

July 20, 1994

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015715 7-20-94

Mr. Scott Seery
Hazardous Materials Specialist
Alameda County Health Care Services Agency
UST Local Oversight Program
80 Swan Way, Room 200
Oakland, California 94621

Subject: INSTALLATION OF ONE MONITORING WELL AND PERFORMANCE OF
THE FIRST OF FOUR QUARTERS OF GROUNDWATER MONITORING.
SANTA RITA PROPERTY, FORMER UNDERGROUND STORAGE
TANK #9 SITE.
Versar Job Number 2241-019

Dear Mr. Seery:

This letter report has been prepared to document the installation of one monitoring well and the performance of the first quarter of monitoring at the County's Santa Rita property, former underground storage tank (UST) #9 site. The scope of work for this project was prepared by Versar, Inc. (Versar) on behalf of the County of Alameda General Services Agency (GSA) under the direction of Mr. Peter Kinney to monitor the potential impact to the groundwater by the petroleum hydrocarbons released at the site. Information used to develop this workplan was based on information and reports supplied to Versar by the GSA.

BACKGROUND

The site is located in a section of the former Santa Rita property referred to as the "Old Greystone area" (see Figure 1 in Attachment I). A diesel UST, designated Tank #9, was removed on November 20, 1990 by Certified Environmental Consulting for County of Alameda GSA, and the soil beneath sampled. Tank #9 was formerly associated with support buildings at the jail facility. Soil sampling results indicated a total petroleum hydrocarbon as diesel (TPH-D) concentration of ~~310 parts per million~~ (ppm) directly below the tank approximately 7.5 feet below ground surface. The County over-excavated approximately 4 feet deeper and resampled the soil. The soil resampling results indicated that TPH-D concentrations at the lower depth were approximately 9 ppm. The lead regulatory agency, Alameda County Health Care Services Agency (ACHCSA), reviewed the data and requested that one groundwater monitoring well be installed downgradient of the excavation location and four quarters of groundwater monitoring performed. Versar submitted a work plan outlining the proposed investigation to the ACHCSA on May 5, 1994. On May 23, 1994 this

no documentation
in file

• SAN FRANCISCO BAY AREA OFFICE •



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work plan was amended by submitting a proposed boring map to the ACHCSA. This work plan was approved by the ACHCSA on May 24, 1994.

FIELD INVESTIGATION

Prior to initiating the field activities, Versar obtained a drilling permit for the installation of the monitoring well from the Alameda County Flood Control, Zone 7. Versar also developed a site Health and Safety plan prior to initiating field activities. This site specific Health and Safety Plan was prepared to set forth procedures for safe conduct during completion of the field investigation. The Health and Safety Plan is designed to minimize risks to Versar personnel and others caused by potential exposure to hazardous materials or unsafe work conditions.

Monitoring Well Installation

Information contained in the "Quarterly Monitoring Report, First Quarter 1994, Old Greystone Fueling Area, Santa Rita Correctional Facility", prepared by Environmental Science & Engineering, Inc., indicates that the local groundwater gradient in this area is to the southeast. The fueling area is adjacent to the Tank #9 site. This information, supplied to Versar by the GSA, was used to locate the monitoring well downgradient from the excavation area for the #9 UST. Since the former buildings at the site have been mostly demolished and the site generally overgrown with weeds, Mr. Peter Kinney of the GSA field-located the approximate former location of the Tank #9 excavation for Versar. Based on the information available to us, Versar believes that the well is located to the southeast of the former tank location, within 10 feet of the former excavation limits (see Figure 2 in Attachment I).

