Summary Report

Repairs to Vehicle Washrack at Building 386
Solid Waste Management Unit (SWMU) Number 110
Petroleum Corrective Action Program
Marine Corps Air Station, El Toro, California

4 February 1999

Prepared by
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SOUTHWESTNAVFACENGCOM
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San Diego, CA 92101

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Section 1
Introduction

The purpose of this Summary Report is to present information pertaining to the repairs to the concrete surface of the vehicle washrack located adjacent to Building 386 at the Marine Corps Air Station (MCAS), El Toro. Petroleum hydrocarbons were identified in the shallow soils beneath the washrack during the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA), and the washrack was designated Solid Waste Management Unit (SWMU) Number 110 in the RFA reports. Cracks in the surface of the washrack were also identified, and the RFA reports included the recommendation that the cracks be repaired in order to reduce the migration of residual petroleum hydrocarbons. The Base Realignment and Closure Cleanup Plan also includes this recommendation. The repairs to the cracks in the washrack surface were the primary objectives of this project. This report also includes a brief discussion of the information collected during the RFA and other previous investigations and a recommendation that no further action status be requested for this site.

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, California. Building 386 and the adjacent vehicle washrack, SWMU 110, are located in the southwest section of the Station within the Public Works compound near South Marine Way as shown on Figure 1.

SWMU 110 is also located within the boundary of Installation Restoration Program (IRP) Site 24 (Volatile Organic Compound (VOC) Source Area). Chlorinated solvents, including trichloroethylene (TCE), have been detected in the vadose zone and in the ground water beneath IRP Site 24.

The Station is preparing for closure in July 1999 in accordance with the Base Closure and Realignment Act of 1993 (BRAC III). SWMU 110 is located within a 53-acre parcel tentatively identified as a cargo area according to the El Toro Community Reuse Plan, 1997 Working Map (County of Orange, 1997) as shown on Figure 2. The Airport and Open Space Plan, Year 2020, Concept C (County of Orange, August 1998) indicates that SWMU 110 is located within a cargo area.

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Section 2
Field Activities and Previous Investigations

SWMU 110, the vehicle washrack located adjacent to Building 386, was visually inspected by representatives from Southwest Division, Naval Facilities Engineering Command (SWDIV) in July 1998 in order to prepare for the field activities. The washrack is constructed of portland cement concrete and is located on the northeast side of Building 386. The washrack surface area is approximately 3,200 square feet (JEG, 1993), and the surface is sloped toward the drain at the center of the slab. A concrete berm, approximately 3 inches high, surrounds the washrack slab and prevents the flow of water onto the adjacent asphalt pavement parking area. No significant stains were observed on the washrack surface.

2.1 Repairs to Cracks

Repairs to the cracks in the surface of SWMU 110 were implemented in December 1998 by GEOFON, Incorporated under Navy Contract N68711-97-D-8702, Delivery Order 19. Photographs of the washrack and field notes are provided in Appendix A. Most of the surface cracks were one-half inch to one inch deep.

GEOFON prepared the washrack slab surface by removing dust and vegetation. Surface cracks were filled with a joint sealant. Information pertaining to the sealant is presented in Appendix A.

The sealed cracks will reduce the infiltration of surface waters through the washrack slab and will reduce the potential migration of subsurface residual petroleum hydrocarbons beneath the slab.

2.2 Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)

SWMU 110 was inspected and samples were collected during the RFA. The results of the RFA Sampling Visit are published in the *Installation Restoration Program, Final Resource Conservation and Recovery Act Facility Assessment Report for Marine Corps Air Station, El Toro, California* (Jacobs Engineering Group (JEG), 1993).

The RFA Visual Site Inspection of SWMU 110 was conducted in April 1991. Cracks in the surface of the washrack and stains on the washrack surface were documented during the inspection, and the recommendation to conduct a Sampling Visit was presented.

During the Sampling Visit, nine (9) soil samples were collected from four (4) five-foot deep borings through or near the washrack surface. Samples were collected at depths of 2 and 5 feet below ground surface from borings 110H1, 110H2, 110H3, and 110H4. Samples were analyzed by Environmental Protection Agency (EPA) Method 418.1 (Total Recoverable Petroleum Hydrocarbons (TRPH)) and EPA Method 8240 (Volatile Organic Compounds (VOCs)). TRPH was not detected in samples from three of the four borings (110H1, 110H3, and 110H4). TRPH was detected at concentrations from 440 to 680 milligrams per kilogram in boring 110H2 that was located in close proximity to the washrack drain. Benzene was not detected in samples collected from borings 110H1, 110H2, 110H3, or 110H4. Acetone and methylene chloride were reported in some of the samples, however, the results are qualified due to the presence of the analytes in the blanks. Toluene and tetrachloroethylene (PCE) are reported as estimated values (qualified with "J" qualifier) in some of the samples.

Subsurface soils consist primarily of silty sand and sandy silt according to a boring log for a 62-foot deep boring at SWMU 223 which is located approximately 40 feet from the washrack.

Extracts from the RFA documentation are presented in Appendix B.

2.3 Remedial Investigation Soil Gas Survey

During the Phase I Remedial Investigation of IRP Site 24, a soil gas survey was conducted that included the vicinity of Building 386. Samples were collected from depths of 20 feet or less for analysis of Volatile Organic Compounds (VOCs) and Total Petroleum Hydrocarbons (TPH). The results of the survey are published in the *Marine Corps Air Station, El Toro, El Toro, California, Installation Restoration Program, Remedial Investigation/Feasibility Study, Final Soil Gas Survey, Technical Memorandum, Sites 24 and 25* (Jacobs Engineering Group (JEG), 1994).

The nearest sampling points, 24_SG83 and 24_SG89, were located within approximately 100 feet of SWMU 110. Samples were collected at a depth of 15 feet from each point, and no petroleum hydrocarbons or volatile organic compounds were detected in the soil gas samples from these points. Results from the Soil Gas Survey are presented in Appendix B.

2.4 Ground Water Conditions

Ground water conditions have been investigated in the vicinity of SWMU 110 during the Remedial Investigation of IRP Site 24 (the VOC Source Area) and IRP Site 10 (Petroleum Disposal Area). The nearest monitoring well, 10_DGMW77, is located approximately 150 feet southeast of and upgradient of SWMU 110. The screened interval of well 10_DGMW77 is from 130 to 170 feet below ground surface. The water level is approximately 104 feet below ground surface, and the gradient is northwest. Water samples collected from well 07_DGMW77 contained trichloroethylene (TCE) and other chlorinated solvents during sampling activities conducted during the period from 1991 through 1997 (CDM, 1997). The maximum TCE concentration in a water sample from well 07_DGMW77 was 107 micrograms per liter measured in March 1997. Additional ground water information is presented in Appendix B.

The nearest agricultural production well, TIC-55, is located approximately 2,000 feet north-northwest of SWMU 110.

SWMU 110 is located above the VOC plume in the shallow aquifer at IRP Site 24 as shown in Figure 3, the conceptual site model. The presence of TCE and other volatile organic compounds is believed to be associated with the sources identified in IRP Site 24 rather than with the residual petroleum hydrocarbons located beneath SWMU 110. The ground water conditions in the vicinity of SWMU 110 will be addressed in the Record of Decision for IRP Site 24 and Operable Unit 1.

Section 3
Conclusions and Recommendations

The following conclusions are based upon existing information from previous field investigations and the recently completed repairs to the washrack surface:

- The surface of the vehicle washrack - SWMU 110 - at Building 386 has been repaired by filling the cracks in accordance with the recommendations of the RFA Report. The repairs to the cracks will reduce the potential for water from the washrack to contact residual petroleum hydrocarbons located beneath the washrack slab and to cause migration of the residual petroleum hydrocarbons to ground water.

- Residual petroleum hydrocarbons, reported as Total Recoverable Petroleum Hydrocarbons, were identified in boring 110H2 at depths of 2 and 5 feet below ground surface at a maximum concentration of 680 milligrams per kilogram. Benzene was not detected at or above laboratory reporting limits. The residual petroleum hydrocarbon release does not appear to be laterally or vertically extensive, and the residual concentrations are not anticipated to pose a significant threat to ground water which is located approximately 100 feet below ground surface.

- SWMU 110 is located within the boundary of IRP Site 24 - the VOC Source Area. The ground water beneath SWMU 110 has been impacted by chlorinated solvents believed to originate from the primary sources identified within IRP Site 24. Ground water conditions beneath SWMU 110 will be addressed during the development of the Records of Decision for IRP Site 24 - the VOC Source Area and for Operable Unit 1 – Regional Groundwater.

Based upon the absence of evidence of a significant release of petroleum hydrocarbons at SWMU 110 and the completion of the repairs to the cracks in the washrack surface, 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

Airborne Systems, Incorporated. 1990. Topographic survey of Marine Corps Air Station, El Toro.

Bechtel National, Incorporated. 1997. Draft Final Phase II Remedial Investigation Report, Operable Unit 2A-Site 24, Marine Corps Air Station, El Toro, California. [Navy Contract N68711-92-D-4670, Contract Task Order 73]

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]

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County of Orange. 1998. The Airport and Open Space Plan, Year 2020, Concept C. August.

GEOFON, Incorporated. 1999. Technical Information Package for washrack repairs – Building 386 (SWMU 110).

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Jacobs Engineering Group (JEG). 1994. Marine Corps Air Station, El Toro, El Toro, California, Installation Restoration Program, Remedial Investigation/Feasibility Study, Final Soil Gas Survey, Technical Memorandum, Sites 24 and 25. October. [Navy Contract N68711-89-D-9296, Contract Task Order 145]

Jacobs Engineering Group (JEG). 1994. Marine Corps Air Station, El Toro: Installation Restoration Program, Phase I Remedial Investigation Technical Memorandum. [Contract N68711-89-D-9296, Contract Task Order 145]

Marine Corps Air Station, El Toro. 1998. Base Realignment and Closure (BRAC) Cleanup Plan.

