ExxonMobil
Refining and Supply Company
Downstream - Safety, Health & Environment
Environmental Remediation

2300 Clayton Road, Suite 1250
P.O. Box 4032
Concord, CA 94524-4032
(925) 246-8747 Telephone
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gene.n.ortega@exxon.com

Gene N. Ortega
Territory Manager
Global Remediation – US Retail

ExxonMobil
Refining & Supply

October 19, 2001

Mr. Don Hwang
Alameda County Health Services Agency
Environmental Health Division
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RE: Former Exxon RAS #7-0235/2225 Telegraph Avenue, Oakland, California.

Dear Mr. Hwang:

Attached for your review and comment is a document entitled ***Dual-Phase Extraction Pilot Test,*** dated October 19, 2001, for the above referenced site. The report was prepared by Environmental Resolutions, Inc. (ERI) of Novato, California, and details dual-phase extraction test activities at the subject site.

If you have any questions or comments, please contact me at (925) 246-8747.

Sincerely,

Gene N. Ortega
Territory Manager

Attachment: ERI's Dual-Phase Extraction Pilot Test, dated October 19, 2001.

cc: w/ attachment
Mr. Lewis M. Jones, East Bay Municipal Utility District

cc: w/o attachment
Mr. Scott Thompson, Environmental Resolutions, Inc.

October 19, 2001
ERI 222905.R01

Mr. Gene N. Ortega
ExxonMobil Oil Corporation
P.O. Box 4032
Concord, California 94524-4032

Subject: Dual-Phase Extraction Pilot Test, Former Exxon Service Station 7-0235, 2225 Telegraph Avenue, Oakland, California.

Mr. Ortega:

At the request of ExxonMobil Oil Corporation (formerly Exxon Company, U.S.A.) (ExxonMobil), Environmental Resolutions, Inc. (ERI) performed a continuous (24 hr/day) nine-day dual-phase extraction (DPE) pilot test at the subject site on September 11 through September 19, 2001. Fieldwork was performed in accordance with ERI's *Work Plan to Perform a Dual-Phase Extraction Pilot Test* (Work Plan), dated April 24, 2001. The Work Plan was approved in a letter from the Alameda County Health Care Services, Environmental Health Services, dated August 20, 2001 (Attachment A). ERI used a portable DPE trailer to extract soil vapor and groundwater from groundwater recovery wells RW1 and RW2. The purpose of the test was to evaluate the feasibility of using DPE to reduce dissolved methyl tertiary butyl ether (MTBE) concentrations in groundwater at the subject site.

BACKGROUND

The site is located on the southwestern corner of Telegraph Avenue and West Grand Avenue in Oakland, California, as shown on the Site Vicinity Map (Plate 1). The locations of underground storage tanks (USTs), dispenser islands, and other select site features are shown on the Generalized Site Plan (Plate 2). Properties in the vicinity of the site are occupied primarily by commercial developments.

FIELD ACTIVITIES

Field Work and Sampling

ERI performed the field investigation in accordance with a site-specific health and safety plan. ERI operated the portable DPE system in accordance with the Authority To Construct for Plant 12856 issued by the Bay Area Air Quality Management District; a copy of which is included in Attachment B.

The test was performed using a trailer-mounted DPE unit equipped with two 5-horsepower liquid-ring pumps (LRPs). Two 500-pound vapor-phase granular activated carbon (GAC) adsorbers connected in series provided vapor abatement. Extracted groundwater was treated using sediment filters, three 200-pound liquid-phase GAC vessels connected in series with associated piping and controls. Treated water was discharged into County storm drain facilities in accordance with Wastewater Discharge Permit No.

5046702 1 issued by the East Bay Municipal Utility District (EBMUD). A copy of the permit is included in Attachment B.

ERI used existing groundwater recovery wells RW1 and RW2 for extraction; Groundwater monitoring wells MW6E and MW6H were used as observation wells (Plate 2).

Prior to beginning the DPE test on September 11, 2001, groundwater levels were recorded from observation wells MW6E and MW6H. After approximately 72 hours of operation, monitoring data indicated the vapor-phase GAC was becoming loaded to capacity with hydrocarbons at which time ERI changed out the GAC. This occurred twice more during the test.

Hydrocarbon concentrations in the influent and effluent vapor were measured daily using a photo-ionization detector (PID). Induced pressure at the observation wells was also measured and recorded daily. Field data recorded during the DPE test are presented in Table 1.

Sample Collection and Laboratory Analysis Results

Influent soil vapor and groundwater samples were collected periodically and submitted for analysis to Southern Petroleum Laboratories, Inc. (SPL) and Sequoia Analytical Laboratories, Inc. (Sequoia), California state-certified laboratories, under Chain-of-Custody. Soil vapor samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg); benzene, toluene, ethylbenzene, and total xylenes (BTEX); and methyl tertiary butyl ether (MTBE) using the laboratory methods listed in Table 2. Laboratory analysis results of soil vapor samples are presented in Table 2.

Groundwater samples were analyzed for TPHg, BTEX, MTBE, and total petroleum hydrocarbons as diesel (TPHd), using the laboratory methods listed in Table 3. Laboratory analysis results of groundwater samples are also presented in Table 3. Laboratory reports and Chain-of-Custody records are included as Attachment C.

Laboratory analysis results of influent vapor samples (combined from well RW1 and RW2) indicate TPHg concentrations ranged from 1000 micrograms per liter (µg/L) to 54,000 µg/L during the test. MTBE concentrations range from 28 µg/L to 940 µg/L during the DPE test.

Laboratory analysis results of influent groundwater samples collected from RW1 and RW2 indicate TPHg concentrations of 4,300 µg/L to 4,500 µg/L and MTBE concentrations of 350 µg/L to 650 µg/L.

Dual-Phase Extraction Test Results

Using ERI's SOP-25: "Hydrocarbon Removal From a Vadose Well" (Attachment D), ERI estimates that approximately 187.5 pounds of gasoline-range hydrocarbons (as TPHg), and 2.36 pounds of MTBE were removed by DPE during the nine-day DPE test.

ERI estimates the effective radius of influence (ROI) for soil vapor extraction (SVE) by evaluating the distance from the source where the induced vacuum is equal to or greater than 0.5 inches of water. Induced vacuum was not observed at greater than 0.001 inches of water in the observation wells. ERI estimates the effective SVE vacuum ROI is less than 20 feet (the distance to the closest observation well).

The average groundwater flow rate for the nine-day test was 1.06 gpm. ERI estimates that approximately 0.329 pounds of TPHg, and 0.0374 pounds of MTBE were removed by groundwater extraction during the nine-day DPE test.

Groundwater Treatment and Discharge

ERI treated and discharged a total of 9,000 gallons of extracted groundwater using the portable water treatment system during the test.

CONCLUSIONS

Based on the data collected in the field during the test periods and analytical laboratory results, ERI concludes the following:

- DPE is an effective method for source removal at this site.
- A total of approximately 187.5 pounds of TPHg and 2.36 pounds of MTBE were removed during the DPE feasibility test. A total of 0.329 pounds of TPHg, and 0.0374 pounds of MTBE were removed by groundwater extraction during the DPE test.
- Because induced vacuum was not observed in the observation wells, the effective vacuum ROI is less than 20 feet, the distance to the nearest observation well.
- A total of 9,000 gallons of groundwater was extracted and treated during the nine day DPE test. The average extraction rate for the test was 1.06 gpm.

DOCUMENT DISTRIBUTION

ERI recommends forwarding copies of this report to:

Mr. Don Hwang
Alameda County Health Care Services Agency
Environmental Health Division
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

Mr. Lewis M. Jones
East Bay Municipal Utility District
Source Control Division
P.O. Box 24055
Oakland, California 94623-1055

LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental practice in California at the time this investigation was performed. This report has been prepared for ExxonMobil, and any reliance on this report by third parties shall be at such party's sole risk.

Please call Mr. Scott D. Thompson, ERI's project manager for this site, at (415) 382-5987 if you have any questions regarding this report.

Sincerely,
Environmental Resolutions, Inc.

John W. Mahoney
Staff Scientist

John B. Bobbitt
R.G. 4313

Attachments:

Table 1:	Dual-Phase Extraction Test Field Data
Table 2:	Soil Vapor Sample Results
Table 3:	Groundwater Sample Results
Table 4:	Hydrocarbon Removal, Groundwater
Table 5:	Hydrocarbon Removal, Vapor
Plate 1:	Site Vicinity Map
Plate 2:	Generalized Site Plan
Attachment A:	Alameda County Health Care Services Agency Approval Letter, Dated August 20, 2001
Attachment B:	Authority to Construct and Wastewater Permits
Attachment C:	Laboratory Analysis Reports and Chain-of-Custody Records
Attachment D:	ERI SOP-25: "Hydrocarbon Removal From a Vadose Well"

TABLE 1
Dual-Phase Extraction Test Field Data
Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California

Date	Time	Elapsed time	Extraction Well RW1 (0')	Extraction Well RW2 (0')	Observation Wells MW6E (55')/(25')	Observation Wells MW6H (15')/(85')
	Hours	Minutes	<.....Vacuum (Inches of Water).....>			
9/11/01	15:00	0	0.0	0.0	0.00	0.00
	15:30	30	327	0	0.00	0.00
	16:00	60	286	0	0.00	0.60
9/12/01	17:20	1580	238	0	0.00	0.00
9/13/01	14:00	2820	218	232	0.00	0.10
9/14/01	14:00	4260	218	163	0.07	0.08
9/14/01	15:00	Vapor Phase carbon changed out				
9/17/01	15:00	8640	218	136	0.00	0.00
9/18/01	13:00	9960	177	95	0.00	0.00
9/18/01	14:00	Vapor Phase carbon changed out				
9/19/01	15:00	11,520	197	177	0.00	0.00
9/19/01	14:00	Vapor Phase carbon changed out				
9/20/01	11:00	12,720	177	95	0.00	0.00

Notes:

Time = Time presented using a 24-hour clock.
(10') = Distance from extraction well.
Vacuum recorded at the extraction wells has been converted from inches of mercury to inches of water by using a factor of 13.62.

TABLE 2
Soil Vapor Sample Results
Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California

Sample ID	Sample Location	Sampling Date	Time	TPHg	MTBE	B	T	E	X
				<.....ug/L.....>					
A-INF	Influent	09/11/01	16:00	54,000	940	610	420	120	390
A-INF	Influent	09/12/01	18:10	1,700	36	27	17	4.9	17
A-INF	Influent	09/13/01	14:00	1,000	28	15	15	4.4	15
A-INF	Influent	09/17/01	15:00	9,700	53	320	280	66	294
A-INF	Influent	09/20/01	12:00	13,000	180	230	220	46	190

Notes:

ug/L	=	Micrograms per liter
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA method 8015 (modified).
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA method 8020.
MTBE	=	Methyl tertiary butyl ether analyzed using EPA method 8020.
<	=	Less than the stated laboratory method detection limit.

