

LETTER OF TRANSMITTAL

TO:

Ms. Juliet Shin

Alameda County Health Care Services Agency

80 Swan Way, Room #200 Oakland, California 94611

DATE: PROJECT January 24, 1994 College of Alameda

SCI JOB NUMBER:

469.005

WE ARE SENDING YOU:	
1_copies	
X of our final report	
a draft of our report	for your review and comment
a Service Agreement	please return an executed copy
a proposed scope of services	for geotechnical services
specifications	with our comments
grading/foundation plans	with Chain of Custody documents
soil samples/groundwater samples	for your use
an executed contract	
of samples collected prior to or excavated soil. The enclosed University of the enclosed University of the enclosed to the enc	12/27/93/ you requested figures showing locations overexcavation and documentation of the fate of Inderground Tank Closure and Groundwater 1/31/91, contains the information you have
COPIES TO:	Down not contain this wife? 2/7/94

BY: Marianne Watada

Marianne Watada

Subsurface Consultants, Inc.

UNDERGROUND TANK CLOSURE
AND GROUNDWATER INVESTIGATION
WORK PLAN
COLLEGE OF ALAMEDA
555 ATLANTIC AVENUE
ALAMEDA, CALIFORNIA
SCI 469.005

Prepared for:

Mr. Ronald A. Graciolett Peralta Community College District 501 5th Avenue Oakland, California 94606

By:

Jóhn V. Bosche

Geotechnical Engineer 156 (expires 3/31/92)

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Geotechnical Engineer 741 (expires 12/31/92)

Subsurface Consultants, Inc. 171 - 12th Street, Suite 201 Oakland, California 94607 (415) 268-0461

October 31, 1991





I INTRODUCTION

This report records the results of environmental engineering services performed by Subsurface Consultants, Inc (SCI) during the removal of 5 underground storage tanks at the College of Alameda in Alameda, California. The tanks were removed from the site by Tank Protect Engineering on August 15 and 20, 1991. Buried pipelines associated with the tanks were removed on September 6, 1991.

SCI was retained by the Peralta Community College District to (1) obtain samples as required by the Alameda County Health Care Services Agency (ACHCSA) during tank removal (2) direct the removal of localized contaminated soil associated with releases from the previous tanks, (3) document site activities, and (4) prepare this closure report.

II TANK REMOVALS

The tanks stored gasoline, fuel oil and waste oil products. Tank and pipeline locations are shown on the Site and Tank Plans, Plates 1 through 5. Data regarding tank size, contents, and construction are presented on the following table.

Table 1.
Tank Description

<u>Tank</u>	Capacity (Gallons)	Content	Construction	Diameter (feet)	Length (feet)	Depth to Bottom (feet)
A1	550	gasoline	fiberglass	4	7.5	7
A2	4,000	fuel oil ¹	coated steel	6	17.5	9.5
A3	10,000	fuel oil	coated steel	8	28	10
A4	225	waste oil	coated steel	2.5	6	6.5
A5	325	gasoline	coated steel	4	4	4.5

Fuel oil is commonly known as diesel #2

Prior to tank removal, an underground tank closure plan was prepared by Tank Protect Engineering and submitted to and approved by the ACHCSA. In addition, a tank removal permit was obtained from the City of Alameda Fire Department. An SCI field technician was on-site full-time to observe removal activities and collect the required soil samples for analysis.

There were no visible signs of deterioration of tanks A1, A2, A3 and A5. Two corrosion holes were visible near the top of the waste oil tank, A4. One hole was approximately 3/4 inch in diameter and the other was oblong with dimensions of about 2 by 4.5 inches. The tanks were transported under manifest from the site by Erickson, Inc.

Dispensers for the gasoline tanks, A1 and A5 were situated directly above the respective tanks. As such the pipelines for A1 and A5 were removed. Pipelines associated with tanks A2, A3 and A4 were either abandoned in place or removed. Pipelines were abandoned in-place where they extended beneath sensitive buried

utilities and slab-on-grade floors. Copper pipelines abandoned in place from tanks A2 and A3 were pressure washed and sealed by crimping. Steel pipelines abandoned in place from tank A4 were pressure washed and sealed with plugs. There was no visible deterioration of the pipelines which were removed.

Groundwater was observed in the excavations for tanks A1, A2 and A3. No visible product nor sheen was observed on the water surface in the excavation for tank A1. A water sample was obtained from the tank A1 excavation. During removal of tanks A2 and A3 a small quantity (probably less than 1 gallon) of fuel oil flowed from a disconnected pipeline into the excavation. The visible floating product was removed from the water surface with absorbent pads. Due to the presence of product on the water surface, a water sample was not obtained from the tank A2 and A3 excavation.

III ENVIRONMENTAL SAMPLING AND ANALYTICAL TESTING

SCI obtained 27 soil samples and one water sample from the tank and pipeline excavations, as directed by Cynthia Chapman, hazardous materials specialist with the ACHCSA assigned to oversee site activities. Soil samples were obtained from below tanks A4 and A5. However due to the presence of water in the other excavations, sidewall soil samples were obtained. The sidewall samples were obtained from near the Bay Mud/fill interface and/or just above the water level. Soil samples were also obtained from below pipelines associated with tanks A2, A3 and A4. The

excavation for tank A4 was enlarged following tank removal to remove localized contaminated soil. Confirmation samples were obtained at the final limits of the excavation. Sample locations are shown on Plates 2 through 5.

Samples were also obtained from the soil stockpiles generated during removal of the tanks. The stockpiles generated from excavation of the gasoline and fuel oil tanks, A1, A2, A3 and A5, were sampled at a rate of 1 sample per 20 cubic yards of excavated soil. Four discrete samples were obtained from the soil stockpile generated during excavation of the waste oil tank, A4. The discrete samples were later composited into one sample at the laboratory for analysis. Stockpile sample locations are shown on Plates 6, 7 and 8.

Soil samples were retained in pre-cleaned 2-inch-diameter brass sample liners. Sample liner ends were covered with Teflon sheets and plastic caps, prior to sealing them with duct tape. The water sample collected from the tank Al excavation, was retained in glass and plastic containers, pre-cleaned by the supplier in accordance with EPA protocol. Soil and water samples were refrigerated until delivery to the analytical laboratory.

Soil and water samples were transmitted to Curtis & Tompkins, Ltd. a laboratory certified by the California Department of Health Services to conduct the tests requested. The testing program included analyses for total volatile hydrocarbons (EPA 8015/5030); total extractable hydrocarbons (EPA 8015/3550); benzene, toluene, ethylbenzene and xylene (BTEX EPA 8020/5030); Title 26 metals (EPA

methods 3050, 6010, 7060, 7420, 7471, 7740 and 7841); total oil and grease (SMWW 5520); halogenated volatile organics (EPA 8010); and semivolatile organic compounds (EPA 8270), as appropriate.

The analytical test results for samples obtained from the tank and pipeline excavations are presented in Tables 2, 3, 4 and 5. Test results for the soil stockpile samples are presented in Tables 5 and 6. Copies of the analytical laboratory test reports and Chain-of-Custody documents are attached.

Table 2. Contaminant Concentrations in Soil Gasoline and Fuel Oil Tank Areas A1, A2, A3 and A5

<u>Tank</u>	Contents	Sample	TVH ¹ mg/kg ⁴	TKH ² mg/kg	B ³	T ³ ug/kg	g3 ug/kg	x ³ ug/kg	Total Lead mg/kg
A1	Gasoline	A1-1 @ 2' A1-2 @ 5'	<1.0 <1.0	6 	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<3.0 15
A2	Fuel Oil	A2-1 0 5' A2-2 0 5'		1.7 63	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	
A3	Fuel Oil	A3-1 @ 5' A3-2 @ 5'		2.0 2.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	
A5	Gasoline	A5-1 0 5'	1.1		<5.0	<5.0	<5.0	<5.0	16
Pipeli	ine					M2			
A2	Fuel Oil	A2-6 @ 3.5' A2-7 @ 3.5'		14 11	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	
АЗ	Fuel Oil	A3-8 @ 3.5' A3-9 @ 3.5' A3-10 @ 3.5'8 A3-11 @ 3.5'8 A3-12 @ 3.5' A3-14 @ 7.0'		5.4 9.4 560 1,400 50 2.6 4.6	<5.0 <5.0 50 <5.0 <5.0 <5.0 <5.0	<5.0 <5.0 180 11 <5.0 <5.0 <5.0	<5.0 <5.0 150 17 <5.0 <5.0 <5.0	<5.0 <5.0 560 120 <5.0 <5.0 <5.0	

TVH = total volatile hydrocarbons

Table 3. Contaminant Concentration in Water Tank Al Excavation

<u>Tank</u>	Contents	Sample	TVH ¹ ug/l ³	_	T ² <u>ug/l</u>			Total Lead ug/l
A1	Gasoline	A1-Water	r 800	78	99	10	52	<3.0

¹ TVH = total volatile hydrocarbons

² 3 TEH = total extractable hydrocarbons

TER = total extractable hydrocarbons

BTEX = benzene, toluene, ethylbenzene and total xylenes

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

-- = Test not requested

Soil sample removed by subsequent excavation, see sample A3-13

Soil sample removed by subsequent excavation, see sample A3-14

² BTEX = benzene, toluene, ethylbenzene and total xylenes

ug/l = micrograms per liter

Table 4.
Contaminant Concentrations in Soil
Waste Oil Tank Area A4

Sample	O&G ¹ mg/kg ⁵	TEH ² mg/kg	TVH ³ mg/kg	B ⁴ ug/kg ⁶	T ⁴ ug/kg	E ⁴ ug/kg	X ⁴ ug/kg
A4-1 @ 6.5' ⁷	520	220	28	<10	12	66	74
A4-2 @ 3'	<50	8					
A4-3 @ 5'	<50	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0
A4-4 @ 5'	<50	4.5	<1.0	<5.0	<5.0	<5.0	<5.0
A4-5 @ 5'9	140	8.9	<1.0	<5.0	<5.0	<5.0	<5.0
A4-6 @ 5'	60	3.3	<1.0	<5.0	<5.0	<5.0	<5.0
A4-7 @ 11'	<50	8.6	<1.0	<5.0	<5.0	<5.0	<5.0
A4-8 @ 11'	<50	1.7	<1.0	<5.0	<5.0	<5.0	<5.0
A4-9 @ 4'10	390	29	76	<80	400	370	2,400
A4-10 @ 7'	<50	3.4	<1.0	<5.0	<5.0	<5.0	<5.0
A4-11 @ 5'	50					·	

² TEH = Total extractable hydrocarbons

TVH = Total volatile hydrocarbons

BTEX = Benzene, toluene, ethylbenzene and total xylenes

mg/kg = milligrams per kilogram

⁶ ug/kg = micrograms per kilogram

Soil sample removed by subsequent excavation, see samples A4-7 and A4-8

^{8 -- =} Test not requested

Soil sample removed by subsequent excavation, see sample A4-11

Soil sample removed by subsequent excavation, see sample A4-10

Table 5. Contaminant Concentration in Soil Waste Oil Tank Area A4

	Sample Identification				
	Stockpile				
Analysis/Chemical	M-1 6 6.5'	Composite			
Metals					
Antimony	2	<3.0 mg/kg ¹			
Arsenic		3.4 mg/kg			
Barium		50.5 mg/kg			
Beryllium		0.19 mg/kg			
Cadmium	<0.25 mg/kg	<0.25 mg/kg			
Chromium (total)	26.2 mg/kg	40.7 mg/kg			
Cobalt		9.5 mg/kg			
Copper		31.0 mg/kg			
Lead	5.4 mg/kg	11.4 mg/kg			
Mercury		0.19 mg/kg			
Molybdenum		<0.70 mg/kg			
Nickel	30 mg/kg	39.8 mg/kg			
Selenium		<2.5 mg/kg			
Silver		<0.50 mg/kg			
Thallium		<2.5 mg/kg			
Vanadium		31.4 mg/kg			
Zinc	52.3 mg/kg	95.8 mg/kg			
Volatiles					
1.2 Dichlorobenzene	250 ug/kg ³	ND			
Other EPA 8010 Chemicals	ND ⁴	ND			
Semivolatiles					
Phenanthrene	2900 ug/kg	230 ⁵ ug/kg			
Fluoranthene	4200 ug/kg	240 ² ug/kg			
Pyrene	3100 ug/kg	210 ⁵ ug/kg			
Benzo (a) anthracene	1400 ug/kg	<330 ug/kg			
Chrysene	1800 ug/kg	<330 ug/kg			
Benzo (b) fluoranthene	2500 ug/kg	<330 ug/kg			
Benzo (a) pyrene	1600 ug/kg	<330 ug/kg			
Indeno (1, 2, 3-cd) pyrene	990 ug/kg	<330 ug/kg			
Benzo (g, h, i) perylene	970 ug/kg	<330 ug/kg			
Other EPA 8270 Chemicals	ที่ที่	ND			
RCI ⁶					
Releasable Cyanide		<0.3 mg/kg			
Releasable Sulfide		<1.0 mg/kg			
Ignitability		Does not Ignite			
Hα		8.1			
Corrosivity		<6.35 mm/yr			

mg/kg = milligrams per kilogram
-- = Test not requested
ug/kg = micrograms per kilogram
ND = None detected, chemicals not present at concentrations above detection limits
Detected at concentration below reporting limit
RCI = Reactivity, corrosivity and ignitability

