



Mountain View

Oakland

Pasadena

October 8, 1999

864-40C

San Ramon

Mr. Sean McFadden **UNITED STATES POSTAL SERVICE** 1675 7th Street, Room 328W Oakland, California 94615-9988 RE: SOIL AND GROUND WATER QUALITY

EVALUATION

USPS VEHICLE MAINTENANCE

FACILITIES

OAKLAND AND RICHMOND,

CALIFORNIA

Dear Mr. McFadden:

The attached report summarizes the results of our soil and ground water quality evaluation performed for the United States Postal Service Vehicle Maintenance Facilities in Oakland and Richmond, California. This work was performed per our agreement with you dated June 16, 1999.

We refer you to the text of the report for details regarding our findings. Thank you for choosing us to assist you. If you have any questions, please call and we will be glad to discuss them with you.

Very truly yours,

LOWNEY ASSOCIATES

John W. McCain

Staff Environmental Geologist

Ron L. Helm, R.G., C.E.G. Senior Principal Geologist

TJC:JWM:tjc

Copies: Addressee (3)

Contra Costa County Environmental Health Department (1)

Attn: Ms. Agnes Vinluan, R.E.H.S. Alameda County Health Care Services (1)

Attn: Mr. Larry Seto

MV, 864-40C-OakRichsoil.doc



Soil and Ground Water Quality Evaluation

USPS Vehicle Maintenance Facilities Oakland and Richmond, California

3175

This report has been prepared for:

United Stated Postal Service

1675 7th Street, Room 328W, Oakland, California 94615-9988

October 8, 1999

Project No. 864-40C

John W. McCain Staff Environmental Geologist

Ron L. Helm, R.G., C.E.G. Senior Principal Geologist



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SOIL AND GROUND WATER QUALITY EVALUATION USPS VEHICLE MAINTENANCE FACILITIES OAKLAND AND RICHMOND, CALIFORNIA

1.0 INTRODUCTION

1.1 Purpose

In this report, we present the results of the soil quality and ground water quality evaluation at the United States Postal Service (USPS) Vehicle Maintenance Facilities (VMF) in Oakland and Richmond, California (Figures 1A and 1B). This work was performed to help evaluate the horizontal and vertical extent of impacted soil near three hydraulic lifts at the Oakland VMF and two hydraulic lifts at the Richmond McVittie VMF.

1.2 Scope of Work

1.2.1 Oakland VMF, 1675 7th Street, Oakland, California

The scope of work performed was outlined in our agreement dated June 16, 1999 and included:

- ▼ Drilling of six exploratory borings.
- ▼ Collecting selected soil samples for laboratory analysis.
- Collecting selected ground water grab samples for laboratory analysis.

1.2.2 Richmond McVittie VMF, 2100 Chanslor Street, Richmond, California

The scope of work performed was outlined in our agreement dated June 16, 1999 and included:

- Drilling of four exploratory borings.
- Collecting selected soil samples for laboratory analysis.
- ▼ Collecting selected ground water grab samples for laboratory analysis.

2.0 PRE-FIELD ACTIVITIES

Prior to beginning work, a drilling permit application was completed and submitted to the Alameda County Public Works Agency (ACPWA) for their approval for the



work at the Oakland VMF; a work plan, health and safety plan, and drilling application were submitted to the Contra Costa County Environmental Health Department (CCCEHD) for the work at the Richmond McVittie VMF. Copies of the drilling permit applications are presented in Appendix A.

3.0 SUBSURFACE EXPLORATION—OAKLAND VMF

3.1 Soil Quality Evaluation

On August 16, 1999, staff geologist John McCain directed a subsurface exploration program and advanced six borings (EB-1 through EB-6) to an approximate depth of 15 to 20 feet using a hydraulic coring rig. Two borings were located adjacent to each lift; one boring was drilled near the concrete vault of the lifts, and one boring was drilled near each stationary lift cylinder. The boring locations are presented on Figure 2A.

One soil sample was collected from each boring at approximate depths of 7½ to 13½ feet, up to approximately 3½ feet below the base of the hydraulic lifts. Discolored soil with a petroleum odor was encountered in borings EB-1, EB-2, EB-3, EB-4, and EB-6 at depths ranging from 4 to 15 feet. One soil sample was collected from each boring at an approximate depth of 7½ to 13½ feet. Soil samples were selected for laboratory analysis on the basis of discoloration and/or petroleum odor. Drilling protocol is presented in Appendix B.

3.2 Laboratory Analyses

One soil sample collected from each boring was analyzed at a state certified laboratory for total recoverable petroleum hydrocarbons (TRPH) (Standard Test 5520EF) and benzene, toluene, ethyl benzene, and xylenes (BTEX) compounds (EPA Test Method 8020). The analytical results are presented in Table 1 and on Figure 2A. Copies of the laboratory analytical reports and chain-of-custody documentation are presented in Appendix B.

Table 1. Analytical Results of Selected Soil Samples
Oakland VMF

(concentrations in parts per million)

Boring	Depth				Ethyl-	
Number	(feet)	TRPH	Benzene	Toluene	benzene	Xylenes
EB-1	10½ - 11	22,000	< 0.005	0.0063	0.012	0.045
EB-2	9 - 91/2	35	<0.005	<0.005	< 0.005	< 0.005
EB-3	9 - 91/2	48,000	0.034	0.21	0.03	0.16
EB-4	13 - 131/2	90	< 0.005	< 0.005	< 0.005	< 0.005
EB-5	71/2 - 8	<25	< 0.005	< 0.005	< 0.005	< 0.005
EB-6	12 - 12½	37	<0.005	<0.005	<0.005	< 0.005
Industrial PRG		NE	1.4	520	230	210

TRPH = Total Recoverable Petroleum Hydrocarbons

PRG = Preliminary Remediation Goal levels, EPA Region 9, 1998

NE = Not established



3.3 Ground Water Quality Evaluation

On August 16, 1999, staff geologist John McCain collected ground water grab samples from borings EB-1, EB-3, and EB-6. Ground water grab samples were collected from the borings nearest to the stationary hydraulic piston. The boring locations are presented on Figure 2A. Ground water grab sampling protocol is presented in Appendix B.

Upon completion, each exploratory boring was backfilled with cement grout to the surface.

3.4 Laboratory Analyses

The ground water grab samples collected from borings EB-1, EB-3, and EB-6 were analyzed at a state certified laboratory for TRPH (Standard Test 5520EF) and BTEX compounds (EPA Test Method 8020). The analytical results are presented in Table 2 and on Figure 2A. Copies of the laboratory analytical reports and chain-of-custody documentation are presented in Appendix B.