TABLE 3
Groundwater Sample Results
Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California

Sample ID	Sampling Date	Sampling Time	TPHd	TPHg	MTBE	B	T	E	X
			<			ug/L			>
W-INF	9/11/01	16:00	770	4,300	650	310	160	96	347
W-EFF	09/13/01	14:00	---	---	---	<0.5	<0.5	<0.5	<0.5
W-INF	09/20/01	12:00	230	4,500	350	250	270	33	490

Notes:

W-INF	=	Water sample collected from the influent sample port.
W-EFF	=	Water sample collected from the effluent sample port.
TPHd	=	Total petroleum hydrocarbons as diesel analyzed using EPA method 8015 (modified).
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA method 8015 (modified).
MTBE	=	Methyl tertiary butyl ether analyzed using EPA method 8020.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA method 8020.
ug/L	=	Micrograms per liter.
<	=	Less than the stated laboratory method detection limit.
---	=	Not sampled/not measured.

Table 4
Hydrocarbon Removal from Groundwater
Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California

Pumping well	Date	Hours of Operation (hours)	Totalizer Reading (gallons)	Gallons Pumped (gallons)	Average Flow Rate (gpm)	Analysis Results		TPHg Removal		MTBE Removal	
						TPHg (ug/l)	MTBE (ug/l)	Per Period (lbs)	Cumulative (lbs)	Per Period (lbs)	Cumulative (lbs)
RW1	9/11/01	0.0	274030	0	0.0						
	9/11/01	0.5	274030	0	0.0						
	9/11/01	1.0	274060	30	0.5	4300.0	650.0	0.00005	0.00005	0.00001	0.00001
	9/12/01	24.5	274590	530	0.4						
RW2	9/13/01	21.5	275340	750	0.6						
	9/14/01	24.0	277500	2160	1.5						
RW1, RW2	9/17/01	1.0	277743	243	4.1						
	9/18/01	22.0	279570	1827	1.4						
	9/19/01	26.0	281510	1940	1.2						
	9/20/01	20.0	282990	1480	1.2						
	9/20/01	1.0	283030	40	0.7	4500.0	350.0	0.32930	0.32935	0.03742	0.03743

Notes:

W-INF	=	Influent groundwater sample (collected prior to carbon treatment).
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA Method 8015 (modified).
MTBE	=	Methyl tertiary butyl ether analyzed using EPA Method 8020.
gpm	=	Gallons per minute.
ug/l	=	Micrograms per liter.
lbs	=	Pounds.
---	=	Not sampled/not measured.
ND	=	Not detected.

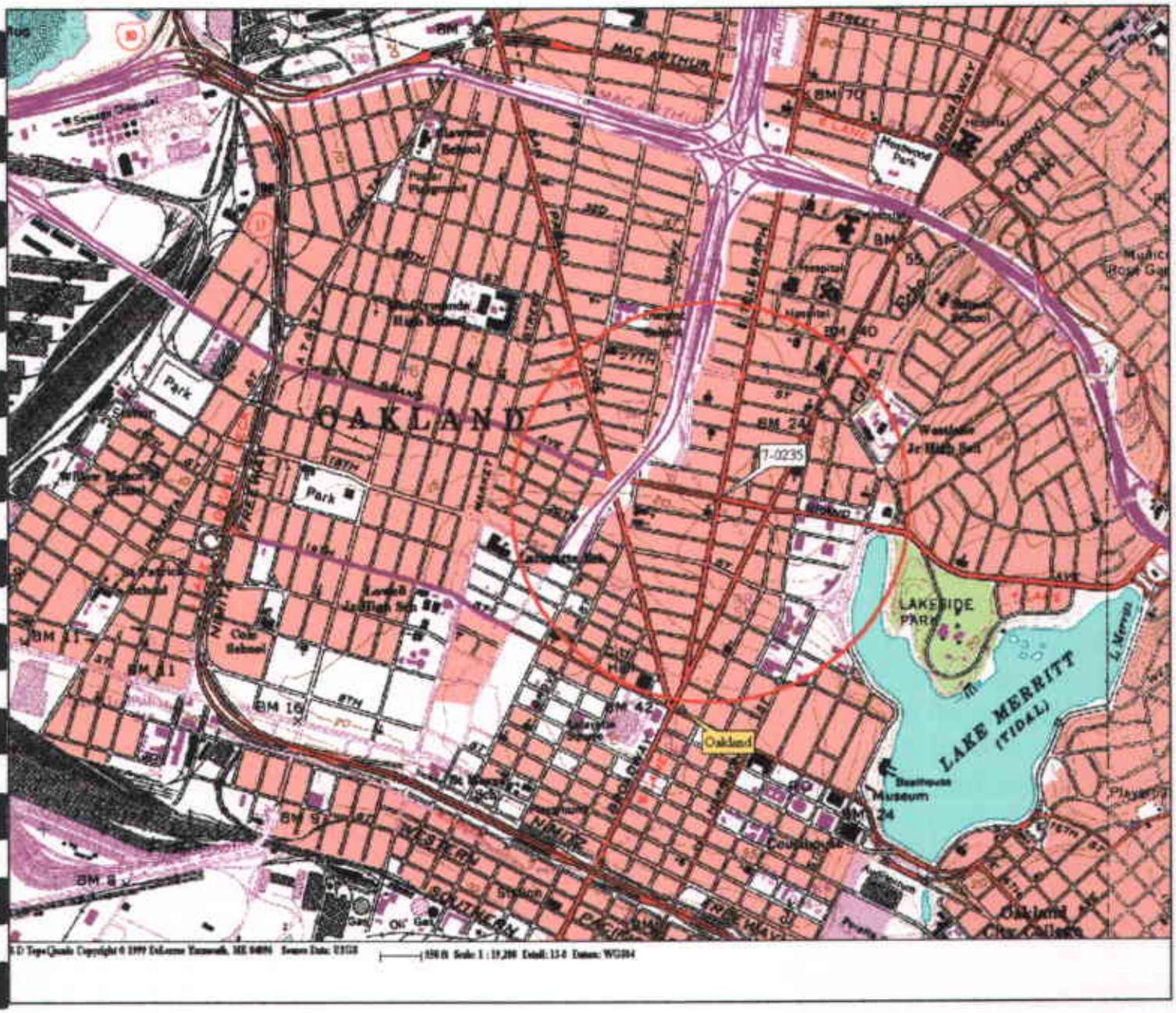
Removal rates are calculated using ERI's SOP-25: "Hydrocarbons Removed from A Vadose Well."

TABLE 5
Hydrocarbon Removal, Soil Vapor
Former Exxon Service Station 7-0235
2225 Telegraph Avenue
Oakland, California

Date	Time	Sample ID	Field Measurements				Laboratory Analysis Results		TPHg Removal		MTBE Removal		Remarks
			Hours of Operation	Temp (F)	Flow (scfm)	PID (ppmv)	TPHg (mg/m3)	MTBE (mg/m3)	Per Period (lbs)	Cumulative (lbs)	Per Period (lbs)	Cumulative (lbs)	
9/11/01	15:00	A-Inf	0.0	55	0		54,000	940	0.00	0.00	0.00	0.00	Start Test RW1
	15:30		0.5	62	4								
	16:00		1.0	70	5	>10,000							
09/12/01	16:30	A-Inf	25.5	92	38	>10,000	1,700	36	50.73	50.73	0.89	0.89	
09/13/01	14:00	A-Inf	47.0	98	61	>10,000	1,000	28	5.38	56.12	0.13	1.02	RW2 online
09/14/01	14:00		71.0	100	41	>10,000							
09/14/01	15:00		72.0	100	41								Shutdown for weekend
09/17/01	15:00	A-Inf	0.0	63	19	>10,000	9,700	53	0.00	56.12	0.00	1.02	Start test RW1/RW2
09/18/01	13:00		22.0	100	37	>10,000							
09/19/01	15:00		48.0	97	41	>10,000							
09/20/01	11:00	A-Inf	68.0	95	72	>10,000	13,000	180	131.34	187.46	1.35	2.36	
	12:00		69.0	95	76	>10,000							End test RW1/RW2
										187.5		**2.36**	Total Removed

Notes:

A-INF	=	Influent soil vapor sample (collected prior to carbon treatment).
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA Method 8015M.
MTBE	=	Methyl tertiary butyl ether analyzed using EPA Method 8020.
F	=	Degrees Fahrenheit.
in H2O	=	Inches of water.
scfm	=	Standard cubic feet per minute.
mg/m3	=	Milligrams per cubic meter.
lb	=	Pounds.
ppmv	=	Parts per million by volume.



FN 2229Topo

EXPLANATION

1/2-mile radius circle

APPROXIMATE SCALE

N

0 0.5 1 mile

SOURCE:
Modified from a map
provided by
DeLorme 3-D TopoQuads

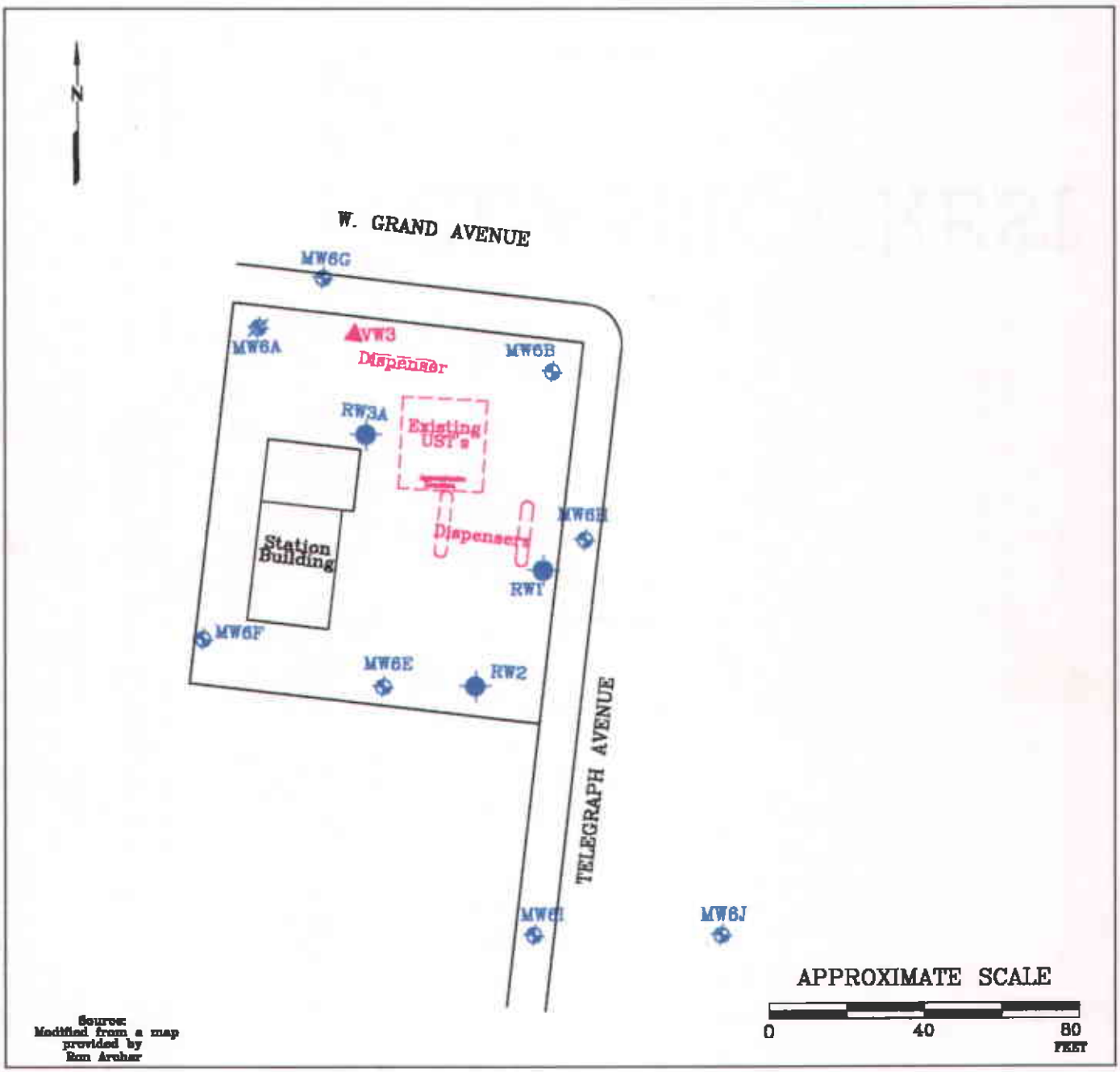
ENVIRONMENTAL RESOLUTIONS, INC.