The well was installed on June 10, 1994 using a truck-mounted drilling rig using 10-inch diameter hollow stem augers. During the borehole drilling, soil samples were collected at a maximum of 5-foot intervals for visual identification and classification. Soil samples were collected using a California-modified split-spoon sampler lined with brass sample tubes. Soil sample collection was accomplished by driving the sampler approximately 18 inches into undisturbed soils below the lead auger. Upon retrieval of the sampler at each sample interval, the lowest sample tube was removed, the ends of the sample tube were covered with teflon wrap, capped with plastic end-caps, labeled for identification purposes, and immediately placed in an insulated chest with ice pending shipment to the laboratory for analysis. Chain-of-custody procedures were followed, including the use of chain-of-custody forms, to document sample collection, handling and transport to the laboratory. A second sample tube

from the sampler was retained for head-space screening of organic vapors using an organic vapor analyzer (OVA).

The soil lithology was described by a Versar geologist working under the direction of a California State-registered geologist. A geologic log was generated in the field to record descriptions of the soil types, sample depths and designations, and any observed significant features related to the presence of petroleum hydrocarbons or other hazardous materials. The drilling log is included as Attachment II. As shown on the log, no field indicators of potential contamination were noted during the drilling and sampling activities.

In order to reduce the potential for cross-contamination, the downhole sampling equipment was decontaminated between sampling events using a laboratory-grade detergent solution, rinsed in a two-tapwater bath, and final rinsed with deionized water. Additionally, the augers and associated drilling equipment were pressure-washed with a hot pressure washer prior to beginning drilling. Equipment rinseate generated during this investigation was deposited and sealed in 55-gallon U.S. Department of Transportation (DOT) -approved drums, then labeled and stored on-site pending receipt of laboratory analytical results and evaluation of disposal alternatives. Soil cuttings were stockpiled on plastic sheeting, and covered with plastic sheeting, for temporary storage.

The well was constructed using 4-inch diameter schedule 40 PVC flush threaded well casing. The monitoring well was completed to a final depth of 35 feet, approximately seven feet below the top of saturated material, using fifteen feet of 0.010-inch machine-slotted well screen. A silica sand filter pack was placed around the well screen extending two feet above the top of the well screen. An annular seal consisting of two feet of bentonite chips was placed above the sand pack. A bentonite/cement grout seal was placed to one foot below the surface. A locking monument vault box anchored in one foot of concrete was placed at the surface.

Soil Analytical Results

Three of the six collected soil samples were submitted to Trace Analysis Laboratory, Inc. (TAL), a State-certified analytical laboratory in Hayward, for analysis. At the request of Mr. Scott Seery of the ACHCSA, the soil sample collected at a depth slightly greater than the depth of the bottom of the former tank (SR9-11.5), and the two soil samples collected from the area of the capillary fringe (SR9-26.0 and SR9-27.5) were analyzed. The soil samples were analyzed for TPH-D (Department of Health Services Method) and benzene, toluene,



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ethylbenzene, and xylenes (BTEX by EPA Method 8020). Laboratory data sheets for these samples are presented in Attachment III.

None of the analytes were detected in these three soil samples at concentrations equal to or exceeding the laboratory reporting limit (see Table 1 in Attachment I).

Well Development and Sampling

After a period of at least 72 hours had been allowed for the annular seal to set, the well was developed. The well development was accomplished by surging and bailing groundwater from the well until the hydrologic parameters of temperature, pH, conductivity, and turbidity stabilized. Measurement of hydrologic parameters was conducted following the withdrawal of each approximate well volume of groundwater. Stabilization was indicated when each of the hydrologic parameters is determined to be within ten percent of the previous measured parameter. Well development water was stored in DOT-approved containers at the site. A field log was maintained by Versar during the well developing (see Attachment II).

Upon completion of the well development, the water level was allowed to recover to at least 80% and stabilize prior to sampling. Versar collected one groundwater sample plus a duplicate sample from the monitoring well using a clean disposable polyethylene bailer

Groundwater Analytical Results

The collected groundwater samples were submitted to TAL for analyses. One groundwater sample was analyzed for TPH-D (Department of Health Services Method) and BTEX (EPA Method 8020). The duplicate sample was only analyzed for BTEX for quality assurance/quality control (QA/QC) purposes. Laboratory data sheets for these samples are located in Attachment III.

None of the analytes were detected in these two groundwater samples at concentrations exceeding the laboratory reporting limit (see Table 2 in Attachment II).