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Figures

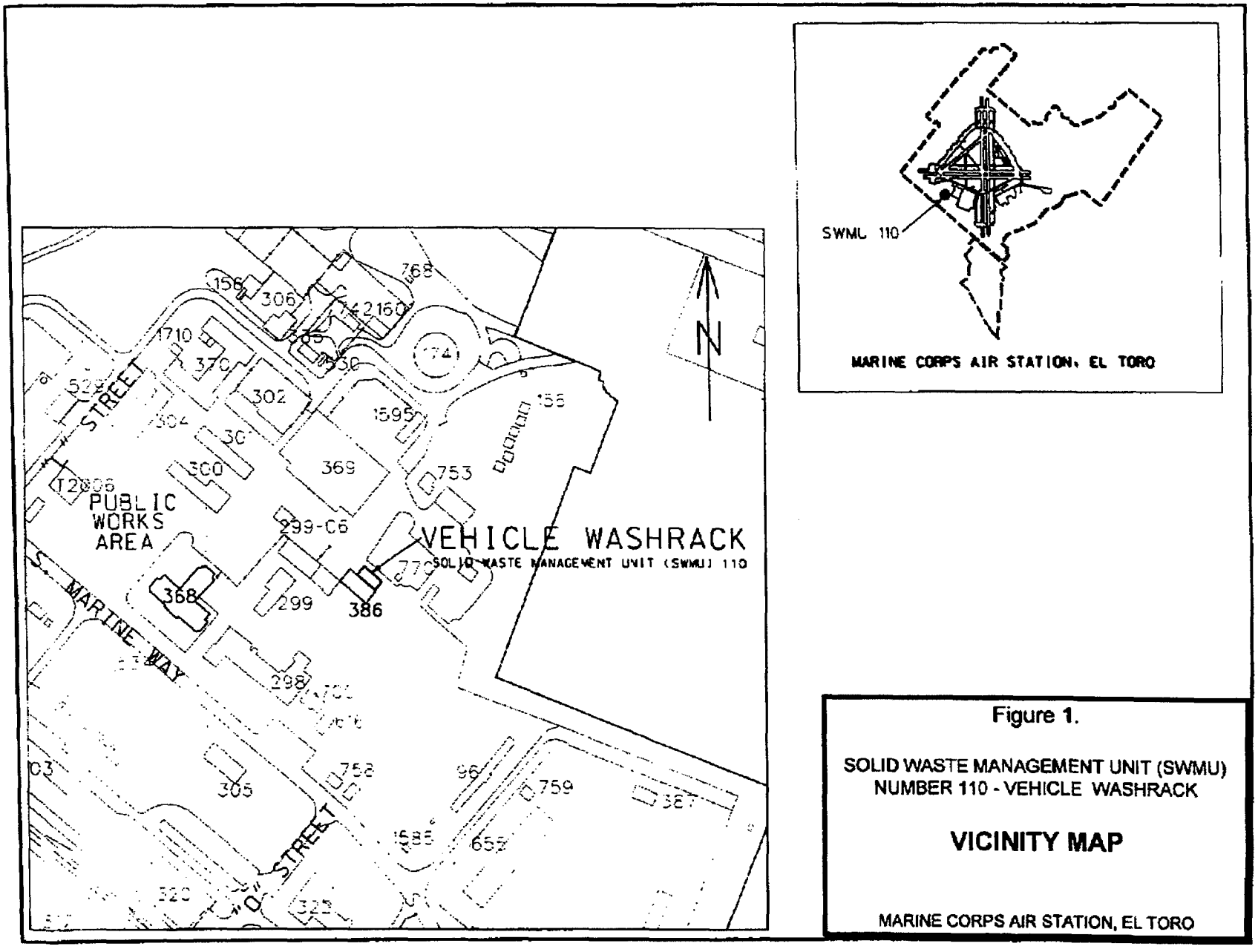
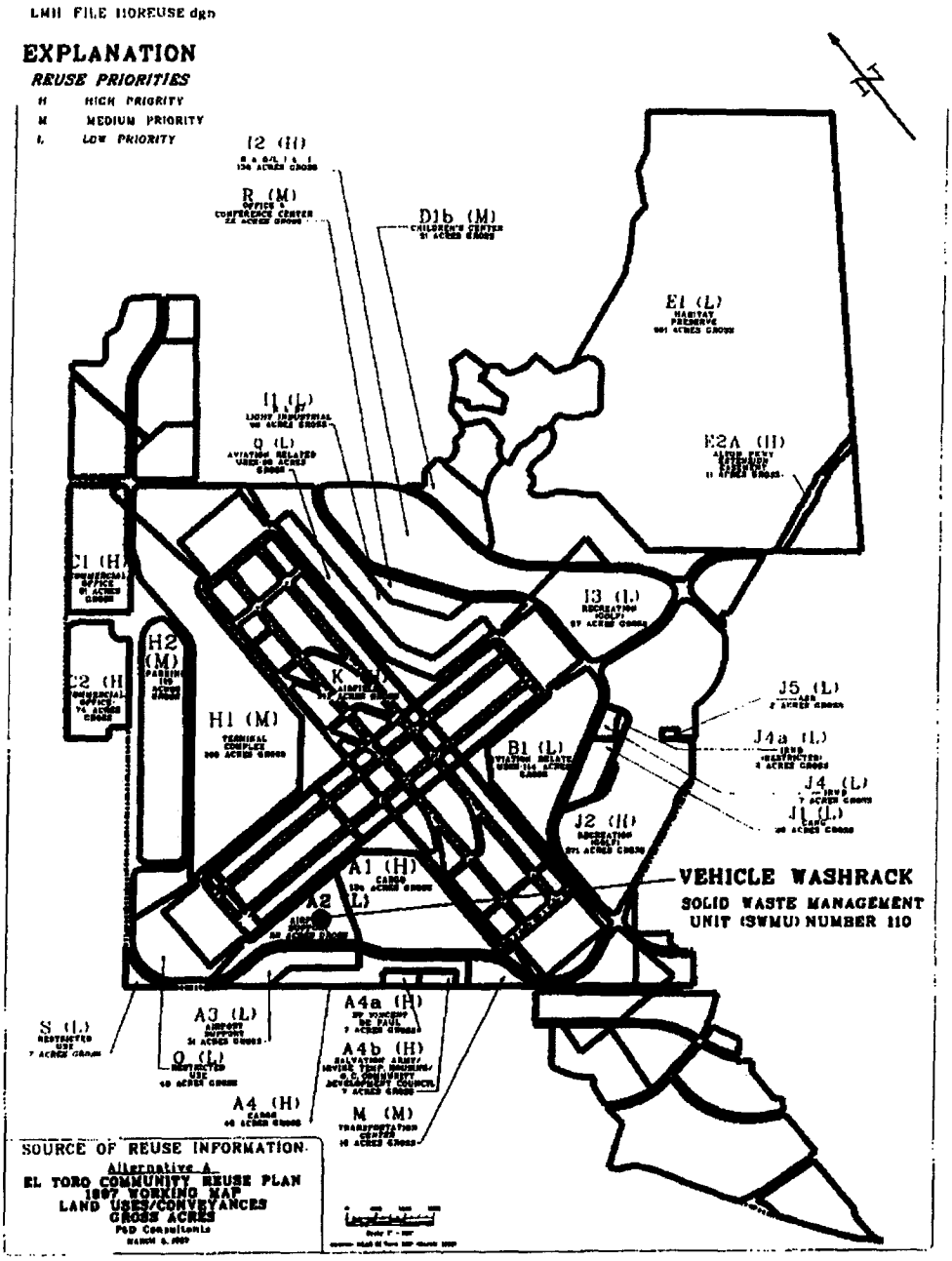


Figure 1.

SOLID WASTE MANAGEMENT UNIT (SWMU)
NUMBER 110 - VEHICLE WASHRACK

VICINITY MAP

MARINE CORPS AIR STATION, EL TORO



SOURCE COUNTY OF ORANGE, 1997

Figure 2.

SOLID WASTE MANAGEMENT UNIT (SWMU) NUMBER 110 - VEHICLE WASHRACK

TENTATIVE REUSE PARCEL LOCATIONS

MARINE CORPS AIR STATION, EL TORO

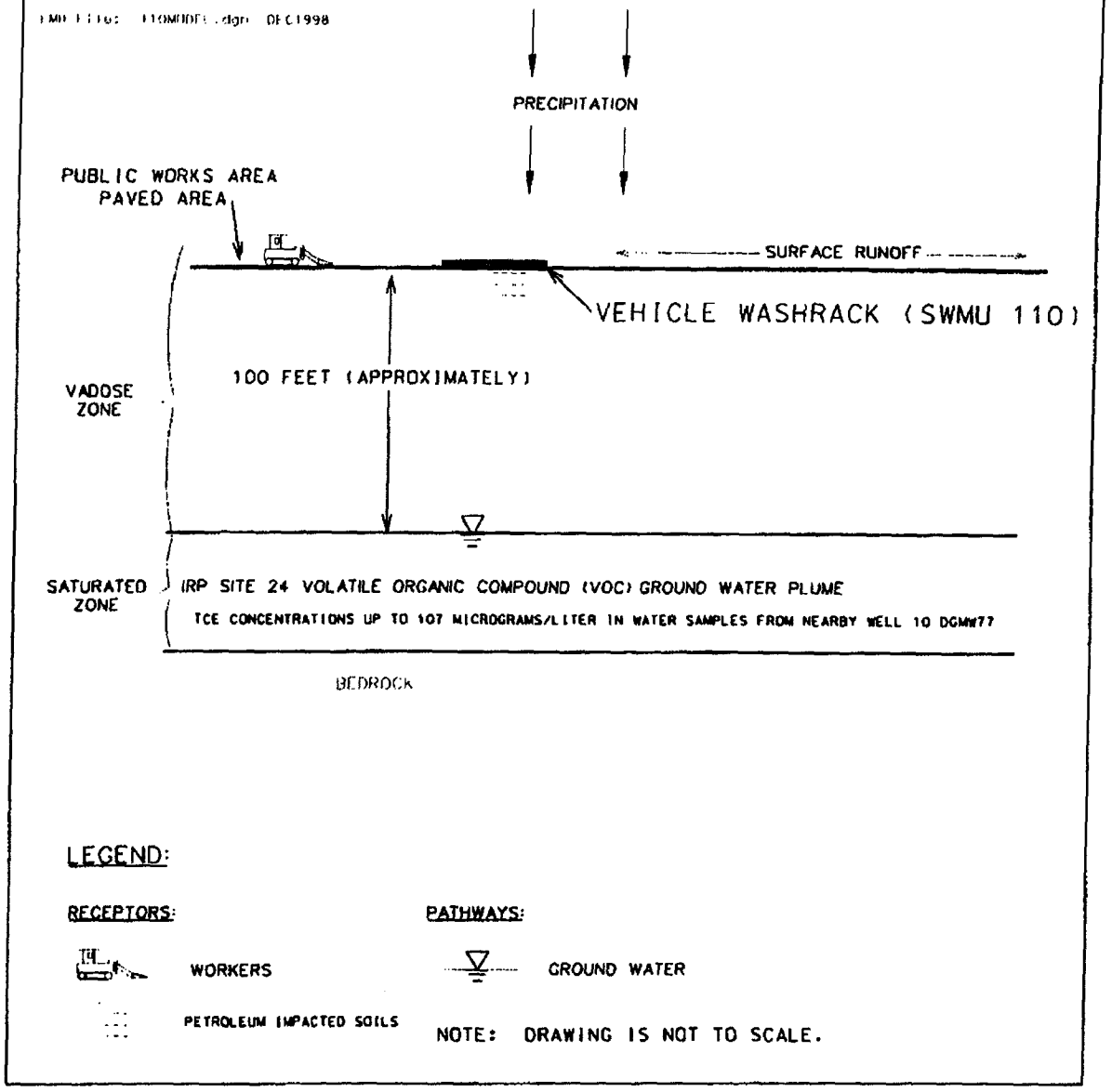


Figure 3.