SITE VICINITY MAP

FORMER EXXON SERVICE STATION 7-0235
2225 Telegraph Avenue
Oakland, California

PROJECT NO. 2229

PLATE 1



FN 22290002

EXPLANATION

MW6H — Groundwater Monitoring Well

Groundwater elevation in feet above mean sea level

RW3A — Recovery Well

VW3 — Vapor/Vadose Well

ERI ENVIRONMENTAL RESOLUTIONS, INC.

GENERALIZED SITE PLAN

FORMER EXXON SERVICE STATION 7-0235
2225 Telegraph Avenue
Oakland, California

PROJECT NO. 2229

PLATE 2

ATTACHMENT A

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY APPROVAL LETTER, DATED AUGUST 20, 2001

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

August 20, 2001

Darin Rouse, Senior Engineer
Exxon Co., U.S.A.
ExxonMobil
Refining & Supply
Safety, Health and Environment
Environmental Engineering
P.O. Box 4032
Concord, CA 94524-4032

Dear Mr. Rouse:

Subject: Exxon RAS #7-0235, 2225 Telegraph Ave., Oakland, CA
RO0000358

"Work Plan to Perform a Dual-Phase Extraction Test (DPE)..." dated April 17, 2001, by Environmental Resolutions, Inc., was determined to be acceptable by Chuck Headlee, Regional Water Quality Control Board, after reviewing a fax copy which I sent him. Therefore, it is approved. Please notify me when DPE will occur.

If you have any questions, call me at (510) 567-6746.

Sincerely,

Don Hwang
Hazardous Materials Specialist

cc
C: ✓ Casey Sanders, Environmental Resolutions, Inc., 73 Digital Dr., Suite 100, Novato, CA 94949-5791

file

ATTACHMENT B

AUTHORITY TO CONSTRUCT AND WASTEWATER PERMITS

January 16, 2001

Environmental Resolutions Inc
73 Digital Drive, Suite 100
Novato, CA 94949

Attention: **Fernando Valenzuela**

Application Number: **02018**
Plant Number: **12856**
Equipment Location:
1801 So Delaware St
San Mateo, CA 94402

Dear Applicant:

This is your Authority to Construct the following:

S-1 **Portable Soil Vapor Extraction System consisting of a two liquid ring vacuum blowers not to exceed 150 scfm aggregate operating capacity, and ancillary equipment abated by A-1, at least two (500 lb minimun capacity) carbon adsorption vessels arranged in series**

The equipment described above is subject to condition no. 17782.

Notification
Please contact your assigned Permit Engineer, listed in the correspondence section of this letter, by phone, by fax, or in writing at least three days before the initial operation of the equipment so that we may observe the equipment in operation and verify conformance with the Authority to Construct. Operation includes any start-up of the source for testing or other purposes. Operation of equipment without notification to the District may result in enforcement action. **Do not send start-up notifications to the Air Pollution Control Officer.**

Start-up Period
After receipt of the start-up letter required above, this Authority to Construct authorizes operation during the start-up period from the date of initial operation noted in your start-up letter until the Permit to Operate is issued, up to a maximum of 90 days. All conditions (specific or implied) of the Authority to Construct are in effect during the start-up period.

Fees
District Regulation 3 requires a fee for each new Permit to Operate. You will be invoiced upon receipt of your start-up letter. No permits will be issued until all outstanding fees are paid.

Implied Conditions
In the absence of specific permit conditions to the contrary, the throughputs, fuel and material consumption, capacities, and hours of operation described in your permit application will be considered maximum allowable limits. A new permit will be required before any increase in these parameters, or change in raw material handled, may be made.

Expiration
In accordance with Regulation 2-1-407, this Authority to Construct expires two years from the date of issuance unless substantial use of the authority has begun.

Confidentiality

Unless you have already designated specifically identified materials in your permit application as confidential, under the California Public Records Act, all data in your permit application, the permit itself and all permit conditions will be considered a matter of public record and may be disclosed to a third party. Please contact you permit reviewer immediately if you wish to amend your permit application submittals or to designate certain permit conditions as confidential. Unless we hear from you within ten (10) calendar days of this letter, except for materials which have been previously designated as confidential, you shall be deemed to have waived any claim of confidentiality with respect to all materials in the District's files relating to this permit application.

Right of Entry

The Air Pollution Control Officer of the Bay Area Air Quality Management District, the Chairman of the California Air Resources Board, the Regional Administrator of the Environmental Protection Agency, and/or their designees, upon presentation of credentials, shall be granted the right of entry to any premises on which an air pollution source is located for the purposes of:

A. The inspection of the source
B. The sampling of materials used at the source
C. The conduction of an emissions source test
D. The inspection of any records required by District rule or permit condition.

Correspondence

Please include you application number with any correspondence with the District. The District's regulations may be viewed online at www.baaqmd.gov/regs/rulereg.htm. If you have any questions on this matter, please call Robert E Cave, Air Quality Engineer II at (415) 749-5048. Startup information may be faxed to the Permit Division at 415-749-5030.

Very truly yours,

Ellen Garvey
Executive Officer/
Air Pollution Control Officer

by
Permit Services Division

BFB:REC: es

COND# 17782

Application 2018; Plant 12856
Environmental Resolutions, Inc.
Source S-1, Portable Soil Vapor Extraction System

1. The operator of this source shall notify the District at least 3 days prior to start-up of operation at any new location. The notification shall include:
   a. Street address, including zip code, for the location where the equipment will be operated.
   b. The name and telephone number of a contact person where the equipment will be operated.
   c. The date of initial start-up and estimated duration of operations at that location.
   d. The distance from the source to the outer boundary of the nearest K-12 school, or indication that the distance is greater than 1500 feet.

   In the event that the start-up is delayed less than 5 days, the operator may provide telephone notice of said change to the assigned Plant Engineer in the Permit Services Division. If the start-up is delayed more than 5 days, written notification must be resubmitted.
2. This equipment shall not remain at any single location for a period in excess of 12 consecutive months, following the date of initial operation except as allowed under Section 2-1-220.10. If this portable equipment remains at any fixed location for more than 12 months, the portable permit will automatically revert to a conventional permanent location permit and will lose its portability.
3. This portable equipment, S-1, shall operate at all times in conformance with the eligibility requirements set forth in Regulation 2-1-220 for portable equipment.
4. [illegible]
5. This equipment shall be used exclusively for the removal of non-chlorinated volatile organic compounds associated with petroleum products from extracted soil vapor. This shall be demonstrated by onsite sampling required in condition 11 below.
6. Precursor Organic Compound (POC) emissions from Source S-1 shall be vented at all times to Abatement device A-1, at least two (500 lb minimum capacity) activated carbon vessels arranged in series. Soil vapor flow rate shall not exceed 150 scfm.
7. The operator of this source shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the District's Source Test Manager at the following locations:
   a. At the inlet to the second to last carbon vessel in series.
   b. At the inlet to the last carbon vessel in series.
   c. At the outlet of the carbon vessel that is last in

series prior to venting to the atmosphere. When using an FID to monitor breakthrough, readings may be taken with and without a carbon filter tip fitted on the FID probe. Concentrations measured with the carbon filter tip in place shall be considered methane for the purpose of these permit conditions.

8. These monitor readings shall be recorded in a monitoring log at the time they are taken. The monitoring results shall be used to estimate the frequency of carbon change-out necessary to maintain compliance with conditions number 9 and 10 and shall be conducted on a daily basis. The operator of this source may propose for District review, based on actual measurements taken at the site during operation of the source, that the monitoring schedule be changed based on the decline in organic emissions and/or the demonstrated breakthrough rates of the carbon vessels. Written approval by the District's Permit Services Division must be received by the operator prior to any change to the monitoring schedule.
9. The second to last carbon vessel shall be immediately changed out with unspent carbon upon breakthrough, defined as the detection at its outlet of the higher of the following:
   a. 10% of the inlet stream concentration to the carbon vessel.
   b. 10 ppmv (measured as C6).
10. The last carbon vessel shall be immediately changed out with unspent carbon upon detection at its outlet of 10 ppmv (measured as C6).
11. Within 48 hours of commencing operation at any new location, the operator of this source shall:
   a. Analyze the inlet gas to determine the concentration of total POC and benzene present to determine compliance with condition 5 above.
   b. Measure the influent flow rate to determine compliance with condition 6 above.
   c. Samples shall be analyzed according to modified EPA test methods 8015 and 8021 or their equivalent to determine the concentrations of POC and benzene.
12. Within 30 days from the completion of each treatment operation at a given location, the operator of this source shall provide the assigned Plant Engineer in the Permit Services Division with a summary showing the following information:
   a. The dates and total number of days that the equipment was at that location and the dates, and total number of days that the equipment was operated at that location.
   b. The results of all emission tests, analyses, or monitoring results logged in for the day of operation they were taken.
   c. The total throughput of contaminated soil vapor processed by S-1 at that location (indicated in cubic feet).
13. Within 30 days after the end of every calendar year, the operator of this source shall provide the assigned Plant Engineer in the Permit Services Division a year end summary showing the following information:

a. The location(s) at which the equipment was operated including the dates operated at each location.
b. The total throughput of contaminated soil vapor for the previous four quarters (indicated in cubic feet).

14. The operator shall maintain a file containing all measurements, records and other data that are required to be collected pursuant to the various provisions of this conditional Permit to Operate. All measurements, records and data required to be maintained by the operator shall be retained for at least two years following the date the data is recorded.

15. Any non-compliance with these conditions shall be reported to the Compliance and Enforcement Division at the time that it is first discovered. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well as the time of occurrence.

EAST BAY
MUNICIPAL UTILITY DISTRICT

DAVID R. WILLIAMS
DIRECTOR OF WASTEWATER

CERTIFIED MAIL
(Return Receipt Requested)
Certified Mail No. 7099 3220 0004 4113 8887

April 27, 2001

MAY 01 2001

Mr. Gene Ortega
ExxonMobil Refining and Supply
P.O. Box 4032
Concord, CA 94524

Dear Ortega:

Re: Wastewater Discharge Permit No. 5046702 1

Enclosed is the Wastewater Discharge Permit Revision for the treated groundwater discharge from your facility located at 2225 Telegraph Avenue, Oakland, effective April 27, 2001 through February 20, 2002. Please read the Permit Terms and Conditions. As a Permit holder, you are legally responsible for complying with all Permit conditions and requirements.

ExxonMobil Refining and Supply shall report to the Source Control Division any changes, either permanent or temporary, to the premises or operation that significantly affect either the volume or quality of wastewater discharged or deviate from the Terms and Conditions under which this Permit is granted.