¹ 2 3 4 5 6

Table 6.
Contaminant Concentrations in Soil Stockpiles

Sample	TVH ¹ (mg/kg) ⁵	TEH ² (mg/kg)	0&G ³ (mg/kg)	BTEX ⁴ (ug/kg) ⁶	Total Lead (mg/kg)
A1-3	<1.0	7		<5.0	61
A2-3 A2-4 A2-5		2.8 1.7 21	 	 	
A3-3 A3-4 A3-5 A3-6 A3-7		4.7 1.6 130 2.9 3.2	va	 	
Tank A4 Composite	3.2	11	200	50 ⁸	5.4
A5-2	4.2			<5.0	4.5

¹ TVH = total volatile hydrocarbons

² TEH = total extractable hydrocarbons

O&G = Hydrocarbon oil and grease

BTEX = benzene, toluene, ethylbenzene and total xylenes

mg/kg = milligrams per kilogram

⁶ ug/kg = micrograms per kilogram

^{7 -- =} Test not requested

Detected 6.2 ug/kg ethylbenzene and 44 ug/kg total xylenes

A. Gasoline and Fuel Oil Tank Areas

Low concentrations of petroleum hydrocarbons and total lead were detected in the soil samples obtained from the excavation limits for tanks A1, A2, A3 and A5. The contaminate concentrations left in place (1.7 to 63 mg/kg diesel range) are judged to be sufficiently low so as not to warrant further soil excavation near these tanks. Therefore, the excavations were backfilled with clean imported pea gravel. Standing water present in excavations A1, A2 and A3 was removed prior to backfilling.

In general, low concentrations of petroleum hydrocarbons (2.6 to 50 mg/kg diesel range) were found in the pipeline excavations associated with tanks A2 and A3. The exception was at sample locations A3-10 and A3-11. At these sample locations some fuel oil was spilled on the soil during cutting and flushing of a pipeline. The excavation was deepened in these 2 areas to remove locally contaminated soil. Analytical test results indicate that the contaminated soil was successfully removed and the pipeline excavations were backfilled with clean imported material.

B. Waste Oil Tank Area

Concentrations of gasoline, diesel, oil and grease, BTEX, and various volatile and semivolatile organic compounds were detected in the initial soil sample obtained from below the tank. Subsequently, the excavation was enlarged to remove the contaminated materials. Confirmation samples were taken from the

sidewalls and base of the resulting excavation as well as along the pipeline alignment. The results of the analysis indicate that soils remaining in place contain oil and grease varying in concentration from <50 to 60 mg/kg and diesel range hydrocarbons varying in concentration from <1 to 9 mg/kg.

The resulting excavation was backfilled with imported soil. Approximately 9 feet of pea gravel was placed in the excavation. The surface layer of pea gravel was compacted and covered with at least 11 inches of Class 2 aggregate baserock. The base rock was compacted to at least 95 percent (ASTM D1557). The tank area was then paved with 3 inches of asphaltic concrete.

V SOIL DISPOSAL

A. Gasoline and Fuel Oil Tank Areas

Approximately 250 loose cubic yards of soil was generated during removal of tanks A1, A2, A3 and A5. The stockpiled soils contained total extractable hydrocarbons (1.6 to 130 mg/kg), total volatile hydrocarbons (<1.0 to 4.2 mg/kg) and total lead (4.5 to 61 mg/kg). The test results were transmitted to the BFI Vasco Road Class III Sanitary Landfill in Livermore, California for their review. The material was accepted by the facility and subsequently transported by truck to the landfill for disposal between September 5, and 11, 1991.

B. Waste Oil Tank Area

Approximately 150 cubic yards of soil was generated during removal of tank A4. The stockpiled soil contained oil and grease (200 mg/kg), diesel (11 mg/kg), xylene (44 ug/kg), ethylbenzene (6.2 ug/kg), several heavy metals and polynuclear aromatic hydrocarbons. The test results were transmitted to the BFI Vasco Road Sanitary Landfill for their review. After their acceptance, the material was transported and disposed of at the BFI facility on September 23, 1991.

VI DISCUSSION AND CONCLUSIONS

A. Soil Contamination

Test results indicate that localized releases of petroleum hydrocarbons have occurred near all of the tanks removed from the site. However, soil contamination requiring remediation was not detected in the excavations for tanks Al, A2, A3 and A5. As such no further excavation was performed and these excavations were backfilled with clean imported fill.

Soil contamination requiring remediation was detected within the excavation for the waste oil tank, tank A4 and along the pipeline alignments associated with tank A3. Additional soil was excavated in these areas until confirmation samples were found to contain less than 60 mg/kg of petroleum hydrocarbons. Upon completion, these excavations were also backfilled with clean imported material.

All contaminated soils stockpiled at the site were characterized by laboratory analysis. The soils were accepted by the BFI Vasco Road Class III Sanitary landfill and transported to that facility for disposal.

B. Groundwater Contamination

Groundwater is situated about 6 feet below the ground surface at the site and as such accumulated in tank excavations A1, A2 and A3. A sample of groundwater which accumulated in the tank A1 excavation contained elevated concentrations of total volatile hydrocarbons and BTEX. No free floating product nor sheen was observed in the tank A1 excavation. Fuel oil was spilled onto the water surface in tank excavation A2 and A3 during tank removal activities. Visible fuel oil was absorbed using pads. Water which accumulated was removed prior to backfilling by Alviso Independent Oil. Approximately 2000 gallons of water was transported by Alviso Independent Oil under manifest to their treatment facility.

The Regional Water Quality Control Board guidelines indicate that a groundwater investigation should be conducted whenever groundwater has potentially been impacted. As such an investigation should be conducted at the site. A work plan proposing a scope for the investigation is presented in the next section.

VI GROUNDWATER INVESTIGATION WORK PLAN

Detectible concentrations of petroleum hydrocarbons were found near all tanks removed from the site. Based upon our telephone conversations with Mr. Dennis Byrne with ACHCSA, no groundwater investigation will be required in the tank A5 area, since the contaminate concentrations detected were very low and not indicative of a significant release. However, the ACHCSA is requiring a groundwater investigation near previous tanks A1, A2, A3 and A4.

A. Well Installation

The investigation should consist of installing 3 groundwater wells and performing quarterly monitoring events. The wells should be installed in the presumed downgradient direction of the tanks as indicated on Plate 9. Groundwater protection ordinance permits will be obtained prior to well installation.

The wells will be constructed in boreholes drilled with hollow stem auger equipment. The boreholes will be sampled every 3 feet and at significant lithologic changes. Soil samples will be handled as previously described. Soil cuttings generated during drilling will be stored in 55 gallon drums for later disposal by others.

In general, wells consisting of 2-inch-diameter PVC pipe will be constructed in the boreholes. The lower portion of the wells will consist of machine-slotted well screen having 0.02 inch slots. The screened section will be positioned such that 8 feet extends below the water surface and 2 feet extends above the water surface. The upper portion of the wells will consist of solid pipe. Pipe sections will be connected with flush-threaded joints. The annular space around the screened sections will be filled with a sand filter appropriate for the gradation of the aquifer. A bentonite pellet plug will be placed above the filter pack and the upper portions of the borehole will be sealed with cement/bentonite grout. The wellheads will be secured with locking caps and finished below-grade in traffic-rated utility boxes.

The wells will be developed by pumping and/or bailing until the water is relatively clear. Development water will be placed in drums and left on-site for later disposal by others. Once the wells are allowed to recharge to within 80 percent of their initial volume, groundwater samples will be obtained using a dedicated Teflon sampling device. Water samples will be retained in containers precleaned by the supplier in accordance with EPA protocol, and refrigerated until delivery to the analytical laboratory. The samples will be accompanied by Chain-of-Custody records.

After well installation, SCI will perform a level survey of the tops of the well casings using an assumed elevation datum. We will measure the depth to groundwater in the wells and will evaluate the direction and gradient of groundwater flow in the area. SCI will also check the wells for free-floating product.

B. Analytical Testing

At least one soil sample from each boring will be selected for analysis. One of the soil samples will be from the unsaturated zone situated just above the water surface. A water sample from each well will also be analyzed. The proposed testing program is presented in Table 7.

Table 7. Proposed Testing Program

Well Location	Soil Analysis	Water Analysis
Tank A1	TVH BTEX	O&G TVH TEH Aromatic Volatile Organics
Tanks A2 and A3	TVH BTEX	O&G TVH TEH Aromatic Volatile Organics
Tank A4	O&G TVH TEH Aromatic Volatile Organics	O&G TVH TEH Aromatic Volatile Organics

C. Report

Based on the results of the groundwater investigation, we will develop conclusions and/or recommendations regarding:

- 1. Subsurface conditions,
- 2. Groundwater gradient and flow direction,
- 3. The presence of contaminants analyzed for in the soil and water samples,

- 4. The significance of contaminant levels with respect to state and local regulatory criteria, and
- 5. The scope of future monitoring or recommended remedial actions, if necessary.

At the completion of our study, we will submit a report describing the results of our investigation. The report will include boring logs, analytical test data and Chain-of-Custody documents.

D. Groundwater Monitoring

A groundwater monitoring program will be proposed after the results of the initial sampling event are reviewed. In general, wells will be sampled and analyzed on a quarterly basis for 1 year. During each event, groundwater levels will be measured to reevaluate gradient and flow directions. At a minimum the samples will be analyzed for the constituents detected during previous events. The analytical testing program will be discussed and approved by the ACHCSA.

Prior to sampling, the wells will be purged of at least 3 well volumes and allowed to recharge to at least 80 percent of their initial volume. The samples will be obtained using a Teflon sampling device dedicated to each well. The samples will be retained in containers precleaned by the supplier and refrigerated until delivery to the analytical laboratory. The results of each monitoring event will be summarized in a letter report. The report will include a discussion of field services, analytical test reports and Chain-of-Custody documents.

If test results indicate no detectable contamination for one hydrogeologic cycle (4 consecutive monitoring events) a request to cease monitoring will be filed with the ACHCSA. Once the ACHCSA acknowledges the request, they will petition the RWQCB for case closure. Upon receiving case closure status the wells will be properly abandoned.

