One Market Plaza Spear Street Tower, Suite 717 San Francisco, CA 94105 (415) 957-9557



27 November 1990 Project 1459.04

Mr. John Adams Project Manager Kaiser Foundation Health Plan 1950 Franklin Street, 11th Floor Oakland, California 94612-2998

Subject:

Soil Remediation Report

Pentachlorophenol and Related Compounds

Kaiser Permanente Medical Center 280 West MacArthur Boulevard

Oakland, California

Dear Mr. Adams:

Enclosed is our report summarizing and documenting the work conducted to remediate soil affected by pentachlorophenol and related compounds at the Kaiser Permanente Medical Center construction site. The removal of affected soil from the site has been completed and the soil has been transported off-site to an approved incinerator facility for disposal. No further work is anticipated at the site with regard to the pentachlorophenol-affected soil. A copy of this report should be submitted to Susan Hugo of the Alameda Health Agency, Department of Environmental Health, for their files.

We appreciate the opportunity to providing our consulting engineering services to Kaiser. If you have any questions or comments, please feel free to contact either of the undersigned.

Sincerely yours,

GEOMATRIX CONSULTANTS, INC.

N. Debra Favre

Project Manager

cc: Fonda Karelitz, Kaiser Foundation Health Plan

Mark Zemelman, McCutchen, Doyle, Brown & Enersen



SOIL REMEDIATION - PENTACHLOROPHENOL AND RELATED COMPOUNDS

Kaiser Permanente Medical Center 280 West MacArthur Boulevard Oakland, California

Prepared for

Kaiser Foundation Health Plan 1950 Franklin Street Oakland, California

November 1990 Project No. 1459.04

Geomatrix Consultants



TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
2.0	BACKGROUND	1
3.0	MOBILIZATION	2
	3.1 Site Control3.2 Health and Safety3.3 Geophysical Survey	2 3 3
4.0	DOCUMENTATION SAMPLING	3
	4.1 Soil Samples4.2 Air Samples4.3 Wipe Samples	4 4 5
5.0	SOIL EXCAVATION TRANSPORT AND DISPOSAL	5
	5.1 Excavation of PCP-Affected Soil5.2 Removal and Transportation of Soil5.3 Soil Disposal	5 7 8
6.0	CONCLUSIONS	9
	LIST OF TABLES	
	y	

LIST OF FIGURES

- Figure 1 Site Plan
- Figure 2 Locations of Documentation Samples
- Figure 3 Extent of Soil Excavation and Locations of Final Documentation Samples



TABLE OF CONTENTS (concluded)

LIST OF APPENDICES

Appendix A - Geomatrix Health and Safety Plan for Site

Appendix B - Sampling Methods

Appendix C - Laboratory Analytical Reports

Appendix D - Hazardous Waste Manifests for Transportation of Soil



1.0 INTRODUCTION

As requested by the Kaiser Foundation Health Plan (Kaiser), we herein present a summary of the work performed to remove and dispose of soil affected by pentachlorophenol (PCP) and related compounds from the Kaiser Permanente Medical Center (Kaiser Hospital) construction site at 280 West MacArthur Boulevard in Oakland, California (Figure 1). The purpose of this report is to document the excavation and disposal of soil affected by PCP and related compounds and to discuss the results of efforts to classify and characterize the soil for disposal. Work described herein was performed by or under the guidance of Geomatrix Consultants, Inc. (Geomatrix).

2.0 BACKGROUND

On 28 February 1990, while excavating soil affected by mineral spirits on the hillside on the northern part of the Kaiser Hospital construction site, Kaiser Construction Services unexpectedly encountered a damaged 55-gallon metal drum. The buried drum was located approximately two feet below grade near the crest of the hill. Figure 2 shows the approximate location of the drum. As reported by Kaiser Construction Services personnel, the drum appeared to have been buried for some time; it was rusted and bore no label. Kaiser Construction Services personnel removed the drum from the hillside soon after they encountered it and placed it in a hazardous waste storage bin. The drum was then covered with soil and plastic sheeting. The contents of the drum, as observed by Kaiser Construction services personnel and a Geomatrix geologist, had a brownish yellow color, gave off a pungent odor, and was highly viscous. Construction activities were halted until the drum and affected soil were removed.



3.0 MOBILIZATION

At Kaiser's request, within one hour of the drum's discovery, Geomatrix collected two samples of soil from the area where the drum was found. Because no information on the material was available, samples initially were screened qualitatively by the analytical laboratory using infrared spectroscopy (FTIR). The FTIR scan indicated that the soil samples contained high concentrations of phenolic and chlorinated compounds. A more definitive laboratory analysis then was conducted using gas chromatography and mass spectrometry (GC/MS) by Environmental Protection Agency (EPA) Method 8270; these tests indicated that the material contained PCP and 2,4,5-trichlorophenol (TCP). American Environmental Laboratories Corporation (AELC) performed the chemical identification; subsequent analyses were performed by AELC and BC Analytical.

Geomatrix immediately notified Kaiser and Kaiser's legal counsel of the preliminary identification of the material from the drum. Arrangements were made for Crosby & Overton, Inc., a hazardous waste management contractor, to excavate the affected soil from the hillside. Excavation began on 6 March 1990 and was completed on 4 April 1990.

3.1 Site Control

To maintain site control and minimize chemical exposure to the public, access to the construction area of the site was limited to authorized personnel. The site was completely enclosed within an 8-foot-high chain-link fence, and gates were locked except to admit authorized equipment and personnel. Work and support zones were established, and access to the work zone was limited to necessary personnel wearing appropriate protective clothing and equipment.



3.2 Health and Safety

In addition to the site control measures described above, other measures were taken to reduce the risk of chemical exposure to hazardous waste cleanup workers, site visitors, and the nearby public. Both Geomatrix and Crosby & Overton prepared site health and safety plans before beginning excavation. Appendix A contains a copy of Geomatrix's health and safety plan, which describes the procedures and control measures followed at the site.

3.3 Geophysical Survey

To locate additional drums that might be buried in the hillside, West Coast Locators, under Geomatrix's direction, conducted a survey using geophysical techniques. On 6 March 1990, a magnetometer survey was attempted, but because of interference from the Magnetic Resonance Imaging Laboratory adjacent to the site, the survey was abandoned. Another survey was conducted on 8 March 1990 using a metal detector (Fischer M-Scope); results indicated that no additional drums were likely present within a depth of approximately 10 to 12 feet below slope grade.

4.0 DOCUMENTATION SAMPLING

Throughout the effort to remove the soil affected by PCP and related compounds, samples were collected to document the effectiveness of cleanup activities. Documentation samples were collected from soil within the excavation, from equipment after decontamination, and from ambient air. The following sections describe the types of samples collected.

Appendix B presents a more detailed description of sampling procedures and Appendix C contains copies of the laboratory analytical reports.



4.1 Soil Samples

During excavation, grab and composite soil samples were collected to assess the need for additional excavation. These samples were analyzed within 24 to 48 hours to reduce delays in excavation.

An AELC chemist was on site to screen grab soil samples for PCP on 6 and 7 March 1990, when soil containing the highest concentrations of PCP was removed. The screening method, which used Dragger colorimetric indicator tubes specific to chlorinated phenols, had an approximate detection limit that ranged from 50 to 100 milligrams per kilogram (mg/kg), or parts per million (ppm). The technique was used to identify the general areas and depths where soil was to be excavated. Additional sampling and analysis using more sensitive laboratory methods were performed to document the removal of soil affected by PCP and related compounds in areas where PCP was present at less than 50 ppm.

In total, 33 documentation soil samples were collected from the floor, sidewalls, and subsurface of the excavation at depths ranging from 1 to 5 feet. These samples were analyzed for PCP and TCP using either EPA Method 8270 (GC/MS) or EPA Method 8040 for phenolic compounds, which uses gas chromatography based on retention time identification. Selected samples were also analyzed for dioxins and furans by EPA Method 8280 and for mineral spirits by EPA Method 8015. Figure 2 shows the extent of excavation of affected soil and where documentation samples were collected throughout the excavation process.

4.2 Air Samples

To assess the potential release of PCP and TCP to ambient air during excavation, air samples were collected on 6 and 7 March 1990, the days when soil containing the highest concentrations of TCP and PCP was removed. Each day, a field blank and samples from two locations were collected following OSHA Method 39. Samples were collected at the



base of the slope along the water tank fence (within the soil excavation area) and at the top of the hillside generally downwind of the excavation (Figure 1). A summary of air sampling results is presented in Table 1. Because air sampling detected no PCP or TCP at the site perimeter, we concluded that air affected by the excavation did not pose a health risk to hospital personnel, neighboring residents, or bystanders outside the site.

4.3 Wipe Samples

After the excavation was completed, equipment was decontaminated with a solution of water and nonionic detergent. After decontamination, surfaces of equipment were wipe-sampled and the samples analyzed to document decontamination.

5.0 SOIL EXCAVATION, TRANSPORT, AND DISPOSAL

The following sections describe activities undertaken to remove affected soil from the site.

5.1 Excavation of PCP-Affected Soil

Most of the soil affected by PCP was removed on 6 and 7 March 1990. The remaining soil, which contained concentrations less than 50 ppm, was removed before or on 4 April 1990. Because soil that contained high concentrations of PCP was most easily identified, it generally was removed within the first two days of excavation. The excavation of soil containing PCP at concentrations less than 50 ppm required an iterative approach to avoid excavating soil not affected by PCP. Because a field indicator test was not available for soil containing PCP concentrations less than 50 ppm, samples were collected daily and analyzed to evaluate whether the previous day's excavation had completed the task. Soil was excavated using this iterative process on 6, 7, and 28 March and on 4 April 1990. Table 2 presents a summary of events involved in the excavation of soil affected by PCP; Table 3 presents a summary of analytical results for soil samples.



During excavation on the hillside, some soil that may have contained PCP spilled onto the asphalt pavement at the base of the hillside near the cooling tower and northeast side of the mechanical building. Samples of this soil (samples MC-1 and MC-2) were collected for analysis; one sample (MC-2) was found to contain low concentrations of PCP and TCP. Based on this finding, soil that had accumulated in this area was removed and stored on site in drums for disposal.

The excavation was considered complete when PCP and TCP were not detected above 1 ppm, the practical reporting limit for PCP and TCP, in samples collected from the floor and sidewalls of the excavated area. Because of the high concentrations of mineral spirits in the area affected by PCP, a detection limit of 1 ppm was used to define the extent the excavation for PCP and related compounds. This limit was used because the analytical laboratories could achieve it consistently and with certainty for the soil matrix containing mineral spirits. Figure 3 shows a cross section of the extent of soil excavated and the location of final documentation samples.

In total, approximately 160 cubic yards of soil were excavated from the area where the drum was found. The soil was stored on site within the fenced construction area in two labeled 20-cubic-yard hazardous waste storage bins, ninety-two 55-gallon metal drums, and a covered, lined stockpile on the excavated hillside.

Samples also were collected from areas not associated with the drum to evaluate whether PCP and related compounds are present outside the area where the drum was found. PCP and TCP were not detected in a sample taken inside the mechanical building (sample B-36). In addition, soil excavated from the hillside before the drum was encountered (samples B-33, B-34, and B-35), which had been temporarily stored near the mechanical building and the paint shed, also was sampled and analyzed for PCP. No chlorinated phenols were detected in the soil excavated before the drum was encountered. Based on these results, the



soil affected by PCP and related compounds appears to have been limited to the area adjacent to and directly downhill from the drum location.

5.2 Removal and Transportation of Soil

Soil affected by PCP and related compounds was removed from the site between 24 and 28 August 1990. Arrangements were made for Crosby and Overton, Inc., to remove and transfer contaminated soil from the designated areas to trucks for transport to the disposal site. Hazardous Materials Services arranged for transportation of the soil to ThermalKEM, Inc., an incineration facility in Rock Hill, South Carolina.

On 24 August 1990, eighty-five of the ninety-two 55-gallon drums containing soil were placed on a flatbed truck and transported from the site to the ThermalKEM incinerator. These drums contained approximately 21.25 cubic yards of soil. Soil from the other 7 drums was emptied directly into a dump truck for transport to the incinerator. The drums were then wiped clean and sampled to document decontamination.

Soil stockpiled on the hillside initially was removed on 25 August 1990. Approximately 104 cubic yards of soil from the hillside was transferred to 17-cubic-yard dump trucks and then transported to the incinerator facility. This quantity included soil stored on the hillside and some sand that had been used with a polyethylene liner to separate the native soil from soil affected by PCP and related compounds. Four samples (SP-1 to SP-4) were collected from the hillside to evaluate whether PCP-affected soil remained in the hillside stockpile area. Only one sample (SP-4) was found to contain low concentrations of PCP and TCP, at 2 milligrams per kilogram (mg/kg) and 4 mg/kg, respectively. Sample SP-4 was taken from the bottom, southwest corner of the hillside, approximately 5½ feet from the fence. Based on the analytical results, approximately 15 additional cubic yards of soil were removed from this area on 28 August 1990. Two additional samples (SP-5 and SP-6) were taken following the removal of soil; in neither sample was PCP or TCP detected. Table 3



includes a summary of analytical results for soil samples collected during the transfer of stockpiled soil.

Soil stored in two hazardous waste bins was transferred to 17-cubic-yard dump trucks and transported from the facility on 26 August 1990. The bins contained a total of approximately 40 cubic yards of soil. Following the removal of soil, the containers were decontaminated and two wipe samples were collected from each bin. The samples were analyzed for TCP and PCP by EPA Method 8270. The analyses detected 17 micrograms per wipe (μ g/wipe) of 2,4,5-TCP on the bottom surface of one storage bin (sample WP-3). As a result, additional decontamination of the bin was performed by Crosby and Overton on 28 August 1990. The two wipe samples taken following decontamination revealed no TCP or PCP.

Table 4 summarizes the quantities of soil removed from each area. In total, approximately 180 cubic yards of soil were removed and transported from the drums, storage bins, and the hillside stockpile of the subject site. This total included the original 160 cubic yards excavated between 6 March and 4 April 1990 and 20 cubic yards consisting of additional soil from the base of the hillside and some of the sand used for lining the hillside stockpile. Appendix D contains the manifests for transportation of affected soil.

5.3 Soil Disposal

The PCP-affected soil removed from the site was transported by a licensed hazardous waste transporter to ThermalKEM, which operates a hazardous waste incinerator that is permitted under the U.S. EPA's Resource Conservation and Recovery Act (RCRA). The drums were transported on a flat-bed truck. The first truck arrived at the incineration on 29 August 1990; the last truck arrived on 31 August 1990. Upon arrival at the incinerator facility, the soil was transferred from the drums to cardboard boxes for burning. Soil from the hillside stockpile and the hazardous waste storage bins, which was transported in 17-cubic-yard



dump trucks, also was transferred at the incinerator facility into cardboard boxes for burning. All soil was transported under a South Carolina hazardous waste manifest, which indicated that the material was not classified as a RCRA hazardous waste.

ThermalKEM's incinerator is a multiple-hearth type. After the soil is burned, the ash is transported to a RCRA-permitted hazardous waste landfill under federal hazardous waste manifest that identifies ThermalKEM as the waste generator. The soil that originated from Kaiser's site has not yet been completely burned. Soil burned after 25 September 1990 was handled by ThermalKEM as a RCRA waste under newly instituted hazardous waste code D037 for PCP and D041 for TCP. The burn certificates will be sent to Kaiser when Geomatrix receives them.

6.0 CONCLUSIONS

As of 28 August 1990, soil affected by PCP and related compounds had been removed from the Kaiser site and taken to a permitted incinerator facility for proper disposal. Based on sampling and analysis conducted during and after excavating affected soil, no detectable concentrations of PCP or related compounds remain at the Kaiser site. The affected soil has been properly disposed of by incineration.

CONTR\1459KAI2.TXT 9



AIR SAMPLING RESULTS

Kaiser Hospital Site Oakland, California

Concentrations in milligrams per cubic meter (mg/m³)

<u>Date</u>	<u>Location</u>	Pentachlorophenol	2.4.5-Trichlorophenol
3/6/90	Hillside base	ND	ND
3/6/90	Hillside base	ND	ND
3/7/90	Hillside base	ND	0.04
3/7/90	Hillside top	ND	ND

ND = not detected. Detection limits: 0.1 mg/m^3 for pentachlorophenol; 0.03 mg/m^3 for 2,4,5-trichlorophenol

TABLE 2

SUMMARY OF EVENTS EXCAVATION OF SOIL AFFECTED BY PENTACHLOROPHENOL Kaiser Hospital Site Oakland, California

			Sample I.I),	
Date	Activity	Excavation	<u>Stockpile</u>	<u>Air</u>	<u>Other</u>
2/28/90	Drum discovered. Samples of soil saturated with drum contents collected for chemical analysis.	H-1, H-2, H-3			
3/6/90	Excavation of soil affected by pentachlorophenol (PCP) began. one foot of soil removed from excavation walls, floor, and berm. Excavation floor samples, air samples, and soil debris samples collected. Magnatometer survey attempted.	A, B, C, D		1,2	E-P&J
3/7/90	Based on excavation results, an additional foot of soil removed from the excavation. Soil placed in three piles for further testing for PCP. Excavation floor samples, stockpile samples, and air samples collected.	G, H, J	F, I	3, 4	P&J
3/8/90	Geophysical survey conducted in hillside to locate any additional drums that might be buried.				



SUMMARY OF EVENTS EXCAVATION OF SOIL AFFECTED BY PENTACHLOROPHENOL

Kaiser Hospital Site Oakland, California

			Sample I.D).	
Date	Activity	Excavation	Stockpile	<u>Air</u>	<u>Other</u>
3/11/90	Stockpiled soil transferred on 3/7 to hazardous waste storage bin. Additional samples collected from excavation, and wipe samples of decontaminated equipment collected for chemical analyses.	SS-1, SS2			BC-1
3/12/90	PCP-containing soil transferred from stockpiles to drums. Wipe sample of decontaminated backhoe collected.				WS-1, WS-2 WS-3
3/15/90	Soil samples collected for PCP analysis from mechanical building area and stockpiles containing soil affected by mineral spirits.		Pile-1 Pile-2		MC-1, MC-2
3/16/90	Based on 3/11 sample results, additional soil samples collected from the excavation. Samples collected from excavation floor and subsurface at depths of from 1 to 2 feet.	401-S, 402-S 404-1, 405-2.5 406-2			
3/21/90	Additional excavation samples collected, and stockpiles containing soil affected by mineral spirits resampled for PCP analysis.	401-2, 403-2 404-1, 405-2.5 406-2	P1-COM,		



SUMMARY OF EVENTS EXCAVATION OF SOIL AFFECTED BY PENTACHLOROPHENOL Kaiser Hospital Site Oakland, California

			Sample I.I).	
Date	Activity	Excavation	<u>Stockpile</u>	<u>Air</u>	<u>Other</u>
3/23/90	Soil in storage bin and selected drums sampled.				YB-S-1-4, VB-C, D1-4 D19-22
3/28/90	Based on results of 3/11, 3/16, and 3/21 sample analysis, an additional 2 to 3 feet of soil excavated. Samples collected from excavation floor and surrounding hillside.	7, 8, 9, 10, 11, 12, 13, 14, 15			
3/29/90	Three borings hand-augered into backfill of excavation to sample for mineral spirits; borings located between the mechanical building and paint shed. One boring hand-augered inside the mechanical building. One sample collected from each boring for PCP analysis.				B-33-10, B-34-3, B-35-6, B-36-5
4/4/90	Based on 3/28 sample results, an additional 1/2 to 3 feet of soil excavated. Soil samples collected from excavation floor.	16-1, 17-1.5, 18-1, 19-2			



SUMMARY OF EVENTS EXCAVATION OF SOIL AFFECTED BY PENTACHLOROPHENOL Kaiser Hospital Site Oakland, California

			Sample I.D.		
Date	Activity	Excavation	Stockpile	_Air_	Other
8/24/90	85 drums transferred to truck for transportation to incineration facility in South Carolina. Drums contained PCP-affected soil and debris from excavation.				
8/25/90	Approximately 104 cubic yards of soil removed and transported from hillside stockpile area. Four soil samples collected from base of stockpile.		SP-1, SP-2		SP-3, SP-4
8/26/90	Soil removed and transferred from hazardous waste storage bins. Storage bins decontaminated, and two wipe samples collected from each for chemical analysis.				WP-1, WP-2, WP-3, WP-4
8/28/90	Based on 8/25/ and 8/26 sample results, approximately 15 additional cubic yards of soil removed from hillside. One storage bin recleaned. Soil samples collected from hillside and wipe samples from the decontaminated bin.		SP-5, SP-6		WP-6, WP-7



TABLE 3 SUMMARY OF ANALYTICAL RESULTS Kaiser Hospital Site Oakland, California

		Depth ¹	Mineral	Chem Concent (mg/kg	rations	<u> </u>		Chemica	l concentra	tions in μ	g/g or pa	rts per bil	llion (ppb)		
<u>Date</u>	<u>Sample</u>	(feet)	Spirits	PCP	<u>TCP</u>	<u>TCDD</u>	<u>PCDD</u>	<u>HxCDD</u>	<u>HpCDD</u>	<u>OCDD</u>	<u>TCDF</u>	<u>PCDF</u>	<u>HxCDF</u>	<u>HpCDF</u>	<u>OCDF</u>
EXCAV	ATION SAMPI	LES													
2/28/90	H-1	Surface		300	1000										
2/28/90	H-2	Surface		600	2000										
2/28/90	H-1/ H-2	Surface				ND²	ND	26	260	720	ND	ND	31	160	120
3/6/90	Α	1	3100	ND	ND										
3/6/90	В	1	2400	28	83										
3/6/90	С	1	730	12	31										
3/6/90	D	1	ND	ND	ND										
3/6/90	E	1	860	31	73										
3/6/90	G	2	12,000	ND	ND										
3/6/90	Н	2	1300	ND	ND										
3/11/90	SS-1	2		1000	3200	0.26	ND	38	430	1100	ND	ND	47	340	190
3/11/90	SS-2	2		380	1800	0.25	ND	30	330	940	ND	ND	36	250	150
3/21/90	1-S	2		28	170										
3/21/90	2-S	Surface		0.2	1.1										
3/21/90	3-S	2		560	3000										
3/21/90	4-S	2		7.3	33										
3/21/90	5-S	Surface		0.3	1.6										
3/21/90	6-S	2		21	54										
3/21/90	1-2	4		ND	ND										
3/21/90	3-2	4		2	4										<u> </u>
3/21/90	4-1	3		ND	ND										
3/21/90	5-2.5	2.5		ND	ND										ξX
3/28/90	6-2	4		ND	ND										

TABLE 3
SUMMARY OF ANALYTICAL RESULTS

		Depth ¹	Mineral	Cherr Concent (mg/kg				Chemics	ıl concentra	ntions in u	ıg/g or na	rts per bi	llion (nph)		
<u>Date</u>	<u>Sample</u>	(feet)	<u>Spirits</u>	PCP	ТСР	TCDD	PCDD	HxCDD	H _P CDD		TCDF	PCDF	HxCDF	<u>HpCDF</u>	OCDF
3/28/90	7	4		1	2										
3/28/90	8	4 5		1 ND	ND										
3/28/90	9	3		ND ND	ND										
3/28/90	10	4		ND	ND										
3/28/90	11	Surface		6	9										
3/28/90	12	Surface		ND	ND										
3/28/90	13	Surface		ND	ND										
3/28/90	14	1		ND	1										
3/28/90	15	3		41	57										
4/4/90	16	5		ND	ND										
4/4/90	17	1.5		ND	ND										
4/4/90	18	3.5		ND ND	ND										
8/28/90	SP-5	Hillside,		ND	ND										
6/20/90	31 -3	Southwest		ND	ND										
		corner													
	SP-6	Hillside,		ND	ND										
	3F-0	Southwest		ND	ND										
		corner													
STOCKI	PILE SAMPLI	ES													
		Location													
3/7/90	F	West	2400	13	32										
		temporary													
		stockpile													
3/7/90	I	Middle	850	28	103										
•		temporary													0.3
		stockpile				•									ğ
		-102112													O X

TABLE 3 SUMMARY OF ANALYTICAL RESULTS

		Depth ⁱ	Mineral	Chem Concent (mg/kg	rations			Chemica	l concentra	itions in u	g/g or na	rts ner bi	llion (ppb)		
<u>Date</u>	Sample	(feet)	<u>Spirits</u>	PCP	TCP	TCDD	PCDD	HxCDD	<u>HpCDD</u>		TCDF	PCDF	HxCDF	<u>HpCDF</u>	OCDF
STOCK	PILE SAMPLE	S (cont'd)													
3 /7/90	J	East temporary stockpile	2100	53	135										
3/15/90	PILE-1	West stockpile		3.2	6										
3/15/90	PILE-2	East stockpile		2.6	5.5										
3/21/90	P1-COM	West stockpile		8	12	ND	ND	ND	2.2	10	ND	ND	0.10	0.81	0.97
3/21/90	P1-COM EX ³	West stockpile		ND	0.16										
3/21/90	P2-COM	East stockpile		4	7	ND	ND	ND	1.5	6.1	ND	ND	0.09	0.60	0.66
3/21/90	P2-COM EX ³	East stockpile		ND	0.16										
3/15/90	MC-1	Mech Bld (north)		ND	ND										
3/15/90	MC-2	Mech Bld (north)		2.3	4.7										
4/6/90	SGE	Stockpile grade elevation, (east)		5	11										
4/6/90	SGW	Stockpile, grade Elevation, (west)		ND	ND			÷							GEOMATRI

TABLE 3
SUMMARY OF CHEMICAL ANALYTICAL RESULTS

		Depth ¹	Mineral	Chem Concent (mg/kg	rations			Chemica	l concentra	itions in <i>u</i>	g/g or pa	rts per bil	lion (ppb)		
<u>Date</u>	<u>Sample</u>	(feet)	<u>Spirits</u>	PCP	TCP	<u>TCDD</u>	<u>PCDD</u>	<u>HxCDD</u>	<u>HpCDD</u>	<u>OCDD</u>	TCDF	<u>PCDF</u>	<u>HxCDF</u>	<u>HpCDF</u>	<u>OCDF</u>
OTHER	SAMPLES														
8/25/90	SP-1 SP-2 SP-3 SP-4	Hillside Hillside Hillside Hillside		ND ND ND 2	ND ND ND 4	110	MD	1.0	40	250	ND.	ND	1.5	12	20
3/23/90	YB-S-1-4	Bin		73	120	ND	ND	1.6	42	250	ND	ND	1.8	13	20 ND
3/23/90	YB-S-1-4 EX ³	Bin		0.68	5.8	ND	ND	ND	0.022	0.015	ND	ND	ND	ND	ND
3/23/90	YB-C	Bin		31	60	ND	ND	1.3	36	210	ND	ND	1.5	11	16
3/23/90	YB-C EX ³	Bin		0.44	3.5	NTD	MD	0.60	10	110	NID	NID	0.74	F F	0.4
3/23/90	D1-4	Drum		16	40	ND	ND	0.69	18	110	ND	ND	0.74	5.5	8.4
3/23/90	D1-4 EX ³	Drum		0.26	2	ND	ND	ND	0.0039	0.0039	ND	ND	ND	ND	ND
3/23/90	D19-22	Drum		16	38	ND	ND	1.7	42	240	ND	ND	1.8	13	20
3/23/90	D19-22 EX ³	Drum		0.4	3										
3/29/90	B-33	Backfill, depth 10 ft		ND	ND										
3/29/90	B-34	Backfill, depth 3 ft		ND	ND										
3/29/90	B-35	Backfill, depth 6 ft		ND	ND										
3/29/90	B-36	Mech Bld (interior), depth 5 ft		ND	ND										



SUMMARY OF CHEMICAL ANALYTICAL RESULTS

Notes:

All samples analyzed for PCP and TCP by EPA Method 8270 except B, C, F, I, J, which were analyzed by EPA Method 8040.

- ¹ Sample depth is depth into hillside slope as it existed prior to PCP excavation (3/6/90).
- ² ND = not detected. See laboratory reports for detection limits.
- 3 Samples with suffix EX are extracted results analyzed in accordance with EPA's Toxicity Characteristic Leaching Procedure (TCLP). For PCP and TCP, results are in mg/l. For dioxin and furan, results are in ng/l.

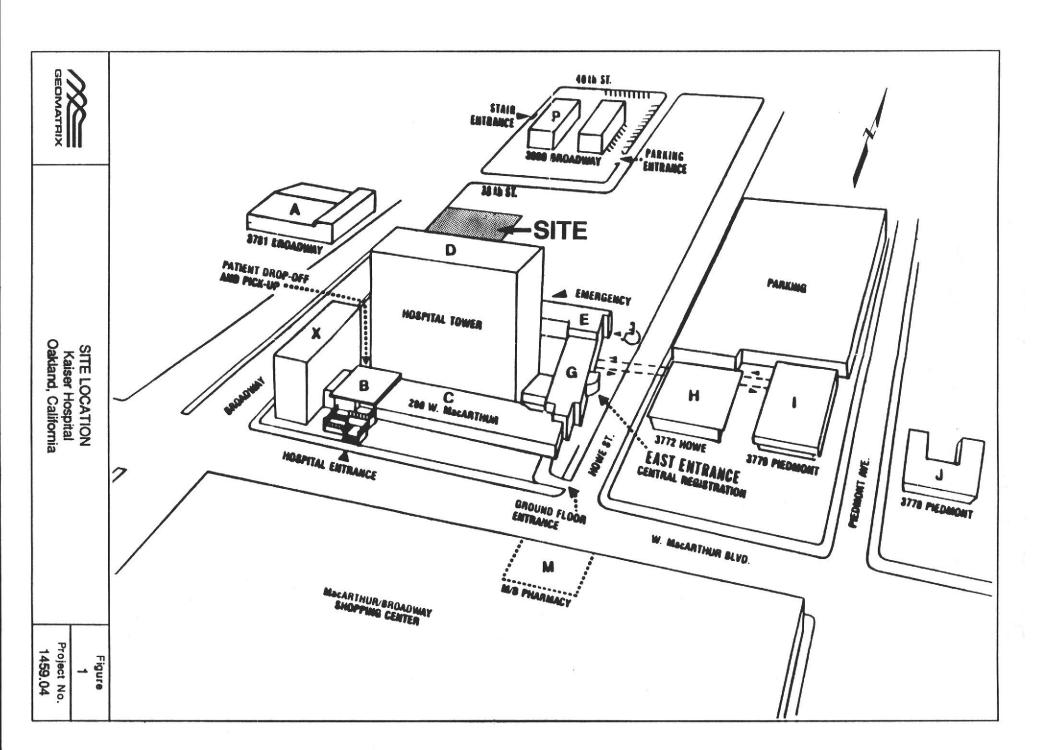
PCP	- Pentachlorophenol	HxCDD - Hexachlorodibenzo-dioxin	PCDF - Pentachlorodibenzo-furan
TCP	- 2,4,5-Trichlorophenol	HpCDD - Heptachlorodibenzo-dioxin	HxCDF - Hexachlorodibenzo-furan
TCDD	- Tetrachlorodibenzo-dioxin	OCDD - Octachlorodibenzo-dioxin	HpCDF - Heptachlorodibenzo-furan
PCDD	- Pentachlorodibenzo-dioxin	TCDF - Tetrachlorodibenzo-furan	OCDF - Octachlorodibenzo-furan

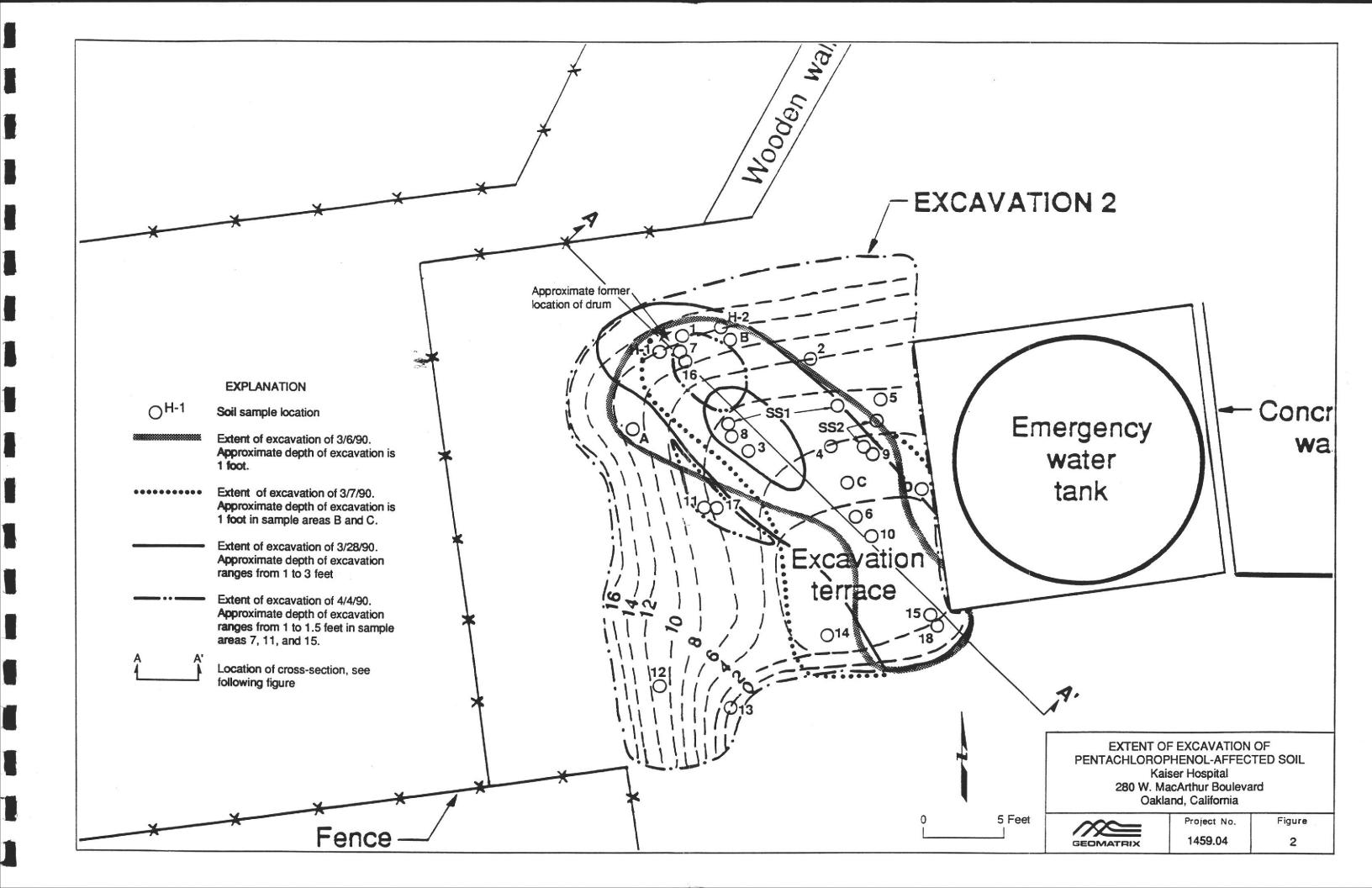


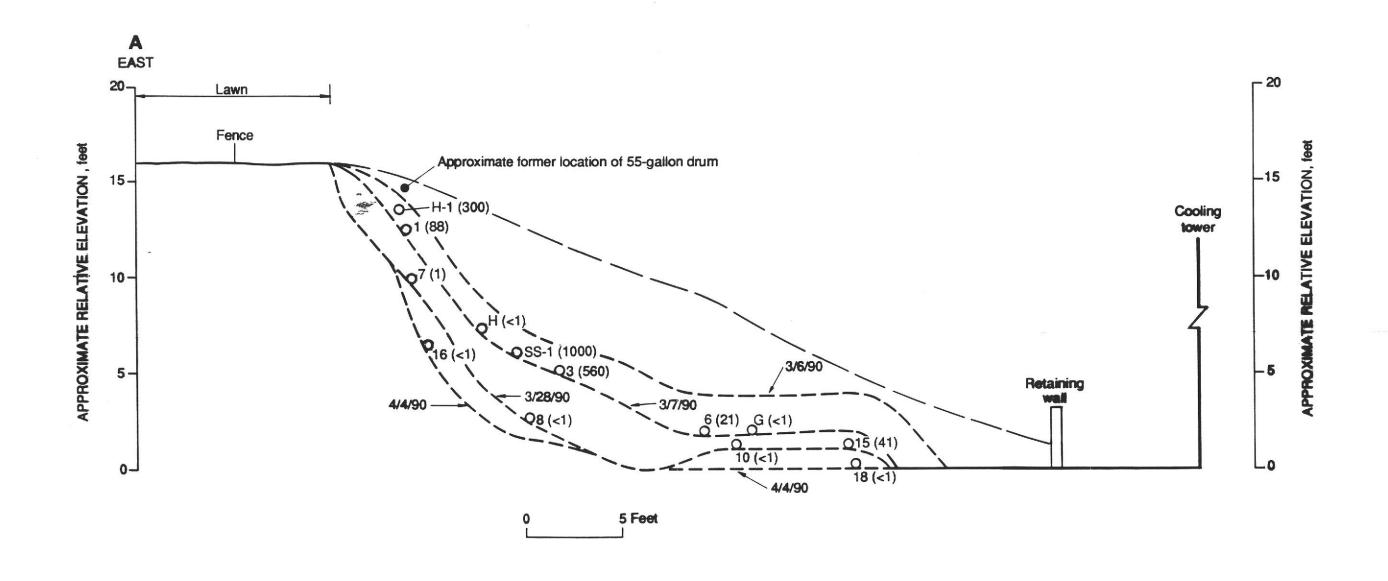


TABLE 4 SUMMARY OF SOIL REMOVED

<u>Date</u>	Approximate Quantity (cubic yards)	Description
8/24/90	21.25	85 55-gallon drums
8/25/90	104	Hillside area
8/26/90	40	Hazardous waste bins
8/28/90	15	Southwest corner of hillside area