Please replace the enclosed Wastewater Discharge Permit pages 1-3 of your current Permit. If you have any questions regarding this matter, please contact Trish Maguire of the Source Control Division at (510) 287-1727.

Sincerely,

Lewis M. Jones
Acting Manager of Source Control

LMJ: PEM: pem

w:\ids\permits\groundwater\ExxonMobil\permit revision.doc

Enclosures

Mr. Casey Sanders, ERI (permit)
73 Digital Drive, Suite 100
Novato, CA 94949

ExxonMobil Refining and Supply (Station #7-0235)
Permit No. 5046702 1

GENERAL CONDITIONS

I. Title I, Section 5 of EBMUD Ordinance No. 311 prohibits the discharge of groundwater to the community sewer. This Permit to discharge treated groundwater is considered a waiver of the prohibition and is issued based on ExxonMobil Refining and Supply's application that discharge of pollutants to the community sewer will be minimized and methods to reclaim the groundwater, to the extent technically and economically feasible, have been made.

II. This Wastewater Discharge Permit is granted to ExxonMobil Refining and Supply to discharge treated groundwater to the side sewer only from the facility located at 2225 Telegraph Avenue in Oakland (Exxon Service Station #7-0235).

III. ExxonMobil Refining and Supply shall cease discharge of the treated groundwater immediately if not in compliance with any of the Terms and Conditions of this Permit.

IV. ExxonMobil Refining and Supply shall comply with all items of the attached STANDARD TERMS AND CONDITIONS, March 2001 Edition.

COMPLIANCE REQUIREMENTS

I. ExxonMobil Refining and Supply shall pretreat all groundwater before discharging to the side sewer at 2225 Telegraph Avenue, Oakland (Exxon Service Station #7-0235). Pretreatment shall consist of processes displayed in the *Portable Dual-Phase Extraction Trailer Process Schematic Diagram, Plate 4, 10/10/00.*

II. ExxonMobil Refining and Supply shall maintain records of operation and maintenance activities on the groundwater pretreatment system. The records shall include, but are not limited to, flow meter readings from flow totalizer at a maximum of monthly intervals, maintenance activities performed, description of operational changes, visual observations of system leaks or fouling and hazardous waste offhaul documents. The records shall be available to the District staff upon request.

III. ExxonMobil Refining and Supply shall not discharge any groundwater, treated or untreated after the completion of the 14-day pilot test without prior approval from the Source Control Division.

IV. ExxonMobil Refining and Supply shall submit a new Schematic Flow Diagram, Process Description, Site Plan, Strength Summary, and Water Source and Use sheet within 30 days of the completion of the installation of the permanent pretreatment system.

ExxonMobil Refining and Supply (Station #7-0235)
Permit No. 5046702 1

WASTEWATER DISCHARGE LIMITATIONS

I. ExxonMobil Refining and Supply shall not discharge wastewater from a side sewer into a community sewer if the strength of the wastewater exceeds the following local limits:

REGULATED PARAMETER	DAILY MAXIMUM
Benzene	0.005 mg/L
Toluene	0.005 mg/L
Ethylbenzene	0.005 mg/L
Xylenes, total	0.005 mg/L

REPORTING REQUIREMENTS

I. Violations shall be reported in accordance with Section B of STANDARD TERMS AND CONDITIONS, March 2001 Edition.

II. ExxonMobil Refining and Supply shall submit technical reports due on the following dates:

Date Due	Reporting Period
See footnote [1]	Initial pilot test discharge (14 days)
June 20, 2001	February 21, 2001 through May 20 2001
September 20, 2001	May 21, 2001 through August 20, 2001
December 20, 2001	August 21, 2001 through November 20, 2001
March 20, 2001	November 21, 2001 through February 20, 2002

[1] The complete technical report is due 30 days after sample collection. Discharge may not resume after the pilot test discharge is completed until authorized by the Source Control Division.

III. The technical reports shall contain the following information, at a minimum:

1. Self-monitoring reports prepared in accordance with the "Self-Monitoring Reporting Requirements" of this Permit.
2. Monthly readings from flow totalizer of the pretreatment system effluent.
3. Volume of groundwater pumped and treated during the reporting period, and a total to date.
4. Description of any operational changes occurred during the reporting period.
5. Certification and signature prepared in accordance with Section B Part V of STANDARD TERMS AND CONDITIONS, March 2001 Edition, "Signature Requirements".

ExxonMobil Refining and Supply (Station #7-0235)
Permit No. 5046702 1

SELF-MONITORING REPORTING REQUIREMENTS

I. ExxonMobil Refining and Supply shall monitor and sample the wastewater discharge into the community sewer in accordance with Section C. of STANDARD TERMS AND CONDITIONS, March 2001 Edition. The sampling shall be performed at the locations and frequency for the parameters specified below.

II. Self-monitoring reports shall contain all laboratory results and the corresponding chain of custody documentation, and signatory requirements.

V. A sample representative of the discharge from the pretreatment system to the sanitary sewer is to be taken at the sample tap located on the effluent side of the last aqueous phase carbon column. It shall be referred to as Process Sample Point #1 (PSP#1) in all technical reports. The sample location is indicated in the *Portable Dual-Phase Extraction Trailer Process Schematic Diagram, Plate 4, dated 10/10/00, Exxon Service Station 7-0235, 2225 Telegraph Avenue, Oakland, CA.*

III. PSP#1 shall be sampled, at a minimum, quarterly for the following parameters [2]:

Parameter	Sample Type	EPA Method
Benzene	grab	8021B or 624
Toluene	grab	8021B or 624
Ethylbenzene	grab	8021B or 624
Xylenes	grab	8021B or 624

[2] Samples shall be collected during the initial 500 gallons discharged and after 20,000 gallons have been discharged from the system during the 14-day pilot test.

ATTACHMENT C

LABORATORY ANALYSIS REPORTS AND

CHAIN-OF-CUSTODY RECORDS

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

EXXON Company U.S.A.

Certificate of Analysis Number:

01090536

Report To: Environmental Resolution, Inc.
Scott Thompson
73 Digital Drive Suite 100

Novato
California
94949-
ph: (415) 382-9105 fax: (415) 382-1856

Fax To: Environmental Resolution, Inc.
Scott Thompson fax: (415) 382-1856

Project Name: 2229-05X
Site: 7-0235
Site Address: 2225 Telegraph Ave.
Oakland CA
PO Number: EWR#21040346
State: California
State Cert. No.: 1903
Date Reported:

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
V-EFF	01090536-01	Water	9/13/01 2:00:00 PM	9/18/01 2:33:25 PM		☐
V-INF	01090536-02	Water	9/11/01 4:00:00 PM	9/18/01 2:33:25 PM		☐

RECEIVED
SEP 27 2001

9/27/01
Date

Sonia West
Senior Project Manager

Joel Grice
Laboratory Director

Ted Yen
Quality Assurance Officer

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Client Sample ID: W-EFF **Collected:** 9/13/01 2:00:00 **SPL Sample ID:** 01090536-01

Site: 7-0235

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
PURGEABLE AROMATICS				**MCL**	**SW8021B**		**Units: ug/L**		
Benzene	ND		0.5		1		09/21/01 5:07	DL	837559
Ethylbenzene	ND		0.5		1		09/21/01 5:07	DL	837559
Toluene	ND		0.5		1		09/21/01 5:07	DL	837559
m,p-Xylene	ND		0.5		1		09/21/01 5:07	DL	837559
o-Xylene	ND		0.5		1		09/21/01 5:07	DL	837559
Xylenes,Total	ND		0.5		1		09/21/01 5:07	DL	837559
Surr: 1,4-Difluorobenzene	109	%	72-137		1		09/21/01 5:07	DL	837559
Surr: 4-Bromofluorobenzene	102	%	48-156		1		09/21/01 5:07	DL	837559

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Client Sample ID: W-INF **Collected:** 9/11/01 4:00:00 **SPL Sample ID:** 01090536-02

Site: 7-0235

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				**MCL**	**CA_DRO**		**Units: ug/L**		
Diesel Range Organics	770		50		1		09/27/01 8:01	AM	843843
Surr: n-Pentacosane	67.2	%	20-150		1		09/27/01 8:01	AM	843843

Prep Method	Prep Date	Prep Initials
SW3510B	09/19/2001 7:39	KL

GASOLINE RANGE ORGANICS				**MCL**	**CA_GRO**		**Units: ug/L**		
Gasoline Range Organics	4300		250		5		09/21/01 5:31	DL	837623
Surr: 1,4-Difluorobenzene	108	%	62-144		5		09/21/01 5:31	DL	837623
Surr: 4-Bromofluorobenzene	113	%	44-153		5		09/21/01 5:31	DL	837623
PURGEABLE AROMATICS				**MCL**	**SW8021B**		**Units: ug/L**		
Benzene	310		2.5		5		09/21/01 5:31	DL	837560
Ethylbenzene	96		2.5		5		09/21/01 5:31	DL	837560
Methyl tert-butyl ether	650		10		5		09/21/01 5:31	DL	837560
Toluene	160		2.5		5		09/21/01 5:31	DL	837560
m,p-Xylene	270		2.5		5		09/21/01 5:31	DL	837560
o-Xylene	77		2.5		5		09/21/01 5:31	DL	837560
Xylenes,Total	347		2.5		5		09/21/01 5:31	DL	837560
Surr: 1,4-Difluorobenzene	115	%	72-137		5		09/21/01 5:31	DL	837560
Surr: 4-Bromofluorobenzene	108	%	48-156		5		09/21/01 5:31	DL	837560

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

EXXON COMPANY, USA. (West Coast)

CHAIN OF CUSTODY RECORD NO. 210405326 Page 1 of 1

Exxon Engineer: Gene Ortega Phone: 925 246 8747
Consultant Co. Name ERI Contact: Scott Thompson
Address: 73 Digital Dr. Fax: (415) 382-1854
Suite 100 Novato CA 94949
RAS #: 7-0235 Facility/State ID # (TN Only):
AFE # (Terminal Only): Consultant Project #: 2229-05X
Location: 2225 Telegraph Ave (City) Oakland (State) CA
☐ EE ☐ C&M ☐ SDT
Consultant Work Release #: 21040346
Sampled By: Casey Sanders

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX H_2O	MATRIX SOIL	MATRIX AIR	OTHER	PRESERVATIVE	NO. OF CONTAINERS	CONTAINER SIZE	TPH/GC 8015 GRO ☐ 8015 DRO ☐	BTEX 8020 ☐ 602 ☐	MTBE 8020 ☐ 8260 ☐	OXYGENATES (7) 8260 ☐	O&G IR 413.1 ☐ GRAV. 413.2 ☐	VOL. 8260 ☐ 624 ☐	SEMI-VOL 8270 ☐ 625 ☐	PNA/PAH 8100 ☐ 8310 ☐ 8270 ☐	PCB/PEST 8081/8082 ☐ PCB ONLY ☐	TCLP FULL ☐ VOA ☐ SEMIVOA ☐ PEST ☐ HERB ☐	METALS, TOTAL ☐ METALS, TCLP ☐	LEAD, TOTAL 239.1 ☐ 7421 ☐ LEAD, TCLP ☐	LEAD, DISSOLVED ☐ LEAD, TOTAL ☐	REACTIVITY ☐ CORROSIVITY ☐ FLASH POINT ☐	PURGEABLE HYDROCARBON 8010 ☐ 601 ☐	TPH/IR 418.1 ☐	TOX/TOH ☐
W-EFF	9/13/01	14:00		A	X				HCL	5	40 ML		X															
W-INF	9/11/01	16:00		X	X				HCL	5	40 ML	X	X	X														
W-INF	9/11/01	16:00		X	X				NA	2	1L	X																

TAT
24 HR. ___* 72 HR. ___*
48 HR. ___* 96 HR. ___*
8 Business X *Contact US Prior to Sending Sample
Other ___

EXXON UST CONTRACT NO. C41483

QA/QC Level
Standard ☐ CLP ☐ Other ☐ ___

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)
PDF ☐ ☐ EDD
FAX ☐ ☐ FAX C-O-C W/REPORT

REMARKS:
* Samples taken week of 9/11/01
3c

LAB USE ONLY Lot # Storage Location
WORK ORDER #: 210405326 LAB WORK RELEASE #: 21040346

CUSTODY RECORD

	Date	Time	
Relinquished By Sampler: Casey Sanders / ERI	9/17/01	13:00	Received By:
Relinquished:	Date	Time	Received By:
Relinquished:	Date	Time	Received By: Way Bill #: Cooler Temp: 4°C

Triplicate: Original • White Lab's Copy • Green Client Copy • Yellow

9-27-01 ; 5:18PM ; SPL ; 713 868 0084 ; #

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

EXXON Company U.S.A.