CONCLUSIONS AND RECOMMENDATIONS

During the installation and subsequent sampling of the monitoring well, no field or laboratory indications of potential contamination were noted in either the soil or groundwater samples. Groundwater samples will be collected on a quarterly basis for the next three quarters, as outlined in Versar's work plan, dated May 5, 1994. If no diesel or diesel fuel

Versar^{INC.}

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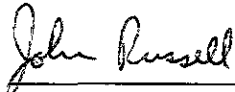
constituents are detected in the groundwater samples during these upcoming regularly scheduled samplings, Versar, on behalf of the GSA, will recommend that the Tank #9 site be closed.

If you have any questions or concerns regarding this report, please contact either of the undersigned at (916) 962-1612.

Sincerely,

Reviewed By:

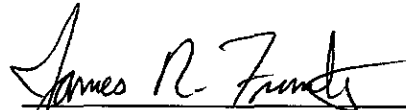
Versar, Inc.



John Russell
Geologist



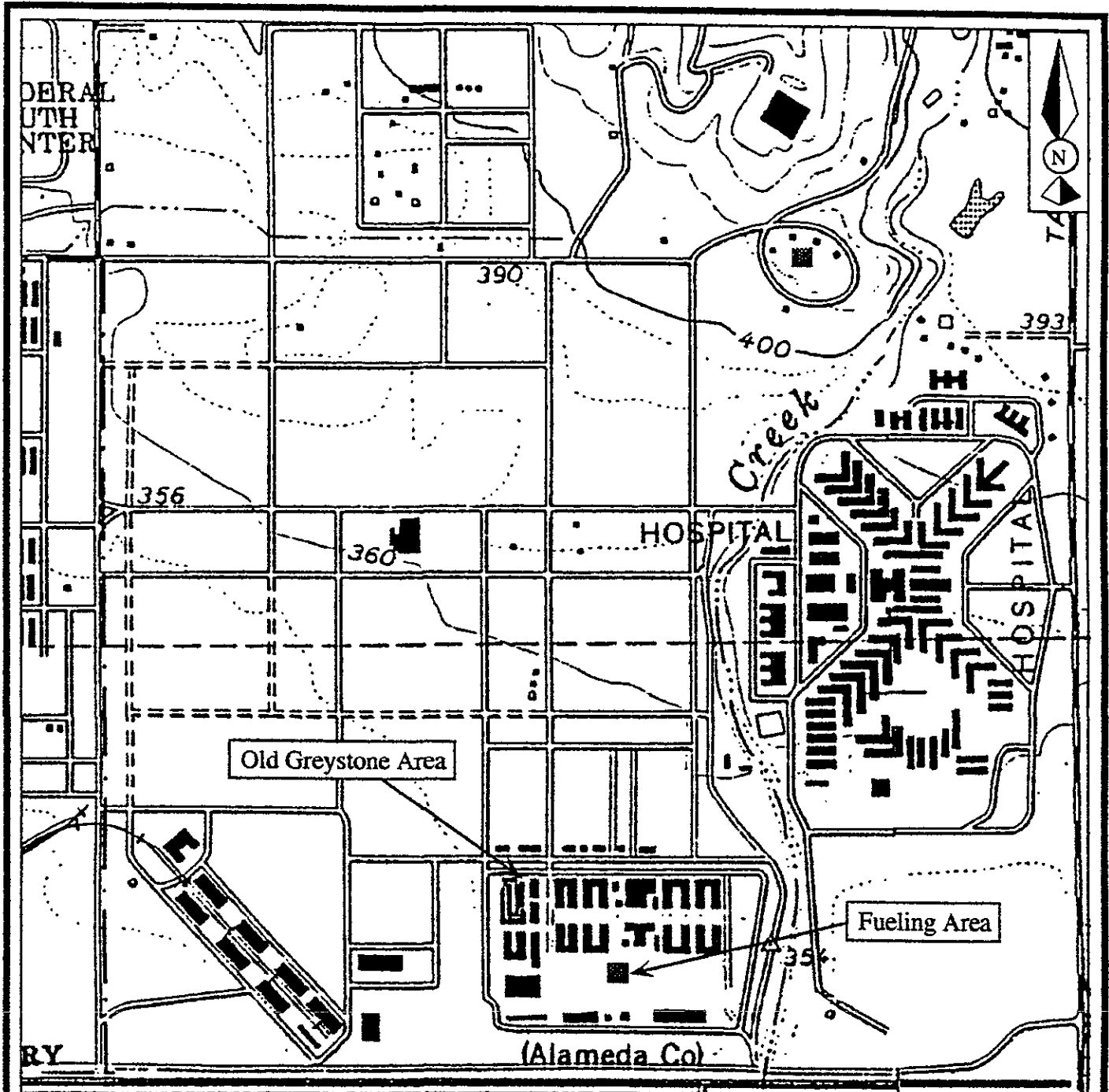
Michael P. Sellens, R.G.
Geoscience Program Manager
R.G. No. 4714