VIII REPORTING

Details of Tank closure have been observed and discussed with Ms. Cynthia Chapman and Mr. Dennis Byrne with the ACHCSA. We recommend that this report be provided to ACHCSA at the following address:

Mr. Dennis Byrne Alameda County Health Care Services Agency Hazardous Materials Program 80 Swan Way, Room 200 Oakland, California 94621

List of Attached Plates:

Plate 1 College Site Plan Plates 2 through 5 Tank Site Plans Plates 6 through 8 Stockpile Plans Plates 9 Well Location Plan

Appendix

Α Analytical Test Reports Chain-of Custody Documents

В Hazardous Waste Manifests

Distribution

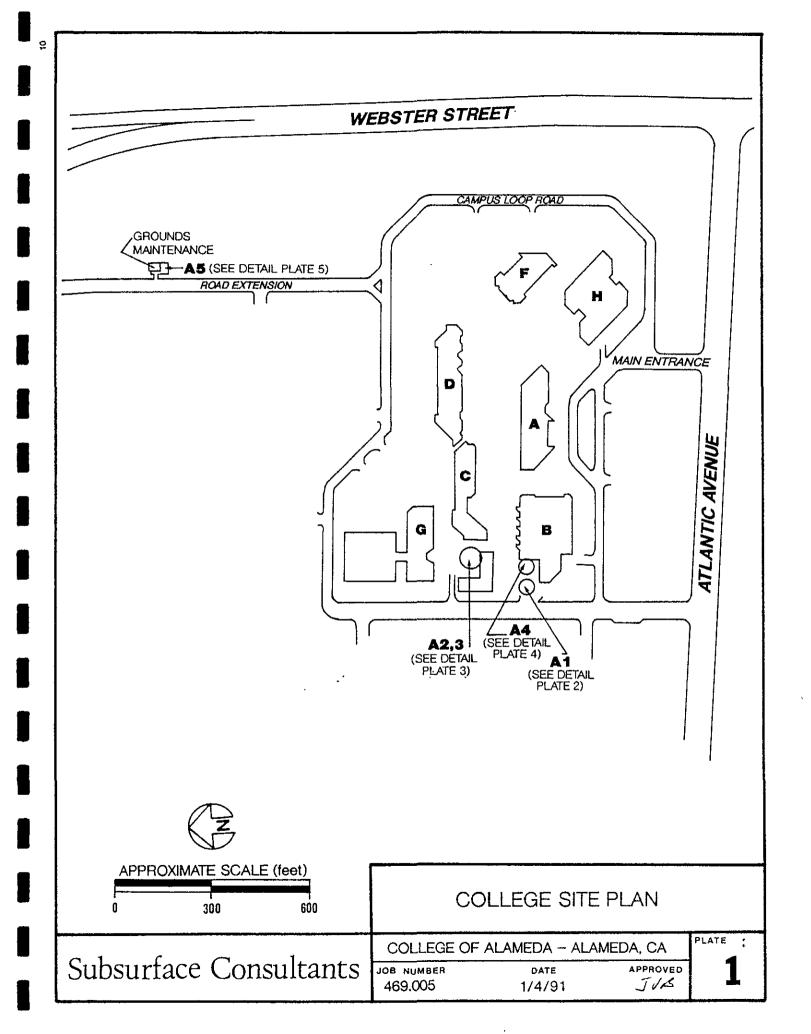
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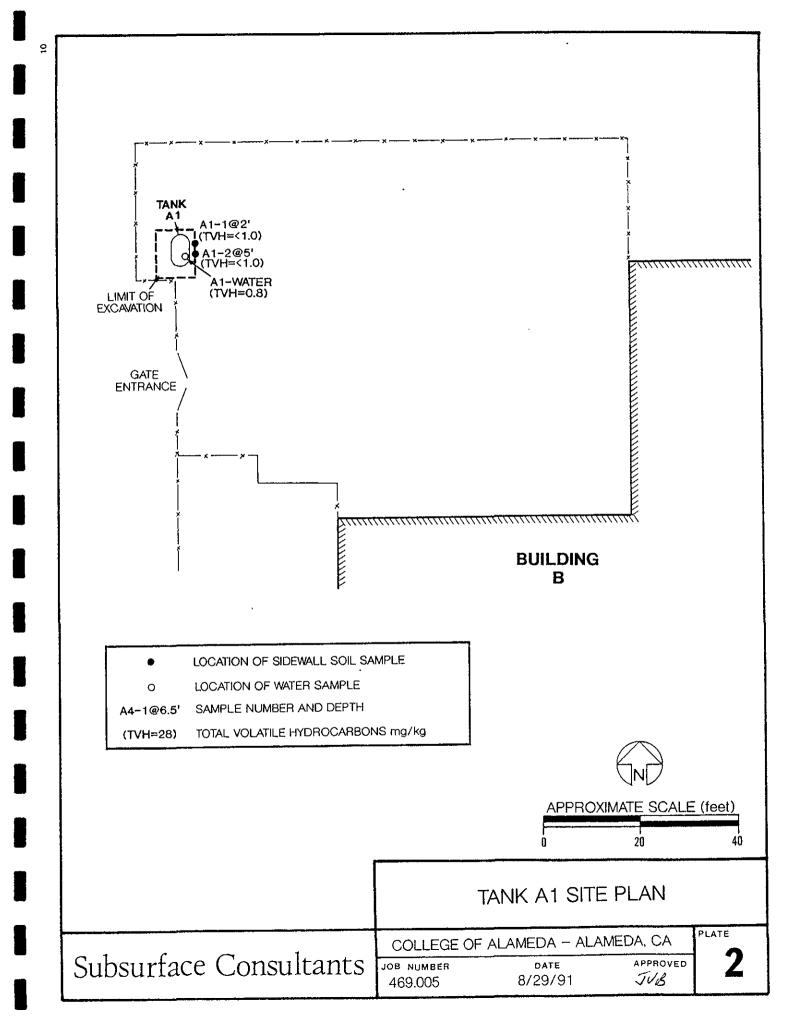
Mr. Ronald A. Graciolett
Peralta Community College District

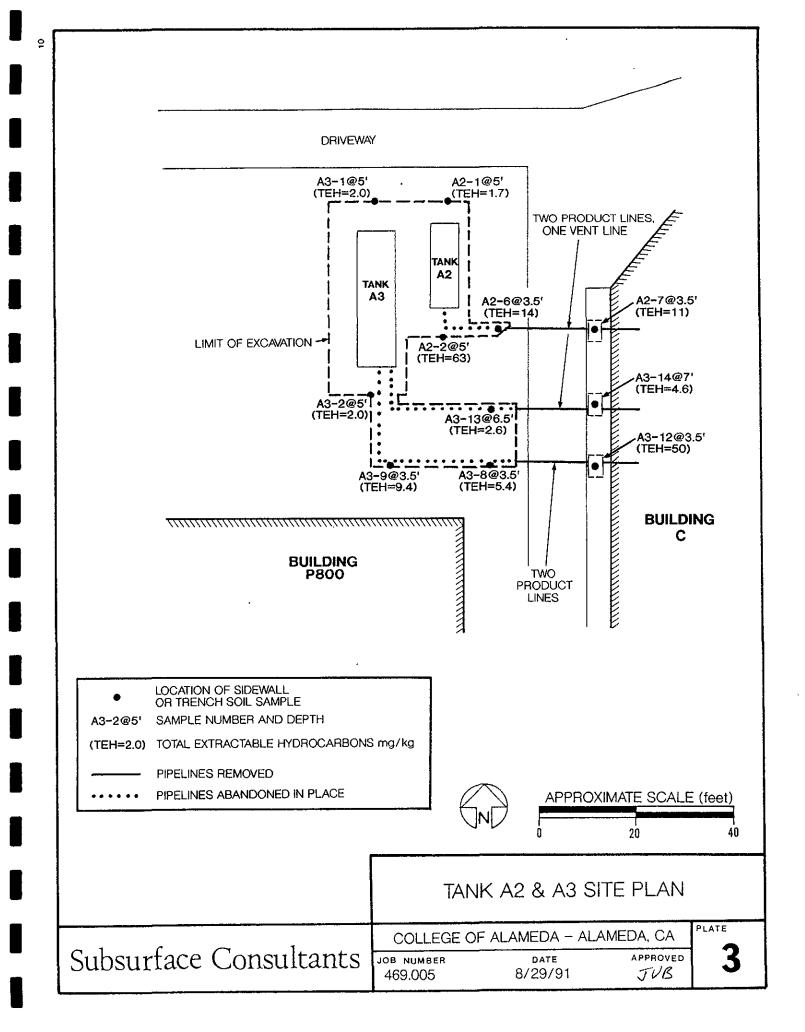
501 5th Avenue

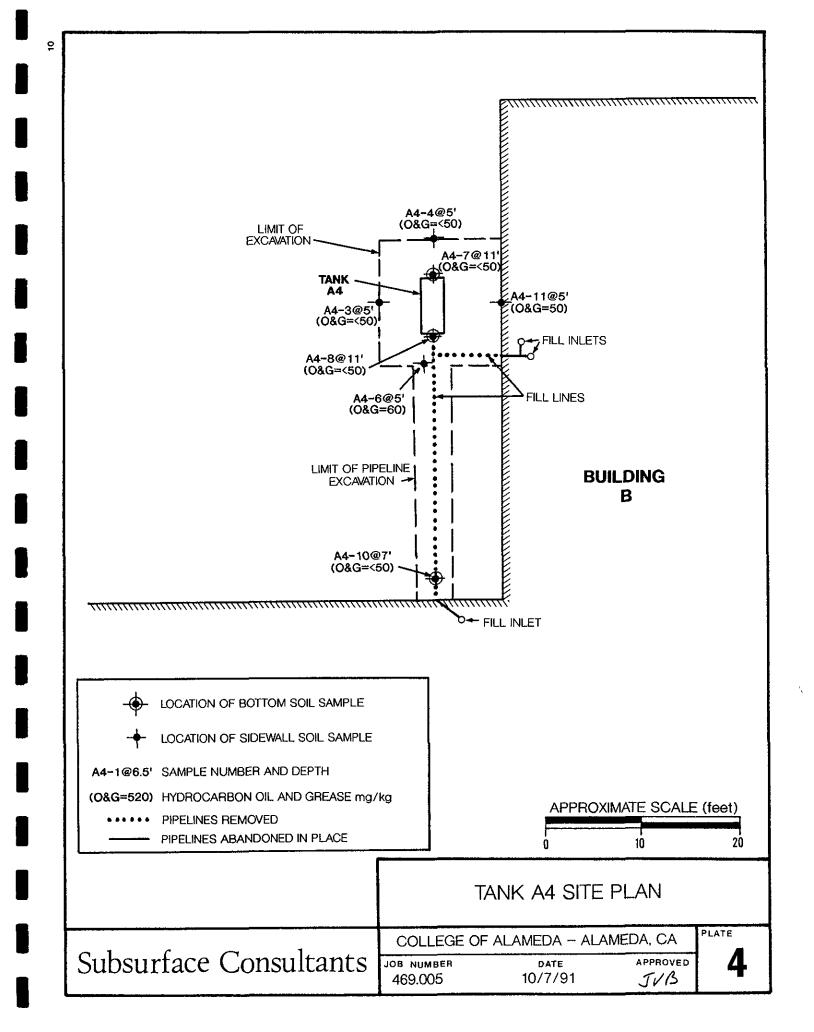
Oakland, California 94606

JVB:JNA:RWR:sld









MAINTENANCE **BUILDING** A5-1@51 -(TVH=1.1)LIMIT OF EXCAVATION PAVED MAINTENANCE YARD

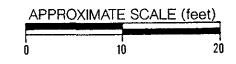
LOCATION OF SOIL SAMPLE

A5-1@5'