Certificate of Analysis Number:

01090786

eport To:	Environmental Resolution, Inc. Scott Thompson 73 Digital Drive Suite 100 Novato California 94949- ph: (415) 382-9105 fax: (415) 382-1856	Project Name:	222905X
		Site:	7-0235
		Site Address:	2225 Telegraph Ave. Oakland CA
		PO Number:	EWR#21040346
		State:	California
		State Cert. No.:	
Fax To:	*Environmental Resolution, Inc.* *Scott Thompson fax: (415) 382-1856*	Date Reported:	10/5/01

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
W-INF	01090786-01	Water	9/20/01 12:00:00 PM	9/25/01 9:30:00 AM		☐

10/5/01

nia West
enior Project Manager — Date

Joel Grice
Laboratory Director

Ted Yen
Quality Assurance Officer

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Client Sample ID W-INF **Collected:** 9/20/01 12:00:00 **SPL Sample ID:** 01090786-01

Site: 7-0235

Analyses/Method	Result		Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				**MCL**	**CA_DRO**	**Units: ug/L**		
Diesel Range Organics	230		50	1		10/03/01 4:24	AM	851430
Surr: n-Pentacosane	78.8	%	20-150	1		10/03/01 4:24	AM	851430

Run ID/Seq #: HP_V_011003B-851430

Prep Method	Prep Date	Prep Initials
SW3510B	09/26/2001 16:33	KL

GASOLINE RANGE ORGANICS				**MCL**	**CA_GRO**	**Units: ug/L**		
Gasoline Range Organics	4500		50		1	09/27/01 6:57	DL	843883
Surr: 1,4-Difluorobenzene	113	%	62-144		1	09/27/01 6:57	DL	843883
Surr: 4-Bromofluorobenzene	118	%	44-153		1	09/27/01 6:57	DL	843883
PURGEABLE AROMATICS				**MCL**	**SW8021B**	**Units: ug/L**		
Benzene	250		0.5		1	09/27/01 6:57	DL	843814
Ethylbenzene	33		0.5		1	09/27/01 6:57	DL	843814
Methyl tert-butyl ether	350		2		1	09/27/01 6:57	DL	843814
Toluene	270		0.5		1	09/27/01 6:57	DL	843814
m,p-Xylene	300		0.5		1	09/27/01 6:57	DL	843814
o-Xylene	190		0.5		1	09/27/01 6:57	DL	843814
Xylenes,Total	490		0.5		1	09/27/01 6:57	DL	843814
Surr: 1,4-Difluorobenzene	136	%	72-137		1	09/27/01 6:57	DL	843814
Surr: 4-Bromofluorobenzene	107	%	48-156		1	09/27/01 6:57	DL	843814

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

10- 5-01; 1:01PM;SPL ERI NOVATO ;713 668 0084

EXXON COMPANY, USA. (West Coast)

CHAIN OF CUSTODY RECORD NO. ______ Page 1 of 1

Exxon Engineer: Gene Ortega Phone: 925 246 - 8747

Consultant Co. Name: ERI Contact: Scott Thompson

Address: 73 Digital Drive Fax: (415) 382-1856

Suite 100 Novato CA 94949

RAS #: 7-0235 Facility/State ID # (TN Only):

AFE # (Terminal Only): Consultant Project #: 222905X

Location: 2225 Telegraph Ave (City) Oakland (State) CA

☐ EE ☐ C&M ☐ SDT

Consultant Work Release #: 21040346

Sampled By: Casey Sanders

ANALYSIS REQUEST: (CHECK APPROPRIATE BOX)

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX H_2O	SOIL	AIR	OTHER	PRESERVATIVE	NO. OF CONTAINERS	CONTAINER SIZE	TPH/GC 8015 GRO ☒ 8015 DRO ☒	BTEX 8020 ☒ 602 ☐	MTBE 8020 ☒ 8260 ☐	OXYGENATES (7) 8260 ☐	O&G IR 413.1 ☐ GRAV. 413.2 ☐	VOL. 8260 ☐ 624 ☐	SEMI-VOL 8270 ☐ 625 ☐	PNA/PAH 8100 ☐ 8310 ☐ 8270 ☐	PCB/PEST 8081/8082 ☐ PCB ONLY ☐	TCLP FULL ☐ VOA ☐ SEMIVOA ☐ PEST ☐ HERB ☐	METALS, TOTAL ☐ METALS, TCLP ☐	LEAD, TOTAL 239.1 ☐ 7421 ☐ LEAD, TCLP ☐	LEAD, DISSOLVED ☐ LEAD TOTAL ☐	REACTIVITY ☐ CORROSIVITY ☐ FLASH POINT ☐	PURGEABLE HYDROCARBON 8010 ☐ 601 ☐	TPH/IR 418.1 ☐	TOX/TOH ☐	OTHER
W-INF	9/20/01	12:00		X	X				HCL	5	40 ML	X	X	X															
W-INF	9/20/01	12:00		X	X				ICE	3	1L	X																	

TAT: 24 HR. ___* 72 HR. ___* 48 HR. ___* 96 HR. ___* Business ☒ *Contact US Prior to Sending Sample Other ___

EXXON UST CONTRACT NO. C41483

SPECIAL DETECTION LIMITS (Specify)

REMARKS: 4°

SPECIAL REPORTING REQUIREMENTS (Specify)

PDF ☐ ☐ EDD

FAX ☐ ☐ FAX C-O-C W/REPORT

LAB USE ONLY Lot # NW Storage Location

WORK ORDER #: 01090786 LAB WORK RELEASE #: 21040346

Standard ☒ CLP ☐ QA/QC Level Other ☐

CUSTODY RECORD

Relinquished By Sampler:	Date	Time	Received By:
Casey P Sanders / ERI	9/24/01	13:00	
Relinquished:	Date	Time	Received By:
			[signature] 9/25/01 0930
Relinquished:	Date	Time	Received By:
			Way Bill #: Cooler Temp: 4c

Triplicate: Original • White Lab's Copy • Green Client Copy • Yellow

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

ERI	Project: Exxon	
73 Digital Dr. Suite 100	Project Number: 222905X/7-0235	Reported:
Novato CA, 94949	Project Manager: Scott Thompson	09/18/01 18:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A-INF	P109172-01	Air	09/11/01 16:00	09/12/01 18:23

Sequoia Analytical - Petaluma

Angelee Cari

Angelee Cari, Client Services Representative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

ERI	Project: Exxon	
73 Digital Dr. Suite 100	Project Number: 222905X/7-0235	Reported:
Novato CA, 94949	Project Manager: Scott Thompson	09/18/01 18:55

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
A-INF (P109172-01) Air Sampled: 09/11/01 16:00 Received: 09/12/01 18:23									
Gasoline (C6-C12)	54000	500	ug/l	10	1090221	09/13/01	09/13/01	EPA 8015M/8020M	
Benzene	610	5.0	"	"	"	"	"	"	
Toluene	420	5.0	"	"	"	"	"	"	
Ethylbenzene	120	5.0	"	"	"	"	"	"	
Xylenes (total)	390	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	940	25	"	"	"	"	"	"	QR-04
Surrogate: a,a,a-Trifluorotoluene		*128 %*	*65-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*114 %*	*65-135*		"	"	"	"	

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

ERI	Project: Exxon	
73 Digital Dr. Suite 100	Project Number: 222905X/7-0235	Reported:
Novato CA, 94949	Project Manager: Scott Thompson	09/18/01 18:55

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1090221 - EPA 5030, waters										
Blank (1090221-BLK1)				Prepared & Analyzed: 09/13/01						
Gasoline (C6-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	*316*		"	*300*		*105*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*293*		"	*300*		*97.7*	*65-135*			
LCS (1090221-BS1)				Prepared & Analyzed: 09/13/01						
Gasoline (C6-C12)	2740	50	ug/l	2750		99.6	65-135			
Benzene	41.8	0.50	"	33.0		127	65-135			
Toluene	216	0.50	"	198		109	65-135			
Ethylbenzene	45.2	0.50	"	46.0		98.3	65-135			
Xylenes (total)	230	0.50	"	230		100	65-135			
Methyl tert-butyl ether	64.2	2.5	"	52.5		122	65-135			
Surrogate: a,a,a-Trifluorotoluene	*354*		"	*300*		*118*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*317*		"	*300*		*106*	*65-135*			
Matrix Spike (1090221-MS1)	**Source: P109136-01**			Prepared & Analyzed: 09/13/01						
Gasoline (C6-C12)	2710	50	ug/l	2750	ND	98.5	65-135			
Benzene	38.5	0.50	"	33.0	ND	117	65-135			
Toluene	205	0.50	"	198	ND	103	65-135			
Ethylbenzene	45.0	0.50	"	46.0	ND	97.8	65-135			
Xylenes (total)	221	0.50	"	230	ND	96.1	65-135			
Methyl tert-butyl ether	206	2.5	"	52.5	150	107	65-135			
Surrogate: a,a,a-Trifluorotoluene	*344*		"	*300*		*115*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*310*		"	*300*		*103*	*65-135*			

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

ERI	Project: Exxon	
73 Digital Dr. Suite 100	Project Number: 222905X/7-0235	Reported:
Novato CA, 94949	Project Manager: Scott Thompson	09/18/01 18:55

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1090221 - EPA 5030, waters										
Matrix Spike Dup (1090221-MSD1)	**Source: P109136-01**			**Prepared & Analyzed: 09/13/01**						
Gasoline (C6-C12)	2750	50	ug/l	2750	ND	100	65-135	1.47	20	
Benzene	39.9	0.50	"	33.0	ND	121	65-135	3.57	20	
Toluene	219	0.50	"	198	ND	110	65-135	6.60	20	
Ethylbenzene	47.2	0.50	"	46.0	ND	103	65-135	4.77	20	
Xylenes (total)	236	0.50	"	230	ND	103	65-135	6.56	20	
Methyl tert-butyl ether	202	2.5	"	52.5	150	99.0	65-135	1.96	20	
Surrogate: α,α,α-Trifluorotoluene	*363*		"	*300*		*121*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*314*		"	*300*		*105*	*65-135*			

Sequoia Analytical

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ERI	Project: Exxon	
73 Digital Dr. Suite 100	Project Number: 222905X/7-0235	Reported:
Novato CA, 94949	Project Manager: Scott Thompson	09/18/01 18:55

Notes and Definitions

QR-04	Primary and confirmation results varied by greater than 40% RPD. The results may still be useful for their intended purpose.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Sequoia Analytical
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EXXON COMPANY, U.S.A.