Table 2. Analytical Results of Ground Water Grab Samples
Oakland VMF

(concentrations in parts per million)

Boring Number	TRPH	Benzene	Toluene	Ethyl- benzene	Xylenes
EB-1	61	0.00056	0.0037	0.0014	0.01
EB-3	38	0.0065	0.014	0.0027	0.016
EB-6	9.3	<0.0005	0.00082	0.00091	0.0036
MCL	NE	0.001	0.15	0.70	1.75

TRPH = Total Recoverable Petroleum Hydrocarbons

MCL = Drinking Water Maximum Contaminant Level, Department of Health Sciences NE = Not established

4.0 SUBSURFACE EXPLORATION—RICHMOND MCVITTLE VMF

4.1 Soil Quality Evaluation

On August 19, 1999, staff geologist John McCain directed a subsurface exploration program and advanced four borings (EB-1 through EB-4) to an approximate depth of 18 feet using a hydraulic coring rig. Two borings were located near each lift; one boring was drilled near the concrete vault of the lifts; one boring was drilled near each stationary lift cylinder. The boring locations are presented on Figure 2B.

One soil sample was collected from each boring at approximate depths of 11½ to 16½ feet, approximately 1½ to 6½ feet below the base of the hydraulic lifts; soil samples, selected on the basis of visual or olfactory evidence of impact by petroleum hydrocarbons, were collected for laboratory analysis. Discolored soil

with a petroleum odor was encountered in borings EB-1, EB-2, and EB-4 at depths ranging from 7 to $16\frac{1}{2}$ feet. One soil sample was collected from each boring at an approximate depth of $11\frac{1}{2}$ to $16\frac{1}{2}$ feet. Soil samples were selected for laboratory analysis on the basis of discoloration and/or petroleum odor. Drilling protocol is presented in Appendix B.

4.2 Laboratory Analyses

One soil sample collected from each boring was analyzed at a state certified laboratory for TRPH (Standard Test 5520EF) and BTEX compounds (EPA Test Method 8020). The analytical results are presented in Table 3 and on Figure 2B. Copies of the laboratory analytical reports and chain-of-custody documentation are presented in Appendix B.

Table 3. Analytical Results of Selected Soil Samples
Richmond McVittie VMF

(concentrations in parts per million)

Boring Number	Depth (feet)	TRPH	Benzene	Toluene	Ethyl- benzene	Xylenes
EB-1	11½ - 12	8,100	<0.05	0.34	2.1	13
EB-2	14½ - 15	<25	< 0.005	< 0.005	< 0.005	< 0.005
EB-3	16 - 161/2	33	< 0.005	< 0.005	< 0.005	< 0.005
EB-4	15 - 151/2	<25	< 0.005	< 0.005	< 0.005	< 0.005
Industrial PRG		NE	1.4	520	230	210

TRPH = Total Recoverable Petroleum Hydrocarbons

PRG = Preliminary Remediation Goal levels, EPA Region 9, 1998

NE = Not established

4.3 Ground Water Quality Evaluation: Richmond McVittle VMF

On August 19, 1999, staff geologist John McCain collected ground water grab samples from borings EB-2 and EB-4. The ground water grab samples were collected from the two borings nearest to the stationary hydraulic pistons. The boring locations are presented on Figure 2B. Ground water grab sampling protocol is presented in Appendix B.

Upon completion, each exploratory boring was backfilled with cement grout to the surface.

4.4 Laboratory Analyses

The ground water grab samples collected from borings EB-2 and EB-4 were analyzed at a state certified laboratory for TRPH (Standard Test 5520EF) and BTEX compounds (EPA Test Method 8020). The analytical results are presented in Table 4 and on Figure 2B. Copies of the laboratory analytical reports and chain-of-custody documentation are presented in Appendix B.



Table 4. Analytical Results of Ground Water Grab Samples Richmond McVittie VMF

(concentrations in parts per million)

Boring Number	TRPH	Benzene	Toluene	Ethyl- benzene	Xylenes
EB-2	<5.0	<0.0005	0.00053	<0.0005	< 0.0005
EB-4	<5.0	<0.0005	<0.0005	<0.0005	< 0.0005
MCL		0.001	0.15	0.70	1.75

TRPH = Total Recoverable Petroleum Hydrocarbons

MCL = Drinking Water Maximum Contaminant Level, Department of Health Sciences NE = Not established

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Oakland VMF

Up to 48,000 ppm of TRPH or hydraulic oil were detected near the former hydraulic lifts. TRPH was detected in samples EB-1 and EB-3 at concentrations of 22,000 ppm and 48,000 ppm, respectively (Figure 2A). TRPH was detected at a maximum concentration of 90 ppm in the other four soil samples. Based on laboratory analyses of the samples collected, it appears that the subsurface hydraulic lifts have impacted soil underlying the site.

The ground water beneath the site also has been impacted with petroleum hydrocarbons. TRPH (61 ppm) were detected in sample EB-1.

BTEX compounds were not detected at high levels in either soil or ground water. In addition, high molecular weight petroleum hydrocarbons, such as hydraulic fluid, typically exhibit characteristics of low toxicity and low mobility in the environment. Thus, the residual petroleum hydrocarbons detected do not appear to pose a significant threat to human health or the environment.

Even though hydraulic oil likely will not pose a significant threat to human health or the environment, we do recommend that the extent of impacted soil and ground water be defined.

5.2 Richmond McVittie VMF

TRPH or hydraulic oil was detected. Only one sample (EB-1 at 8,100 ppm) revealed TRPH at concentrations greater than 50 ppm. Ground water was not significantly impacted in the two samples analyzed. No further work appears required at this time.

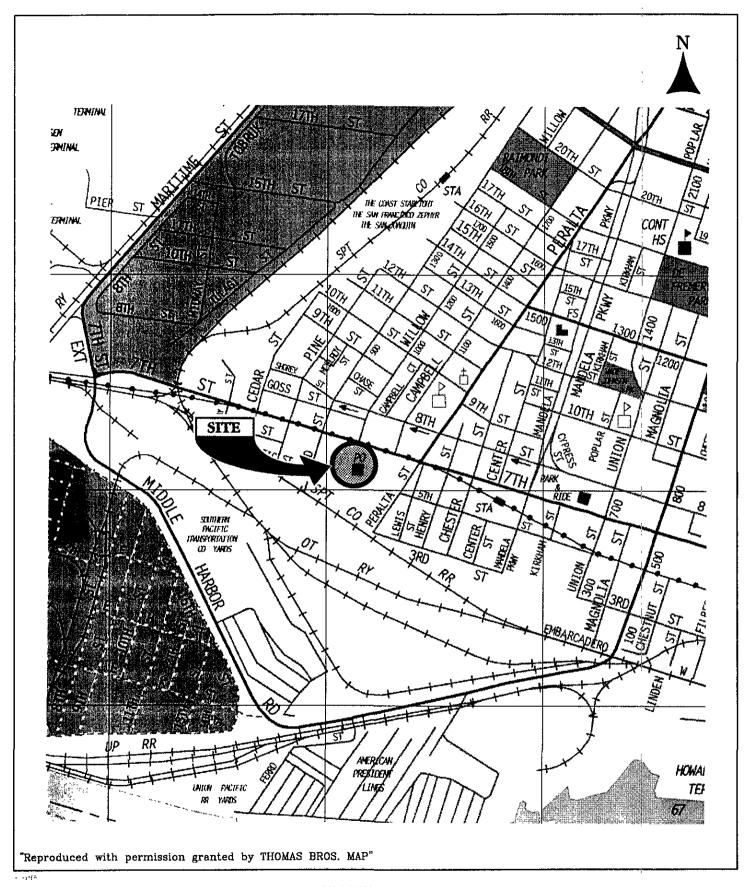
As requested, this report has been forwarded to the appropriate agencies for their review.