EXPLANATION

(>1) 2 Soil sample location, concentration of pentachlorophenol detected in parentheses
 ——— Approximate extent of excavation at date indicated
 ——— Approximate slope surface before excavation

CROSS-SECTION OF
PENTACHLOROPHENOL EXCAVATION
Kaiser Hospital
280 W. MacArthur Boulevard
Oakland, California

GEOMATRIX	

Project No. Figure
1459.04 3



HEALTH AND SAFETY PLAN

EXCAVATION MONITORING

Kaiser Construction Services Kaiser Hospital Site 280 West MacArthur Boulevard Oakland, California

Geomatrix Consultants



TABLE OF CONTENTS

		<u>Page</u>	
1.0	INTRODUCTION	1	
	1.1 Site Location 1.2 Site History	2 2	
2.0	ADMINISTRATIVE INFORMATION		
3.0	RESPONSIBILITIES	3	
4.0	SITE CONTROL	4	
	4.1 Site Security 4.2 Hazard Zone 4.3 Communication	4 4 4	
5.0	CHEMICAL HAZARDS ASSESSMENTS AND REVIEW OF TOXICOLOGY	6	
6.0	PHYSICAL HAZARDS ASSESSMENT	.7	
7.0	AIR MONITORING PROGRAM	9	
8.0	EDUCATION AND TRAINING	10	
9.0	CORPORATE HEALTH AND SAFETY PROGRAM	10	
10.0	SAFETY PRACTICES	11	
11.0	PERSONAL PROTECTIVE EQUIPMENT	14	
12.0	DECONTAMINATION PROCEDURES	15	
13.0	REPORTING REQUIREMENTS	16	
14.0	EMERGENCIES	16	
15.0	APPROVALS	18	



HEALTH AND SAFETY PLAN

EXCAVATION MONITORING
Kaiser Construction Services
Kaiser Hospital Site
280 West MacArthur Boulevard
Oakland, California

1.0 INTRODUCTION

This Plan provides health and safety procedures to be followed during removal of soil containing hazardous materials originating for a buried drum located at the Kaiser Hospital site in Oakland, California. The contents were determined to be pentachlorophenol, 2,4,5-trichlorophenol contaminated with dioxin and dibenzofuran isomers. The purpose of this plan is to inform and educate all personnel involved in on-site field work of the potential hazards associated with the site, to assign responsibilities, to establish personnel protective standards and safety procedures, and to provide for contingencies that may arise while activities are conducted at the site.

The provisions of this plan are mandatory for all on-site Geomatrix employees engaged activities associated with excavation monitoring and soil removal and shall be followed without acception unless specifically modified by the Project Manager and Health and Safety Officer. All contractors/subcontractors shall provide a Health and Safety Plan for their employees, and subcontracting employees shall follow the health and safety procedures designated by their employer. The contractor/subcontractor may choose to use Geomatrix's Health and Safety Plan as a guide in developing its own action plan, or may choose to adopt Geomatrix's plan. In either case, the contractor/subcontractor shall hold Geomatrix harmless and indemnify it against all liability in case of injury.

Grossly inadequate health and safety precautions on the part of the contractor/subcontractor, or the belief that the contractor's/subcontractor's personnel are or may be exposed to an immediate health hazard, can be cause for Geomatrix to suspend further site work and ask that personnel to evacuate the hazard area. The contractor/subcontractor shall provide its own safety



equipment in accordance with its Health and Safety Plan requirements. In addition, the contractor/subcontractor shall comply with all applicable federal, state, and local health and safety regulations.

Field activities that may expose personnel to potential health and safety hazards are identified below:

- o Soil sampling and testing
- o Excavation monitoring

1.1 Site Location

The Kaiser Hospital site is located at 280 West MacArthur Boulevard near the intersection with Broadway in Oakland, California.

1.2 Site History

Geomatrix Consultants, Inc., was contracted by Kaiser Construction Services to assist in the removal of soil containing mineral spirits at the future location of a hospital addition. During excavation of the soil, a rusted buried durm was encountered. The contents of the drum leaked onto the soil within the excavation during removal of the drum. A sample of the soil containing the drum contents was sampled and identified to be pentachlorophenol and 2,4,5-trichlorophenol. Subsequent analysis indicated that the material in the drum also contained low concentrations of hexachlorophenol, heptachloro, and octachlorodibenzodioxins and corresponding dibenzofurans.

2.0 ADMINISTRATIVE INFORMATION

Project Number: 1579C 1459D NOF

Site Owner: Kaiser Permanante

Address/Location: 280 West MacArthur Boulevard, Oakland, California

Project Manager: Thomas E. Graf

Project Safety Officer: Debra Favre

Site Safety Officer: Cheri Young



3.0 RESPONSIBILITIES

A. Project Manager

The Project Manager (PM) shall: (1) direct all project activities, including contractor selection and site characterization activities; (2) make the Project Health and Safety Officer aware of all pertinent project developments and plans; and (3) make all resources available that are necessary for a safe working environment.

C. Project Safety Officer

The Project Safety Officer (PSO) shall direct all health and safety aspects of the investigation. The PSO has the primary responsibility to:

- Ensure that all personnel have received required training, are aware
 of the potential hazards associated with site operations, are
 instructed in the work practices necessary for personal safety, and
 are familiar with the plan's procedures for dealing with emergencies.
- Monitor the safety performance of all personnel and correcting any work practices or conditions that may result in injury or exposure to hazardous substances or safety hazards.
- Perform required exposure monitoring to evaluate any potential health hazards that personnel could be exposed to at the site.
- 4. Prepare any accident/incident reports.
- Make modifications to the Health and Safety Plan as required based on accidents/incidents and findings regarding personnel exposures and work practices.
- Report all accident/incidents and findings regarding personnel exposure and work practices observed to the Project Manager.

D. Site Safety Officer

The Site Safety Officer (SSO) shall implement all health and safety aspects of monitoring site characterization activities at the site. The SSO shall:



- 1. Ensure that appropriate personal protective equipment is available and properly utilized by all on-site personnel.
- 2. Observe any subcontractor's health and safety procedures/ precautions. If it is the belief of the SSO that subcontractor's personnel are or may be exposed to an immediate health hazard, the SSO shall suspend the subcontractor's site work. If the subcontractor's personnel do not have appropriate equipment to perform work without risking exposure to health hazards, the SSO shall consult with the PM or PSO for further action before proceeding with the work
- 3. Implement the project Health and Safety Plan, and report any deviation from anticipated site conditions described in the Plan.
- 4. Calibrate monitoring equipment on a daily basis and properly record and file the results.
- Maintain monitoring equipment and provide for maintenance as necessary.
- 6. Assume other duties as directed by the PM and PSO.
- 7. Report accident/incidents or inadequate work practices observed to the PSO.

E. Project Personnel

Project personnel involved in on-site investigations and operations are responsible to:

- Take all reasonable precautions to prevent injury to themselves and to their fellow employees.
- Perform only those tasks that they believe they can do safely, and immediately report accidents and/or unsafe conditions to the SSO or PSO.
- Implement the procedures set forth in the Health and Safety Plan, and report deviations from the procedures described in the Plan to the SSO and PSO for action.

4.0 SITE CONTROL



The purpose of site control is to minimize the potential for exposure to the chemicals of concern for workers and the public, and to prevent vandalism at the site.

4.1 Site Security

The site is enclosed by fencing and access is restricted by entry through a locked gate. Only authorized personnel and vehicles shall enter the site.

4.2 <u>Hazard Zones</u>

To reduce the accidental spread of contaminated soil by workers from the contaminated area to the clean area and to limit number of workers potentially exposed to chemicals detected, zones will be delineated where different types of work will occur. The flow of personnel between the zones will be controlled through a single access point into each of the zones. The three site zones shall be established as described below.

- 1. Red Zone Exclusion zone whre contamination occurs and cleanup activities are conducted. Only persons working directly on cleanup shall be permitted within this zone.
- 2. Yellow Zone Contaminant reduction zone, the transiiton zone between the contaminated area and the clean area, and a perimeter around the Red Zone. This area is where personnel and euqipment decontanation occurs. Only personnel directly working on cleanup and helping with decontamination shall be permitted with this zone.
- Green Zone The clean zone, where administrative and other support functions are located.

The Yellow and Red Zones shall be identified by either fencing or tape. Within the Yellow Zone, personnel and equipment will be cleaned in a designated decontamination area before moving into the Green Zone. All equipment must be decontaminated in the Yellow Zone before entering the Green zone. All wash wate and disposable clothing and equipment must be collected and stored in drums in the Yellow Zone until transported for disposal.

4.3 Communication



During field activities site personnel shall not work alone. Both partners are responsible for:

Providing the other partner with assistance.

Observing the other partner for signs of chemical or heat exposure.

Checking the integrity of the other partner's protective equipment.

Obtaining emergency assistance, providing first response First Aid and notifying others.

5.0 CHEMICAL HAZARD ASSESSMENT AND REVIEW OF TOXICOLOGY

The relative toxicity of the chemicals suspected to be present in soil and groundwater at the site were evaluated based on the chemical's Threshold Limit Value (TLV) and/or by reviewing toxicity literature. TLV's are developed by the American Conference of Government Industrial Hygienists (ACGIH) and are defined as the airborne concentration of a chemical to which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect. Eight-hour time-weighted average threshold limit value concentration limits are for a normal 8-hour workday and a 40-hour work week. For comparison, applicable California Occupational Safety and Health Administration (CalOSHA) Permissible Exposure Limits (PEL) are also listed. PELs are legal limits for the maximum permitted 8-hour time-weighted average concentration of an airborne contaminant that any worker may be exposed to day after day without adverse effect.

Compound	$TLV* (mg/m^3)$	PEL** (mg/m³)
Pentachlorophenol 2,4,5-Trichlorophenol Dioxins Dibenzofurans Mineral Spirits	0.5 NA NA NA 100 ppm	0.5 NA NA NA NA

N/A = No Applicable Limit



* = Recommended Limits. Not legally enforceable.

** - Legally enforceable limits.

When airborne contaminant levels are above detection, respiratory protection will be required for all personnel.

Of the chemicals suspected to be present at the site, pentachlorophenol, 2,4,5-trichlorophenol, dioxin isomers and dibenzofuran isomers are subject to warning requirements under the California Safe Drinking Water and Toxic Enforcement Act (also known as Proposition 65). These chemical which may be present at the site, are known to the State of California to cause cancer.

6.0 PHYSICAL HAZARD ASSESSMENT

A. <u>Safety and Physical Hazards</u>

In addition to potential chemical hazards, the Eureka Waterfrone Site MF Property may contain a number of physical safety hazards such as:

Falling/flying objects

Holes, uneven ground surface

Slippery surfaces

Buried underground conduits

Heavy equipment and train traffic

All personnel will be aware of these hazards and take all practical measures to reduce the risk of accidents.

B. <u>Electrical Hazards</u>

Overhead power lines, underground power cables and electrical equipment used on-site may pose a danger of shock, electrocution or fire if contacted or severed during site activities.



Prior to commencing any subsurface work such as drilling, check for underground utilities (electricity, gas, water, telephone, sewer, storm drain), and the locations of overhead power lines. The following are minimum clearances from overhead high voltage lines:

	Minimum
Nominal Voltage	Required
<u>(phase to phase)</u>	<u>Clearance (feet)</u>
750 - 50,000	10
50,000 - 75,000	11
75,000 - 125,000	13
125,000 - 175,000	15
250,000 - 350,000	21
370,000 - 550,000	27
550,000 - 1,000,000	
220,000 - 1,000,000	42

It is desirable to entirely avoid working under overhead high voltage lines when possible. Many experienced drillers consider these minimum clearances unacceptable, especially the distances for the higher voltage lines. A driller should not be required to set up his equipment against his better judgement.

C. Noise

Work around large heavy equipment, such as drilling rigs, earth movers, etc., often creates excessive noise. The effects of noise can include:

Workers being startled, annoyed or distracted.

Physical damage to the ear, pain, and temporary and/or permanent hearing loss.

Communication interference that may increase potential hazards due to the inability to warn of danger and the proper safety precautions to be taken.

Hearing protection shall be worn when noise levels exceed 85 dba.

D. <u>Heat Stress</u>



In its early stages, heat stress can cause rashes, cramps, discomfort and drowsiness, resulting in impaired functional ability that threatens the safety of both the individual and co-workers. Continued heat stress can lead to heat stroke and death.

To avoid heat stress, frequently replace fluids by drinking water and taking rests periodically. At the first sign of heat stress remove affected personnel from the hazard and evaluate the need for medical attentional and/or modifications in work schedule or equipment.

E. <u>Ultraviolet Radiation</u>

Exposure of skin to ultraviolet radiation can pose a hazard of sunburn. Clothing or sunscreen should be used to protect against sunburn if weather is clear.

F. Other

No confined spaces are anticipated at the site. If a confined space problem is identified in the field, the PM shall be notified immediately and no personnel shall enter the space until a confined space entry plan is developed.

7.0 AIR MONITORING PROGRAM

Air sampling may be conducted as part of the site health and safety program. Air sampling will consist of monitoring at the site perimeter and in Red Zone. The Project Health and Safety Officer will determine the frequency of air sampling required.



8.0 EDUCATION AND TRAINING

Each employee assigned to participate in field activities will complete health and safety training before field work begins. The training program will include:

- a. Chemical toxicity
- Use of personal safety equipment
- c. Site work zones.
- d. Site work areas.
- e. Hazard recognition
- f. Decontamination procedures

Upon completion of the training, each participant will sign a training record.

9.0 CORPORATE HEALTH AND SAFETY PROGRAM

As a corporate policy, all Geomatrix employees assigned to participate in field activities will complete a 40-hour health and safety training course before fieldwork begins. The training program includes information about:

Work safety rules

Personal safety equipment

Review of physical and chemical hazards that may be encountered

Recognition of signs and symptoms of injury/chemical exposure/environmental (heat, noise) exposure

Chemical toxicity

Respirator use and care, and qualitative fit testing of respirator

Decontamination procedures

Emergency response procedures



All Geomatrix field personnel shall participate in the Geomatrix medical monitoring program and have medical clearance prior to participating in field activities.

10.0 SAFETY PRACTICES

For chemical hazards, the four basic routes of exposure (inhalation, skin absorption, ingestion and eye contact) must be protected. Section 11.0 specifies the personal protective equipment or controls that shall be used for the activities to be performed at the site.

A. Respiratory Protection

To protect against the inhalation of toxic concentrations of particles and vapors, a respirator with a combination high-efficiency filter and an organic vapor adsorption cartridge will be available to Geomatrix personnel.

The respirator(s) shall be the full-face type approved by NIOSH/MSHA. Only respirator cartridges manufactured by the same manufacturer as the respirator being worn shall be used. Each person required to use a respirator shall have medical clearance from a licensed physician and have been trained to use a respirator prior to initiating the project. All persons required to wear a respirator shall be clean shaven and contact lenses shall not be worn when wearing a respirator.

B. Skin Absorption

Skin exposure to on-site chemical can result in skin irritation and/or penetration. The following safety rules shall be followed when working with soil, mud, groundwater or other materials that may be contaminated with hazardous chemicals:



- Protect skin areas that may come in contact with the hazardous material. Skin protection includes wearing rubber boots, work clothes, and gloves.
- 2. After completing work, decontaminate boots in the designated area in the Yellow Zone using an non-ionic decontamination solution. Use gloves during decontamination.
- Bag all contaminated rags and other disposable items, such as gloves and coveralls, and dispose in designated on-site drums in the Yellow Zone.
- 4. Avoid walking through potentially contaminated puddles, mud, and other discolored surfaces.

C. Ingestion

Eating, drinking, chewing gum or tobacco, or smoking, are prohibited onsite. Furthermore, liquids will not be pipetted or syphoned by mouth under any circumstances.

The hands and face must be thoroughly washed upon leaving the work areas and before any eating, drinking or smoking occurs.

D. Eye Contact

The following precautions will be taken to avoid eye injury:

- Wear appropriate safety goggles or glasses when near rotating, vibrating or other heavy equipment.
- 2. Do not rub eyes.
- Do not wear contact lenses when working in areas where hazardous materials may be encountered. OSHA regulations do not allow contact lenses to be worn while using respirators.

E. General Safety Rules

- 1. Wear protective equipment and clothing provided, when required.
- 2. Wear approved hard hats in all construction areas and during drilling activities.



- 3. Wear safety glasses or face shields whenever the situation poses an eye hazard.
- 4. Wear hearing protection when performing tasks around heavy equipment which emit noise levels greater than 85 dBA. (This is likely to occur around soil compacting equipment, drilling rigs, and other impact equipment.)
- Wear sturdy work boots or shoes at the site. Steel-toed boots are preferred.
- 6. Prevent, to the extent possible, spillage of hazardous material. In the event that a spill occurs, contain the material if possible, initiate cleanup, and report the spill to the project manager.
- 7. Prevent splashing of contaminated materials.
- 8. Prevent back injury by never lifting or carrying a load that is more than you can comfortably handle. When lifting heavy objects, bend the knees and use the leg muscles.
- 9. Keep all heat sources away from combustible liquids, gases or any flammable materials. When working in areas where combustible gases are present, use only intrinsically safe equipment (no-sparking).
- 10. Field crew members shall be familiar with the physical characteristics of investigations, including:

Wind direction in relation to contamination areas

Accessibility of other personnel, equipment and vehicles

Areas of known or suspected contamination

Site access

Nearest water sources

- 11. The number of personnel and equipment in the contaminant areas should be minimized to the extent necessary to perform the task at hand.
- 12. All wastes generated during investigative activities at the site shall be disposed of as directed by the PM.
- 13. Inspect power cords for damage such as cuts or frays. Suspend cords with nylon rope or plastic ties only.
- 14. When in doubt of your safety, it is better to over-protect.



Full-face respirators with combination high-efficiency particulate filter and carbon adsorption cartridges.

Saranak suit.

Double glove as described above for Red Zone.

Chemical resistant boots.

Hard Hat.

3. Green Zone - EPA Protection Level D.

Work long-sleeved shirt and long pants.

Hard Hat.

12.0 DECONTAMINATION PROCEDURES

Personnel, equipment and sample exteriors leaving the site shall be thoroughly decontaminated in the designated area within the Yellow Zone.

Equipment (soil samplers, backhoe, trucks, etc.,)

Detergent wash, tap water rinse and final rinse with deionized water.

Scrub or scrape using a brush, scrapper or sponge with detergent wash for adhering contaminants.

Protective Equipment

Respirators - Remove filters or chemical cartridges, wash with a mild detergent in warm water using a brush. Thoroughly rinse with a disinfectant solution and then air dry in a clean place. Care should be taken to prevent rough handling.

Gloves - discard.

Coveralls - discard.

Boots - detergent wash, tap water rinse.

<u>Personnel</u>

Thorough bathing with soap and water after leaving site.



<u>Vehicles</u>

Thorough wash down of exterior with tap water.

13.0 REPORTING REQUIREMENTS

Employees are required to report to the Project Safety Officer any unexpected or irregular occurrences relating to health and safety which may be encountered during the course of work on the project, including accidents, injuries, spills, etc.

Comments relating to the general safety procedures followed each day will be included in the daily field record by the Site Safety Officer.

14.0 EMERGENCIES

In the event of an accident or emergency conditions, the procedure listed below shall be followed immediately. Emergency conditions are:

An accident (physical or chemical) involving any field personnel, or if anyone experiences adverse effects or symptoms of exposure while onsite.

Discovery of a situation more hazardous than anticipated.

Accidental release of hazardous materials or waste.

The Site Safety Officer shall take charge and follow the emergency procedures listed below:

1. Remove the injured or exposed person(s) from immediate danger if possible.

2. If a serious injury or life-threatening condition exists CALL AN AMBULANCE and alert the St. Joseph Hospital that an injury has occurred. Clearly describe location, injury and conditions to the ambulance dispatcher. Designate a person to direct emergency equipment to the injured person.



- Provide emergency first aid, if possible.
- 4. If there is any question as to the nature of injury or what should be done, call an ambulance or appropriate emergency numbers.

5. Call the Project Manager

Office - (415) 957-9557 Home - (415) 863-6239

or Project Safety Officer (Debra Favre)

Office - (415) 957-9557 Home - (415) 751-1825

- Evacuate other on-site personnel to a safe place until the Assistant Project Manager or Project Safety Officer determines that it is safe for work to resume.
- 7. Immediately implement steps to prevent recurrence of the accident. Emergency telephone numbers for the Oakland area are:

Kaiser Hospital Emergency Room

(415) 956-7600

Ambulance, Fire Department and Police Department 911 Kaiser Hospital is located adjacent to the site.



15.0 APPROVALS	3/6/90
Debra Favre	Date
Project Safety Officer	
Geomatrix Consultants	
Thomas F. Graf Project Manager Geomatrix Consultants	3/6/90 Date
Cheri Young Site Safety Officer Geomatrix Consultants	3/6/96 Date

CONTR\1579-H&S.TXT



APPENDIX B SAMPLING METHODS

B.1 Excavation Soil Samples

Soil samples were acquired at the end of each day during excavation of PCP-affected soil, as well as between excavation periods, to confirm that PCP-affected soils had been removed. Samples were collected in clean brass liners; soil from each sample location was tightly packed by hand or with a hammer sampler into a liner, which then was sealed with aluminum foil, plastic caps, and electrical tape. Samples were labeled immediately and stored in a chest with ice. At the end of the sampling day, the samples were delivered to the analytical laboratory. Samples were acquired from the surface of the excavation and from various depths below that day's excavation bottom.

B.2 Stockpile Soil Samples

Before the drum containing PCP was discovered, soil excavated from the hillside was temporarily stored within and above a plastic-lined mineral spirits excavation located just west of the mechanical building. Stockpiles referenced as 1 and 2 on Table 3 were located on top of the backfill from the mineral spirits excavation. Stockpiles F, I, and J were generated on 7 March 1990 during PCP excavation. An additional stockpile, located along the north edge of the cooling tower (labeled mechanical building stockpile in Table 3), consisted of soil spilled during the excavation of PCP-affected soil. Stockpile soil samples were acquired from approximately six inches below the stockpile surface and packed into clean brass liners that were then sealed with aluminum foil, plastic end caps, and electrical tape. Samples were labeled immediately and stored in a chest with ice. Four grab samples from each stockpile were collected and composited by the laboratory, except for samples F, I, and J, which were composited in the field, and samples MC-1 and MC-2, which were grab samples and not composited.

CONTR\1459-DF,APB



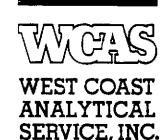
B.3 Other Stockpiled Soil Samples

Soil samples also were collected from the following locations: one of the disposal bins filled with soil excavated on 7 March 1990; temporary stockpiles 1 and 2 (containing PCPaffected soil); soil placed in 55-gallon drums (from parts of stockpiles 1 and 2); backfill material for the mineral spirits excavation; and native soil under the mechanical building. All soil samples were collected in clean brass liners that were sealed, preserved, and delivered to the laboratory as described above. Individual samples from the storage bin were collected from approximately one foot below the soil surface using a hand auger and a hammer sampler. Four samples from the south side of the bin were composited by the laboratory. Because access to the north side of the bin was restricted, only one sample was collected from the center of the bin. Soil samples were collected by hand from approximately three inches below the soil surface in eight 55-gallon drums used to store PCP-affected soil. Samples D-1 through D-4 and D-19 through D-22 were composited by the laboratory into two samples for analysis. Samples B-33, B-34, and B-35 were taken from the mineral spirits excavation backfill at depths of 10, 3, and 6 feet, respectively. A hand auger was used to collect soil samples from the mineral spirits excavation backfill; each sample was transferred directly from the auger into a brass liner. This method also was used to collect a soil sample from five feet below the mechanical building in an area known to be affected by mineral spirits.

B.4 Wipe Samples

Soil excavation and transfer equipment was washed down with a non-ionic soap solution and water after soil excavation and transfer activities. Then one or more wipe samples was taken from the bucket and other areas that had contacted site soil. Wipe samples were taken by wiping a laboratory-grade filter paper saturated with acetone on an area of the equipment, then sealing the wipe in a sample jar and placing the jar on ice. A blank wipe prepared by saturating a clean filter with acetone was also analyzed to provide quality control.

CONTR\1459-DF.APB B-2



May 7, 1990

Ms. Debra Favre GEOMATRIX CONSULTANTS One Market Plaza Spear Street Tower, Suite 717 San Francisco, CA 94105

Ref: WCAS Job Number 14971

Dear Ms. Favre:

Please find enclosed a revised laboratory report for WCAS Job No. 14971. The detection limit in Table I for 2,4,5 Trichlorophenol now reads 0.03 instead of 0.3.

Sincerely, WEST COAST ANALYTICAL SERVICE, INC.

Ramona Lee Northington

Robert Ochan

Laboratory Manager

RLN/am

Enclosures

March 9, 1990



WEST COAST ANALYTICAL SERVICE, INC.

GEOMATRIX CONSULTANTS One Market Plaza Spear Street Tower, Suite 717 San Francisco, CA 94105

Attn:

Debra Favre

JOB NO.

14971

Α

LABORATORY REPORT

Samples Received: Three (3) XAD Tubes

Date Received: 3-8-90

Purchase Order No: Proj#: 1459C

The samples were analyzed as follows:

Samples Analyzed

<u>Analysis</u>

Results

Three (3) XAD

tubes

Pentachlorophenol and

2,4,5-Trichlorophenol by OSHA Method 39

Table I

Page 1 of 2

B. Michael Hovanec Senior Staff Chemist

Michael Shelton Technical Director

WEST COAST ANALYTICAL SERVICE, INC.

GEOMATRIX CONSULTANTS Ms. Debra Favre

Job # 14971 March 9, 1990

LABORATORY REPORT

TABLE I

Sample ID	Volume (L)	Pentachlorophenol (mg/M³)	2,4,5- Trichlorophenol (mg/M ³)
Blank Sample 3 Sample 4 TLV	60* 79 93	ир ир ир	ND .04 ND
Detection Limit	- -	0.5	0.03

ND-Not Detected

Date Analyzed: 3-8-90

^{*} Assumed sample volume for calculation.

March 9, 1990

GEOMATRIX CONSULTANTS
One Market Plaza
Spear Street Tower, Suite 717
San Francisco, CA 94105

Attn:

Debra Favre

JOB NO.

14971

WEST COAST ANALYTICAL SERVICE, INC.

and the second s

A

LABORATORY REPORT

Samples Received: Three (3) XAD Tubes

Date Received: 3-8-90

Purchase Order No: Proj#: 1459C

The samples were analyzed as follows:

Samples Analyzed

Analysis

Results

Three (3) XAD

tubes `

Pentachlorophenol and

2,4,5-Trichlorophenol by

OSHA Method 39

Table I

Page 1 of 2

Michael Shelton Senior Chemist

D. J. Northington, Ph.D. Technical Director

WEST COAST ANALYTICAL SERVICE, INC.

GEOMATRIX CONSULTANTS Ms. Debra Favre

Job # 14963 March 9, 1990

LABORATORY REPORT

TABLE I

Sample ID	Volume (I)	Pentachlorophenol (mg/M³)	2,4,5- Trichlorophenol (mg/M ³)
Blank Sample 1 Sample 2 TLV	60* 60 82.5	ND ND ND 0.5	ND ND ND
Detection Limit	-	0.1	0.03

ND-Not Detected

Date Analyzed: 3-8-90

Page 2 of 2

^{*} Assumed sample volume for calculation.



Geomatrix Consultants 1 Mkt. Plaza, Spear St.#717 San Francisco, CA 94105

07/25/90

Attn: D. Favre

Re: Project: 1459.04
AEMC Lab Reference No.: L5019 Project No.: 1459.04
Date Samples Received: 07/11/90 Job No.: 795019
No. Samples Received: 1 Soil sample

These samples were received by AEMC intact and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples	Analysis
1	EPTOX 8 Metals Scan
1	Oil and Grease - gravimetric

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director

ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: EPTOX Metals, EPA Method 7000

CLIENT:

Geomatrix Consultants One Market Plaza Spear Street Tower #717 San Francisco, CA

Project: 1459,04

Date Sampled: 07/11/90
Date Received:07/11/90
Date Digested:07/13/90
Date Analyzed:07/16/90
Date Reported:07/24/90
Client Sample I.D.: EP-1

Project No.: 1459.04 Contact: D. Favre

Phone:

AEMC Contact: M. Jaeger

Job No.: 795019 COC Log No.: 0106

AEMC I.D.: L5019-1 Batch No.: 50946,50947,50948 Matrix: Soil

Element	Results (mg/L)	Rpt. Limit (mg/L)	Method
Ag (Silver)	ND	0.050	7760
As (Arsenic)	ND	0.005	7061
Ba (Barium)	ND	10	7080
Cd (Cadmium)	ND	0.01	7130
Cr (Chromium - total)	0.10	0.050	7190
Hg (Mercury)	0.0014	0.0005	7471
Pb (Lead)	0.46	0.050	7420
Se (Selenium)	ND	0.005	7741

Rpt. Limit = Reporting Limit ${\rm ND}$ = Not Detected at or above indicated Reporting Limit.

ANALYSIS REPORT: EPTOX Metals, EPA Method 7000

CLIENT:

Geomatrix Consultants One Market Plaza Spear Street Tower =717

San Francisco, CA

Project: 1459.04

Date Sampled: 07/11/90
Date Received:07/11/90
Date Digested:07/13/90
Date Analyzed:07/16/90
Date Reported:07/24/90
Client Sample I.D.: Method Blank

Project No.: 1459.04 Contact: D. Favre

Phone:

AEMC Contact: M. Jaeger

Job No.: 795019 COC Log No.: 0106

AEMC I.D.: L5019-MB Batch No.: 50946,50947,50948 Matrix: Soil

Element	Results (mg/L)	Rpt. Limit (mg/L)	Method	
Ag (Silver)	ND	0.050	7760	
As (Arsenic)	ND	0.005	7061	
Ba (Barium)	ND	10	7080	
Cd (Cadmium)	ND	0.01	7130	
Cr (Chromium - total)	ND	0.050	7190	
Hg (Mercury)	ND	0.0005	7471	
Pb (Lead)	ND	0.050	7420	
Se (Selenium)	ND	0.005	7 741	

 $\begin{array}{lll} \text{Rpt. Limit} &= \text{Reporting Limit} \\ \text{ND} &= \text{Not Detected at or above indicated Reporting Limit.} \end{array}$

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: EPTOX Metals, EPA Method 7000

CLIENT: Geomatrix Consultants

One Market Plaza Spear Street Tower =717

San Francisco, CA

Project: 1459.04

Date Sampled: 07/11/90 Date Received:07/11/90 Date Digested:07/13/90 Date Analyzed:07/16/90 Date Reported:07/24/90

Project No.: 1459.04 Contact: D. Favre

Phone:

AEMC Contact: M. Jaeger

Job No.: 795019 GOC Log No.: 0106

AEMC I.D.: L5019 Batch No.: 50946,50947,50948 Matrix: Soil

ELEMENT	Spike Conc. (mg/L)	MS %Rec	MSD %Rec	Duplicate RPD
Ag (Silver)	0.5	109%	116%	6%
As (Arsenic)	0.04	86%	888	2%
Ba (Barium)	10	90%	90%	0%
Cd (Cadmium)	0.5	93%	90%	3%
Cr (Chromium - total)	0.5	86%	84%	2%
Hg (Mercury)	0.02	97%	97%	0%
Pb (Lead)	0.5	82%	≉08	2%
Se (Selenium)	0.04	95%	115%	10%

MS = Matrix Spike
MSD = Matrix Spike Duplicate
% REC = Percent Recovery
RPD = Relative Percent Difference

ANALYSIS REPORT: EPTOX Metals, EPA Method 7000

CLIENT:

Geomatrix Consultants One Market Plaza

Spear Street Tower =717 San Francisco, CA

Project No.: 1459.04 Contact: D. Favre

Phone:

Project: 1459.04

Date Sampled: 07/11/90 Date Received:07/11/90 Date Digested:07/13/90 Date Analyzed:07/16/90 Date Reported:07/24/90

AEMC Contact: M. Jaeger

Job No.: 795019 COC Log No.: 0106

AEMC I.D.: L5019 Batch No.: 50946,50947,50948

Element	LCS Conc. (mg/L)	LCS %Rec
Ag (Silver)	0.5	94%
As (Arsenic)	0.04	90%
Ba (Barium)	10	96%
Cd (Cadmium)	0.5	90%
Cr (Chromium - total)	0.5	86%
Hg (Mercury)	0.02	102%
Pb (Lead)	0.5	82%
Se (Selenium)	0.04	111%

LCS - Laboratory Control Standards

% Rec = Percent Recovery

ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Total Oil & Grease, EPA Method 9071

CLIENT:

Geomatrix Consultants One Market Plaza Spear Street Tower #717 San Francisco

Project: 1459.04

Date Sampled: 07/11/90 Date Received: 07/11/90 Date Extracted:07/16/90 Date Analyzed: 07/16/90 Date Reported: 07/19/90

Project No.: 1459.04 Contact: D. Favre

Phone:

AEMC Contact: M. Jaeger

Job No.: 795019 COC Log No.: 01106

AEMC I.D.: L5019 Batch No.: 5935 Matrix: Soil

Sample Client	I.D. AEMC	Concentration (mg/kg)	Rpt. Limit (mg/kg)	
EP-1	L5019-1	ND	50	
Method Blank	L5019-MB	ND	50	

RPT. LIMIT = Reporting Limit ${\rm ND}$ = Not Detected at or above indicated Reporting Limit.