P.O. Box 2180, Houston, TX 77002-7425

CHAIN OF CUSTODY

Page 1 of 1

Consultant's Name: Environmental Resolution Inc.		
Address: 73 Digital Drive Suite 100		Site Location: 2225 Telegraph Ave
Project #:	Consultant Project #: 222905K	Consultant Work Release #: 2104036
Project Contact: Scott Thompson	Phone #: (415) 382-9105	Laboratory Work Release #:
EXXON Contact: Gene Ortega	Phone #: 925-246-8747	EXXON RAS #: 7-0235
Sampled by (print): Casey Sanders	Sampler's Signature:	Oakland, CA
Shipment Method:	Air Bill #:	

TAT: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☐ 96 hr ☒ Standard (10 day)

ANALYSIS REQUIRED

Sample Description	Collection Date	Collection Time	Matrix Soil/Water/Air	Prsv	# of Cont.	Sequoia's Sample #	TPH/Gas BTEX/ 8015/ 8020	TPH/ Diesel EPA 8015	TRPH S.M. 5520	MTBE 8020		Temperature: _____ Inbound Seal: Yes No Outbound Seal: Yes No
A-INF	9/11/01	16:00	Air		1	P1091724	X			X		

COOLER CUSTODY SEALS INTACT ☐

NOT INTACT ☐

COOLER TEMPERATURE 22 °C

RELINQUISHED BY / AFFILIATION	Date	Time	ACCEPTED / AFFILIATION	Date	Time	Additional Comments
Casey Ford /ERI	9/12/01		Sarah Gill /SEQ	9/12/01	1823	

Sequoia Analytical

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ERI
73 Digital Dr. Suite 100
Novato CA, 94949

Project: Exxon
Project Number: 2229-05X/7-0235
Project Manager: Casey Sanders

Reported:
09/20/01 19:10

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A-INF	P109178-01	Air	09/12/01 18:10	09/13/01 13:00

Sequoia Analytical - Petaluma

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Angelee Cari

Angelee Cari, Client Services Representative

Sequoia Analytical

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ERI
73 Digital Dr. Suite 100
Novato CA, 94949

Project: Exxon
Project Number: 2229-05X/7-0235
Project Manager: Casey Sanders

Reported:
09/20/01 19:10

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
A-INF (P109178-01) Air Sampled: 09/12/01 18:10 Received: 09/13/01 13:00									
Gasoline (C6-C12)	1700	50	ug/l	1	1090257	09/14/01	09/14/01	EPA 8015M/8020M	
Benzene	27	0.50	"	"	"	"	"	"	
Toluene	17	0.50	"	"	"	"	"	"	
Ethylbenzene	4.9	0.50	"	"	"	"	"	"	
Xylenes (total)	17	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	36	2.5	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*115 %*		*65-135*		"	"	"	
Surrogate: 4-Bromofluorobenzene		*103 %*		*65-135*		"	"	"	

Sequoia Analytical

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ERI
73 Digital Dr. Suite 100
Novato CA, 94949

Project: Exxon
Project Number: 2229-05X/7-0235
Project Manager: Casey Sanders

Reported:
09/20/01 19:10

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1090257 - EPA 5030, waters										
Blank (1090257-BLK1)				Prepared & Analyzed: 09/14/01						
Gasoline (C6-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	*312*		"	*300*		*104*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*291*		"	*300*		*97.0*	*65-135*			
Blank (1090257-BLK2)				Prepared & Analyzed: 09/17/01						
Gasoline (C6-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	*300*		"	*300*		*100*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*293*		"	*300*		*97.7*	*65-135*			
Blank (1090257-BLK3)				Prepared & Analyzed: 09/19/01						
Gasoline (C6-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	*304*		"	*300*		*101*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*295*		"	*300*		*98.3*	*65-135*			

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ERI 73 Digital Dr. Suite 100 Novato CA, 94949	Project: Exxon Project Number: 2229-05X/7-0235 Project Manager: Casey Sanders	**Reported:** 09/20/01 19:10

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1090257 - EPA 5030, waters										
LCS (1090257-BS1)				Prepared & Analyzed: 09/14/01						
Gasoline (C6-C12)	2550	50	ug/l	2750		92.7	65-135			
Benzene	40.0	0.50	"	33.0		121	65-135			
Toluene	208	0.50	"	198		105	65-135			
Ethylbenzene	43.6	0.50	"	46.0		94.8	65-135			
Xylenes (total)	222	0.50	"	230		96.5	65-135			
Methyl tert-butyl ether	60.6	2.5	"	52.5		115	65-135			
Surrogate: a,a,a-Trifluorotoluene	*352*		"	*300*		*117*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*309*		"	*300*		*103*	*65-135*			
LCS (1090257-BS2)				Prepared & Analyzed: 09/17/01						
Gasoline (C6-C12)	2600	50	ug/l	2750		94.5	65-135			
Benzene	39.1	0.50	"	33.0		118	65-135			
Toluene	205	0.50	"	198		104	65-135			
Ethylbenzene	43.5	0.50	"	46.0		94.6	65-135			
Xylenes (total)	222	0.50	"	230		96.5	65-135			
Methyl tert-butyl ether	60.8	2.5	"	52.5		116	65-135			
Surrogate: a,a,a-Trifluorotoluene	*340*		"	*300*		*113*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*313*		"	*300*		*104*	*65-135*			
LCS (1090257-BS3)				Prepared & Analyzed: 09/19/01						
Gasoline (C6-C12)	2570	50	ug/l	2750		93.5	65-135			
Benzene	39.8	0.50	"	33.0		121	65-135			
Toluene	210	0.50	"	198		106	65-135			
Ethylbenzene	44.6	0.50	"	46.0		97.0	65-135			
Xylenes (total)	228	0.50	"	230		99.1	65-135			
Methyl tert-butyl ether	66.1	2.5	"	52.5		126	65-135			
Surrogate: a,a,a-Trifluorotoluene	*353*		"	*300*		*118*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*312*		"	*300*		*104*	*65-135*			

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ERI
73 Digital Dr. Suite 100
Novato CA, 94949

Project: Exxon
Project Number: 2229-05X/7-0235
Project Manager: Casey Sanders

Reported:
09/20/01 19:10

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1090257 - EPA 5030, waters										
Matrix Spike (1090257-MS1)	**Source: P109179-02**			Prepared & Analyzed: 09/14/01						
Gasoline (C6-C12)	2830	50	ug/l	2750	ND	103	65-135			
Benzene	42.1	0.50	"	33.0	ND	128	65-135			
Toluene	223	0.50	"	198	ND	113	65-135			
Ethylbenzene	46.7	0.50	"	46.0	ND	102	65-135			
Xylenes (total)	238	0.50	"	230	ND	103	65-135			
Methyl tert-butyl ether	66.0	2.5	"	52.5	ND	123	65-135			
Surrogate: a,a,a-Trifluorotoluene	*344*		"	*300*		*115*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*317*		"	*300*		*106*	*65-135*			
Matrix Spike Dup (1090257-MSD1)	**Source: P109179-02**			Prepared & Analyzed: 09/14/01						
Gasoline (C6-C12)	2760	50	ug/l	2750	ND	100	65-135	2.50	20	
Benzene	41.2	0.50	"	33.0	ND	125	65-135	2.16	20	
Toluene	220	0.50	"	198	ND	111	65-135	1.35	20	
Ethylbenzene	45.8	0.50	"	46.0	ND	99.6	65-135	1.95	20	
Xylenes (total)	235	0.50	"	230	ND	102	65-135	1.27	20	
Methyl tert-butyl ether	66.0	2.5	"	52.5	ND	123	65-135	0.00	20	
Surrogate: a,a,a-Trifluorotoluene	*356*		"	*300*		*119*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*328*		"	*300*		*109*	*65-135*			

Sequoia Analytical

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ERI 73 Digital Dr. Suite 100 Novato CA, 94949	Project: Exxon Project Number: 2229-05X/7-0235 Project Manager: Casey Sanders	**Reported:** 09/20/01 19:10

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

SEQUOIA ANALYTICAL
CHAIN OF CUSTODY

[redacted] 819 [redacted]ker A[redacted] Suit[redacted] Sac[redacted]nto, [redacted] 05834 • (916) [redacted] 9600 FAX (916) 921-0100
☐ 404 N. Wiget Lane • Walnut Creek, CA 94598 • (925) 988-9600 FAX (925) 988-9673
☒ 1455 McDowell Blvd. North, Suite D • Petaluma, CA 94954 • (707) 792-1865 FAX (707) 792-0342
☐ 1551 Industrial Road • San Carlos, CA 94070 • (650) 232-9600 FAX (650) 232-9612

Company Name: ERI	Project Name: 2229-05x (70235 Exxon RAS)
Mailing Address: 73 Digital Dr. Suite 100	Billing Address (if different):
City: Novato State: CA Zip Code: 94949	
Telephone: 415-382-9105 FAX #: 415 382-1856	P.O. #: 21040346
Report To: Casey Sanders Sampler: Dan G.	QC Data: ☒ Level II (Standard) ☐ Chromatograms ☐ Level III ☐ Level IV

Turnaround Time: ☒ Standard 10–15 Working Days ☐ 7 Working Days ☐ 5 Working Days ☐ 3 Working Days ☐ 2 Working Days ☐ 1 Working Day ☐ ASAP

☐ Drinking Water ☐ Waste Water ☒ Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	TPH g, BTEX & MTBE 8015mod	BTEX 8020	MTBE 8260	Comments
1. A[redacted]-INF	9/12/01 1810	Air	1	Tedlar Bag	P109178-01	X	X	X	
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10. 9/14/01 analysis changed per Casey Sanders									

COOLER CUSTODY SEALS INTACT ☐ NOT INTACT ☐

COOLER TEMPERATURE 22 °C

Relinquished By: Dan G.	Date: 9/12/01	Time: 0900	Received By: [redacted]	Date: 9/13/01	Time: [redacted] 1210
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Were Samples Received in Good Condition? ☐ Yes ☐ No Samples on Ice? ☐ Yes ☐ No Method of Shipment_____

Sequoia Analytical

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Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
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ERI
73 Digital Dr. Suite 100
Novato CA, 94949

Project: Exxon
Project Number: 2229-05X/7-0235
Project Manager: Scott Thompson

Reported:
09/18/01 18:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A-INF	P109204-01	Air	09/13/01 14:00	09/14/01 14:45

Sequoia Analytical - Petaluma

Angelee Cari

Angelee Cari, Client Services Representative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
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ERI	Project: Exxon	
73 Digital Dr. Suite 100	Project Number: 2229-05X/7-0235	**Reported:**
Novato CA, 94949	Project Manager: Scott Thompson	09/18/01 18:03