(TVH=1.1) TOTAL VOLATILE HYDROCARBONS mg/kg

SAMPLE NUMBER AND DEPTH





TANK A5 SITE PLAN

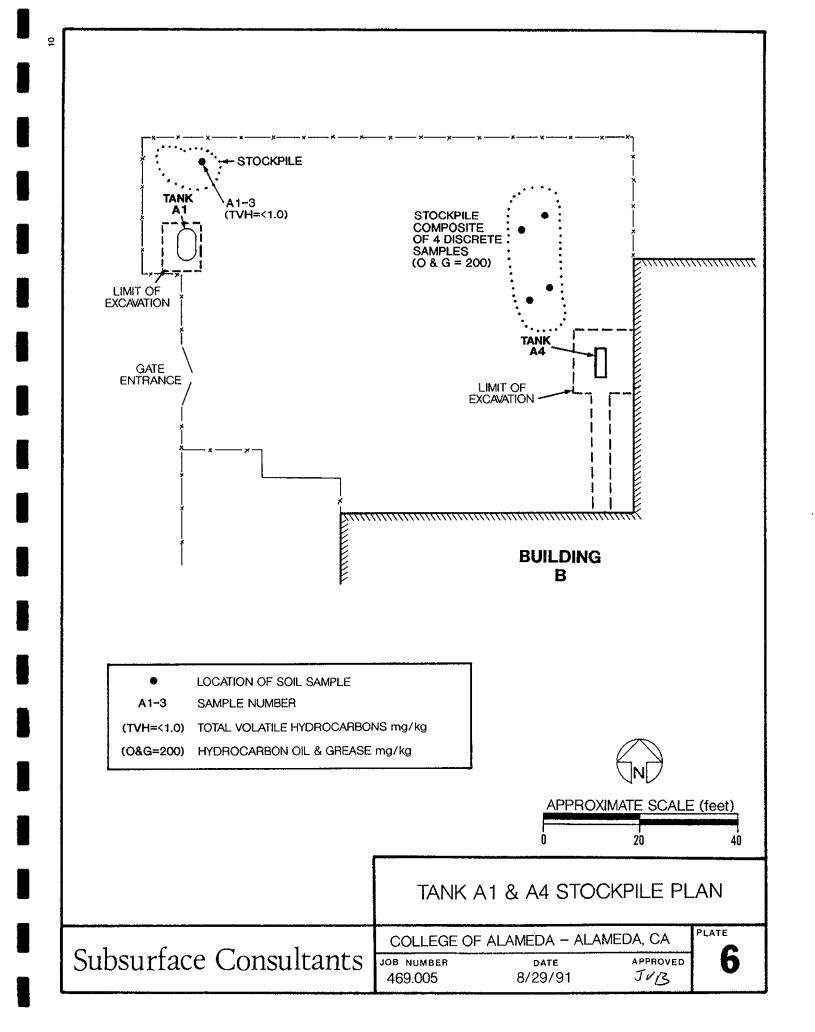
Subsurface Consultants

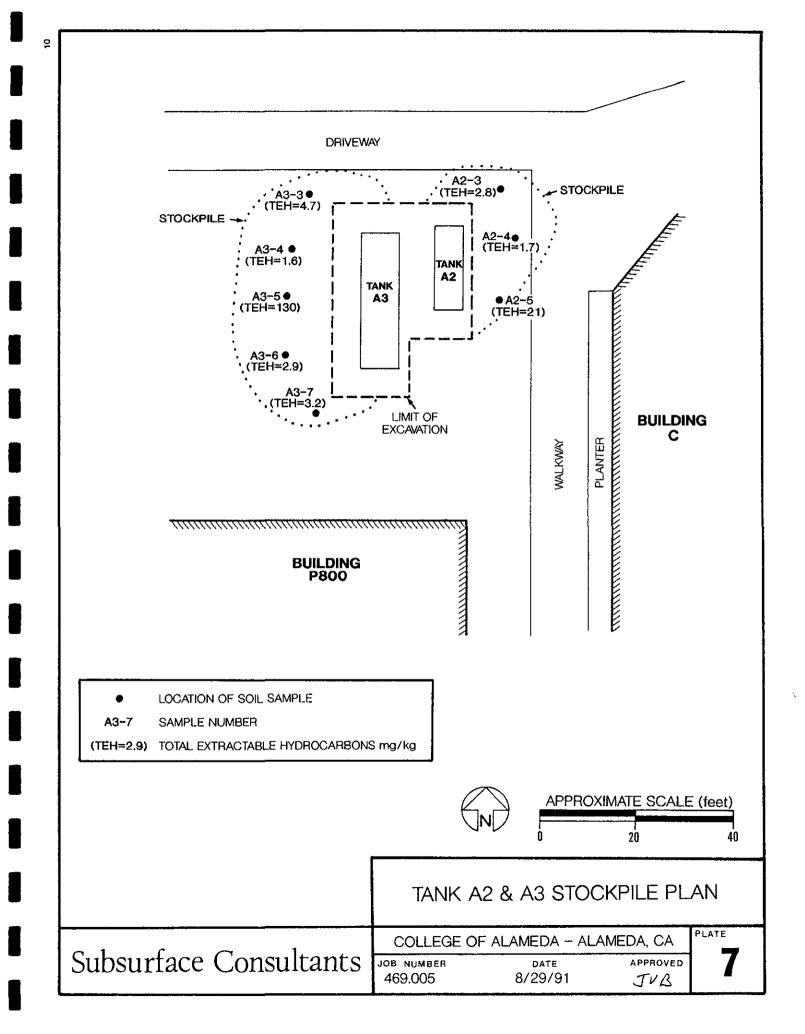
COLLEGE OF ALAMEDA - ALAMEDA, CA

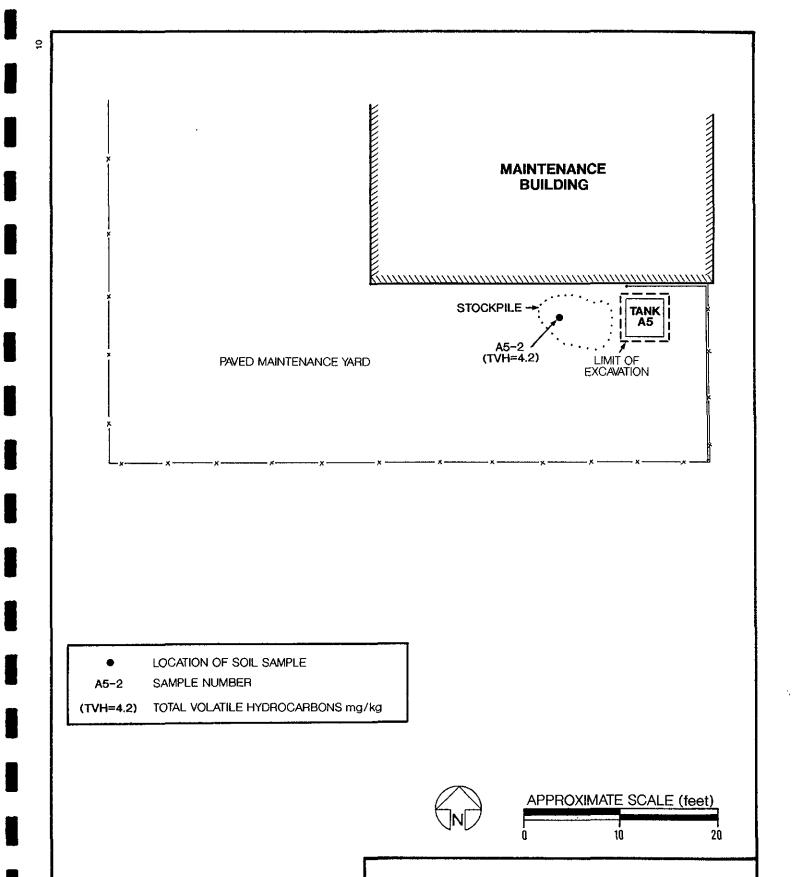
5

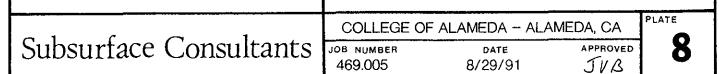
PLATE

JOB NUMBER 469.005 DATE 8/29/91 APPROVED JVB 5

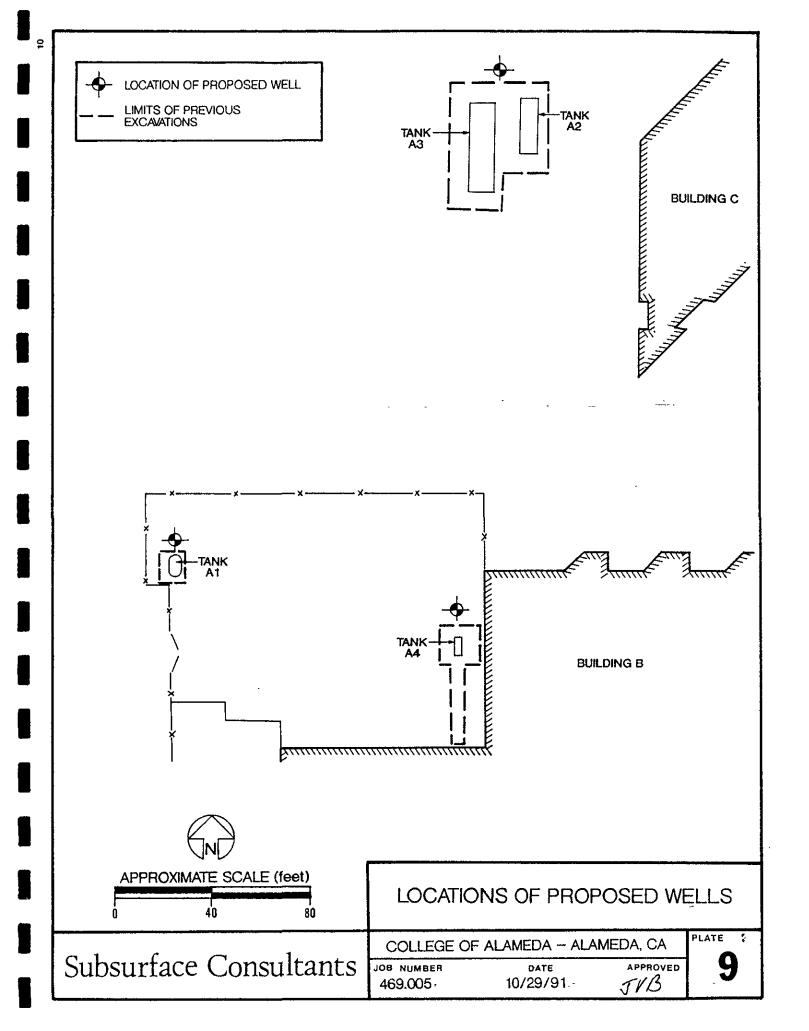








TANK A5 STOCKPILE PLAN





Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 98710, Phone (415) 486-0900

RECEIVED.

DATE RECEIVED: 08/16/91

DATE REPORTED: 08/26/91

LABORATORY NUMBER: 104863

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

RESULTS: SEE ATTACHED

QA/QC Approval

Los Angeles

Client: Subsurface Consultants

Laboratory Login Number: 104863

Project Name: College of Alameda

Report Date:

23 August 91

Project Number: 469.005

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric) METHOD: SMWW 17:5520EF

ab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
	1 m					***				
04863-008	A4-186.5*	Soil	15-AUG-91	16-AUG-91	21-AUG-91	520	mg/Kg	50	TR	239
104863-009	A4-2a3/	Soil	15-AUG-91	16-AUG-91	21-AUG-91	ND	mg/Kg	50	TR	239
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						<u>'</u> ,				
						•				
						::				

ND = Not Detected at or above Reporting Limit (RL).



QC Batch Report

Client: Subsurface Consultants

College of Alameda Project Name:

Report Date:

Laboratory Login Number: 104863 23 August 91

Project Number: 469.005

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch

Number: 2395

Blank Results

MDL Units Method Date Analyzed Sample ID Result

mg/Kg 50 SMWW 17:5520EF 21-AUG-91 BLANK ND

Spike/Duplicate Results

Method Date Analyzed Sample ID Recovery

SMWW 17:5520EF 21-AUG-91 83% BS

21-AUG-91 SMWW 17:5520EF BSD 86%

Control Limits

80% - 120% 85% Average Spike Recovery < 20% 3.4%

Relative Percent Difference

LABORATORY NUMBER: 104863

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/16/91

DATE ANALYZED: 08/20/91

DATE REPORTED: 08/26/91

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020 Extraction by EPA 5030 Purge and Trap

LAB ID	SAMPLE ID	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	REPORTING LIMIT *
		(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
104863-4	A2-1@5'	ND	ND	ND	ND	5.0
104863-5	A 2 - 2@5'	ŃD	ND	ND	ND	5.0
104863-6	A3 - 1@5 '	ND	ND	ND	ND	5.0
104863-7	-	ND	ND	ND	ND	5.0

ND = Not detected at or above reporting limit.

* Reporting Limit applies to all analytes.

QA/QC SUMMARY

RPD, %

RECOVERY, % 95



LABORATORY NUMBER: 104863

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/16/91
DATE ANALYZED: 08/19/91

DATE REPORTED: 08/26/91

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions TVH by California DOHS Method/LUFT Manual October 1989 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	. •	(ug/L)	TOLUENE (ug/L)	(ug/L)	•
104863-3	A1 WATER EXCAVATION	800	78			5 2

QA/QC SUMMARY

RPD, %

RECOVERY, %

101

LABORATORY NUMBER: 104863

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/16/91
DATE ANALYZED: 08/20/91

DATE REPORTED: 08/26/91

Total Volatile Hydrocarbons with BTXE in Soils and Wastes TVH by California DOHS Method/LUFT Manual October 1989 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES
			(u g / Kg)	(ug/Kg)	(ug/Kg)	(u g / Kg)
104863-1	A1 - 1@2 '	ND(1,0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
104863-2	A1 - 2@5 '	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
104863-8	A4-1@6.5'	28	ND(10)	12	66	7 4
104863-10	A5-1@5'	1.1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/16/91

DATE EXTRACTED: 08/19/91 DATE ANALYZED: 08/21/91

DATE REPORTED: 08/26/91

Extractable Petroleum Hydrocarbons in Soils & Wastes
California DOHS Method
LUFT Manual October 1989

LAB ID	SAMPLE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
104863-4	A2 - 1@5 '	ND	1.7	1.0
104863-5	A2-2@5'	ND	63	10
104863-6	A3 - 1@5 '	ND	2.0	1.0
104863-7	A3 - 2@5 '	ND	2.0	1.0
104863-8	A4-1@6.5'	ND	220	1.0

ND = Not Detected at or above reporting limit.