SOLID WASTE MANAGEMENT UNIT (SWMU)
NUMBER 110 - VEHICLE WASHRACK

CONCEPTUAL SITE MODEL

MARINE CORPS AIR STATION, EL TORO

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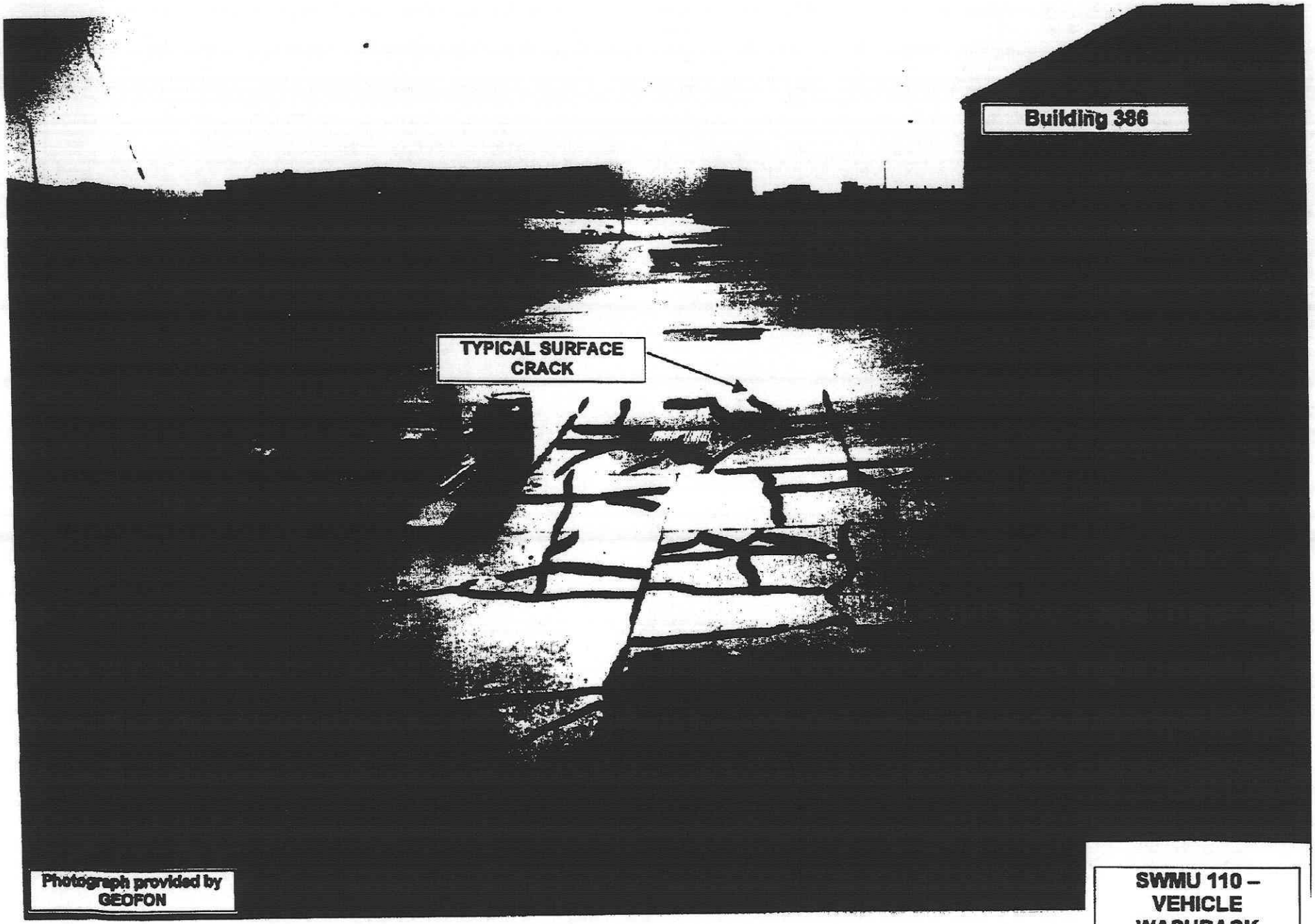
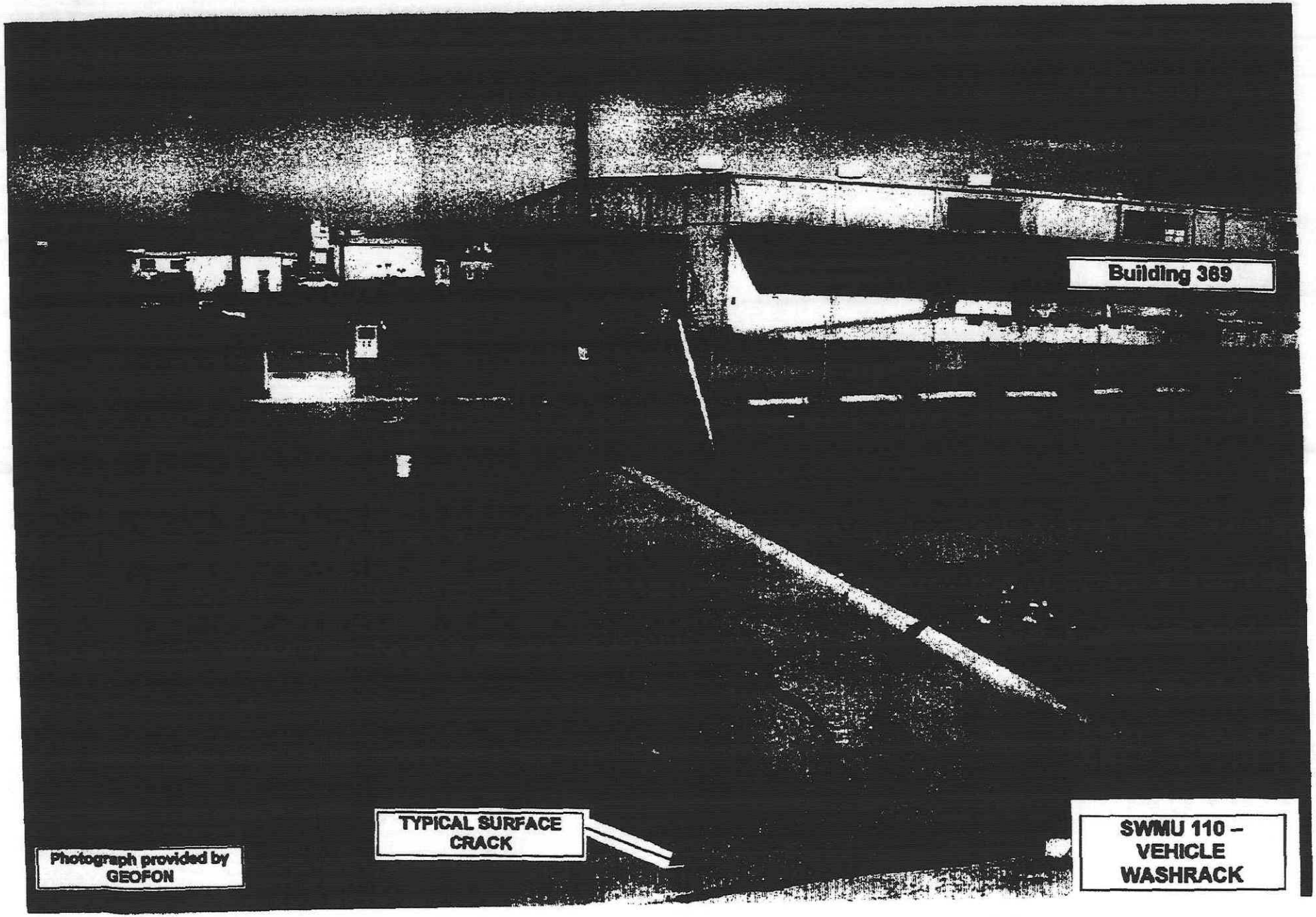
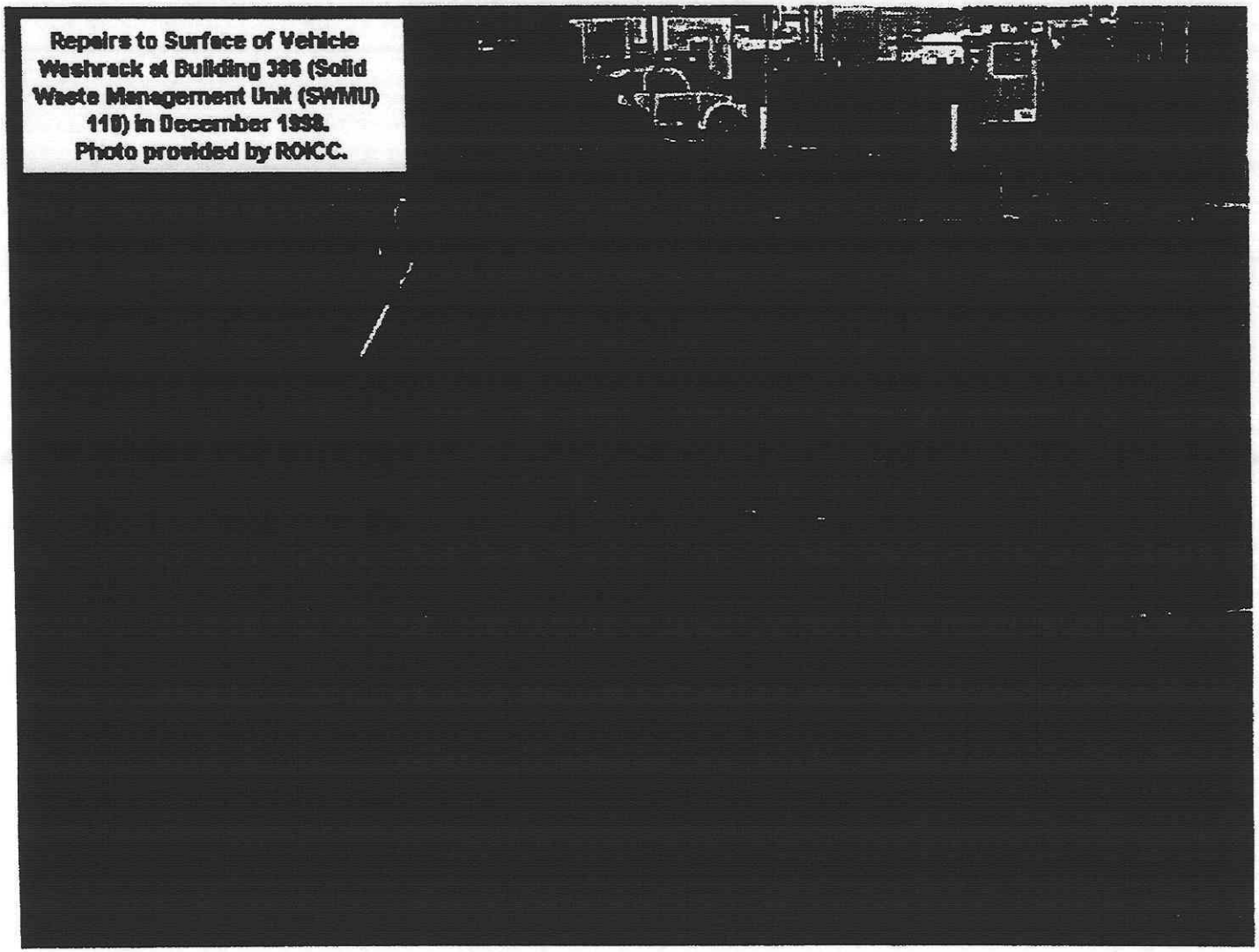
Appendix A