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
-INF (P109204-01) Air Sampled: 09/13/01 14:00 Received: 09/14/01 14:45									
asoline (C6-C12)	**1000**	50	ug/l	1	1090258	09/14/01	09/14/01	EPA 8015M/8020M	
Benzene	**15**	0.50	"	"	"	"	"	"	
oluene	**15**	0.50	"	"	"	"	"	"	
thylbenzene	**4.4**	0.50	"	"	"	"	"	"	
Xylenes (total)	**15**	0.50	"	"	"	"	"	"	
lethyl tert-butyl ether	**28**	2.5	"	"	"	"	"	"	
urrogate: a,a,a-Trifluorotoluene		*113 %*	*65-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*65-135*		"	"	"	"	

Sequoia Analytical

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ERI 73 Digital Dr. Suite 100 Novato CA, 94949	Project: Exxon Project Number: 2229-05X/7-0235 Project Manager: Scott Thompson	**Reported:** 09/18/01 18:03

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1090258 - EPA 5030, waters										
Blank (1090258-BLK1)				Prepared & Analyzed: 09/14/01						
Gasoline (C6-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	*318*		"	*300*		*106*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*284*		"	*300*		*94.7*	*65-135*			
LCS (1090258-BS1)				Prepared & Analyzed: 09/14/01						
Gasoline (C6-C12)	2410	50	ug/l	2750		87.6	65-135			
Benzene	34.7	0.50	"	33.0		105	65-135			
Toluene	191	0.50	"	198		96.5	65-135			
Ethylbenzene	48.8	0.50	"	46.0		106	65-135			
Xylenes (total)	218	0.50	"	230		94.8	65-135			
Methyl tert-butyl ether	66.1	2.5	"	52.5		126	65-135			
Surrogate: a,a,a-Trifluorotoluene	*326*		"	*300*		*109*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*307*		"	*300*		*102*	*65-135*			
Matrix Spike (1090258-MS1)		**Source: P109171-02**		Prepared & Analyzed: 09/14/01						
Gasoline (C6-C12)	2750	50	ug/l	2750	72	97.4	65-135			
Benzene	36.9	0.50	"	33.0	ND	111	65-135			
Toluene	218	0.50	"	198	ND	110	65-135			
Ethylbenzene	55.2	0.50	"	46.0	ND	119	65-135			
Xylenes (total)	256	0.50	"	230	0.52	111	65-135			
Methyl tert-butyl ether	68.9	2.5	"	52.5	ND	131	65-135			
Surrogate: a,a,a-Trifluorotoluene	*357*		"	*300*		*119*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*304*		"	*300*		*101*	*65-135*			

Sequoia Analytical

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ERI	Project: Exxon	
73 Digital Dr. Suite 100	Project Number: 2229-05X/7-0235	**Reported:**
Novato CA, 94949	Project Manager: Scott Thompson	09/18/01 18:03

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1090258 - EPA 5030, waters										
Matrix Spike Dup (1090258-MSD1)	**Source: P109171-02**			Prepared & Analyzed: 09/14/01						
Gasoline (C6-C12)	2710	50	ug/l	2750	72	95.9	65-135	1.47	20	
Benzene	38.6	0.50	"	33.0	ND	116	65-135	4.50	20	
Toluene	211	0.50	"	198	ND	106	65-135	3.26	20	
Ethylbenzene	54.5	0.50	"	46.0	ND	118	65-135	1.28	20	
Xylenes (total)	249	0.50	"	230	0.52	108	65-135	2.77	20	
Methyl tert-butyl ether	73.1	2.5	"	52.5	ND	139	65-135	5.92	20	QM-07
Surrogate: a,a,a-Trifluorotoluene	*351*		"	*300*		*117*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*306*		"	*300*		*102*	*65-135*			

Sequoia Analytical

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ERI 73 Digital Dr. Suite 100 Novato CA, 94949	Project: Exxon Project Number: 2229-05X/7-0235 Project Manager: Scott Thompson	**Reported:** 09/18/01 18:03

Notes and Definitions

QM-07	The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Sequoia Analytical
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EXXON COMPANY, U.S.A.

P.O. Box 2180, Houston, TX 77002-7426

CHAIN OF CUSTODY

Consultant's Name: Environmental Resolutions Inc.			**Page** 1 **of** 1
Address: 73 Digital Drive Suite 100, Novato CA 94949			**Site Location:** 2225 Telegraph Ave
Project #: 2229.05.X	**Consultant Project #:** 2229-05X		**Consultant Work Release #:** 21040346
Project Contact: Scott Thompson	**Phone #:** (415) 382-9105		**Laboratory Work Release #:**
EXXON Contact: Gene Ortega	**Phone #:** 925 246-8747		**EXXON RAS #:** 7-0235
Sampled by (print): Casey Sanders	**Sampler's Signature:**		Oakland, CA
Shipment Method:	**Air Bill #:**		

TAT: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☐ 96 hr ☒ Standard (10 day)

Sample Description	Collection Date	Collection Time	Matrix Soil/Water/Air	Prsv	# of Cont.	Sequoia's Sample #	ANALYSIS REQUIRED: TPH/Gas BTEX/ 8015/ 8020	TPH/ Diesel EPA 8015	TRPH S.M. 5520	MTBE 8020		Temperature: _____ Inbound Seal: Yes No Outbound Seal: Yes No
A-INF	9/13/01	14:00	Air	NA	1	P109204-01	X			X		

COOLER CUSTODY SEALS INTACT ☐
NOT INTACT ☐
COOLER TEMPERATURE 13 °C

RELINQUISHED BY / AFFILIATION	Date	Time	ACCEPTED / AFFILIATION	Date	Time	Additional Comments
/ERI	9/14/01	9:00		9-14-a	1400	at lab 1445

Pink - Client
Yellow - Sequoia
White - Sequoia

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

EXXON Company U.S.A.

Certificate of Analysis Number:

01090558

Report To: Environmental Resolution, Inc.
Scott Thompson
73 Digital Drive Suite 100

Novato
California
94949-
ph: (415) 382-9105 fax: (415) 382-1856

Fax To: Environmental Resolution, Inc.
Scott Thompson fax: (415) 382-1856

Project Name: 222905X
Site: 7-0235
Site Address: 2225 Telegraph Ave.
Oakland CA
PO Number: EWR#21040346
State: California
State Cert. No.: 1903
Date Reported: 9/28/01

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
NF	01090558-01	Air	9/17/01 3:00:00 PM	9/19/01 9:00:00 AM		☐

RECEIVED
SEP 28 2001

9/28/01

nia West
enior Project Manager
Date

Joel Grice
Laboratory Director

Ted Yen
Quality Assurance Officer

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

EXXON Company U.S.A.

Certificate of Analysis Number:

01090558

Report To:

Environmental Resolution, Inc.
Scott Thompson
73 Digital Drive Suite 100

Novato
California
94949-
ph: (415) 382-9105 fax: (415) 382-1856

Project Name: 222905X
Site: 7-0235
Site Address: 2225 Telegraph Ave.
Oakland CA
PO Number: EWR#21040346
State: California
State Cert. No.: 1903
Date Reported: 9/28/01

Client Sample ID: A-INF **SPL Sample ID:** 01090558-01A

Analyte	mg/m³		ppm(v)	
	Result	PQL	Result	PQL
Benzene	320	10	99	3.1
Toluene	280	10	73	2.6
Ethylbenzene	66	10	15	2.3
m,p-Xylene	210	10	48	2.3
o-Xylene	84	10	19	2.3
Methyl tert-butyl ether	53	10	15	2.7
Xylenes,Total	294	10	67	2.3
TPH Air	9700	100	2700	28

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Client Sample ID: A-INF **Collected:** 9/17/01 3:00:00 **SPL Sample ID:** 01090558-01

Site: 7-0235

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
PURGEABLE AROMATICS IN AIR				**MCL**	**SW8020A**		**Units: mg/m³**		
Benzene	320		10		10		09/19/01 17:27	TM	836972
Toluene	280		10		10		09/19/01 17:27	TM	836972
Ethylbenzene	66		10		10		09/19/01 17:27	TM	836972
Methyl tert-butyl ether	53		10		10		09/19/01 17:27	TM	836972
m,p-Xylene	210		10		10		09/19/01 17:27	TM	836972
o-Xylene	84		10		10		09/19/01 17:27	TM	836972
Xylenes,Total	294		10		10		09/19/01 17:27	TM	836972
Surr: 1,4-Difluorobenzene	186 MI	%	20-150		10	*	09/19/01 17:27	TM	836972
Surr: 4-Bromofluorobenzene	90.3	%	58-139		10		09/19/01 17:27	TM	836972
TOTAL PETROLEUM PRODUCT IN AIR				**MCL**	**SW8015B**		**Units: mg/m³**		
TPH Air	9700		100		10		09/19/01 17:27	TM	836987
Surr: 1,4-Difluorobenzene	152 MI	%	62-144		10	*	09/19/01 17:27	TM	836987
Surr: 4-Bromofluorobenzene	72.2	%	44-153		10		09/19/01 17:27	TM	836987

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

EXXON COMPANY, USA. (West Coast)

CHAIN OF CUSTODY RECORD NO. 0109558 Page 1 of 1

Exxon Engineer: Gene Ortega Phone: (925) 246-8747

Consultant Co. Name: ERI Contact: Scott Thompson

Address: 73 Digital Drive Fax: (415) 382-1856

Suite 100 Novato CA 94949

RAS #: 7-0235 Facility/State ID # (TN Only):

AFE # (Terminal Only): Consultant Project #: 222905X

Location: 2225 Telegraph Ave (City) Oakland (State) CA

☐ EE ☐ C&M ☐ SDT

Consultant Work Release #: 21040346

Sampled By: Fernando Valenzuela

ANALYSIS REQUEST: (CHECK APPROPRIATE BOX)

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX H_2O	MATRIX SOIL	MATRIX AIR	OTHER	PRESERVATIVE	NO. OF CONTAINERS	CONTAINER SIZE	TPH/GC 8015 GRO ☒ 8015 DRO ☒	BTEX 8020 ☒ 602 ☐	MTBE 8020 ☒ 8260 ☐	OXYGENATES (7) 8260 ☐	O&G IR 413.1 ☐ GRAV. 413.2 ☐	VOL 8260 ☐ 624 ☐	SEMI-VOL 8270 ☐ 625 ☐	PNA/PAH 8100 ☐ 8310 ☐ 8270 ☐	PCB/PEST 8081/8082 ☐ PCB ONLY ☐	TCLP FULL☐ VOA☐ SEMI-VOA☐ PEST☐ HERB☐	METALS, TOTAL ☐ METALS, TCLP ☐	LEAD, TOTAL 239.1 ☐ 7421 ☐ LEAD, TCLP ☐	LEAD, DISSOLVED ☐ LEAD TOTAL ☐	REACTIVITY ☐ CORROSIVITY ☐ FLASH POINT ☐	OTHER: PURGEABLE HYDROCARBON 8010 ☐ 601 ☐	OTHER: TPH/IR 418.1 ☐	OTHER: TOX/TOH ☐	OTHER
A-INF	9/17/01	1500		X			X		NA	1	1L	X	X	X															

TAT
24 HR. ___ 72 HR. ___
48 HR. ___ 96 HR. ___
8 Business ☒ *Contact US Prior to Sending Sample
Other ___

EXXON UST CONTRACT NO. C41483

SPECIAL DETECTION LIMITS (Specify)