*Reporting limit applies to all analytes.

QA/QC SUMMARY



LABORATORY NUMBER: 104863-8

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

DATE RECEIVED: 08/16/91

DATE ANALYZED: 08/22/91

DATE REPORTED: 08/26/91

LOCATION: COLLEGE OF ALAMEDA

SAMPLE ID: A4-1@6.5'

EPA 8010: Volatile Halocarbons in Soil & Wastes Extraction Method: EPA 5030 - Purge & Trap

		REPORTING
Compound	RESULT	LIMIT
•	ug/Kg	ug/Kg
ch I o r ome t han e	ND	100
bromome than e	"ND	100
vinyl chloride	ND	100
chloroethane	ND	100
methylene chloride	ND	5 0
trichlorofluoromethane	ND	5 0
l, l-dichloroethene	ND	5 0
1,1-dichloroethane	ND	5 0
cis-1,2-dichloroethene	ND	5 0
trans-1,2-dichloroethene	ND	50
chloroform	ND	5 0
freon 113	ND	5 0
l, 2-dichloroethane	ND	5 0
1,1,1-trichloroethane	ND	5 0
carbon tetrachloride	ND	5 0
bromodichloromethane	ND	5 0
l, 2 - dichloropropane	ND	5 0
cis-1,3-dichloropropene	ND	5 0
trichloroethylene	ND	5 0
1,1,2-trichloroethane	ND	5 0
trans-1,3-dichloropropene	ND	5 0
dibromochloromethane	ND	5 0
2-chloroethylvinyl ether	ND	100
bromoform	ND	5 0
tetrachloroethylene	ND	5 0
1,1,2,2-tetrachloroethane	ND	5 0
chlorobenzene	ND	5 0
1,3-dichlorobenzene	ND	5 0
1,2-dichiorobenzene	250	5 0
l, 4 - dichlorobenzene	ND	5 0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Duplicate: Relative % Difference
Spike: Average % Recovery

88



DATE RECEIVED: 08/16/91 LABORATORY NUMBER: 104863-8 DATE EXTRACTED: 08/20/91 CLIENT: SUBSURFACE CONSULTANTS PROJECT ID: 469.005 DATE ANALYZED: 08/22/91 LOCATION: COLLEGE OF ALAMEDA DATE REPORTED: 08/26/91

SAMPLE ID: A4-1@6.5'

EPA 8270: Base/Neutral and Acid Extractables in Soils & Wastes Extraction Method: EPA 3550 Sonication

	RESULT	REPORTING
ACID COMPOUNDS	ug/kg	LIMIT
		ug/kg
Phenol	ND	1700
2-Chlorophenol	ND	1700
Benzyl Alcohol	ND	1700
2-Methylphenol	NĎ	1700
4-Methylphenol	ND	1700
2-Nitrophenol	ND	8500
2,4-Dimethylphenol	ND	1700
Benzoic Acid	ND	8500
2,4-Dichlorophenol	ND	8500
4-Chloro-3-methylphenol	ND	1700
2,4,6-Trichlorophenol	ND	1700
2,4,5-Trichlorophenol	ND	8500
2,4-Dinitrophenol	ND	8500
4-Nitrophenol	ND	8500
4,6-Dinitro-2-methylphenol	ND	8500
Pentachiorophenol	ND	8500
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	1700
Aniline	ND	1700
Bis(2-chloroethyl)ether	ND	1700
1,3-Dichlorobenzene	ND	1700
1,4-Dichlorobenzene	ND	1700
1,2-Dichlorobenzene	ND	1700
Bis(2-chloroisopropyl)ether	ND	1700
N-Nitroso-di-n-propylamine	ND	1700
Hexachloroethane	ND	1700
Nitrobenzene	ND	1700
Isophorone	ND	1700
Bis(2-chloroethoxy)methane	ND	1700
1,2,4-Trichlorobenzene	ND	1700
Naphthalene	ND	1700
4-Chloroaniline	ND	1700
Hexachlorobutadiene	ND	1700
2-Methylnaphthalene	ND	1700
Hexachlorocyclopentadiene	ND	1700
2-Chloronaphthalene	ND	1700
2-Nitroaniline	ND	8500



LABORATORY NUMBER: 104863-8

SAMPLE ID: A4-1@6.5'

EPA 8270

BASE/NEUTRAL COMPOUNDS	RESULT	REPORTING
	ug/kg	LIMIT
		ug/kg
Dimethylphthalate	ND	1700
Acenaphthylene	ND	1700
2,6-Dinitrotoluene	ND	1700
3-Nitroaniline	ND	8500
Acenaphthene	ND	1700
Dibenzofuran	ND	1700
2,4-Dinitrotoluene	ND	1700
Diethylphthalate	ND	1700
4-Chlorophenyl-phenylether	ND	1700
Fluorene	ND	1700
4-Nitroaniline	ND	8500
N-Nitrosodiphenylamine	ND	1700
Azobenzene	ND	1700
4-Bromophenyl-phenylether	ND	1700
Hexachlorobenzene	ND	1700
Phenanthrene	2,900	1700
Anthracene	ND	1700
Di-n-butylphthalate	ND	1700
Fluoranthene	4,200	1700
Benzidine	ND	1700
Pyrene	3,100	1700
Butylbenzylphthalate	ND	1700
3,3'-Dichlorobenzidine	ИИ	8500
Benzo (a) anthracene	detected(1400	1700
Chrysene	1,800	1700
Bis(2-ethylhexyl)phthalate	аи	1700
Di-n-octylphthalate	ND	1700
Benzo(b) fluoranthene	2,500	1700
Benzo(k) fluoranthene	ND	1700
Benzo(a)pyrene	detected(1600) 1700
Indeno(1,2,3-cd)pyrene	detected (990)	1700
Dibenzo(a, h) anthracene	ND	1700
Benzo(g,h,i)perylene	detected(970)	1700
nonno (Binir) kori rawa	. (1 -)	

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: % SURROGATE RECOVERIES

2 - Fluoraphenol	56	Nitrobenzene-d5	60
Phenol-d6	79	2-Fluorobiphenyl	107
2,4,6-Tribromophenol	8 1	Terphenyl-d14	5 6
			========



CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/16/91 DATE ANALYZED: 08/20/91

DATE REPORTED: 08/23/91

ANALYSIS: LEAD

ANALYSIS METHOD: EPA 7421

LAB ID SAMPLE ID RESULT UNITS REPORTING LIMIT

104863-3 A1 WATER EXCAVATION ND ug/L 3.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD %

RPD, %
RECOVERY, %
106

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/16/91 DATE ANALYZED: 08/19,20/91

DATE REPORTED: 08/23/91

ANALYSIS: LEAD

ANALYSIS METHOD: EPA 7420

LAB ID	SAMPLE ID	RESULT	UNITS	REPORTING LIMIT
104863-1	A1 - 1@2'	ND	mg/Kg ~	3.0
104863-2	A1 - 2@5'	15	mg / Kg	3.0
104863-8	A4 - 1@6.5'	5.4	mg/Kg	3.0
104863-10	A5 - 1@5'	16	mg/Kg	3.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY



CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/16/91
DATE ANALYZED: 08/20/91
DATE REPORTED: 08/23/91

콜로블러마르크릭(Ingels angles = angl

ANALYSIS: CADMIUM

ANALYSIS METHOD: EPA 6010

LAB ID SAMPLE ID RESULT UNITS REPORTING LIMIT

104863-8 A4 - 1@6.5 ND mg/Kg 0.25

ND = Not detected at or above reporting limit.

QA/QC SUMMARY



2

107

LABORATORY NUMBER: 104863

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/16/91 DATE ANALYZED: 08/20/91

DATE REPORTED: 08/23/91

ANALYSIS: CHROMIUM

ANALYSIS METHOD: EPA 6010

LAB ID SAMPLE ID RESULT UNITS REPORTING LIMIT

104863-8 A4 - 1@6.5 26.2 mg/Kg = 0.50

QA/QC SUMMARY

RPD, %
RECOVERY, %



CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/16/91 DATE ANALYZED: 08/20/91

DATE REPORTED: 08/23/91

ANALYSIS: NICKEL

ANALYSIS METHOD: EPA 6010

UNITS REPORTING LIMIT LAB ID SAMPLE ID RESULT

1.6 mg/Kg 104863-8 A4 - 1@6.5 30.0

OA/QC SUMMARY

##===##===##===##==##==##==##==##=#=#==#==##=##=##==##==##==##=##=##=##=##=##=##

RPD, % 109

RECOVERY, %



CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/16/91

DATE ANALYZED: 08/20/91

DATE REPORTED: 08/23/91

ANALYSIS: ZINC

ANALYSIS METHOD: EPA 6010

REPORTING LIMIT UNITS LAB ID SAMPLE ID RESULT

104863-8 A4 - 1@6.5' 52.3 mg/Kg 1.0

QA/QC SUMMARY

2 RPD, % RECOVERY, % 106

Subsurface Consultants

CHAIN OF CUSTODY RECORD & ANALYTICAL TEST REQUEST

Project Name: College of Alameda Tank Removal	_
SCI Job Number: 469.005	_
Project Contact at SCI: John Bosche	_
Simpled By: Denvis Hexander	
Analytical Laboratory: Custis & Tompkins	
Malytical Turnaround: Normal SCI time	-
Sample ID Type Type Date Hold Analysis Method 1- @2'	
5-1@5' 5 T 8/16/9/ TYHIBTXE	-
104863-4,5,6,7: 0&6 was concelled. (verbals) * * * * *	-
pleased by: Deum alupad Date: 8/16/9/	_
Released by Courier:Date:	
beceived by Laboratory: Date: 9169	-
Pelinquished by Laboratory:Date:	_
Received by:Date:	_
Sample Type: W = water, S = soil, O = other (specify) Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)	

-Notify SCI if there are any anomalous peaks on GC or other scans -Questions/clarifications...contact SCI at (415) 268-0461

VERBAL ADDITIONS / CANCELLATIONS TO ANALYSIS REQUEST SHEET

CLIENT: Subsuctace	DATE: 820191
REQUESTED BY: John Posche	TIME: 10:00 cam pr
BECORDED BY: Alican	

Current Lab ID (Previous Lab ID)	Client ID	Circle matrix	Specify add or cancel	Analysis	Due date
	A2-105	soil water other	concel	55ADEF	Ag:
104863-5	A2-205	soil water other	Correl	5520EF	
104863-6	A3-105	soil water other	Correl	5500EF	
104863-7	A3-205	soil water other	concel	5520EF	
		soil water other			
		soil water other			
		soil water other			
-		soil water other			

Original in job jacket.

Copies to analytical departments.