6.0 LIMITATIONS

This report was prepared for the use of the United States Postal Service in evaluating soil quality at the referenced sites at the time of this study. We make no warranty, expressed or implied, except that our services have been performed in accordance with environmental principles generally accepted at this time and location. The chemical and other data presented in this report can change over time and are applicable only to the time this study was performed. We are not responsible for the data presented by others.

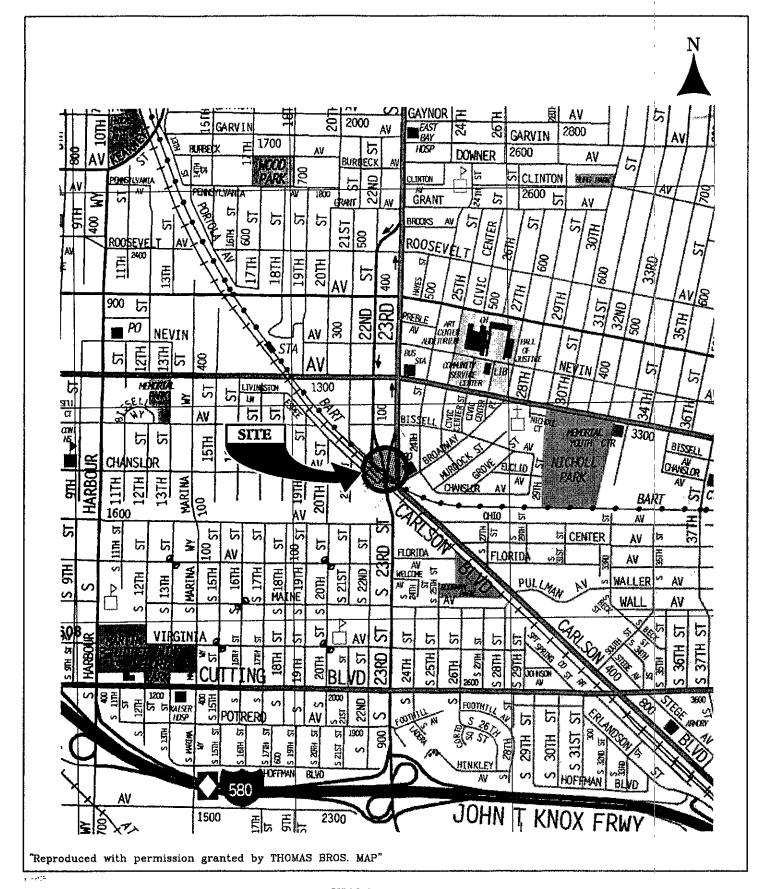
The accuracy and reliability of geo- or hydrochemical studies are a reflection of the number and type of samples taken and extent of the analyses conducted, and are thus inherently limited and dependent upon the resources expended. Chemical analyses were performed for specific parameters during this investigation, as detailed in the scope of services. Please note that additional constituents not analyzed for during this investigation may be present in soil and ground water at the site. Our sampling and analytical plan was designed using accepted environmental principles and our judgment for the performance of a reconnaissance soil quality investigation, and was based on the degree of investigation desired by you. It is possible to obtain a greater degree of certainty, if desired, by implementing a more rigorous soil and ground water sampling program or evaluating the risk posed by the contaminants detected, if any.