REMARKS:

SPECIAL REPORTING REQUIREMENTS (Specify)

PDF ☐ ☐ EDD

FAX ☐ ☐ FAX C-O-C W/REPORT

LAB USE ONLY Lot # Storage Location

WORK ORDER # 0109558 LAB WORK RELEASE # 21040346

QA/QC Level
Standard ☐ CLP ☐ Other ☐

CUSTODY RECORD

Relinquished By Sampler: Fernando V.	Date: 9/18/01	Time: 0900	Received By:
Relinquished:	Date	Time	Received By:
Relinquished:	Date	Time	Received By: [signature] 9/19/01 0900 Way Bill # Cooler Temp: 4°

Triplicate: Original - White Lab's Copy - Green Client Copy - Yellow

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

ERI
73 Digital Dr. Suite 100
Novato CA, 94949

Project: Exxon
Project Number: 2229-05x/7-0235
Project Manager: Scott Thompson

Reported:
09/25/01 17:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A-INF	P109332-01	Air	09/20/01 12:00	09/21/01 16:30

Sequoia Analytical - Petaluma

Angelee Cari

Angelee Cari, Client Services Representative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Sequoia Analytical

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ERI
73 Digital Dr. Suite 100
Novato CA, 94949

Project: Exxon
Project Number: 2229-05x/7-0235
Project Manager: Scott Thompson

Reported:
09/25/01 17:29

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF (P109332-01) Air Sampled: 09/20/01 12:00 Received: 09/21/01 16:30									
asoline (C6-C12)	13000	1000	ug/l	20	1090360	09/21/01	09/21/01	EPA 8015M/8020M	
Benzene	230	10	"	"	"	"	"	"	
oluene	220	10	"	"	"	"	"	"	
Ethylbenzene	46	10	"	"	"	"	"	"	
Xylenes (total)	190	10	"	"	"	"	"	"	
ethyl tert-butyl ether	180	50	"	"	"	"	"	"	QR-04
urrogate: a,a,a-Trifluorotoluene		*108 %*		*65-135*		"	"	"	"
Surrogate: 4-Bromofluorobenzene		*98.7 %*		*65-135*		"	"	"	"

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ERI
3 Digital Dr. Suite 100
Novato CA, 94949

Project: Exxon
Project Number: 2229-05x/7-0235
Project Manager: Scott Thompson

Reported:
09/25/01 17:29

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1090360 - EPA 5030, waters										
Blank (1090360-BLK1)				Prepared & Analyzed: 09/19/01						
Gasoline (C6-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	*304*		"	*300*		*101*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*295*		"	*300*		*98.3*	*65-135*			
Blank (1090360-BLK2)				Prepared & Analyzed: 09/21/01						
Gasoline (C6-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	*308*		"	*300*		*103*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*301*		"	*300*		*100*	*65-135*			
LCS (1090360-BS1)				Prepared & Analyzed: 09/19/01						
Gasoline (C6-C12)	2570	50	ug/l	2750		93.5	65-135			
Benzene	39.8	0.50	"	33.0		121	65-135			
Toluene	210	0.50	"	198		106	65-135			
Ethylbenzene	44.6	0.50	"	46.0		97.0	65-135			
Xylenes (total)	228	0.50	"	230		99.1	65-135			
Methyl tert-butyl ether	66.1	2.5	"	52.5		126	65-135			
Surrogate: a,a,a-Trifluorotoluene	*353*		"	*300*		*118*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*312*		"	*300*		*104*	*65-135*			

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ERI
73 Digital Dr. Suite 100
Novato CA, 94949

Project: Exxon
Project Number: 2229-05x/7-0235
Project Manager: Scott Thompson

Reported:
09/25/01 17:29

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1090360 - EPA 5030, waters										
LCS (1090360-BS2)				Prepared & Analyzed: 09/21/01						
Gasoline (C6-C12)	2580	50	ug/l	2750		93.8	65-135			
Benzene	38.7	0.50	"	33.0		117	65-135			
Toluene	208	0.50	"	198		105	65-135			
Ethylbenzene	44.3	0.50	"	46.0		96.3	65-135			
Xylenes (total)	227	0.50	"	230		98.7	65-135			
Methyl tert-butyl ether	62.4	2.5	"	52.5		119	65-135			
Surrogate: a,a,a-Trifluorotoluene	*346*		"	*300*		*115*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*316*		"	*300*		*105*	*65-135*			
Matrix Spike (1090360-MS1)		**Source: P109238-01**		Prepared & Analyzed: 09/19/01						
Gasoline (C6-C12)	2610	50	ug/l	2750	ND	94.9	65-135			
Benzene	37.1	0.50	"	33.0	ND	112	65-135			
Toluene	205	0.50	"	198	ND	104	65-135			
Ethylbenzene	44.2	0.50	"	46.0	ND	96.1	65-135			
Xylenes (total)	224	0.50	"	230	ND	97.4	65-135			
Methyl tert-butyl ether	59.1	2.5	"	52.5	ND	113	65-135			
Surrogate: a,a,a-Trifluorotoluene	*340*		"	*300*		*113*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*318*		"	*300*		*106*	*65-135*			
Matrix Spike Dup (1090360-MSD1)		**Source: P109238-01**		Prepared & Analyzed: 09/19/01						
Gasoline (C6-C12)	2730	50	ug/l	2750	ND	99.3	65-135	4.49	20	
Benzene	38.8	0.50	"	33.0	ND	118	65-135	4.48	20	
Toluene	208	0.50	"	198	ND	105	65-135	1.45	20	
Ethylbenzene	44.1	0.50	"	46.0	ND	95.9	65-135	0.227	20	
Xylenes (total)	220	0.50	"	230	ND	95.7	65-135	1.80	20	
Methyl tert-butyl ether	65.4	2.5	"	52.5	ND	125	65-135	10.1	20	
Surrogate: a,a,a-Trifluorotoluene	*339*		"	*300*		*113*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*325*		"	*300*		*108*	*65-135*			

Sequoia Analytical

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ERI 73 Digital Dr. Suite 100 Novato CA, 94949	Project: Exxon Project Number: 2229-05x/7-0235 Project Manager: Scott Thompson	**Reported:** 09/25/01 17:29

Notes and Definitions

QR-04	Primary and confirmation results varied by greater than 40% RPD. The results may still be useful for their intended purpose.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Sequoia Analytical
680 Chesapeake Dr.
Redwood City, CA 94063
(650) 364-9600 • FAX (650) 364-9233

EXXON COMPANY, U.S.A.

P.O. Box 2180, Houston, TX 77002-7426

CHAIN OF CUSTODY

Page 1 of 1

Consultant's Name: Environmental Resolutions Inc		
Address: 73 Digital Drive Suite 100 Novato CA		**Site Location:** 2225 Telegraph Ave
Project #:	**Consultant Project #:** 2229-05-K	**Consultant Work Release #:** 21040346
Project Contact: Scott Thompson	**Phone #:** 415 382 9105	**Laboratory Work Release #:**
EXXON Contact: Gene Ortega	**Phone #:** 925 246 8747	**EXXON RAS #:** 7-0235
Sampled by (print): Casey Sanders	**Sampler's Signature:**	Oakland CA
Shipment Method:	**Air Bill #:**	

TAT: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☐ 96 hr ☒ Standard (10 day)

ANALYSIS REQUIRED

Sample Description	Collection Date	Collection Time	Matrix Soil/Water/Air	Prsv	# of Cont.	Sequoia's Sample #	TPH/Gas BTEX/ 8015/ 8020	TPH/ Diesel EPA 8015	TRPH S.M. 5520	MTBE 8020		Temperature: _____ Inbound Seal: Yes No Outbound Seal: Yes No
A-I-F	9/20/01	12:00	Air	NA	1	P104332-01	X			X		

COOLER CUSTODY SEALS INTACT ☐
NOT INTACT ☐
COOLER TEMPERATURE 22 °C

RELINQUISHED BY / AFFILIATION	Date	Time	ACCEPTED / AFFILIATION	Date	Time	Additional Comments
Casey Sanders / ERI	9/21/01			9/21/01	1630	

Pink - Client
Yellow - Sequoia
White - Sequoia

ATTACHMENT D

ERI SOP-25:

"HYDROCARBON REMOVAL FROM A VADOSE WELL"

POUNDS OF HYDROCARBON IN A VAPOR STREAM

INPUT DATA:
1) Vapor flow rate acfm (usually by Pitot tube)
2) Vapor pressure at the flow measuring device (in inches of H_2O) (use {-} for vacuum)
3) Vapor temperature at the flow measuring device.
4) Hydrocarbon content of vapor (usually in mg/M^3) for ppmv you need molecular weight.
5) Length of time (usually hours) over which flow rate occurred)

From periodic measurements, a calculation of total pounds of hydrocarbons removed from a well or from a system are calculated. The input data listed above are measured at a point in time. To calculate quantities removed, some assumptions must be made about what was happening between measurements. The following assumptions will be used for the sake of consistency:

ASSUMPTIONS:
1) Vapor flow for the period equals the average of the initial and final reading for the period.
2) Pressure and temperature for the entire period will be the final reading.
3) Hydrocarbon concentration for the period equals the average of the initial and final reading.
4) The hours of operation can be taken from an hour meter, an electric meter or will be assumed to be equal to the time between measurements.
5) If the unit is found down - try to determine how many hours it did operate and use the data taken for the previous period to make the calculations. Restart the unit and then take data to start the next period.

SAMPLE DATA AND CALCULATIONS

Date	Time	Temp deg F	Press in H_2O	HC conc mg/M3	acfm	Vapor flow lb. rem.	Calc.
1/6/95	11:00	70	-46	2000		120	
1/7/95	13:00	55	-50	1350		90	
1/8/95	10:00	80	-13	750		100	7.4

Calculate the pounds of hydrocarbon removed from the system during the basis period from 13:00 (1:00 pm) on the 7th to 10 am on the 8th. Pressure and temperature of the measurements (at the flow meter) must be corrected to the P and T used to report the HC concentration (which are P = 1 atm and T = 70 deg F). 1 atm = 14.7psia, 760 mm Hg, or 407 in H_2O. T_{abs} = 460 + T deg F

Hours of operation = 21, T = 80, P = -13, HC = (1350+750)/2 = 1050 mg/M^3, Flow = 95

$$21 \times 60 \times 95 \times \frac{(460+70)}{(460+80)} \times \frac{(407-13)}{407} \times \frac{28.3}{1000} \times \frac{1050}{1000} \times \frac{1}{454} = 7.4 \text{ lb}$$

$$\frac{\text{hr}}{\text{basis}} \times \frac{\text{min}}{\text{hr}} \times \frac{\text{cu ft}}{\text{min}} \times T_{Corr} \times P_{Corr} \times \frac{M^3}{\text{cu ft}} \times \frac{g}{M^3} \times \frac{lb}{g} = \frac{lb}{\text{basis}}$$

$$21 \times 60 \times 95 \times 0.98 \times 0.97 \times 0.0283 \times 1.050 \times 1/454 = 7.4 \text{ lb.}$$

cumulative lbs. (the running total) = the sum of all the previous periods.

Note: If results are given in ppm, an assumption about the molecular weight of the hydrocarbon must be made to convert ppm into mg/M^3. ppmv x molecular wt. /24.1 = mg/M^3. (Use 102 for gasoline)