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 08/20/91 DATE REPORTED: 08/27/91

LABORATORY NUMBER: 104890

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

RESULTS: SEE ATTACHED

RECEIVED

AUG 3 0 1991 PA Visisiailiailaisi4iõis A

Los Angeles

QA/QC Approval



CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/20/91

DATE ANALYZED: 08/22/91

DATE REPORTED: 08/27/91

ANALYSIS: LEAD

ANALYSIS METHOD: EPA 7420

LAB ID	SAMPLE ID	RESULT	UNITS		REPORTING LIMIT
104890-1	A1 - 3	61.0	mg / Kg	**	3.0
104890-2	A5 - 2	4.5	mg / Kg		3.0

QA/QC SUMMARY



CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/20/91 DATE ANALYZED: 08/22/91

DATE REPORTED: 08/27/91

Total Volatile Hydrocarbons with BTXE in Soils and Wastes TVH by California DOHS Method/LUFT Manual October 1989 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE (ug/Kg)	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
104890-1 104890-2	A1 - 3 A5 - 2		ND(5.0) ND(5.0)	,	ND(5.0) ND(5.0)	ND(5.0) ND(5.0)

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY

2 RPD, % 98 RECOVERY, %

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 08/20/91 DATE EXTRACTED: 08/22/91

DATE ANALYZED: 08/26,27/91 DATE REPORTED: 08/27/91

DATE RELOCIED. 00/2///

Extractable Petroleum Hydrocarbons in Soils & Wastes California DOHS Method LUFT Manual October 1989

LAB ID	SAMPLE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
104890-3	A2 - 3	ND	2,8	1.0
104890-4	A2 - 4	ND	1.7	1.0
104890-5	A2 - 5	ND	21	1.0
104890-6	A3 - 3	ND	4.7	1.0
104890-7	A3 - 4	ND	1.6	1.0
104890-8	A3 - 5	ND	130	1.0
104890-9	A3 - 6	ND	2.9	1.0
104890-10		ND	3.2	1.0
	• • •			

ND = Not Detected at or above reporting limit.

*Reporting limit applies to all analytes.

RPD, %	10
RECOVERY, %	8 5
	====

Sabsurface	Consu	ıltants	2001		AIN OF CUSTONALYTICAL T	EST REQUEST	
Papject Name:_			College of	Hameda			
SCI Job Number			469.				
P: bject Contac			John 1	305			
Sampled By:			Dennis	Alexand	а		
Alalytical Lab	oratory:		Cueti	59 Tow	ipkins		
Amalytical Tur	naround:		No	emal Co	5 day)		
Smole ID T	mple or ype¹	Container Type ²	Sampling Date S/20/9/	Hold	Analysis TVH/BTXE LEAD TVH/BTXE LEAD TEH TEH TEH TEH TEH TEH TEH	Analytical Method	
43-7	<u> </u>				TEH_		
* Released by:		*	*	*	* Date:	*	
Released by Co				^	Date:	1 1	
Received by La		y Acan	malloa	His .	Date:	7)70/a1	
Relinquished b	y Labor	ato##:	<u> </u>		Date:		
R ceived by:		<u>V</u>			Date:		
Sample Type: W = water, S = soil, O = other (specify) Container Type: V = VOA, P = plastic, G = glass, T = brass tube, O = other (specify)							
Notes to Labor -Notify S -Question	CI if t	here are a fications.	ny anomalou contact S	s peaks CI at (4	on GC or ot 115) 268-046	ther scans	



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 09/09/91 DATE REPORTED: 09/17/91

LABORATORY NUMBER: 105105

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

RESULTS: SEE ATTACHED

QA/QC Approval

Final Appr

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 09/09/91

DATE ANALYZED: 09/10-11/91

DATE REPORTED: 09/17/91

DATE REISSUED: 09/23/91

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020 Extraction by EPA 5030 Purge and Trap

LAB ID	SAMPLE	I D	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	REPORTING LIMIT *
			(u g / k g)	(u g / k g)	(ug/kg)	(u g / k g)	(u g / k g)
105105-1	A2-6		ND	ND	ND	ND	5.0
105105-2	A3-8		ND	ND	ND	ND	5.0
105105-3			ND	ND	ND	ND	5.0
105105-4			5 0	180	150	560	10

ND = Not detected at or above reporting limit.

* Reporting Limit applies to all analytes.

$\Delta \Lambda$	/OC	SUMMARY	
v.	I	OCHINICIA	

RPD, %

RECOVERY, %

102

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 09/09/91 DATE EXTRACTED: 09/11/91

DATE ANALYZED: 09/13/91

DATE REPORTED: 09/17/91 DATE REISSUED: 09/23/91

Extractable Petroleum Hydrocarbons in Soils & Wastes
California DOHS Method
LUFT Manual October 1989

DIESEL REPORTING KEROSENE SAMPLE ID LAB ID RANGE LIMIT* RANGE (mg/Kg) (mg/Kg) (mg/Kg)1.0 105105-1 A2-6 ND 14 5.4 1.0 ND 105105-2 A3-8 1.0 ND 9.4 105105-3 A3-9 1.0 560 ND 105105-4 A3 - 10

ND = Not Detected at or above reporting limit.

*Reporting limit applies to all analytes.

QA/QC SUMMARY

10-10-	~	
CHAIN OF CUSTODY FORM		PAGE OF
PROJECT NAME: College of Alameda JOB NUMBER: 469.005 LAB: C PROJECT CONTACT: John, Bosche TURNAROUN SAMPLED BY: Dennis Alexander REQUESTED		ANALYSIS REQUESTED
100 NUMBER: 469.005 LAB:	Jupijs & Tompkius	
JOB NOWBER. JOHN BOSCHP THEN ABOUN	ID: NORMAL 5 day	
PHOJECT CONTACT: Soviet, 250-100	Dennis Alexander	
SAMPLED BY: REQUESTED	PAY: _CENTUS / ICENTUSE	
MATRIX CONTAINERS F	METHOD PRESERVED SAMPLING DATE	B7X1
LABORATORY SAMPLE	1 ! !	
-1 IN NUMBER NUMBER 14.1 21 1 1 1 1 1 1 1 1	SON WEAR TIME	TEH TEH
1()V)(C5-1 A2-4 A2-6 X -2 A3-3 A3-8 X	X 09 0 9 9 7 X	
-3 A3-4 A3-9 X	╶╏╼╼╌╏╼╼╾╏┖╾╧╒┞╼╼╌┨╼╼╌╽┵╤╾╏╌╧╾╏╶┋╾╏╼╏╌┧┶┉╴╏╼══╏═══╏╌╌╸╏═══╏╧	
-43-5A3-10 X	- - X - 0 9 0 9 9 / - - - -	
	-	
	CHAIN OF CUSTODY	/ PECORD
COMMENTS & NOTES:	RELEASED BY: (Signature) DATE/TIME RECEI	IVED BY: (Signature) DATE/TIME
	D. alfand 9/9/81 4:05an RELEASIED BY: (Signature) DATE/TIME RECEI	IVED BY: (Signature) DATE/TIME
	RELEASIED BY: (Signature) DATE/TIME HECE	IAFIN BT. (2)Bustone) DVIEV HIME
	RELEASED BY: (Signature) DATE/TIME RECR	IVED BY: (Signature) DATE/TIME
		meane plus
	Cultural and Cana	ultante Inc
	Subsurface Cons	
	(510) 268-0461 · FAX: 510	
•	•	



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 09/10/91 DATE REPORTED: 09/16/91

LABORATORY NUMBER: 105121

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

RESULTS: SEE ATTACHED

QA/QC Approval

Los Angeles

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 09/10/91
DATE EXTRACTED: 09/11/91
DATE ANALYZED: 09/15-16/91
DATE REPORTED: 09/16/91

DATE REISSUED: 09/23/91

Extractable Petroleum Hydrocarbons in Soils & Wastes California DOHS Method LUFT Manual October 1989

LAB ID	SAMPLE	I D	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
105121 1			ND	11	1.0
105121-1 105121-2			ND	1,400	10
105121-3			ND	5 0	10

ND = Not Detected at or above reporting limit.

*Reporting limit applies to all analytes.

QA/QC SUMMARY

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 09/10/91

DATE ANALYZED: 09/13/91

DATE REPORTED: 09/16/91

DATE REISSUED: 09/23/91

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020 Extraction by EPA 5030 Purge and Trap

LAB ID	SAMPLE	ID	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	REPORTING LIMIT *
			(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
	 -	,					
105121-1	A2 - 7		ND	ND	ND	ND	5.0
105121-2	A3-11		ND	11	17	120	5.0
105121-3	A3-12		ND	ND	ND	ND	5.0

ND = Not detected at or above reporting limit.

* Reporting Limit applies to all analytes.

QA/QC SUMMARY

RPD, %

RECOVERY, % 116

105121 CHAIN OF CUSTODY FORM PAGE _____ OF ____ **ANALYSIS REQUESTED** METHOD PRESERVED CONTAINERS MATRIX SAMPLING DATE SCI SAMPLE LABORATORY X SOIL WASTE SS NO MONTH OF STATE NUMBER I.D. NUMBER LITER PINT TUBE **♦** YEAR TIME DAY 1091 1091 A2=3 A2-7 CHAIN OF CUSTODY RECORD COMMENTS & NOTES: RECEIVED BY: (Signature) RELEASED BY: (Signature) DATE/TIME DATE/TIME D. Glefana 9/10/91 4:35 p.m.
RELEASED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME RECEIXED BY: (Signature) DATE/TIME RELEASED BY: (Signature) DATE/TIME

Subsurface Consultants, Inc.

171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607 (510) 268-0461 • FAX: 510-268-0137

105121 OF _____ **CHAIN OF CUSTODY FORM** PAGE _____ PROJECT NAME: ____ Collège of Alameda ANALYSIS REQUESTED JOB NUMBER: 469.005 LAB: Cultis 4 Tomptins PROJECT CONTACT: John Bosche TURNAROUND: Normal (5 day)

SAMPLED BY: Dennis Hexander REQUESTED BY: D. alyand METHOD PRESERVED **CONTAINERS** MATRIX SAMPLING DATE SCI SAMPLE NOTES LABORATORY WATER X SOIL WASTE NONE HNO3 HNO3 NUMBER ID. NUMBER A FE TIME MONTH DAY YEAR 10 A2=3 A2-7

_	CHAIN OF CUSTODY RECORD
COMMENTS & NOTES:	RELEASED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME
	D. Olyana 9/10/91 14:35pm RELEASED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME
	RELEASED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME
	Subsurface Consultants, Inc. 171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607 (510) 268-0461 · FAX: 510-268-0137



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 09/10/91 DATE REPORTED: 09/18/91

LABORATORY NUMBER: 105130

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

RESULTS: SEE ATTACHED

QA/QC Approval

Final Approva



LABORATORY NUMBER: 105130-12 CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

SAMPLE ID: COMPOSITE A4-10-13

DATE RECEIVED: 09/10/91
DATE ANALYZED: 09/15-18/91
DATE REPORTED: 09/18/91

PARAMETER	RESULT	UNITS	REPORTING LIMIT	METHOD
RELEASABLE CYANIDE	ND	mg / Kg	0.3	SW-846 SECTION 7.3.3.2
RELEASABLE SULFIDE	ND	mg/Kg	1.0	SW-846 SECTION 7.3.4.1
IGNITABILITY	DOES NO	T IGNITE		CCR TITLE 26 SECTION 22-66702(a)(2)
рН	8.1	S.U.	- ×	EPA 9045
CORROSIVITY	ND	mm/year	6.35	EPA 1110

	RPD, %	RECOVERY, %					
RELEASABLE CYANIDE	<1	81					
RELEASABLE SULFIDE	<1	• •					
pH	<1	• •					
CORROSIVITY	6						



Client: Subsurface Consultants Laboratory Login Number: 105130

Project Name: College of Alameda Report Date: 18 September 91

Project Number: 469.005

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric) METHOD: SMWW 17:5520EF

Lab ID	Sample 10	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batc
						`. ****				
105130-001	A4-3	Soil	10-SEP-91	10-SEP-91	12-SEP-91	ND	mg/Kg	50	TR	262
105130-002	A4-4	Soil	10-SEP-91	10-SEP-91	12-SEP-91	ND	mg/Kg	50	TR	262
105130-003	A4-5	Soil	10-SEP-91	10-SEP-91	12-SEP-91	140	mg/Kg	50	TR	262
105130-004	A4-6	Soil	10-SEP-91	10-SEP-91	12-SEP-91	60.	mg/Kg	50	ŤR	262
105130-005	A4-7	Soil	10-SEP-91	10-SEP-91	12-SEP-91	ND	mg/Kg	50	TR	262
105130-006	A4-8	Soil	10-SEP-91	10-SEP-91	12-SEP-91	ND	mg/Kg	50	TR	262
105130-007	A4-9	\$oil	10-SEP-91	10-SEP-91	12-SEP-91	390	mg/Kg	50	TR	262
105130-012	COMPOSITE A4-10-13	Soil	10-SEP-91	10-SEP-91	12-SEP-91	200	mg/Kg	50	TR	262
	•									
						* *				
	- '									

ND = Not Detected at or above Reporting Limit (RL).