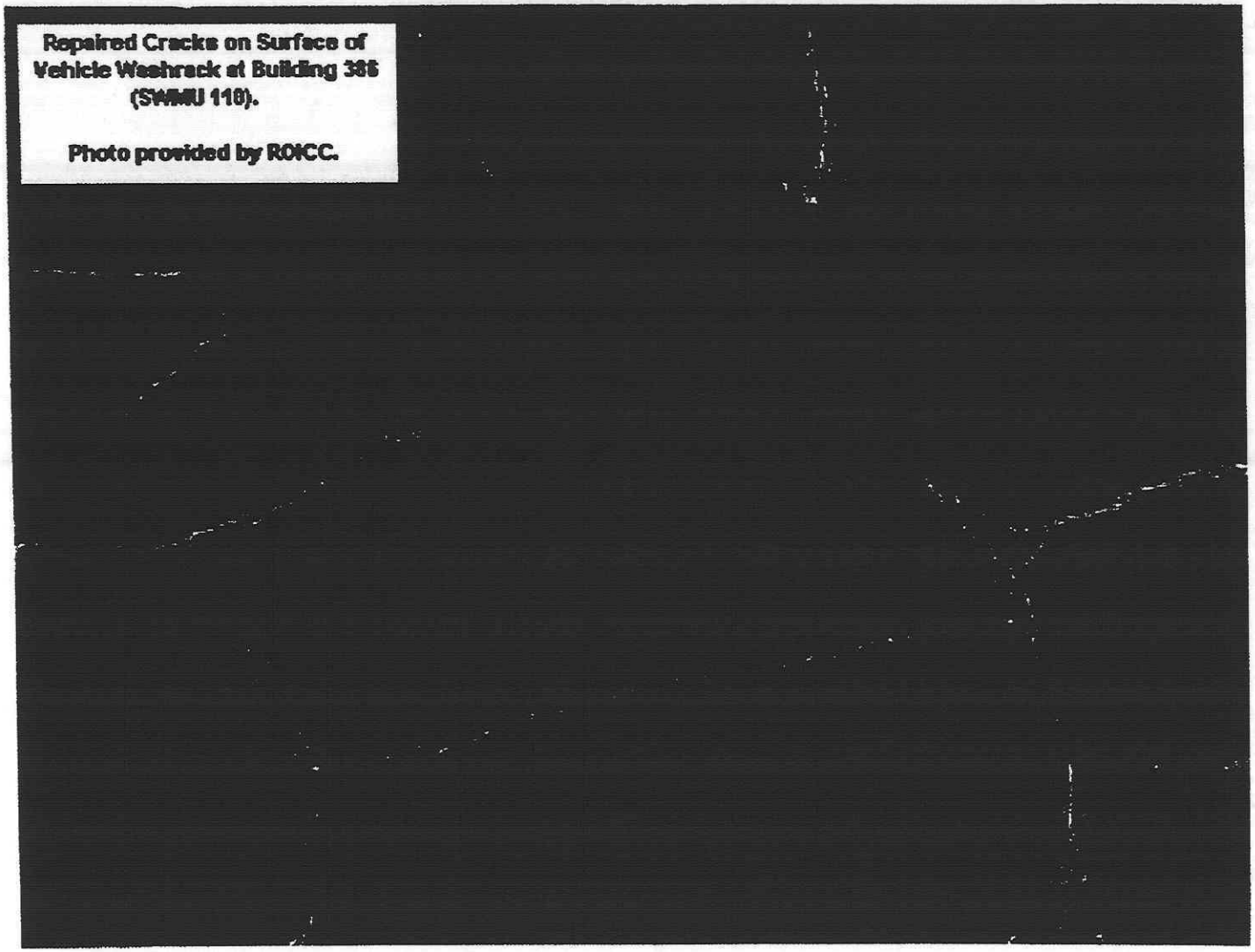
Site Photographs and Field Documentation


Building 386
TYPICAL SURFACE CRACK
Photograph provided by GEOFON
SWMU 110 – VEHICLE WASHRACK


Building 369
TYPICAL SURFACE CRACK
Photograph provided by GEOFON
SWMU 110 – VEHICLE WASHRACK



Repairs to Surface of Vehicle Washrack at Building 386 (Solid Waste Management Unit (SWMU) 116) in December 1998. Photo provided by ROICC.



Repaired Cracks on Surface of Vehicle Washrack at Building 386 (SWMU 116).

Photo provided by ROICC.

CATALOG CUT/SHOP DRAWING TRANSMITTAL AND APPROVAL
1226 WESTDIV 4355/1 (REV. 8-76)

See instructions on reverse
No carbon paper is required to complete this form
No transmittal letter required

SUBMITTAL NO. | COC CLAUSE ☐ IS APPLICABLE ☐ IS NOT APPLICABLE

REFERENCES TO USE WHEN COC CLAUSE IS APPLICABLE

PART I – FOR CONTRACTOR USE

REFERENCES TO USE WHEN COC CLAUSE IS NOT APPLICABLE

(A) ROICC/REICC

FROM (Contractor): GEOTON Inc,

TO (A): A ROICC, MCAS ELTORO

(A) DESIGNER

CONTRACT NO.: N68711-97-D-8702

CONTRACT TITLE: D.O.# 19 / REMOVAL OF UST, OWS & WASHRACK REPAIR, MCAS EL TORO.

(B) (Check one)

☐ RECORD

☒ APPROVAL

THE FOLLOWING ITEM IS SUBMITTED FOR (B) PER SPECIFICATION SECTION NUMBER

SIKAFLEX-1a

(B) APPROVAL

CERTIFICATION (This form shall not be used to forward proposed substitutions)

IT IS HEREBY CERTIFIED THAT THE ☐ EQUIPMENT ☒ MATERIAL SHOWN AND MARKED IN THIS SUBMITTAL IS THAT PROPOSED TO BE INCORPORATED INTO CONTRACT NUMBER N68711-97-D-8702 D.O.19 IS IN COMPLIANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS, AND CAN BE INSTALLED IN THE ALLOCATED SPACES.

Material Cut Sheet submitted for washrack repairs

(C) AUTHORIZED CONTRACTOR QUALITY CONTROL REPRESENTATIVE

CERTIFIED BY (C): A Heeren

DATE: 11/6/98

(C) PERSON DESIGNATED BY CONTRACTOR AS HAVING AUTHORITY TO SIGN CERTIFICATION

PART II – FOR DESIGNER USE

FROM (Designer)

TO (ROICC/REICC)

(D) CURSORY REVIEW REQUIRED ON RECORD COPIES – REPLY TO ROICC ONLY IF APPROPRIATE. DETAILED REVIEW REQUIRED ON SUBMITTALS FOR APPROVAL. STAMP AND MARK EACH COPY AS APPROPRIATE.

THIS SUBMITTAL HAS BEEN REVIEWED (D). THE FOLLOWING RECOMMENDATION IS MADE:

(D) DETAILED REVIEW REQUIRED. STAMP AND MARK EACH COPY AS APPROPRIATE

SIGNATURE

DATE

PART III – FOR ROICC/REICC USE

(E) DESIGNER (Copy to OICC)

FROM (ROICC/RAICC)

TO (E)

(E) CONTRACTOR (Copy to OICC)

ENCLOSURES ARE RETURNED WITH THE FOLLOWING COMMENTS:

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

SIGNATURE: Scott Lehr

DATE: 25 Nov 98

ISO 9000 Sika

One part polyurethane, elastomeric sealant/adhesive

DESCRIPTION

Sikaflex-1a is a premium-grade, high-performance, moisture-cured, 1-component, polyurethane-based, non-sag elastomeric sealant. Meets Federal specification TT-S-00230C, Type II, Class A. Meets ASTM C-920, Type S, Grade NS, Class 25; Canadian Standard 19-GP-16A, Type II.

WHERE TO USE

- Designed for all types of joints where maximum depth of sealant will not exceed ½ in.
- Excellent for small joints and fillets...windows, door frames, reglets, flashing, and many construction adhesive applications.
- Suitable for vertical and horizontal joints; readily placeable at 40 F.
- Has many applications as an elastic adhesive between materials with dissimilar coefficients of expansion.

ADVANTAGES

- Eliminates time, effort, and equipment for mixing, filling cartridges, pre-heating or thawing, and cleaning of equipment.
- High elasticity - cures to a tough, durable, flexible consistency with exceptional cut and tear-resistance.
- Stress relaxation.
- Excellent adhesion - bonds to most construction materials without a primer.
- Excellent resistance to aging, weathering
- Proven in tough climates around the world.
- USDA-approved.
- Odorless, non-staining
- Paintable with water-, oil- and rubber-based paints.
- Jet fuel resistant.
- NSF and EPA-approved for potable-water contact. Compatibility tests are recommended.
- Urethane-based; suggested by EPA for radon reduction.
- Capable of ±25% joint movement

COVERAGE

10.3 fl. oz. cartridge seals 12.4 lineal ft. of ¼ x ¼ in. joint.
20 fl. oz. uni-pac sausage seals 24 lineal ft. of ¼ x ¼ in. joint.

PACKAGING

Disposable 10.3 fl. oz., moisture-proof composite cartridges, 24/case; and uni-pac sausages, 20 fl. oz., 20/carton.

SHELF LIFE	10.3 fl. oz. cartridges 20 fl. oz. uni-pac sausages	12 months 12 months
STORAGE CONDITIONS	Store at 40-85F (4-35C). Condition material to 65-75F before using.	
COLORS	White, colonial white, aluminum gray, limestone, black, dark bronze, capitol tan. Special architectural colors on request.	
APPLICATION TEMPERATURE	40 to 100F. Sealant should be installed when joint is at midrange of its anticipated movement.	
SERVICE RANGE	-40 to 170F	
CURING RATE	Tack-free Time Tack-free to touch Final cure	6 to 8 hours (TT-S-00230C) 3 hours 5 to 8 days
RECOVERY (ASTM C719)		>90%
SHORE A HARDNESS (ASTM D-2240) 21 day	40±5	
TENSILE PROPERTIES (ASTM D-412) 21 day	Tensile Stress Elongation at Break Modulus of Elasticity 25% 50% 100%	140 psi (.96 MPa) 700% 40 psi (.275 MPa) 60 psi (.413 MPa) 80 psi (.551 MPa)
LAP-SHEAR STRENGTH (ASTM D-1002), modified, glass substrate 21 day 21 day	50F 75F 122F	120 psi (.827 MPa) 125 psi (.862 MPa) 125 psi (.862 MPa)

ADHESION IN PEEL (TT-S-00230C)

Substrate	Peel Strength	Adhesion Loss
Aluminum	25 lb	10%
Glass	20 lb	5%
Concrete	20 lb	0%

WEATHERING RESISTANCE	Excellent
CHEMICAL RESISTANCE	Good resistance to water, diluted acids, and diluted alkalies. Consult Technical Service for specific data.
RADON REDUCTION	Approximately 97% reduction in radon independent laboratory evaluation. Actual results available upon request. Consult Technical Service.

HOW TO USE

SURFACE PREPARATION

Clean all surfaces. Joint walls must be sound, clean, dry, frost-free, and free of oil and grease. Curing compound residues and any other foreign matter must be thoroughly removed. Install bond breaker tape or backer rod to prevent bond at base of joint.

PRIMING

Priming is not usually necessary. Most substrates only require priming if testing indicates a need or where sealant will be subjected to water immersion after cure. Consult Sikaflex Primer Technical Data Sheet or Technical Service for additional information on priming.