ANALYSIS REPORT: Total Oil & Grease, EPA Method 9071

CLIENT:

Geomatrix Consultants One Market Plaza

Spear Street Tower ≠717 San Francisco

Project: 1459.04

Date Sampled: 07/11/90 Date Received: 07/11/90 Date Extracted:07/16/90 Date Analyzed: 07/16/90 Date Reported: 07/19/90

Project No.: 1459.04 Contact: D. Favre

Phone:

AEMC Contact: M. Jaeger

Job No.: 795019 COC Log No.: 01106

AEMC I.D.: L5019 Batch No.: 5935 Matrix: Soil

Analyte	Spike Conc. (mg/kg)	MBS %Rec	MBSD %Rec	Duplicate RPD	
Total Oil & Grease	250	97%	96%	1%	

MBS

- Method Blank Spike - Method Blank Spike Duplicate - Percent Recovery MBSD

% REC - Not Detected

RPD - Relative Percent Difference



Geomatrix Consultants 1 Mkt. Plaza, Spear St. =171 San Francisco, CA 94105

3/12/90

Attn: D. Favre

Project: Geomatrix Consultants/1579C AEMC Lab Reference No.: L4424 Date Samples Received: 03/01/90 No. Samples Received: 2 soil samples

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples	<u>Analysis</u>
2	IR San
2	GCMS Semi Volatiles
1	Dioxins

Method 8270 surrogate standard recovery data could not be calculated/reported for samples "H-1" and "H-2" due to the presence of significant concentrations of hydrocarbons in these samples (surrogates were "diluted out").

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director



ANALYSIS REPORT: FTIR Analysis

CLIENT: Geomatrix Consultants, Inc. 1 Market Plaza, Ste. 17 San Francisco, CA

Project: Geomatrix Consultants. Inc.

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Analyzed: 3/1/90

Client Sample I.D.: H-1, H-2

P.O/Contract No.: Contact: D. Favre

Phone:

Lab Contact: M. Jaeger

Job No.: 794424 COC Log No.: None

AEMC I.D.: L4424-1 & 2

Matrix: Soil

FTIR Analysis

The samples were extracted with Tetrahydrofuran, concentrated, and evaporated to dryness on a KBr plate. The samples were scanned for gross constituents. Absorption peaks indicate the sample to be a mixture of aliphatic and aromatic hydrocarbons, with major functional groups of chlorinated hydrocarbons and phenol-alcohol groups. Based on the composite spectrum the material's extractable compounds resemble a chlorinated phenol with other functional groups as minor constituents.

ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Tentatively Identified Compounds, EPA Method 8270

CLIENT: Geomatrix Consultants, Inc. 1 Market Plaza, Ste. 17 San Francisco, CA

Project: Geomatrix Consultants, Inc.

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/1/90

Client Sample I.D.: H-1

P.O/Contract No.: Contact: D. Favre

Phone:

Lab Contact: M. Jaeger

Job No.: 794424 COC Log No.: None

AEMC I.D.: L4424-1

Matrix: Soil

FRACTION	RETENTION TIME (Min.)	TENTATIVE IDENTIFICATION	ESTIMATED CONC. (mg/kg)
BNA	16.91	2,4,5-Trichlorophenol	1,000
	22.19	Pentachlorophenol	300

Estimated Reporting Limit = 100 mg/kg

ANALYSIS REPORT: Tentatively Identified Compounds, EPA Method 8270

CLIENT: Geomatrix Consultants. Inc. 1 Market Plaza, Ste. 17 San Francisco, CA

Project: Geomatrix Consultants, Inc.

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/1/90

Client Sample I.D.: H-2

P.O/Contract No.: Contact: D. Favre

Phone:

Lab Contact: M. Jaeger

Job No.: 794424 COC Log No.: None

AEMC I.D.: L4424-2

Matrix: Soil

FRACTION	RETENTION TIME (Min.)	TENTATIVE IDENTIFICATION	ESTIMATED CONC. (mg/kg)
BNA	16.91	2,4,5-Trichlorophenol	2,000
	22.20	Pentachlorophenol	600

Estimated Reporting Limit = 100 mg/kg

ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants

l Mkt. Plaza, Spear St. =71 San Francisco, CA

Project: Geomatrix Consultants. Inc.

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/6/90

Client Sample I.D.: H-1

SURROGATES

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794424 COC Log No.:

AEMC I.D.: L4424-1 Batch No.: 5193 Matrix: Soil

SPIKE CONC.

(mg/kg)

RECOVERY

100

(percent)

Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14		NR NR NR NR NR	NR NR NR NR NR NR
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Acenaphthene	83-32-9	ND	100
Acenaphthylene	2 08- 96-8	ND	100
Anthracene	208-96-8 120-12-7	ND	ĪÕÕ
Benzo(a)anthracene	56-55-3	ND	100
Benzo(b)fluoranthene	205-99-2	ND	100
Benzo(k)fluoranthene	2 07- 08-9	ND	100
Benzo(g,h,i)perylene	191-24-2	ND	100
Benzo(a)pyréne Benzyl alcohol	50-32-8	ND	100
Bis/2-chlorosthamalmath	100-51-6	ND	200
Bis(2-chloroethoxy)methane	111-91-1	ND	100
Bis(2-chloroethyl)ether	111-44-4	ЙĎ	100
Bis(2-chloroisopropyl)ether	108-60-1	ND	100
Bis(2-ethylhexyl)phthalate	117-81-7	ND	100
4-Bromophenyl phenyl ether	101-55-3	ИD	100
Butylbenzyl phthalate 4-Chloroaniline	85-68-7	ND	100
2-Chloropaphthalopa	106-47-8	ND	200
2-Chloronaphthalene	91-58-7	ND	100
4-Chlorophenyl phenyl ether Chrysene	7005 - 72 - 3	ŊĎ	100
Dibenzo(a,h)anthracene	218-01-9	ND	100
Dibenzoiuran Dibenzoiuran	53-70-3	ND	100
Di-n-butylphthalate	132-64-9	ND	100
1,2-Dichlorobenzene	84-74-2	ND	100
1,3-Dichlorobenzene	95-50-1	ND	100
1,4-Dichlorobenzene	54 1- 73-1 10 6- 46-7	ND ND	100 100
3,3'-Dichlorobenzidine	91-94-1	ND ND	200
Diethylphthalate	84-66-2	ND	100
Dimethylphthalate	131-11-3		
2,4-Dinitrotoluene	121-14-2	ND ND	100 100
2,6-Dinitrotoluene	606-20-2	ND	100
Di-n-octvlphthalate	117-84-0	ND	100
Fluoranthene	206-44-0	ND	100
Fluorene	86-73-7	ND	100
Hexachlorobenzene	1 18- 74-1	ND	100
Hexachlorobutadiene	87-68-3	ND ND	100

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit NR = Not Reported

Hexachlorobutadiene

87-68-3

ND

ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

P.O/Contract No.: Contact: D. Favre

Project: Geomatrix Consultants, Inc.

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/6/90

Client Sample I.D.: H-1

Phone:

AEMC Contact: M. Smith

Job No.: 794424 COC Log No.:

AEMC I.D.: L4424-1 Batch No.: 5193 Matrix: Soil

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Hexachlorocyclopentadiene Hexachloroethane Indeno(1,2,3-c,d)pyrene Isophorone 2-Methylnaphthalene Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene N-Nitrosodiphenylamine N-Nitroso-di-n-propylamine Phenanthrene Pyrene 1,2,4-Trichlorobenzene	77-47-4 67-72-1 193-39-5 78-59-1 91-57-6 91-20-3 88-74-4 99-09-2 100-01-6 98-95-3 86-30-6 621-64-7 85-01-8 129-00-0 120-82-1	ND N	100 100 100 100 100 100 500 500 100 100

RPT. Limit = Reporting Limit $\mathtt{ND} = \mathtt{Not}$ Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants, Inc.

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/6/90

Client Sample I.D.: H-1

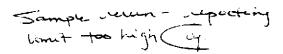
P.O/Contract No.: Contact: D. Favre Phone:

AEMC Contact: M. Smith

Job No.: 794424 COC Log No.:

AEMC I.D.: L4424-1 Batch No.: 5193 Matrix: Soil

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-44-5 88-75-5 106-44-5 88-75-5 108-95-2 95-95-4 88-06-2	ND N	500 200 100 100 100 500 500 100 100 100 100 1



RPT. Limit = Reporting Limit $ND = Not \ Detected \ at \ or \ above \ indicated \ Reporting \ Limit$

ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants
| Mkt. Plaza, Spear St. #71

San Francisco, CA

P.O/Contract No.: Contact: D. Favre

Phone:

Project: Geomatrix Consultants, Inc.

AEMC Connect: M. Smith

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/6/90

Job No.: 34424 COC Log no.:

SURROGATES

AEMC I.D.: L4424-2 Batch No.: 5193 Matrix: Soil

SPIKE CONC.

(mg/kg)

RECOVERY

(percent)

Client Sample I.D.: H-2

Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14		NR NR NR NR NR NR	NR NR NR NR NR NR
ANALYTES	CAS =	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(c) fluoranthene Benzo(g,h,i)perylene Benzo(g,h,i)perylene Benzo(a)pyrene Benzyl alcohol Bis(2-chloroethoxy)methane Bis(2-chloroethoxy)methane Bis(2-chloroethyl)ether Bis(2-chloroethyl)ether Bis(2-chloroethyl)phthalate 4-Bromophenyl phenyl ether Butylbenzyl phthalate 4-Chloroaniline 2-Chloroaniline 2-Chloronaphthalene 4-Chlorophenyl phenyl ether Chrysene Dibenzo(a,h)anthracene Dibenzofuran Di-n-butylphthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 2,4-Dinitrotoluene 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-octylphthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene	83-32-9 208-96-8 120-12-7 56-55-3 205-98-9 191-24-8 100-51-6 111-91-1 111-44-4 108-60-1 117-81-7 101-55-3 106-47-81-7 106-58-7 218-70-9 53-70-9 53-70-9 132-64-9 84-66-2 131-14-2 95-78-44-1 84-66-2 131-14-2 121-2-8-44-7 181-74-1 86-73-1 187-68-3		200 200 200 200 200 200 200 200 200 200

Page 1 of 3



ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project: Geomatrix Consultants, Inc.

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/6/90

Client Sample I.D.: H-2

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794424 COC Log No.:

AEMC I.D.: L4424-2 Batch No.: 5193 Matrix: Soil

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Hexachlorocyclopentadiene Hexachloroethane Indeno(1,2,3-c,d)pyrene Isophorone 2-Methylnaphthalene Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene N-Nitrosodiphenylamine N-Nitroso-di-n-propylamine Phenanthrene Pyrene 1,2,4-Trichlorobenzene	77-47-4 67-72-1 193-39-5 78-59-1 91-57-6 91-20-3 88-74-4 99-09-2 100-01-6 98-95-3 86-30-6 621-64-7 85-01-8 120-82-1	ND N	200 200 200 200 200 200 1000 1000 200 20

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project: Geomatrix Consultants. Inc.

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/6/90

Client Sample I.D.: H-2

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794424 COC Log No.:

AEMC I.D.: L4424-2 Batch No.: 5193 Matrix: Soil

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	1000 400 200 200 200 200 1000 200 200

RPT. Limit = Reporting Limit ${\tt ND}$ = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

P.O/Contract No.: Contact: D. Favre

Phone:

Project: Geomatrix Consultants, Inc.

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/6/90

SURROGATES

Client Sample I.D.: Method Blank

AEMC Contact: M. Smith

Job No.: 794424 COC Log No.:

AEMC I.D.: L4424-MB Batch No.: 5193 Matrix: Soil

SPIKE CONC.

(mg/kg)

RECOVERY

(percent)

Phenol-d6 2-Fluorophenol		NR NR	NR NR
2,4,6-Tribromophenol		NR	NR
Nitrobenzene-d5		NR	NR
2-Fluorobiphenyl		NR	NR
Terphenyl-dl4		NR NR	NR NR
		IVIX	NK
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
		\ <u>'''8</u> / \\6/	(mg/ kg)
Acenaphthene	83-32-9	ND	100
Acenaphthylene	208-96-8	ND	100
Anthracene	120-12-7	ND	100
Benzo(a)anthracene	56-55 -3	ND	100
Benzo(b)fluoranthene	205-99-2	ND	100
Benzo(k)fluoranthene	207-08-9	ND	100
Benzo(g.h.i)pervlene	191-24-2	ที่อั	100
Benzo(a)pyrene	50-32-8	ND	100
Benzyl alcohol	100-51-6	ND	200
Bis(2-chloroethoxy)methane	111-91-1	ND	100
Bis(2-chioroethyl)ether	111-44-4	ND	100
Bls(2-chioroisopropyl)ether	108-60-1	ND	100
pls(2-ethylhexvl)phthalate	117-81-7	ND	100
4-bromodhenvi nhenvi ether	1 01 - 55 - 3	ND	100
Butylbenzyl phthalate 4-Chloroaniline	85-68-7	ND	100
4-Chloroaniline	106-47-8	ND	200
2-Chloronaphthalene	91-58-7	ND	ĩŏŏ
4-Chlorophenyl phenyl ether	70 05 -72-3	ND	100
Unrysene	218-01-9	ND	īŏŏ
Dibenzo(a,h)anthracene	53-70-3	ND	100
Dibenzofuran	132-64-9	ND	100
Di-n-butylphthalate	84-74-2	ND	100
1,2-Dichlorobenzene	95-50-1	ND	100
1,3-Dichlorobenzene	541 - 73-1	ND	100
l,4-Dichlorobenzene	1 06- 46-7	ND	100
3,3'-Dichlorobenzidine	91-94-1	ND	200
Diethylphthalate	84-66-2	NĎ	100
Dimethylphthalate	131-11-3	ИD	100
2,4-Dinitrotoluene	121-14-2	ND	100
2,6-Dinitrotoluene	6 06 -20-2	ND	100
Di-n-octylphthalate	117-84-0	ND	100
Fluoranthene	20 6- 44 - 0	ND	100
Fluorene	86 - 73-7	ND	100
Hexachlorobenzene	118-74-1	ND	100
Hexachlorobutadiene	87-68-3	ND	100

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit NR = Not Reported



ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

P.O/Contract No.: Contact: D. Favre

Phone:

Project: Geomatrix Consultants, Inc.

AEMC Contact: M. Smith

Job No.: 794424 COC Log No.:

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/6/90

AEMC I.D.: L4424-MB **Batch** No.: 5193

Client Sample I.D.: Method Blank

Matrix: Soil

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Hexachlorocyclopentadiene Hexachloroethane Indeno(1,2,3-c,d)pyrene Isophorone 2-Methylnaphthalene Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene N-Nitrosodiphenylamine N-Nitroso-di-n-propylamine	77-47-4 67-72-1 193-39-5 78-59-1 91-57-6 91-20-3 88-74-4 99-09-2 100-01-6 98-30-6 621-64-7	ND ND ND ND ND ND ND ND ND ND	100 100 100 100 100 100 500 500 500 500
Phenanthrene Pyrene 1,2,4-Trichlorobenzene	85-01-8 129-00-0 120-82-1	ND ND ND	100 100 100

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

AMERICAI ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants i Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants. Inc.

Date Sampled: 2/28/90 Date Received: 3/1/90 Date Extracted: 3/1/90 Date Analyzed: 3/6/90

Client Sample I.D.: Method Blank

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794424 COC Log No.:

AEMC I.D.: L4424-MB Batch No.: 5193 Matrix: Soil



DUPLICATE CONTROL SAMPLE REPORT Special Services by Low Resolution

	Conc	entration		Acc	uracy(%)	Precision	on (RPD
Analyte	Spiked	Measur DCSI	ed DCS2	DCS1	DCS2	Limits	DCS 1	_imits
Category: DXNFUR-S Matrix: SOIL QC Lot: 12 MAY 89-A Concentration Units: ng								
2378-TCDF 23478-PECDF 123478-HXCDF 1234678-HPCDF 12345678-OCDF 2378-TCDD 12378-PECDD 123478-HXCDD 1234678-HPCDD 12345678-OCDD	10 10 10 10 50 10 10 10	10 11 11 10 70 10 8.5 9.0 9.3	10 11 11 10 70 11 8.6 9.2 9.2	100 110 110 100 140 100 85 90 93 82	100 110 110 100 140 110 86 92 92 92 82	60-140 60-140 60-140 60-140 60-140 60-140 60-140 60-140	0 0 0 0 9.5 1.2 2.2 1.1	50 50 50 50 50 50 50 50

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: AETC

Client ID: H-1

Lab ID: 051740-0001-SA Matrix: SOIL

Enseco ID: 139632 Sampled: 28 FEB 90 Prepared: 02 MAR 90

Received: 02 MAR 90 Analyzed: 05 MAR 90

1.0G

Sample Amount Percent Moisture Column Type NA **DB-5**

Authorized: 02 MAR 90

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND 31 160 120	ng/g ng/g ng/g ng/g ng/g	0.068 0.11 	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND 26 260 720	ng/g ng/g ng/g ng/g ng/g	0.22 0.33 	

% Recovery

13C-2,3,7,8-TCDF	57
13C-2,3,7,8-TCDD	72
13C-1,2,3,7,8-PeCDD	79
13C-1,2,3,6,7,8-HxCDD	62
13C-1,2,3,4,6,7,8-HpCDD	64
13C-OCDD	34

ND = Not detected NA = Not applicable

Reported By: Andre Algazi

Approved By: Steve Rogers

The cover letter is an integral part of this report.

Rev 230787



POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: AETC Client ID: Methol Lab ID: 0517 Method Blank

051740-0001-MB

Enseco ID: 139633 Matrix: SOIL

Sampled: NA Prepared: 02 MAR 90 Received: NA Authorized: NA Analyzed: 05 MAR 90

Sample Amount 1.0G Percent Moisture NA Column Type **DB-5**

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND ND ND ND	ng/g ng/g ng/g ng/g ng/g	0.052 0.039 0.054 0.077 0.44	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND ND ND ND	ng/g ng/g ng/g ng/g ng/g	0.060 0.13 0.14 0.097 0.24	

% Recovery

13C-2,3,7,8-TCDF	42
13C-2,3,7,8-TCDD	56
13C-1,2,3,7,8-PeCDD	70
13C-1,2,3,6,7,8-HxCDD	57
13C-1,2,3,4,6,7,8-HpCDD	58
13C-0CDD	32

ND = Not detected NA = Not applicable

Reported By: Andre Algazi

Approved By: Steve Rogers

The cover letter is an integral part of this report.

Rev 230787

ENVIRONMENTAL LABORATORIES CORP.

Geomatrix Consultants l Mkt. Plaza, Spear St.#71 San Francisco, CA 94105 03/12/90

Attn: D. Favre

Re: Project: Geomatrix Consultants/1579C AEMC Lab Reference No.: L4440 Date Samples Received: 03/06/90 No. Samples Received: 5 Soil samples

Job No.: 794440

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples	Analysis
5	TCP, PCP and Stoddard Solvent
2	GCMS Semi-Volatiles

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director

ANALYSIS REPORT: TCP, PCP & Stoddard Solvent; EPA Methods 8040/8015

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project: Geomatrix Consultants/1579C

Date Sampled: 3/6/90 Date Received: 3/6/90 Date Extracted: 3/6/90 Date Analyzed: 3/7/90

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794440 COC Log No.: 847 AEMC I.D.: L4440

Matrix: Soil

Sample Client	I.D. AEMC	2,4,5- Trichlorophenol (mg/kg)	Pentachlorophenol (mg/kg)	Stoddard Solvent (mg/kg)
A	L4440-1	ND	ND	3,100
В	L4440-2	83	28	2,400
С	L4440-3	31	12	730
D	L4440-4	ИD	ND	ND
Е	L4440- 5	73	31	860
Method Blank	L4440-MB	ND	ND	ND
REPORTING LIM	IT*	10	10	100

^{*}Unless otherwise indicated in parentheses

ND - Not Detected at or above indicated Reporting Limit.

ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza, Ste. 717 San Francisco, CA 94105

Project: Geomatrix Consultants/1579C

Date Sampled: 3/7/90 Date Received: 3/7/90 Date Extracted: 3/7/90 Date Analyzed: 3/8/90

Client Sample I.D.: A

Project No.: 1579C Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794440 COC Log No.: 847

AEMC I.D.: L4440-1 Batch No.: 5237 Matrix: Soil

SURROGATE		SPIKE CONC. (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol		2 2 2	50% 57% 126%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-83-2 105-28-5 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	1 1 1 1 1 1 1 1

ND = Not Detected at or above indicated Reporting Limit.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza. Ste. 717 San Francisco, CA 94105

Project No.: 1579C Contact: D. Favre

Phone:

Project: Geomatrix Consultants/1579C

AEMC Contact: M. Smith

Date Sampled: 3/7/90 Date Received: 3/7/90 Date Extracted: 3/7/90 Date Analyzed: 3/8/90

Job No.: 794440 COC Log No.: 847

Client Sample I.D.: D

AEMC I.D.: L4440-4 Batch No.: 5237 Matrix: Soil

SURROGATE	SPIKE CONC. (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	2 2 2 2	53% 44% 104%

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	

 $\ensuremath{\mathsf{ND}}\xspace = \ensuremath{\mathsf{Not}}\xspace \ensuremath{\mathsf{Detected}}\xspace$ at or above indicated Reporting Limit.

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza, Ste. 717 San Francisco, CA 94105

Project: Geomatrix Consultants/1579C

Date Sampled: 3/7/90 Date Received: 3/7/90 Date Extracted: 3/7/90 Date Analyzed: 3/8/90

Project No.: 1579C Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794440 COC Log No.: 847

AEMC I.D.: L4440 Batch No.: 5237 Matrix: Soil

SURROGATE	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	,	
Phenol-d6 2-Fluorophenol 2,4,6-Dibromophenol	2 2 2 2	52% 45% 104%	59% 45% 111%		
ANALYTE Acids	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	Duplicate RPD	
Pentachlorophenol	2	71%	61%	15%	
2,4,6-Trichlorophenol	2	42%	45%	7%	

MS = Matrix Spike
MSD = Matrix Spike Duplicate
% Rec = Percent Recovery

RPD = Relative Percent Difference

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza, Ste. 717 San Francisco, CA 94105

Project No.: 1579C Contact: D. Favre Phone:

Project: Geomatrix Consultants/1579C

Date Sampled: 3/7/90 Date Received: 3/7/90 Date Extracted: 3/7/90 Date Analyzed: 3/8/90

Client Sample I.D.: Method Blank

AEMC Contact: M. Smith

Job No.: 794440 COC Log No.: 847

AEMC I.D.: L4440-MB Batch No.: 5237 Matrix: Soil

SURROGATE	SPIKE CONC. (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	2 2 2	42% 30% 88%

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-5 106-44-5 88-75-5 108-95-2 95-95-4 88-06-2	ND N	1 1 1 1 1 1 1 1 1 1 1

 $\ensuremath{\mathsf{ND}}$ = $\ensuremath{\mathsf{Not}}$ Detected at or above indicated Reporting Limit.

ENVIRONMENTAL LABORATORIES CORP.

Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94105

03/15/90

Attn: D. Favre

Re: Project: Kaiser Hospital/Oakland AEMC Lab Reference No.: L4446 Date Samples Received: 03/07/90 No. Samples Received: 5 Soil samples 1 Wipe sample

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples	Analysis
6	PCP, TPC and Stoddard Solvent
2	GCMS Semi-Volatiles

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director

Job No.: 794446



ANALYSIS REPORT: TCP, PCP & Stoddard Solvent; EPA Methods 8040/8015

CLIENT: Geomatrix Consultants 1 Mkt. Plaza. Spear St. =71 San Francisco, CA

Project: Kaiser Hospital/Oakland

Date Sampled: 3/7/30 Date Received: 3/7/90 Date Extracted: 3/7/90 Date Analyzed: 3/8/90

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794446 GOC Log No.: 848

AEMC I.D.: L4446 Batch No.: 5247 Matrix: Soil

Sample I	AEMC	2,4,5- Trichlorophenol (mg/kg)	Pentachlorophenol (mg/kg)	Stoddard Solvent (mg/kg)
=F	L4446-1	32	13	2,400
= G	L4446-2	ИD	ND	12,000
#H	L4446-3	ND	ND	1,300
#I	L4446-4	103	28	850
έJ	L4446-5	135	53	2,100
Method Blank	L4446-MB	ND	ND	ИD
REPORTING LIM	[T*	10	10	100

^{*}Unless otherwise indicated in parentheses

ND = Not Detected at or above indicated Reporting Limit.

ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA 94105

Project: Kaiser Hospital/Oakland

Date Sampled: 3/7/90 Date Received: 3/7/90 Date Extracted: 3/8/90 Date Analyzed: 3/9/90

Client Sample I.D.: #G

Project No.: 1459C Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794446 COC Log No.: 848

AEMC I.D.: L4446-2 Batch No.: 5249 Matrix: Soil

SURROGATE		CONCENTRATION (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol		2 2 2	53% 40% 70%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 4-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	5211155111511111

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA 94105

Project: Kaiser Hospital/Oakland

Date Sampled: 3/7/90 Date Received: 3/7/90 Date Extracted: 3/8/90 Date Analyzed: 3/9/90

Client Sample I.D.: ⇒H

Project No.: 1459C Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794446 COC Log No.: 848

AEMC I.D.: L4446-3 Batch No.: 5249 Matrix: Soil

SURROGATE		CONCENTRATION (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol		2 2 2	53% 34% 76%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-4 88-06-2	ND N	521115511111111

1ERICAI ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA 94105

Project: Kaiser Hospital/Oakland

Date Sampled: 3/7/90 Date Received: 3/7/90 Date Extracted: 3/8/90 Date Analyzed: 3/9/90

Client Sample I.D.: Method Blank

Project No.: 1459C Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794446 COC Log No.: 848

AEMC I.D.: L4446-MB Batch No.: 5249 Matrix: Soil

SURROGATE	CONCENTRATION (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	2 2 2 2	48% 29% 81%

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	521115511151

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA 94105

Project: Kaiser Hospital/Oakland

Date Sampled: 3/7/90 Date Received: 3/7/90 Date Extracted: 3/8/90 Date Analyzed: 3/9/90

Project No.: 1459C Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794446 COC Log No.: 848

AEMC I.D.: L4446 Batch No.: 5249 Matrix: Soil

SURROGATE	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec		
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	2 2 2 2	49% 26% 81%	448 278 758		
ANALYTE Acids	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	Duplicate RPD	
Pentachlorophenol 2,4,6-Trichlorophenol	2 2	92% 60	92% 61%	0% 2%	

MS = Matrix Spike
MSD = Matrix Spike Duplicate
% Rec = Percent Recovery
RPD = Relative Percent Difference

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: TCP, PCP & Stoddard Solvent; EPA Methods 8040/8015

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project: Kaiser Hospital/Oakland

Date Sampled: 3/7/90 Date Received: 3/7/90 Date Extracted: 3/7/90 Date Analyzed: 3/8/90

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794446 COC Log No.: 848

AEMC I.D.: L4446 Batch No.: 5247 Matrix: Wipe

ANALYTE	Spike Conc. (ug/wipe)	MS %Rec	MSD %Rec	RPD	
2,4,5-Trichlorophenol	1250	97%	102%	5%	
Pentachlorophenol	1250	96%	103%	7%	

ANALYSIS REPORT: TCP, PCP & Stoddard Solvent; EPA Methods 8040/8015

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project: Kaiser Hospital/Oakland

Date Sampled: 3/7/90 Date Received: 3/7/90 Date Extracted: 3/7/90 Date Analyzed: 3/8/90

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: M. Smith

Job No.: 794446 COC Log No.: 848

AEMC I.D.: L4446 Batch No.: 5247 Matrix: Soil

ANALYTE	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	RPD	
2,4,5-Trichlorophenol	50	97%	102%	5%	
Pentachlorophenol	50	96%	103%	7%	



Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

03/21/90

Job No.: 794458

Attn: D. Favre

Re: Project: Kaiser-Oakland AEMC Lab Reference No.: L4458 Date Samples Received: 03/12/ No. Samples Received: 2 Soi

03/12/90 2 Soil samples 1 Wipe sample 3 Blank samples

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples	Analysis
2	Dioxins
1	Phenols
2	GCMS Semi-Volatiles

Method 8270 surrogate standard recovery data could not be calculated/ reported for samples SS1 and SS2 due to the presence of significant concentrations of target compounds in these samples. (Surrogates were "diluted out".)

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director

Tem

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

P.O/Contract No.: Contact: D. Favre

AEMC Contact: G. Hampton

Phone:

Project: Kaiser-Oakland

Date Sampled: 3/11/90 Date Received: 3/12/90 Date Extracted: 3/14/90 Date Analyzed: 3/15/90

Client Sample I.D.: SS1

Job No.: 794458 COC Log No.: 21604

AEMC I.D.: L4458-1 Batch No.: 5290 Matrix: Soil

RPT. LIMIT (mg/kg) CONCENTRATION SURROGATE (mg/kg) Phenol-d6 NR NR 2 2 2 2-Fluorophenol 2,4,6-Tribromphenol

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-7 106-95-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	200 80 40 40 40 200 200 40 40 40 200 20

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit NR = Not Reportable; see report cover-letter for explanation.

AMERICAN

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project: Kaiser-Oakland

Date Sampled: 3/11/90 Date Received: 3/12/90 Date Extracted: 3/14/90 Date Analyzed: 3/15/90

Client Sample I.D.: SS2

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794458 COC Log No.: 21604

AEMC I.D.: L4458-2 Batch No.: 5290 Matrix: Soil

SURROGATE	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol	2 2 2 2	NR NR NR

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	200 80 40 40 40 200 200 40 40 40 200 20

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit NR = Not Reportable; see report cover-letter for explanation.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project: Kaiser-Oakland

Date Sampled: 3/11/90 Date Received: 3/12/90 Date Extracted: 3/14/90 Date Analyzed: 3/15/90

Client Sample I.D.: Method Blank

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794458 COC Log No.: 21604

AEMC I.D.: L4458-MB Batch No.: 5290 Matrix: Soil

SURROGATE	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol	2 2 2	28% 40% 54%

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-4 88-95-2	ND N	200 80 40 40 40 200 200 40 40 40 200 200 40 40

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project: Kaiser-Oakland

Date Sampled: 3/11/90 Date Received: 3/12/90 Date Extracted: 3/14/90 Date Analyzed: 3/15/90

P.O/Contract No.: Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794458 GOC Log No.: 21604

AEMC I.D.: L4458 Batch No.: 5290 Matrix: Soil

SURROGATE	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol	2 2 2	448 608 978	34% 42% 78%	
ANALYTE Acids	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	Duplicate RPD
Pentachlorophenol	2	63%	448	36%
2,4,6-Trichlorophenol	2	82%	69%	17%

MS = Matrix Spike
MSD = Matrix Spike Duplicate
% Rec = Percent Recovery
RPD = Relative Percent Difference

ANALYSIS REPORT: TCP, PCP; EPA Method 8040

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project No.: 1459D Contact: D. Favre

Phone:

Project: Kaiser/Oakland

Date Sampled: 3/11/90 Date Received: 3/12/90 Date Extracted: 3/13/90 Date Analyzed: 3/13/90

AEMC Contact: G. Hampton

Job No.: 794458 COC Log No.: 21604

AEMC I.D.: L4458 Batch No.: 5275 Matrix: Wipe

Sample Client	I.D. AEMC	2,4,5- Trichlorophenol (ug/wipe)	Pentachlorophenol (ug/wipe)	
BC1	L4458-3	ND	ND	
Method Blank	L4458-MB	ND	ND	
REPORTING LIM	IT*	20	20	
WII-1				

*Unless otherwise indicated in parentheses

ND = Not Detected at or above indicated Reporting Limit.

AMERICAN

ANALYSIS REPORT: TCP, PCP; EPA Method 8040

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Kaiser/Oakland

Date Sampled: 3/11/90 Date Received: 3/12/90 Date Extracted: 3/13/90 Date Analyzed: 3/13/90

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794458 COC Log No.: 21604

AEMC I.D.: L4458 Batch No.: 5275 Matrix: Wipe

ANALYTE	Spike Conc. (ug/wipe)	MS %Rec	MSD %Rec	R PD	
2,4,5-Trichlorophenol	100	110%	112%	2%	
Pentachlorophenol	100	100%	102%	2%	

MS = Matrix Spike % Rec = Percent Recovery MSD = Matrix Spike Duplicate RPD = Relative Percent Difference



SAMPLE DESCRIPTION INFORMATION for AEMC

Lab ID	Client ID	Matrix	Sampled Date Time	Received Date
051868-0001-SA 051868-0001-MB 051868-0002-SA	Method Blank	SOIL SOIL SOIL	11 MAR 90 13:00 11 MAR 90 13:00	12 MAR 90

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: AEMC

Client ID: S**S**-1

CCDD

Lab ID: 051868-0001-SA Matrix:

SOIL

Authorized: 12 MAR 90

Enseco ID: 140554 Sampled: 11 MAR 90 Prepared: 12 MAR 90

Received: 12 MAR 90 Analyzed: 12 MAR 90

Sample Amount 10.0 G Percent Moisture NA Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND 47 340 190	ng/g ng/g ng/g ng/g ng/g	0.011 0.079 	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total)	0.26 ND 38 430	ng/g ng/g ng/g ng/g	0.061	÷

% Recovery

1100

ng/g

13C-2,3,7,8-TCDF	66
13C-2,3,7,8-TCDD	72
13C-1,2,3,7,8-PeCDD	98
13C-1,2,3,6,7,8-HxCDD	75
13C-1,2,3,4,6,7,8-HpCDD	44
13C-OCDD	22

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report. Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: AEMC Client ID: SS-2

051868-0002-SA Lab ID: Matrix:

Authorized: 12 MAR 90

SOIL

Enseco ID: 140555 Sampled: 11 MAR 90 Prepared: 12 MAR 90

Received: 12 MAR 90 Analyzed: 12 MAR 90

Sample Amount Percent Moisture 10.1 G NA

Column Type

DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND 36 250 150	ng/g ng/g ng/g ng/g ng/g	0.013 0.014 	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	0.25 ND 30 330 940	ng/g ng/g ng/g ng/g ng/g	0.052 	

% Recovery

13C-2,3,7,8-TCDF	£7
13C-2,3,7,8-TCDD	57
13C-1,2,3,7,8-PeCDD	57
13C-1,2,3,6,7,8-HxCDD	85
13C-1,2,3,4,6,7,8-HpCDD	70
13C-0CDD	51
136-0600	30

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report. Rev 230787

Data

Qualifiers

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: AEMC

Client ID: Method Blank

Lab ID: 051868-0001-MB

Matrix: SOIL

Authorized: NA

Enseco ID: 140556 Sampled: NA Prepared: 12 MAR 90

Received: NA

Detection

Analyzed: 12 MAR 90

Sample Amount 10.0 G Percent Moisture Column Type NA DB-5

Parameter	Result	Units	Limit	(
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND ND ND ND	ng/g ng/g ng/g ng/g ng/g	0.0051 0.0056 0.11 0.10 0.093	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND ND ND ND	ng/g ng/g ng/g ng/g ng/g	0.0095 0.012 0.014 0.055 0.35	

% Recovery

13C-2,3,7,8-TCDF	52
13C-2,3,7,8-TCDD	53
13C-1,2,3,7,8-PeCDD	77
13C-1,2,3,6,7,8-HxCDD	63
13C-1,2,3,4,6,7,8-HpCDD	42
13C-0CDD	20

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report.