James Frantes, R.G.
Vice President



Attachment I:
Figures and Tables



Legend
 ■ Excavated Tank Site

Adapted from USGS Topographic Maps, Livermore and Dublin Quads, California

Not to Scale

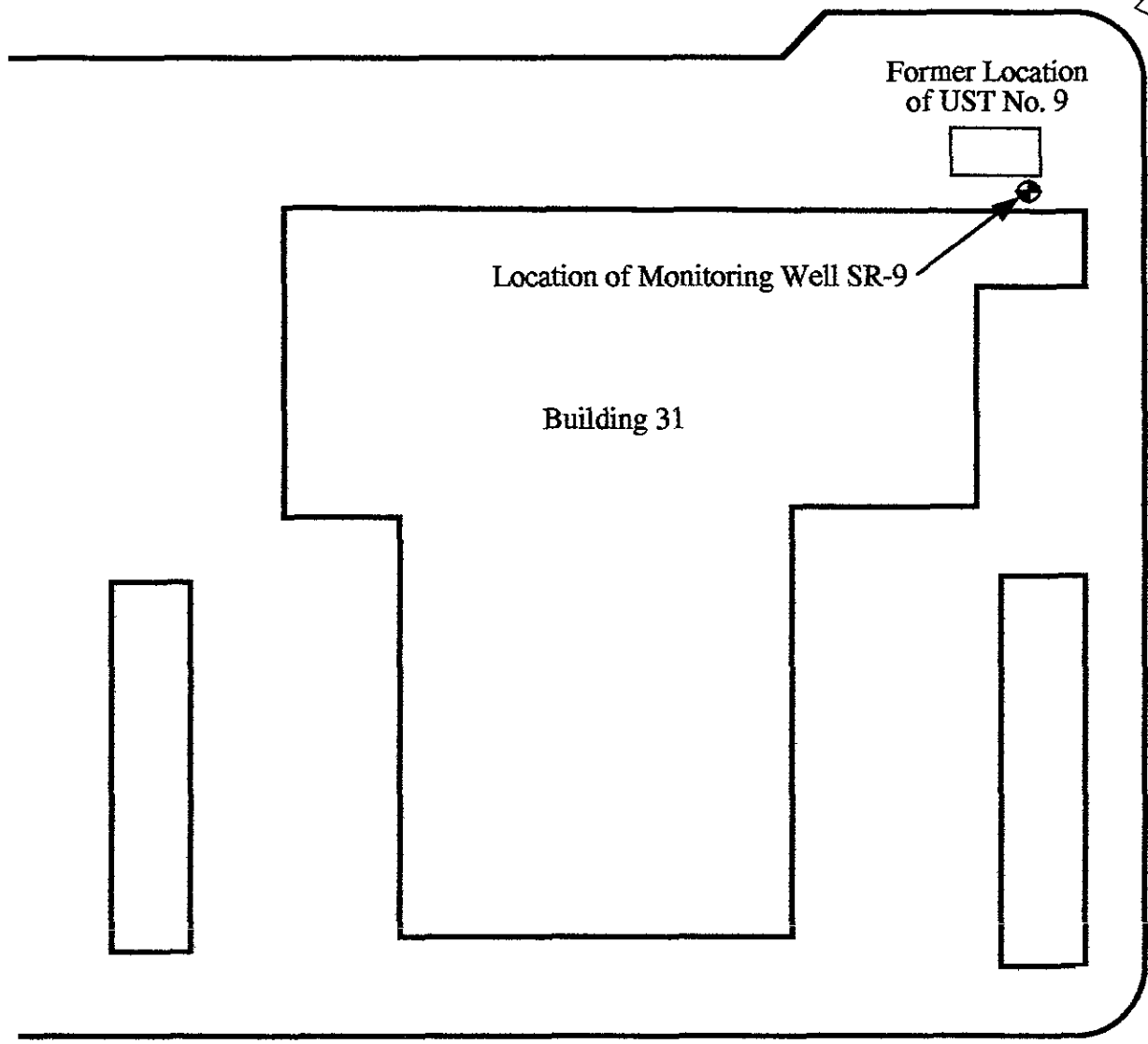
Site Plan

Figure 1

Project No. 2241-019

Santa Rita Property
 Pleasanton, California

Versar, Inc.



Former Location
of UST No. 9

Location of Monitoring Well SR-9

Building 31

Not to Scale

Site Layout

Figure 2

Project No. 2241-019

Santa Rita Property
Pleasanton, California

Versar, Inc.

TABLE 1
SUMMARY OF TPH-D AND BTEX RESULTS OF SOIL SAMPLES

Santa Rita #9 Site
Dublin, California

Sample ID	Sample Date	Sample Depth (feet)	TPH-D ¹ (µg/kg) ³	Benzene ² (µg/kg)	Toluene ² (µg/kg)	Ethylbenzene ² (µg/kg)	Xylenes ² (µg/kg)
SR9-11.5	6/10/94	11.5	<1,000 ⁴	<5	<5	<5	<15
SR9-26.0	6/10/94	26.0	<1	<5	<5	<5	<15
SR9-27.5	6/10/94	27.5	<1	<5	<5	<5	<15

¹ Total Petroleum Hydrocarbons as Diesel by EPA Method 3350/8015M in micrograms per kilogram

² BTEX by EPA Method 8020 in micrograms per kilogram

³ All results expressed in micrograms per kilogram

⁴ Less than detection limit



TABLE 2
SUMMARY OF TPH-D AND BTEX RESULTS OF
GROUNDWATER SAMPLES¹

Santa Rita #9 Site
Dublin, California

Monitoring Station Dates Sampled	CONSTITUENT				
	TPH-D ¹ (µg/L) ³	Benzene ² (µg/L)	Toluene ² (µg/L)	Ethylbenzene ² (µg/L)	Xylenes ² (µg/L)
SR-9					
6/14/94	<50	<0.5	<0.5	<0.5	<1.5
6/14/94 (Dup)	NO ⁴	<0.5	<0.5	<0.5	<1.5
MCL	NA ⁵	1 ⁶	100 ⁷	680 ⁶	1,750 ⁶