APPLICATION

Recommended application temperatures: 40-100 F. For cold weather application, condition units at approximately 70 F; remove prior to using.

For best performance, Sikaflex-1a should be gunned into joint when joint slot is at mid-point of its designed expansion and contraction.

Place nozzle of gun into bottom of the joint and fill entire joint. Keep the nozzle in the sealant, continue on with a steady flow of sealant preceding the nozzle to avoid air entrapment.

Avoid overlapping of sealant to eliminate entrapment of air. Tool as required. Joint dimension should allow for 1/4 inch minimum and 1/2 inch maximum thickness for sealant. Proper design is 2:1 width to depth ratio.

For use in horizontal joints in traffic areas, the absolute minimum depth of the sealant is ½ in. and closed cell backer rod is recommended. Tool as necessary, dry or with clean water.

LIMITATIONS

- ▲ Allow 1-week cure at standard conditions when using Sikaflex-1a in total water immersion situations and prior to painting.
- ▲ When overcoating with water, oil and rubber based paints, compatibility and adhesion testing is essential.
- ▲ Avoid exposure to high levels of chlorine. (Maximum continuous level is 3ppm of chlorine.)
- ▲ Maximum depth of sealant must not exceed ½ in.; minimum depth is ¼ in.
- ▲ Maximum expansion and contraction should not exceed 25% of average joint width.
- ▲ Do not cure in the presence of curing silicone sealants.
- ▲ Avoid contact with alcohol and other solvent cleaners during cure.
- ▲ Do not apply when moisture-vapor-transmission condition exists from the substrate as this can cause bubbling within the sealant.
- ▲ Use opened cartridges and uni-pac sausages the same day.
- ▲ When applying sealant, avoid air-entrapment.
- ▲ Since system is moisture-cured, permit sufficient exposure to air.
- ▲ White color tends to yellow slightly when exposed to ultra-violet rays.
- ▲ The ultimate performance of Sikaflex-1a depends on good joint design and proper application with joint surfaces properly prepared.
- ▲ Minimum depth of sealant in horizontal joints subject to traffic is ½ in.
- ▲ Do not tool with detergent or soap solutions.

CAUTION

COMBUSTIBLE

Keep away from open flames and hi heat. Contains xylene; avoid breathi vapors. Use with adequate ventilation.

IRRITANT

Avoid skin and eye contact. Use of NIOS MSHA approved organic vapor respir tor, safety goggles, and chemical-resi tant gloves recommended. Remove co taminated clothing and shoes.

FIRST AID

In case of skin contact, wash thorough with soap and water. For eye contac flush immediately with plenty of water f at least 15 minutes; contact physicia Wash clothing before re-use. Discard co taminated shoes.

CLEAN UP

Uncured material can be removed wit approved solvent. Cured material ca only be removed mechanically. For spill age, collect, absorb, and dispose of i accordance with current, applicable lo cal, state, and federal regulations.

Product Code 431 Sika and Sikaflex are registered trad marks Made in USA Printed in USA January, 1997

KEEP CONTAINER TIGHTLY CLOSED
NOT FOR INTERNAL CONSUMPTION

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

CONSULT MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION

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Regional Information and Sales Centers
For the location of your nearest Sika sales office, contact your regional center

USA Headquarters
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: 201-933-8800
Fax: 201-933-6225

Eastern Region
14 Summit Place
Suite 201
Branford, CT 06405
Phone: 203-488-7705
Fax: 203-488-7790

Central Region
2190 Gladstone Court
Suite A
Glendale Heights, IL 60139
Phone: 630-924-7900
Fax: 630-924-8508

Western Region
12767 East Imperial Hwy.
Santa Fe Springs, CA 90670
Phone: 562-941-0231
Fax: 562-941-4762

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Appendix B

Record Search Documentation

RCRA Facility Assessment (RFA) Sample Locations, Other RFA Documentation,
and Soil Gas Data (JEG)
Ground Water Conditions (CDM)
BRAC Cleanup Plan Extracts (U.S. Marine Corps Air Station, El Toro)

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

Table 6-15
Recommendations for SWMUs/AOCs
MCAS El Toro RFA

SWMU No.	SWMU/AOC Type	Recommendation (FA/NFA)	Description of Further Action	Rationale for Further Action
84	Oil/Water Separator	[illegible]	Leak test/inspection of separator	Moderate petroleum hydrocarbon contamination at 10-foot dept
88	Drum Storage Area	[illegible]	Shallow soil borings	Potential for PCBs in shallow soil
90	Former Sewage Treatment Plant Sit	NFA	--	--
91	Underground Storage Tank	NFA	--	--
92	Underground Storage Tank	NFA	--	--
95	Engine Test Cell	NFA	--	--
98	Vehicle Wash Rack	NFA	--	--
99	Drum Storage Area	NFA	--	--
100	TCE Degreaser	NFA	--	--
101	Oil/Water Separator	NFA	--	--
102	Underground Storage Tank	NFA	--	--
107	Hazardous Waste Storage Area	NFA	--	--
→ 110	Vehicle Wash Rack	[illegible]	Repair cracks in pavement	Prevent future migration of petroleum hydrocarbons
112	Oil/Water Separator	NFA	--	--
116	Drum Storage Area	NFA	--	--
120	Vehicle Wash Rack	NFA	--	--
124	Hazardous Waste Storage Area	NFA	--	--
125	Hazardous Waste Storage Area	NFA	--	--
129	Underground Storage Tank	NFA	--	--
130	Drum Storage Area	NFA	--	--
131	Engine Test Cell	[illegible]	Shallow soil borings	SVOC above PRG value
132	Oil/Water Separator	NFA	--	--
137	Oil/Water Separator	NFA	--	--
138	Drum Storage Area	NFA	--	--
139	Oil/Water Separator	NFA	--	--
144	Drum Storage Area	NFA	--	--
145	Underground Storage Tank	[illegible]	Additional boring(s)	Petroleum hydrocarbon contamination, unknown extent
147	Drum Storage Area	NFA	--	--
149	Drum Storage Area	NFA	--	--
151	Oil/Water Separator	[illegible]	Leak test/inspection of separator	Moderate petroleum hydrocarbon contamination at 10-foot dept

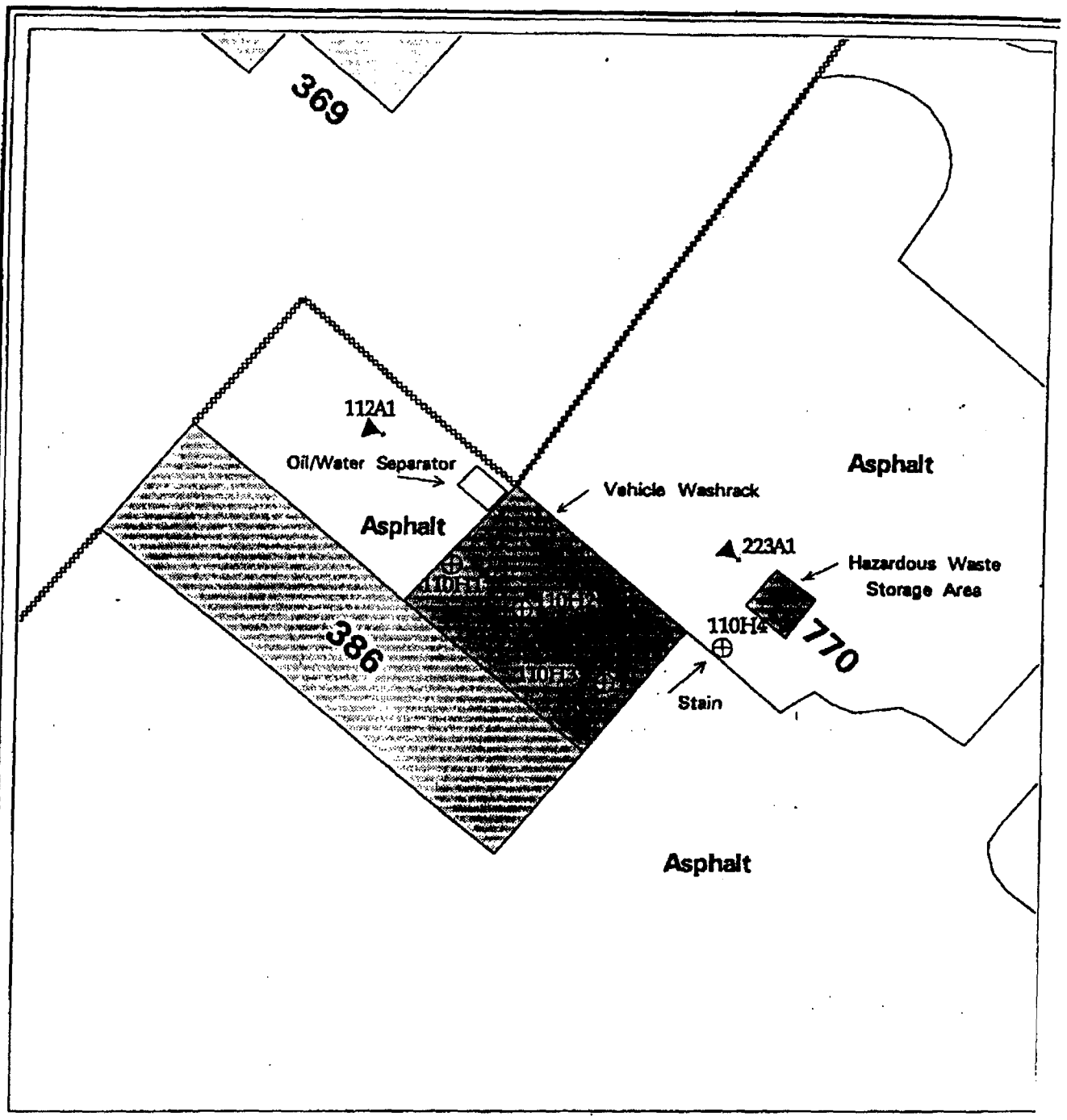


Figure 35 Sample Location Map

Boring Location and Number:

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

Features:

- Building
- Concrete
- Fence
- Railroad

Scale

0 20 40 80 Feet

SWMU/AOC Number and Type:

110 - Vehicle Washrack

112 - Oil/Water Separator

223 - Hazardous Waste Storage Area

MCAS El Toro
RCRA Facility Assessment

NCAS 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)	TPH (mg/kg)		VOCs (ug/kg)	SVOCs (ug/kg)	PESTICIDES/PCBs (ug/kg)	METALS (mg/kg)	Action	Rationale
					Gasoline	Diesel						
110	Vehicle Wash Rack (35)	H1	2	ND	NA	NA	Methylene Chloride-4 J * Acetone-4 BJ * Toluene-1 J *	NA	NA	NA	Repair cracks in pavement.	To prevent future migration of petroleum hydrocarbons. TPH/TFH < 1000 ppm VOCs < ETM & PRG
			5	ND	NA	NA	Methylene Chloride-3 J * 2-Butanone-2 J	NA	NA	NA		
		H2	2	680	NA	NA	Methylene Chloride-4 J * Acetone-4 BJ * Toluene-1 J *	NA	NA	NA		
			2 (Duplicate)	590	NA	NA	Methylene Chloride-4 J * Acetone-10 BJ * Toluene-4 J * 2-Butanone-3 J Ethylbenzene-5 J Xylene-62 PCE-11 J	NA	NA	NA		
			5	440	NA	NA	Methylene Chloride-20 BJ * Acetone-14 BJ * 2-Butanone-5 J Xylene-13 J	NA	NA	NA		
		H3	2	ND	NA	NA	Methylene Chloride-4 J * Acetone-7 BJ * Toluene-1 J *	NA	NA	NA		
			5	ND	NA	NA	Methylene Chloride-6 J * Toluene-1 J *	NA	NA	NA		
		H4	2	ND	NA	NA	Methylene Chloride-4 J * Acetone-6 BJ *	NA	NA	NA		
			5	ND	NA	NA	Methylene Chloride-4 J * Acetone-4 BJ * Toluene-1 J *	NA	NA	NA		