Rev 230787



DUPLICATE CONTROL SAMPLE REPORT Special Services - Low Resolution Mass Spectrometry

Analyte	Conce Spiked	entration Measure DCS1	d DCS2	Acc DCS1	uracy(DCS2	%) Limits	Precisio DCS L	on(RPD) imits
Category: DXNFUR-S Matrix: SOIL QC Lot: 01 MAR 90-A Concentration Units: ng	ţ							
2378-TCDF 23478-PECDF 123478-HXCDF 1234678-HPCDF 12345678-OCDF 2378-TCDD 12378-PECDD 123478-HXCDD 1234678-HPCDD 12345678-OCDD	10 10 10 10 50 10 10 10	9.2 6.7 8.5 11 67 9.9 9.4 8.6 12	8.4 6.0 9.4 10 66 11 8.8 8.3 11	92 67 85 110 134 99 94 86 120	84 60 94 100 132 110 88 83 110	60-140 60-140 60-140 60-140 60-140 60-140 60-140 60-140	9.1 11 10 9.1 1.5 10 6.6 3.5 8.3 4.0	50 50 50 50 50 50 50 50 50

Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 95638

03/14/90

Attn: D. Favre

Project: Geomatrix Consultants/1459D AEMC Lab Reference No.: L4466 Date Samples Received: 03/13/90 No. Samples Received: 6 Wipe samples

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples

Analysis

3

TCP, PCP

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director

Job No.: 794466

Wipe Samples

ANALYSIS REPORT: TCP, PCP; EPA Method 8040

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants/1459D

Date Sampled: 3/12/90 Date Received: 3/13/90 Date Extracted: 3/13/90 Date Analyzed: 3/13/90

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794466 COC Log No.: 859

AEMC I.D.: L4466 Batch No.: 5275 Matrix: Wipe

Sample Client	I.D. AEMC	2,4,5- Trichlorophenol (ug/wipe)	Pentachlorophenol (ug/wipe)	
WS-1	L4466-1	ND	ND	
WS-2	L4466-2	ND	ND	
WS-3	L4466-3	ND	ND	
Method Blank	L4466-MB	ND	ND	
REPORTING LIM	IT*	20	20	•
#IIml can				

^{*}Unless otherwise indicated in parentheses

ND - Not Detected at or above indicated Reporting Limit.

AMERICAI ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: TCP, PCP; EPA Method 8040

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants/1459D

Date Sampled: 3/12/90 Date Received: 3/13/90 Date Extracted: 3/13/90 Date Analyzed: 3/13/90

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794466 COC Log No.: 859

AEMC I.D.: L4466 Batch No.: 5275 Matrix: Wipe

ANALYTE	Spike Conc. (ug/wipe)	MS % Rec	MSD %Rec	R P D	
2,4,5-Trichlorophenol	100	110%	112%	2%	
Pentachlorophenol	100	100%	102%	2%	

MS = Matrix Spike % Rec = Percent Recovery MSD = Matrix Spike Duplicate RPD = Relative Percent Difference

Analytical Report

LOG NO: E90-03-622

Received: 16 MAR 90 Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO SAMPLE DESCRIPTION,	SOIL SAMPL	ES		DA	TE SAMPLED
03-622-1 401-S (#1-5) @- 03-622-2 402-S (#2-5) 03-622-3 403-S (#3-5) 03-622-4 404-S (#4-5) 03-622-5 405-S (#5-5)	<u> </u>				16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90
PARAMETER	03-622-1	03-622-2	03-622-3	03-622-4	03-622-5
B/N,A Ext.Pri.Poll. (EPA-8270) Date Analyzed Date Extracted Dilution Factor, Times 1,2,4-Trichlorobenzene, mg/kg 1,2-Dichlorobenzene, mg/kg 1,2-Diphenylhydrazine, mg/kg 1,3-Dichlorobenzene, mg/kg 2,4-Dichlorobenzene, mg/kg 2,4,5-Trichlorophenol, mg/kg 2,4-Dichlorophenol, mg/kg 2,4-Dichlorophenol, mg/kg 2,4-Dinitrophenol, mg/kg 2,4-Dinitrotoluene, mg/kg 2,6-Dinitrotoluene, mg/kg 2-Chlorophenol, mg/kg 2-Chlorophenol, mg/kg 2-Methyl-4,6-dinitrophenol, mg/kg 2-Methylnaphthalene, mg/kg 2-Methylphenol, mg/kg 2-Methylphenol, mg/kg 2-Mitroaniline, mg/kg 2-Nitrophenol, mg/kg	03.20.90 03.17.90 1 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03	03.19.90 03.17.90 1 <0.02 <0.03 <0.03 <0.03 <0.03 <0.02 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03	03.19.90 03.17.90 1 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03	03.19.90 03.17.90 1 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03	03.19.90 03.17.90 03.17.90 1 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03

Analytical Report

LOG NO: E90-03-622

Received: 16 MAR 90 Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

Page 2

03-622-2 402-S 16 MAR 03-622-3 403-S 16 MAR 03-622-4 404-S 16 MAR 03-622-5 405-S 16 MAR PARAMETER 03-622-1 03-622-2 03-622-3 03-622-4 03-62 3,3'-Dichlorobenzidine, mg/kg <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.2 4-Bromophenylphenylether, mg/kg <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0	LOG NO	SAMPLE DESCRIPTION,	SOIL SAMPL	ES		DA	ATE SAMPLED
3,3'-Dichlorobenzidine, mg/kg	03-622-2 03-622-3 03-622-4	2-2 402-S 2-3 403-S 2-4 404-S					16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90
3-Nitroaniline, mg/kg	PARAMETER	eter	03-622-1	03-622-2	03-622-3	03-622-4	03-622-5
4-Methylphenol, mg/kg	3-Nitroanii 4-Bromopher 4-Chloro-3 4-Chloroani 4-Chloropher 4-Methylpher 4-Nitroanii 4-Nitroanii 4-Nitropher Acenaphther Acenaphther Acenaphther Acenaphther Acenaphther Benzidine, Benzo(a)and Benzo(a)pyr Benzo(b)flu Benzo(k)flu Benzolc acc	troaniline, mg/kg comophenylphenylether, mg/kg loro-3-methylphenol, mg/kg loroaniline, mg/kg lorophenylphenylether, mg/kg thylphenol, mg/kg troaniline, mg/kg trophenol, mg/kg aphthene, mg/kg aphthene, mg/kg ine, mg/kg racene, mg/kg idine, mg/kg o(a)anthracene, mg/kg o(a)pyrene, mg/kg o(b)fluoranthene, mg/kg o(g,h,i)perylene, mg/kg o(k)fluoranthene, mg/kg o(k)fluoranthene, mg/kg o(k)fluoranthene, mg/kg oic acid, mg/kg	<0.2 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03	<0.2 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03	<0.2 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03	<0.2 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03	<pre><0.03</pre>

BCA

Analytical Report

LOG NO: E90-03-622

Received: 16 MAR 90 Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO SAMPLE DESCRIPTION, S	SOIL SAMPL	ES		DA	TE SAMPLED
03-622-1 401-S 03-622-2 402-S 03-622-3 403-S 03-622-4 404-S 03-622-5 405-S					16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90
PARAMETER	03-622-1	03-622-2	03-622-3	03-622-4	03-622-5
Di-n-octylphthalate, mg/kg Dibenzo(a,h)anthracene, mg/kg Dibenzofuran, mg/kg Dibutylphthalate, mg/kg Diethylphthalate, mg/kg Dimethylphthalate, mg/kg Fluoranthene, mg/kg Fluorene, mg/kg Hexachlorobenzene, mg/kg Hexachlorobutadiene, mg/kg Hexachlorocyclopentadiene, mg/kg Hexachlorocyclopentadiene, mg/kg Indeno(1,2,3-c,d)pyrene, mg/kg Isophorone, mg/kg N-Nitrosodimethylamine, mg/kg N-Nitrosodiphenylamine, mg/kg N-Nitrosodi-n-propylamine, mg/kg Nitrobenzene, mg/kg Phenanthrene, mg/kg Phenol, mg/kg Phenol, mg/kg Pentachlorophenol, mg/kg	<0.03 <0.03 <0.03 <0.03 <0.03	<pre><0.03 <0.03 <</pre>	<pre><0.03 <0.03 <</pre>	<pre><0.03 <0.03 <</pre>	<pre><0.03 <0.03 <</pre>

LOG NO: E90-03-622

Received: 16 MAR 90 Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO SAMPLE DI	ESCRIPTION, SOIL SAMPL	ES		DA	TE SAMPLED
03-622-1 401-S 03-622-2 402-S 03-622-3 403-S 03-622-4 404-S 03-622-5 405-S					16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90
PARAMETER	03-622-1	03-622-2	03-622-3	03-622-4	03-622-5
Bis(2-ethylhexyl)ph	ther, mg/kg <0.03 yl)ether, mg/kg <0.03 thalate, mg/kg <3 i.Poll. (EPA-8270)	<0.02 <0.03 <0.03 <3	<0.03 <0.03 <0.03 <3	<0.03 <0.03 <0.03 <3	<0.03 <0.03 <0.03 <3
C3H6N2S, mg/kg C7-C1l Hydrocarbons Dichloromethoxyphes Molecular Sulfur, Pentachloromethoxy Tetrachlorophenol, Unidentified Matrix	2 s, mg/kg 30 nol, mg/kg mg/kg 0.7 phenol, mg/kg mg/kg 4	 20	200 7 10	20 0.4 2	20 0.2 0.9 30

** Quantification based upon comparison of total ion count of the compound with that of the nearest internal standard.



LOG NO: E90-03-622

Received: 16 MAR 90 Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DE	SCRIPTION,	SOIL SAMPL	ES		DA	TE SAMPLED
03-622-6 03-622-7 03-622-8 03-622-9 03-622-10	406-S 401-1.0 401-2.0 402-1.0 402-2.0	(Hip~s)					16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90
PARAMETER			03-622-6	03-622-7	03-622-8	03-622-9	03-622-10
Sample Held	i, Not Anal	yzed.		H EL D	HELD	HRLD	HELD



LOG NO: E90-03-622

Received: 16 MAR 90 Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

LOG NO SAMPLE DESCRIPTION, S	OIL SAMPL	ES		DA	TE SAMPLED
03-622-6 406-S 03-622-7 401-1.0 03-622-8 401-2.0 03-622-9 402-1.0 03-622-10 402-2.0			***		16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90
PARAMETER	03-622-6	03-622-7	03-622-8	03-622-9	03-622-10
B/N, A Ext. Pri. Poll. (EPA-8270)	********				
Date Analyzed	03.19.90				
	03.17.90				
Dilution Factor, Times	1				
1,2,4-Trichlorobenzene, mg/kg	<0.03				
1,2-Dichlorobenzene, mg/kg	<0.03				
1,2-Diphenylhydrazine, mg/kg	<0.03			~ * *	
1,3-Dichlorobenzene, mg/kg	<0.03	+			
1,4-Dichlorobenzene, mg/kg	<0.03				
2,4,5-Trichlorophenol, mg/kg	54				
2,4,6-Trichlorophenol, mg/kg 2,4-Dichlorophenol, mg/kg	<0.03				
2,4-Dimethylphenol, mg/kg	0.6 <0.03	4			
2,4-Dimethylphenol, mg/kg 2,4-Dinitrophenol, mg/kg	<0.3				
2,4-Dinitrotoluene, mg/kg	<0.03				
2,6-Dinitrotoluene, mg/kg	<0.03				
2-Chloronaphthalene, mg/kg	<0.03				
2-Chlorophenol, mg/kg	<0.03				
2-Methyl-4,6-dinitrophenol, mg/k	g <0.03				
2-Methylnaphthalene, mg/kg	<0.03				
2-Methylphenol, mg/kg	<0.03				
2-Nitroaniline, mg/kg	<0.2				
2-Nitrophenol, mg/kg	<0.03				~

LOG NO: E90-03-622

Received: 16 MAR 90 Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

LOG NO SAMPLE DESCRIPTION, S	OIL SAMPL	ES		DA	ATE SAMPLED
03-622-6 406-S 03-622-7 401-1.0 03-622-8 401-2.0 03-622-9 402-1.0 03-622-10 402-2.0					16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90
PARAMETER	03-622-6	03-622-7	03-622-8	03-622-9	03-622-10
3,3'-Dichlorobenzidine, mg/kg 3-Nitroaniline, mg/kg 4-Bromophenylphenylether, mg/kg 4-Chloro-3-methylphenol, mg/kg 4-Chloroaniline, mg/kg 4-Chlorophenylphenylether, mg/kg 4-Methylphenol, mg/kg 4-Nitroaniline, mg/kg 4-Nitrophenol, mg/kg Acenaphthene, mg/kg Acenaphthylene, mg/kg	<0.03 <0.02 <0.03 <0.03 <0.03 <0.03 <0.03 <0.07 <0.03 <0.03				
Aniline, mg/kg Anthracene, mg/kg Benzidine, mg/kg Benzo(a)anthracene, mg/kg Benzo(a)pyrene, mg/kg Benzo(b)fluoranthene, mg/kg Benzo(g,h,i)perylene, mg/kg Benzo(k)fluoranthene, mg/kg Benzyl alcohol, mg/kg Benzoic acid, mg/kg Butylbenzylphthalate, mg/kg	<0.03 <0.03 <1 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03				
Chrysene, mg/kg	<0.03				

LOG NO: E90-03-622

Received: 16 MAR 90 Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

Page 8

03-622-6 406-S 16 Mz 03-622-7 401-1.0 16 Mz 03-622-8 401-2.0 16 Mz 03-622-9 402-1.0 16 Mz 03-622-10 402-2.0 16 Mz	R 90 R 90 R 90
·	
PARAMETER 03-622-6 03-622-7 03-622-8 03-622-9 03-62	2-10
Di-n-octylphthalate, mg/kg <0.03	
Dibenzo(a,h)anthracene, mg/kg <0.03	
Dibenzofuran, mg/kg <0.03	
Dibutylphthalate, mg/kg <0.03	
Diethylphthalate, mg/kg <0.03	
Dimethylphthalate, mg/kg <0.03	
Fluoranthene, mg/kg <0.03	
Fluorene, mg/kg <0.03	
Hexachlorobenzene, mg/kg <0.03	
Hexachlorobutadiene, mg/kg <0.03	
Hexachlorocyclopentadiene, mg/kg <0.03	
Hexachloroethane, mg/kg <0.03	
Indeno(1,2,3-c,d)pyrene, mg/kg <0.03	
Isophorone, mg/kg <0.03	
N-Nitrosodimethylamine, mg/kg <0.03	
N-Nitrosodiphenylamine, mg/kg <0.03	
N-Nitrosodi-n-propylamine, mg/kg <0.03	
Nitrobenzene, mg/kg <0.03	
Naphthalene, mg/kg <0.03	
Phenanthrene, mg/kg <0.03	
Phenol, mg/kg <0.03	
Pentachlorophenol, mg/kg 21	
Pyrene, mg/kg <0.03	

BCA

LOG NO: E90-03-622

Received: 16 MAR 90

Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

Page 9

LOG NO	SAMPLE DESCRIPTION, SOI	L SAMPL	ES		DA	TE SAMPLED
	406-S 401-1.0 401-2.0 402-1.0 402-2.0					16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90
PARAMETER	03	-622-6	03-622-7	03-622-8	03-622-9	03-622-10
Bis(2-chlo	roethoxy)methane, mg/kg roethyl)ether, mg/kg	<0.03				
Bis(2-ethy	roisopropyl)ether, mg/kg lhexyl)phthalate, mg/kg ,A Ext.Pri.Poll. (EPA-82	<3				
C7-C11 Hy	ified Results ** drocarbons, mg/kg rophenol, mg/kg	200 2				

** Quantification based upon comparison of total ion count of the compound with that of the nearest internal standard.



LOG NO: E90-03-622

Received: 16 MAR 90 Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION	ON, SOIL	SAMPLE	is		DA	TE SAMPLED
03-622-11 03-622-12 03-622-13 03-622-14 03-622-15	404-1.0 404-2.0 403-1.0 403-2.0 406-1.0						16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90 16 MAR 90
PARAMETER		03-62	22-11	03-622-12	03-622-13	03-622-14	03-622-15
Sample Held	, Not Analyzed		HELD	HRLD	HELD	HELD	HELD



LOG NO: E90-03-622

Received: 16 MAR 90

Reported: 20 MAR 90

Ms. Cheri Young Geomatrix Consultants 1 Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

Page 11

Sample Held	l, Not Analyzed	 	 HELD	HELD	HE	LD
PARAMETER		 	 03-622-16	03-622-17	03-622-	18
03-622-16 03-622-17 03-622-18	406~2.0 405-1.5 405-2.5	 	 		16 MAR 16 MAR 16 MAR	90
LOG NO	SAMPLE DESCRIPTION,		 			

Sim D. Lessley, Ph.D., Laboratory Director



LOG NO: E90-03-545

Received: 15 MAR 90 Reported: 16 MAR 90

Ms. Debra Favre Geomatrix Consultants 1 Market Plaza. Spear Tower. Ste.717 San Francisco. California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION. SOIL SAMPI	ES		DA	TE SAMPLED
	MC-1 MC-2 Pile 1 Composite (Pile 1) (Pile 2)				15 MAR 90 15 MAR 90 15 MAR 90 15 MAR 90
PARAMETER		03-545-1	03-545-2	03-545-3	03-545-4
Date Analy Date Entra Dilution F 1.2Tric 1.2-Dichlo 1.2-Dichlo 2.4.5-Tric 2.4.5-Tric 2.4.5-Tric 2.4-Dinitr 2.4-Dinitr 2.6-Dinitr 2.6-Dinitr 2.6-Dinitr 2.6-Dinitr 2.6-Methyl 2-Methyl 2-Methyl 2-Methyl 2-Methyl 2-Mitroani		3.15.90 3.15.90 3.15.90 2 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07		03.15.90 03.15.90 2	03.15.90 03.15.90 2
-	orobenzidine. mg/kg	<0.07	<0.07	<0.07	<0.07

LOG NO: E90-03-545

Received: 15 MAR 90 Reported: 16 MAR 90

Ms. Debra Favre Geomatrix Consultants 1 Market Plaza. Spear Tower. Ste.717 San Francisco. California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION. SOIL SA	AMPLES		DA	TE SAMPLED
03-545-1 03-545-2 03-545-3 03-545-4	• • • • • • • • • • • • • • • • • • • •				15 MAR 90 15 MAR 90 15 MAR 90 15 MAR 90
PARAMETER		03-545-1	03-545-2	03-545-3	03-545-4
4-Bromophe 4-Chloro-1 4-Chloroan 6-Chloroan	tlene. mg/kg ng/kg ng/kg	<0.4 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07	<0.4 <0.07 <0.07 <0.04 <0.07 <0.07 <0.04 <1 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.0	<0.4 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <	<pre><0.4 <0.07 <0</pre>
Chrysene. Di-n-octyl	. •	<0.07 <0.07 <0.07 <0.07	<0.07 <0.07 <0.07	<0.07 <0.07 <0.07	<0.07 <0.07 <0.07



LOG NO: E90-03-545

Received: 15 MAR 90 Reported: 16 MAR 90

Ms. Debra Favre Geomatrix Consultants I Market Plaza. Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

LES		DA	TE SAMPLED
			15 MAR 90 15 MAR 90 15 MAR 90 15 MAR 90
03-545-1	03-545-2	03-545-3	03-545-4
<0.07 <0.07	<0.07 <0.07	<0.07 <0.07	<0.07 <0.07
<0.07 <0.07	<0.07 <0.07	<0.07 <0.07	<0.07 <0.07
<0.07	<0.07	<0.07	<0.07 <0.07
<0.07	<0.07	<0.07	<0.07 <0.07
<0.07	<0.07	<0.07	<0.07 <0.07 <0.07
<0.07	<0.07	<0.07	<0.07 <0.07 <0.07
<0.07 <0.07	<0.07 <0.07	<0.07 <0.07	<0.07 <0.07
<0.07 <0.07	<0.07 <0.07	<0.07 <0.07	<0.07 <0.07
<0.07 <0.07	<0.07 <0.07	<0.07 <0.07	<0.07 <0.07
<0.07	<0.07	<0.07	2.6 <0.07
<0.07	<0.07	<0.07	<0.07 <0.07 <0.07
	<0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07	03-545-1 03-545-2 <0.07	03-545-1 03-545-2 03-545-3 <0.07

LOG NO: E90-03-545

Received: 15 MAR 90 Reported: 16 MAR 90

As. Debra Favre Geomatrix Consultants L Market Plaza, Spear Tower, Ste.717 San Francisco, California 94105

Project: 1459D

REPORT OF ANALYTICAL RESULTS

Page 4

103 80	SAMPLE DESCRIPTION. SOIL SAMP	LES		DAT	E SAMPLED
	MC-1 MC-2 Pile 1 Composite Pile 2 Composite				15 MAR 90 15 MAR 90 15 MAR 90 15 MAR 90
PARAMETER	***************************************	03-545-1	03-545-2	03-545-3	03-545-4
	Thexyl)phthalate. mg/kg	<7	<7	<7	<7
	ified Results ** drocarbon Matrix. mg/kg	100	40	200	200
	fication based upon comparison ne nearest internal standard.	of total ion	count of	the compound	with

Sim D. Lessley, Sh.D./ Laborate

Laboratory Director



ENVIRONMENTAL LABORATORIES CORP.

Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 95638

04/06/90

Attn: D. Favre

Re: Project: Geomatrix Consultants/1459D

AEMC Lab Reference No.: L4510 Project No.: 1459D

Date Samples Received: 03/21/90 Job No.: 794510

No. Samples Received: 15 Soil samples

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples	Analysis		
7	GCMS Semi-Volatiles		
2	Phenols		
2	Dioxins		

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

RECOVERY

Job No.: 794510 COC Log No.: 767

Date Sampled: 3/21/90
Date Received: 3/21/90
Date Extracted: 3/21/90
Date Analyzed: 3/22/90
Date Reported: 3/26/90
Client Sample I.D.: Composite 1-A to 1-D

AEMC I.D.: L4510-5 Batch No.: 5319 Matrix: Soil

CONCENTRATION

SURROGATE		CONCENTRATION (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol		2 2 2 2	79% 80% 80%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 53-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	1 1 1 1 1 1 1 1 1

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants
1 Mkt. Plaza, Spear St. =71

San Francisco, CA

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

Date Sampled: 3/16/90
Date Received: 3/21/90
Date Extracted: 3/21/90
Date Analyzed: 3/22/90
Date Reported: 3/26/90
Client Sample I.D.: Composite 2-A to 2-D

Date Reported: 3/26/90
Client Sample I.D.: Composite 2-A to 2-D

AEMC I.D.: L4510-10
Batch No.: 5319
Matrix: Soil

(\$2 - Com) (C-1

SURROGATE	CONCENTRATION (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol	2 2 2 2	76% 75% 80%

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

RECOVERY

(percent)

Job No.: 794510 COC Log No.: 767

Date Sampled: 3/16/90
Date Received: 3/21/90
Date Extracted: 3/21/90
Date Analyzed: 3/22/90
Date Reported: 3/26/90
Client Sample I.D.: 401-2.0

AEMC I.D.: L4510-11 Batch No.: 5319 Matrix: Soil

CONCENTRATION

(mg/kg)

SURROGATE

(#1-2)(a)

Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol		2 2 2 2	71% 70% 59%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dimitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	

MERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

RECOVERY

(percent)

Date Sampled: 3/16/90
Date Received: 3/21/90
Date Extracted: 3/21/90
Date Analyzed: 3/22/90
Date Reported: 3/26/90
Client Sample I.D.: 403-2.0 (73-2-2)

Job No.: 794510 COC Log No.: 767

SURROGATE

AEMC I.D.: L4510-12 Batch No.: 5319

CONCENTRATION

(mg/kg)

Matrix: Soil

Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol		2 2 2	77% 76% 68%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 2-Methylphenol 2-Mitrophenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	111111111111111111111111111111111111111

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

RECOVERY

Date Sampled: 3/16/90
Date Received: 3/21/90
Date Extracted: 3/21/90
Date Analyzed: 3/22/90
Date Reported: 3/26/90
Client Sample I.D.: 404-1.0

Job No.: 794510 COC Log No.: 767

AEMC I.D.: L4510-13 Batch No.: 5319 Matrix: Soil

CONCENTRATION

SURROGATE		CONCENTRATION (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol		2 2 2	68% 97% 56%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-7 100-02-7 108-95-2 95-95-4 88-06-2	ND N	1 1 1 1 1 1 1 1 1

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

Date Sampled: 3/16/90
Date Received: 3/21/90
Date Extracted: 3/21/90
Date Analyzed: 3/22/90
Date Reported: 3/26/90
Client Sample I.D.: 405-2.5 (#5-2-5)

AEMC I.D.: L4510-14 Batch No.: 5319 Matrix: Soil

Job No.: 794510 COC Log No.: 767

SURROGATE		CONCENTRATION (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol		2 2 2	69% 71% 49%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	1 1 1 1 1 1 1 1 1 1

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

Date Sampled: 3/16/90
Date Received: 3/21/90
Date Extracted: 3/21/90
Date Analyzed: 3/22/90
Date Reported: 3/26/90
Client Sample I.D.: 406-2.0(=6-2.16)

Job No.: 794510 COC Log No.: 767

AEMC I.D.: L4510-15 Batch No.: 5319 Matrix: Soil

SURROGATE	CONCENTRATION (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol	2 2 2 2	71% 67% 39%

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-7 108-95-2 95-95-4 88-06-2	ND N	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71

San Francisco, CA

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

Date Sampled: 3/16/90
Date Received: 3/21/90
Date Extracted: 3/21/90
Date Analyzed: 3/22/90
Date Reported: 3/26/90
Client Sample I.D.: Method Blank

AEMC Contact: G. Hampton

Job No.: 794510 COC Log No.: 767

AEMC I.D.: L4510-MB Batch No.: 5319 Matrix: Soil

SURROGATE		CONCENTRATION (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol		2 2 2	67% 66% 48%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4	ND N	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1



CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project No.: 1459D Contact: D. Favre Phone:

Project: Geomatrix Consul ats

AEMC Contact: G. Hampton

Job No.: 794510 COC Log No.: 767

Date Sampled: 3/16/90 Date Received: 3/21/90 Date Extracted: 3/21/90 Date Analyzed: 3/22/90 Date Reported: 3/26/90

AEMC I.D.: 14510 Batch No.: 5319

nacci	1110			J.
Matri	х:	S	οi	1

SURROGATE	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec		
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol	2 2 2	79% 80% 75%	83% 85% 73%		
ANALYTE Acids	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	Duplicate RPD	
Pentachlorophenol	2	111%	83%	29%	
2,4,6-Trichlorophenol	2	68%	60%	13%	

MS = Matrix Spike
MSD = Matrix Spike Duplicate
% Rec = Percent Recovery
RPD = Relative Percent Difference

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants

1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

Date Sampled: 03/21/90
Date Received: 03/16/90, 03/21/90
Date Extracted: 04/02/90
Date Analyzed: 04/03/90
Date Reported: 04/05/90
Client Sample I.D.: Composite 1A to 1D

Job No.: 794510 COC Log No.: 767

AEMC I.D.: L4510-05 Batch No.: 5389 Matrix: Leachate

AEMC Contact: G. Hampton

SURROGATE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 98-95-3 321-60-80 d92-94-4	0.2 0.2 0.2 0.2 0.2 0.2 0.2	83% 68% 86% 93% 79% 88%

ANALYTE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2	ND ND ND ND ND ND ND ND ND ND	0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1
2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	95-95-4 8 8- 06-2	0.16 ND	0.1 0.1 0.1

RPT. LIMIT = Reporting Limit

ND = Not Detected at or above indicated Reporting Limit NR = Not Reportable; see report cover-letter for explanation.

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

Job No.: 794510 COC Log No.: 767

AEMC I.D.: L4510-10 Batch No.: 5389 Matrix: Leachate

Date Sampled: 03/21/90
Date Received: 03/16/90, 03/21/90
Date Extracted: 04/02/90
Date Analyzed: 04/03/90
Date Reported: 04/05/90
Client Sample I.D.: Composite 2A to 2D

SURROGATE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Phenol-d6	d108-95-2	0.2	87%
2-Fluorophenol	367-12-4	0.2	78%
2,4,6-Tribromophenol	118-79-6	0.2	115%
Nitrobenzene-d5	98 - 95-3	0.2	108%
2-Fluorobiphenyl	321-60-80	0.2	91%
Terphenyl-dl4	d92-94-4	0.2	117%

ANALYTE	CAS =	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Benzoic Acid	65-85-0	ND	0.1
4-Chloro-3-methylphenol	59-50 <i>-</i> 7	ND	0.1
2-Chlorophenol	95-57-8	ND	$0.\overline{1}$
2,4-Dichlorophenol	1 20 -83 <i>-</i> 2	ND	0.1
2,4-Dimethylphenol	105-67-9	ND	0.1
2,4-Dinitrophenol	51-28-5	ND	0.1
2-Methyl-4,6-dinitrophenol	5 34 -52-1	ND	0.1
2-Methylphenol	95-48-7	ND	0.1
4-Methylphenol	106-44-5	ND	0.1
2-Nitrophenol	88 - 75-5	ND	$0.\overline{1}$
Nitrophenol	10 0- 02-7	ND	$0.\overline{1}$
Pentachlorophenol	87-86-5	0.16	0.1
Phenol	10 8- 95-2	ND	0.1
2,4,5-Trichlorophenol	95-95-4	1.4	0.1
2,4,6-Trichlorophenol	88-06-2	ND	0.1

RPT. LIMIT = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit
NR = Not Reportable; see report cover-letter for explanation.

ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

Date Sampled: 03/21/90
Date Received: 03/16/90, 03/21/90
Date Extracted:04/02/90
Date Analyzed: 04/03/90
Date Reported: 04/05/90
Client Sample I.D.: Method Blank

AEMC Contact: G. Hampton

Job No.: 794510 COC Log No.: 767

AEMC I.D.: L4510-MB Batch No.: 5389 Matrix: Leachate

SURROGATE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 98-95-3 321-60-80 d92-94-4	0.2 0.2 0.2 0.2 0.2 0.2	25% 36% 34% 78% 69% 81%
ANALYTE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 88-95-2 95-95-4 88-06-2	ND N	0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1

RPT. LIMIT - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit
NR - Not Reportable; see report cover-letter for explanation.

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

Date Sampled: 03/21/90
Date Received: 03/16/90, 03/21/90
Date Extracted: 04/02/90
Date Analyzed: 04/03/90
Date Reported: 04/05/90

AEMC Contact: G. Hampton

Job No.: 794510 COC Log No.: 767

AEMC I.D.: L4510 Batch No.: 5389 Matrix: Leachate

SURROGATE	SPIKE CONC. (mg/L)	MS %REC	MSD %REC	
Phenol-d6 2-Fluorophenol 2.4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	0.2 0.2 0.2 0.2 0.2 0.2	74% 74% 84% 81% 86% 90%	72% 70% 78% 81% 80%	
ANALYTE Acids	SPIKE CONC. (mg/L)	MS %REC	MSD %REC	DUPLICATE RPD

ANALYTE	Acids	SPIKE CONC. (mg/L)	MS %REC	MSD %REC	DUPLICATE RPD	
Pentachlo	rophenol	0.2	76%	76%	0%	
2,4,6-Tri	chlorophenol	0.2	108%	102%	6%	

MS - Matrix Spike
MSD - Matrix Spike Duplicate
% REC - Percent Recovery
ND - Not Detected

Not Detected
Relative Percent Difference RPD

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project: Geomatrix Consultants

Date Sampled: 03/21/90 Date Received: 03/16/90, 03/21/90 Date Extracted:04/02/90 Date Analyzed: 04/03/90 Date Reported: 04/05/90

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794510 COC Log No.: 767

AEMC I.D.: L4510 Batch No.: 5389 Matrix: Leachate

ANALYTE	Acids	LCS CONC. (mg/L)	LCS %REC
Pentachlor	ophenol	0.2	79%
Phenol		0.2	97%
2-Chloroph	nenol	0.2	102%
4-Chloro-3	3-methylphenol	0.2	88%
4-Nitrophe	enol	0.2	48%

Laboratory Control StandardPercent Recovery LCS *REC



POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: AEMC

EDI-COM) ET Client ID: L4510-5 lA-lD Composite

Lab ID: Matrix:

052083-0001-SA

Enseco ID: 142389

Authorized:

SOIL

Sampled: 21 MAR 90 Prepared: 27 MAR 90

Received: 26 MAR 90 Analyzed: 29 MAR 90

Parameter

26 MAR 90

Sample Amount Percent Moisture 10.6G

Column Type

NA DB-5

Detection Data Result Units Limit Qualifiers

Furans

TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND 0.10 0.81 0.97	ng/g ng/g ng/g ng/g ng/g	0.0017 0.0031
Dioxins			
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND ND 2.2	ng/g ng/g ng/g ng/g ng/g	0.0033 0.0088 0.048

% Recovery

13C-2,3,7,8-TCDF	42
13C-2,3,7,8-TCDD	58
13C-1,2,3,7,8-PeCDD	60
13C-1,2,3,6,7,8-HxCDD	60
13C-1,2,3,4,6,7,8-HpCDD	59
13C-0CDD	37

ND = Not detected NA = Not applicable

Reported By: Robert Hrabak

Approved By: Steve Rogers

The cover letter is an integral part of this report. Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: AEMC

(22 - COM) EY L4510-10 2A-2D Composite Client ID:

Lab ID:

052083-0002-SA

Matrix: Authorized: 26 MAR 90

SOIL

Enseco ID: 142391 Sampled: 21 MAR 90 Prepared: 27 MAR 90

Received: 26 MAR 90 Analyzed: 29 MAR 90

Sample Amount

10.5G

Percent Moisture Column Type

NA

DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND 0.090 0.60 0.66	ng/g ng/g ng/g ng/g ng/g	0.0047 0.0030 	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND ND 1.5 6.1	ng/g ng/g ng/g ng/g ng/g	0.0023 0.0070 0.041	

% Recovery

13C-2,3,7,8-TCDF	51
13C-2,3,7,8-TCDD	60
13C-1,2,3,7,8-PeCDD	61
13C-1,2,3,6,7,8-HxCDD	61
13C-1,2,3,4,6,7,8-HpCDD	59
13C-0CDD	36

ND = Not detected NA = Not applicable

Reported By: Robert Hrabak Approved By: Steve Rogers

The cover letter is an integral part of this report.