¹ Total Petroleum Hydrocarbons as Diesel by EPA Method 8015M

² BTEX by EPA Method 8020

³ All results expressed in micrograms per kilogram

⁴ NO = Not analyzed

⁵ NA = Not applicable

⁶ California DHS Primary MCL

⁷ California DHS Action Level



Attachment II:
Drilling Log and Monitoring Well Purge Table

Versar Inc.		DRILLING LOG		PROJECT NO. 2241-019					
Supervising Geologist: Michael Sellens			Site Name: Santa Rita # 9						
Log By: Terrance Kinn			Boring No: SR9						
Date: 6/10/94			Boring Diameter: 10 in.						
Drilling Contractor: Turner Explorations			Boring Depth: 35 ft.						
Contractor Lic. No. C57-602720			Boring Location: Old Greystone Fueling Area						
Rig Type: Mobile B53 - Hollow Stem Auger			UST # 9						
Driller: Russ Williams									
Depth (ft)	Advanced/Recovered	Blow Counts	First Water/ Water Table	Well Construction	USCS Group	Lithology	USCS SOIL DESCRIPTION SOIL CONDITION AND GEOLOGIC INTERPRETATION		Headspace (ppm)
							SOIL TYPE, ROUNDING, SORTING, PERCENT: GRAVEL, SANDS, FINES COLOR, MOISTURE, DENSITY, SECONDARY POROSITY, ODORS, STAINING GEOLOGY: FILL, ALLUVIUM, BEDROCK		
2					ML		Clayey Silt, dark yellowish-brown, damp, hard, 40% clay, 60% silt, <5% sand and gravel, very low elasticity, highly consolidated soils, no observed odors.		
4							Difficult drilling from 2.0 to 3.0 feet (large rock?). Minor well rounded gravels up to 2" diameter at 2.5 feet. Increase in clay content at approx. 3.5 feet with moderate plasticity.		
6	X	10 17 25			CH		Fat Clay, dusky yellowish-brown, damp, hard, 50-60% clay, 40-50% silt, <5% sand and gravel, very low elasticity, moderate plasticity, no odors or staining.	0	
							Clayey Silt, dark yellowish-brown, damp, hard, 40% clay, 60% silt, <5% sand and gravel very low elasticity, low plasticity, no odors.		
8					ML				
10							Softer drilling at 10.0 feet.		
12	X	6 4 15			CH		Fat Clay, dark yellowish-brown, damp, very stiff, 60% clay, 40% silt, <5% sand and gravel, low elasticity, moderate plasticity, semi-consolidated, no odors or staining.	0	
14							Trace fine sand present in drill cuttings at approx. 14.0 feet		
16	X	3 6 8			CH		Same as above with slightly increased plasticity, trace fine to medium sand present.	0	
18							Increased silt content at approx. 18.0 feet.		
20					MH		Elastic Silt with clay, moderate brown, damp, very stiff, 40% clay, 60% silt, <5% sand and gravel, very low elasticity, moderate plasticity, semi-consolidated, no odors or staining.		
	X	5 11 12						0	



MONITORING WELL PURGE TABLE

Project Number: 2241-016			Site Name: Santa Rita #9 Site		
Well Number: SR-9			Date(s) Purged: 6/14/94		
OVA - Ambient: 0 ppm			Purge Method: Bailer		
OVA - Vault: 0 ppm			Purge Rate: 0.75 gallons/minute		
OVA - Casing: 0 ppm			Date & Time Sampled: 6/14/94 - 1350		
Water Level - Initial: 27.49 feet			Purged & Sampled By: J. Russell		
Water Level - Final: 27.78 feet			Sampling Method: Dedicated Bailer		
Well Depth: 35.0 feet			Free Product: None		
Well Diameter: 4-inches			Sheen: None		
Well Casing Volume: 5.9 gallons			Odor: None		
Time	Cumulative Purge Water Removed (gal)	Temperature (Degrees Fahrenheit)	pH	Conductivity (µm/cm)	Turbidity
1249	0	74.5	7.95	3,380	Clear
1300	5	73.8	7.91	3,590	High
1307	10	71.7	7.72	3,470	High
1315	15	71.8	7.69	3,390	High
1321	20	71.8	7.7	3,380	High
1328	25	71.7	7.68	3,390	High
1335	30	71.8	7.70	3,390	High
1342	35	71.9	7.69	3,380	High
1350	Sample	71.8	7.70	3,380	Slight
Field Notes:					

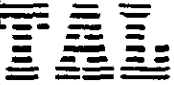


Attachment III:
Laboratory Data Sheets, Soil and Groundwater

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960
Facsimile (510) 783-1512



June 21, 1994

Mr. Terrence Kinn
Versar, Inc.
1255 Harbor Bay Parkway, Suite 100
Alameda, CA 94501

Dear Mr. Kinn:

Trace Analysis Laboratory received six soil samples on June 10, 1994 for your Project No. 2241-019, Santa Rita #9 (our custody log number 4493).