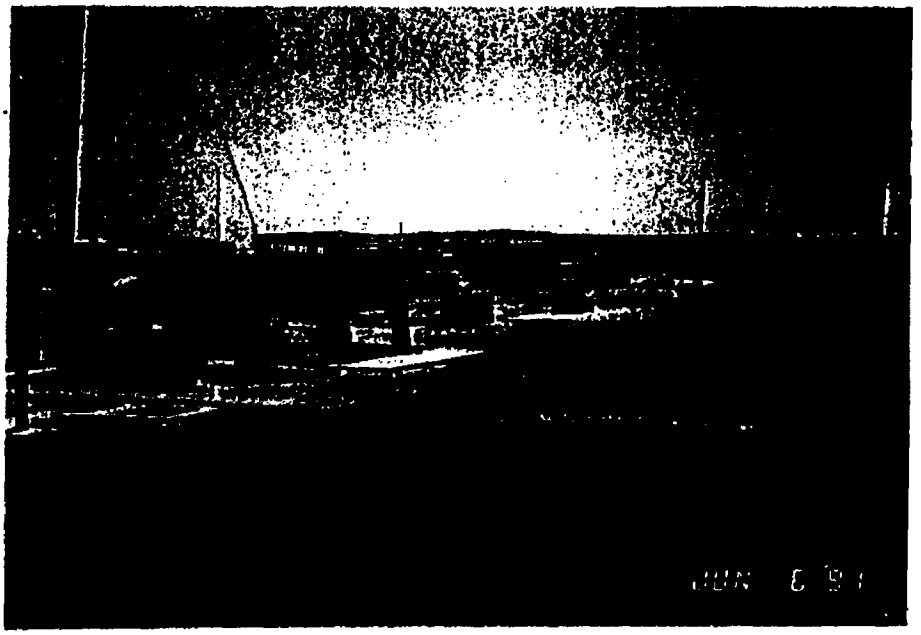
Evaluation Form
SWMU/Area of Concern
Number 110

Name: Vehicle Washrack

Location: East of Building 386

Size: 3,200 sq ft

Date of Site Visit: 23 April 91



Period of Operation

Currently active

Evaluation Form
SWMU/Area of Concern
Number 110

Unit Characteristics

The washrack is located adjacent to the northeastern side of Building 386. It is surrounded by a small unpaved area to the northeast, a concrete parking area to the southeast, and an asphalt paved area on the northwest side of the wash area.

The washrack consists of a concrete wash surface surrounded by a 4-in. concrete berm. The washrack is graded so that all the water flows toward a drain situated in the center of the wash area. The drain leads to oil/water Separator 386-B. The wash pad is badly stained from vehicles being worked on inside the wash area. There are also several cracks in the wash pad where water could possible leak through to the soil beneath the washrack. A portion of the berm has been removed from the southwestern corner so that vehicles can easily be driven into the wash area. It is unlikely that any water would flow away from this area because it is upgradient from the drain. The southeastern corner of the berm is also badly cracked. There are several stains on the ground outside this corner.

A 500-gallon bowser is stored in the northeastern corner of the washrack. The bowser is used to store waste oil. The bowser is elevated about 3 ft, therefore it is possible for a spill to spread outside the washrack berm. Two drip pans, located next to the bowser, are used to drain oil filters before disposal. There are several dark stains on the washrack's surface next to the bowser and the drip pans.

A hydraulic lift is located next to the bowser. From the stains around the hydraulic lift, it is evident that the hydraulic lift is still used.

Waste Characteristics

Oily waste
Waste oil
Hydraulic fluid
Antifreeze

Possible Migration Pathways

Storm drain system
Oil/water separator
Soil

Evidence of Release

Stained wash pad and stained ground outside the washrack

Evaluation Form
SWMU/Area of Concern
Number 110

Exposure Potential

On-Station personnel

Recommendations

Based on the stains and cracks in the concrete, this washrack is recommended for a sampling visit.

CRM HILL

PROJECT NUMBER	BORING NUMBER
LA070022.S0.10	223A-1 SHEET 2 OF 2

SOIL BORING LOG

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO

ELEVATION _____ DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA

DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22

WATER LEVELS _____ START 10/23/92 FINISH 10/23/92 LOGGER K. HUCKRIEDE

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION	COMMENTS
40.0	40.0					
	42.0	4-MC	1.5	30-37-20-50	SILTY SAND (SM), light brown, dry to moist, dense, fine grained.	Headspace reading 0.6 ppm on OVA.
45.0						
50.0	50.0					
	52.0	5-MC	1.7	21-48-59-110	SANDY SILT (ML), light brown, dry to moist, hard, fine to medium grained sand, rounded sand particles.	Headspace on OVA similar to background.
55.0						
	60.0				LEAN CLAY WITH SAND (CL), brown, moist, fine grain size, medium plasticity.	
60.0						
	62.0	6-MC		35-44-54-73	SANDY SILT (ML), light brown, dry to moist, hard, fine to medium sand, round sand particles.	Headspace on OVA similar to background.
					Total Depth at 62.0 Feet.	
65.0						

EXTRACTS

MARINE CORPS AIR STATION EL TORO
EL TORO, CALIFORNIA
INSTALLATION RESTORATION PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
FINAL SOIL GAS SURVEY
TECHNICAL MEMORANDUM
SITES 24 AND 25

Revision 0

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

THROUGH:
CONTRACT #N68711-89-D-9296
CTO #145
DOCUMENT CONTROL NO:
CLE-C01-01F145-S2-0004

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

In association with:
International Technology Corporation
CH2M HILL

John Dolegowski 28 Oct 94
Date

John Dolegowski
CLEAN Project Manager
CH2M HILL, Inc.

27 OCT '94
Date

Michael Bitner, R.G.
CLEAN Technical Reviewer
CH2M HILL, Inc.

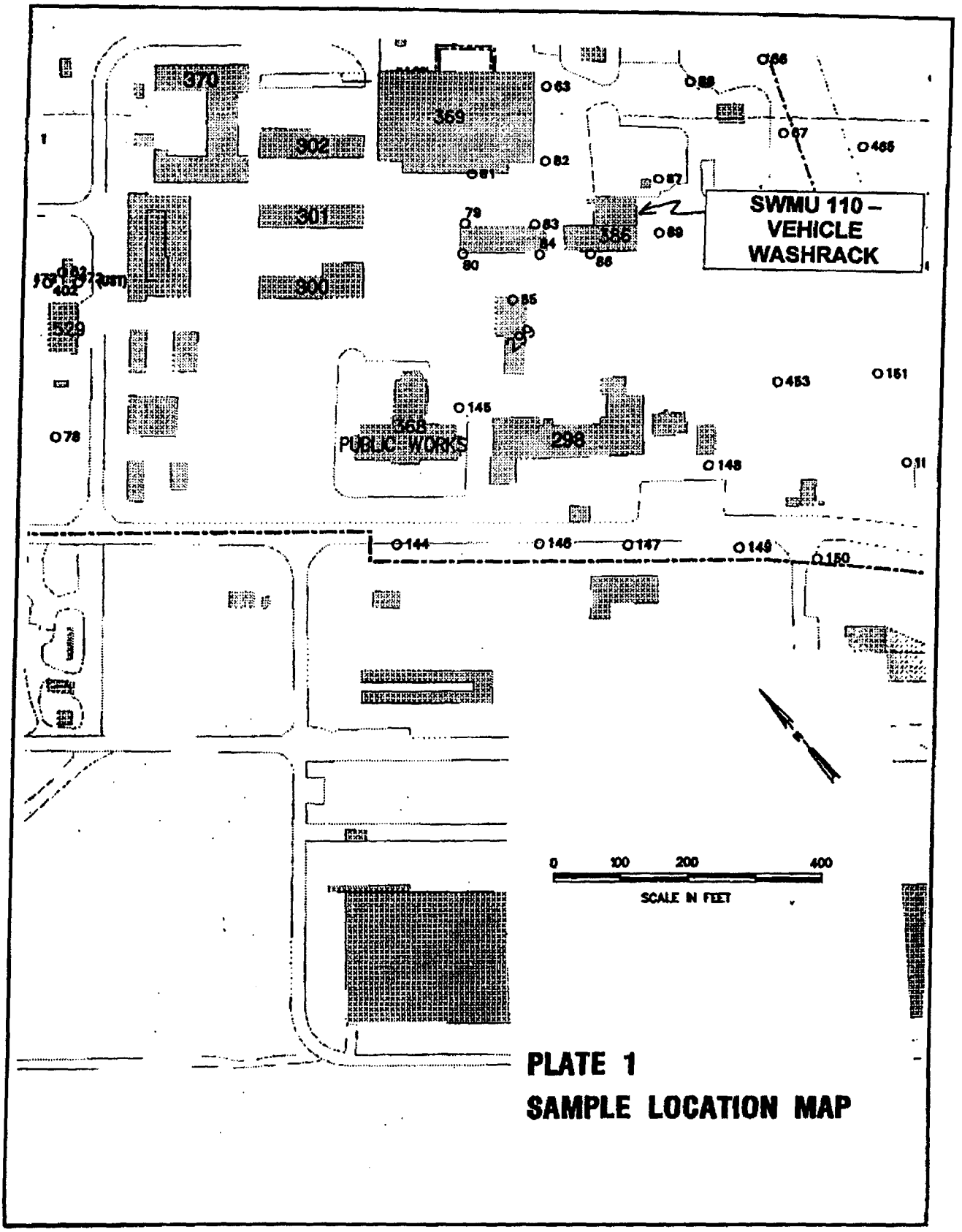


PLATE 1

SAMPLE LOCATION MAP

Table C-1
Concentrations in Soil Gas
NCAS El Toro Soil Gas Survey Technical Memorandum

Concentration in ug/L

(1) Keys to Full Parameter names in Legend.