VICINITY MAP

OAKLAND VMF Oakland, California

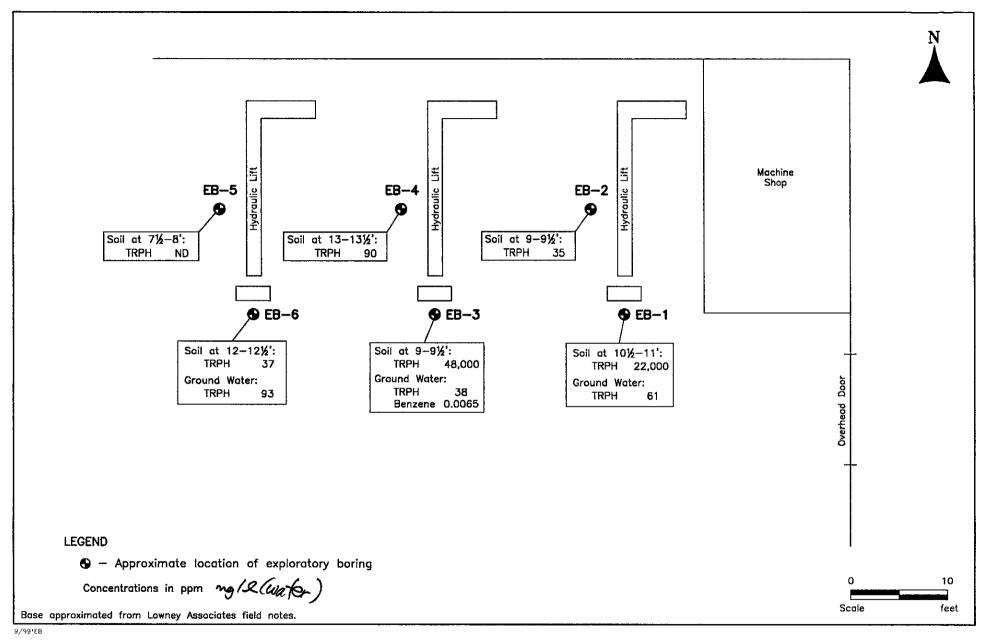




VICINITY MAP

RICHMOND McVITTIE VMF Richmond, California

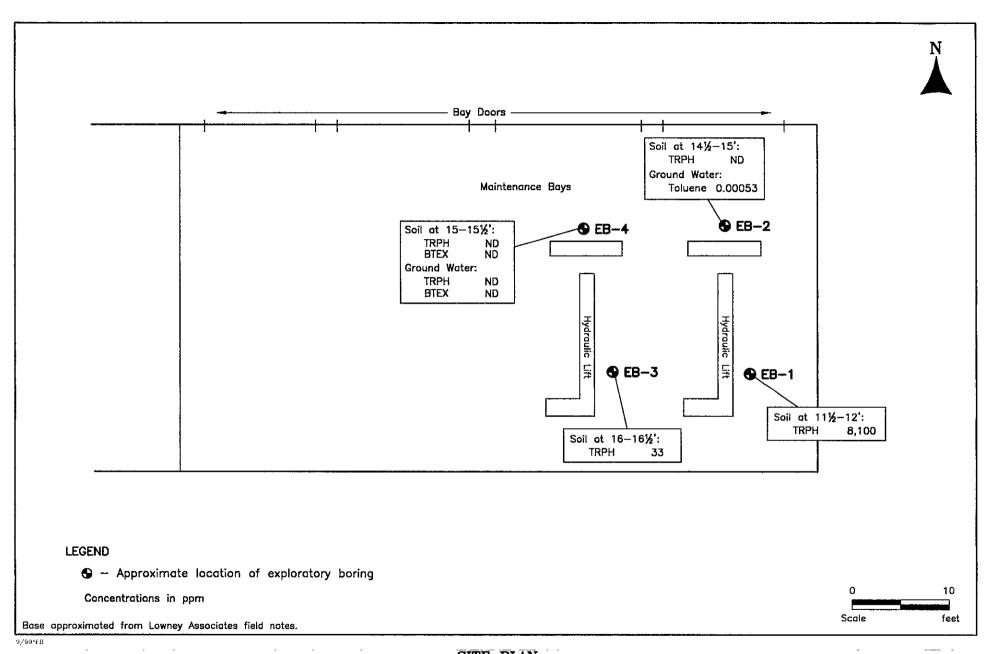




SITE PLAN

OAKLAND VMF Oakland, California







SITE PLAN RICHMOND McVITTIE VMF Richmond, California

APPENDIX A SUBSURFACE DRILLING PERMITS



PUBLIC WORKS

ALA EDA COUNTY PUBLIC WC XS AGENCY

WATER RESOURCES SECTION 951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651 PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262 (510) 670-5248 ALVIN KAN

DRILLING PERMIT	APPLICATION
FOR APPLICANT TO COMPLETE	FOR OFFICE USE 99WR408
LOCATION OF PROJECT Varies Frostal Service Fieldy	WELL NUMBER
1675 7th street, Oakland	•
	PERMIT CONDITIONS
California Coordinates Source Ti. CCZ	Circled Permit Requirements Apply
CLIENT Name United States Postel Service Roam 321 Address 1675 The Street Phone 510-314-8536 City Colland Cd Zip 946/5-978 APPLICANT Name Lowner Associates Fax 510-267-1972	proposed starting date. Jubmit to ACPWA within 60 days after completion of permitted work the priginal Department of Water Resources Water Well Drillers Report of equivalent for well projects, or drilling logs and location sketch for
Address 129 Filhert Street Phone 510-267-1970 City Cokland, CA Zip 94607	3. Permit is void if project not begun within 90 days of approval date.
TYPE OF PROJECT Well Conservation Geotechnical Investigation	B. WATER SUPPLY WELLS 1. Minimum surface seal thickness is two inches of coment grout placed by tremie
Cathedic Protection	2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation
Mater Supply C Well Destruction C	mails valess a lesser depth is specially approved.
PROPOSED WATER SUPPLY WELL USE	C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
New Domestic D Replacement Companie	I Minimum surface seal thickness is two inches of
Municipal A Imigation	coment grout placed by tremis.
Industrial C Other	2. Minimum scal depth for monitoring wells is the maximum depth practicable of 20 feet.
DRILLING METHOD: Mid Rosery D Air Rosery D Auger, D	D. GEOTECHNICAL Backfill bore hole with compacted cuttings or heavy
Cable D Other M Geopre	bentonite and upper two feet with compacted material. In areas of known or suspected contamination, remied
DRILLER'S LICENSE NO. C-57 705927	cement grout shall be used in place of compacted count
WELL PROJECTS Only Hole Diameterin. Maximum	E. CATHODIC Fill hole above anode zene with concrete placed by fight F. WELL DESTRUCTION
Casing Diameter in. Depth ft. Surface Seal Depth ft. Number	See strached. SPECIAL CONDITIONS SEE AFTACHED
Adi torn dage, popul	Or SECULL COMMISSION !
CEOTECHNICAL PROJECTS Number of Borings 6 Hole Diameter 2 in Depth 6.	Musulle 2"
ESTIMATED STARTING DATE 7/2/199 ESTIMATED COMPLETION DATE 7/2/199	APPROVED DATE 1-1
: hereby agree to comply with all requirements of this permit and	

5102671972

PAGE. 02

APPLICANT'S NO DATE 1/13/49



CONTRA COSTA COUNTY ENVIRONMENTAL HEALTH DIVISION WELL PERMIT APPLICATION

Health Services Department ENVIRONMENTAL HEALTH DIVISION 2120 Diamond Blvd., Suite 200 Concord, California 94520 (510) 646-5225

Please print or type

(Attach Plot Plan - See Instructions on Reverse Side)

Treuse print or type (Tital	ien k tot i tan - Bee instituet	ons on are reige side)	
Location 2100 Chanslor Sa	rect. Richmo	ud	APN
Subdivision Lot Number	GPS Longitude	GPS Latitude	Lot Size
Property Owner			Phone
United States Pos	tal Service		(570) 874- 8536
3.6 (1) A 1.4			City/Zin
1675 7 5 Street, R.	oom 328W Oak/License No	and CA 9461	5-9988
Contractor	License Nu	ımber	Phone
Vironex	657		(510) 266-0966
Mailing Address 23762 Foley Street			City/Zip '
Consultant/Mailing Address	,		Phone
Lowney Associat	حے		(50) 267-1970
	D	Ctt	
Type of Work	Proposed Use	Construction/Destruct	
New Well	Domestic		Borehole
Repair	Public	-	Depth Gauge
Reconstruction	Agricultural	Annular seal depth (50' min	
Destruction	Industrial	Type of material for annular	·
Soil Boring	Monitoring		entonite
Other	Other		oncrete
ID #	No. of Service Connections	Gravel/sand packed yes	
Sewage Disposal (subject property)	Sewage Disposal (off-site)		no Depth Diam.
Septic system	Septic system	Method of drilling/destruction	on
Sewer system	Sewer system	(attach additional sheets if r	Jacassan)
 2. I certify that in the performance of the wo compensation laws in California. B. TERMS OF PERMIT I hereby certify that the above information and s and regulations. I agree to obtain all required authorization prior to deviating from the approve guarantee of perfect and indefinite operation of 	ubmitted plans are true and correct and the inspections, maintain a copy of the appred permit or plans, or placing the well in	at the proposed work will comply wo oved permit and plans at the job s service. It is understood that the iss	ith all permit conditions and applicable law site until final approval, and obtain writter uance of a permit in no way indicates that
Signature of Contractor (C-57 Licensee)		Date	
	DO NOTEWRITE BELOX	FINNENDE SERVE	
Permit Approved/Issued: By:		Date:	·
Permit Denied: By:		Date:	
Final Approval: By:		Date:	
DDD1444 CONTRACTOR			
PERMIT CONDITIONS: 1. Contact the Environmental Health Division at leas agreeable time. Voicemail messages are not accept business hours. 2. A proper annular seal and surface construction feat 3. Monitoring well/soil boring shall be destroyed purs 4. Other	able; confirmation must be made directly ures are to be installed, and required water	with the inspector or supervisor. A ranalyses completed within 30 days	Appointments shall be arranged for County of commencing drilling.
PERMIT EXPIRES 180 DAYS FROM	DATE OF APPROVAL (peri	nits are non-transferrable	e, revocable and suspendable)
		Permit No.	