Three of these samples were analyzed for Total Petroleum Hydrocarbons as Diesel and Benzene, Toluene, Ethylbenzene, and Xylenes. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

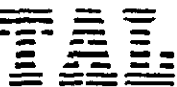
Scott T. Ferriman
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960
Facsimile (510) 783-1512



LOG NUMBER: 4493
DATE SAMPLED: 06/10/94
DATE RECEIVED: 06/10/94
DATE INITIATED: 06/14/94
DATE EXTRACTED: 06/17/94
DATE ANALYZED: 06/21/94
DATE REPORTED: 06/21/94

CUSTOMER: Versar, Inc.
REQUESTER: Terrence Kinn
PROJECT: No. 2241-019, Santa Rita #9

Sample Type: Soil

Method and Constituent:	Units	SR9-11.5		SR9-26.0		SR9-27.5	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit

DHS Method:							
Total Petroleum Hydrocarbons as Diesel	ug/kg	ND	1,000	ND	1,000	ND	1,000

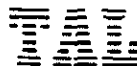
Method and Constituent:	Units	Method Blank	
		Concentration	Reporting Limit

DHS Method:			
Total Petroleum Hydrocarbons as Diesel	ug/kg	ND	1,000

QC Summary:

% Recovery: 92
% RPD: 26

Concentrations reported as ND were not detected at or above the reporting limit.



LOG NUMBER: 4493
 DATE SAMPLED: 06/10/94
 DATE RECEIVED: 06/10/94
 DATE INITIATED: 06/14/94
 DATE EXTRACTED: 06/17/94
 DATE ANALYZED: 06/18/94
 DATE REPORTED: 06/21/94
 PAGE: Two

Sample Type: Soil


Method and Constituent:	Units	SR9-11.5		SR9-26.0		SR9-27.5	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
Modified EPA Method 8020 for:							
Benzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Toluene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Ethylbenzene	ug/kg	ND	5.0	ND	5.0	ND	5.0
Xylenes	ug/kg	ND	15	ND	15	ND	15

Method and Constituent:	Units	Method Blank	
		Concentration	Reporting Limit
Modified EPA Method 8020 for:			
Benzene	ug/kg	ND	5.0
Toluene	ug/kg	ND	5.0
Ethylbenzene	ug/kg	ND	5.0
Xylenes	ug/kg	ND	15

QC Summary:

% Recovery: 100
 % RPD: 4.8

Concentrations reported as ND were not detected at or above the reporting limit.


 Louis W. DuPuis
 Quality Assurance/Quality Control Manager

PROJECT NO. 2241-019		PROJECT NAME Santa Rita #9			4493				PARAMETERS				INDUSTRIAL HYGIENE SAMPLE		Y N	
SAMPLERS (Signature) <i>Terrence Kim</i>					(Printed) Terrence Kim					REMARKS						
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION				NO. OF CONTAINERS							
SR9-6.5	6/10	10:42		X	SR9				1				X			
SR9-11.5		↑							1	X	X					
SR9-16.5									1				X			
SR9-21.0									1				X			
SR9-26.0		↓							1	X	X					
SR9-27.5	↓	12:10		X	↓				1	X	X					
Relinquished by: (Signature) <i>Terrence Kim</i>		Date / Time 6/10/94 17:30		Received by: (Signature) _____			Relinquished by: (Signature)		Date / Time		Received by: (Signature)					
(Printed) Terrence Kim				(Printed)			(Printed)				(Printed)					
Relinquished by: (Signature) _____		Date / Time		Received for Laboratory by: (Signature) <i>Scott T. Ferrum</i>			Date / Time 6/10/94 5:25 PM		Remarks HOLD samples for verbal release on 6/13 Analyses per John Russell, 6/14/94 Normal TAT							
(Printed)				(Printed) Scott T. Ferrum												

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

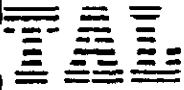
walking soil, 1-BT, each, V-2.