Station_ID	Depth	Sample_ID	Smpl_Date	Smpl_Time	PCE (ECD)	PCE (FID)	TCE (ECD)	TCE (FID)	C12DCE	T12DCE	11DCA	11DCE (ECD)	11DCE (FID)	VC	111TCA	112TCA	TCTFA	CT	CHCL3	12DCP	MeCL2	TPH	Benzene	Toluene	Ethylbenzene	Total Xylenes
24_SG054	12	S145G1054	5/31/94	15:22	1 U		1 U		1.3	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG054	12	S145G3014	5/31/94	15:22	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG054	20	S145G1354	5/31/94	15:31	1 U		1 U		1.4	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG055	12	S145G1055	6/1/94	14:54	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG055	20	S145G1355	6/1/94	14:32	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG056	12	S145G1056	5/31/94	14:46	1 U		1 U		1.2	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG056	18	S145G1356	5/31/94	14:50	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG057	12	S145G1057	5/31/94	16:13	1 U		1 U		1 U	1 U	1 U	3.5		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG057	20	S145G1357	5/31/94	16:22	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG058	12	S145G1058	5/31/94	16:44	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG058	20	S145G1358	5/31/94	16:50	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG059	12	S145G1059	6/7/94	18:33	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG060	12	S145G1060	6/7/94	18:03	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG061	12	S145G1061	6/13/94	9:45	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG061	20	S145G1361	6/13/94	9:51	1 U		5.5		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG062	12	S145G1062	6/13/94	8:15	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG062	20	S145G1362	6/13/94	8:22	1.1		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	120	1 U	1 U	3	5
24_SG063	12	S145G1063	6/13/94	14:18	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG063	18	S145G3074	6/13/94	14:18	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG064	18	S145G1064	6/13/94	13:50	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG065	18	S145G1065	6/13/94	14:15	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG067	18	S145G1067	6/13/94	14:55	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG068	12	S145G1068	6/7/94	8:10	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1.1	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG068	20	S145G1368	6/7/94	8:18	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1.1	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG069	12	S145G1069	6/7/94	8:36	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG069	20	S145G1369	6/7/94	8:40	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG070	12	S145G1070	6/7/94	9:06	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG070	20	S145G1370	6/7/94	9:10	1 U		1 U		1 U	1 U	1.2	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG071	12	S145G1071	6/4/94	16:56	1 U		3.3		5.1	1 U	1 U	137 E	1.1 FI	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG071	20	S145G1371	6/4/94	16:40	1 U		1 U		2	1 U	1 U	450 E	8.1 FI	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG072	12	S145G1072	6/4/94	11:00	1 U		40.9 E	42.8 FI	8	1 U	1 U	166 E	11.8 FI	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG072	20	S145G1372	6/4/94	11:06	1 U		58.8 E	186 FI	8.9	1 U	1.8	491 E	50.7 FI	5 U	1 U	1 U	1 U	1 U	1	1 U	1 U	10 U	2	1 U	1 U	1 U
24_SG073	12	S145G1073	6/4/94	11:35	1 U		1 U		1.2	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG073	20	S145G1373	6/4/94	11:26	1 U		33.7 E	20.8 FI	1 U	1 U	1 U	140 E	26.8 FI	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG074	12	S145G1074	6/3/94	14:15	1 U		2.5		1.8	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG074	20	S145G1374	6/3/94	14:22	1 U		2.8		1 U	1 U	1 U	86.7 E	3.5 FI	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG075	12	S145G1075	6/3/94	16:59	1 U		2.7		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG075	20	S145G1375	6/3/94	17:07	1 U		1		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1.1	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG075	25	S145G3027	6/3/94	17:07	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1.4	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG076	12	S145G1076	6/7/94	16:29	1 U		1 U		1 U	1 U	1 U	1.4		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG076	12	S145G3035	6/7/94	16:29	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG077	12	S145G1077	6/7/94	14:53	1 U		1.8		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG077	20	S145G1377	6/7/94	15:01	1 U		2.5 E	1.3 FI	1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG078	12	S145G1078	6/13/94	8:44	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG078	20	S145G1378	6/13/94	8:49	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG079	15	S145G1079	6/14/94	8:23	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG080	15	S145G1080	6/13/94	15:29	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG081	15	S145G1081	6/13/94	13:40	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG082	12	S145G1082	6/13/94	10:36	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	2.5	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG082	20	S145G1382	6/13/94	10:41	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG083	15	S145G1083	6/13/94	14:09	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG084	15	S145G1084	6/13/94	15:02	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG085	15	S145G1085	6/13/94	15:30	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG086	15	S145G1086	6/13/94	13:41	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG088	15	S145G1088	6/13/94	15:12	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U
24_SG089	15	S145G1089	6/13/94	14:58	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U

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

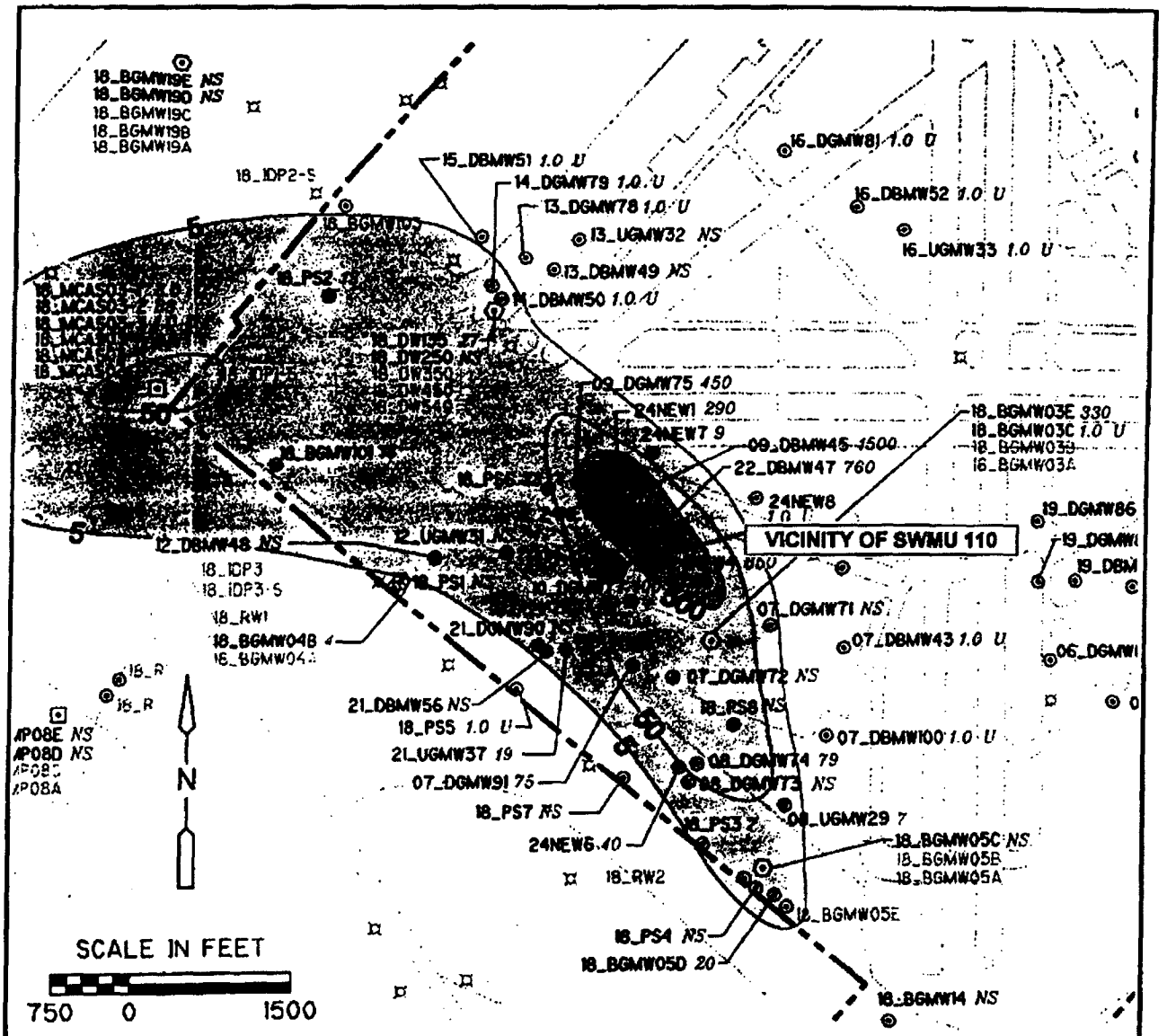
October 1997

Table 4-1: 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.
08_UGMW28	135	12-Aug-92		1.0 U	1.0 U	1.0 U	1.0 U	0.8 J	2.0 U	1.0 U	0.7 J	1.0 U	1.0 J			
		7-Sep-93		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			
		14-Feb-96		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		
		25-Nov-96		1.0 U	1.0 U	1.0 U	1.0 U	0.7 J	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U		
		12-Mar-97		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		
		7-Jul-97		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		
09_DBMW45	157	20-Jul-92				2.0	1.0 U	2.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		12-Oct-92				1.0 U	1.0 U	2.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	70.0 JN		
		12-Oct-92				4.0	1.0	3.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		1,2-DICHLOROETHANE	0.5 J
		13-Jul-93				1.0 U	1.0 U	2.0	10.0 U	1.0 U	8.0	1.0 U	1.0 U	30.0 JN		
		20-Nov-95		3.0 J				10.0								
		15-Feb-96		4.0		3.0	1.0 U	2.0 U	10.0 U	1.0 U	8.0	1.0 U	1.0 U	10.0 U		
		18-Nov-96		1.0 U		4.0	0.9 J	2.0	10.0 U	1.0 U	1.0 J	1.0 U	1.0 U	20.0	1,1,2,2-TETRACHLOROETHANE	0.8 J
															1,2-DICHLOROETHANE	1.0
															BROMODICHLOROMETHANE	0.9 J
															CHLOROBENZENE	2.0 J
															CHLORODIBROMOMETHANE	0.9 J
															METHYLENE CHLORIDE	2.0
		24-Mar-97			3.0	1.0 U	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 J		
		8-Jul-97			4.0	7.0	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			4.0	1.0 U	1.0 U	2.0	500.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.0 J		
09_DGMW75	154	12-Jan-92				0.5 J	1.0 U	0.9 J	0.8 J	1.0 BJ	1.0 U	1.0 U	1.0 U			
		7-Dec-93				1.0 U	1.0 U	0.9 J	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U			
		14-Feb-96		2.0		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		
		4-Dec-96				3.0	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12.0		
		25-Mar-97		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	200.0 U	20.0 U	20.0 U	20.0 U	20.0 U	200.0 U	METHYLENE CHLORIDE	210.0
		8-Jul-97				1.0 U	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	6.0 J		
		8-Jul-97				1.0 U	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	6.0 J		
→ 10_DGMW77	170	17-Nov-92				0.6 J	1.0 U	1.0	1.0 J	1.0 U	1.0 U	1.0 U	1.0 U			
		13-Aug-93		3.0		1.0 U	1.0 U	2.0	2.0 U	0.7 J	1.0 U	1.0 U	1.0 U			
		14-Feb-96		1.0 U	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		
		4-Dec-96		3.0		0.7 J	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.3 J		
		24-Mar-97		1.0		0.9 J	1.0 U	2.0	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	METHYLENE CHLORIDE	1.0
		10-Jul-97		1.0 U		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		
12_DBMW48	135	17-Nov-92	0.8 J			1.0 U	1.0 U	1.0 U	2.0 J	1.0 U	1.0 U	1.0 U	1.0 U	240.0 JN		
		27-Jul-93	0.7 J			1.0 U	1.0 U	1.0 U	1.0 J	1.0 U	1.0 U	1.0 U	1.0 U			
		16-Feb-96			1.0 U	1.0 U	1.0 U	1.0 U	10.0 U	1.0 U	8.0	1.0 U	1.0 U	10.0 U		
		13-Nov-96	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	221.0		
		17-Mar-97	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	140.0	METHYLENE CHLORIDE	10.0
		17-Mar-97	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	140.0	METHYLENE CHLORIDE	21.0