APPENDIX B

DRILLING/SOIL SAMPLING/GROUND WATER GRAB SAMPLING PROTOCOL, LABORATORY REPORTS, AND CHAIN-OF-CUSTODY DOCUMENTATION

Subsurface Investigation: The subsurface investigation was performed using a truck-mounted Geoprobe hydraulic coring rig. The soil borings were drilled to their respective depths (see report) which included at least 4 to 5 feet into ground water. Soil samples were collected continuously using a 2-inch-diameter push sampler.

Soil Sampling: Soil samples for laboratory analysis were collected in acetate liners. The ends of the liners were covered in Teflon film, fitted with plastic end caps, taped, and labeled with a unique identification number. The samples were then placed in an ice-chilled cooler, and transported to a state-certified analytical laboratory with chain of custody documentation. Attached are copies of the analytical results and the chain of custody forms.

Ground Water Grab Sampling: At each hydraulic lift location, the boring which exhibited significant visual or olfactory evidence of impact from petroleum hydrocarbons was converted into a "temporary" well with the installation of 1-inch I.D. flush-threaded, Schedule 40 PVC casing. The casing in the lower portion of the well had 0.02-inch factory machined slots. Ground water grab samples were collected from the temporary wells with a stainless steel bailer. Samples were collected in appropriate sampled bottles, labeled, and immediately placed into an ice-chilled chest for delivery to a state-certified analytical laboratory for analysis.

All drilling and sampling equipment was cleaned in a solution of laboratory grade detergent and distilled water or steam cleaned before use at each sampling point.



Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Lowney Associates 129 Filbert Street Oakland, CA 94607 Attn: Paul Reginato Date: 8/25/99 Date Received: 8/17/99

Project: USPS Oakland

Job #: 864-40C Sampled By: Client

Certified Analytical Report

Soil Sample Analysis: (All results in mg/kg)

Sample ID	EB-1 (10.5-	11)		EB-3 (9-9.5)	•		EB-4 (13-13	.5)			
Sample Date	8/16/99			8/16/99			8/16/99				
Sample Time		-								.	
Lab#	15869-001			15869-002			15869-003				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
Analysis Date	8/20/99			8/20/99			8/20/99				
TRPH	22,000	40	1000	48,000	100	2500	90	10	25	25	SM5520
Analysis Date	8/20/99			8/20/99			8/20/99				
Benzene	ND	1.0	0.005	0.034	10	0.005	ND	1.0	0.005	0 005	8020
Toluene	0.063	1.0	0.005	0.21	1.0	0.005	ND	10	0.005	0.005	8020
Ethyl Benzene	0.012	1.0	0.005	0.030	1.0	0.005	ND	1.0	0.005	0,005	8020
Xylenes (total)	0.045	1.0	0.005	0.16	1.0	0.005	ND	1.0	0.005	0.005	8020

DF=Dilution Factor

ND= None Detected above DLR

PQL=Practical Quantitation Limit

DLR=Detection Reporting Limit

[·] Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Lowney Associates 129 Filbert Street Oakland, CA 94607 Attn: Paul Reginato Date: 8/25/99 Date Received: 8/17/99

Project: USPS Oakland

Job #: 864-40C Sampled By: Client

Certified Analytical Report

Soil Sample Analysis: (All results in mg/kg)

Sample ID	EB-6 (12-12	.5)		EB-2 (9-9.5))		EB-5 (7.5-8)				
Sample Date	8/16/99			8/16/99			8/16/99				
Sample Time											
Lab #	15869-004			15869-005			15869-014				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
Analysis Date	8/20/99			8/20/99			8/20/99				
TRPH	37	1.0	25	35	1.0	25	ND	1.0	25	25	SM5520
Analysis Date	8/20/99			8/20/99			8/20/99			-	
Benzene	ND	1.0	0.005	ND	1.0	0.005	ND	1.0	0.005	0.005	8020
Toluene	ND	1.0	0.005	ND	1.0	0.005	ND	1.0	0.005	0.005	8020
Ethyl Benzene	ND	1.0	0.005	ND	1.0	0.005	ND	1.0	0.005	0.005	8020
Xylenes (total)	ND	1.0	0.005	ND	1 0	0.005	ND	1.0	0.005	0.005	8020

DF=Dilution Factor

ND= None Detected above DLR

PQL=Practical Quantitation Limit

DLR=Detection Reporting Limit

[·] Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Lowney Associates 129 Filbert Street Oakland, CA 94607 Attn: Paul Reginato Date: 8/26/99
Date Received: 8/17/99

Project: USPS Oakland

Job #: 864-40C

Sampled By: Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	EB-1			EB-3			EB-6			i	
Sample Date	8/16/99			8/16/99			8/16/99				
Sample Time										-	
Lab#	15869-006			15869-007			15869-008				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
Results in mg/Liter:											
Analysis Date	8/24/99			8/26/99			8/24/99			-	
TRPH	61	1.0	5.0	38	1.0	5.0	9.3	1.0	5.0	5.0	418.1
Results in µg/Liter:					1					1	
Analysis Date	8/24/99			8/20/99			8/19/99			1	
Benzene	0.56	1.0	0.50	6.5	1.0	0.50	ND	1.0	0.50	0.50	8020
Toluene	3.7	1.0	0.50	14	1.0	0.50	0.82	1.0	0.50	0 50	8020
Ethyl Benzene	1.4	1.0	0.50	2.7	1.0	0.50	0.91	1.0	0.50	0.50	8020
Xylenes (total)	10	1.0	0.50	16	1.0	0.50	3.6	1.0	0.50	0.50	8020

DF=Dilution Factor

ND= None Detected above DLR

PQL=Practical Quantitation Limit

DLR=Detection Reporting Limit

· Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

METHOD: Gas Chromatography Laboratory Control Sample

QC Batch # GBG1990819 Matrix Water Units: µg/Liter Date Analyzed · 08/19/99 Quality Control Sample: Blank Spike