COPY

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960
Facsimile (510) 783-1512



June 21, 1994

Mr. John Russell
Versar, Inc.
5330 Primrose Drive, Suite 228
Fair Oaks, California 95628

Dear Mr. Russell:

Trace Analysis Laboratory received two water samples on June 14, 1994 for your Project No. 2241-019, Santa Rita #9 (our custody log number 4500).

These samples were analyzed for Total Petroleum Hydrocarbons as Diesel and Benzene, Toluene, Ethylbenzene, Xylenes. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

A handwritten signature in black ink that reads "Scott T. Ferriman". The signature is written in a cursive style with a prominent flourish at the end.

Scott T. Ferriman
Project Specialist

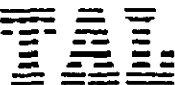
Enclosures

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960

Facsimile (510) 783-1512



LOG NUMBER: 4500
DATE SAMPLED: 06/14/94
DATE RECEIVED: 06/14/94
DATE EXTRACTED: 06/16/94
DATE ANALYZED: 06/18/94
DATE REPORTED: 06/21/94

CUSTOMER: Versar, Inc.
REQUESTER: John Russell
PROJECT: No. 2241-019, Santa Rita #9

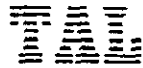
Sample Type: Water

Method and Constituent:	Units	SR9A		Method Blank	
		Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
DHS Method: Total Petroleum Hydro- carbons as Diesel	ug/l	ND	50	ND	50

QC Summary:

% Recovery: 88
% RPD: 15

Concentrations reported as ND were not detected at or above the reporting limit.



LOG NUMBER: 4500
DATE SAMPLED: 06/14/94
DATE RECEIVED: 06/14/94
DATE ANALYZED: 06/21/94
DATE REPORTED: 06/21/94
PAGE: Two

Sample Type: Water

Method and
Constituent:

Units	SR9A		SR9B		Method Blank	
	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit

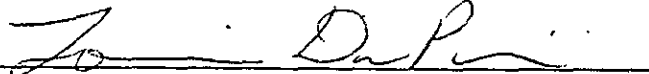
Modified EPA Method 8020 for:

Benzene	ug/l	ND	0.50	ND	0.50	ND	0.50
Toluene	ug/l	ND	0.50	ND	0.50	ND	0.50
Ethylbenzene	ug/l	ND	0.50	ND	0.50	ND	0.50
Xylenes	ug/l	ND	1.5	ND	1.5	ND	1.5

QC Summary:

% Recovery: 100
% RPD: 9.0

Concentrations reported as ND were not detected at or above the reporting limit.


Louis W. DuPuis
Quality Assurance/Quality Control Manager

CHAIN OF CUSTODY RECORD

PROJECT NO. 2241-019		PROJECT NAME Santa Rita #9					PARAMETERS					INDUSTRIAL HYGIENE SAMPLE	Y N	
SAMPLERS: (Signature) <i>John Russell</i>					(Printed) John Russell					REMARKS				
FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TPH-D	BETA (8000)						
SR9A	6/14/94	150		X	Monitoring Well SR-9	4	X	X						
SR9B	6/14/94	150		X	" " "	2	X							
Relinquished by: (Signature) <i>John Russell</i>			Date / Time 6/14/94 350		Received by: (Signature) _____			Relinquished by: (Signature)		Date / Time		Received by: (Signature)		
(Printed)					(Printed)			(Printed)				(Printed)		
Relinquished by: (Signature)			Date / Time		Received for Laboratory by: (Signature) <i>Scott T. Ferraro</i>			Date / Time 6/14/94 3:50		Remarks Normal TAT - Please FAX results to John Russell, (916) 962- 6000 2678 Send results to Fair Oaks office				
(Printed)					(Printed) Scott T. Ferraro									