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)
08_DGMW74	WT	90 - 130	264.75	14-Feb-96	84.99	179.76	
			266.70	27-Feb-96	85.08	181.62	1.86
			266.70	27-Mar-96	85.24	181.46	-0.16
			266.70	30-Oct-96	85.23	181.47	0.01
			266.70	26-Nov-96	85.04	181.66	0.19
			266.70	26-Dec-96	85.15	181.55	-0.11
			266.70	23-Jan-97	84.80	181.90	0.35
			266.70	26-Feb-97	84.60	182.10	0.20
			266.70	27-Mar-97	84.46	182.24	0.14
			266.70	26-Jun-97	84.60	182.10	-0.14
			266.70	11-Aug-97	84.73	181.97	-0.13
08_UGMW29	WT	95 - 135	271.94	12-Jan-96	87.00	184.94	
			271.94	14-Feb-96	86.75	185.19	0.25
			271.94	27-Feb-96	86.70	185.24	0.05
			271.94	27-Mar-96	86.50	185.44	0.20
			271.94	30-Oct-96	86.46	185.48	0.04
			271.94	26-Nov-96	86.29	185.65	0.17
			271.94	27-Dec-96	86.10	185.84	0.19
			271.94	23-Jan-97	86.02	185.92	0.08
			271.94	26-Feb-97	85.84	186.10	0.18
			271.94	27-Mar-97	85.70	186.24	0.14
			271.94	26-Jun-97	85.82	186.12	-0.12
			271.94	11-Aug-97	85.89	186.05	-0.07
09_DBMW45	WT	117 - 157	280.00	11-Jan-96	118.70	161.30	
			280.00	15-Feb-96	118.44	161.56	0.26
			280.00	27-Feb-96	118.35	161.65	0.09
			280.00	27-Mar-96	118.02	161.98	0.33
			280.00	30-Oct-96	118.64	161.36	-0.62
			280.00	26-Nov-96	118.12	161.88	0.52
			280.00	26-Dec-96	118.07	161.93	0.05
			280.00	23-Jan-97	117.50	162.50	0.57
			280.00	27-Feb-97	116.81	163.19	0.69
			280.00	27-Mar-97	117.24	162.76	-0.43
			280.00	26-Jun-97	118.00	162.00	-0.76
			280.00	11-Aug-97	118.06	161.94	-0.06
09_DGMW75	WT	114 - 154	271.00	11-Jan-96	112.68	158.32	
			271.00	14-Feb-96	112.20	158.80	0.48
			271.00	27-Feb-96	112.21	158.79	-0.01
			271.00	27-Mar-96	111.90	159.10	0.31
			271.00	1-Nov-96	112.47	158.53	-0.57
			271.00	26-Nov-96	111.93	159.07	0.54
			271.00	26-Dec-96	111.93	159.07	0.00
			271.00	27-Feb-97	110.82	160.18	1.11
			271.00	27-Mar-97	111.21	159.79	-0.39
			271.00	26-Jun-97	111.74	159.26	-0.53
			271.00	11-Aug-97	111.83	159.17	-0.09
→ 10_DGMW77	WT	130 - 170	271.40	11-Jan-96	104.60	166.80	
			271.40	14-Feb-96	104.78	166.62	-0.18
			271.40	27-Feb-96	104.75	166.65	0.03
			271.40	27-Mar-96	104.34	167.06	0.41
			271.40	30-Oct-96	104.68	166.72	-0.34
			271.40	26-Nov-96	104.25	167.15	0.43
			271.40	26-Dec-96	104.30	167.10	-0.05
			271.40	23-Jan-97	103.82	167.58	0.48
			271.40	26-Feb-97	103.45	167.95	0.37
			271.40	27-Mar-97	103.60	167.80	-0.15
			271.40	26-Jun-97	103.98	167.42	-0.38
			271.40	12-Aug-97	104.14	167.26	-0.16



Source of Information:
Final Groundwater Monitoring Report, July 1997 Sampling Round, Groundwater Monitoring Program for Marine Corps Air Station, El Toro (*CDM Federal Programs Corporation, 1997*).

NOTE: Contours represent lines of equal trichloroethylene (TCE) concentrations in micrograms per liter.

EXHIBIT B-1.

SOLID WASTE MANAGEMENT UNIT (SWMU) NUMBER 110 - VEHICLE WASHRACK

GROUND WATER CONDITIONS

MARINE CORPS AIR STATION, EL TORO

United States Marine Corps

EXTRACTS

Base Realignment and Closure Cleanup Plan (BCP)

For

Marine Corps Air Station
El Toro, CA

March 1998

Table 3-1a
Site Summary
(Sheet 31 of 37)

Seq. No.	Database Tracking	Previous Parcel	New Parcel	Description	Material Disposed	Date of Operation	Status	Risk to Human Health and the Environment[1]	Regulatory Mechanism	NFA	Comments	BCP Area Type[3]
737	RFA 72	5A	A1	< 90-day accumulation area			FA				See Table 3-13	6
738	RFA 74	5A	A1	Aircraft wash area						X	See Table 3-13	1
739	RFA 78	5A	A1	Drum storage area			Not Located During RFA			X	See Table 3-13	1*
740	RFA 79	5A	A1	Drum storage area			Not Located During RFA			X	See Table 3-13	1*
741	RFA 80	5A	A1	Drum storage area			Not Located During RFA			X	See Table 3-13	1*
742	RFA 81	5A	A1	Drum storage area			Not Located During RFA			X	See Table 3-13	1*
743	RFA 82	5A	A1	Drum storage area			Not Located During RFA			X	See Table 3-13	1*
744	RFA 89	4A	A2	Drum storage area			Not Located During RFA			X	See Table 3-13	1*
745	RFA 94	4B	A4	< 90-day accumulation area			FA				See Table 3-13	6
746	RFA 95	4A	A1	Engine test cell						X	See Table 3-13	3
747	RFA 96	5A	B1	Drum storage area			Not Located During RFA			X	See Table 3-13	1*
748	RFA 98	4B	A4a	Vehicle wash rack						X	See Table 3-13	1
749	RFA 100	4B	A4a	TCE degreaser						X	See Table 3-13	3
750	RFA 103	4B[4]	A4a	Drum storage area			Not Located During RFA			X	See Table 3-13	1*
751	RFA 104	5A	A4b	< 90-day accumulation area			FA				See Table 3-13	6
752	RFA 105	5A	A4b	< 90-day accumulation area			FA				See Table 3-13	6
753	RFA 106	5A	A4b	< 90-day accumulation area			FA				See Table 3-13	6
754	RFA 109	4A	A1	< 90-day accumulation area			Not Located During RFA			X	See Table 3-13	1*
755	RFA 110	4A	A1	Vehicle wash rack			FA				See Table 3-13	6
756	RFA 120	3A	J4	Vehicle wash rack						X	See Table 3-13	3
757	RFA 121	3A	J4	Drum storage area			Not Located During RFA			X	See Table 3-13	1*
758	RFA 125	2B	I2	< 90-day accumulation area						X	See Table 3-13	3
759	RFA 128	4A	A1	Storage area						X	See Table 3-13	1*
760	RFA 131	3A	B1	Engine test cell			Transfer to RAC Remediation (impacted soils were removed in 1997)				See Table 3-13	6
761	RFA 133	3A	B1	< 90-day accumulation area			Not Located During RFA			X	See Table 3-13	1*
762	RFA 134	3A	B1	< 90-day accumulation area			Not Located During RFA			X	See Table 3-13	1*
763	RFA 136	5A	B1	Aircraft wash area						X	See Table 3-13	1
764	RFA 141	5A	B1	Aircraft wash area						X	See Table 3-13	1

Table 3-13
Summary of SWMUs/AOCs
(Sheet 7 of 20)

SWMU/ AOC Number [1]	Database Tracking	Previous Parcel	New Parcel	RFA Recommendation	Type/Description	Location, Building, or Number	Sampling Visit	Comments	ECP Area Type [2]
100	RFA 100	4B	A4a	NFA	TCE degreaser	359	X	NFA concurrence by DTSC (letter dated 7/23/96).	3
101	OWS 359B	4B	A4a	NFA	Oil/water separator	359	X	RFA recommended NFA. DTSC concurrence (letter dated 7/23/96).	7
102	UST 359C	4B	A4	NFA	Former UST site	359	X	Tank removed in 1993. Site closed by OCHCA in a letter dated 12/9/96.	2
103	RFA 103	4B [3]	A4a	Not Located During RFA	Drum storage area	359		Source: 1980 DHS photograph. Location not confirmed during RFA activities. NFA through agency acceptance of the EBS (Table 3-3).	1*
104	RFA 104	5A [3]	A4b	FA in CP	< 90-day accumulation area	360		To be addressed in the Compliance Program. Site lies within the boundaries of IRP Site 8, but will not be addressed under the IR Program.	6
105	RFA 105	5A [3]	A4b	FA in CP	< 90-day accumulation area	360		To be addressed in the Compliance Program. Site lies within the boundaries of IRP Site 8, but will not be addressed under the IR Program.	6
106	RFA 106	5A [3]	A4b	FA in CP	< 90-day accumulation area	360		To be addressed in the Compliance Program. Site lies within the boundaries of IRP Site 8, but will not be addressed under the IR Program.	6
107	TAA 371A	5A	B1	NFA	< 90-day accumulation area (active)	371	X	Final RFA Addendum (BNI, 1996): evaluation of removal and/or decontamination strategy proposed. NFA pending Station closure.	1
108	UST T10	5A	Q	NFA	Inactive UST	Taxiway		UST scheduled for removal in 1998.	2*
109	RFA 109	4A [3]	A1	Not Located During RFA	< 90-day accumulation area	379		Source: SPCC map (no date). Location not confirmed during RFA activities. NFA through agency acceptance of the EBS (Table 3-3).	1*
110	RFA 110	4A	A1	FA	Vehicle wash rack	386	X	RFA recommended repair of cracks in pavement (Jacobs 1993).	6
112	OWS 386B	4A	A1	NFA	Oil/water separator	386	X	RFA recommended NFA. DTSC concurrence (letter dated 7/23/96). Associated with UST 386C.	7
113	UST 386C	4A	A2	NFA	Active UST	386	X	Combined with SWMU/AOC 112 (OWS 386B). Tank will be removed following operational closure.	2*
114	TAA 386	4A	A2	NFA	< 90-day accumulation area (active)	386		Source: 1980 DHS photograph; no evidence of release. Final RFA Addendum (BNI, 1996): evaluation of removal and/or decontamination strategy proposed. NFA pending Station closure.	1
116	TAA 388A	4A	A1	NFA	< 90-day accumulation area (active)	388	X	Final RFA Addendum (BNI, 1996): evaluation of removal and/or decontamination strategy proposed. NFA pending Station closure.	1
117	UST 388B	4A	A1	NFA	Active UST	388		Tank will be removed following operational closure.	7
118	OWS 388C	4A	A1	Not Located During RFA	Oil/water separator	388		Location not confirmed during RFA activities. Associated with UST 388B. NFA through agency acceptance of the EBS (Table 3-3).	2*