PARAMETER	Method #	MВ µg/Liter	SA µg/Liter	SR µg/Liter	SP µg/Liter	SP % R	SPD µg/Liter	SPD %R	RPD	Q(RPD	C LIMITS %R
	0000		;					 i	2.1		· · · · · · · · · · · · · · · · · · ·
Benzene	8020	<0.50	3.6	ND	3.3	92	3.2	89	3.1	25	69-118
Toluene	8020	<0.50	25.0	ND	26	106	25	100	5.0	25	82-122
Ethyl Benzene	8020	<0.50	5.0	ND	5.1	102	48	96	6.1	25	77-114
Xylenes	8020	<0.50	25 0	ND	29	115	27	108	6.8	25	85-125
Gasoline	8015	<50.0	500	ND	569	114	472	94	18.6	25	75-125
aaa-TFT(S.S.)-PID	8020			89%	96%		98%				65-135
aaa-TFT(S.S.)-FID	8015			102%	107%		107%				65-135

Definition of Terms:

na: Not Analyzed in QC batch

MB: Method Blank SA: Spike Added SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike % Recovery
nc: Not Calculated

METHOD: Gas Chromatography Laboratory Control Sample

QC Batch #: GBG2990824

Matrix: Water
Units: ug/Liter

Date Analyzed: 08/24/99 Quality Control Sample: Blank Spike

UI	nus; pg/Luci										
PARAMETER	Method #	MB μg/Liter	SA μg/Liter	SR μg/Liter	SP μg/Liter	SP % R	SPD μg/Liter	SPD %R	RPD	Q(RPD	C LIMITS %R
Benzene	8020	< 0.50	5.0	ND	3.2	64	3.1	62	3.8	25	69-118
Toluene	8020	<0.50	25.0	ND	23	93	23	93	0.5	25	82-122
Ethyl Benzene	8020	<0.50	5.0	ND	4.7	94	4.9	97	2.9	25	77-114
Xylenes	8020	<0.50	25.0	ND	26	104	28	111	6.4	25	85-125
Gasoline	8015	<50.0	500	ND	468	94	445	89	5.1	25	75-125
aaa-TFT(S.S.)-PID	8020			100%	97%		94%				65-135
ava-TFT(S.S.)-FID	8015			105%	102%		99%				65-135

Definition of Terms:

na: Not Analyzed in QC batch

MB: Method Blank SA: Spike Added SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike % Recovery
no: Not Calculated

METHOD: Gas Chromatography Laboratory Control Sample

QC Batch #: GBG2990820

Matrix: Water Units: µg/Liter

Date Analyzed: 08/20/99 Quality Control Sample. Blank Spike

											
PARAMETER	: Method #	MB μg/Liter	SA μg/Liter	SR µg/Liter	SP µg/Liter	SP % R	SPD μg/Liter	SPD %R	RPD	Q RPD	C LIMITS %R
Benzene	8020	<0.50	5.0	ND	4.0	81	4.1	82	1.7	25	69-118
Toluene	8020	< 0.50	25.0	ND	24	96	24	96	0.1	25	82-122
Ethyl Benzene	8020	< 0.50	5.0	ND	5.0	101	5.1	102	1.6	25	77-114
Xylenes	8020	< 0.50	25.0	ND	27	108	27	108	0.0	25	85-125
Gasoline	8015	<50.0	500	ND	528	106	497	99	6.1	25	75-125
aaa-TFT(S S.)-PID	8020			99%	100%		101%				65-135
aaa-TFT (S.S.)-FID	8015			104%	105%		100%				65-135

Definition of Terms:

na. Not Analyzed in QC batch

MB. Method Blank SA: Spike Added SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result SP (%R): Spike % Recovery SPD: Spike Duplicate Result SPD (%R): Spike % Recovery

nc: Not Calculated

525 Del Rey Avenue Suite E Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

QC Batch: STRPHIR990802

Date Analyzed: 08/12/99

Matrix: Soil

Spiked Sample: Blank Spike

Units: mg/Kg

PARAMETER	MB	SA	SR	SP	SP	SPD	SPD	RPD	QC I	LIMITS
<u> </u>	mg/Kg	mg/Kg	mg/Kg	mg/Kg	PR	mg/Kg	PR.		RPD :	PR
TRPH	<25	194.4	ND	230	118%	227	117%	1.58	25	60-140

Definition of Terms:

MB: Method Blank SA: Spike Added

SR: Sample Result

SP: Matrix Spike Result

SP (PR): Matrix Spike % Recovery SPD: Matrix Spike Duplicate Result

SPD (PR): Matrix Spike Duplicate % Recovery

RPD: Matrix Spike Recovery % Variance

METHOD: Gas Chromatography Laboratory Control Sample

QC Batch #: GBG2990820

Matrix: Soil Units: µg/kg Date Analyzed: 08/20/99

Quality Control Sample Blank Spike

	4. (0 - 0			The Contract of the Contract o	.,			_			
PARAMETER	Method #	MB μg/kg	SA µg/kg	SR µg/kg	SP	SP % R	SPD μg/kg	SPD %R	RPD	RPD	QC LIMITS %R
Benzene	8020	<5.0	22.5	ND	19.0	84	18.0	80	5.4	25	75-125
Toluene	8020	<5.0	125	ND	121	97	115	92	5 1	25	75-125
Ethyl Benzene	8020	<5.0	25.0	ND	24.5	98	23	92	6.3,	25	75-125
Xylenes	8020	<5.0	125	ND	135	108	127	102	6.1	25	75-125
Gasoline	8015	<1000	2500	ND	2640	106	2450	98	7.5	25	75-125
aaa-TFT(S.S.)-PID	8020		•	99%	101%		96%	•	•		65-135
aaa-TFT(S.S.)-FID	8015			104%	102%		98%				65-135

Definition of Terms:

na: Not Analyzed in QC batch

MB: Method Blank

SA: Spike Added

SR. Sample Result

RPD(%). Duplicate Analysis - Relative Percent Difference

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike % Recovery

NC: Not Calculated

LOWNEYASSOCIATES CHAIN OF CUSTODY RECORD

Send Results To:

