-62-1		Barium cyanide	5.5E+03	nc	1.0E+05	max			3.7E+03	nc		
	4.0E-02 i			0	0.10		592-01-8		Calcium cyanide	2.2E+03	nc	4.3E+04	nc			1.5E+03	nc		
	5.0E-03 i			0	0.10		544-92-3		Copper cyanide	2.7E+02	nc	5.3E+03	nc			1.8E+02	nc		
	4.0E-02 i			0	0.10		460-19-5		Cyanogen	2.2E+03	nc	4.3E+04	nc			1.5E+03	nc		
	9.0E-02 i			0	0.10		506-68-3		Cyanogen bromide	4.9E+03	nc	1.0E+05	max			3.3E+03	nc		
	5.0E-02 i			0	0.10		506-77-4		Cyanogen chloride	2.7E+03	nc	5.3E+04	nc			1.8E+03	nc		
	2.0E-02 i			0	0.10		57-12-5		Free cyanide	1.1E+03	nc	2.1E+04	nc			7.3E+02	nc	4.0E+01	2.0E+00
	2.0E-02 i		8.6E-04 i	1	0.10		74-90-8		Hydrogen cyanide	1.1E+01	nc	3.5E+01	nc	3.1E+00	nc	6.2E+00	nc		
	5.0E-02 i			0	0.10		151-50-8		Potassium cyanide	2.7E+03	nc	5.3E+04	nc			1.8E+03	nc		
	2.0E-01 i			0	0.10		506-61-6		Potassium silver cyanide	1.1E+04	nc	1.0E+05	max			7.3E+03	nc		
	1.0E-01 i			0	0.10		506-64-9		Silver cyanide	5.5E+03	nc	1.1E+05	nc			3.7E+03	nc		
	4.0E-02 i			0	0.10		143-33-9		Sodium cyanide	2.2E+03	nc	4.3E+04	nc			1.5E+03	nc		
	5.0E-02 i			0	0.10		557-21-1		Zinc cyanide	2.7E+03	nc	5.3E+04	nc			1.8E+03	nc		
	5.0E+00 i		5.0E+00 r	0	0.10		108-94-1		Cyclohexanone	1.0E+05	max	1.0E+05	max	1.8E+04	nc	1.8E+05	nc		
	2.0E-01 i		2.0E-01 r	0	0.10		108-91-8		Cyclohexylamine	1.1E+04	nc	1.0E+05	max	7.3E+02	nc	7.3E+03	nc		
	5.0E-03 i		5.0E-03 r	0	0.10		68085-85-8		Cyhalothrin/Karate	2.7E+02	nc	5.3E+03	nc	1.8E+01	nc	1.8E+02	nc		
	1.0E-02 i		1.0E-02 r	0	0.10		52315-07-8		Cypermethrin	5.5E+02	nc	1.1E+04	nc	3.7E+01	nc	3.7E+02	nc		
	7.5E-03 i		7.5E-03 r	0	0.10		66215-27-8		Cyromazine	4.1E+02	nc	8.0E+03	nc	2.7E+01	nc	2.7E+02	nc		
	1.0E-02 i		1.0E-02 r	0	0.10		1861-32-1		Dacthal	5.5E+02	nc	1.1E+04	nc	3.7E+01	nc	3.7E+02	nc		
	3.0E-02 i		3.0E-02 r	0	0.10		75-99-0		Dalapon	1.6E+03	nc	3.2E+04	nc	1.1E+02	nc	1.1E+03	nc		
	2.5E-02 i		2.5E-02 r	0	0.10		39515-41-8		Danitol	1.4E+03	nc	2.7E+04	nc	9.1E+01	nc	9.1E+02	nc		
2.4E-01 i		2.4E-01 r		0	0.03		72-54-8		DDD	2.4E+00	ca	1.9E+01	ca	2.8E-02	ca	2.8E-01	ca	1.6E+01	8.0E-01
3.4E-01 i		3.4E-01 r		0	0.03		72-55-9		DDE	1.7E+00	ca	1.3E+01	ca	2.0E-02	ca	2.0E-01	ca	5.4E+01	3.0E+00
3.4E-01 i	5.0E-04 i	3.4E-01 i	5.0E-04 r	0	0.03		50-29-3		DDT	1.7E+00	ca*	1.3E+01	ca*	2.0E-02	ca*	2.0E-01	ca*	3.2E+01	2.0E+00
	1.0E-02 i		1.0E-02 r	0	0.10		1163-19-5		Decabromodiphenyl ether	5.5E+02	nc	1.1E+04	nc	3.7E+01	nc	3.7E+02	nc		
	4.0E-05 i		4.0E-05 r	0	0.10		8065-48-3		Demeton	2.2E+00	nc	4.3E+01	nc	1.5E-01	nc	1.5E+00	nc		
6.1E-02 h		6.1E-02 r		0	0.10		2303-16-4		Diallate	7.3E+00	ca	4.9E+01	ca	1.1E-01	ca	1.1E+00	ca		
	9.0E-04 h		9.0E-04 r	0	0.10		333-41-5		Diazinon	4.9E+01	nc	9.6E+02	nc	3.3E+00	nc	3.3E+01	nc		
	4.0E-03 x		4.0E-03 r	1	0.10		132-64-9		Dibenzofuran	2.1E+02	nc	3.2E+03	nc	1.5E+01	nc	2.4E+01	nc		
	1.0E-02 i		1.0E-02 r	0	0.10		106-37-6		1,4-Dibromobenzene	5.5E+02	nc	1.1E+04	nc	3.7E+01	nc	3.7E+02	nc		
8.4E-02 i	2.0E-02 i	8.4E-02 r	2.0E-02 r	0	0.10		124-48-1		Dibromochloromethane	5.3E+00	ca	3.6E+01	ca	8.0E-02	ca	1.0E+00	ca	4.0E-01	2.0E-02
1.4E+00 h	5.7E-05 r	2.4E-03 h	5.7E-05 i	0	0.10		96-12-8		1,2-Dibromo-3-chloropropane	3.2E-01	ca**	2.1E+00	ca*	2.1E-01	nc	4.8E-02	ca*		
									"CAL-Modified PRG" (PEA, 1994)	6.0E-02				9.6E-04		4.7E-03			
8.5E+01 i	5.7E-05 r	7.7E-01 i	5.7E-05 h	1	0.10		106-93-4		1,2-Dibromoethane	4.9E-03	ca	2.9E-02	ca*	8.7E-03	ca*	7.6E-04	ca		