Rev 230787



Geomatrix Consultants 1 Mkt. Plaza, Spear St.=71 San Francisco, CA

04/19/90

Attn: C. Young

Project No.: 1459D Job No.: 794526

Project: Geomatrix Consultants AEMC Lab Reference No.: L4526 Product Samples Received: 03/26/90 No. Samples Received: 16 Soil samples

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples	Analysis		
8	GCMS Semi-Volatiles		
2	Dioxin by TCLP		
4	Dioxin		

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director

ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project No.: 1459D Contact: C. Young

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

72% 97%

2-Fluorobiphenyl

Terphenyl-d14

Job No.: 794526 COC Log No.: None

Date Sampled: 03/23/90
Date Received: 03/26/90
Date Extracted:04/02/90
Date Analyzed: 04/03/90
Date Reported: 04/05/90
Client Sample I.D.:Comp. YB-S-1 to YB-S-4

Job No.: 794526
COC Log No.: None
AEMC I.D.: L4526
Batch No.: 5389
Matrix: Leachate

AEMC I.D.: L4526-05 Batch No.: 5389

CONCENTRATION RPT. LIMIT **SURROGATE** (mg/\bar{L}) CAS # (mg/L) 0.2 0.2 0.2 0.2 0.2 0.2 d108-95-2 367-12-4 118-79-6 65% Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol 66% 998 61% Nitrobenzene-d5 98-95-3

321-60-80

d92-94-4

ANALYTE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2	ND ND ND ND	0.1 0.1 0.1 0.1
2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol	105-67-9 51-28-5 534-52-1 95-48-7	ND ND ND ND	0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1
4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol	106-44-5 88-75-5 100-02-7 87-86-5	ND ND ND 0.68	0.1 0.1 0.1
Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	108-95-2 95-95-4 88-06-2	ND 5.8 ND	$\begin{smallmatrix}0.1\\0.1\\0.1\end{smallmatrix}$

RPT. LIMIT - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit
NR - Not Reportable; see report cover-letter for explanation.

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project No.: 1459D Contact: C. Young

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

Job No.: 794526 COC Log No.: None

SURROGATE

AEMC I.D.: L4526-06 Batch No.: 5389 Matrix: Leachate

CONCENTRATION

(mg/L)

RPT. LIMIT

(mg/L)

Date Sampled: 03/23/90
Date Received: 03/26/90
Date Extracted:04/02/90
Date Analyzed: 04/03/90
Date Reported: 04/05/90
Client Sample I.D.: YB-C

		\ /	(1-6/)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 98-95-3 321-60-80 d92-94-4	0.2 0.2 0.2 0.2 0.2 0.2	74% 70% 108% 73% 67% 85%
ANALYTE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1

CAS #

RPT. LIMIT = Reporting Limit

ND = Not Detected at or above indicated Reporting Limit NR = Not Reportable; see report cover-letter for explanation.

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project: Geomatrix Consultants

Date Sampled: 03/23/90
Date Received: 03/26/90
Date Extracted:04/02/90
Date Analyzed: 04/03/90
Date Reported: 04/05/90
Client Sample I.D.: Composite D-1 to D-4

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794526 COC Log No.: None

AEMC I.D.: L4526-11 Batch No.: 5389 Matrix: Leachate

SURROGATE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 98-95-3 321-60-80 d92-94-4	0.2 0.2 0.2 0.2 0.2 0.2	76% 65% 80% 82% 69% 86%
ANALYTE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-4 88-06-2	ND N	0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1

RPT. LIMIT - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit
NR - Not Reportable; see report cover-letter for explanation.

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. 71 San Francisco, CA 941

Project No.: 1459D Contact: C. Young

Phone:

Project: Geomatrix Consultanta

AEMC Contact: G. Hampton

RPT. LIMIT

Job No.: 794526 COC Log No.: None

CONCENTRATION

Date Sampled: 03/23/90
Date Received: 03/26/90
Date Extracted:04/02/90
Date Analyzed: 04/03/90
Date Reported: 04/05/90
Client Sample I.D.: Tomp. D-19 to D-22 15 19-12 (x) NOF AEMC I.D.: 14526-16 Batch No.: 5389 D-19 to 0-22 Matrix: Leachate

SURROGATE	CAS #	(mg/L)	(mg/L)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 98-95-3 321-60-80 d92-94-4	0.2 0.2 0.2 0.2 0.2 0.2	70% 59% 80% 79% 66% 73%
ANALYTE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1

RPT. LIMIT = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit
NR = Not Reportable; see report cover-letter for explanation.

AMERICAN

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project: Geomatrix Consultants

Date Sampled: 03/23/90
Date Received: 03/26/90
Date Extracted: 04/02/90
Date Analyzed: 04/03/90
Date Reported: 04/05/90
Client Sample I.D.: Method Blank

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794526 COC Log No.: None

AEMC I.D.: L4526-MB Batch No.: 5389 Matrix: Leachate

SURROGATE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl	d108-95-2 367-12-4 118-79-6 98-95-3 321-60-80	0.2 0.2 0.2 0.2 0.2 0.2	25% 36% 34% 78% 69%
Terphenyl-d14	d92-94-4	0.2	81%
ANALYTE	CAS #	CONCENTRATION (mg/L)	RPT. LIMIT (mg/L)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND	0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1

RPT. LIMIT = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit
NR = Not Reportable; see report cover-letter for explanation.

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project No.: 1459D Contact: C. Young

Phone:

Project: Geomatrix Consultants

Date Sampled: 03/23/90 Date Received: 03/26/90 Date Extracted:04/02/90 Date Analyzed: 04/03/90 Date Reported: 04/05/90

AEMC Contact: G. Hampton

Job No.: 794526 COC Log No.: None

AEMC I.D.: L4526 Batch No.: 5389 Matrix: Leachate

SURROGATE	SPIKE CONC. (mg/L)	MS %REC	MSD %REC	
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	0.2 0.2 0.2 0.2 0.2 0.2	74% 74% 84% 81% 86%	72% 70% 78% 81% 80%	
ANALYTE Acids	SPIKE CONC. (mg/kg)	MS %REC	MSD %REC	DUPLICATE RPD
Pentachlorophenol	0.2	76%	76%	0%
2,4,6-Trichlorophenol	0.2	108%	102%	6%

MS - Matrix Spike

MSD = Matrix Spike Duplicate
% REC = Percent Recovery
RPD = Relative Percent Difference

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94107

Project: Geomatrix Consultants

Date Sampled: 03/23/90 Date Received: 03/26/90 Date Extracted:04/02/90 Date Analyzed: 04/03/90 Date Reported: 04/05/90

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794526 COC Log No.: None

AEMC I.D.: L4526 Batch No.: 5389 Matrix: Leachate

ANALYTE	LCS CONC. (mg/L)	LCS %REC
Pentachlorophenol	0.2	79%
Phenol	0.2	97%
2-Chlorophenol	0.2	102%
4-Chloro-3-methylphenol	0.2	88%
4-Nitrophenol	0.2	48%

LCS Laboratory Control StandardPercent Recovery %REC

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71

San Francisco, CA

Project No.: 1459D Contact: C. Young

Phone:

Project: omatri:: Consultant

AEMC Contact: G. Hampton

Job No.: 794.26 COC Log No.: None

Date Sampled: 3/23/90
Date Received: 3/26/90
Date Extracted: 3/26/90
Date Analyzed: 4/1/90
Date Reported: 4/3/90
Client Sample I.D.: Comp. YB-S-1

AEMC I.D.: L4526-5 Batch No.: 5363 Matrix: Soil

(4B-5-4) NOF

SURROGATE	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)		
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	NR NR NR NR NR NR	NR NR NR NR NR NR		
ANA 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CONCENTRATION	RPT. LIMIT		

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol	65-85-0 59-50-7	ND ND	10 10
2-Chlorophenol	95-57-8	ND	10
2,4-Dichlorophenol 2,4-Dimethylphenol	120-83-2 105-67-9	ND ND	10 10
2,4-Dinitrophenol	51-28-5	ND	10
2-Methyl-4.6-dinitrophenol 2-Methylphenol	5 34- 52-1 95-48-7	ND ND	10 10
4-Methýlphenol 2-Nitrophenol	106-44- 5	ND	10
4-Nitrophenol	8 8- 75-5 10 0- 02-7	ND ND	10 10
Pentachlorophenol Phenol	87-86-5	7 3	10
	108-95-2 95-95-4	ND 120	10 10
2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	88-06-2	ND	10

RPT. Limit = Reporting Limit

ND = Not Detected at or above indicated Reporting Limit NR = Not Reportable; see report cover-letter for explanation.

CLIENT: Geomatrix Consultants
1 Mkt. Plaza, Spear St. #71

San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/23/90 Date Received: 3/26/90 Date Extracted: 3/26/90 Date Analyzed: 4/1/90 Date Reported: 4/3/90 Client Sample I.D.: YB-C

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794526 COC Log No.: None

AEMC I.D.: L4526-6 Batch No.: 5363 Matrix: Soil

SURROGATE	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)		
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	NR NR NR NR NR NR	NR NR NR NR NR		

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	10 10 10 10 10 10 10 10 10 10 10

RPT. Limit = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit
NR = Not Reportable; see report cover-letter for explanation.

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project No.: 1459D Contact: C. Young

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

Date Sampled: 3/23/90
Date Received: 3/26/90
Date Extracted: 3/26/90
Date Analyzed: 4/1/90
Date Reported: 4/3/90
Client Sample I.D.: Comp. D-1 - D-4

Job No.: 794526 COC Log No.: None

AEMC I.D.: L4526-11 Batch No.: 5363 Matrix: Soil

(DI-4) NOF

SURROGATE		CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14		NR NR NR NR NR NR	NR NR NR NR NR NR
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	10 10 10 10 10 10 10 10 10 10 10

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit NR = Not Reportable; see report cover-letter for explanation.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71

San Francisco, CA

Project No.: 1459D Contact: C. Young Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

Date Sampled: 3/23/90
Date Received: 3/26/90
Date Extracted: 3/26/90
Date Analyzed: 4/1/90
Date Reported: 4/3/90
Client Sample I.D.: Comp. D-19 - D-22

Job No.: 794526 COC Log No.: None

AEMC I.D.: L4526-16 Batch No.: 5363 Matrix: Soil

(D19-22) NOF

SURROGATE	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)		
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	NR NR NR NR NR NR	NR NR NR NR NR NR		
	CONCENTRATION	RPT. LIMIT		

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid	65-85-0	ND	10
4-Chloro-3-methylphenol	5 9- 50-7	ND	10 10 10 10 10 10 10
2-Chlorophenol	95-57-8	ND	10
2,4-Dichlorophenol	120-83-2	ND	10
2,4-Dimethylphenol	105-67-9	ND	10
2,4-Dinitrophenol	51-28- 5	ND	10
2-Methyl-4,6-dinitrophenol	534-52-1	ND	10
2-Methylphenol	95-48-7	ND	10
4-Methylphenol	106-44-5	ND	10
2-Nitrophenol	88-75-5	ND	10
4-Nitrophenol	100-02-7	ЙĎ	10
Pentachlorophenol	87-86-5	16	10
Phenol	108-95-2	ND	10
2,4,5-Trichlorophenol	95-95-4	38	10
2,4,6-Trichlorophenol	8 8- 06-2	ND	10

RPT. Limit = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit
NR = Not Reportable; see report cover-letter for explanation.



CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project No.: 1459D Contact: C. Young

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

RPT. LIMIT

(mg/kg)

Date Sampled: 3/23/90
Date Received: 3/26/90
Date Extracted: 3/26/90
Date Analyzed: 4/1/90
Date Reported: 4/3/90
Client Sample I.D.: Method Blank

Job No.: 794526 COC Log No.: None

SURROGATE

AEMC I.D.: L4526-MB Batch No.: 5363 Matrix: Soil

CONCENTRATION

(mg/kg)

Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14		2 2 2 2 2 2 2	648 538 638 598 578 818
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	1 1 1 1 1 1 1 1 1

RPT. Limit - Reporting Limit ND - Not Detected at or above indicated Reporting Limit NR - Not Reportable; see report cover-letter for explanation.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71

San Francisco, ĈA

Project: Geomatrix Consultants

Date Sampled: 3/23/90 Date Received: 3/26/90 Date Extracted: 3/26/90 Date Analyzed: 4/1/90 Date Reported: 4/3/90

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794526 COC Log No.: None

AEMC I.D.: 14526 Batch No.: 5363 Matrix: Soil

SURROGATE	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	
Phenol-d6	2	80%	79%	
2-Fluorophenol	2	68%	65%	
2,4,6-Tribromphenol	2	63%	55%	
Nitrobenzene-d5	2	78%	7 2 %	
2-Flurobiphenyl	2	7 2%	70%	
Terphenyl-d14	2	96%	85%	
ANALYTE Acids	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	Duplicate RPD
Pentachlorophenol	2	40%	43%	7%
2,4,6-Trichlorophenol	2	72%	70%	3%

MS = Matrix Spike
MSD - Matrix Spike Duplicate
% Rec = Percent Recovery
RPD = Relative Percent Difference

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/23/90 Date Received: 3/26/90 Date Extracted: 3/26/90 Date Analyzed: 4/1/90 Date Reported: 4/3/90

Project No.: 1459D Contact: C. Young

Phone:

AEMC Co tact: G. Hampton

Job No.: 794526 COC Log No.: None

AEMC I.D.: L4526 Batch No.: 5363 Matrix: Soil

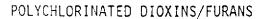
ANALYTE Acids	LCS Conc. (mg/kg)	LCS %Rec
Pentachlorophenol	2	79%
Phenol	2	97%
2-Chlorophenol	2	102%
4-Chloro-3-methylphenol	2	88%
4-Nitrophenol	2	48%

LCS = Laboratory Control Standard % Rec = Percent Recovery



DUPLICATE CONTROL SAMPLE REPORT Special Services by Low Resolution

Analyte	Conce Spiked	entration Measure DCS1	d DCS2	Acc DCS1	uracy(DCS2	%) Limits	Precisio DCS L	
Category: DXNFUR-A Matrix: AQUEOUS QC Lot: 3 APR 90-A Concentration Units: ng								
2378-TCDF 23478-PECDF 123478-HXCDF 1234678-HPCDF 12345678-OCDF 2378-TCDD 12378-PECDD 123478-HXCDD 1234678-HPCDD 12345678-OCDD	10 10 10 10 50 10 10 10	10 6.6 8.3 8.7 54 9.8 8.3 7.0 9.8	11 6.1 8.6 8.9 54 10 8.3 7.2 9.9	100 66 83 87 108 98 83 70 98 66	110 61 86 89 108 100 83 72 99 68	60-140 60-140 60-140 60-140 60-140 60-140 60-140 60-140	9.5 7.8 3.5 2.2 0 2.0 0 2.8 1.0 3.0	50 50 50 50 50 50 50 50





LOW RESOLUTION

Client Name: AEMC) NDF Client ID:

Lab ID:

Matrix: Received: 26 MAR 90 Analyzed: 29 MAR 90 Authorized:

Sample Amount 10.2G Percent Moisture NA Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND 1.8 13 20	ng/g ng/g ng/g ng/g ng/g	0.0021 0.0090 	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND 1.6 42 250	ng/g ng/g ng/g ng/g ng/g	0.017 0.014 	

% Recovery

13C-2,3,7,8-TCDF	42
13C-2,3,7,8-TCDD	49
13C-1,2,3,7,8-PeCDD	57
13C-1,2,3,6,7,8-HxCDD	52
13C-1,2,3,4,6,7,8-HpCDD	55
13C-OCDD	34

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report. Rev 230787



POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: AEMC

COMPOSITE YB-S-1-YB-S-4 (YB-S-1-4-EX) MOF 052212-0001-SA Enseco ID: 143274 Client ID:

Lab ID:

Enseco ID: 143274 Sampled: 23 MAR 90 Prepared: 05 APR 90 Matrix: **LEACHATE** Received: 04 APR 90 Authorized: NA Analyzed: 05 APR 90

Sample Amount 0.75L Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND ND ND ND	ng/L ng/L ng/L ng/L ng/L	0.30 0.32 0.43 0.58 1.3	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND ND 22 15	ng/L ng/L ng/L ng/L ng/L	0.22 0.81 1.3	

% Recovery

13C-2,3,7,8-TCDF	83
13C-2,3,7,8-TCDD	83
13C-1,2,3,7,8-PeCDD	87
13C-1,2,3,6,7,8-HxCDD	87
13C-1,2,3,4,6,7,8-HpCDD	83
13C-0CDD	60

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report. Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: AEMC Client ID: Metho Method Blank

Lab ID: 052212-0001-MB

Matrix: LEACHATE

Authorized: NA

Enseco ID: 143275 Sampled: NA Prepared: 05 APR 90

Received: NA Analyzed: 05 APR 90

Sample Amount Column Type

0.75L DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND ND ND ND	ng/L ng/L ng/L ng/L ng/L	0.14 0.13 0.21 0.20 0.85	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND ND ND ND	ng/L ng/L ng/L ng/L ng/L	0.23 0.33 0.33 0.49 0.37	

% Recovery

13C-2,3,7,8-TCDF	86
13C-2,3,7,8-TCDD	93
13C-1,2,3,7,8-PeCDD	106
13C-1,2,3,6,7,8-HxCDD	103
13C-1,2,3,4,6,7,8-HpCDD	113
13C-OCDD	86

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report.
Rev 230787



LABORATORY CONTROL SAMPLE REPORT Special Services by Low Resolution

Analyte	Conce Spiked	ntration Measure DCS1	d DCS2	Acc DCS1	uracy(DCS2	%) Limits	Precisio DCS L	on(RPD) imits
Category: DXNFUR-A Matrix: SOLID QC Lot: 16 MAR 90 - A Concentration Units: ng								
2378-TCDF 23478-PNCDF 123478-HXCDF 1234678-HPCDF 12345678-OCDF 2378-TCDD 12378-PNCDD 123478-HXCDD 1234678-HPCDD 12345678-OCDD	10 10 10 10 50 10 10 10	11 7.0 8.5 7.6 60 11 8.4 6.7 9.5	11 6.8 7.7 8.0 55 8.8 7.3 6.4 9.5	113 70 85 76 120 110 84 67 95 83	108 68 77 80 109 88 73 64 95	60-140 60-140 60-140 60-140 60-140 60-140 60-140 60-140	4.5 2.9 11 5.1 10 19 14 4.5 0	50 50 50 50 50 50 50 50

POLYCHLORINATED DIOXINS/FURANS



LOW RESOLUTION

Client Name: AEMC Client ID: METHO METHOD BLANK

Lab ID: 052082-0001-MB

Matrix: SOIL

Authorized: NA

Enseco ID: 142385

Sampled: NA Prepared: 27 MAR 90

Received: NA

Analyzed: 29 MAR 90

Sample Amount Percent Moisture Column Type

NA DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND ND ND ND	ng/g ng/g ng/g ng/g ng/g	0.0063 0.011 0.0080 0.013 0.037	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND ND ND ND	ng/g ng/g ng/g ng/g ng/g	0.0052 0.020 0.015 0.018 0.074	

% Recovery

13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-OCDD
136-0000

10.0G

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS



LOW RESOLUTION

Client Name: AEMC

Client ID:

COMPOSITE D-1-D-4 (D1-4) NOF

Lab ID:

052082-0003-SA

Matrix: Authorized: 26 MAR 90

SOIL

Enseco ID: 142387 Sampled: 23 MAR 90 Prepared: 27 MAR 90

Received: 26 MAR 90 Analyzed: 29 MAR 90

Sample Amount

10.6G

Percent Moisture Column Type NA DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND 0.74 5.5 8.4	ng/g ng/g ng/g ng/g ng/g	0.0069 0.0079 	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND 0.69 18 110	ng/g ng/g ng/g ng/g ng/g	0.017 0.012 	

% Recovery

13C-2,3,7,8-TCDF	36
13C-2,3,7,8-TCDD	45
13C-1,2,3,7,8-PeCDD	57
13C-1,2,3,6,7,8-HxCDD	54
13C-1,2,3,4,6,7,8-HpCDD	57
13C-0CDD	36

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report. Rev 230787





LOW RESOLUTION

Client Name: AEMC Client ID: COMPO COMPOSITE YB-C

Lab ID: 052082-0002-SA

Matrix: SOIL 26 MAR 90 Authorized:

Enseco ID: 142386

Sampled: 23 MAR 90

Prepared: 27 MAR 90

Recei: 4: 26 MAR 90 Analy23d: 29 MAR 90

0.0030

0.0067

- -

Sample Amount Percent Moisture 10.0G NA

Column Type

TCDFs (total)
PeCDFs (total)
HxCDFs (total)
HCDFs (total)

DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				

ND

ND

11

16

1.5

ng/g

ng/g

ng/g

ng/g

ng/g

Di	nχ	i	n	c

OCDF

DIOXIIIS			
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND 1.3 36 210	ng/g ng/g ng/g ng/g ng/g	0.0089 0.0091

% Recovery

13C-2,3,7,8-TCDF	50
13C-2,3,7,8-TCDD	58
13C-1,2,3,7,8-PeCDD	65
13C-1,2,3,6,7,8-HxCDD	5 8
13C-1,2,3,4,6,7,8-HpCDD 13C-OCDD	63
136-0000	40

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report. Rev 230787

POLYCHLORINATED DIOXINS/FURANS

LOW RESOLUTION

Client Name: AEMC

Client ID:

COMPOSITE D-1-D-4

(01-4EX) MOF

Lab ID: Matrix:

052212-0002-SA LEACHATE

Received: 04 APR 90

Authorized:

Enseco ID: 143276 Sampled: 23 MAR 90 Prepared: 05 APR 90

Analyzed: 05 APR 90

Sample Amount Column Type

0.75L DB-5

Parameter	UB-3	Result	Units	Detection Limit	Data Qualifiers
Furans					
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF		ND ND ND ND ND	ng/L ng/L ng/L ng/L ng/L	0.17 0.19 0.26 0.41 1.2	
Dioxins					
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD		ND ND ND 3.9 3.9	ng/L ng/L ng/L ng/L ng/L	0.38 0.56 0.66	

% Recovery

13C-2,3,7,8-TCDF	86
13C-2,3,7,8-TCDD	95
13C-1,2,3,7,8-PeCDD	100
13C-1,2,3,6,7,8-HxCDD	88
13C-1,2,3,4,6,7,8-HpCDD	92
13C-OCDD	71

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report.

Rev 230787

POLYCHLORINATED DIOXINS/FURANS



LOW RESOLUTION

Client Name: AEMC Client ID: COMPOSITE D-19-D22 (D19-22) MOF Lab ID: 052082-0004-SA

Matrix: SOIL

Enseco ID: 142388 Sampled: 23 MAR 90 Prepared: 27 MAR 90 Received: 26 MAR 90 Analyzed: 29 MAR 90 Authorized: 26 MAR 90

Sample Amount 10.2G Percent Moisture NA Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total) PeCDFs (total) HxCDFs (total) HpCDFs (total) OCDF	ND ND 1.8 13 20	ng/g ng/g ng/g ng/g ng/g	0.0066 0.0071 	
Dioxins				
TCDDs (total) PeCDDs (total) HxCDDs (total) HpCDDs (total) OCDD	ND ND 1.7 42 240	ng/g ng/g ng/g ng/g ng/g	0.016 0.0059 	

% Recovery

13C-2,3,7,8-TCDF 13C-2,3,7,8-TCDD	50 64
13C-1,2,3,7,8-PeCDD	72
13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD	70
13C-0CDD	75 49

ND = Not detected NA = Not applicable

Reported By: Dan Vickers

Approved By: Steve Rogers

The cover letter is an integral part of this report. Rev 23**0787**

Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 04/06/90

Attn: C. Young

Re: Project: Geomatrix Consultants
AEMC Lab Reference No.: L4544 Propate Samples Received: 03/28/90
No. Samples Received: 9 Soil samples Project No.: 1459D Job No.: 794544

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples	Analysis	
4	TPH Stoddard	
9	Phenols	

Method 8270 Surrogate standard recovery data could not be calculated/reported for sample #10 due to the presence of a significant amount of mineral spirits in this sample.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

1 pains to George Hampton Laboratory Director

ANALYSIS REPORT: Total Petroleum Hydrocarbons, EPA Method 8015

CLIENT: Geomatrix Consultants One Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105

Project: Geomatrix Consultants

Date Sampled: 03/28/90 Date Received: 03/28/90 Date Extracted:03/29/90 Date Analyzed: 03/29/90 Date Reported: 04/02/90

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None AEMC I.D.: L4544

Matrix: Soil

Sample Client	I.D. AEMC	Batch ≠	TPH as Stoddard (mg/kg)	
= 7	L4544-01	5372	32	
= 8	L4544-02	5372	1300	
# 10	L4544-04	5372	7500	
# 15	L4544-09	5372	19	
Method Blank	L4544-MB	5372	ND	

REPORTING LIMIT*

10

*Unless otherwise indicated in parentheses

ND = Not Detected at or above indicated Reporting Limit.

ANALYSIS REPORT: Total Petroleum Hydrocarbons, EPA Method 8015

Project: Geomatrix Consultants

CLIENT: Geomatrix Consultants One Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105

AEMC Contact: G. Hampton

Project No.: 1459D Contact: C. Young

Phone:

Job No.: 794544 COC Log No.: None

Date Sampled: 03/28/90 Date Received: 03/28/90 Date Extracted:03/29/90 Date Analyzed: 03/29/90 Date Reported: 04/02/90 AEMC I.D.: L4544

Matrix: Soil

ANALYTE	SPIKE CONC. (mg/kg)	MS %REC	MSD %REC	DUPLICATE RPD	
Stoddard	100	62%	71%	14%	

MS = Matrix Spike
MSD = Matrix Spike Duplicate
% REC = Percent Recovery
RPD = Relative Percent Difference

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71

San Francisco, CA

Project No.: 1459D Contact: C. Young

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

Date Sampled: 3/28/90 Date Received: 3/28/90 Date Extracted: 3/29/90 Date Analyzed: 3/31/90 Date Reported: 4/4/90 Client Sample I.D.: #7

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544-1 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	40% 43% 58%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-85-2 95-95-4 88-06-2	ND N	

RPT. Limit = Reporting Limit
ND - Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/28/90 Date Received: 3/28/90 Date Extracted: 3/29/90 Date Analyzed: 3/31/90 Date Reported: 4/4/90 Client Sample I.D.: #8

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544-2 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	42% 45% 67%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,5-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND	

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants l Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/28/90 Date Received: 3/28/90 Date Extracted: 3/29/90 Date Analyzed: 3/31/90 Date Reported: 4/4/90 Client Sample I.D.: #9

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544-3 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	49% 48% 52%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	111111111111111111111111111111111111111

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/28/90
Date Received: 3/28/90
Date Extracted: 3/29/90
Date Analyzed: 3/31/90
Date Reported: 4/4/90
Client Sample I.D.: #10

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544-4 Batch No.: 5373 Matrix: Soil

			
SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	NR NR 59%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4	ND ND ND ND ND ND ND ND ND	1 1 1 1 1 1 1 1

RPT. Limit = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit
NR = Not Reportable; see report cover-letter for explanation.

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project No.: 1459D Contact: C. Young

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

Date Sampled: 3/28/90 Date Received: 3/28/90 Date Extracted: 3/29/90 Date Analyzed: 3/31/90 Date Reported: 4/4/90 Client Sample I.D.: #11

AEMC I.D.: L4544-5 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2	36% 39% 66%
ALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	111111111111111111111111111111111111111

RPT. Limit - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/28/90 Date Received: 3/28/90 Date Extracted: 3/29/90 Date Analyzed: 3/31/90 Date Reported: 4/4/90 Client Sample I.D.: #12

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544-6 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	548 428 718
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND ND	1 1 1 1 1 1 1 1 1

RPT. Limit = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza. Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/28/90 Date Received: 3/28/90 Date Extracted: 3/29/90 Date Analyzed: 3/31/90 Date Reported: 4/4/90 Client Sample I.D.: =13

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544-7 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	42% 42% 64%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND ND ND ND	1 1 1 1 1 1 1 1 1 1

RPT. Limit - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71

San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/28/90 Date Received: 3/28/90 Date Extracted: 3/29/90 Date Analyzed: 3/31/90 Date Reported: 4/4/90 Client Sample I.D.: #14

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544-8 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	39% 38% 60%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methylphenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-83-2 105-63-5 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	111111111111111111111111111111111111111

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/28/90 Date Received: 3/28/90 Date Extracted: 3/29/90 Date Analyzed: 3/31/90 Date Reported: 4/4/90 Client Sample I.D.: #15

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544-9 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Pheno:-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	43% 39% 76%
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	1 1 1 1 1 1 1 1 1

RPT. Limit = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza. Spear St. #71

San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/28/90
Date Received: 3/28/90
Date Extracted: 3/29/90
Date Analyzed: 3/31/90
Date Reported: 4/4/90
Client Sample I.D.: Method Blank

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544-MB Batch No.: 5373 Matrix: Soil

SURROGATE	CAS ≠	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)	
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	41% 45% 43%	
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)	
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-83-2 105-88-5 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-4 88-06-2	ND N	111111111111111111111111111111111111111	

RPT. Limit = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/28/90 Date Received: 3/28/90 Date Extracted: 3/29/90 Date Analyzed: 3/31/90 Date Reported: 4/4/90

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544 Batch No.: 5373 Matrix: Soil

SURROGATE	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	- 10	
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol	2 2 2	39% 38% 60%	448 428 568		
ANALYTE Acids	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	Duplicate RPD	
Pentachlorophenol	2	59%	59%	0%	
2,4,6-Trichlorophenol	2	60%	60%	0%	

MS - Matrix Spike
MSD - Matrix Spike Duplicate
% Rec - Percent Recovery
RPD - Relative Percent Difference

ANALYSIS REPORT: Phenols, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA

Project: Geomatrix Consultants

Date Sampled: 3/28/90 Date Received: 3/28/90 Date Extracted: 3/29/90 Date Analyzed: 3/31/90 Date Reported: 4/4/90

Project No.: 1459D Contact: C. Young

Phone:

AEMC Contact: G. Hampton

Job No.: 794544 COC Log No.: None

AEMC I.D.: L4544 Batch No.: 5373

ANALYTE	Acids	LCS Conc. (mg/kg)	LCS %Rec
Pentachlo	rophenol	2	79%
Phenol		2	97%
2-Chlorop	henol	2	102%
4-Chloro-	3-methylphenol	2	#88
5-Nitroph	neno1	2	48%

LCS - Laboratory Control Standard Rec - Percent Recovery

Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA

04/06/90

Attn: D. Favre

Project No.: 1459D Job No.: 794553

Project: Geomatrix Consultants AEMC Lab Reference No.: (4553 Propage Samples Received: 3/29/90 No. Samples Received: 3/21 samples

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples

Analysis

4

GCMS Semi-Volatiles

Analytical results are attached to this letter. Please call if we can provide additional ϵ sistance.

George Hampton

Laboratory Director

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants One Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105

Project: Geomatrix Consultants

Date Sampled: 03/29/90 Date Received: 03/29/90 Date Extracted: 03/29/90 Date Analyzed: 03/31/90 Date Reported: 04/04/90 Client Sample I.D.: B 33

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794553 COC Log No.: 898

AEMC I.D.: L4553-02 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	R PT . LIMIT (mg/kg)	
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2	45 40 48	
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)	
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND ND	111111111111111111111111111111111111111	

RPT. Limit - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit
NR - Not Reportable; see report cover-letter for explanation.

CLIENT: Geomatrix Consultants One Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105

Project: Geomatrix Consultants

Date Sampled: 03/29/90
Date Received: 03/29/90
Date Extracted: 03/29/90
Date Analyzed: 03/31/90
Date Reported: 04/04/90
Client Sample I.D.: B 34

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794553 COC Log No.: 898

AEMC I.D.: L4553-03 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	42 41 67
		CONCENTRATION	דים אים פור אי

ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-28-5 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND ND	111111111111111111111111111111111111111

RPT. Limit - Reporting Limit

ND - Not Detected at or above indicated Reporting Limit NR - Not Reportable; see report cover-letter for explanation.

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants

One Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105

Project: Geomatrix Consultants

Date Sampled: 03/29/90
Date Received: 03/29/90
Date Extracted: 03/29/90
Date Analyzed: 03/31/90
Date Reported: 04/04/90
Client Sample I.D.: B 35

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794553 COC Log No.: 898

AEMC I.D.: L4553-04 Batch No.: 5373 Matrix: Soil

ND

ND

ND

ND

ND

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	41 32 23
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5	ND ND ND ND ND ND ND ND	11111111111

88-75-5 100-02-7

87-86-5 108-95-2

95-95-4

88-06-2

4-Nitrophenol Pentachlorophenol

2,4,5-Trichlorophenol 2,4,6-Trichlorophenol

Phenol

RPT. Limit - Reporting Limit ND - Not Detected at or above indicated Reporting Limit

NR = Not Reportable; see report cover-letter for explanation.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants One Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105

Project: Geomatrix Consultants

Date Sampled: 03/29/90
Date Received: 03/29/90
Date Extracted: 03/29/90
Date Extracted: 03/31/90
Date Reported: 04/04/90
Client Sample I.D.: ELEC RM

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794553 COC Log No.: 898

AEMC I.D.: L4553-01 Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	41 36 35
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 96-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND	111111111111111111111111111111111111111

RPT. Limit - Reporting Limit

ND = Not Detected at or above indicated Reporting Limit
NR = Not Reportable; see report cover-letter for explanation.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants

One Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105

Project: Geomatrix Consutants

Date Sampled: 03/29/90
Date Received: 03/29/90
Date Extracted: 03/29/90
Date Analyzed: 03/31/90
Date Reported: 04/04/90
Client Sample I.D.: Method Blank

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794553 COC Log No.: 898

AEMC I.D.: L4553-MB Batch No.: 5373 Matrix: Soil

SURROGATE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	41 45 43
ANALYTES	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-87-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4	ND N	1 1 1 1 1 1 1 1

RPT. Limit = Reporting Limit ND = Not Detected at or above indicated Reporting Limit NR = Not Reportable; see report cover-letter for explanation.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants
One Market Plaza
Spear Street Tower, Ste. 717
San Francisco, CA 94105

Project: Geomatrix Consultants

Date Sampled: 03/29/90
Date Received: 03/29/90
Date Extracted: 03/29/90
Date Analyzed: 03/31/90
Date Reported: 04/04/90

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794553 COC Log No.: 898

AEMC I.D.: L4553 Batch No.: 5373 Matrix: Soil

SURROGATE	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	
Phenol-d6 2-Fluorophenol 2,4,6-Tribromphenol	2 2 2	39% 38% 60%	44% 42% 56%	
ANALYTE Acids	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	Duplicate RPD
Pentachlorophenol	2	59%	59%	0%
2,4,6-Trichlorophenol	2	60%	60%	0%

MS = Matrix Spike
MSD = Matrix Spike Duplicate
% Rec = Percent Recovery
RPD = Relative Percent Difference

AMERICAN

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants One Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: Geomatrix Consultants

Date Sampled: 03/29/90 Date Received: 03/29/90 Date Extracted: 03/29/90 Date Analyzed: 03/31/90 Date Reported: 04/04/90

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794553 COC Log No.: 898 AEMC I.D.: L4553 Batch No.: 5373 Matrix: Soil

ANALYTE	Acids	LCS CONC. (mg/kg)	LCS %REC	
Pentachlo Phenol 2-Chlorop 4-Chloro- 4-Nitroph	henol 3-methylphenol	100 100 100 100 100	79% 97% 102% 88% 48%	

MSD

- Matrix Spike - Matrix Spike Duplicate - Percent Recovery - Not Detected % REC

RPD - Relative Percent Difference

Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA

04/11/90

Attn: D. Favre

Project: Geomatrix Consultants
AEMC Lab Reference No.: L4586 Project Samples Received: 04/04/90
No. Samples Received: 4 Soil samples Project No.: 1459D Job No.: 794586

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples

Analysis

3

GCMS Semi-Volatiles

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director

1E:::ICAI

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

Project: Geomatrix Consultants

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94105

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: M. Jaeger

Job No.: 794586 COC Log No.: 00865

AEMC I.D.: L4586-01 Batch No.: 5431 Matrix: Soil

	Sampled: Received:	04/04/90 04/04/90
Date	Extracted:	: 04/07/90
Date	Analyzed: Reported:	04/10/90
Clier	nt Sample I	[.D.: #16

SURROGATE	CAS #	SPIKE CONC. (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2	62% 64% 50%
ANALYTE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-4 88-06-2	ND N	111111111111111111111111111111111111111

RPT. LIMIT - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94105

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: M. Jaeger

Job No.: 794586 COC Log No.: 00865

Date Sampled: 04/04/90 Date Received: 04/04/90 Date Extracted: 04/07/90 Date Analyzed: 04/08/90 Date Reported: 04/10/90 Client Sample I.D.: #17

AEMC I.D.: L4586-02 Batch No.: 5431 Matrix: Soil

SURROGATE	CAS #	SPIKE CONC. (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2	58% 64% 65%
ANALYTE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)

ANALYTE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND	1 1 1 1 1 1 1 1 1

RPT. LIMIT - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94105

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: M. Jaeger

Date Sampled: 04/04/90 Date Received: 04/04/90 Date Extracted:04/07/90 Date Analyzed: 04/08/90 Date Reported: 04/10/90 Client Sample I.D.: #18

Job No.: 794586 COC Log No.: 00865

AEMC I.D.: L4586-03 Batch No.: 5431 Matrix: Soil

SURROGATE	CAS #	SPIKE CONC. (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	57% 64% 43%
ANALYTE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND	

RPT. LIMIT = Reporting Limit ${\rm ND}$ = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94205

Project: Geomatrix Consultants

Date Sampled: 04/04/90
Date Received: 04/04/90
Date Extracted: 04/07/90
Date Analyzed: 04/08/90
Date Reported: 04/10/90
Client Sample I.D.: Method Blank

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: M. Jaeger

Job No.: 794586 COC Log No.: 00865

AEMC I.D.: L4586-MB Batch No.: 5431 Matrix: Soil

SURROGATE	CAS #	SPIKE CONC. (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	36% 50% 59%
ANALYTE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND ND ND	111111111111111111111111111111111111111

RPT. LIMIT = Reporting Limit ${\tt ND}$ = Not Detected at or above indicated Reporting Limit

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94105

Project: Geomatrix Consultants

Date Sampled: 04/04/90 Date Received: 04/04/90 Date Extracted:04/07/90 Date Analyzed: 04/08/90 Date Reported: 04/10/90

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: M. Jaeger

Job No.: 794586 COC Log No.: 00865

AEMC I.D.: L4586 Batch No.: 5431 Matrix: Soil

SURROGATE	SPIKE CONC. (mg/kg)	MS %REC	MSD %REC		
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	2 2 2	30% 49% 62%	29% 47% 96%		
ANALYTE Acids	SPIKE CONC. (mg/kg)	MS %REC	MSD %REC	DUPLICATE RPD	
Pentachlorophenol	2	104%	96%	8%	
2,4,6-Trichlorophenol	2	62%	59%	5%	

MS - Matrix Spike
MSD - Matrix Spike Duplicate
% REC - Percent Recovery

RPD = Relative Percent Difference

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA 94105

Phone: Project: Geomatrix Consultants

AEMC Contact: M. Jaeger

Job No.: 794586 COC Log No.: 00865

Project No.: 1459D Contact: D. Favre

Date Sampled: 04/04/90 Date Received: 04/04/90 Date Extracted: 04/07/90 Date Analyzed: 04/08/90 Date Reported: 04/10/90

AEMC I.D.: L4586 Batch No.: 5431 Matrix: Soil

ANALYTE Base	SPIKE CONC. (mg/kg)	LCS %REC
1,2,4-Trichlorobenzene	2	89%
Acenaphthene	2	74%
2,4-Dinitrotoluene	2	68%
Pyrene	2	115%
N-Nitroso-di-n-propylamin	e 2	103%
1,4-Dichlorobenzene	2	89%

		-	
ANALYTE	Acids	SPIKE CONC. (mg/kg)	LCS %REC
Pentachlo	rophenol	2	79%
Phenol		2	97%
2-Chlorop	henol	2	102%
4-Chloro-	3-methylphenol	2	88%
4-Nitroph	enol	2	48%

LCS - Laboratory Control Standard

% REC = Percent Recovery

Geomatrix Consultants 1 Mkt. Plaza, Spear St.#71 San Francisco, CA

04/11/90

Attn: D. Favre

Re: Project: Geomatrix Consultants
AEMC Lab Reference No.: L4597 Property Date Samples Received: 04/06/90
No. Samples Received: 2 Soil samples Project No.: 1459D Job No.: 794597

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples

Analysis

2

GCMS Semi-Volatiles

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director

3249 ^eitigeraia Rood • Pancho Coraova, CA 95742 • Fax (916) 638-4510 • (916) 638-7301

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA 94105

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

AEMC Contact: G. Hampton

Date Sampled: 4/6/90 Date Received: 4/6/90 Date Extracted: 4/7/90 Date Analyzed: 4/8/90 Date Reported: 4/11/90 Client Sample I.D.: SGE

AEMC I.D.: L4597-2 Batch No.: 5431 Matrix: Soil

Job No.: 794597 COC Log No.: 866

SURROGATE	CAS #	SPIKE CONC. (mg/kg)	RECOVERY (percent)
Phenol-d6	d108-95-2	2	28%
2-Fluorophenol	367-12-4	2	42%
2,4,6-Tribromophenol	118-79-6	2	102%

ANALYTE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

RPT. LIMIT = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. =71 San Francisco, CA 94105

Project: Geomatrix Consultants

Date Sampled: 4/6/90 Date Received: 4/6/90 Date Extracted: 4/7/90 Date Analyzed: 4/8/90 Date Reported: 4/11/90 Client Sample I.D.: SGW

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794597 COC Log No.: 866

AEMC I.D.: L4597-1 Batch No.: 5431 Matrix: Soil

SURROGATE	CAS #	SPIKE CONC. (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2	2	28%
	367-12-4	2	48%
	118-79-6	2	76%

ANALYTE	CAS #	CONCENTRATION (mg/kg)	RPT. LIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 88-95-2 95-95-4 88-06-2	ND N	111111111111111111111111111111111111111

RPT. LIMIT - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA 94105

Project No.: 1459D Contact: D. Favre

Phone:

Project: Geomatrix Consultants

Date Sampled: 4/6/90
Date Received: 4/6/90
Date Extracted: 4/7/90
Date Analyzed: 4/8/90
Date Reported: 4/11/90
Client Sample I.D.: Method Blank

AEMC Contact: G. Hampton

Job No.: 794597 COC Log No.: 866

AEMC I.D.: L4597-MB Batch No.: 5431 Matrix: Soil

SURROGATE	CAS #	SPIKE CONC. (mg/kg)	RECOVERY (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	d108-95-2 367-12-4 118-79-6	2 2 2 2	36% 50% 39%
ANALYTE	CAS #	CONCENTRATION (mg/kg)	RPTIMIT (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Mitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-4 88-06-2	ND N	1-

RPT. LIMIT = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA 94105

Project: Geomatrix Consultants

Date Sampled: 4/6/90 Date Received: 4/6/90 Date Extracted: 4/7/90 Date Analyzed: 4/8/90 Date Reported: 4/11/90

Project No.: 1459D Contact: D. Favre

Phone:

AEMC Contact: G. Hampton

Job No.: 794597 COC Log No.: 866

AEMC I.D.: L4597 Batch No.: 5431 Matrix: Soil

SURROGATE	SPIKE CONC. (mg/kg)	MS %REC	MSD %REC	
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol	2 2 2 2	30% 49% 62%	29% 47% 96%	
ANALYTE Acids	SPIKE CONC. (mg/kg)	MS %REC	MSD %REC	DUPLICATE RPD
Pentachlorophenol	2	104%	96%	8%
2,4,6-Trichlorophenol	2	62%	59%	5%

MS = Matrix Spike
MSD = Matrix Spike Duplicate
% REC = Percent Recovery
RPD = Relative Percent Difference

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Mkt. Plaza, Spear St. #71 San Francisco, CA 94105

Project No.: 1459D Contact: D. Favro

Phone:

Project: Geomatrix Consultants

AEMC Contact: G.

mpton

Date Sampled: 4/6/90 Date Received: 4/6/90 Date Extracted: 4/7/90 Date Analyzed: 4/8/90 Date Reported: 4/11/90

Job No.: 794597 COC Log No.: 866

AEMC I.D.: L4597 Batch No.: 5431 Matrix: Soil

ANALYTE Base	LCS CONC. (mg/kg)	LCS %REC	
1,2,4-Trichlorobenzene Acenaphthene 2,4-Dinitrotoluene Pyrene N-Nitroso-di-n-propylamine 1,4-Dichlorobenzene	2 2 2 2 2 2 2 2	89% 74% 68% 115% 103% 89%	
ANALYTE Acids	LCS CONC. (mg/kg)	LCS %REC	
Pentachlorophenol Phenol 2-Chlorophenol 4-Chloro-3-methylphenol 4-Nitrophenol	2 2 2 2 2 2	79% 97% 102% 88% 48%	

LCS = Laboratory Control Standard % REC = Percent Recovery LCS



Geomatrix Consultants 1 Mkt. Plaza, Spear St.#717 San Francisco, CA 94105

08/30/90

Attn: I. Khalil

Project: 1459.04
AEMC Lab Reference No.: L5253 Project Samples Received: 08/28/90
No. Samples Received: 2 Soil samples Project No.: 1459.04 Job No.: 795253

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples

Analysis

2

Extractable Organics by GC-MS (BNA's)

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Singerely,

George Hampton Laboratory Director

ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted:8/28/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: SP-5

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Recovery

Job No.: 795253 COC Log No.: 4142

AEMC I.D.: L5253-1 Batch No.: 6146 Matrix: Soil

Spike Conc.

Surrogate	CAS #	Spike Conc. (mg/kg)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	20 20 20 20 20 20 20	85% 89% 68% 70% 68% 87%
Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(g,h,i)perylene Benzo(a)pyrene Benzo(a)pyrene Benzyl alcohol Bis(2-chloroethoxy)methane Bis(2-chloroethyl)ether Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Butylbenzyl phthalate 4-Bromophenyl phenyl ether Butylbenzyl phthalate 4-Chloronaphthalene 4-Chloronaphthalene 4-Chlorophenyl phenyl ether Chrysene Dibenzo(a,h)anthracene Dibenzofuran Di-n-butylphthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 3,3'-Dichlorobenzidine Diethylphthalate Dimethylphthalate 2,4-Dinitrotoluene Di-n-octylphthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobutadiene	83-32-9 208-12-7 205-99-2 207-08-9 191-24-2 50-51-6 111-94-1 111-44-1 117-81-7 101-55-3 106-47-8 91-58-7 7005-72-3 218-010-3 132-64-9 91-94-1 106-46-7 91-94-1 106-47-7 101-55-73-1 106-47-8 91-94-1 106-46-7 111-14-2 131-14-2		222222222222222222222222222222222222222

RPT. LIMIT = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted:8/28/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: SP-5

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795253 COC Log No.: 4142

AEMC I.D.: L5253-1 Batch No.: 6146 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Hexachlorocyclopentadiene Hexachloroethane Indeno(1,2,3-c,d)pyrene Isophorone 2-Methylnaphthalene Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene N-Nitrosodiphenylamine N-Nitroso-di-n-propylamine Phenanthrene Pyrene 1,2,4-Trichlorobenzene	77-47-4 67-72-1 193-39-5 78-59-1 91-57-6 91-20-3 88-74-4 99-09-2 100-01-6 98-95-3 86-30-6 621-64-7 85-01-8 129-00-0 120-82-1	ND ND ND ND ND ND ND ND ND ND	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

RPT. LIMIT = Reporting Limit $\ensuremath{\mathsf{ND}} = \ensuremath{\mathsf{Not}}$ Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco. CA 94105 Project: 1459.04

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted:8/28/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: SP-5

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795253 COC Log No.: 4142

AEMC I.D.: L5253-1 Batch No.: 6146 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-4 88-06-2	ND N	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

RPT. LIMIT = Reporting Limit ${\tt ND} = {\tt Not}$ Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants
1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105

Project: 1459.04

Surrogate

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted:8/28/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: SP-6

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Recovery

(percent)

Job No.: 795253 COC Log No.: 4142 AEMC I.D.: L5253-2 Batch No.: 6146 Matrix: Soil

Spike Conc.

(mg/kg)

Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	20 20 20 20 20 20	78% 81% 71% 68% 58% 83%
Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(g,h,i)perylene Benzo(a)pyrene Benzo(a)pyrene Benzyl alcohol Bis(2-chloroethoxy)methane Bis(2-chloroisopropyl)ether Bis(2	83-32-9 208-96-8 120-12-7 56-55-3 205-98-9 191-24-2 207-08-9 191-24-2 100-51-6 111-91-1 111-44-4 108-60-1 117-85-7 106-48-8 91-58-7 106-48-8 91-74-9 53-764-9 91-74-1 106-46-2 131-11-3 121-3		222222222222222222222222222222222222222

CAS #

RPT. LIMIT = Reporting Limit ND = Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted:8/28/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: SP-6

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795253 COC Log No.: 4142

AEMC I.D.: L5253-2 Batch No.: 6146 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
dexachlorocyclopentadiene	77-47-4	ND	2
lexachlorgethane	67-72-1	ND	2
ndeno(1,2,3-c,d)pyrene	1 93- 39-5	ND	2
sophorone	78 - 59-1	ND	2
-Methylnaphthalene	91-57-6	ND	$\bar{2}$
aphthalene	91-20-3	ND	$\bar{2}$
-Nitroaniline	8 8- 74-4	ND	5
-Nitroaniline	9 9- 09-2	ND	5
-Nitroaniline	100-01-6	ND	5
itrobenzene	98-95-3	ND	5
-Nitrosodiphenylamine	86-30-6	ND	5
-Nitroso-di-n-propylamine	621-64- 7	ND	5
henanthrene	85-01-8	ND	5
yrene	129-00-0	ND	5
,2,4-Trichlorobenzene	120-82-1	ND	2 2 2 2

RPT. LIMIT = Reporting Limit ${\tt ND}$ = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants
1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted:8/28/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: SP-6

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795253 COC Log No.: 4142

AEMC I.D.: L5253-2 Batch No.: 6146 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dimitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 4-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

RPT. LIMIT = Reporting Limit ${\rm ND} = {\rm Not} \ {\rm Detected} \ {\rm at} \ {\rm or} \ {\rm above} \ {\rm indicated} \ {\rm Reporting} \ {\rm Limit}$



ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants

l Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Surrogate

Date Sampled: 8/28/90
Date Received: 8/28/90
Date Extracted:8/28/90
Date Analyzed: 8/28/90
Date Reported: 8/29/90
Client Sample I.D.: Method Blank

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795253 COC Log No.: 4142

Spike Conc.

(mg/kg)

Recovery

(percent)

AEMC I.D.: L5253-MB Batch No.: 6146

Matrix: Soil

Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	20 20 20 20 20 20 20	87% 88% 58% 77% 79% 97%
Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(g,h,i)perylene Benzo(a)pyrene Benzo(a)pyrene Benzo(a)pyrene Benzyl alcohol Bis(2-chloroethoxy)methane Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Bis(2-ethylhexyl)phthalate 4-Bromophenyl phenyl ether Butylbenzyl phthalate 4-Chloroaniline 2-Chloroaphthalene 4-Chlorophenyl phenyl ether Chrysene Dibenzo(a,h)anthracene Dibenzofuran Di-n-butylphthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzidine Diethylphthalate Dimethylphthalate 2,4-Dinitrotoluene 2,6-Dinitrotoluene 2,6-Dinitrotoluene Pluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobutadiene	83-32-9 208-96-8 120-12-7 56-55-3 205-08-9 191-24-2 50-32-8 100-51-6 111-91-1 111-44-4 108-60-1 117-85-7 106-47-8 91-58-7 7005-72-3 218-01-9 53-70-3 132-64-9 95-50-1 106-46-7 91-94-1 84-66-2 131-11-3 121-14-2 117-84-0 206-44-0 86-73-7 118-74-1 87-68-3		222222222222222222222222222222222222222

CAS #

RPT. LIMIT = Reporting Limit ND - Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90
Date Received: 8/28/90
Date Extracted: 8/28/90
Date Analyzed: 8/28/90
Date Reported: 8/29/90
Client Sample I.D.: Method Blank

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795253 COC Log No.: 4142

AEMC I.D.: L5253-MB Batch No.: 6146 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
lexachlorocyclopentadiene	77-47-4	ND	2
dexachloroethane	67-72-1	ND	2
Indeno(1,2,3-c,d)pyrene	193-39-5	ND	2
Isophorone	78-59-1	ND	2
-Methylnaphthalene	91-57-6	ND	2
aphthalene	91-20-3	ND	2
-Nitroaniline	88-74-4	ND	2
-Nitroaniline	99-09-2	ND	2
-Nitroaniline	100-01-6	ND	2
itrobenzene	98-9 5-3	ND	2
-Nitrosodiphenylamine	86-30-6	ND	2
-Nitroso-di-n-propylamine	621-64-7	ND	2
Phenanthrene	85-01-8	ND	2
yrene	129-00-0	ND	2
1,2,4-Trichlorobenzene	1 20- 82-1	ND	2

RPT. LIMIT = Reporting Limit ND = Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants
1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90
Date Received: 8/28/90
Date Extracted:8/28/90
Date Analyzed: 8/28/90
Date Reported: 8/29/90
Client Sample I.D.: Method Blank

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795253 COC Log No.: 4142

AEMC I.D.: L5253-MB Batch No.: 6146

Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Benzoic Acid	65-85-0	ND	2
-Chloro-3-methylphenol	5 9-50 -7	ND	ž
-Chlorophenol	95-57-8	ND	$\bar{2}$
,4-Dichlorophenol	120-83-2	ND	$\bar{2}$
,4-Dimethylphenol	105-67-9	ND	2
,4-Dinitrophenol	51-28-5	ND	2
-Methyl-4,6-dinitrophenol	534-52-1	ND	2
-Methylphenol	95-48-7	ND	2
-Methylphenol	1 06- 44-5	ND	2
-Nitrophenol	8 8- 75-5	ND	2
-Nitrophenol	1 00- 02-7	ND	2
entachlorophenol	87-86- 5	ND	2
henol_	1 08- 95-2	ND	2
,4,5-Trichlorophenol	95-95-4	ND	2 2 2
,4,6-Trichlorophenol	88-06-2	ND	$\bar{2}$

RPT. LIMIT = Reporting Limit ${\rm ND}$ = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted: 8/28/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795253 COC Log No.: 4142

AEMC I.D.: L5253 Batch No.: 6146 Matrix: Soil

Surrogate	Cas #	Spike Conc (mg/kg)	•	MS %Rec	MSD %Rec	
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-76-6 98-95-3 321-60-80 92-94-4	100 100 100 100 100 100		77% 81% 71% 73% 62% 79%	77% 85% 77% 74% 56% 73%	
Analyte Base	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	Dup 1	icate RPD	
1,2,4-Trichlorobenzene Acenaphthene 2,4-Dinitrotoluene Pyrene N-Nitroso-di-n-propylamine 1,4-Dichlorobenzene	100 100 100 100 100 e 100	65% 57% 53% 65% 73% 60%	66% 51% 56% 58% 71% 57%	1] 1]	- \$ - \$ - \$ - \$ - \$ - \$	
Analyte Acid	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec		icate RPD	····
Pentachlorophenol Phenol 2-Chlorophenol 4-Chloro-3-methylphenol 4-Nitrophenol	100 100 100 100 100	53% 71% 83% 75% 66%	63% 70% 82% 79% 67%	17 1 1	7 % - % - %	

MS = Matrix Spike
MSD = Matrix Spike Duplicate
% REC = Percent Recovery
RPD = Relative Percent Difference



ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted:8/28/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90

Project No.: 1459.04 Contact: I. Khalil Phone:

AEMC Contact: M. Jaeger

Job No.: 795253 COC Log No.: 4142

AEMC I.D.: L5253 Batch No.: 6146

Analyte Base	LCS Conc. (mg/L)	LCS %Rec	
1,2,4-Trichlorobenzene	100	86%	
Acenaphthene	10 0	7 3 %	
2,4-Dinitrotoluene	100	67%	
Pyrene	100	121%	
N-Nitroso-di-n-propylamine	100	98%	
1,4-Dichlorobenzene	100	84%	
Analyte Acid	LCS Conc. (mg/L)	LCS %Rec	
Pentachlorophenol	100	56%	
Phenol	100	104%	
2-Chlorophenol	100	107%	
4-Chloro-3-methylphenol	10 0	93%	
4-Nitrophenol	100	7 0 %	

LCS = Laboratory Control Standard % Rec = Percent Recovery LCS

Geomatrix Consultants 1 Mkt. Plaza, Spear St.#717 San Francisco, CA 94105

08/30/90

Attn: I. Khalil

Re:

Project: 1459.04
AEMC Lab Reference No.: L5241 Project Samples Received: 08/26/90
No. Samples Received: 4 Soil samples Project No.: 1459.04 Job No.: 795241

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples

Analysis

4

Extractable Organics by GC-MS (BNA's)

Method 8270 surrogate standard (2-Fluorophenol) recovery data could not be generated for sample "SP-4" due to the presence of a significant concentration of mineral spirits in this sample.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton

Laboratory Director

ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants

l Market Plaza
Spear Street Tower, Ste. 717
San Francisco, CA 94105
Project: 1459.04

Date Sampled: 8/25/90 Date Received: 8/26/90 Date Extracted: 8/26/90 Date Analyzed: 8/27/90 Date Reported: 8/29/90 Client Sample I.D.: SP-1

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contac : M. Jaeger

Job No.: 7.3241 COC Log No.: 4121

AEMC I.D.: L5241-1 Batch No.: 6128 Matrix: Soil

Spike Conc.

Recovery

Surrogate	CAS #	(mg/kg)	(percent)
Phenol-d6	d108-95-2	20	83%
2-Fluorophenol	367-12-4	20	85%
2,4,6-Tribromophenol	118-79-6	20	9 8 %
Nitrobenzene-d5	d98-95-3	20	70%
2-Fluorobiphenyl	321-60-8	20	63%
Terphenyl-d14	d92-94-4	20	91%
Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Acenaphthene	83-32-9	ND	2
Acenaphthylene	2 08- 96-8	ND	$ ilde{ ilde{2}}$
Anthracene	120-12-7	ND	$\bar{2}$
Benzo(a)anthracene	56-55-3 205-99-2	ND	$\bar{2}$
Benzo(b)fluoranthene	205-99-2	ND	2
Benzo(k)fluoranthene Benzo(g,h,i)perylene	207-08-9	ND	2
Benzo(a)nyrene	191-24-2	ND	2
Benzo(a)pyrene Benzyl alcohol	50-32-8 100-51-6	ND	2
Bis(2-chloroethoxy)methane	111-91-1	ND ND	2
DIS(2-CHIOroethyl)ether	111-44-4	ND ND	2
Bls(2-chioroisopropy))ether	108-60-1	ND	4
Dis(Z-ethylnexyl)phthalate	117-81-7	ND	2
4-bromophenyl phenyl ether	101-55-3	ND	2
Ducylpenzyl phthalate	85-68-7	ND	2
4-Chloroaniline	106-47-8	ND	5
2-Chloronaphthalene	91-58-7	ND	5
4-Chlorophenyl phenyl ether	7005-72-3	ND	$\bar{2}$
Chrysene	218-01-9	ND	$\bar{2}$
Dibenzo(a,h)anthracene Dibenzofuran	53-70-3	ND	2
Di-n-butylphthalate	132-64-9	ND	2
1,2-Dichlorobenzene	84-74-2	ЙĎ	2
1,3-Dichlorobenzene	95-50-1	ЙĎ	2
1.4-Dichlorobenzene	541-73-1 106-46-7	ND	2
3,3'-Dichlorobenzidine	91-94-1	ND ND	2
Dietnyiphthalate	84-66-2	ND	<u> </u>
Dimethylphthalate	131-11-3	ND ND	2
2,4-Dinitrotoluene	121-14-2	ND	2
2,6-Dinitrotoluene	6 06 - 20 - 2	ND	2
Di-n-octylphthalate	117-84-0	ND	5
Fluoranthene	206-44-0	ND	5
Fluorene	86-73-7	ND	$\bar{2}$
Hexachlorobenzene	1 18- 74-1	ND	2222222222222222222222222222222222222
Hexachlorobutadiene	87-68-3	ND	2

RPT. LIMIT = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants l Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90 Date Received: 8/26/90 Date Extracted: 8/26/90 Date Analyzed: 8/27/90 Date Reported: 8/29/90 Client Sample I.D.: SP-1

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-1 Batch No.: 6128 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Hexachlorocyclopentadiene Hexachloroethane	77-47-4 67-72-1	ND ND	2
Indeno(1,2,3-c,d)pyrene	193-39-5	ND ND	2
Isophorone	78-59-1	ND	$\bar{2}$
2-Methylnaphthalene	91-57-6	ND	2
Naphthalene 2-Nitroaniline	91-20-3	ND	2
3-Nitroaniline	88-74-4 99-09-2	ND ND	2
4-Nitroaniline	100-01-6	ND	5
Nitrobenzene	98-95-3	ND	5
N-Nitrosodiphenylamine	86-30-6	ND	2
N-Nitroso-di-n-propylamine	621-64-7	ND	$\bar{2}$
Phenanthrene	85-01-8	ND	2
Pyrene	129-00-0	ND	2 2 2 2 2 2
1,2,4-Trichlorobenzene	120-82-1	ND	2

RPT. LIMIT = Reporting Limit $\mbox{ND} = \mbox{Not}$ Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants l Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90 Date Received: 8/26/90 Date Extracted: 8/26/90 Date Analyzed: 8/27/90 Date Reported: 8/29/90 Client Sample I.D.: SP-1

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-1 Batch No.: 6128 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-2 95-95-4 88-06-2	ND N	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

RPT. LIMIT = Reporting Limit $\ensuremath{\text{ND}} = \ensuremath{\text{Not}}$ Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90
Date Received: 8/26/90
Date Extracted: 8/26/90
Date Analyzed: 8/27/90
Date Reported: 8/29/90
Client Sample I.D.: SP-2

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-2 Batch No.: 6128 Matrix: Soil

Surrogate	CAS #	Spike Conc. (mg/kg)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	20 20 20 20 20 20 20	83% 84% 84% 70% 64% 92%

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Acenaphthene	83-32-9	ND	2
Acenaphthylene	2 08 -96-8	ND	$ar{ ilde{2}}$
Anthracene	120-12-7	ND	$\bar{2}$
Benzo(a)anthracene	5 6- 55-3	ND	2
Benzo(b)fluoranthene	205-99-2	ND	2
Benzo(k)fluoranthene	207-08-9	ND	2
Benzo(g,h,i)perylene	191-24-2	ND	2
Benzo(a)pyrene	50-32-8	ND	2
Benzyl alcohol	100-51-6	ND	2
Bis(2-chloroethoxy)methane	111-91-1	ND	2
Bls(2-chloroethyl)ether	111-44-4	ND	2
B1s(2-chioroisopropyl)ether	1 08- 60-1	ND	2
Bis(2-ethylhexyl)phthalate	117-81-7	ND	2
4-Bromophenyl phenyl ether	101-55-3	ND	2
Butylbenzyl phthalate	85-68-7	ND	2
4-Unioroaniline	106-47-8	ND	2
2-Chloronaphthalene	91-58-7	ND	2
4-Chlorophenyl phenyl ether	70 05 - 72 - 3	ND	2
Chrysene	2 18- 01-9	ND	2
Dibenzo(a,h)anthracene	53-70-3	ND	2
Dibenzofuran	132-64-9	ND	2
Di-n-butylphthalate	84-74-2	ND	2
1,2-Dichlorobenzene	95-50-1	ND	2
1,3-Dichlorobenzene	541-73-1	ND	2
1,4-Dichlorobenzene	106-46-7	ND	2
3,3'-Dichlorobenzidine	91-94-1	ND	2
Diethylphthalate	84-66-2	ND	2
Dimethylphthalate	131-11-3	ND	2
2,4-Dinitrotoluene	121-14-2	ND	2
2,6-Dinitrotoluene	6 06- 20-2	ЙD	222222222 222222222222222222222222222
Di-n-octylphthalate	117-84-0	ND	2
Fluoranthene	2 06-44- 0	ND	2
Fluorene	86-73-7	ND	2
Hexachlorobenzene	118-74-1	ND	2
Hexachlorobutadiene	87-68 - 3	ND	2

RPT. LIMIT = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants
1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90 Date Received: 8/26/90 Date Extracted: 8/26/90 Date Analyzed: 8/27/90 Date Reported: 8/29/90 Client Sample I.D.: SP-2

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-2 Batch No.: 6128 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Hexachlorocyclopentadiene Hexachloroethane Indeno(1,2,3-c,d)pyrene Isophorone 2-Methylnaphthalene Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene N-Nitrosodiphenylamine N-Nitroso-di-n-propylamine Phenanthrene Pyrene 1,2,4-Trichlorobenzene	77-47-4 67-72-1 193-39-5 78-59-1 91-57-6 91-20-3 88-74-4 99-09-2 100-01-6 98-95-3 86-30-6 621-64-7 85-01-8 129-00-0 120-82-1	ND ND ND ND ND ND ND ND ND ND ND ND	222222222222222222222222222222222222222

RPT. LIMIT = Reporting Limit $\ensuremath{\text{ND}} = \ensuremath{\text{Not}}$ Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90 Date Received: 8/26/90 Date Extracted: 8/26/90 Date Analyzed: 8/27/90 Date Reported: 8/29/90 Client Sample I.D.: SP-2

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-2 Batch No.: 6128 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (m g /kg)
Benzoic Acid 4-Chloro-3-methylphenol	65-85-9	ND	2
2-Chlorophenol	59 - 50-7 95-57-8	ND ND	2
2,4-Dichlorophenol	120-83-2	ND	Ž
2,4-Dimethylphenol 2,4-Dinitrophenol	105-67-9 51-28-5	ND ND	2
!-Methyl-4,6-dinitrophenol	5 34- 52-1	ND	2 2
-Methylphénol	95-48-7	ND	$\bar{2}$
-Methylphenol -Nitrophenol	106-44-5 88-75-5	ND ND	2
-Nitrophenol	100-02-7	ND	2
entachlorophenol	87-86-5	ND	$\bar{2}$
Phenol 2,4,5-Trichlorophenol	1 08- 95-2 95- 95-4	ND	2
2,4,6-Trichlorophenol	88-06-2	ND ND	2 2

RPT. LIMIT = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90
Date Received: 8/26/90
Date Extracted:8/26/90
Date Analyzed: 8/27/90
Date Reported: 8/29/90
Client Sample I.D.: SP-3

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-3 Batch No.: 6128 Matrix: Soil

Surrogate	CAS #	Spike Conc. (mg/kg)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	20 20 20 20 20 20 20	67% 101% 96% 52% 66% 87%

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit. (mg/kg)
Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(g,h,i)perylene Benzo(a)pyrene Benzo(a)pyrene Benzyl alcohol Bis(2-chloroethoxy)methane Bis(2-chloroethyl)ether Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Bis(2-ethylhexyl)phthalate 4-Bromophenyl phenyl ether Butylbenzyl phthalate 4-Chloroaniline 2-Chloronaphthalene 4-Chlorophenyl phenyl ether Chrysene Dibenzo(a,h)anthracene Dibenzofuran Di-n-butylphthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzidine Diethylphthalate Dimethylphthalate Dimethylphthalate 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-octylphthalate Fluoranthene Fluorene	83-32-9 208-96-8 120-12-7 56-55-3 205-99-2 207-08-9 191-24-2 50-32-8 100-51-6 111-91-1 111-460-1 117-85-3 85-68-7 101-55-3 85-68-7 106-47-8 91-58-7 7005-72-3 218-01-9 53-70-3 132-64-9 84-66-2 131-14-2 606-20-2 117-84-0 86-73-7	ND N	222222222222222222222222222222222222222
Hexachlorobenzene Hexachlorobutadiene	118-74-1 87 - 68-3	ND ND	2 2

RPT. LIMIT = Reporting Limit $\ensuremath{\text{ND}}$ = Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90
Date Received: 8/26/90
Date Extracted: 8/26/90
Date Analyzed: 8/27/90
Date Reported: 8/29/90
Client Sample I.D.: SP-3

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-3 Batch No.: 6128 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Hexachlorocyclopentadiene Hexachloroethane Indeno(1,2,3-c,d)pyrene Isophorone 2-Methylnaphthalene Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene N-Nitrosodiphenylamine N-Nitroso-di-n-propylamine Phenanthrene Pyrene 1,2,4-Trichlorobenzene	77-47-4 67-72-1 193-39-5 78-59-1 91-57-6 91-20-3 88-74-4 99-09-2 100-01-6 98-95-3 86-30-6 621-64-7 85-01-8 129-00-0 120-82-1	ND N	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

RPT. LIMIT = Reporting Limit ${\tt ND}$ = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90
Date Received: 8/26/90
Date Extracted:8/26/90
Date Analyzed: 8/27/90
Date Reported: 8/29/90
Client Sample I.D.: SP-3

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-3 Batch No.: 6128 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-67-9 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-95-4 88-95-2 95-95-4 88-06-2	ND ND ND ND ND ND ND ND ND ND	22222222222222222222222222222222222222

RPT. LIMIT = Reporting Limit ${
m ND} = {
m Not}$ Detected at or above indicated Reporting Limit



CAS #

ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants l Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Surrogate

Date Sampled: 8/25/90 Date Received: 8/26/90 Date Extracted: 8/26/90 Date Analyzed: 8/27/90 Date Reported: 8/29/90 Client Sample I.D.: SP-4

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-4 Batch No.: 6128 Matrix: Soil

Spike Conc.

(mg/kg)

Recovery

(percent)

Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	20 20 20 20 20 20 20	85% NR 101% 42% 62% 94%
Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(a)pyrene Benzo(a)pyrene Benzo(a)pyrene Benzyl alcohol Bis(2-chloroethoxy)methane Bis(2-chloroethyl)ether Bis(2-chloroethyl)ether Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Bis(2-chloroisopropyl)ether Butylbenzyl phenyl ether Butylbenzyl phenyl ether Butylbenzyl phthalate 4-Chloroaniline 2-Chloroaphthalene 4-Chlorophenyl phenyl ether Chrysene Dibenzo(a,h)anthracene Dibenzofuran Di-n-butylphthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzidine Diethylphthalate Dimethylphthalate 2,4-Dinitrotoluene Di-n-octylphthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene	83-32-9 208-96-8 120-12-7 205-99-2 207-08-9 191-24-2 101-31-6 111-44-1 111-44-1 111-55-3 106-47-8 101-55-7 218-701-9 132-64-9 132-64-9 131-14-2 131-14-2 131-14-2 131-14-2 131-14-2 131-14-2 131-14-2 131-14-2 131-14-2 131-14-2 131-14-2 131-32-64-9 131-32-64-9 131-32-64-1 131-14-2 131-14-2 131-32-64-1	ND N	222222222222222222222222222222222222222

RPT. LIMIT = Reporting Limit ND = Not Detected at or above indicated Reporting Limit NR = Not Reportable, see report cover-letter for explanation.

ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90 Date Received: 8/26/90 Date Extracted: 8/26/90 Date Analyzed: 8/27/90 Date Reported: 8/29/90 Client Sample I.D.: SP-4

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-4 Batch No.: 6128 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Hexachlorocyclopentadiene Hexachloroethane Indeno(1,2,3-c,d)pyrene Isophorone 2-Methylnaphthalene Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene N-Nitrosodiphenylamine N-Nitroso-di-n-propylamine Phenanthrene Pyrene 1,2,4-Trichlorobenzene	77-47-4 67-72-1 193-39-5 78-59-1 91-57-6 91-20-3 88-74-4 99-09-2 100-01-6 98-95-3 86-30-6 621-64-7 85-01-8 129-00-0 120-82-1	ND N	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

RPT. LIMIT - Reporting Limit ND - Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90 Date Received: 8/26/90 Date Extracted: 8/26/90 Date Analyzed: 8/27/90 Date Reported: 8/29/90 Client Sample I.D.: SP

Project No.: 1459.04 Contact: I. Khalil

none:

EMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-4 Batch No.: 6128 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Benzoic Acid	65-85-0	ND	2
4-Chloro-3-methylphenol	59-50-7	ND	Ž
2-Chlorophenol	95 - 57 <i>-</i> 8	ND	2
,4-Dichlorophenol	120-83-2	ND	2
,4-Dimethylphenol	105-67-9	ND	2
,4-Dinitrophenol	51-28-5	ND	2
-Methyl-4,6-dinitrophenol	5 <u>34-52-1</u>	ND	2
-Methylphenol	95-48-7	ND	2
-Methylphenol	106-44-5	ND	2
-Nitrophenol	88-75-5	ND	2
-Nitrophenol	1 00- 02-7	NĎ	. 2
entachlorophenol	87-86-5	2	2
henol	108-95-2	ИĎ	2
,4,5-Trichlorophenol	95-95-4	4	2
2,4,6-Trichlorophenol	88- 06-2	ND	2

RPT. LIMIT = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants
1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90
Date Received: 8/26/90
Date Extracted: 8/26/90
Date Analyzed: 8/27/90
Date Reported: 8/29/90
Client Sample I.D.: Method Blank

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-MB Batch No.: 6128

Matrix: Soil

Surrogate	CAS #	Spike Conc. (mg/kg)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-dl4	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	20 20 20 20 20 20 20	91% 76% 82% 70% 62% 78%
Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Acenaphthene	83-32-9	ND	2

		<u>. </u>	
Acenaphthene	83- 32-9	ND	2
Acenaphthylene	208-96-8	ND	5
Anthracene	120-12-7	ND	5
Benzo(a)anthracene	56-55-3	ND	5
Benzo(b)fluoranthene	205-99-2	ND	5
Benzo(k)fluoranthene	2 07 -08 - 9	ND	5
Benzo(g,h,i)perylene	191-24-2	ND	5
Benzo(a)pyrene Benzyl alcohol	50-32-8	ND	2
Benzyl alcohol	100-51-6	ND	5
Bis(2-chloroethoxy)methane	111-91-1	ND	2
PIS(2-Chloroethy))ether	111-44-4	ЙĎ	5
Bis(2-chloroisopropyl)ether	108-60-1	ND	5
Bis(2-chloroisopropyl)ether Bis(2-ethylhexyl)phthalate	117-81-7	ND	5
4-plumophenvi phenvi ether	101-55-3	ND	2
butylbenzyl phthalate	85-68-7	ND	4
4-Unioroaniline	106-47-8	ND	2
2-Chloronaphthalene	91-58-7	ND	2
4-Chlorophenvl phenvl ether	7005-72-3	ND	2
Chrysene	218-01-9	ND	4
Dibenzo(a,h)anthracene	53-70-3	ND	2
Dibenzofuran	132-64-9	ND	4
Di-n-butylphthalate	84-74-2	ND	2
1,2-Dichlorobenzene	95-50-1	ND	2
1,3-Dichlorobenzene	541-73-1		2
1,4-Dichlorobenzene	106-46-7	ND ND	2
1,4-Dichlorobenzene 3,3'-Dichlorobenzidine	91-94-1	ND	2
Diethylphthalate	84-66-2		2
Dimethylphthalate	131-11-3	ND	2
2,4-Dinitrotoluene	121-14-2	ЙD	2
2,6-Dinitrotoluene	606-20-2	ND	2
Di-n-octylphthalate	117-84-0	ND	2
Fluoranthene	206-44-0	ND	2
Fluorene	8 6- 73-7	ND	2222222 22222222222222222222222222222
Hexachlorobenzene	118-74-1	ND	2
Hexachlorobutadiene		ND	2
	87-68-3	ND	2

RPT. LIMIT = Reporting Limit

ND = Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Base/Neutral Extractables (cont.), EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90
Date Received: 8/26/90
Date Extracted: 8/26/90
Date Analyzed: 8/27/90
Date Reported: 8/29/90
Client Sample I.D.: Method Blank

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-MB Batch No.: 6128 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
lexachlorocyclopentadiene	77-47-4	ND	2
lexachloroethane	67-72-1	ND	2
[ndeno(1,2,3-c,d)pyrene	193-39-5	ND	5
sophorone	78-59-1	ND	2
-Methylnaphthalene	91-57-6	ND	$\bar{2}$
laphthalene	91-20-3	ND	$\bar{2}$
-Nitroaniline	88-74-4	ND	$\bar{2}$
-Nitroaniline	99-09-2	ND	$ar{ ilde{2}}$
-Nitroaniline	100-01-6	ND	$\bar{2}$
itrobenzene	9 8- 95-3	NĎ	Ž
-Nitrosodiphenylamine	86-30-6	ND	2
-Nitroso-di-n-propylamine	621-64-7	ND	Ž
Phenanthrene	85-01-8	ND	2
yrene	1 29-00- 0	ND	2
1,2,4-Trichlorobenzene	120- 82-1	ND	$\bar{2}$

RPT. LIMIT = Reporting Limit ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90
Date Received: 8/26/90
Date Extracted:8/26/90
Date Analyzed: 8/27/90
Date Reported: 8/29/90
Client Sample I.D.: Method Blank

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241-MB Batch No.: 6128 Matrix: Soil

Analyte	CAS #	Concentration (mg/kg)	Rpt. Limit (mg/kg)
Benzoic Acid 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 2,4-Dimethylphenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2-Methyl-4,6-dinitrophenol 2-Methylphenol 4-Methylphenol 4-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	65-85-0 59-50-7 95-57-8 120-83-2 105-85-5 51-28-5 534-52-1 95-48-7 106-44-5 88-75-5 100-02-7 87-86-5 108-95-4 88-06-2	ND N	222222222222222222222222222222222222222

RPT. LIMIT = Reporting Limit ${\rm ND}\,=\,{\rm Not}$ Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants l Market Plaza

Spear Street Tower, Ste. 717
San Francisco, CA 94105
Project: 1459.04

Date Sampled: 8/25/90 Date Received: 8/26/90 Date Extracted: 8/26/90 Date Analyzed: 8/27/90 Date Reported: 8/29/90

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

No.: 795241 ∴ Log No.: 4121

A. . . I.D.: L5241 Boron No.: 6128 Ma . . . Soil

Surrogate	Cas #	Spike Communication (mg/kg)		MS %Rec	MSD %Rec	
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-76-6 98-95-3 321-60-80 92-94-4	20 20 20 20 20 20 20		79% 85% 91% 75% 64% 78%	83% 76% 90% 77% 65% 71%	
Analyte Base	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	Dup 1	Licate LPD	
1,2,4-Trichlorobenzene Acenaphthene 2,4-Dinitrotoluene Pyrene N-Nitroso-di-n-propylamin 1,4-Dichlorobenzene	20 20 20 20 20 20 20	66% 58% 65% 64% 83% 60%	66% 60% 69% 57% 84% 62%	3 6 10 1) % } % 5 % 5 % 1 % 1 %	
Analyte Acid	Spike Conc. (mg/kg)	MS %Rec	MSD %Rec	Dup]	icate RPD	
Pentachlorophenol Phenol 2-Chlorophenol 4-Chloro-3-methylphenol 4-Nitrophenol	20 20 20 20 20 20	94% 73% 83% 80% 46%	88% 71% 80% 78% 45%	3 4 2	78 38 48 28	

MS

- Matrix Spike - Matrix Spike Duplicate - Percent Recovery MSD

% REC

= Relative Percent Difference

AMERICAN ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants
1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/25/90 Date Received: 8/26/90 Date Extracted: 8/26/90 Date Analyzed: 8/27/90 Date Reported: 8/29/90

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795241 COC Log No.: 4121

AEMC I.D.: L5241 Batch No.: 6128

Analyte Base	LCS Conc. (mg/L)	LCS %Rec	
1,2,4-Trichlorobenzene	20	86%	
Acenaphthene	20	73%	
2,4-Dinitrotoluene	20	67%	
Pyrene	20	121%	
N-Nitroso-di-n-propylamine	20	98%	
1,4-Dichlorobenzene	20	84%	
Analyte Acid	LCS Conc. (mg/L)	LCS %Rec	
Pentachlorophenol	20	56%	
Phenol	20	104%	
2-Chlorophenol	20	107%	
4-Chloro-3-methylphenol	20	93%	
4-Nitrophenol	20	7 0%	

LCS = Laboratory Control Standard % Rec = Percent Recovery LCS



Geomatrix Consultants 1 Mkt. Plaza, Spear St.#717 San Francisco, CA 94105

08/30/90

Attn: 🗀 Khalil

Project: 1459.04
AEMC Lab Reference No.: L5254 Project Samples Received: 08/28/90
No. Samples Received: 3 Wipe samples Project No.: 1459.04 Job No.: 795254

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples

Analysis

2

Extractable Organics by GC-MS (BNA's)

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90
Date Received: 8/28/90
Date Extracted: 8/29/90
Date Analyzed: 8/29/90
Date Reported: 8/30/90
Client Sample I.D.: Blank

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795254 COC Log No.: 4143

AEMC I.D.: L5254-1 Batch No.: 6147 Matrix: Wipe

Surrogate	CAS #	Spike Conc. (ug/wipe)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	100 100 100 100 100	69% 53% 73% 59% 64% 72%
Analyte	CAS #	Concentration (ug/wipe)	Rpt. Limit (ug/wipe)
Pentachlorophenol 2,4,5-Trichlorophenol	87-86-5 95-95-4	ND ND	50 10

RPT. LIMIT - Reporting Limit ${\rm ND}$ - Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted: 8/29/90 Date Analyzed: 8/29/90 Date Reported: 8/30/90 Client Sample I.D.: WP-6

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795254 COC Log No.: 4143

AEMC I.D.: L5254-2 Batch No.: 6147 Matrix: Wipe

Surrogate	CAS #	Spike Conc. (ug/wipe)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2	100	32%
	367-12-4	100	66%
	118-79-6	100	95%
	d98-95-3	100	67%
	321-60-8	100	78%
	d92-94-4	100	112%
Analyte	CAS #	Concentration (ug/wipe)	Rpt. Limit (ug/wipe)
Pentachlorophenol 2,4,5-Trichlorophenol	87-86-5	ND	50
	9 5- 95-4	ND	10

RPT. LIMIT - Reporting Limit ND - Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants
1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted:8/29/90 Date Analyzed: 8/29/90 Date Reported: 8/30/90 Client Sample I.D.: WP-7

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795254 COC Log No.: 4143

AEMC I.D.: L5254-3 Batch No.: 6147 Matrix: Wipe

Surrogate	CAS #	Spike Conc. (ug/wipe)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	100 100 100 100 100 100	78% 62% 92% 64% 77% 108%
Analyte	CAS #	Concentration (ug/wipe)	Rpt. Limit (ug/wipe)
Pentachlorophenol 2,4,5-Trichlorophenol	87-86-5 95-95-4	ND ND	50 10

RPT. LIMIT - Reporting Limit ${\rm ND}$ - Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90
Date Received: 8/28/90
Date Extracted: 8/29/90
Date Analyzed: 8/29/90
Date Reported: 8/30/90
Client Sample I.D.: Method Blank

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795254 COC Log No.: 4143

AEMC I.D.: L5254-MB Batch No.: 6147

Matrix: Wipe

Surrogate	CAS #	Spike Conc. (ug/wipe)	Recovery (percent)
Phenol-d6	d108-95-2	100	80%
2-Fluorophenol	367-12-4	100	65%
2,4,6-Tribromophenol	118-79-6	100	71%
Nitrobenzene-d5 2-Fluorobiphenyl	d98-95-3	100 100	67%
Terphenyl-d14	321-60-8 d92-94-4	100	59% 79%
Analyte	CAS #	Concentration (ug/wipe)	Rpt. Limit (ug/wipe)
Pentachlorophenol	87-86-5	ND	50
2,4,5-Trichlorophenol	95-95-4	ND	10

RPT. LIMIT - Reporting Limit ${\rm ND}$ - Not Detected at or above indicated Reporting Limit

AMERICAI ENVIRONMENTAL LABORATORIES CORP.

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/28/90 Date Received: 8/28/90 Date Extracted:8/29/90 Date Analyzed: 8/29/90 Date Reported: 8/30/90

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795254 COC Log No.: 4143

AEMC I.D.: L5254 Batch No.: 6147 Matrix: Wipe

Surrogate	Cas #	Spike Conc (ug/wipe)		MBS %Rec	MBSD %Rec	
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-76-6 98-95-3 321-60-80 92-94-4	100 100 100 100 100 100		77% 69% 79% 72% 77% 92%	74% 67% 76% 70% 79%	
Analyte Base	Spike Conc. (ug/wipe)	MBS %Rec	MBSD %Rec	Dup1	icate PD	
1,2,4-Trichlorobenzene Acenaphthene 2,4-Dinitrotoluene Pyrene N-Nitroso-di-n-propylamin 1,4-Dichlorobenzene	100 100 100 100 100 e 100	67% 67% 46% 88% 72% 66%	65% 68% 47% 88% 69% 65%	3: 1: 2: 0: 4:	है है है	
Analyte Acid	Spike Conc. (ug/wipe)	MBS %Rec	MBSD %Rec	Dupli RI	icate PD	
Pentachlorophenol Phenol 2-Chlorophenol 4-Chloro-3-methylphenol 4-Nitrophenol	100 100 100 100	40% 72% 79% 69% 52%	35% 71% 81% 69% 52%	138 18 48 08	; ;	

MBS MBSD

Method Blank Spike
Method Blank Spike Duplicate
Percent Recovery
Relative Percent Difference % REC RPD



ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants l Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampl d: 8/28/90 Date Received: 8/28/90 Date Extracted: 8/29/90 Date Analyzed: 8/29/90 Date Reported: 8/30/90

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795254 COC Log No.: 4143

AEMC I.D.: L5254 Batch No.: 6147

Analyte Base	LCS Conc. (ug/L)	LCS %Rec	
1,2,4-Trichlorobenzene	100	86%	
Acenaphthene	100	73%	
2,4-Dinitrotoluene	100	67%	
Pyrene	100	121%	
N-Nitroso-di-n-propylamine	100	98%	
1,4-Dichlorobenzene	100	84%	
Analyte Acid	LCS Conc. (ug/L)	LCS %Rec	
Pentachlorophenol	100	56%	
Phenol	100	104%	
2-Chlorophenol	100	107%	
4-Chloro-3-methylphenol	100	93%	
+ outoto-p-meruly thiteilot			

LCS = Laboratory Control Standard % Rec = Percent Recovery

Geomatrix Consultants 1 Mkt. Plaza, Spear St.#717 San Francisco, CA 94105

08/30/90

Attn: I. Khalil

Project: 1459.04
AEMC Lab Reference No.: L5242
Date Samples Received: 08/27/90
No. Samples Received: 4 Wipe samples Project No.: 1459.04 Job No.: 795242

These samples were received by AEMC in a chilled state, intact, and accompanied by chain-of-custody documentation.

The above referenced samples were analyzed as follows:

No. of Samples

Analysis

4

Extractable Organics by GC-MS (BNA's)

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

George Hampton Laboratory Director



ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/26/90 Date Received: 8/27/90 Date Extracted:8/27/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: Blank

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795242 COC Log No.: 4119

AEMC I.D.: L5242-1 Batch No.: 6130 Matrix: Wipe

Surrogate	CAS #	Spike Conc. (ug/wipe)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2.4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2	100	58%
	367-12-4	100	45%
	118-79-6	100	101%
	d98-95-3	100	42%
	321-60-8	100	56%
	d92-94-4	100	80%
Analyte	CAS #	Concentration (ug/wipe)	Rpt. Limit (ug/wipe)
Pentachlorophenol 2,4,5-Trichlorophenol	87-86-5	ND	50
	95-95-4	ND	10

RPT. LIMIT - Reporting Limit ${\rm ND}$ - Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/26/90 Date Received: 8/27/90 Date Extracted: 8/27/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: WP-1

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795242 COC Log No.: 4119

AEMC I.D.: L5242-2 Batch No.: 6130 Matrix: Wipe

Surrogate	CAS #	Spike Conc. (ug/wipe)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	100 100 100 100 100	63% 49% 97% 50% 71% 94%
Analyte	CAS #	Concentration (ug/wipe)	Rpt. Limit (ug/wipe)
Pentachlorophenol 2,4,5-Trichlorophenol	87-86-5 95-95-4	ND ND	50 10

RPT. LIMIT = Reporting Limit
ND = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/26/90 Date Received: 8/27/90 Date Extracted: 8/27/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: WP-2

Project No.: 1459.04 Contact: I. Khalil Phone:

AEMC Contact: M. Jaeger

Job No.: 795242 COC Log No.: 4119

AEMC I.D.: L5242-3 Batch No.: 6130 Matrix: Wipe

Surrogate	CAS #	Spike Conc. (ug/wipe)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2	100	72%
	367-12-4	100	57%
	118-79-6	100	93%
	d98-95-3	100	60%
	321-60-8	100	76%
	d92-94-4	100	95%
Analyte	CAS #	Concentration (ug/wipe)	Rpt. Limit (ug/wipe)
Pentachlorophenol 2,4,5-Trichlorophenol	87-86-5	ND	50
	95-95-4	ND	10

RPT. LIMIT — Reporting Limit ${\rm ND}$ — Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/26/90 Date Received: 8/27/90 Date Extracted:8/27/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: WP-3

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795242 COC Log No.: 4119

AEMC I.D.: L5242-4 Batch No.: 6130 Matrix: Wipe

Surrogate	CAS #	Spike Conc. (ug/wipe)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2	100	81%
	367-12-4	100	66%
	118-79-6	100	101%
	d98-95-3	100	63%
	321-60-8	100	76%
	d92-94-4	100	100%
Analyte	CAS #	Concentration (ug/wipe)	Rpt. Limit (ug/wipe)
Pentachlorophenol 2,4,5-Trichlorophenol	87-86-5	ND	50
	95-95-4	17	10

RPT. LIMIT - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit



ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants l Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/26/90 Date Received: 8/27/90 Date Extracted: 8/27/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90 Client Sample I.D.: WP-4

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795242 COC Log No.: 4119

AEMC I.D.: L5242-5 Batch No.: 6130 Matrix: Wipe

Surrogate	CAS #	Spike Conc. (ug/wipe)	Recovery (percent)
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-79-6 d98-95-3 321-60-8 d92-94-4	100 100 100 100 100 100	78% 60% 101% 60% 76% 109%
Analyte	CAS #	Concentration (ug/wipe)	Rpt. Limit (ug/wipe)

Pentachlorophenol 2,4,5-Trichlorophenol 87-86-5 95-95-4 50 10 ND ND

RPT. LIMIT = Reporting Limit ${\rm ND}$ = Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza

Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/26/90
Date Received: 8/27/90
Date Extracted: 8/27/90
Date Analyzed: 8/28/90
Date Reported: 8/29/90
Client Sample I.D.: Method Blank

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795242 COC Log No.: 4119

AEMC I.D.: L5242-MB Batch No.: 6130 Matrix: Wipe

Surrogate	CAS #	Spike Conc. (ug/wipe)	Recovery (percent)		
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2	100	48%		
	367-12-4	100	40%		
	118-79-6	100	81%		
	d98-95-3	100	48%		
	321-60-8	100	57%		
	d92-94-4	100	85%		
Analyte	CAS #	Concentration (ug/wipe)	Rpt. Limit (ug/wipe)		
Pentachlorophenol	87-86-5	ND	50		
2,4,5-Trichlorophenol	95-95-4	ND	10		

RPT. LIMIT - Reporting Limit
ND - Not Detected at or above indicated Reporting Limit

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/26/90 Date Received: 8/27/90 Date Extracted: 8/27/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795242 COC Log No.: 4119

AEMC I.D.: L5242 Batch No.: 6130 Matrix: Wipe

Surrogate	Cas #	Spike Conc (ug/wipe)	•	MBS %Rec	MBSD %Rec
Phenol-d6 2-Fluorophenol 2,4,6-Tribromophenol Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14	d108-95-2 367-12-4 118-76-6 98-95-3 321-60-80 92-94-4	100 100 100 100 100 100		77% 75% 96% 74% 63% 77%	78% 78% 90% 75% 64% 74%
Analyte Base	Spike Conc. (ug/wipe)	MBS %Rec	MBSD %Rec		icate IPD
1,2,4-Trichlorobenzene Acenaphthene 2,4-Dinitrotoluene Pyrene N-Nitroso-di-n-propylamine 1,4-Dichlorobenzene	100 100 100 100 100 100	68% 58% 66% 64% 79% 62%	66% 58% 66% 61% 78% 62%	0 0 5 1	8 8 8 8
Analyte Acid	Spike Conc. (ug/wipe)	MBS %Rec	MBSD %Rec	Dup1	icate PD
Pentachlorophenol Phenol 2-Chlorophenol 4-Chloro-3-methylphenol 4-Nitrophenol	100 100 100 100 100	111% 72% 82% 81% 49%	100% 74% 84% 79% 55%	10 3 2 2 2 11	ક ક

MBS

= Method Blank Spike
= Method Blank Spike Duplicate MBSD % REC RPD = Percent Recovery = Relative Percent Difference

ANALYSIS REPORT: Base/Neutral/Acid Extractables, EPA Method 8270

CLIENT: Geomatrix Consultants 1 Market Plaza Spear Street Tower, Ste. 717 San Francisco, CA 94105 Project: 1459.04

Date Sampled: 8/26/90 Date Received: 8/27/90 Date Extracted: 8/27/90 Date Analyzed: 8/28/90 Date Reported: 8/29/90

Project No.: 1459.04 Contact: I. Khalil

Phone:

AEMC Contact: M. Jaeger

Job No.: 795242 COC Log No.: 4119

AEMC I.D.: L5242 Batch No.: 6130

Analyte Base	LCS Conc. (ug/L)	LCS %Rec	
1,2,4-Trichlorobenzene	100	86%	
Acenaphthene	100	73%	
2,4-Dinitrotoluene	100	67%	
Pyrene	100	121%	
N-Nitroso-di-n-propylamine	100	98%	
1,4-Dichlorobenzene	100	84%	
Analyte Acid	LCS Conc. (ug/L)	LCS %Rec	
Pentachlorophenol	100	56%	
Phenol	100	104%	
2-Chlorophenol	100	107%	
4-Chloro-3-methylphenol	100	93%	

LCS = Laboratory Control Standard % Rec = Percent Recovery



South Carolina Department of Health and Environmental Control

Bureau of Soirc & Hazaroous Waste Mg: 2600 Bull Street Columbia, SC 29201 Phone (803) 734-5200

Phone (803) 734-5200 Emergency & Holidays: (803)253-6488

C.K.	PLEASE PRINT or TY	E (Form de	signed for use on a	Hine [12-pitch] type	ewriter)	Form	Approved. C	MB No. 2050	0-0038 Expires 8-30-5.
UNIFORM HA WASTE MA	ZARDOUS 1	Generalor's U.S.	EPA ID No. 4 ,2 ,7 ,1 ,3	Document 11 , Or Or Or	NO.	Page 1	informat	ion in the by federal li	shaded areas is not aw, but is by State law
1. Generator's Name and Ma KAISER PERMAN	IENTE MEDICAL C	ENTER				A Sut	e Marillent Do	cument Nut	hibred
280 W. McARTH OAKLAND, CA 4. Generator's Phone (415						B. Stat	a Generator's	iò	
5. Transporter 1 Company N			S. U.S. EPA ID No				e Transporte		
STAMCO, INC.			1C1 A1 D1 01	6,3,5,4,7	91916				759-4211
7. Transponer 2 Company No	ame		A. U.S. EPA ID N	umber		and the linear laws	a Transporte	The same of the sa	
					11.	-	nscorter's Ph		
9. Designated Facility Name ThermalKEN	inc.		10. U.S. EPA ID ?	4nwper			ne Facility's IC		
2324 Vernesd Rock Hill, SC			ISICIDIO14	4 14 14 14 12 1	3 13 13		803-3	24-5310	
11. U.S. DOT Description (a	ncluding Proper Shipping	9 Name, Hazard	Class and ID Num	ber)	12. Con No.	Type	13. Total Out	untity 14, Unit W/Vd	L Waste Number
HAZARDOUS MAT	TERIAL SOLID, N	1.0.S.							سب
ORM-E, NA9188		4			195	D, M	1 1 14	2,3 T	7,7,7,7
b.	2								لللل
					1 1		1 1 1		
6.			•						
						١, ١	, , ,	,	سب
d.									تىنىت
		٠			1.1	,	111		
J. Additional Descriptions to	r Materials Listed Above			•	. •	K, Har	nating Codes	for Wasies L	istad Above
2 ST - [0,0,0,0	161-1316112	c[S]	تُنا-لتُ	سا-لىـــ	لب		M	09	
1 [S,T]-	<u></u>	· ISI		ـــا-لــــ	. لـــــا		· v		
15. Special Handing Instruct				LING CONT		149/199	. 37 minutes for p	premier 15 m	e al information is assimated t inutes for Wahaponers, and 1
	0 this will be s D037 & D041		RDOUS MATEI	_		tor reve	wing stationaries	BATHAN BANK	at leadous. The includes times and company and tenders
Classified as	3 0037 & 0041		INGA, CA	93210 -		040000	ana lar reauce	of the burbon.	e burben estimene, melijen 16 Chiel, antermaten Peris Inclien Agency, 481 M.S.L.S.Y
SAN 9 4 1 5 5) 935-1508	93210	034	Western	pen. D C 20460.	AND IN THE OWIGI	of Intermetion and Requision, M. Westengton, D.G. 30503
I the them of the State of St.	eled, and are in all respect	s in proper conditi	ov lot Averbod på u I of mis caverbumer	ni are fully and act signway according	urslely der to applica	big mier	national and i	rational gove	huwaut tebhishous su
# I am a large quantity go practicable and that I have	nerator, I corely that I have ve selected the practicable ent OfL if I am a small quan	machod of Vealm	ent storage, er dist	COLLI CUITANTY SYS	Pileble to w	A MUICU	WHO WITES IN	bieseul au	D fullife Inteat to number
Printed/Typed Name	11 0		Signature	2,5					Month Day Yea
	U. Ayens				5				10,8,2,4,9,0
17. Transporter 1 Acknowle Printed/Typed Name	ogement of Receipt of Ma	terials	Significant ()	$\overline{}$			***************************************		Month Day Yes
Johntee	e u .		John	Xueller	_				BRNI PE
18. Transporter 2 Acknowle	adgement of Receipt of Ma	iterials	U	8					
Printed/Typed Name		1	Signature						Month Day Yea
19. Discrepancy Indication	Space						ساء	III)bi	. c Lillibs
							سياه	11bg	«لىسىسا»
20. Facility Owner or Opera	Nor, Certification of receip	t of hazardous ma	terials covered by t	nis manifest exces	ot as noted	in item	19.		
Ponted Typed Name	12 1		Signature	0-:1	/	د جو د			Month Day Yes
Jam.	upl Duly	Mu.	Jan	nek W	~V		_		083096

HAZARDOUS MATERIAL SER TEL No.1-209-935-0321 Dec 4,90 17:31 No.005 P.04

and Environmental Control

Phone. (803) 734-5200

Emergency & Holidays: (803)253-6488

		The state of the s		In 149 a		wenteri		Form A	oproved. OMB N	o. 2050-0	2018 Expires	5-30-5
	PLEASE PRINT or T	YPE FOR	n designed for ut				2 Pa	Assessment of the local division in which the local division in which the local division is not to the local division in which the local division is not to the local division in which the local division is not to the local division in which the local division is not to the local division in which the local division is not to the local division in the local division is not to the local division in the local division is not to the local division in the local division in the local division is not to the local division in the	Internation is	the sh	aded areas	is not
UNIFORM F	AZARDOUS AANIFEST	1. Generator's I	U.S. EPA 10 No. 3 11 14 12 17	و الدرار	0.0	0 5	104	Stute	required by Fe	Name and Address of the Owner, where the Person of the Owner, where the Person of the Owner, where the Person of the Owner, where the Owner, which is the O	the same of the last of the la	INE TITE.
Commission Name and	Mailing Andress						1					
KAISER PERM 280 W. McAR	ANENTE MEDICAL RTHUR BOULEVARD	CENTER					8	Sate	Generator's ID		•	;
OAKLAND, CA	A 415 1 596-660	3				_	1,	- 510.10	Transporter's ID			
Transporter 1 Compa			& U.S. EP	A ID Number		A . A .	6	Youn	sporter's Phone	(800)	759-42	211
STAMCO, IN			L CL AL	Di Oi 61 31	141./1	9191	0 1	E State	Transporter's 10		•	
Transponer 2 Compa				A ID Number					sporter's Phone			
	* ; * * * * * * * * * * * * * * * * * *			PA ID Number					Facility's 1D		٠.	
Designated Facility N	ame and Site Address		10. 0.3.	3- V 10 112111012			٠ [
Thermall	KEM Inc.			900				H. Faci	iky's Phone	:-		
	esdale Road	2.8	4S (C)	010141414	114121	313	3		803-324-		,	
Rock Hill,	SC 29730	-ing Alman Mar	eard Class and	ID Number)		12 (Conta		13. Total Ouantit		L Wasse No	
I. U.S. DOT Descript	ion (including Proper Shi)	oping Name, No.				No.	-	Type		MVM		
						1.			,			
	MATERIAL SOLID	, N.O.S.		•		١.	1]	D, T	1 1 121	T	17:71	7171
ORM-E, NAS	188					1.					1	
										١.		1.3
•			•				1			-		<u> </u>
			•			1			1	1		i لــ
<u>-</u>		1				1			1	1	ا ا	البا
						++		+	 		1	1 1:
d.								1				
						بل		11	لبلبلبل		1 - 1	
dil 1 D adat	ions for Materials Listed Al	CVA.		n' say egi.			٠.	KH	andling Codes to	Wastes I	Dates Vacin	
1' You would need the							١.	1		0		
<u> </u>	1010161-131611		elsiti-L		ملسا – ا ما سا		_		· 40	9.4	• • .	
& ISITI-L			LISTI-L EMERGENCY	1 1 1 1	NG COV	TAC:	<u> </u>	Puter	tracerung purgen for pe, 37 minutes for per	THE CONSCRI	on of intermement	a promoter to
15. Special Handing	Instructions and Additional	M tothi trahmanı	emergency Hazardous	WATERIA!				avera mms	ing tils kontromet zen,n. A0' 31 meritan sa in.	pe and Stabi	sail to minings, The	A And several
As of 9-	25-90 this will	be	P. O. BOX					. two 10	are, bond comments	toda prising	A to Gheat trie	rmeton Fanc
}	ed as D037 & D0		COALINGA,	CA 93	210	130.	30		on, Pul. 223, U.S. Brown Lingson, D.C. 20460. bi TL. Other of Manager	Bryandistra La		AND RADUSE
SAN 9 4 1	49		(209) 935									o cinstilled
A GENERATOR'S	ERTIFICATION: I nereby and tabeled, and are in all r	declare that the	contents of this C	are Inemograpos Propin ve messos	SUBY SAG !	ing 10 s	ibbys MA	ni bis jui	lernauenal and ni	wenal po	vernment reg	WAVONE SA
) DARENCE DEVENOUS	2110 1220-001											~~~~~~~
If I am a large qui	use of South Carolina. Anuty generator, I carrily the that I have selected the pra- minogeners OR, ki and a sm	I I have a program	n in place 10 redu of weatment ster	pae' at qirbore;	entently	avallab	HE 10	me whi	ch minimizes the	prusent a ne best w	Part wouphs: Ind shows and	weut metuo
processed from	Wiscoment OR HI am & serv	all quantity genera	stor, i have made	a good tash one	Af #8 mount	INTR MA						
mat is available	e me and that I can afford.					_					WOULD	Day 164
Printed/Typed Nam	H U. Ayens		Signatu	0		\geq	_				1481	25,9,
	cknowledgement of Recei	ot of Materials									Month	Day Ye
Pripred/Typed I		1-11	Signal	Wa	alil	_	Q.	2	2		10.81	215191
- DILU	Acknowledgement of Recei	ot of Materials									Month	Day Ye
Printed/Typed			Signer	UTO .							1.11	لسليف
1 .									11.5	0000	liber e l	البي
19. Discrepancy In	IQUEAUGH SPACE						٠					الىب
									الماه		بيات - ا	
	r or Operator, Certification	of receipt of haza	rdous materials	covered by this	manifest 6	I Igapt	1\$ no	ned in H	lem-19.	-	Hann	Day Y
20. Facility Owner	or Operator, Carencason		Signa	110	U	1	7.			·- *·	Month	X 729

Robert Sin san



South Carolina Department of Health and Environmental Control

Sureau of Solid & mazardous Wasie Mas 2500 Bull Sweet, Columbia, SC 25201 Phone. (803) 734-5200

08-30.90

Emergency & Holidays: (803)253-6488 PLEASE PRINT or TYPE (Form designed for use on ente [12-onch! typewriten Form Approved. OMB No. 2050-0039 Expirex 9-30-9-UNIFORM HAZARDOUS Manifest 1. Generator's U.S. EPA ID No. 2 Page 1 Information in the shaped areas is not required by Federal law, but is by State law. WASTE MANIFEST C A D 9 8 1 4 2 7 1 3 1 10:0:0:0:4 1 Generator's Name and Mailing Address KAISER PERMANENTE MEDICAL CENTER 280 W. MCARTHUR BOULEVARD A. State Manifest Document Number OAKLAND, CA A. Sam Generator's ID 4. Generator's Phone (415) 596-6603 5. Transporter 1 Company Name & U.S. SPA ID Humber C. Sam Transporter's D Jim Chism Trucking 1C1A1D191810151814 18 # 17 D. Transporter's Phone (209) 867-4854 7. Transporter 2 Company Name L US EPA ID NUMBER E. State Transponer's 10 F. Transporar's Phone 9. Designates Facility Name and Site Address 10. U.S. EPA IO Number G. Sam Facility's 10 Thermalkem Inc. 2324 Vernesdale Road H. Facility's Phone Rock Hill, SC 29730 15.C1D101414141412131313 803-324-5310 11. U.S. DOT Description (including Proper Shipping Name, Hazard Class, and ID Number) 12. Containers | 13. Total Quantity | 14, Unit L Waste Number No. Type WL/Val HAZARDOUS MATERIAL SOLID, N.O.S. ORM-E, NA9188 17.17.17.17.1 I D T 1251 T Additional Descriptions for Materials Listed Above K. Handling Codes for Wastes Listed Above L |STT - | 0,0,0,0,6 | - |3 16 11 ,2 =15.T1-1 4|SITI-I 5. Special Handing Instructions and Additional Information EMERGENCY & BILLING CONTACT As of 9-25-90, this will be HAZARDOUS MATERIAL SERVICES classified as DO37 & DO41 P. O. BOX 705 TOTAL SAND ADVANCED TODAY TOTAL DESCRIPTION OF THE SAND NEW PM-223 U.S. Emergenteens COALINGA, CA SAN 9 4 1 4 8 10035 (209) 935-1508 GENERATOR'S CERTIFICATION: I necessy decises that the contents of this consequent and accuratory described above by proper shipping name and are classified. Sached, marked, and labored, and are in all respects in areper the laws of the State of South Gareina. candidan for Vanapad by highway according to applicable international and national government requiations and If am a large duantity generator, I comity that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be econor Producable and that I have selected the progression method of freethank, storage, or disposal suffering available to me which minimizes the prosest and future threat to number had the environment OR, it is an a small quantity generator. I have made a good task effort to minimize my waste generation and select the post waste management method had to available to the and that I can arrors. inted/Typed Name Day Month YEST KENNETH U. AUENS 0.82.5.9.0 Transporter 1 Adangwiedgement of Receipt of Materials Printed/Typed Name 1dernundez 01812151910 I. Transponer 2 Acknowledgement of Receipt of Materials Printed/Typea Name Year Month VEC 19. Discrepancy Indication Space Tablify Owner or Operator, Certification of receipt of hazarcous materials covered by this manifest except as noting in them 19.



South Carolina Department of Health and Environmental Control

Sureau of Soird & mazaroous Waste Mgs 2500 Buil Sizest Columbia, SC 28201 Phone. (803) 734-5200

EASE PRINT or TYPE (Form designed for use on sine 112-prical Independence CMB No. 2050-0039 Expures 9-33.5-

WASTE MANIFEST C.A.D.9 8	1 4 2 7 d	Does	MININA NO. I	Page 1	Information required by F	n the s	maded areas is not			
Generator's Name and Mading Aggress KAISER PERMANENTE MEDICAL CENTER 280 W. MCARTHUR BOULEVARD				A Ste	te Mandell Docum	ent Num	ber			
OAKLAND, CA 4. Generator's Phone (415) 596-6603				8. State Generator's (D						
5. Transporter 1 Company Name	6 US 574 II			C. SE	to Transconurs (O					
Jim Chism Trucking	The state of the s		4 8 8 17		reponer's Phone		867-4854			
7. Transporter 2 Company Name	I ACE 2.U .B	O Number			te Transponer's 10					
9. Designated Facility Name and Site Address	10. U.S. ZPA				w Facility's 10					
ThermalKEM Inc. 2324 Vemesdale Road			72	N 6-	Zity's Phone					
Rock Hill, SC 29730	SICIDIO	14141414	12131313		803-324-5	310	•			
11. U.S. DOT Description (including Proper Shipping Name, Hazar					13. Total Quantity	14, Und W/Vor	L Wassa Number			
HAZARDOUS MATERIAL SOLID, N.O.S.										
ORM-E, NA9188			1	D,T	1 25	T	171717171			
HAZARdous MATERIAL Solid	N.O.5.									
ORM-E NA 9188			110	DM	3	T	1717171			
c.				1						
			, ,				الليليا			
C.										
			111	1,	1111					
Andreams Descriptions for Materials Listed Above	: •	, •.	. •	K, Har	valing Codes for W	asies Lis	Apove Prody Deta			
LISTT-[0,0,0,0,6]-[3,6,1,2]	<u></u>				~1 G)				
	17-	<u></u>	<u> </u>		TO 9					
	RGENCY & B ARDOUS MAT		NTACT	1-0-100	saring byrigen for this . 37 minutes for general	PR. 14 PM	under the Walkagerours, and 10			
	O. BOX 705		***	Pag Mortin	ering sheerwilledrik, gadhe L. Santa aannorma regi	happed that	telestes. This includes time of na compresses and reviewing our some assertant. Including			
	LINGA, CA 9) 935-150	8 93210	£10036	Brands, in	P4-23 U.S. Emryany	PERMIT	B Ghost, sharmusan Paucy Sidh Agandy, råt 44 St, 5 W. I Manhasan and Angusan Manhasan 3 C, 20103.			
16. GENERATOR'S GERTIFICATION: I hereby occurs that the come parties, market, and labourd, and are in all respects in proper cond the laws of the State of South Carpinia. If am a large quantity generator, I carrily that I have a program in all	wou lot any solvow	y mgnway accor	ding to appeca	Pre Iuletu	nosen bne lenever	PI 804 0 11	tment regulations and			
practicable and that I have selected the practicable method of trea health and the environment QR, it i am a small quantity generator. I that is available to me and that I can afford.	IMWAL, MOTAGE, OF E	liabobal currently		-	minimizes the pres	ent and I	uture threat to numer			
Printed Typed Name KENNETH U. AYENS	Signature	7 (Monin Day Year			
77 Transporter 1 Acknowledgement of Receipt of Materials	1) 	\bigcirc				0.02317			
Proplem Typed Name Chy 3 Kypor	Signature	00	how	Li			MONTH DAY YEAR			
15. Transporter 2 Acknowledgement of Receipt of Materials										
Printed/Typed Name	Signature						Monus Özy Yezr			
19. Discrepancy Indication Space			***************************************		4	ı İlbs.	5 1 1 1 1 1 1 1 1 1			
							d [] , , , lbs.			
23. Facility Owner or Operator, Cerefication of receipt of hazardous n	rationals covered b	v this manifest as	cept as notes	in Hem :	Э.					
Total State of South	· Signatur	01	7)			KO KES GROW			



South Carolina Department of Health and Environmental Control

Sureau of Sond & macaroous Waste Mos 2500 Buil Szeet Calumbia, SC 29201 Phone. (803) 734-5200

Emergency & Holidays: (803)253-6488

LIAUE COALLIST COOLING WITTE	I our designed for use on sine (12-onen) in			M SIMO TOACOLOGY IL	10. 2050	-0039 Extines 9	1-33-5
WASTE MANIFEST C.A.D	10'S U.S. EPA 10 No. 000cume 19 ,8 ,1 ,4 ,2 ,7 ,1 ,3 ,1 ,0,0,0	IN NA IO	Page 1	I mand medial V	n the s ideral la	maded areas w. but a by Stat	is not
1. Generator's Name and Musting Address KAISER PERMANENTE MEDICAL CENTER 280 W. MCARTHUR BOULEVARD			A Sta	te Manifest Docum	ani Nym	ber	
OAKLAND, CA 4. Generator's Phone (415) 596-6603			A. Sta	Generator's ID			
1. Transporter 1 Company Name	6. U.S. SPA IO Number		C S	Transponer's ED	to California and Cal		
Jim Chism Trucking	C, A, D, 9, 8, 0, 5, 8, 4	8 17	D. To	resporter's Phone	(209)	867-485	4
7. Transporter 2 Company Name	& U.S. EPA ID Number		The second second	te Transconur's 10			
	1111111	1 16					
9. Designated Facility Name and Site Address ThermalKEM Inc.	19. U.S. EPA IQ Number		C. 524	m Facility's IQ		•	
2324 Vernesdale Road			H. Fac	ally's Phone			
Rock Hill, SC 29730	151C1D101414141412	131313		803-324-5	310	•	
11. U.S. DOT Description (Including Proper Shipping Name.	Hazard Class, and ID Number)			13. Total Quantity		L Waste Num	iber
		No.	Туре		Wh/Val		
HAZARDOUS MATERIAL SOLID, N.O.S.							J
ORM-E, NA9188		١,	D		т	17,7,7,	
		1 1 1 1	11,1 %	1125	1	[/1///	<u> </u>
2.							
				1.1.1.1			
د	•						
			,	1.1.1.1			
с.							
		١.,	,			السلساء	
J. Additional Descriptions for Materials Listed Above	•		K Har	nating Codes for W	estes Lis	mad Above	-
						,	
- [S,T]-[0,0,0,0,6]-[3,6,1,2]	c[SIT]-L.,,,-L.				. ~		8
\$ <u>[S.T]</u>	45.71-11-11-	<u></u> .		· ye	14.		
nousmount IsnoulbbA bas andcauted priority Internation	EMERGENCY & BILLING CONT	ACT		sporting byrden for this c		J ANTENALOR & MARIE	haled It.
As of 9-25-90, this will be	HAZARDOUS MATERIAL SERVI	CES		, 37 Manusing led generals led transform starage an			and 10
classified as DO37 & DO41	P. O. BOX 705		Page 186/50	errig erdirischeten, gestier L. Serig eightetente rege		ed Co-character area to Surface openhate, or	
SAN 9 4 1 4 6	COALINGA, CA 93210 (209) 935-1508	0032	Branch.	one for realizing the PM-223 U.S. Emments per O.C. 20446 and to t	Durbon, 10 May Princips No Office at	From Agency, and M. S.	L Sw.
		1			d Bumpet	Water-1984 3 & 22	
 GENERATOR'S CERTIFICATION: I hereby declare that the fashed, marked, and labored, and are in all resource in prope 	contains of this consignment are thiny and acc I conclude for tanager by regnesy according	uistary design	snbed a 4q wilger	bove by preser ship revenue and nauchi	n beadu	IMONI (OGUILION IMO AND ATO CIALI	DAG SI
the sews of the State of South Carbina. If I am a large quantity gamerator, I certify that I have a program	n in these to reduce the volume and toxicity of	waste cale	man ta		otorm.o.		
3/6Clicable and that I have towarded the practicable method in nation and the environment DR, if I am a small guaranty gener.	N l'esiment siorage, or disposal currently ave	ביף פו פושביים	ישפיילים	minimizat the presi	1 304 106	uture threat to h	Uman
that is available to me and that I can short.	1): 17	7	TIV	av alia sa sez 100 00	91 -4319	WAVESEWBY! W	#IV04
Frinted/Typed Name	Signature/	1		it-	1	Month Day	Year
KENNETH U. HYETIS	1/2/14/1/		111/			0.8,2.5	
:7. Transporter 1 Acknowledgement of Receipt of Materials	V. / 11 1 1 1 1		11/7	/!!.			
Printed/Typed Name	Signature , /	18/15	11	1//	1	Month Day	Year
Gene Wells	vene W	ulla				18125	90
13. Transporter 2 Acknowledgement of Receipt of Materials		1.7	11				
Printed/Typed Name	Signature	no mar an	\mathcal{I}		1	Honth Day	Year
19. Discrepancy Indicason Space							<u> </u>
				2	_	٠ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ	154
				1111	jbs.	11,,,,	line.
W the second of Contract Contract							_
20. From Owner or Operator, Sertification of receipt of hazard	DUS MATORIAL COVERED DV THE MANIEST EXCEN	1 \$5 noted in	1 flem :	9.			
Robert L. Simpso	N Signature Rolls 2	a S	سي	-BON	. '	98-39-	-90
The state of the s	The state of the s					20 - 1 0 -	



South Carolina Department of Health

Bureau of Solic & mazaroous Waste Mg: 2600 Bull Street, Columbia, SC 29201

and Envii	ronmental Contro	1		Phone. (803) ? Emergency & H		0 (803)253-6488
PLEUS PRIOT OF TYPE F	orm designed for use on sine [12-prich] type	ewrner)		ADDIDVED DANS N	o. 2050-	:0039 Espires 9-30-9
	SUS. EPAID No. DOCUMENT 9: 8: 1:4:2:7:1:3:1:0:0:0:0:	No.	Page 1			w. but is by State law
3. Generator's Name and Mailing Address			A SWI	e Manifest Docume	int Numi	ber
KAISER PERMANENTE MEDICAL CENTER 280 W. MCARTHUR BOULEVARD			8 State	Generator's 10		
OAKLAND, CA 4. Generator's Phone (415) 596-6603						
5 Transporter 1 Company Name	6. U.S. EPA ID Number 1 Q A D Q 6 3 5 4 7	0.0.6		Transporter's D	(800	
STAMCO, INC. 7. Transporter 2 Company Name	A. U.S. EPA ID Number	21 21 0	E Star	a Transporter's ID	(000	
7. Transporter 2 Company rearite			7	rsporter's Phone		
9. Designated Facility Name and Site Address	10. U.S. EPA IO Number		C. Sta	w Facility's IO		•
ThermalKEM Inc. 2324 Vernesdale Road		16.78 16.78	H. FM	ality's Phone		
Rock Hill, SC 29730	SCD101414141412	31313		803-324-5		
11. U.S. DOT Description (including Proper Shipping Name, H	azard Class, and ID Humber)	12 Con No.	Type	13. Total Quantity	14. Una WAVel	L Wassa Humber
L WARREN WARRANT COLLD NO. C.						لسلسلسا
HAZARDOUS MATERIAL SOLID, N.O.S. ORM-E, NA9188		1, 1	ו ב	0,0,0,1,7	T	171717171
b.						
		١,,	١,	1,1,1,		لللا
c.						
		١.,		1		سب
c.						تسنيا
		١.,	١.	1,,,,		
J. Additional Descriptions for Materials Listed Above			K, Ha	ndling Codes for W	/astes Li	stad Above
	and the second second	,				
	6[S,T]-[للنا			•	1,
» SIT-LII-LII (SA)	4817	<u> </u>	1			
15. Special Handing Instructions and Additional Information As of 9-25-90 this will be	EMERGENCY & BILLING CON HAZARDOUS MATERIAL SERV		a-erap	g \$7 minutes for general	tors, 15 m nd drapps	gfutionmation is serviced? Autog for Watsborners, and 7 of Indiangs, This shirulds for
classified as DO37 & DO4!	P. O. BOX 705		Spi stre	eurog ingerychens, ga Pid	urang dala.	and companing she famours a burden admirro, mitridit to Charl, miarmaten Pari
	COALINGA, CA 93210	1004	To WARRE	PM-223 U.S EAVFORM	ensifica	oction Agency, 401 M SL, & # of Miarmation and Angustic
SAN 9 4 1 5 4	(209) 935-1508		Alteri	Other or branchestering	M Broke	(Washington D.C. 271123
15. GENERATOR'S GERTIFICATION: I hereby declare that the packed, marked, and labeled, and are in all respects in proper the laws at the State of South Careline.	COUDINGUISE ASUPPOUR BY INBUMEA SCOOLS	d to appear		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
the tawa of the State of South Carelina. If I am a large quantity generator, it certify that I have a program practicable and that I have aniocided the productable method o neath and the environment OR. If I am a small quantity genera that is available to me and that I can affect	n in place to reduce the volume and loxicity to if transment, slovelyt, or disponal currently a slor, I have made a good lash effect to minimit	railabie 16 f railabie 16 f	heraled i he which general	io the degree I have h minimizes the pre lien and select the b	eni and teni and tesi was	is wavedsmay; walvo I iniPis ipiati io pnwa usa io pe aconomicali
Printed/Typed Name XENDETH U. AYENS	Signature	-				Month Day Yes
17. Transporter 1 Acknowledgement of Receipt of Materials		2				
Printed/Typed Name	Signature					Month Day Yes
13. Transponer 2 Acknowledgement of Receipt of Materials			×			
Printed/Typed Name WICLIAM UD ALC Shi	Signature . (sia.	SI	/		Month Day Yes
19. Discrepancy Indication Space				المالية المالية	Ibs	«لىسىا»
				Constitution of the Consti		«لىيىيا»
The Company Conference of tracing all house		901 95 0014	d in Hen	19		



South Carolina Department of Health and Environmental Control

Bureau of Solid & mazaroous Waste Mgt 2500 Bull Street, Columbia, SC 29201 Phone (803) 734-5200

Emergency & Holidays: (803)253-6488

	PLEASE PRINT or TYP	E (Form designe	d for use on eite (12-pach typ	ewriteri	Form	Approved. OMS I	do. 2050	-0039 Expires 9-30-9"
UNIFORM HA WASTE MA	ZARDOUS 1	Generator's U.S. EPA I	D No.	Decumen	1 No. 2	Page 1 of j	Information (n the s	shaded areas is no: w. but is by State law
3. Generator's Name and Mai KAISER PERMANI 280 W. MCARTHI	ling Address ENTE MEDICAL C JR BOULEVARD	ENTER					a Manifest Docum	ent Num	ber
OAKLAND, CA 4. Generator's Phone (415) 596-6603					B. Sam	e Generator's ID		
5. Transporter 1 Company Na STAMCO, INC.	me		I.S. EPA ID Numbe	The second second second	0.0.6	The residence of the last of t	nazorier's Phone	(900	759-4211
7. Transporter 2 Company Na	Me	8. L	I.S. EPA ID Numbe	M.		E Stat	di s'nenoqenen's e	(800	7 733-4211
	• •				11.	F. Trau	nsporter's Phone		
9. Designated Facility Name a ThermalKEM			U.S. EPA ID Numb				te Facility's 10		
2324 Vernesda Rock Hill, SC		ıS	C1D101414	. 4 14 12 1	3 (3 (3		803-324-5	310	
11. U.S. DOT Description (in	cluding Proper Shipping				12 Can		13. Total Quantity	parent bathway	1. Waste Number
HAZARDOUS MATE	ERIAL SOLID N	0.5			1144	1,7,000			
ORM-E, NA9188						D,T	12.5	т	<u>ילו לו לו לו</u>
5.									سبب.
Company									اللللا
)				11	Ш	1111		
									اسنت
J. Additional Descriptions for	Materials Listed Above	· · · · · · · · · · · · · · · · · · ·				K Han	ding Codes for W	20100 1 5	
≥ [\$1Ť]~[0,0,0,0,			- , , , , , ,				ioniy Coose ioi 11		- Sovie
b. [S ₁ T]-[, , , ,		CISITI-		سا-ل			. 4	19.	
15. Special Handing Instruction			Y & BILLIN	IG CONTA	ACT	Pume to		-	Mantenan a palmated ic
As of 9-25-90 classified as	this will be	HAZARDOU	S MATERIAL			powers.	37 Miñules let generali let tradiment planege an	ori. 15 min d Gradesi	utop for transponers, one self facilities. This includes time nd dampiesing and rovine using
	0037 & 1041	P. O. BO COALINGA		210		, the tents	Sond community regu	raing the	Burden assuming, including
SAN 9 4 1 5 3		(209) 93	5-1508		0050	Albert C	ton, D.C. 20460, and to 1 Mice of Management of	ne Ottor o ne Buoges,	o Chest, intermeson Porcy Righ Agendy, 401 M SL, 5 W. I Miarmeton and Aeguisten Wallington, D C, 20103
*5. GENERATOR'S CERTIFIC. \$800, marked, and labele the laws of the State of Soc	rd. and are in all respects rts Carolina,	in proper condition for t	ensentey highwans	wily and acc by according	ufalely 666 to applicat	Cribed al	bove by proper ship should and nation	ri göveri Ding ne	ime and are classified. himoni regulations and
H I am a large quantity good predicable and that I have health and the phouenment that is evaluable to me and	selected the pracutable t OR, ill am a small quant	methos pi tresiment sti	HACOR, OF SINDAM	CUHANTIV AVA	ilable to the	which i	Made and the forms	BA4 (A	LILLIA START IN BURNA
Printed/Types Name XCUNCTH L	1. Ayous	Signal	WI Z	<	_				Month Day Year
Prince Types Name	pement of Receipt of Mate		7		7				
Jon X	heor	Signat	11111	J.S.	1				Month Day Year
Printed/Typed Name	ement of Receipt of Mate	rials	ura /						Month Day Year
'S Districting indication St	ace.						نبيباه	שלו	¢ Lundies.
!							سساه		20111110
72 Fability Center on Operation	or, Cornécision of recept			nilest axcep	l as noted i	n item 1	9.		
Project Specialine	0.0 4 00	Signal	WHI .						HARD Day You



South Carolina Department of Health and Environmental Control 5

Bureau of Solic & Hazaroous Waste Mgt 2600 Bull Street, Columbia, SC 29201 Phone. (803) 734-5200

	allo	Litanolimentar com	•		Emergency & H	olidays:	(803)253-6488
	PLEASE PRINT or	TYPE (Form designed for use on eline [12-pinch] t	ypewritar)	Form	Approved, OMB N	p. 2050-	-0039 Expires 9-30-5
	UNIFORM HAZARDOUS WASTE MANIFEST		19	Page 1			haded areas is no w, but is by State law
1	J. Generator's Name and Mailing Address KAISER PERMANENTE MEDICAI 280 W. MCARTHUR BOULEVARI	LCENTER			Manifest Docume	int Num	ber
	OAKIAND, CA 4. Generator's Phone (415) 596-660			:-			
	5. Transponer 1 Company Name STAMCO, INC.	6. U.S. EPA ID Number	7, 9, 9, 6		s Transporter's ID	(800	759-4211
	7. Transporter 2 Company Name	a. U.S. EPA ID Number		E Stat	a Transponer's ID nsporter's Phone		
	9. Designated Facility Name and Site Address	10. U.S. EPA ID Number			ne Facility's IO		,
	ThermalkEM Inc.			H Ear	ality's Phone		
	2324 Vernesdale Road Rock Hill, SC 29730	S1C1D10141414141			803-324-5		
1	11. U.S. DOT Description (including Proper Ship	ping Name, Hazard Class, and ID Number)		Type	13. Total Quantity	14. Und Wilvel	L Waste Number
1	HAZARDOUS MATERIAL SOLID	, N.O.S.					سللا
B 4	ORM-E, NA9188		<u> </u>	D _i T	1 1 1215	T	7,7,7,7
1 7- 00 100	a.						سبب
- 2				1			
1	6-						
1	£			1			uin
		•	1,,	١,	1		سسا،
٠	J. Additional Descriptions for Materials Listed Abo	The second secon		K. Ha	ndling Codes for W	asles Li	isted Above
	L [SIT]-[0,0,0,0,6]-[3,6,1,	سا-لىسىا-ا <u>SıT</u>	لب				
	الايا-السبا-السبا	ا-لىسىا-لتىقا≉ ئىشل	<u> </u>	· .			
	15. Special Mandre Structions and Additional In As of 9-25-56 this will	be HAZARDOUS MATERIAL SER	NTACT	S S S S S S S S S S S S S S S S S S S	Las Macument startage &	1071, 15 PM AG BADDM	nuce is various and and includes to
	classified as DO37 & DO4	1 D A DAY 305 5	#10049		m. Send commonts req	arong Po	ang sangupang and terrem- s burgan aplaheta, includ- to Chiel, jatermelaja Par- palan Agency, 401 M St. 5:
	SAN 9 4 1 5 2	(209) 935-1508	10049	WASH	March D.C. 20440, AA4 to	The Office	erintermation and Regulati L Westington, D.G. 20103
	packed, marked, and labeled, and are in all res	eclare that the contents of this coheignment are fully and pacts in proper condition for transport by highway accord	oud to same	Die Mile	Matiena Brog Habb	go	
	at am a large quantity generator, I certify that I	nave a program in place to reduce the volume and taxic: cable method of treatment, storage, or disposal currently aventity generator, I have made a good lath effort to mini					
	PRODUCTYPES NAME CENNETH U. ALIENS	Signature	<u>_</u>				10,812619
	12 Transporter 1 Adaptiveledgement of Receipt of		1				Month Day Ye
	James Hutchis	on James de	the	2			10,8,2,6,9
	15. Transponer 2 Acuna wedgement of Receipt of						Month Day Ye
	Printed/Typed Name	Signature					1 1 1 1 1
	19. Discrepancy Indication Space				بيناه	lbs.	التتتاء
					سبياه	lbs	لسيساه -
	20. Faculty Owner or Operator: Certification of re	ceipt of hazardous materials covered by this manifest e	xcept as note:	in Hem	19.		(mc)
	Process Typed Name	Signature 1 Bo	1:/:	2.:			0/8 30 C
	MIKE MEABE	3	1500	LL)	Mariana Principal	A HILLSON, MICH.	70 00

HAZARDOUS MATERIAL SER TEL No.1-2	000-075-07	21	Daa	Л	00 17.71	kl =	00E D 06
			Dec	100	90 17:31		.005 P.06
and Environm	ental Co	ontrol			Phone. (803) 734 Emergency & Hol	1-5200	
					Emergency & Mot	BOLD IN	038 Expires 8-33-8.
Form design	ed for use on sine (1	2-pitch Moew		The state of the last of the l			
				pa 1	Information in	the sni	ided areas is not but is by State law.
WASTE MANIFEST C, A, D, 9, 8, 1,4	12,7,1,3,1	0,0,0,0	,7 1 A	State I	Janifest Documen	-	
enerator's Name and Mailing Address KAISER PERMANENTE MEDICAL CENTER			-				
ACARTHUR BOULEVARD			1=	State	Generator's 10		
OAKLAND, CA 5 940596-6603					Transporter's ID		
	G A D Q G	M 2 - 5 / 7.	0. 0. 6	Topo	poder's Phone	(800)	759-4211
STAMCO, INC.	<u>GAD99</u>	3-3-41-11	21 21 010	Crate	Transponer's ID		•
A	. U.S. EPA ID Numb				porter's Phone		
	11111				Facility's 10		
Designated Facility Name and Site Address	Q U.S. EPA ID Num	ber					
ThermalKEM Inc.	•		h	H FACE	ity's Phone		
2324 Vernesdale Road	S1C1D101414	4.4.4.2.			803-324-5	310	
Rock Hill, SC 29730	8101010141	1-1-1-1	12 Conta	iners '	3. Total Quantity	14. Unit	L Waste Number
U.S. DOT Description (including Proper Shipping Name, Hazard Cla	ISS. and ID Number	7 · .		Type		MVAN	
2 0 % 97 700 71 700	34					_	
HAZARDOUS MATERIAL SOLID, N.O.S.	<u></u>		, ,1	D, T	1 1 126	T	17,7,7,7
ORM-E, NA9188							
			1 , , 1	,	1111		
						1	للللا
1		•				1	ابينيا
			111			-	
						1	انسنا
						1	1: 1
			111	11			
	• •			K Ha	nating Codes for \	Wastes t	Jistad Above
Additional Descriptions for Manarists Listed Above.	, , , ,	1		1			
15 7 10 0 0 0 0 61-1316 1,21 ISI		1-1-	لبير		424		\
		. 1-1	1	1.	701		
2 S(T)- 4 S(T				4			on all intermetten in systemated 15
:5. Special Handing Instructions and Additional Information HAZA	GENCY & BIL	LING COM	TOPS	ومعوسوا	pe. 37 minutes ter gener	-	and to delease. Then excluded home
Ae of 9-25-90 this will be	RDOUS MATER	IAL SERV	LCES	WITE	rianti kilitrichaus' by:	uthout my	Shekitan amana aka sa
l manified me DO37 & DO41	. BOX 705	93210		6-J094	philana for today (CP)	-	THE STATE OF THE S
] COVP	INGA, CA		038	ARAM	Office of Management	to the Bud	se of Intermeters and Requirery pet, Washington, D.C. 20102.
CAN 7 7 1 2 2) 935-1508			<u> </u>			
The laws of the State of South Carolina. HI am a large quantity generator, I certify that I have a program in plat practicable and that I have selected the practicable method of treats health and the environment OR. If I am a small quantity generator, I ha health and the environment OR. If I am a small quantity generator, I ha	nent storage, or disp	ettert to minist	MES MÀ MES!	e gener	ation and select the	post w	Tale wave bewell walled
nesth and the environment OR. If I am a small quantity generator, I me that is available to me and that I can attend.							Month Day Year
Brist of Salarian to was a	Signature	5 1 0					,0,8,2,6,9,0
Printed Typed Name KENNETH U. Ayens	1 _ X	<u> </u>	X	••			1-1-1-1-1-1
17. Transporter 1 Acknowledgement of Receipt of Materials							Month Day Year
17. If and Alexander of the second of the se	Signature _ A A	41					61812161916

Signature

20. Facility Owner or Operator, Certification of receipt of hazardous materials covered by this manifest except Pagoted in Hem 19.

Month Day

Month Day

· LSDOOD & · LILLIA

blining of the

VIRAIL GILSON

Printed/Typed Name

19. Discrepancy Indication Space

15. Transponer 2 Acknowledgement of Receipt of Materials

PLEASE PRINT OF TYPE



South Carolina Department of Health and Environmental Control

(Form designed for use on elite [12-pitch] typewriter)

Bureau of Solid & Hazardous Waste Mg: 2600 Bull Street, Columbia, SC 29201

Phone. (803) 734-5200

Emergency & Holidays: (803)253-6488 Form Approved, OMB No. 2050-0038 Expires 9-30-91

T	UNIFORM HAZARDOUS 1. Generator's U.S. EPA ID No. WASTE MANIFEST C, A, D, 9, 8, 1, 4, 2, 7	Manifest Document No.	21	Page 1			shaded areas is not w, but is by State law		
1	3. Generator's Name and Mailing Address KAISER PERMANENTE MEDICAL CENTER	rator's Name and Mailing Address				A. State Manifest Document Number			
	280 W. McARTHUR BOULEVARD OAKLAND, CA 4. Generator's Phone (415) 596-6603			B. State Generator's ID					
- 1		A ID Number	一	C. State Trereporter's ID					
Ì	ansporter 2 Company Name 8. U.S. EPA ID Number			E. State Transporter's ID					
Į				F. Transporter's Phone					
	9. Designated Facility Name and Site Address 10. U.S. El ThermalKEM Inc.	#####################################			G. State Facility's ID				
1	2324 Vernesdale Road			H. Facility's Phone 803-324-5310					
O O O O O O O O O O O O O O O O O O O						_			
	11. U.S. DOT Description (including Proper Shipping Name, Hazard Class, and A	D Humberj 12 (Type	13. Total Quantit	W/Val	L Waste Number		
	L.						1.1.1.1		
	HAZARDOUS MATERIAL SOLID, N.O.S.		,	13 1		Į _τ	7, 7, 7, 7,		
!	ORM-E, NA9188		,1	17 1	1 1215	+	<u> </u>		
1	5 .	1					السلسا ا		
		1	_	,					
1	с.								
ı			,		1-1-1				
	d.								
	7	1							
				J 11.	<u> </u>	Manta I			
•	J. Additional Descriptions for Materials Listed Above K. Hantiling Codes for Wastes Listed Above								
	= SiT -								
	· [SIT]-[
	15. Special Handing Instructions and Additional Information EMERGENCY & BILLING CONTACT Puese recomme bursen for this conscious of the Part of the Par						muses for transporters, and 10		
	As of 9-25-90 this will be HAZARDOUS MATERIAL SERVICES classified as DO37 & DO41 P. O. BOX 705				minutes for treatment starage and disables faithing. This includes lime for reviewing particularity, garanting acts, and combining and famouring				
	classified as DO37 & DO41 P. O. BOX 705 COALINGA, CA 93210				nu term, Sond assumers reported the burbet estimate, including suggestions for resuccing this burbet, to Chief, Mormation Pency Branch Pul-223, U.S. Environmental Prosection Approxy, 401 M.E.S.W.				
	SAN 9 4 1 5 0 (209) 935-1508 # 10033 Washington D.C. 2010b, and to tim Office of Management and Budget Washington, D.C. 20						at Intermeters and Regulaters		
	18. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consense to this passording and accurately described above by proper shipping name and are classified passord, marked, and labeled, and are in all respects in proper condition for transport by highway assording to applicable international and national government requisions and the laws of the State of South Carolina. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determines to be economically practicable and that I have selected the processor method of training the processor of the content of the content of the degree I have determined to be economically practicable and that I have selected the processor of the content of								
	Printed/Typed Name Signature		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				Month Day Year		
	KENDETH U. Ayens	TLLG					10,812,619,0		
17. Transporter 1 Acknowledgement of Receipt of Materials									
Printed Typed Name Signature							Month Day Year		
	HHICON FISMAN 1	km Com					10191401110		
	18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name Signature			-			Month Day Year		
	Printed/Typed Name Signature						11111		
	19. Discrepancy Indication Space								
							41		
					سيساه				
	20. Facility Owner or Operator, Certification of receipt of hazardous materials covered by this manufest-cacept as noted in Item 19.								
Enhand/Typed Name Signamire Month Day Year									
	Amuel DW ham stan	and Win	- L				083090		