Mountain View Office 405-Clyde Avenue Mountain View, CA 94043 415-967-2365

Oakland Office 129 Filbert Street Oakland, CA 94607 510-267-1970

Relinquished By: Date: 1/7 Time: 1/+ 80 Received By: Date: Time: Relinquished By: Lab of Record: EMECH Temperature										Pax (Сору	To:		U	415-9	67-278	35 (fa	x)			<u>X</u>	510-267-1	972 (fax)
10 Number				,					Turnaround						Ā	NAL.	YSES	RU	QUE	stel	,		
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	Report To: Paul	K	Pegi					•	(%) working days			14	Y -	$\sqrt{}$		/	/		/	/ ,	/ /	///,	/
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Remarks Rema	QC Requirements:		•	•							\\?\		/ /	/ ,	/ ,	/ /	/ /	/ ,	/ /	/ /	/ /	′ /	
Remarks Rema	(X Level A (standard)	O Le	vel B	☐ Level C					🛘 2-3 hours (RUSII)	K	18	\$/		•/									
EB-2(7-7%)	Sample I.D.	Da	ıte	Tlme	Sam Mati	rix			Laboratory L.D.	X		<u>/_</u>		\angle	_							/	emarks
EB-2(7-7%)		8-16	·41		50í				,														
EB-3(13-136) EB-4(76-8) EB-4(8-86) EB-4(9-96) EB-4(13-136) EB-5(13-136) EB-6(14-16) EB-6(14-16) EB-6(14-16) EB-6(116-12) EB-6(116-12) EB-6(12-126) EB-6(12-126) EB-6(13-136) EB-6(13-136	EB-2(7-7%)																					\$ Holo	V
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FB-6(12-12/b)																						\$ 1/2	Kl
EB-2(9-912) Relinquished By: Date: 8-17-99 Time: 16:21 Received By: Date: 8/7 Time: 10 Ze PM initials Relinquished By: Date: 1/7 Time: 1/- 20 Received By: Date: 5/7 Time: 1/- 20 Received By:		V			V						Х												
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Relinquished By: Date: 1/7 Time: 1/- 80 Received By: Date: Time: Relinquished By: Lab of Record: EMECH Temperature	EB-2(13)	<u> </u>			W		\mathbb{V}		-017													× 1-101	d
Relinquished By: Date: Time: Lab of Record: EMPCH Temperatu	Relinquished By:	m	Z		<u> </u>	Date: 8	17	99	Time: /0:2;	Rece	ived By	'i	\leq	ve	برسر			Da	ıtc: E /	1/7	Time:	10 20	PM initials
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Received by Lab: Watan Date: 8/17/9 Time: 1/-30/										Recei	ved by	Lab:	7	ngti	an)		Da	lc; 8/	1/1	Time:	11.301	<u> </u>

LOWNEYASSOCIATES CHAIN OF CUSTODY RECORD

2/3

Send Results To:

Mountain View Office 405 Clyde Avenue Mountain View, CA 94043 415-967-2365 Oakland Office 129 Filbert Street Oakland, CA 94607 510-267-1970

510-267-1972 (fax) 415-967-2785 (fax) Pax Copy To: Project Name ANALYSES REQUESTED Turnaround Requirements 🛘 10 working days Job Numbers Report To: **E** 5 working days Sampler (print): □ 3 working days Sampler (signature): 48 hours QC Requirements: O 24 hours (M. Level A (standard) C Level B | Level C | Level D CJ 2-3 hours (RUSII) Sample # of Laboratory Sample I.D. Date Time Matrix Cont. LD. Remarks 501 5869-018 7 Time: 10:21 Relinquished By: Received By: PM initials Date: Time: Relinquished By: Received By: Date: Time: Relinguished By: Date: Time: Lab of Record: Temperature Received by Lab!

LOWNEYASSOCIATES CHAIN OF CUSTODY RECORD

3/3

Send Results Tor

J Mountain View Office 405-Clyde Avenue Mountain View, CA 94043 415-967-2365

15-967-2785 (fax)

Oakland Office 129 Filbert Street Oakland, CA 94607 510-267-1970

Fax Copy To:

Project Name ANALYSES REQUESTED Turnaround Requirements Job Numberi ☐ 10 working days M5 working days Report To: ☐ 3 working days Sampler (print): Sampler (signature): ☐ 48 hours QC Requirements: C 24 hours Level A (standard) [] Level B [] Level C [] Level D [] 2-3 hours (RUSH) Sample of Laboratory Sample LD. Date Time Matrix Cont. Remarks a Waster 8-16-9 15569-001 W EB-6 15869-008 Date: 8/17 Time: 10: 20 Relinquished By: Received By: Time: 1020 PM initials M Time: 11-30 Relinguished By: Received By: Date: Time: Relinquished By: Date: Time: Lab of Record: Temperature

Received by Lab:

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

RECEIVED

SEP 14 1999

Lowney Associates 129 Filbert Street Oakland, CA 94607 Attn: Paul Reginato LOWNEY OK

Date Received: 8/19/99

Project: USPS - Richmond

Date: 8/27/99

Job Number: 864-40C Sampled By: Client

Certified Analytical Report

Soil Sample Analysis: (All results in mg/kg)

Sample ID	EB-1 (11.5-	12)			İ				
Sample Date	8/19/99								,
Sample Time									
Lab #	15933-001							,	
	Result	DF	DLR					PQL	Method
Analysis Date	8/26/99								
TRPH	8,100	10	250					25	SM5520
Analysis Date	8/22/99								
Benzene	ND	100	0.050				0.0	005	8020
Toluene	0.34	100	0.050	·			0.0	005	8020
Ethyl Benzene	2.1	100	0.050				0.0	005	8020
Xylenes (total)	13	100	0.050				0.0	0005	8020

DF=Dilution Factor

ND= None Detected above DLR

PQL=Practical Quantitation Limit

DLR=Detection Reporting Limit

[·] Sample for BTEX required methanol extraction due to high concentrations of target hydrocarbons

[·] Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

Entech Analytical Labs, Inc.

CA ELAP# 1-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Lowney Associates 129 Filbert Street Oakland, CA 94607

Attn: Paul Reginato

Date: 8/27/99 Date Received: 8/19/99

Project. USPS - Richmond

Job Number: 864-40C Sampled By: Client

Certified Analytical Report

Soil Sample Analysis: (All results in mg/kg)

Sample ID	EB-2 (14.5-	15)		EB-3 (16-16	.5)		EB-4 (15-15	.5)				
Sample Date	8/19/99			8/19/99			8/19/99					
Sample Time												
Lab #	15933-002			15933-003			15933-004					
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	P	ŹГ	Method
Analysis Date	8/26/99			8/26/99			8/26/99			;		
TRPH	ND	10	25	33	1.0	25	ND	1.0	25		25	SM5520
Analysis Date	8/22/99			8/22/99			8/22/99					
Benzene	ND	1.0	0,005	ND	1.0	0.005	ND	1.0	0.005	0.0	05	8020
Toluene	ND	1.0	0 005	ND	1.0	0.005	ND	1.0	0.005	0.0	05	8020
Ethyl Benzene	ND	1.0	0.005	ND	1.0	0.005	ND	1.0	0.005	0.0	05	8020
Xylenes (total)	ND	1.0	0.005	ND	1.0	0.005	ND	1.0	0.005	0.0	05	8020

DF=Dilution Factor

ND= None Detected above DLR

PQL=Practical Quantitation Limit

DLR=Detection Reporting Limit

[·] Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Lowney Associates 129 Filbert Street Oakland, CA 94607 Attn: Paul Reginato Date: 8/27/99
Date Received: 8/20/99