QC Batch Report

Client:

Subsurface Consultants

Laboratory Login Number: 105130

Project Name: College of Alameda

18 September 91

Project Number: 469.005

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric) QC Batch

Report Date:

Number:

2627

Blank Results

Sample ID Result

MDL Units

Method

Date Analyzed

BLANK

ND

50 mg/Kg SMWW 17:5520EF

12-SEP-91

Spike/Duplicate Results

Sample ID Recovery

Method

Date Analyzed

BS

84%

SMWW 17:5520EF

12-SEP-91

SMWW 17:5520EF

BSD

91%

12-SEP-91

Average Spike Recovery Relative Percent Difference

87%

Control Limits 80% - 120%

8.2%

< 20%

LABORATORY NUMBER: 105130-12 CLIENT: SUBSURFACE CONSULTANTS

PROJECT 1D: 469.005

LOCATION: COLLEGE OF ALAMEDA SAMPLE ID: COMPOSITE A4-10-13

DATE RECEIVED: 09/10/91
DATE ANALYZED: 09/13,16/91
DATE REPORTED: 09/18/91

Title 26 Metals in Soils & Wastes Digestion Method: EPA 3050

METAL	RESULT	REPORTING LIMIT	METHOD
	mg/Kg	mg/Kg	
Antimony	ND	3.0	EPA 6010
Arsenic	3.4	2.5	EPA 7060
Barium	50.5	0.50	EPA 6010
Beryllium	0.19	0.10	EPA 6010
Cadmium	ND	0.25	EPA 6010
Chromium (total)	40.7	0.50	EPA 6010
Cobalt	9.5	0.90	EPA 6010
Copper	31.0	0.50	EPA 6010
Lead	11.4	3.0	EPA 7420
Mercury	0.19	0.10	EPA 7471
Mo l y b d e n um	ND	0.70	EPA 6010
Nickel	39.8	1.6	EPA 6010
Selenium	ND	2.5	EPA 7740
Silver	ND	0.50	EPA 6010
Thallium	ND	2.5	EPA 7841
Vanadium	31.4	0.50	EPA 6010
Zinc	95.8	1.0	EPA 6010

ND = Not detected at or above reporting limit.

	RPD,%	RECOVERY, %		RPD,%	RECOVERY, %
Antimony	2	9 2	Mercury	2 2	105
Arsenic	6	106	Molybdenum	<1	101
Barium	<1	97	Nickel	3	9 4
Beryllium	1	99	Selenium	< 1	111
Cadmium	7	9 5	Silver	2	90
Chromium	2	98	Thallium	<1	117
Cobalt	<1	9 5	Van ad i um	1	96
Copper	<1	9 5	Zinc	<1	95
Lead	<1	97			



DATE RECEIVED: 09/10/91

DATE REPORTED: 09/18/91

LABORATORY NUMBER: 105130

CLIENT: SUBSURFACE CONSULTANTS DATE ANALYZED: 09/13-14,16/91

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

Total Volatile Hydrocarbons with BTXE in Soils and Wastes TVH by California DOHS Method/LUFT Manual October 1989 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (ug/Kg)	TOLUENE	ETHYL BENZENE (ug/Kg)	TOTAL XYLENES (ug/Kg)
105130-1 105130-2 105130-3 105130-4 105130-5 105130-6 105130-7	A4 - 3 A4 - 4 A4 - 5 A4 - 6 A4 - 7 A4 - 8 A4 - 9		ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0)	ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0)	ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0)	ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0) ND(5.0)
105130-12	COMPOSITE A4-10-13	3.2	ND(5,0)	ND(5.0)	6.2	4 4

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

RPD, %	1
RECOVERY, %	116



CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 09/10/91
DATE EXTRACTED: 09/12/91
DATE ANALYZED: 09/13-16/91

DATE REPORTED: 09/18/91

Extractable Petroleum Hydrocarbons in Soils & Wastes California DOHS Method LUFT Manual October 1989

LAB ID	SAMPLE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
105130-1	A4 - 3	ND	ND	1.0
	A4 - 4	ND	4.5	1.0
	A4 - 5	ND	8.9	1.0
	A4 - 6	ND	3.3	1.0
105130-4	A4 - 7	ND	8.6	1.0
_ "		ND	1.7	1.0
105130-6	A4 - 8			
105130-7	A4-9	ND	29	1.0
105130-12	COMPOSITE A4-10-13	ND	11	1.0

ND = Not Detected at or above reporting limit.

*Reporting limit applies to all analytes.

RPD, %	1 5
RECOVERY, %	8 7
	:=====================================



LABORATORY NUMBER: 105130-12 CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA SAMPLE ID: COMPOSITE A4-10-13 DATE RECEIVED: 09/10/91 DATE ANALYZED: 09/16/91

DATE REPORTED: 09/18/91

EPA 8010: Volatile Halocarbons in Soil & Wastes Extraction Method: EPA 5030 - Purge & Trap

	REPORTING
Compound RESULT	LIMIT
ug/Kg	ug/Kg
ch lor ome than e ND	10
bromome than e ND	10
vinyl chloride ND	10
chloroethane	10
methylene chloride ND	5.0
trichlorofluoromethane ND	5.0
l, l-dichloroethene ND	5.0
1, 1-dichloroethane ND	5.0
cis-1,2-dichloroethene ND	5 .0
trans-1, 2-dichloroethene ND	5.0
chloroform	5.0
freon 113 ND	5.0
l, 2-dichloroethane ND	5. 0
1,1,1-trichloroethane ND	5.0
carbon tetrachloride ND	5.0
bromodich loromethane ND	5.0
l, 2-dichloropropane ND	5.0
cis-1,3-dichloropropene ND	5.0
trichloroethylene ND	5.0
1,1,2-trichloroethane ND	5.0
trans-1,3-dichloropropene ND	5.0
dibromochloromethane	5.0
2-chloroethylvinyl ether ND	10
bromoform	5.0
tetrachloroethylene ND	5.0
1,1,2,2-tetrachloroethane ND	5.0
chlorobenzene ND	5.0
1,3-dichlorobenzene ND	5.0
1,2-dichlorobenzene ND	5.0
l, 4-dichlorobenzene ND	5.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

Duplicate: Relative % Difference

Spike: Average % Recovery



DATE RECEIVED: 09/10/91

DATE EXTRACTED: 09/13/91

DATE ANALYZED: 09/16/91

DATE REPORTED: 09/18/91

LABORATORY NUMBER: 105130-12 CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA SAMPLE ID: COMPOSITE A4-10-13

EPA 8270: Base/Neutral and Acid Extractables in Soils & Wastes Extraction Method: EPA 3550 Sonication

ACID COMPOUNDS	RESULT ug/kg	REPORTING LIMIT
ACID COM COMDS	ug/ng	ug/kg
Phenol	ND	330
2 - Chlorophenol	ND	330
Benzyl Alcohol	ND	330
2-Methylphenol	ND	330
4-Methylphenol	ND	330
2-Nitrophenol	ND	1700
2,4-Dimethylphenol	ND	330
Benzoic Acid	ND	1700
2,4-Dichlorophenol	ND	1700
4-Chloro-3-methylphenol	ND	330
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	170
2,4-Dinitrophenol	ND	1700
4-Nitrophenol	ND	1700
4,6-Dinitro-2-methylphenol	ND	1700
Pentachlorophenol	ФИ	1700
BASE/NEUTRAL COMPOUNDS		
N-Nitrosodimethylamine	ND	330
Aniline	ND	330
Bis(2-chloroethyl)ether	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
1,2-Dichlorobenzene	ND	330
Bis(2-chloroisopropyl)ether	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
Bis(2-chloroethoxy)methane	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	330
4-Chloroaniline	ND	330
Hexachlorobutadiene	ND	330
2-Methylnaphthalene	ND	330
Hexachlorocyclopentadiene	ND	330
2-Chloronaphthalene	ND	330
2-Nitroaniline	ND	1700



LABORATORY NUMBER: 105130-12 SAMPLE ID: COMPOSITE A4-10-13 EPA 8270

BASE/NEUTRAL COMPOUNDS	RESULT ug/kg	REPORTING LIMIT
		ug/kg
Dimethylphthalate	ND	330
Acenaphthylene	ND	330
2,6-Dinitrotoluene	ND	330
3-Nitroaniline	ND	1700
Acenaphthene	ND	330
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	3 3 0
Diethylphthalate	ND	330
4-Chlorophenyl-phenylether	ND "	3 3 0
Fluorene	ND	330
4-Nitroaniline	ND	1700
N-Nitrosodiphenylamine	ND	330
Azobenzene	ND	330
4-Bromophenyl-phenylether	ND	330
Hexachlorobenzene	ND	330
Phenanthrene	Detected (230	330
Anthracene	ND	330
Di-n-butylphthalate	ND	330
Fluoranthene	Detected(240	330
Benzidine	ND	330
Pyrene	Detected (210	330
Butylbenzylphthalate	ND	330
3,3'-Dichlorobenzidine	ND	1700
Benzo(a) anthracene	ND	330
Chrysene	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Di-n-octylphthalate	ND	330
Benzo(b) fluoranthene	ND	330
Benzo(k) fluoranthene	ND	330
Benzo(a)pyrene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Dibenzo(a, h) anthracene	ND	330
Benzo(g,h,i)perylene	ND	330
Denvo(g,n,r)perfronc	• • •	

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: % SURROGATE RECOVERIES

2-Fluorophenol	65	Nitrobenzene-d5	48		
Phenol-d6	66	2-Fluorobiphenyl	64		
2,4,6-Tribromophenol	5 6	Terphenyl-d14	4 0		

CHAIN OF C						PAGE		OF
PROJECT NAME:		College	of Alameda			ANA	LYSIS RE	QUESTED
JOB NUMBER: _	469.00	5	LAB:	Cultis + Tompkins ND: Normal (5 day)				
PROJECT CONTA	ICT: John	Bosche	TURNAROU	ND: Normal (5 day)				
SAMPLED BY:	Dennis	Alexander	REQUESTE	DBY: D- Alexander				
		MATRIX	CONTAINERS	METHOD PRESERVED SAMPLING DATE				
LABORATORY ID. NUMBER	SCI SAMPLE NUMBER	WATER SOIL WASTE AIR	VOA PINT TUBE	NO MONTIL DAY YEAR TIME	INOTES			
	A4-3			X 091091	Ž			
	A4-4 A4-5			X 091091 X 091091				
	A4-6 A4-7			X 091091				
	44-9 44-9		- - - - - - - - - - - - - -	X 091091		- -		
	A4-10 A4-11			X 09 1 0 9 1 X 09 1 0 9 1 X 09 1 0 9 1				
	A4-12 A4-13			X 091091				
COMMENTS & NOT				CHAIN OF CU				DATE/TIME
* Call	John Bos	scle abou	ut .	RELEASED BY: (Signature) DATE/TIME D. alyond 9/104/4:35 RELEASED BY: (Signature) DATE/TIME		ED BY: (Siç		
Ana	lusis	scle abou		RELEASED BY: (Signature) DATE/TIME	RECEIV	ED BY: (Siç	jnature)	DATE/TIME
7,000				RELEASED BY: (Signature) DATE/TIME	1 15	ED BY: (Sig	gnature)	PAIR/TIME
				Subsurface C	onst	Iltan	ts, I	nc.
				171 12TH STREET, SUITE 201				

(510) 268-0461 · FAX: 510-268-0137



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2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 09/20/91 DATE REPORTED: 09/26/91

LABORATORY NUMBER: 105226

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

RESULTS: SEE ATTACHED

QA/QC Approva

Final Approve

Los Angeles



Client: Subsurface Consultants

Laboratory Login Number: 105226

Project Name: College of Alameda

Report Date:

26 September 91

Project Number: 469.005

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric) METHOD: SMWW 17:5520EF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
105226-003	A4-10a7*	Soil	20-SEP-91	20-SEP-91	24-SEP-91	ND	mg/Kg	50	TR	2747
105226-004	A4-1105#	Soil	20-SEP-91	20-SEP-91	24-SEP-91	50.	mg/Kg	50	TR	2747
	_}						_			
							·			
	,									
						-				
	•									

ND = Not Detected at or above Reporting Limit (RL).

QC Batch Report

Client:

Subsurface Consultants

Project Name: College of Alameda

Laboratory Login Number: 105226

Report Date:

26 September 91

Project Number: 469.005

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric)

QC Batch

Number:

2747

Blank Results

Sample ID Result

Units MDL

Method

Date Analyzed

BLANK

ND

50 mg/Kg SMWW 17:5520EF

24-SEP-91

Spike/Duplicate Results

Sample ID Recovery

Method

Date Analyzed

BS

808

SMWW 17:5520EF

24-SEP-91

BSD

82%

SMWW 17:5520EF

24-SEP-91

Average Spike Recovery Relative Percent Difference

81%

Control Limits 80% - 120%

1.5%

< 20%

LABORATORY NUMBER: 105226

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 09/20/91

DATE ANALYZED: 09/24/91

DATE REPORTED: 09/26/91

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020 Extraction by EPA 5030 Purge and Trap

LAB ID	SAMPLE ID	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	REPORTING LIMIT *
		(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
	A3 - 13@6 . 5 ' A3 - 14@7 '	ND ND	ND ND	ND ND	ND ND	5.0 5.0

ND = Not detected at or above reporting limit.

* Reporting Limit applies to all analytes.

QA/QC SUMMARY

	#4=====###=========##=================	==
RPD, %	•	3
RECOVERY, %	10	6
RECOVERY, N		==



LABORATORY NUMBER: 105226

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 09/20/91
DATE ANALYZED: 09/24/91
DATE REPORTED: 09/26/91

Total Volatile Hydrocarbons with BTXE in Soils and Wastes TVH by California DOHS Method/LUFT Manual October 1989 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE	BENZENE	TOLUENE		TOTAL XYLENES
		(mg/Kg)		(ug/Kg)	(ug/Kg)	(u g / Kg)
105226-3	A4-10@7'	ND(1.0)	ND(5.0)	ND(5,0)	ND(5.0)	ND(5.0)

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY

 LABORATORY NUMBER: 105226

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 469.005

LOCATION: COLLEGE OF ALAMEDA

DATE RECEIVED: 09/20/91

DATE EXTRACTED: 09/25/91 DATE ANALYZED: 09/26/91 DATE REPORTED: 09/26/91

Extractable Petroleum Hydrocarbons in Soils & Wastes
California DOHS Method
LUFT Manual October 1989

LAB ID	SAMPLE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT* (mg/Kg)
105226-2	A3-13@6.5'	ND	2.6	1.0
	A3-14@7'	ND	4.6	1.0
	A4-10@7'	NĐ	3.4	1.0

ND = Not Detected at or above reporting limit.

*Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	11
RECOVERY, %	81
	===

105226

CHAIN OF C	OSTODY FO	JH	M																											DΑ	О Г	-	J	,	,)F _	1		
PROJECT NAME	· College	0	a(<u>^</u> ,	Ma	114.4 1	e A)	0																						174	GE			<u>_</u>					_
IOD MUMPED	410 005		_12.	·:	- 10	<u> voc</u>	⊆LX.	17								• •														-	Τ-	VMV	T	315	NEC	IUE	STE	<u>}</u>	
JOB NOWBER: _	167.009									L	.AB): _		_ (<u>'</u> W	ØŁ.	5	4	10	mp	2K.	(h 5	<u>.</u>																
JOB NUMBER: _	ACT: <u>John</u>	<u> </u>	<u> 20-</u>	SC	uc					. T	UR	NA	RC	AUC	ND:				1	OR	jn d	al																	
SAMPLED BY: _	Dennis Al	ex	an	ch	<u>u</u> _	_				_ F	REC	UE	EST	ſEC	В	Y: .		عل	ساد	Δ	13	22(الر	·				_											
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Subsurface Consultants, Inc.

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

DATE/TIME

171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607 (510) 268-0461 · FAX: 510-268-0137

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A	UNIFORM HAZARDOUS WASTE MANIFEST ### (12-pitch typewriter). 1.1. Generator's USI 1.1.	EPAID No.	antest Documen	f No.	2. Page 1	is not reci	on in the shaded uired by Federal	law.
	3. Generator's Name and Maring Address A 23 - LPE	1 1 1 Cm C	2//-3-17.	A) Sicrie (B. Sicrie (Agnifest Documen	f Number	1553	807
	4. Generator's Phone (7/5°) 466-7339 5. Transporter 1 Company Name	6. US EPA ID Number		C, State	ransporter's ID	100 (8 04 3 4 4 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	* / / / / / /	stanting
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	9. Designated Facility Name and Site Address ALVISC INDEPENDENT OIL	10. US EPA ID Number	·-····	G. State	Focility's ID An Little ID it	Para.	S. 5 (7.1	MADUSAN NGSHARA
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	13. US DOT Description (including Proper Shipping Name, Hazard Cla	-	12. Conto	Type	13. Total Quantity	14. Unit	i. Waste Nun	
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N E R	MA 1270 Diesel and traces or	923 760					State: EPA/Other	
T O R	c.						State EPA/Other	
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	J. Additional Descriptions (or Materials Listed Above	at a com ta como e sa distribità è .	1 1	K. Handili	g Codes for Work	es Listed At	militari e e e e e e e e e e e e e e e e e e e	Strietter
	1.1 USED OIL 1.2 CATER			G . (1)		b		
	15. Special Honoring Instructions and Additional Information CLOVES ** In Case of Emergency Call —			·	,			
	16. GENERATOR'S CERTIFICATION: I hereby declare that the context packed, marked, and labeled, and are in all respects in proper if I am a large quantity generator, I certify that I have a progression practicable and that I have selected the practicable and that I have selected the practicable to human health and the environment; OR, II am a smanningement method that is available to me and that I can at	condition for transport by nighworms in place to reduce the volument, storation method of treatment, storation, I have made	ume and toxicit one, or disposal o	y of waste sumently av	generated to the alable to me which	degree ()	nave determined the present and	d to be
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<u>†</u>	17. Transporter I Acknowledgement of Receipt of Materials					<u> </u>		·
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S P O	18. Transporter 2 Acknowledgement of Receipt of Materials					Mor		Year
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FACI	19. Discrepancy Indication Space			•				
L	20. Facility Owner or Operator Certification of receipt of hazardous	materials covered by this manife	at except as note	ed in item l	φ.	Moi	nm Day	Year
Ť	Printed/Typed Name	Signature					1 .	<u> </u>
Ĺ	D	O NOT WRITE BELOW T	HIS LINE.	<u></u>		<u> </u>		<u> </u>

UNIFORM HAZARDOUS 1. Generator's US EPA ID NO	9968	ment No.	l of	. Illioiniat	ion in the shi quired by Fe	
3. Generator's Name and Meiling Address	1 I I I I I I	121013		anifest Decume	nt Number	
COLLECT OF ALMINEDA	-			<u></u>	<u> </u>	4200
SPIS ATLANTIC AVENUE			B. State G	enerator's ID		
Generator's Phone (2) - 21 - 21-			11		411	ليامران
i. Transporter 1 Company Name 6.	US EPA ID Number	-2 -A	_	ransporter's ID		100
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. Transporter 2 Company Name 8	US EPA ID Rumber			rter's Phone		
). Designated Facility Name and Site Address 10.	US EPA ID Number	<u> </u>	G. State F	acility's ID		~ ~ ~
			C _I A I	0,009	466	3914
Erickson, Inc. 255 Parr Blvd.		•	H. Facility	a Phone		
Richmond, Ca. 94801 CIAID	101019141616				235-1	393
11. US DOT Description (Including Proper Shipping Name, Hazard Class, 8	and ID Number)	12. Conta	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
Wasta Farty Sharasa Tark					Ste	^{ite} 512
^{a.} Waste Empty Storage Tank				أسم مسا	EP.	A/Other
NON-RCRA Hazardous Waste Solid.			r Þ i	1300	P Sta	NONE
).					318	
			,		EP.	A/Other
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J. Additional Descriptions for Materials Listed Above		<u> </u>	K. Handil	ng Codes for W	astes Liste	d Above
	MA //OTZ		· • •	1/00	b.	
Qty. 2 Empty Storage Tank (s) #68	10,6810	7 h -		1/77	d.	
. Tank (s) have been iner	rted with 13	ids.) C.		u.	
Dry Ice per 1000 Gal. Capacity.	•		<u> </u>]	<u> </u>
15. Special Handling Instructions and Additional Information	•					
Keep away from sources of ignition.	Always wear h	nardhat	s when	working	aroun	d
U.S.T.'s 24 Hr: Contact Name 7. GR	ACIOLETT &	k Phone	4151	466-1	134-C	>
16.	- `, , ,			·····	***	
	of this consignment are	fully and a	ccurately de	scribed above	by proper st	eman pniqqir
and are classified, packed, marked, and labeled, and are in all respe- national government regulations.	cts in brober condition is	or transport	uy ingilway	according to a	,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
If I am a large quantity generator, I certify that I have a program in pla						
are any and future threat to human health and the environment! OR, if	TI BITT BE SINBII QUAIILILY Q	CHCIA(VI, I)	ave made a	good faith effe	ort to minimi	ze my waste
generation and select the best waste management method that is avi	Signature	-//	/	11	/ M	fonth Day Yes
Printed/Typed Name	157-1	. 4%	luis	-lutst	<u> </u>	281/5
17. Transporter 1 Acknowledgement of Receipt of Materials	10-19	-/-		ce-co		-1011/01/
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DAN BAVEY	of long	130	Mu	,		9915141
18. Transporter 2 Acknowledgement of Receipt of Materials			- V			,
Printed/Typed Name	Signature					fonth Day Ye
19. Discrepancy Indication Space						
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20. Faculity Owner or Operator Certification of receipt of hazardous mate	rials covered by this ma	nife t exce	nt as notes	io Item 19.		
Printed/Typed Name	Signature	11	1 1/2	Spet II e	→	Aonth Day Ye
Donak H KOSSON F	ASOG	N ST		SON	Ø 1	70/04
Do Not 1	Write Below This Li	ne	/		`	. – .
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ļ	Generator's Phone (Transporter 1 Comp		7340	6. US	EPA ID Number		C Ste	te Transporter's	10.7	5/67
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1	Designated Facility I Crickson, I	Name and Site Addre	85	10. US	EPA ID Number			te Facility's ID	crala	10201
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L R	Richmond, C	a 94801		[C[A]D[O	1019141616	13 9 2		(4:	L5) 23	35-1393
11.	US DOT Description	n (Including Proper S	hipping Name, Ha	izard Class, and I	Number)	12. Cont	1	13. Total Quantity		
a.W	aste Empty	Storage Ta	nk			No.	Туре		Wt/V	State 512
								11		EPA/Other
	ON-RCRA Ha	zardous Was	te Solid.			0,95	11	410	P	NON
b.										State
							,	1 1 1 1	,	EPA/Other
c.								1		State
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						1 1		1 1 1	,]	EPA/Other
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	e (12-pitch typewriter).						
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3. Generator's Name and Mailing Address		is in certain			danifest Docum	ent Numb	32837
1. Generator's Phone (415) 268 -	- -		704	ı	3enerator's ID	l	1 1
7. Transporter 1 Company Name	6. U	S EPA ID Number	İ	C. State 7	Fransporter's ID		
Erickson Inc.	CADE	S EPA ID Number	3174	E. State 3	ransporter's iD		< 35-/3/ ₂
7. Transporter 2 Company Name	1 1 1 1		1 !		orter's Phone		
Designated Facility Name and Site Addr	ess 10. U	S EPA ID Number		G. State f	Facility's ID	_	
Crickson, Inc.				H. Facility	r's Phone		
255 Parr Blvd. Richmond. Ca. 94801	1CIALDI	010191416161	31912	184	(415) 235	5-1393
11. US DOT Description (Including Proper			12. Conta No.	Type	13. Total Quantity	14. Unit Wt/Vol	
"Waste Empty Storage T	ank						State 512
MONLACRA Hazardous Ma	eta Salid.		DIOIL	cM	1 के विष	,	EPA/Other YONE
D. TERRITORIS VI	3.C JULIUI			*	<u> </u>		State
			1 1	,			EPA/Other
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J. Additional Descriptions for Materials Lis	sted Above			K. Handi	ing Codes for V	Vastes L	sted Above
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Dev. 1 Tuesty Chang	ma Table (a) #127	1					
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Form Approved OMB No. 2050-0039 (Expires 9-30-91)

Toxic Substances Control Division

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IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-

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Toxic Substances Control Program

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