Project: USPS - Richmond

Job Number: 864-40C Sampled By: Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	EB-2			EB-4				
Sample Date	8/19/99			8/19/99				
Sample Time								
Lab#	15933-011			15933-012				
	Result	DF	DLR	Result	DF	DLR	PQL	Method
Results in mg/Liter:								
Analysis Date	8/25/99			8/25/99				
TRPH	ND	1.0	5.0	ND	1.0	5.0	5.0	418.1
Results in µg/Liter:								
Analysis Date	8/23/99			8/23/99				
Benzene	ND	1.0	0.50	ND	1.0	0.50	0.50	8020
Toluene	0.53	1.0	0.50	ND	1.0	0.50	0.50	8020
Ethyl Benzene	ND	1.0	0.50	ND	1.0	0.50	 0.50	8020
Xylenes (total)	ND	1.0	0.50	ND	1.0	0.50	0.50	8020

DF=Dilution Factor

ND= None Detected above DLR

PQL=Practical Quantitation Limit

DLR=Detection Reporting Limit

· Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

METHOD: Gas Chromatography Laboratory Control Sample

QC Batch #: GBG1990822

Date Analyzed: 08/22/99

Matrix: Soil

Quality Control Sample: Blank Spike

Units: µg/kg

PARAMETER	Method #	MB μg/kg	SA µg/kg	SR µg/kg	SP	SP % R	SPD µg/kg	SPD %R	RPD	(RPD	QC LIMITS %R
Benzene	8020	<5.0	18.0	ND	15.0	83	15.0	83	0.0	25	70-130
Toluene	8020	<5.0	125	ND	130	104	135	108	3.8	25	70-130
Ethyl Benzene	8020	< 5.0	25.0	ND	25.0	100	25.0	100	0.0	25	70-130
Xylenes	8020	< 5.0	125	ND	140	112	145	116	3.5	25	70-130
Gasoline	8015	<1000	2500	ND	2355	94	2415	97	2.5	25	75-125
aaa-TFT(S.S.)-PID	8020		•	88%	97%		98%		•	-	65-135
aaa-TFT(S.S.)-FID	8015			101%	105%		107%				65-135

Definition of Terms:

na: Not Analyzed in QC batch

MB: Method Blank SA: Spike Added SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result SP (%R): Spike % Recovery SPD: Spike Duplicate Result SPD (%R): Spike % Recovery NC: Not Calculated

525 Del Rey Avenue, Suite E Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

QC Batch: STRPHIR990802

Date Analyzed: 08/12/99

Matrix: Soil

Spiked Sample: Blank Spike

Units: mg/Kg

				·				:	
МВ	SA	SR	SP	SP	SPD	SPD	RPD		LIMITS
mg/Kg	mg/Kg	mg/Kg	mg/Kg	PR	mg/Kg	PR		RPD	PR
<25	194.4	ND	230	118%	227	117%	1.58	25	60-140
	mg/Kg	mg/Kg mg/Kg	mg/Kg mg/Kg mg/Kg	mg/Kg mg/Kg mg/Kg	mg/Kg mg/Kg mg/Kg PR	mg/Kg mg/Kg mg/Kg PR mg/Kg	mg/Kg mg/Kg mg/Kg PR mg/Kg PR	mg/Kg mg/Kg mg/Kg PR mg/Kg PR	mg/Kg mg/Kg mg/Kg PR mg/Kg PR RPD

Definition of Terms:

MB: Method Blank SA: Spike Added SR: Sample Result

SP: Matrix Spike Result

SP (PR): Matrix Spike % Recovery

SPD: Matrix Spike Duplicate Result

SPD (PR): Matrix Spike Duplicate % Recovery

RPD: Matrix Spike Recovery % Variance

METHOD: Gas Chromatography Laboratory Control Sample

QC Batch #: GBG1990823 Matrix: Water Units: µg/Liter Date Analyzed: 08/23/99 Quality Control Sample: Blank Spike

PARAMETER	Method#	MΒ μg/Liter	SA μg/Liter	SR μg/Liter	SP μg/Liter	SP % R	SPD µg/Liter	SPD %R	RPD	Q(RPD	C LIMITS %R
Benzene	8020	< 0.50	3.6	ND	3.4	94	3.5	96	2.3	25	69-118
Toluene	8020	< 0.50	25.0	ND	27	109	28	110	1.2	25	82-122
Ethyl Benzene	8020	< 0.50	5.0	ND	5.4	107	5.5	111	3.1	25,	77-114
Xylenes	8020	< 0.50	25.0	ND	29	117	30	120	2.0	25	85-125
Gasoline	8015	<50.0	500	ND	499	100	485	97	2.9	25	75-125
aaa-TFT(S.S.)-PID	8020		,	89%	97%	•	98%			•	65-135
aaa-TFT(S.S.)-FID	8015			102%	106%		107%			'	65-135

Definition of Terms:

na: Not Analyzed in QC batch

MB: Method Blank SA: Spike Added SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike % Recovery
nc: Not Calculated

525 Del Rey Avenue, Suite E Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Laboratory Control Samples

QC Batch ID: WTRPHIR990802

Date Analyzed: 08/24/99

Matrix: Water

Spiked Sample: Blank Spike

Units: mg/L

PARAMETER	SA	SR	SP	SP	SPD	SPD	RPD	QC L	IMITS
	mg/L	mg/L	mg/L	PR	mg/L	PR :		RPD	PR
TRPH	19.44	0	23	116	22	113	2.4	25	70-130

Definition of Terms:

RPD: Relative Percent Difference (Duplicate Analyses)

SA: Spike Added SR: Sample Result SP: Spike Result SP (PR): Spike % Recovery

SPD: Spike Duplicate Result SPD (PR): Spike Duplicate % Recovery

Send Results To: Mountain View Office LOWNEYASSOCIATES 405 Clyde Avenue 129 Filbert Street Mountain View, CA 94043 Oakland, CA 94607 CHAIN OF CUSTODY RECORD 415-967-2365 510-267-1970 415-967-2785 (fax) Fax Copy To: 510-267-1972 (fax) Project Name Turnaround ANALYSES REQUESTED USAS- Richmon Requirements Job Numberi 10 working days X 5 working days Report To: Sohn ann [] 3 working days Sampler (print): Sampler (signature): Cl 48 hours OC Requirements: 🛘 24 hours Level A (standard) C Level B C Level C C Level D 1 2-3 hours (RUSII) Laboratory Sample # of Sample I.D. Date Time Cont. LD. Matrix Remarks Hol 00 Soi 00 00 00 Hold 00 OOK 009 6 Received By: 595 Mikp-World Cortate: 6-20 Time: 1030 Date: 8-20-99 Time: 1030 PM initials Relinquished By: Received By: free C Lee- World CouriesDate: 8-20 Date: 8/20/90 Time: / 3:00 Time Lab of Record: Temperature Time: Relinquished By: Date:

Received by Lab!

Date:

Time: