# **EXON** COMPANY, U.S.A.

DO MAY 25 AM 10: 14

EXXONMOBIL • REFINING AND SUPPLY Safety, Health and Environment Environmental Engineering

P.O. Box 4032 . Concord, CA 94524-4032

DARIN L. ROUSE Senior Engineer

(925) 246-8768 (925) 246-8798 Facsimile darin.l.rouse@exxon.com

May 24, 2000

Mr. Scott Seery Alameda County Health Care Services Agency Department of Environmental Health 1131 Harbor Bay Parkway, Room 250 Alameda, California 94502-6577

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

Dear Mr. Seery:

Attached for your review and comment is a letter report entitled *Soil and Groundwater Investigation Report*, dated May 11, 2000, for the above referenced site. The report was prepared by Environmental Resolutions, Inc. (ERI) of Novato, California, and presents the results of a soil and groundwater investigation at the subject site. Additionally, the attached document includes a proposed scope of work for installation of a groundwater monitoring well.

If you have any questions or comments, please contact me at (925) 246-8768.

Sincerel

Darin Rouse Senior Engineer

Attachment:

ERI's Soil and Groundwater Investigation Report, dated May 11, 2000.

cc:

w/attachment

Mr. Stephen Hill - California Regional Water Quality Control Board-San Francisco Bay Region

w/o attachment

Mr. James F. Chappell - Environmental Resolutions, Inc.





#### ENVIRONMENTAL RESOLUTIONS, INC.

May 11, 2000 ERI 222903.R01

Mr. Darin L. Rouse ExxonMobil Refining and Supply P.O. Box 4032 Concord, California 94524-4032

Subject:

Soil and Groundwater Investigation Report for Exxon Service Station 7-0235,

2225 Telegraph Avenue, Oakland, California.

#### Mr. Rouse:

At the request of ExxonMobil Refining and Supply (formerly known as Exxon Company, U.S.A) (ExxonMobil), Environmental Resolutions, Inc. (ERI) conducts environmental activities at the subject site. This report documents the drilling of two off-site soil borings in the vicinity of the subject site. Field activities were performed on March 29, 2000, in general accordance with ERI's Work Plan for Soil and Groundwater (Work Plan), dated January 4, 2000. The purpose of this work was to evaluate the lateral and vertical extent of dissolved hydrocarbons and methyl tertiary butyl ether (MTBE) in the downgradient direction from the subject site.

#### BACKGROUND

The site is located on the southwest corner of Telegraph Avenue and West Grand Avenue in Oakland, California, as shown on the Site Vicinity Map (Plate 1). The locations of existing underground storage tanks (USTs), dispenser islands, and other selected site features are shown on the Generalized Site Plan (Plate 2). Based on quarterly groundwater monitoring data, depth to water (DTW) measurements across the site have fluctuated from approximately 11 to 14 feet below ground surface (bgs), and the groundwater appears to flow towards the southeast with a hydraulic gradient from 0.012 to 0.030. A Rose Diagram depicting groundwater flow directions since Fourth Quarter 1997 is shown on Plate 3.

#### FIELD INVESTIGATION

ERI observed the drilling of soil borings GP1 and GP2, and collected soil and groundwater samples from each of the borings using dual-tube Geoprobe technology.

ERI performed the work in accordance with a site safety plan and ERI's standard field protocol (Attachment A). Approval of this investigation was provided by the Alameda County Health Care Services Agency in a letter dated February 24, 2000 (Attachment B). Prior to drilling, ERI obtained an excavation permit from the City of Oakland, Public Works Department (Attachment C), and a drilling permit from the Alameda County Public Works Department (Attachment D).

On March 29, 2000, an ERI geologist observed Vironex Environmental Field Services (Vironex) of Hayward, California, install two soil borings (GP1 and GP2) using direct-push equipment. The locations of the borings are shown on Plate 2. Soil borings GP1 and GP2 were driven to a total depth of approximately 24 feet bgs. Each boring was continuously cored, allowing more complete logging of the stratigraphy and the water-bearing zones. Soil generated during the clearing of the soil boring locations was stored on site in a 55-gallon drum pending characterization and disposal. Drill cuttings were not generated during this investigation.

ERI collected soil samples for laboratory analysis at 2-foot and 4-foot intervals. ERI collected discrete groundwater samples from each boring at first-encountered groundwater (approximately 12-13 feet bgs) and at approximately 10 feet below first-encountered groundwater. Select soil and groundwater samples were submitted for laboratory analysis. Upon completion of sample collection, the casings were removed, and the borings were then backfilled with a cement grout and topped with asphalt patch.

#### HYDROGEOLOGY

The results of this and previous investigations indicate that sediment underlying the site consists of silty clay, sandy clay, and sand. During this investigation, groundwater was initially encountered approximately 12 feet bgs, in sandy clay with thin beds of sand. Boring logs are provided in Attachment E.

#### RESULTS OF INVESTIGATION

#### **Groundwater**

Water samples collected from borings GP1 and GP2 were submitted under Chain of Custody protocol to Southern Pacific Laboratories, Inc. (SPL) in Houston, Texas. The Chain of Custody records and analytical laboratory reports are included in Attachment F. Selected water samples were analyzed for total purgeable petroleum hydrocarbons as gasoline (TPPHg), MTBE, and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using the laboratory methods listed in Table 1. Laboratory analysis results are presented in Table 1.

Laboratory analyses of groundwater samples collected from borings GP1 and GP2 indicate that MTBE and BTEX were not detected at or above the laboratory method detection limits in the samples. TPPHg was detected at 100 micrograms per liter (ug/L) in GP2. TPPHg was not detected at or above the laboratory detection limit in GP1.

#### **Soil**

Select soil samples were submitted under Chain of Custody protocol to SPL. The Chain of Custody record and analytical laboratory report are included in Attachment F. Soil samples were analyzed for MTBE, TPPHg, and BTEX using the laboratory methods listed in Table 2. Additionally, to meet disposal requirements, one soil stockpile sample was analyzed for total lead and halogenated volatile organic compounds (HVOCs).

Laboratory analysis results of soil samples collected from the borings indicate that the analytes were not detected at or above the laboratory method detection limits. The laboratory analysis results of the composite soil sample collected from the soil stockpile show that TPPHg, MTBE, and HVOCs were not detected at or above the laboratory method detection limits. The analytical laboratory results are presented in Table 2.

At the request of ExxonMobil, Dillard Trucking Company (Dillard) of Byron, California, (under direct contract to ExxonMobil) will transport soil generated during borehole clearing operations to the Browning-Ferris Industries (BFI) landfill in Livermore, California after receipt of characterization analyses. Soil disposal documentation will be forwarded under separate cover.

#### **CONCLUSIONS**

Based on the results of this investigation, ERI concludes that the MTBE plume has been delineated downgradient from the site by GeoProbe borings GP1 and GP2.

#### PROPOSED WORK

ERI recommends the installation of one downgradient groundwater monitoring well (MW6J) in the vicinity of GP1. The purpose of this well is to provide a permanent downgradient monitoring point for plume delineation. The location of the proposed groundwater monitoring well is shown on Plate 2. The scope of the well installation includes the following work:

#### Task 1: Pre-Drilling Activities

- Obtain a drilling permit from the Alameda County Public Works Department.
- Obtain excavation and encroachment permits from the City of Oakland.
- Contact Underground Service Alert (USA) to coordinate utility locating activities.

#### Task 2: Preliminary Investigation

- Obtain the services of a licensed well driller, and observe the drilling of one off-site soil boring
  utilizing a hollow-stem auger drilling rig and the construction of groundwater monitoring well
  MW6J in the boring. The boring will be advanced to a minimum depth of 10 feet below firstencountered groundwater. ERI expects groundwater to be encountered between 10 and 15 feet
  bgs. Soil samples will be collected from each boring at 5-foot intervals and at significant changes
  in lithology, to the total depth of the boring.
- Develop the newly installed well and collect groundwater samples from the well.
- Submit selected soil and groundwater samples to SPL for laboratory analysis of TPPHg using modified EPA Method 8015, total extractable petroleum hydrocarbons as diesel (TEPHd) using modified EPA Method 8015, and BTEX using EPA Method 8020.

- Drill cuttings will be stored on site and covered with visqueen pending disposal. ERI will collect
  one composite soil sample from the soil stockpile for laboratory analysis. Upon receipt of
  analytical results for the stockpiled soil, ERI will coordinate the disposal of the soil at an
  appropriate disposal facility.
- Contract with a licensed land surveyor to survey the location (known survey grid) and casing elevation (mean sea level) of the newly installed wells.
- Interpret field and laboratory data to evaluate soil and groundwater conditions.

#### Task 3: Report Preparation

ERI will prepare a report for the well installation. The report will detail field activities, sample
collection, field observations, results of the field investigations, and analytical results for soil and
groundwater samples. If additional assessment work is warranted, the proposed work will be
described in the report.

#### 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.

ERI recommends signed copies of this report be forwarded to the following:

Mr. Scott Seery
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Mr. Stephen Hill California Regional Water Quality Control Board San Francisco Bay Region 1515 Clay Street, Suite 1400 Oakland, California 94612 Please call ERI's project manager, Mr. James F. Chappell at (415) 382-4323, with any questions or comments regarding this report.

Sincerely,

Environmental Resolutions, Inc.

Briley Albutt

Thomas & Glig

Thomas Culig Staff Geologist

John B. Bobbitt R.G. 4313

Attachments:

Table 1:

Analytical Laboratory Results of Groundwater Samples

Table 2:

Analytical Laboratory Results of Soil Samples

Plate 1:

Site Vicinity Map

Plate 2:

Generalized Site Plan

Plate 3:

Groundwater Flow Direction Rose Diagram

Attachment A: Field Protocol

Attachment B: Alameda County Health Care Services Agency Letter,

Dated February 24, 2000

Attachment C: Excavation Permit

Attachment D: Drilling Permit

Attachment E: Unified Soil Classification System and Symbol Key and Soil Boring

Attachment F: Analytical Laboratory Report and Chain of Custody Record

#### TABLE 1

#### ANALYTICAL LABORATORY RESULTS OF GROUNDWATER SAMPLES

Exxon Service Station 7-0235 2225 Telegraph Avenue Oakland, California (Page 1 of 1)

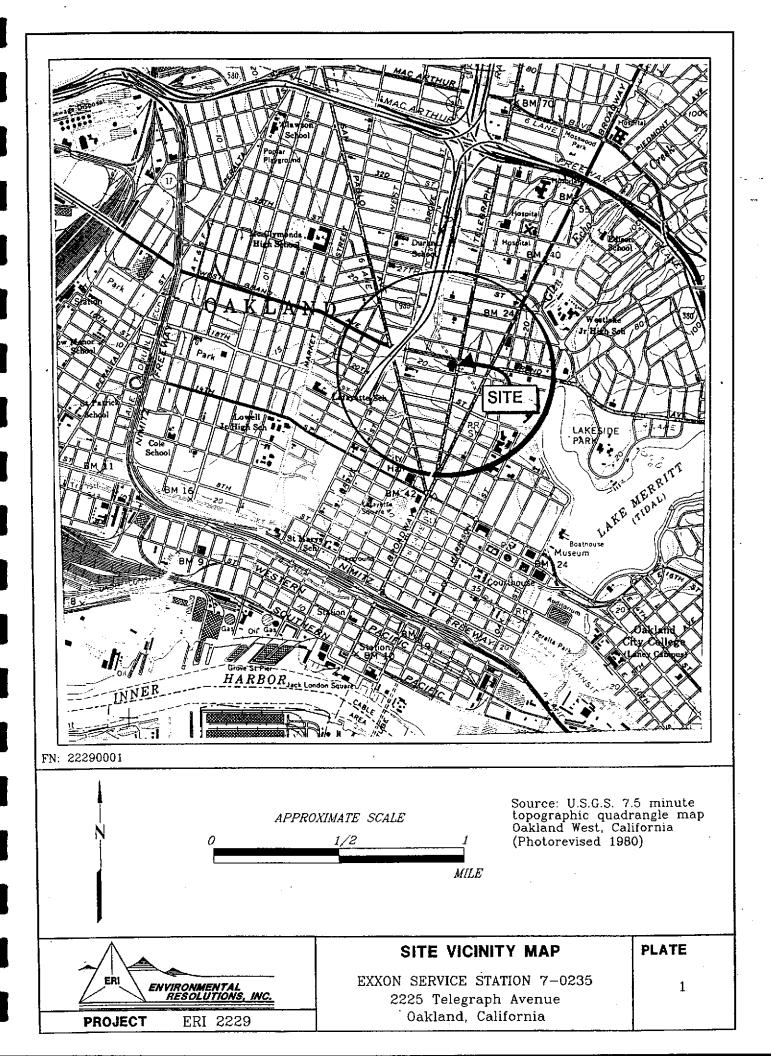
| Sample ID | Date Sampled | TPPHg         | MTBE                                    | В             | Т              | E             | х            |
|-----------|--------------|---------------|---|---------------|----------------|---------------|--------------|
| -         | -            | <             | *************************************** | นย            | /L             | ***********   | >            |
|           |              |               |   |               |                |               |              |
| W-13-GP1  | 3/29/00      | < 50          | <2                                      | < 0.5         | < 0.5          | <0.5          | < 0.5        |
| W-23-GP1  | 3/29/00      | < 50          | <2                                      | < 0.5         | < 0.5          | < 0.5         | < 0.5        |
| W-12-GP2  | 3/29/00      | 100           | <2                                      | < 0.5         | < 0.5          | <0.5          | <0.5         |
| W-23-GP2  | 3/29/00      | < 50          | <2                                      | < 0.5         | < 0.5          | < 0.5         | < 0.5        |
|           |              |               | <u></u>                                 |               |                |               |              |
| Notes:    |              |               |   |               |                |               |              |
| W-13-GP1  | = ·          | Water samp    | le-depth in fee                         | et below grou | ınd surface-b  | oring number  | r.           |
| TPPHg     | =            | Total purgea  | ible petroleun                          | i hydrocarbo  | ns as gasoline | e analyzed us | ing modified |
| BTEX      | =            |               | uene, ethylbe                           |               |                |               | -            |
| MTBE      | =            | Methyl tertia | ary butyl ethe                          | r analyzed us | ing EPA Me     | thod 8021B.   |              |
| ug/L      | =            | Micrograms    |   | •             | <del>-</del>   |               |              |

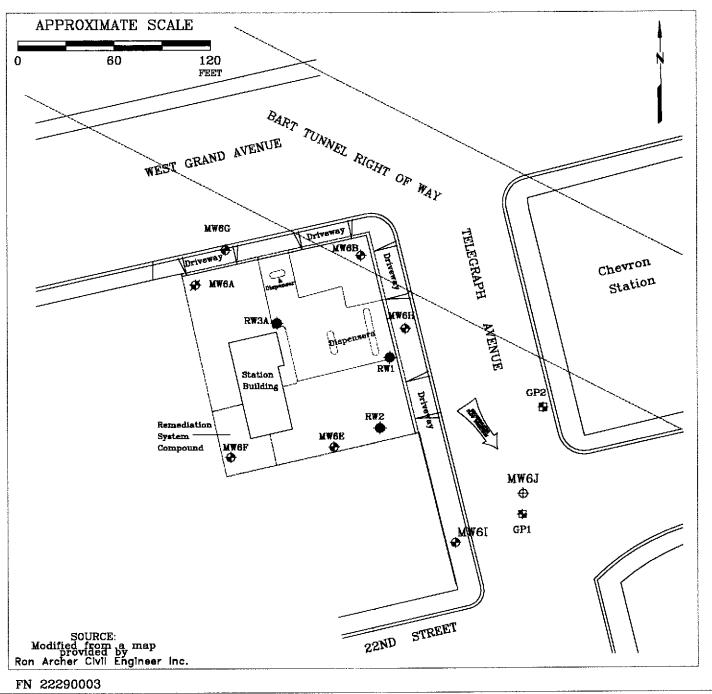
#### TABLE 2

#### ANALYTICAL LABORATORY RESULTS OF SOIL SAMPLES

Exxon Service Station 7-0235 2225 Telegraph Avenue Oakland, California Page 1 of 1)

| Sample ID | Date Sampled | TPPHg                   | MTBE                   | В              | T              | E               | X            | Total Lead   | HVOCs  |  |  |
|-----------|--------------|-------------------------|------------------------|----------------|----------------|-----------------|--------------|--------------|--------|--|--|
|           |              | <                       | <mg kg<="" th=""></mg> |                |                |                 |              |              |        |  |  |
|           |              |                         |                        |                |                |                 |              |              |        |  |  |
| S-9-GP1   | 3/29/00      | <1                      | < 0.001                | < 0.001        | < 0.001        | < 0.001         | < 0.001      |              |        |  |  |
| S-11-GP1  | 3/29/00      | <1                      | < 0.001                | < 0.001        | < 0.001        | < 0.001         | < 0.001      |              |        |  |  |
|           |              |                         | < 0.001                | < 0.001        |                |                 |              |              |        |  |  |
| S-9-GP2   | 3/29/00      | <1                      | < 0.001                | < 0.001        | < 0.001        | < 0.001         | < 0.001      |              |        |  |  |
| S-11-GP2  | 3/29/00      | <1                      | < 0.001                | < 0.001        | < 0.001        | < 0.001         | < 0.001      | •••          |        |  |  |
| SP-1-1    | 3/29/00      | <1                      | < 0.001                | < 0.001        | < 0.001        | < 0.001         | < 0.001      | 4.35         | ND     |  |  |
| Notes:    |              |                         |                        |                |                |                 | •            |              |        |  |  |
| S-9-GP1   | =            | Soil sample-            | depth in feet          | below ground   | d surface-bor  | ing number.     |              |              |        |  |  |
| SP-1-1    | =            | Stockpile so            | oit sample-de          | oth in feet be | low ground s   | urface          |              |              |        |  |  |
| TPPHg     | =            | Total purgea            | ible petroleur         | n hydrocarbo   | ns as gasolin  | e analyzed us   | sing modifie | d EPA Method | 8015M. |  |  |
| BTEX      | =            | Benzene, tol            | luene, ethylbe         | enzene, and to | otal xylenes a | nalyzed usin    | g EPA Meth   | od 8021B.    |        |  |  |
| MTBE      | =            | Methyl tertia           | ary butyl ethe         | r analyzed us  | sing EPA Me    | thod 8021B.     |              |              |        |  |  |
| Lead      | =            | Total lead at           | nalyzed using          | EPA Metho      | d 6010B.       |                 |              |              |        |  |  |
| ND        | =            | Analytes not            | t detected at o        | or above the l | aboratory me   | ethod detection | n limit.     |              |        |  |  |
| mg/kg     | =            | Milligrams <sub>I</sub> | per Kilogram           |                |                |                 |              |              |        |  |  |
|           | =            | Not Analyze             | d/Not Applic           | able.          |                |                 |              |              |        |  |  |





EXPLANATION

MW6I

Groundwater Monitoring Well 0

MW6J

<del>Ф</del> Proposed Groundwater Monitoring Well

Groundwater elevation in feet above mean sea level 8.00

Interpreted Groundwater Gradient

RW3A

Groundwater Recovery Well

GP1

Geoprobe Location

Dominant Groundwater Flow Direction Based on Rose Diagram.

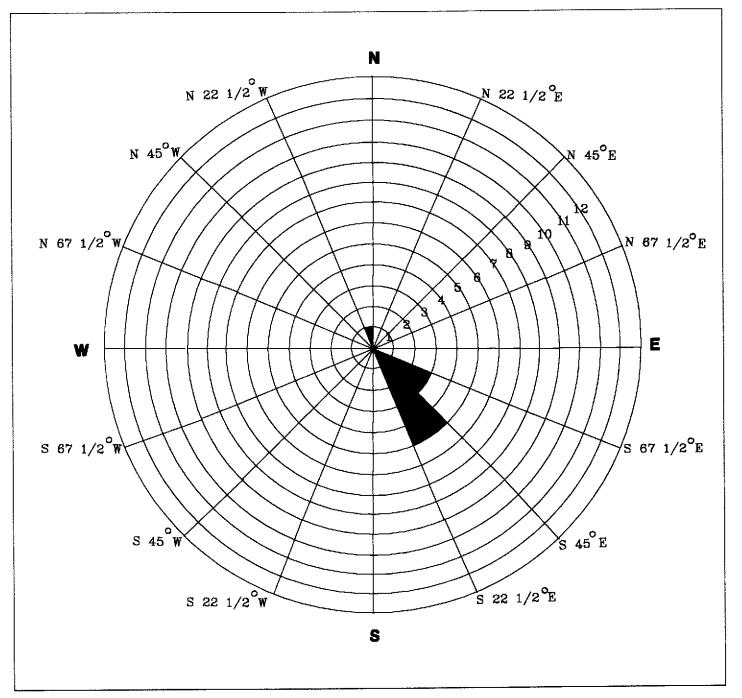


# GENERALIZED SITE PLAN

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

PROJECT NO. 2229

PLATE



FN 22290004

## <u>EXPLANATION</u>

None Data Points Shown

Rose diagram developed by evaluating the groundwater gradient direction from the quarterly monitoring data. Each circle on the rose diagram represents the number of monitoring events that the gradient plotted in that 22 1/2 degree sector. For example, five quarterly groundwater gradient directions are plotted between south 45 degrees east and south 22 1/2 degrees east. Therefore, the dominant groundwater gradient direction as depicted by the rose diagram is between south 67 1/2 degrees east and south 22 1/2 degrees east.



# GROUNDWATER FLOW DIRECTION ROSE DIAGRAM

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

| PROJECT | NO. |
|---------|-----|
|         |     |

2229

PLATE

3

# ATTACHMENT A FIELD PROTOCOL

#### FIELD PROTOCOL

#### Site Safety Plan

Fieldwork is performed by ERI personnel in accordance with a site safety plan (SSP) developed for the site. This plan describes the basic safety requirements for the subsurface investigation and the drilling of soil borings at the work site. The SSP is applicable to personnel and subcontractors of ERI. Personnel at the site are informed of the contents of the SSP before work begins. A copy of the SSP is kept at the work site and is available for reference by appropriate parties during the work. The ERI geologist acts as the Site Safety Officer.

#### Pre-Drilling Protocol

Prior to the drilling of soil borings, ERI will acquire necessary permits from the appropriate agency(ies). ERI will also contact Underground Service Alert (USA) and a private underground utility locator (per ExxonMobil protocol) before drilling to help locate public utility lines at the site. ERI will clear the proposed locations to a depth of approximately 4 or 8 feet (depending on the location) before drilling to reduce the risk of damaging underground structures

#### **Direct Drive Push-Technology Drilling**

Soil borings are drilled using a portable, truck-mounted pneumatic sampling device capable of pushing and/or driving a 2-inch core barrel into the subsurface. When groundwater is encountered in the borings, a bailer or Hydropunch\* (or similar) sample device is used to collect a reconnaissance groundwater sample. After drilling and sampling is completed, the boring is abandoned using cement grout to fill the boring to the original surface.

#### Hydropunch Sampling Technology (or similar)

The Hydropunch (or similar) sampling device provides a method for collection of groundwater samples using a specially designed sample tool to provide a hydraulic connection with the water table. Both groundwater and separate-phase hydrocarbons may be sampled using a Hydropunch sampler. To sample groundwater, the sample tool is pushed to the selected depth beneath the water table, then withdrawn to expose an inlet screen. The screened interval of the sampler is approximately 3 to 5 feet. Groundwater flows through the inlet screen and fills the body of the sampler. A water sample is then collected from the body of the sampler.

The water is transferred slowly from the bailer to laboratory-cleaned, 1-liter amber bottles and 40-milliliter glass vials for analyses by the laboratory. The glass vials contain hydrochloric acid as a preservative. ERI's geologist checks to see if headspace is present. If headspace is present, additional water is collected until none is present. Chain of Custody Records are initiated in the field by the geologist, updated throughout handling of the samples, and sent along with the samples to the laboratory. Copies of Chain of Custody Records are included in ERI's report.

#### Auger Drilling

The soil borings will be drilled with a B57 (or similar) drill rig with hollow-stem auger. Auger flights and sampling equipment will be steam-cleaned before use to minimize the possibility of crosshole contamination. The rinseate will be containerized and stored on site. ERI will coordinate with ExxonMobil for appropriate disposal of the rinsate.

Drilling will be performed under the observation of a field geologist, and the earth materials in the boring will be identified using visual and manual methods, and classified as drilling progresses using the Unified Soil Classification System. Soil borings B1 will be drilled to approximately 10 feet below first-encountered groundwater or 5 feet into any competent clay layer (aquitard) encountered beneath the water-bearing zone. If an aquitard is encountered, the boring will be terminated and backfilled with bentonite before installing a groundwater monitoring well.

During drilling, soil samples will be continuously collected. Samples will be collected with a California-modified, split-spoon sampler equipped with laboratory-cleaned brass sleeves. Samples will be collected by advancing the auger to a point just above the sampling depth and driving the sampler into the soil. The sampler will be driven 18 inches with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows required to drive the sampler each successive 6-inch interval will be counted and recorded to give an indication of soil consistency.

Soil samples will be monitored with a photoionization detector (PID), which measures hydrocarbon concentrations in the ambient air or headspace above the soil sample. Field instruments such as the PID are useful for indicating relative levels of hydrocarbon vapors, but do not detect concentrations of hydrocarbons with the same precision as laboratory analyses. Soil samples selected for possible chemical analysis will be sealed promptly with Teflon® tape and plastic caps. The samples will be labeled and placed in iced storage for transport to the laboratory. Chain of Custody Records will be initiated by the geologist in the field, updated throughout handling of the samples, and sent with the samples to the laboratory. Copies of these records will be in the final report. Cuttings generated during drilling will be placed on plastic sheeting and covered and left at the site. ERI will coordinate with ExxonMobil for the soil to be removed to an appropriate disposal facility.

#### Well Construction

The monitoring well will be constructed in the boring using thread-jointed, 2-inch inner diameter, Schedule 40 polyvinyl chloride (PVC) casing. No chemical cements, glues, or solvents will be used in well construction. The screened portion of the well will consist of factory-perforated casing with 0.020-inch wide slots. If unconfined aquifer conditions exist, the well screen will be installed from the total depth of each well to approximately 5 feet above the uppermost water-bearing unit. If confined conditions exist, the uppermost water-bearing unit will be screened exclusively. Unperforated casing will be installed from the top of each screen to the ground surface. The annular space in the well will be packed with number 2/12 sand to approximately one foot above the slotted interval and a surged and refilled bentonite plug will be added above the sand pack to prevent cement from entering the well pack. The remaining annulus will be backfilled to grade with a slurry of cement and bentonite powder.

The well will be protected with a locking cap and a traffic-rated, cast-steel utility box equipped with a steel skirt. The box has a watertight seal to protect against surface-water infiltration.

#### Well Development and Sampling

ERI will wait a minimum of 24 hours before development of the wells to allow the grout to set. The wells will be developed with a surge block and pump. Well development will continue until the discharge water is clear of silt and sand. Clay-size sediments derived from the screened portion of the formation cannot be eliminated by well development. After the wells have been allowed to stabilize, the wells will be checked for separate phase hydrocarbons using an interface probe. The thickness of any free phase hydrocarbons detected in the wells will be recorded. If free phase hydrocarbons are encountered in a well, the well will not be purged, and the water will not be sampled for chemical analysis.

If no free phase hydrocarbons are detected after development, the groundwater monitoring wells will be purged of stagnant water and a sample will be collected for laboratory analysis. The wells will be purged of approximately 3 to 5 well volumes of water with a submersible pump, or until pH, conductivity, and temperature of the purged water have stabilized. Water purged from the wells will be transported by ERI for disposal at Romic, Inc., of East Palo Alto, California.

The wells will be allowed to recover to at least 80 percent of static conditions, and a sample of the formation water will be collected with a Teflon® bailer cleaned with a laboratory-grade detergent and deionized water. The water will be transferred slowly from the bailer to laboratory-cleaned, 1 liter amber bottles and 40-milliliter glass vials for analyses by the laboratory. The glass vials will contain hydrochloric acid as a preservative. The sampler will check to see if headspace is present. If headspace is present, the sampler will collect more samples until none is present. Chain of Custody Records will be initiated in the field by the sampler, updated throughout handling of the samples, and sent along with the samples to the laboratory. Copies of Chain of Custody Records will be included in our final report.

#### **Quality Assurance/Quality Control**

The sampling and analysis procedures employed by ERI for soil sampling follow regulatory guidance documents for quality assurance/quality control (QA/QC). Quality control is maintained by site-specific field protocols and quality control checks performed by the laboratory. Laboratory and field handling of samples may be monitored by including QC samples for analysis. The number and types of QC samples are selected and analyzed on a project-specific basis.

Trip Blanks - Trip blanks are sent to the project site, and travel with samples collected from the project site to the laboratory. They are not opened, and are returned from the project site with the samples for analysis.

# ATTACHMENT B

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY LETTER DATED FEBRUARY 24, 2000

# AMEDA COUNTY ALTH CARE SERVICES

AGENCY



DAVID J. KEARS, Agency Director

February 24, 2000

STID 1039

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

Mr. Darin Rouse Exxon Company, U.S.A. P.O. Box 4032 Concord, CA 94524-4032

RE: Exxon Service Station 7-0235, 2225 Telegraph Avenue, Oakland

Dear Mr. Rouse:

This letter follows my review of the January 4, 2000 Environmental Resolutions, Inc. (ERI) work plan for a soil and water investigation (SWI) in locations downgradient of the subject site. This work plan was submitted in response to a November 5, 1999 request from this office for such work, prompted by the significant increase in methyl tert-butyl ether (MtBE) concentrations identified in water samples collected from well MW6H in the last two years.

ERI proposes the use of Geoprobe® or other "push-tool" sampling equipment to advance two borings into Telegraph Avenue from which both soil and groundwater samples will be collected. Although the proposed scope of work is acceptable as a preliminary step in the assessment, it is not a replacement for the monitoring wells requested previously.

The cited ERI workplan is accepted as submitted for this preliminary stage of the SWI.

Please call me at (510) 567-6783 should you have any questions and to advise me when permits have been secured and field work scheduled.

Sincerely,

%ott Ø. Seer∕y, CHMM

Hazardoùs Materials Specialist

CC:

Chuck Headlee, RWQCB

Lerøy Griffin, Oakland Fire Department

الله Chappell, Env. Resolutions, Inc., 73 Digital Dr., Ste. 100, Novato, CA 94949

# ATTACHMENT C EXCAVATION PERMIT

250 Frank H. Ogawa Plaza, 2nd ', Oakland, CA 94612 • Phone (510) 238-3443

TAX (510) 238-2263

EXCAVATION MIT

Job Site 2225 TELEGRAPH AV

Parcel# 008 -0659-002-01

App1# X0000259

Descr boring for soil & ground water investigation

Permit Issued 03/17/00

Work Type EXCAVATION-PRIVATE P

USA #

Owner EXXON CORPORATION

Contractor ENVIRONMENTAL RESOLUTIONS INC

License Classes--C10 C36

Arch/Engr

Agent DYLAN OROUSE

Applic Addr 73 DIGITAL DR STE

\$246.00 TOTAL FEES AT ISSUANCE

\$41.00 Applic

\$205.00 Permit \$.00 Process \$.00 Rec Mgmt

\$.00 Gen Plan

\$.00 Invstg

\$.00 Other

# ATTACHMENT D DRILLING PERMIT

MAR-17-00 FRI 12:43 PM ALAMEDA COUNTY PWA RM239

FAX NO. 5107821839

P. 02

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# ALAMEDA COUNTY PUBLIC WORKS AGENCY

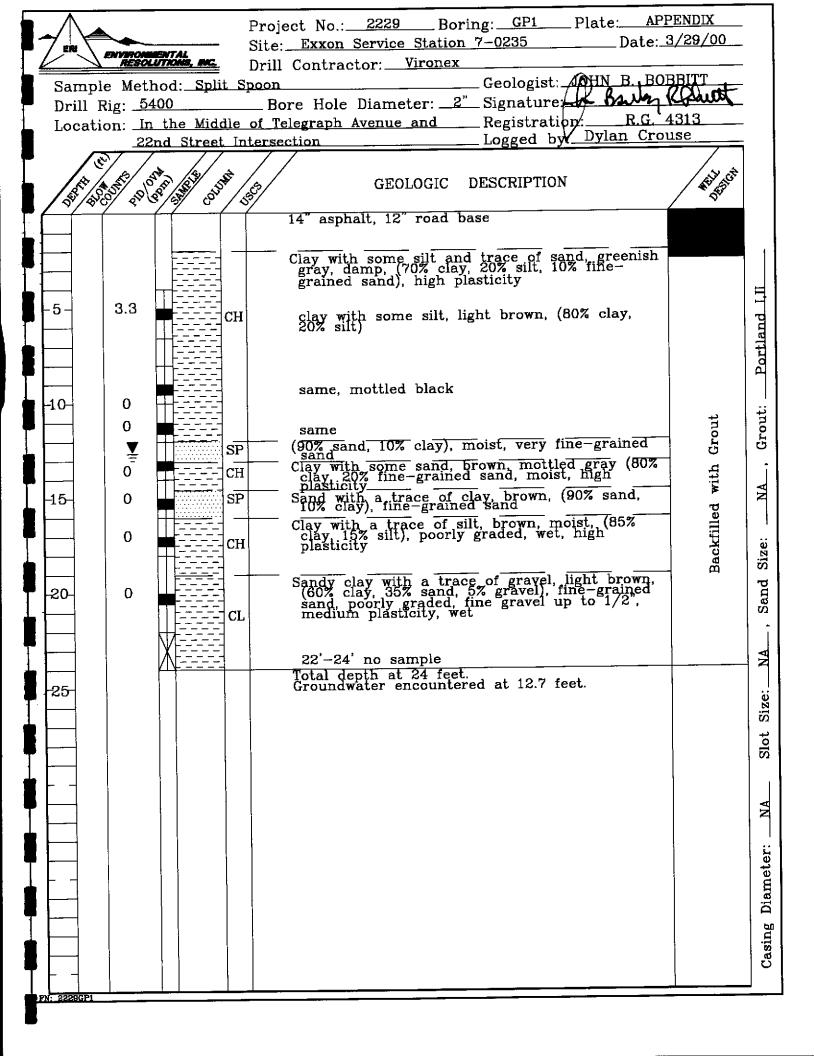
| 1  |  |
|--|--|
| DRILLING PE  | RMIT APPLICATION   |
| FOR APPLICANT TO COMPLETE  |  |
|  | FOR OFFICE USE   |
| AVENUE CAKLAND, WILLIAMS   | PERMIT NUMBER_ WOO -//B  |
| offsito MAKLOWD, Collibaria  | WELL NUMBER  |
|  |  |
| OF PROPER  | FERMIT CONDITIONS Circled Permit Requirements Apply  |
| Name EXXON COMPONY USA   | A. GENERAL   |
| Addition of the state of the st | 1 A manufacture of the control of th |
| City Concord 2 219 9543 4 403  | THE WALLEY ALLEY ALLEY AND A PARTY AND   |
| APPLICANT  | Proposed starting date.  |
| Namo Environmental Resolutions. The  | 2) Submit to ACPWA within 60 days after completion of permitted work the original Department of Water  |
| Address 25 Digital GUITE 100 Phone WC 983-1856   | Resources Well Completion Reports  |
| City A)CAATO CA Zip 74949  | (Manual)   |
| TYPE OF PROJECT  | Pormit is void if project not begun within 90 days of approval date.   |
| Well Construction Geotochnical Investigation Cathodic Protection Connect   | B. WATER SUPPLY WELLS  |
| Water County   | <ol> <li>Minimum surface seal thickness is two inches of<br/>coment grout piaced by fremic.</li> </ol>   |
| Monitoring (1)   | 2. Minimum seed by fremic.  2. Minimum seed depth is 50 feet for municipal and industrial and in |
| · · · · · · · · · · · · · · · · · · ·  | merical the world of 20 feet for demostic and important  |
| ROPOSED WATER SUPPLY WELL USE New Domostic f) Replacement Domostic   |  |
| Municipal th Infantion Domostic 11   | C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS  |
| Industrial () Other  | 1. Minimum surface seal thickness is two inches of   |
| PRILLING METHOD:   | coment grout placed by tremie  |
| Mud Rotary 18 Air Passen   | 2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.  |
| Cable Auger U  | 1 D. GEOTECHNICAL  |
| •  | Backfill boro hole rby tramie with comon   |
| PRILLER'S LICENSB NO   | TIVUL OF CHANGE APPLATIONAL AND AND A  |
| vell projects :  | UPPER TWO YEST KHOLL WE CAMARY   |
| Drill Hole Diamoter in. Maximum Casing Diamoter in Deeth   | E. CATHODIC CLUTTINGS.   |
| Surface Spal Donth   | Fill hole above anode zone with concrete placed by tremic.  F. WELL DESTRUCTION  |
| The state of the s | See attached,  |
| GEOTECHNICAL PROJECTS Number of Borings & Maylenum   | G. SPECIAL CONDITIONS  |
| Hole Diamoter 3 /a   |  |
| STIMATED STARTING DATE 3-29-00   | 100000   |
| STIMATED COMPLETION DATE   | Stopul 4/0/1// a an  |
| 3 30 500   | APPROVEDY TO BOUNDER AL TOTORY (A-)Y)1   |

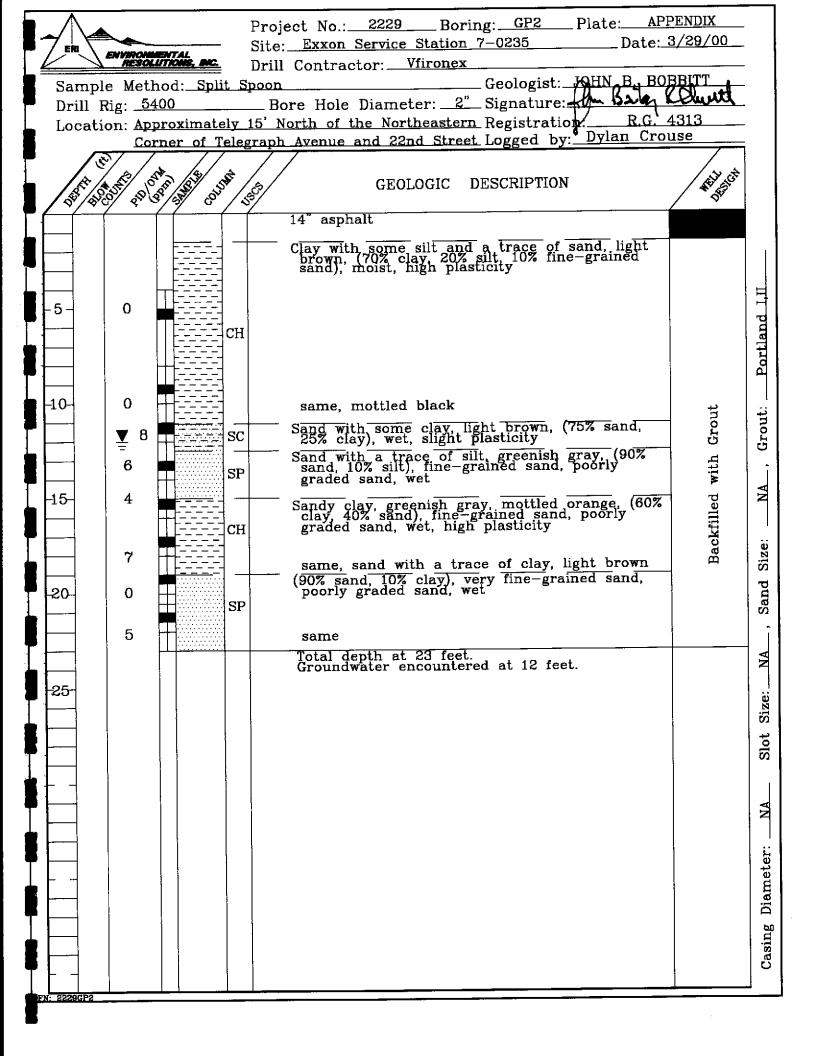
Un MU DATE 3/16/00

Per. 3-16+00

# ATTACHMENT E

UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL KEY AND SOIL BORING LOGS





# ATTACHMENT F

# ANALYTICAL LABORATORY REPORT AND CHAIN OF CUSTODY RECORD



### **EXXON Company U.S.A.**

#### Certificate of Analysis Number:

# 00040279

Report To: Environmental Resolution, Inc.

Jim Chappell

73 Digital Drive Suite 100

Environmental Resolution, Inc.

Novato

California 94949-

ph: (415) 382-9105

fax: (415) 382-1856

Jim Chappell

fax: (415) 382-1856

Project Name:

222903x

Site:

7-0235,19802887

Site Address:

PO Number:

State:

California

State Cert. No.:

**Date Reported:** 

| Client Sample II |             | Matrix | Date Collected     | Date Received | COC ID | HOLD |
|------------------|-------------|--------|--------------------|---------------|--------|------|
|                  |             |        |                    |               |        |      |
| S <u>P-</u> 1-1  | 00040279-01 | Soil   | 3/29/00 5:05:00 PM | 4/11/00       |        |      |

Sonia West

4/17/00

Date

Ast. Sonia

nior Project Manager

Joel Grice Laboratory Director

Ted Yen

Quality Assurance Officer





Client Sample ID: SP-1-1 Collected: 3/29/00 5:05:00 SPL Sample ID: 00040279-01

Site: 7-0235,19802887

| Analyses/Method            | Result    | F     | Rep.Limit |                                       | Dil. Factor QUAL | Date Analyzed  | Analyst | Seq.#  |
|----------------------------|-----------|-------|-----------|---------------------------------------|------------------|----------------|---------|--------|
| HALOGENATED VOLATILES OF   | RGANIC CO | MPOU  | JNDS      | MCL                                   | SW8010B          | Units: m       | g/Kg    |        |
| 1,1,1-Trichloroethane      | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| 1,1,2,2-Tetrachloroethane  | ND        |       | 0,002     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| 1,1,2-Trichloroethane      | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| 1,1-Dichloroethane         | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| 1,1-Dichloroethene         | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| 1,2-Dichlorobenzene        | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| 1,2-Dichloroethane         | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| 1,2-Dichloropropane        | ND        |       | 0.001     |                                       | 1 .              | 04/13/00 0:47  | JN      | 249688 |
| 1,3-Dichlorobenzene        | ND        |       | 0.002     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| 1,4-Dichlorobenzene        | ND        |       | 0.002     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Bromodichloromethane       | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Bromoform                  | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Bromomethane               | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Carbon tetrachloride       | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Chlorobenzene              | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Chloroethane               | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Chloroform                 | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Chloromethane              | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| cis-1,2-Dichloroethene     | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| cis-1,3-Dichloropropene    | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Dibromochloromethane       | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Dichlorodifluoromethane    | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Methylene chloride         | ND        |       | 0.002     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Tetrachloroethene          | ND        | • • • | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| trans-1,2-Dichloroethene   | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| trans-1,3-Dichloropropene  | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Trichloroethene            | ND        |       | 0.001     | *                                     | 1                | 04/13/00 0:47  | JN      | 249688 |
| Trichlorofluoromethane     | ND        |       | 0.001     |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| Surr: 3-Bromochlorobenzene | 131       | %     | 50-150    | · · · · · · · · · · · · · · · · · · · | 1                | 04/13/00 0:47  | JN      | 249688 |
| Surr: Fluorobenzene        | 93.3      | %     | 70-130    |                                       | 1                | 04/13/00 0:47  | JN      | 249688 |
| METALS BY METHOD 6010B, TO | OTAL      |       |           | MCL                                   | SW6010B          | Units: mg      |         |        |
| Lead                       | 4.35      |       | 0.5       |                                       | 1                | 04/12/00 15:28 | EG      | 247878 |

Run ID/Seq #: TJAT\_000412A-247878

| Prep Method | Prep Date      | Prep Initials |
|-------------|----------------|---------------|
| SW3050B     | 04/11/2000 18: | 40 AA         |

West, Sonia
Project Manager

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

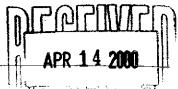
00040279 Page 2 4/17/00 9:09:56 AM



ph: (415) 382-9105

#### **HOUSTON LABORATORY** 8880 INTERCHANGE DRIVE HOUSTON, TEXAS 77054

(713) 660-0901



### Case Narrative for: **EXXON Company U.S.A.**

#### Certificate of Analysis Number:

#### 00030881

222903X Report To: Project Name: 7-0235,19802887 Site: Environmental Resolution, Inc. Jim Chappell Site Address: 73 Digital Drive Suite 100 PO Number: Novato State: California California 94949-State Cert. No.:

**Date Reported:** 

4/5/00

Any data flags or quality control exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

fax: (415) 382-1856

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

mallest

4/6/00

Date





### **EXXON Company U.S.A.**

#### Certificate of Analysis Number:

#### 00030881

Report To: Environmental Resolution, Inc.

Jim Chappe#

Novato California

94949-

73 Digital Drive Suite 100

Project Name:

222903X

Site:

7-0235,19802887

Site Address:

PO Number:

State:

California

State Cert. No.:

Date Reported:

4/5/00

Environmental Resolution, Inc.

Jim Chappell

ph: (415) 382-9105

fax: (415) 382-1856

fax: (415) 382-1856

| Client Sample ID  | Lab Sample ID | Matrix | Date Collected      | Date Received       | COC ID | HOLD          |
|-------------------|---------------|--------|---------------------|---------------------|--------|---------------|
|                   |               |        |                     |                     |        |               |
| 3-5-GP1           | 00030881-01   | Soil   | 3/29/00 10:00:00 AM | 3/31/00 10:00:00 AM |        |               |
| }- <b>95</b> -P1  | 00030881-02   | Soil   | 3/29/00 10:05:00 AM | 3/31/00 10:00:00 AM |        |               |
| 5-1 GP1           | 00030881-03   | Soil   | 3/29/00 10:10:00 AM | 3/31/00 10:00:00 AM |        |               |
| 5-13-GP1          | 00030881-04   | Soil   | 3/29/00 10:15:00 AM | 3/31/00 10:00:00 AM |        | <b>_</b>      |
| 3-1 <u>5-</u> GP1 | 00030881-05   | Soil   | 3/29/00 10:20:00 AM | 3/31/00 10:00:00 AM |        | ✓             |
| 5-1 GP1           | 00030881-06   | Soil   | 3/29/00 10:40:00 AM | 3/31/00 10:00:00 AM |        |               |
| 3-20-GP1          | 00030881-07   | Soil   | 3/29/00 11:00:00 AM | 3/31/00 10:00;00 AM |        |               |
| 3-5-GP2           | 00030881-08   | Soil   | 3/29/00 2:45:00 PM  | 3/31/00 10:00:00 AM |        | $\overline{}$ |
| 3-9 <b>8</b> P2   | 00030881-09   | Soil   | 3/29/00 2:50:00 PM  | 3/31/00 10:00:00 AM |        |               |
| 3-1 GP2           | 00030881-10   | Soil   | 3/29/00 2:55:00 PM  | 3/31/00 10:00:00 AM |        |               |
| i-13-GP2          | 00030881-11   | Soil   | 3/29/00 3:00:00 PM  | 3/31/00 10:00:00 AM |        | ✓             |
| i-1 <u>F</u> GP2  | 00030881-12   | Soil   | 3/29/00 3;20:00 PM  | 3/31/00 10:00:00 AM |        | <b>V</b>      |
| 5-1 GP2           | 00030881-13   | Soil   | 3/29/00 3:25:00 PM  | 3/31/00 10:00:00 AM |        |               |
| ;19-GP2           | 00030881-14   | Soil   | 3/29/00 3:30:00 PM  | 3/31/00 10:00:00 AM |        |               |
| 3-2 <u>1-</u> GP2 | 00030881-15   | Soil   | 3/29/00 3;35:00 PM  | 3/31/00 10:00:00 AM |        |               |
| V- GP1            | 00030881-16   | Water  | 3/29/00 10:30:00 AM | 3/31/00 10:00:00 AM |        |               |
| VGP1              | 00030881-16   | Water  | 3/29/00 10:30:00 AM | 3/31/00 10:00:00 AM |        |               |
| V-23-GP1          | 00030881-17   | Water  | 3/29/00 11:30:00 AM | 3/31/00 10:00:00 AM |        |               |
| V-GP2             | 00030681-18   | Water  | 3/29/00 3:10:00 PM  | 3/31/00 10:00:00 AM |        | 7 6           |
| V GP2             | 00030881-18   | Water  | 3/29/00 3:10:00 PM  | 3/31/00 10:00:00 AM | ·      | <b>V</b>      |
| V-23-GP2          | 00030881-19   | Water  | 3/29/00 4:25:00 PM  | 3/31/00 10:00:00 AM |        |               |
| V-22-GP2          | 00030881-19   | Water  | 3/29/00 4:25:00 PM  | 3/31/00 10:00:00 AM |        |               |
| SP 1              | 00030881-20   | Soil   | 3/29/00 5:05:00 PM  | 3/31/00 10:00:00 AM |        | 7 7           |

Toma West

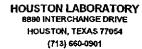
4/6/00

Date

r Project Manager

Joel Grice **Laboratory Director** 

Ted Yen Quality Assurance Officer





00030881-02 Collected: 3/29/00 10:05:00 SPL Sample ID: Client Sample ID: S-9-GP1 7-0235,19802887 Site: Date Analyzed **Analyst** Dil. Factor QUAL Seq.# Result Rep.Limit Analyses/Method CA\_GRO Units: mg/Kg **GASOLINE RANGE ORGANICS** MCL 04/03/00 22:34 CJ 235275 1 ND 1 Gasoline Range Organics 04/03/00 22:34 235275 1 88.4 72-153 Surr. 1,4-Difluorobenzene 04/03/00 22:34 235275 1 80.9 51-149 Surr: 4-Bromofluorobenzene Units: mg/Kg SW8021B **PURGEABLE AROMATICS** MCL 235208 04/03/00 22:34 ND 0.001 CJ Benzene 04/03/00 22:34 235208 0.001 1 CJ ND Ethylbenzene 235208 1 04/03/00 22:34 CJ ND 0.001 Methyl tert-butyl ether 04/03/00 22:34 CJ 235208 1 Toluene ND 0.001 235208 04/03/00 22:34 CJ ND 0.001 1 m,p-Xylene 04/03/00 22:34 235208 1 CJ o-Xylene ND 0.001 04/03/00 22:34 CJ 235208 ND 0.001 1 Xylenes, Total 04/03/00 22:34 235208 1 CJ 94.9 59-127 Surr: 1,4-Difluorobenzene 04/03/00 22:34 235208 101 48-156 Surr: 4-Bromofluorobenzene

<sup>\* -</sup> Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL



Client Sample ID: S-11-GP1

Collected: 3/29/00 10:10:00 SPL Sample ID:

00030881-03

Site: 7-0235,19802887

|                            |        |   |           |       | •                |                   |         |        |
|----------------------------|--------|---|-----------|-------|------------------|-------------------|---------|--------|
| Analyses/Method            | Result |   | Rep.Limit |       | Dil. Factor QUAL | Date Analyzed     | Analyst | Seq.#  |
| GASOLINE RANGE ORGANICS    |        |   |           | MCL   | CA_GRO           | Units: m          | g/Kg    |        |
| Gasoline Range Organics    | ND     |   | 1         |       | 1                | 04/03/00 23:07    | CJ      | 235276 |
| Surr: 1,4-Difluorobenzene  | 88.6   | % | 72-153    |       | 1                | 04/03/00 23:07    | cı      | 235276 |
| Surr: 4-Bromofluorobenzene | 81.8   | % | 51-149    |       | 1                | 04/03/00 23:07    | CJ      | 235276 |
| PURGEABLE AROMATICS        |        |   |           | MCL   | SW8021B          | 021B Units: mg/Kg |         |        |
| Benzene                    | ND     |   | 0.001     |       | 1                | 04/03/00 23:07    | CJ      | 235211 |
| Ethylbenzene               | ND     |   | 0.001     | ~~~~~ | 1                | 04/03/00 23:07    | CJ      | 235211 |
| Methyl tert-butyl ether    | ND     |   | 0.001     |       | 1                | 04/03/00 23:07    | CJ      | 235211 |
| Toluene                    | ND     |   | 0.001     |       | 1                | 04/03/00 23:07    | CJ      | 235211 |
| m,p-Xylene                 | ND     |   | 0.001     |       | 1                | 04/03/00 23:07    | CJ      | 235211 |
| o-Xylene                   | ND     |   | 0.001     |       | 1                | 04/03/00 23:07    | CJ      | 235211 |
| Xylenes,Total              | ND     |   | 0.001     |       | 1                | 04/03/00 23:07    | CJ      | 235211 |
| Surr: 1,4-Difluorobenzene  | 93.2   | % | 59-127    |       | 1                | 04/03/00 23:07    | CJ      | 235211 |
| Surr: 4-Bromofluorobenzene | 99.3   | % | 48-156    |       | 1                | 04/03/00 23:07    | CJ      | 235211 |

<sup>\* -</sup> Surrogate Recovery Outside Advisable QC Limits



Client Sample ID: S-9-GP2 Collected: 3/29/00 2:50:00 SPL Sample ID: 00030881-09

|                            |        |   | Site      | e: 7-02     | 235,1 <mark>98028</mark> 8 | 7    |               |         |        |
|----------------------------|--------|---|-----------|-------------|----------------------------|------|---------------|---------|--------|
| Analyses/Method            | Result |   | Rep.Limit |             | Dil. Factor                | QUAL | Date Analyzed | Analyst | Seq.#  |
| GASOLINE RANGE ORGANICS    |        |   |           | MCL         | CA_                        | GRO  | Units: m      | g/Kg    |        |
| Gasoline Range Organics    | ND     |   | 1         |             | 1                          |      | 04/04/00 1:47 | ÇJ      | 23528  |
| Surr: 1,4-Diffuorobenzene  | 89.2   | % | 72-153    |             | 1                          |      | 04/04/00 1:47 | CJ      | 23528  |
| Surr: 4-Bromofluorobenzene | 82.5   | % | 51-149    |             | 1                          |      | 04/04/00 1:47 | CJ      | 23528  |
| PURGEABLE AROMATICS        |        |   |           | MCL         | SW80                       | 021B | Units: m      | g/Kg    |        |
| Benzene                    | ND     |   | 0.001     |             | 1                          |      | 04/04/00 1:47 | CJ      | 23522  |
| Ethylbenzene               | ND     |   | 0.001     |             | 1                          |      | 04/04/00 1:47 | CJ      | 23522  |
| Methyl tert-butyl ether    | ND     |   | 0.001     |             | 1                          | •    | 04/04/00 1:47 | CJ      | 235225 |
| Toluene                    | ND     |   | 0.001     |             | 1                          |      | 04/04/00 1:47 | CJ      | 23522  |
| m,p-Xylene                 | ND     | · | 0.001     |             | 1                          |      | 04/04/00 1:47 | CJ      | 235225 |
| o-Xylene                   | ND     |   | 0.001     |             | 1                          |      | 04/04/00 1:47 | CJ      | 235225 |
| Xylenes, Total             | ND     | _ | 0.001     | <del></del> | 1                          |      | 04/04/00 1:47 | CJ      | 23522  |
| Surr: 1,4-Difluorobenzene  | 91.7   | % | 59-127    | •           | 1                          |      | 04/04/00 1:47 | CJ      | 235225 |
| Surr: 4-Bromofluorobenzene | 100    | % | 48-156    |             | 1                          |      | 04/04/00 1:47 | CJ      | 235225 |

<sup>\* -</sup> Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL



Client Sample ID: S-11-GP2

Collected: 3/29/00 2:55:00

SPL Sample ID:

00030881-10

Site:

7-0235,19802887

| Analyses/Method            | Result |   | Rep.Limit |     | Dil. Factor | QUAL        | Date Analyzed | Analyst | Seq.#  |
|----------------------------|--------|---|-----------|-----|-------------|-------------|---------------|---------|--------|
| GASOLINE RANGE ORGANICS    |        |   |           | MCL | CA          | GRO         | Units: mg     | g/Kg    |        |
| Gasoline Range Organics    | ND     |   | 1         |     | 1           |             | 04/04/00 2:20 | CJ      | 235282 |
| Surr: 1,4-Difluorobenzene  | 88.2   | % | 72-153    |     | 1           |             | 04/04/00 2:20 | CJ      | 235282 |
| Surr: 4-Bromofluorobenzene | 82.5   | % | 51-149    |     | 1           |             | 04/04/00 2:20 | Cl      | 235282 |
| PURGEABLE AROMATICS        |        |   |           | MCL | SW8         | 021B        | Units: mg     | g/Kg    |        |
| Benzene                    | ND     |   | 0.001     |     | 1           |             | 04/04/00 2:20 | CJ      | 235228 |
| Ethylbenzene               | ND     |   | 0.001     |     | 1           |             | 04/04/00 2:20 | CJ      | 235228 |
| Methyl tert-butyl ether    | ND     |   | 0.001     |     | 1           |             | 04/04/00 2:20 | CJ      | 235228 |
| Toluene                    | ND     |   | 0.001     |     | 1           |             | 04/04/00 2:20 | CJ      | 235228 |
| m,p-Xylene                 | ND     |   | 0.001     |     | 1           |             | 04/04/00 2:20 | CJ      | 235228 |
| o-Xylene                   | ND     |   | 0.001     |     | 1           |             | 04/04/00 2:20 | CJ      | 235228 |
| Xylenes,Total              | ND     |   | 0.001     |     | 1           |             | 04/04/00 2:20 | CJ      | 235228 |
| Surr: 1,4-Difluorobenzene  | 93.5   | % | 59-127    |     | 1           |             | 04/04/00 2:20 | CJ      | 235228 |
| Surr: 4-Bromofluorobenzene | 99,4   | % | 48-156    |     | 1           | <del></del> | 04/04/00 2:20 | CJ      | 235228 |

<sup>\* -</sup> Surrogate Recovery Outside Advisable QC Limits





| Client Sample ID: W-13-GP1 | Collected: | 3/29/00 10:30:00 | SPL Sample ID: | 00030881-16 |
|----------------------------|------------|------------------|----------------|-------------|

Site: 7-0235.19802887

|                            |        |     | આહ         | e; /-U/     | 235, 1900 <u>2</u> 00 <i>1</i> |                  |                |
|----------------------------|--------|-----|------------|-------------|--------------------------------|------------------|----------------|
| Analyses/Method            | Result |     | Rep.Limit  |             | Dil. Factor QUAL               | Date Analyzed A  | lnalyst Seq. # |
| GASOLINE RANGE ORGANICS    |        |     | <u>.</u> . | MCL         | CA_GRO                         | Units: ug/L      |                |
| Gasoline Range Organics    | ND     |     | 50         |             | 1                              | 04/03/00 19:43 W | R 23518        |
| Surr: 1,4-Difluorobenzene  | 101    | %   | 62-144     | <del></del> | 1                              | 04/03/00 19:43 W | R 23518        |
| Surr: 4-Bromofluorobenzene | 100    | %   | 44-153     |             | 1 .                            | 04/03/00 19:43 W | R 23518        |
| PURGEABLE AROMATICS        |        |     |            | MCL         | SW8021B                        | Units: ug/L      |                |
| Benzene                    | ND     |     | 0.5        |             | 1                              | 04/03/00 19:43 W | R 23515        |
| Ethylbenzene               | ND     |     | 0.5        |             | 1                              | 04/03/00 19:43 W | R 23515        |
| Methyl tert-butyl ether    | ND     | ··· | 2          |             | 1                              | 04/03/00 19:43 W | R 23515        |
| Toluene                    | ND     |     | 0.5        |             | 1                              | 04/03/00 19:43 W | R 23515        |
| m,p-Xylene                 | ND     |     | 0.5        |             | 1                              | 04/03/00 19:43 W | R 23515        |
| o-Xylene                   | ND     |     | 0,5        |             | 1                              | 04/03/00 19:43 W | R 23515        |
| Xylenes,Total              | ND     |     | 0.5        | ·           | 1                              | 04/03/00 19:43 W | R 23515        |
| Surr: 1,4-Difluorobenzene  | 103    | %   | 72-137     | ·           | 1                              | 04/03/00 19:43 W | R 23515        |
| Surr: 4-Bromofluorobenzene | 104    | %   | 48-156     |             | 1                              | 04/03/00 19:43 W | R 23515        |
|                            |        |     |            |             |                                |                  |                |





Client Sample ID: W-23-GP1

Collected: 3/29/00 11:30:00 SPL Sample ID:

00030881-17

Site: 7-0235,19802887

|                            |        |   | Site      | :. 1-01 | 235, 19002007    |                |         |        |
|----------------------------|--------|---|-----------|---------|------------------|----------------|---------|--------|
| Analyses/Method            | Result |   | Rep.Limit |         | Dil. Factor QUAL | Date Analyzed  | Analyst | Seq.#  |
| GASOLINE RANGE ORGANICS    |        |   |           | MCL     | CA_GRO           | Units: u       | J/L     |        |
| Gasoline Range Organics    | ND     |   | 50        |         | 1                | 04/03/00 20:07 | WR      | 235181 |
| Surr: 1,4-Difluorobenzene  | 87.6   | % | 62-144    |         | 1                | 04/03/00 20:07 | WR      | 235181 |
| Surr: 4-Bromofluorobenzene | 103    | % | 44-153    | ·····   | 1                | 04/03/00 20:07 | WR      | 235181 |
| PURGEABLE AROMATICS        |        |   |           | MCL     | SW8021B          | Units: ug      | 3/L     |        |
| Benzene                    | ND     |   | 0.5       |         | 1                | 04/03/00 20:07 | WR      | 235158 |
| Ethylbenzene               | ND     |   | 0.5       | ,,      | 1                | 04/03/00 20:07 | WR      | 235158 |
| Methyl tert-butyl ether    | ND     |   | 2         |         | 1                | 04/03/00 20:07 | WR      | 235158 |
| Toluene                    | ND     |   | 0.5       |         | 1                | 04/03/00 20:07 | WR      | 235158 |
| m,p-Xylene                 | ND     |   | 0.5       |         | 1                | 04/03/00 20:07 | WR      | 235158 |
| o-Xylene                   | ND     |   | 0.5       |         | 1                | 04/03/00 20:07 | WR      | 235158 |
| Xylenes,Total              | ND     |   | 0.5       |         | 1                | 04/03/00 20:07 | WR      | 235158 |
| Surr: 1,4-Difluorobenzene  | 102    | % | 72-137    |         | 1                | 04/03/00 20:07 | WR      | 235158 |
| Surr: 4-Bromofluorobenzene | 107    | % | 48-156    |         | 1                | 04/03/00 20:07 | WR      | 235158 |

- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL



Client Sample ID: W-12-GP2 Collected: 3/29/00 3:10:00 SPL Sample ID: 00030881-18

Site: 7-0235,19802887

| Analyses/Method            |        |   | Sne       | e: 7-02 | 235,19802887     |                      |          |
|----------------------------|--------|---|-----------|---------|------------------|----------------------|----------|
|                            | Result |   | Rep.Limit |         | Dil. Factor QUAL | Date Analyzed. Analy | st Seq.# |
| GASOLINE RANGE ORGANICS    |        |   |           | MCL     | CA_GRO           | Units: ug/L          |          |
| Gasoline Range Organics    | 100    |   | 50        |         | 1                | 04/03/00 20:31 WR    | 235182   |
| Surr: 1,4-Difluorobenzene  | 93.9   | % | 62-144    |         | 1                | 04/03/00 20:31 WR    | 235182   |
| Surr: 4-Bromofluorobenzene | 103    | % | 44-153    |         | 1                | 04/03/00 20:31 WR    | 235182   |
| PURGEABLE AROMATICS        |        |   |           | MCL     | SW8021B          | Units: ug/L          |          |
| Benzene                    | ND     |   | 0,5       |         | 1                | 04/03/00 20:31 WR    | 235159   |
| Ethylbenzene               | NĐ     |   | 0.5       |         | 1                | 04/03/00 20:31 WR    | 235159   |
| Methyl tert-butyl ether    | ND     |   | 2         |         | 1                | 04/03/00 20:31 WR    | 235159   |
| Toluene                    | ND     |   | 0.5       |         | 1                | 04/03/00 20:31 WR    | 235159   |
| m,p-Xylene                 | ND     |   | 0.5       |         | 1                | 04/03/00 20:31 WR    | 235159   |
| o-Xylene                   | ND     |   | 0,5       |         | 1                | 04/03/00 20:31 WR    | 235159   |
| Xylenes,Total              | ND     |   | 0.5       |         | 1                | 04/03/00 20:31 WR    | 235159   |
| Surr: 1,4-Difluorobenzene  | 104    | % | 72-137    |         | 1                | 04/03/00 20:31 WR    | 235159   |
| Surr: 4-Bromofluorobenzene | 105    | % | 48-156    |         | 1                | 04/03/00 20:31 WR    | 235159   |
|                            |        |   |           |         |                  |                      |          |



Client Sample ID: W-23-GP2 Collected: 3/29/00 4:25:00 SPL Sample ID: 00030881-19

Site: 7-0235,19802887

|                            |        |   | Site      | : 1-0,                                | 233, 19002007    |                |         |        |
|----------------------------|--------|---|-----------|---------------------------------------|------------------|----------------|---------|--------|
| Analyses/Method            | Result |   | Rep.Limit |                                       | Dil. Factor QUAL | Date Analyzed  | Analyst | Seq.#  |
| GASOLINE RANGE ORGANICS    |        |   |           | MCL                                   | CA_GRO           | Units: ug      | //L     |        |
| Gasoline Range Organics    | ND     |   | 50        |                                       | 1                | 04/03/00 20:56 | WR      | 235183 |
| Surr: 1,4-Diffuorobenzene  | 88.1   | % | 62-144    |                                       | 1                | 04/03/00 20:56 | WR      | 235183 |
| Surr: 4-Bromofluorobenzene | 104    | % | 44-153    |                                       | 1                | 04/03/00 20:56 | WR      | 235183 |
| PURGEABLE AROMATICS        |        |   |           | MCL                                   | SW8021B          | Units: ug      | ı/L     |        |
| Benzene                    | ND     |   | 0.5       |                                       | 1                | 04/03/00 20:56 | WR      | 235160 |
| Ethylbenzene               | ND     |   | 0.5       |                                       | 1                | 04/03/00 20:56 | WR      | 235160 |
| Methyl tert-butyl ether    | ND     |   | 2         |                                       | 1                | 04/03/00 20:56 | WR      | 235160 |
| Toluene                    | ND     |   | 0.5       |                                       | 1                | 04/03/00 20:56 | WR      | 235160 |
| m,p-Xylene                 | ND     |   | 0.5       |                                       | 1                | 04/03/00 20:56 | WR      | 235160 |
| o-Xylene                   | ND     |   | 0.5       |                                       | 1                | 04/03/00 20:56 | WR      | 235160 |
| Xylenes, Total             | ND     |   | 0,5       |                                       | 1                | 04/03/00 20:56 | WR      | 235160 |
| Surr: 1,4-Difluorobenzene  | 102    | % | 72-137    | <u>-</u>                              | 1                | 04/03/00 20:56 | WR      | 235160 |
| Surr: 4-Bromofluorobenzene | 108    | % | 48-156    | · · · · · · · · · · · · · · · · · · · | 1                | 04/03/00 20:56 | WR      | 235160 |
|                            |        |   |           |                                       |                  |                |         |        |

- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL





Client Sample ID: SP-1-1 Collected: 3/29/00 5:05:00 SPL Sample ID: 00030881-20

Site: 7\_0235 19802887

|                            |        |   | Site      | e: <b>7</b> -02 | 235,19802887     |               |         |        |
|----------------------------|--------|---|-----------|-----------------|------------------|---------------|---------|--------|
| Analyses/Method            | Result |   | Rep.Limit |                 | Dil. Factor QUAL | Date Analyzed | Analyst | Seq.#  |
| GASOLINE RANGE ORGANICS    |        |   |           | MCL             | CA_GRO           | Units: m      | g/Kg    |        |
| Gasoline Range Organics    | ND     |   | 1         |                 | 1                | 04/04/00 7:42 | CJ      | 235289 |
| Surr: 1,4-Difluorobenzene  | 89.4   | % | 72-153    |                 | 1                | 04/04/00 7:42 | CJ      | 235289 |
| Surr: 4-Bromofluorobenzene | 84.0   | % | 51-149    |                 | 1                | 04/04/00 7:42 | CJ      | 235289 |
| PURGEABLE AROMATICS        |        |   |           | MCL             | SW8021B          | Units: mg     | g/Kg    |        |
| Benzene                    | . ND   |   | 0.001     |                 | 1                | 04/04/00 7:42 | CJ      | 235241 |
| Ethylbenzene               | ND     |   | 0.001     |                 | 1                | 04/04/00 7:42 | CJ      | 235241 |
| Methyl tert-butyl ether    | ND     |   | 0.001     |                 | 1                | 04/04/00 7:42 | CJ      | 235241 |
| Toluene                    | ND     |   | 0.001     |                 | 1                | 04/04/00 7:42 | CJ      | 235241 |
| m,p-Xylene                 | ND     |   | 0.001     |                 | 1                | 04/04/00 7:42 | CJ      | 235241 |
| o-Xylene                   | ND     |   | 0.001     |                 | 1                | 04/04/00 7:42 | CJ      | 235241 |
| Xylenes,Total              | ND     |   | 0.001     |                 | 1                | 04/04/00 7:42 | CJ      | 235241 |
| Surr: 1,4-Difluorobenzene  | 91.3   | % | 59-127    |                 | 1                | 04/04/00 7:42 | CJ      | 235241 |
| Surr: 4-Bromofluorobenzene | 103    | % | 48-156    |                 | 1                | 04/04/00 7:42 | CJ      | 235241 |

<sup>\* -</sup> Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

**Quality Control Documentation** 





# **Quality Control Report**

# **EXXON Company U.S.A.**

222903X

Method:

Analysis Date:

**Purgeable Aromatics** 

SW8021B

WorkOrder:

Samples in Analytical Batch:

00030881

Lab Batch ID:

R11678

**Method Blank** 

HP\_U\_000403A-235150 04/03/2000 15:39

Units: Analyst: ug/L

WR

Lab Sample ID

Client Sample ID

00030881-16A

W-13-GP1

00030881-17A 00030881-18A W-23-GP1

W-12-GP2

00030881-19A

W-23-GP2

| Analyte                    | Result | Rep Limit |
|----------------------------|--------|-----------|
| Benzene                    | ND     | 0.50      |
| Ethylbenzene               | . ND   | 0.50      |
| Methyl tert-butyl ether    | ND     | 2.0       |
| Toluene                    | ND     | 0.50      |
| m,p-Xylene                 | ND     | 0,50      |
| o-Xylene                   | , ND   | 0.50      |
| Xylenes, Total             | ND     | 0.50      |
| Surr. 1,4-Difluorobenzene  | 103.0  | 72-137    |
| Surr: 4-Bromofluorobenzene | 105.1  | 48-156    |

#### Laboratory Control Sample (LCS)

RuniD:

HP\_U\_000403A-235149

Units:

ug/L

Analysis Date:

04/03/2000 14:35

Analyst:

WR

| Analyte                 | Spike<br>Added | Result | Percent<br>Recovery | Lower<br>Limit | Upper<br>Limit |
|-------------------------|----------------|--------|---------------------|----------------|----------------|
| Benzene                 | 50             | 45     | 90                  | 61             | 119            |
| Ethylbenzene            | 50             | 45     | 91                  | 70             | 118            |
| Methyl tert-butyl ether | 50             | 46     | 92                  | 72             | 128            |
| Toluene                 | 50             | 45     | 91                  | 65             | 125            |
| m,p-Xylene              | 100            | 90     | 90                  | 72             | 116            |
| o-Xylene                | 50             | 46     | 91                  | 72             | 117            |
| Xylenes, Total          | 150            | 136    | 91                  | 72             | 117            |

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

00030854-05

RunID:

HP\_U\_000403A-235151

Units:

ug/L

Analysis Date:

04/03/2000 16:03

Analyst: WR

| Analyte                  | Sample Result | MS<br>Spike<br>Added | MS Result | MS %<br>Recovery | MSD<br>Spike<br>Added | MSD Result | MSD %<br>Recovery | RPD   | RPD<br>Limit | Low<br>Limit | High<br>Limit |
|--------------------------|---------------|----------------------|-----------|------------------|-----------------------|------------|-------------------|-------|--------------|--------------|---------------|
| Зетепе                   | ND            | 20                   | 20        | 97.8             | 20                    | 20         | 100               | 2.15  | 21.          | 32           | 164           |
| Ethylbenzene             | ND            | 20                   | 20        | 98.2             | 20                    | 20         | 100               | 1.90  | 19           | 52           | 142           |
| Viethyl tert-butyl ether | ND            | 20                   | 21        | 104              | 20                    | 21         | 105               | 0.415 | 20           | 39           | 150           |
| Tolene                   | ND            | 20                   | 20        | 97.6             | 20                    | 20         | 99.9              | 2.40  | 20           | 38           | 159           |

Qualifiers:

ND/U - Not Detected at the Reporting Limit

\* - Recovery Outside Advisable QC Limits

B - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution



# **Quality Control Report**

# **EXXON** Company U.S.A.

222903X

Analysis: Manod: **Purgeable Aromatics** 

SW8021B

WorkOrder:

00030881

Lab Batch ID:

R11678

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

00030854-05

RunID:

HP\_U\_000403A-235151

Units:

ug/L

Analysis Date:

04/03/2000 16:03

Analyst:

WR

| Analyte       | Sample Result | MS<br>Spike<br>Added | MS Result | MS %<br>Recovery | MSD<br>Spike<br>Added | MSD Result | MSD %<br>Recovery | RPD   | RPD<br>Limit | Low<br>Limit | High<br>Limit |
|---------------|---------------|----------------------|-----------|------------------|-----------------------|------------|-------------------|-------|--------------|--------------|---------------|
| m Xylene      | ND            | 40                   | 38        | 96.1             | 40                    | 38         | 96,0              | .0664 | 17           | 53           | 144           |
| o-Xylene      | ND            | 20                   | 19        | 96.6             | 20                    | 20         | 97.7              | 1.21  | 18           | 53           | 143           |
| Xylenes,Total | ND            | 60                   | 57        | 95.0             | 60                    | 58         | 96.7              | 1.74  | 18           | 53           | 144           |

walifiers:

ND/U - Not Detected at the Reporting Limit

\* - Recovery Outside Advisable QC Limits

B - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution



#### **Quality Control Report**

# **EXXON** Company U.S.A.

222903X

**Analysis:** Method:

RunID:

sis Date:

**Gasoline Range Organics** 

CA\_GRO

WorkOrder:

Samples in Analytical Batch:

00030881

Lab Batch ID:

R11680

**Method Blank** 

HP\_U\_000403B-235175

Units: mg/L

Analyst:

Lab Sample ID

Client Sample ID

04/03/2000 17:41

WR

00030881-16A

W-13-GP1

00030881-17A

W-23-GP1

00030881-18A

W-12-GP2

00030881-19A

W-23-GP2

| Analyte                    | Result | Rep Limit |
|----------------------------|--------|-----------|
| Gasoline Range Organics    | ND     | 0.050     |
| Surr: 1,4-Difluorobenzene  | 92.7   | 62-144    |
| Surr: 4-Bromofluorobenzene | 100.5  | 44-153    |

#### **Laboratory Control Sample (LCS)**

RunID:

HP\_U\_000403B-235172

Units:

mg/L

Analysis Date:

04/03/2000 14:59

WR Analyst:

| Analyte                 | Spike<br>Added | Result | Percent<br>Recovery | Lower<br>Limit | Upper<br>Limit |
|-------------------------|----------------|--------|---------------------|----------------|----------------|
| Gasoline Range Organics | 1              | 1      | 100                 | 64             | 131            |

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

00030854-06

RunID:

HP\_U\_0004038-235173

Units:

mg/L

Analysis Date:

04/03/2000 16:52

WR Analyst:

| Analyte                 | Sample Result | MS<br>Spike<br>Added | MS Result | MS %<br>Recovery | MSD<br>Spike<br>Added | MSD Result | MSD %<br>Recovery | RPD  | RPD<br>Limit | Low<br>Limit | High<br>Limit |
|-------------------------|---------------|----------------------|-----------|------------------|-----------------------|------------|-------------------|------|--------------|--------------|---------------|
| Gaseline Range Organics | ND            | 0.9                  | 0.92      | 102              | 0.9                   | 0.97       | 108               | 5.62 |              | 36           | 160           |

Qualifiers:

ND/U - Not Detected at the Reporting Limit

\* - Recovery Outside Advisable QC Limits

B - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution



## **Quality Control Report**

# **EXXON Company U.S.A.**

222903X

Analysis: **Nat**hod:

RunID:

lysis Date:

**Purgeable Aromatics** 

SW8021B

WorkOrder:

00030881

Lab Batch ID: .

R11682

Method Blank

HP\_R\_000403A-235199 04/03/2000 20:59

Surr: 1,4-Difluorobenzene

Surr: 4-Bromofluorobenzene

Units:

Analyst:

ug/Kg CJ

<u>Lab Sample ID</u> 00030881-02A

Samples in Analytical Batch:

Client Sample ID

00030881-03A

S-9-GP1 S-11-GP1

00030881-09A

S-9-GP2

00030881-10A

S-11-GP2

00030881-20A

SP-1-1

| Analyte                 | Result | Rep Limit |
|-------------------------|--------|-----------|
| Benzene                 | ND     | 1.0       |
| Ethylbenzene            | ND     | 1.0       |
| Methyl terl-butyl ether | ND     | 1.0       |
| Toluene                 | ND.    | 1.0       |
| m,p-Xylene              | ND     | 1.0       |
| o-Xylene                | ND     | 1.0       |
| Yulanas Total           | NU     | 1.0       |

#### Laboratory Control Sample (LCS)

RunID:

HP\_R\_000403A-235487

59-127

Units:

ug/Kg

Analysis Date:

04/04/2000 8:19

94.1

Analyst:

CJ

| Analyte                 | Spike<br>Added | Result | Percent<br>Recovery | Lower<br>Limit | Upper<br>Limit |
|-------------------------|----------------|--------|---------------------|----------------|----------------|
| Benzene                 | 50             | 48     | 95                  | 60             | 116            |
| Ethylbenzene            | 50             | 48     | 95                  | 68             | 127            |
| Methyl tert-butyl ether | 50             | 42     | 84                  | 64             | 126            |
| Toluene                 | 50             | 47     | 94                  | 64             | 122            |
| m,p-Xylene              | 100            | 94     | 94                  | 68             | 129            |
| o-Xylene                | 50             | 47     | 94                  | 68             | 127            |
| Xylenes, Total          | 150            | 141    | 94                  | 68             | 129            |

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

Analysis Date:

00030881-07

RunID:

HP\_R\_000403A-235195

04/03/2000 18:49

Units: Analyst:

ug/Kg CJ

| Analyte                | Sample Result | MS<br>Spike<br>Added | MS Result | MS %<br>Recovery | MSD<br>Spike<br>Added | MSD Result | MSD %<br>Recovery | RPD  | RPD<br>Limit | Low<br>Limit | High<br>Limit |
|------------------------|---------------|----------------------|-----------|------------------|-----------------------|------------|-------------------|------|--------------|--------------|---------------|
| Benzene                | ND            | 20                   | 15        | 77.1             | 20                    | 14         | 70.8              | 8.58 | 34           | 35           | 139           |
| E <u>#w</u> lbenzene   | ND            | 20                   | 15        | 76.0             | 20                    | 14         | 71.0              | 6.78 | 35           | 31           | 137           |
| Manyl tert-butyl ether | ND            | 20                   | 14        | 68,0             | 20                    | 12         | 61,0              | 10.9 | 22           | 27           | 196           |
| Toulene                | ND            | 20                   | 16        | 78.0             | 20                    | 14         | 71.5              | 8 72 | 28           | 31           | 137           |

Qualifiers:

ND/U - Not Detected at the Reporting Limit

\* - Recovery Outside Advisable QC Limits

B - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution



# HOUSTON LABORATORY 8890 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054 (713) 660-0901

# **Quality Control Report**

# **EXXON Company U.S.A.**

222903X

Analysis: od:

**Purgeable Aromatics** 

SW8021B

WorkOrder:

00030881

Lab Batch ID:

R11682

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

00030881-07

RunID:

HP\_R\_000403A-235195

Units:

uig/Kg

Analysis Date:

04/03/2000 18:49

Analyst:

| Analyte        | Sample Result | MS<br>Spike<br>Added | MS Result | MS %<br>Recovery | MSD<br>Spike<br>Added | MSD Result | MSD %<br>Recovery | RPD  | RPD<br>Limit | Low<br>Limit | High<br>Limit |
|----------------|---------------|----------------------|-----------|------------------|-----------------------|------------|-------------------|------|--------------|--------------|---------------|
| m, Kylene      | ND            | 40                   | 30.       | 75.4             | 40                    | 28         | 70.7              | 6.41 | 38           | 19           | 144           |
| o-Xylene       | ND            | 20                   | 15        | 74.8             | 20                    | 14         | 70.0              | 6.63 | 57           | 25           | 139           |
| Xylenes, Total | ND            | 60                   | 45        | 75.0             | 60                    | 42         | 70.0              | 6.90 | 38           | 19           | 144           |

Qualifiers:

ND/U - Not Detected at the Reporting Limit

\* - Recovery Outside Advisable QC Limits

B - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution



### **Quality Control Report**

# **EXXON Company U.S.A.**

222903X

Analysis: thod:

**Gasoline Range Organics** 

CA\_GRO

WorkOrder:

00030881

Lab Batch ID: .

**Method Blank** 

Samples in Analytical Batch:

R11684

RuniD: lysis Date:

HP\_R\_000403B-235272 04/03/2000 20:59

Units: Analyst:

mg/Kg

Lab Sample ID

Client Sample ID

CJ

00030881-02A 00030881-03A S-9-GP1

00030881-09A

S-11-GP1

00030881-10A

S-9-GP2

00030881-20A

S-11-GP2 SP-1-1

Analyte Result Rep Limit Gasoline Range Organics ND 1.0 Surr: 1,4-Difluorobenzene 91.1 72-153 Surr: 4-Bromofluorobenzene 81.1 51-149

#### Laboratory Control Sample (LCS)

RunID:

HP R 000403B-235269

Units:

mg/Kg

Analysis Date:

04/03/2000 18:22

Analyst:

CJ

| Analyte                 | Spike<br>Added | Result | Percent<br>Recovery | Lower<br>Limit | Upper<br>Limit |
|-------------------------|----------------|--------|---------------------|----------------|----------------|
| Gasoline Range Organics | 1              | 0.58   | 58                  | 53             | 137            |

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

00030881-07

RunID:

HP\_R\_000403B-235270

Units:

mg/Kg

Analysis Date:

04/03/2000 19:54

Analyst: CJ

| Analyte                 | Sample Result | MS<br>Spike<br>Added | MS Result | MS %<br>Recovery | MSD<br>Spike<br>Added | MSD Result | MSD %<br>Recovery | RPD  | RPD<br>Limit | Low<br>Limit | High<br>Limit |
|-------------------------|---------------|----------------------|-----------|------------------|-----------------------|------------|-------------------|------|--------------|--------------|---------------|
| Gasoline Range Organics | ND            | 0.9                  | 0.84      | 93,8             | 0.9                   | 0.8        | 88.6              | 5.67 | 50           |              | 163           |

ualifiers:

ND/U - Not Detected at the Reporting Limit

\* - Recovery Outside Advisable QC Limits

B - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

Chain of Custody And Sample Receipt Checklist

| P PEXXEN ESMPA   | N             |                                    |             | (West  | Coast)       | 1/            | AIN (     |                | JSTO             | E                         |                | ا               |           |                |  |            |                 |                    | P(                 |               | <u> </u>                 |            | $\leq$ |
|--|---------------|------------------------------------|-------------|--|--------------|---------------|-----------|----------------|------------------|---------------------------|----------------|-----------------|-----------|----------------|--|------------|-----------------|--------------------|--------------------|---------------|--------------------------|------------|--------|
| Exxon Engineer: Darin L. Rous Consultant Co. Name EKT  | Pho           | one: (925)<br>ntact: <b>TAM</b> ES |             |  |              | 1             |           |                |                  |                           | A<br>(CHE      | NALY            |           |                |  |            |                 |                    |                    |               |                          | OTHER      |        |
| Address: 73 Danta 1  | TIVE Fai      | 415 38.<br>4 94940                 | 7-185       |  |              |               |           | RO 🗆           |                  |                           | GRAV. 413.2 [] |                 |           | 8270 🗆         | PCB ONLY []                            | STC HERBC  | rcup []         | 7421 CLEAD, TCLP C | JTAL []            | PONTE         | 8010 □ 601 □             |            |        |
| AFE # (Terminal Only): Consultant Project #: 201903 X  Location: 2225 Telegraph AFE (City) OAKUND (State) CA |               |                                    |             |  |              |               |           | GRO-X 8015 DRO | 602              | 8260 <b>,X</b>            |                | 624 🗅           | 0 625     | 8310 🗆         | 3081/8082 □ P                          | ĝΙ         | _               | - 1                | ☐ LEAD TOTAL       |               | PURGEABLE HYDROCARBON 80 |            |        |
| Consultant Work Release #: 1980 2 88 7   |               |                                    |             |  |              |               |           | 8015 GR        | 8020 <b>-K</b> 0 | MTBE 8020/NT 8260/NT 8260 | IR 413         |                 | 8270 🗆    | PNA/PAH 8100 🗆 | 8081                                   | 80         | METALS, TOTAL [ | ال 239.1 □         | LEAD, DISSOLVED [] | 8             | E HYD                    | 0.19       |        |
| Sampled By: D. Crouse  |               |                                    | MATRIX      | T 1  |              | OF CONTAINERS | CONTAINER | TPH/GC 8       | 1 1              | ie 802<br>Genal           | 1,             | B260 []         | SEMI-VOL  | JPAH .         | PCB/PEST                               | TOUR FULLD | ALS, T          | LEAD, TOTAL        | ), DISS            | REACTIVITY D  | GEABL                    | TPH/IR 418 |        |
|  |               |                                    | SOIL A      | IR   | ESERVATIVE   | Ιž            |           | <del> </del>   | <del>, .</del>   | $\overline{}$             | 086            | VOL             | SE SE     | Ą.             | 2                                      | 1          | ME.             | <u> </u>           | LEA                | ₹             | <u>a</u>                 | TPHMR      | 4      |
|  | 19 1000       |                                    | <u> </u>    | <del>                                     </del> | ice          | 1             | 淡         | 1              | 401              | d                         | _              |                 |           |                |  |            | _               |                    | _                  | $\rightarrow$ | -                        |            | 1      |
| 5-9-6P1  | 1000          | <u> </u>                           | <u> </u>    |  |              |               |           | X              | X                | <u> </u>                  | -              |                 |           |                |  |            | _               |                    |                    | -             | 4                        |            | 4      |
| 5-11-64  | 1 1010        |                                    | X           |  |              | 1             |           | X              | X                | $\sim$                    | +              | _               |           |                | -4                                     |            |                 |                    |                    | _             | _                        | _          | 1      |
| 9-13-6P1   | 1015          |                                    |             |  | +            | 1             | 4         | H              | old              | -                         | -              | -               |           |                | [                                      | -          |                 | A                  |                    |               | 4                        |            | 1      |
| 5-15-6P1   | 1070          | <del> </del>                       | X           |  |              | 1             | 4         | +              | 0                | 7 -                       | <b>-</b>       |                 |           |                |  |            |                 | 1                  | 3                  |               |                          |            | 4      |
| 5-17-681   | 1040          | <del></del>                        | X           |  | -            | 1             | $\perp$   | Ħ              | ماه              | <b>{</b>  _               | -              |                 | _         |                |  |            |                 | _                  |                    |               |                          |            | 4      |
| 5-20-691   | 1100          |                                    | X           |  |              | 1             | $\perp$   | H              | old              | 2,                        |                |                 |           | _              | -                                      |            | _               |                    |                    |               | _                        |            | 4      |
| 5-5-6P2  | 1449          |                                    | X           |  | <u> </u>     | 1             |           | H              |                  | d                         | <u> </u>       |                 | _         |                |  |            | _               | _                  |                    |               | _                        |            | 4      |
| 5-9-692  | 1450          | <u>L111</u>                        | 181         |  | 1//          | 1             |           | ×              | X                | 싀                         | ┦              |                 |           |                |  | $\Box$     |                 |                    |                    |               | _                        |            | 1      |
| 5-11-6P2   | 1459          | <del>, 4</del>                     |             |  | <u> </u>     |               | V         | X              | X                | <u> </u>                  |                |                 |           |                |  |            |                 |                    |                    |               |                          |            | 1      |
| 24 HR* 72 HR*  |               | SPECIAL DETE                       | CHON LIM    | IIIS (Speci                                      | ty)          |               |           |                | REN              | IARKS:                    |                |                 |           |                |  |            |                 |                    |                    |               |                          |            |        |
| 40.15  | ON UST        |                                    |             |  |              |               |           |                |                  |                           |                |                 |           |                |  |            |                 |                    |                    |               |                          |            |        |
| 8 Business Contact US Prior CONT   | RACT NO.      | SPECIAL REPO                       | RTING RE    | QUIREMEN   | NTS (Spe     | ecify)        |           |                | LAB              | USE                       | ONLY           | Lot             | #         |                | ······································ |            |                 |                    | S                  | torage        | Loc                      | ation      | _      |
| Other  | 41483         | PDF 🗆                              |             | )  |              |               |           |                |                  |                           |                | 55 <sup>1</sup> | 0         | (              | 60                                     | <b>)</b>   |                 |                    |                    |               |                          |            |        |
| Standard CLP Other C   |               | FAX.                               | ☐ FAX       | ( c-o-c w/                                       | REPORT       | Γ             |           |                | wor              | RK ORI                    |                | _               | 03/       | 288            | 31                                     | LAB        | WOF             | RK R               | ELEA               | ASE#          | :                        |            |        |
| CUSTODY Relinquished By Sam  | pler:<br>_Crw | se                                 |             |  | 5/20/        | 100           |           | Tir            | ne               |                           | ceived         |                 | <b></b> \ |                |  |            |                 |                    |                    |               |                          |            | _      |
| RECORD   |               |                                    |             |  | D <b>á</b> t |               |           | Tir            |                  |                           | ceived         |                 |           |                |  |            |                 | ,                  | (0                 | 00            |                          |            | _      |
| Relinquished:  Triplicate: Original • White  | Lab's Copy    | Green                              | Client Copy | v Vallou   | Dat          | te            |           | Tir            | ne               | Re<br>Wa                  | y Bill a       | £ 3             | 6         | ~~             | ras                                    | Nil        | ho              | 3/2<br>looler      | 3110<br>r Ten      | 70<br>np:     | 2                        | 1          | _      |

|  |               | VI BI     | ANT              |                                       |             |           |          |                 |           | {V                                    | oas                |            | IAIN I    | 256          | PST           |                 | ECC            |             | <b>19</b> |           |                |             |            |               |                        | ) f                |               |                       | -        | 2           |
|--|---------------|-----------|------------------|---------------------------------------|-------------|-----------|----------|-----------------|-----------|---------------------------------------|--------------------|------------|-----------|--------------|---------------|-----------------|----------------|-------------|-----------|-----------|----------------|-------------|------------|---------------|------------------------|--------------------|---------------|-----------------------|----------|-------------|
| Exxon Engineer: DAYIA  Consultant Co. Name | <del></del>   | . K       | ouse             | Pho                                   |             | 925<br>TM |          |                 |           | 76                                    |                    |            |           |              |               | <u> </u>        | (              | AI<br>CHE   |           |           |                | UES<br>IATE |            | ()            |                        |                    |               |                       | отн      | ER          |
| Address: 73  GUI HE 100                    | Digit         |           | mre to           |                                       | : <u>40</u> |           | \$82     |                 |           |                                       | <u></u>            |            | 1         |              |               | mfirmatio       |                | 113.2       |           |           |                | PCB ONLY [] |            | D             | LEAD, TCLP []          | X                  | PONT          | ¥ 601 □               |          |             |
| RAS #: 7-0235                              |               |           | cility/State     | ID#(T                                 | N Only      | );        |          |                 |           |                                       |                    |            |           | 8015 DRO [   |               | H.F.            |                | GRAV. 413.2 |           | o.        | 8270 🗅         | PCB C       | PESTIC     | METALS, TCLP  |                        | LEAD TOTAL         | FLASH POINT   | 8010 0€               |          |             |
| AFE # (Terminal Only):                     | 1.            | 7.        | Aug              | Cor                                   | sultant     | Project   | #:       | <del>2)))</del> | 90        | <u>'}}X</u>                           | ·                  |            | -         | 8015         | 602           | 1               |                |             | 624 🗆     | 625       | 8310           |             | SBMWOAL    | tETAL:        | 7421 🗆                 | LEAD               | _<br>         | RBON                  |          | ŀ           |
| Location: 2025 Tol                         | legraj<br>. 1 | <u>98</u> | 00               | City) _(<br>C&M<br>\$\frac{C}{C} =    | ZAK<br>F    | LAN       | <u> </u> |                 | _ (Stat   | te) <u>C</u><br>□ SD                  | <del>/-</del><br>T | CONTAINERS | SIZE      | S GRO        |               | ¥ 8260 <b>X</b> | 3 (7) 8260     | IR 413.1    |           | 8270 🗆    |                | 8081/8082   | VOACI SEAM | D.            | LEAD, TOTAL 239.1 [] 7 | LEAD, DISSOLVED CI | COPROGNITY    | PURGEABLE HYDROCARBON | 0        |             |
| Sampled By:                                | Cra           | se        |                  |                                       | ,           |           | ·        |                 |           |                                       |                    | CONT       |           | 8015         | <b>★</b> 0Z08 | 8020            | NATES          | ı.          | 8260      |           | H 810          | ľ           |            | S, TOT        | OTAL                   | ISSOL              | _<br><u>}</u> | ABLE I                | 418.1    | _<br>E      |
| SAMPLE I.D.                                |               |           | DATE             | TIME                                  | COMP        | GRAB      |          | ATRI<br>SOIL    | X<br>TAIR | OTHER                                 | PRESERVATI         | ME S       | CONTAINER | TPH//GC      | BTEX          | MTBE            | OXYGENATES (7) | 086         | VOL. 8:   | SEMI-VOL  | PNA/PAH 8100 [ | PC8/PEST    | DULP FULLE | METALS, TOTAL | LEAD.                  | LEAD, E            | REACTIMITY    | PURGE                 | TPH/IR   | похлон      |
| 5-13-6P2                                   |               |           | 3/29             | 1500                                  |             |           |          | X               | 1         |                                       | ICE                | + -        | 拟         | ,l.          | lol           | d.              |                |             |           |           |                |             | -          |               |                        |                    |               |                       |          | $\exists$   |
| 5-15-6P2                                   |               |           |                  | 1520                                  |             |           |          | X               |           |                                       |                    | 1          | $\prod$   |              | H/A           | Id              |                |             |           |           |                |             |            |               |                        |                    |               |                       |          |             |
| 5-17-682                                   |               |           |                  | 1529                                  |             |           |          | X               |           |                                       |                    | 1          |           | ł            | 0             | dh              |                |             |           |           |                |             |            |               |                        |                    |               |                       |          |             |
| 5-19-6PL                                   |               |           |                  | 1530                                  | γ           |           |          | X               |           |                                       |                    |            |           | ł            |               | d               |                |             |           |           |                |             |            |               |                        |                    |               |                       |          |             |
| 5-21-6PL                                   |               |           |                  | 1535                                  |             |           |          | X               |           |                                       | V                  | 1          | V         | 1            | 0             | d               |                |             |           |           |                |             |            |               |                        |                    |               |                       |          |             |
| W-13-6P1                                   |               |           |                  | 1030                                  |             | K         | X        |                 |           |                                       | HCL                | 6          | 40,       | X            | X             | X               |                |             |           |           |                |             |            |               |                        |                    |               |                       |          |             |
| W-23-6P1                                   |               |           |                  | 1130                                  |             | X         | K        |                 |           |                                       | HCL                | 6          |           | X            | X             | X               |                |             |           |           |                |             |            |               |                        |                    |               |                       |          |             |
| W-12 -6P2                                  |               |           |                  | 1910                                  |             | X         | X        |                 |           |                                       | ACL                | 6          |           | X            | X             | Х               |                |             |           |           | ,              |             |            |               |                        |                    |               |                       |          |             |
| W-23-6P2                                   | •             |           |                  | 1625                                  |             | X         | X        |                 |           |                                       | ACL                | _   3      | 7         | X            | ]X            | X               |                |             |           |           |                |             |            |               |                        |                    |               |                       |          |             |
| 59-1-1                                     |               |           | <u> </u>         | 1705                                  |             |           |          | X               |           |                                       |                    |            | ÞΫ        | /X           | X             | X               |                |             |           |           |                |             |            |               |                        | X                  |               | X                     |          |             |
| TAT  |               |           |                  |                                       | SPEC        | IAL DE    | TECT     | ION I           | LIMITS    | S (Spe                                | cify)              |            |           |              | RE            | MAR             | KS:            | _           | -         | ۸ .       | 1              | 1           |            |               |                        | _                  |               | · ^-                  |          |             |
| 24 HR* 72 HR.<br>48 HR* 96 HR.             |               |           | /VON !!          | C.T                                   |             |           |          |                 |           |                                       |                    |            |           |              | /             | MTE             | とこ             | $\alpha$    | ont       | n/W       | 4019           | 10 M        | <b>V</b>   | ולט           | ng                     | 8                  | <b>}-</b> €   | U                     |          |             |
| 8 Business X *Contact Us                   | S Prior       |           | (XON U<br>ITRACT |                                       | SPEC        | IAL RE    | POR      | TING            | REQU      | JIREM                                 | ENTS (S            | pecify     | )         |              | LA            | B US            | SE OI          | VLY         | Lot       | #         |                |             |            |               |                        |                    | Stora         | ge Lo                 | cation   | <del></del> |
| to Sending<br>Other                        | Sample        |           | C41483           |                                       | POF (       |           |          |                 |           |                                       | · ·                | •          |           |              |               |                 |                |             |           |           |                |             |            |               |                        |                    |               | _                     |          |             |
|  | C Level       |           | <del></del>      | · · · · · · · · · · · · · · · · · · · | PUP (       |           |          |                 | טט        |                                       |                    |            |           |              |               |                 |                |             |           |           |                |             | ,          |               |                        |                    |               |                       |          |             |
| Standard   CLP □ Other                     | <u> </u>      |           |                  |                                       | FAX [       | ]         |          | □ F             | AX C      | -O-C V                                | V/REPO             | RT         |           |              |               | ORK             |                |             |           |           |                |             | LA         | B W           | DRK                    | RELE               | ASE           | #:                    |          |             |
| CHETODY                                    | $\supset_{V}$ | lan       | ampler:          |                                       | rov         | QC_       |          |                 |           |                                       | 3/30               | ate/ 60    | , 1       | $\mu^{\tau}$ | ime<br>{S     |                 | Rece           | eived       | Ву:       |           |                |             |            |               |                        |                    |               |                       |          |             |
| CUSTODY RECORD                             | linquishe     |           |                  |                                       |             |           |          |                 |           |                                       |                    | ate        | l         |              | ime           |                 | Rece           | eived       | Ву        |           |                |             |            |               |                        |                    |               |                       |          |             |
|  | linquishe     | d:        |                  |                                       |             | •         |          |                 |           | · · · · · · · · · · · · · · · · · · · |                    | ate        |           | Ť            | ime           |                 |                | bevied (    | ١. ١      | $\Lambda$ |                | M           | Λſ         |               | 3/3                    | 1/0                | <u> </u>      | 100                   | <u></u>  | <u></u>     |
| Triplicate: Original •                     | White         |           | Lab's            | Сору •                                | Green       | ,         | Clie     | ent Co          | 0DV • \   | Yellow                                | 1                  |            | L         |              | <del></del>   |                 | Way            | Bill #      | F         | X W       | Mα             | يالا        | بالا       | ۴,            | Gool                   | er Te              | mp:           | 00                    | <u> </u> |             |
| •  |               |           |                  |                                       |             |           |          | -··· •·         |           |                                       |                    |            |           |              |               |                 |                |             |           |           |                |             |            |               |                        |                    |               |                       |          |             |





# Sample Receipt Checklist

| Workorder:                     | 00030881                     |   | Received by:                          |             | Stelly, D'Anna |
|--------------------------------|------------------------------|---|---------------------------------------|-------------|----------------|
| Date and Time Received:        | 3/31/00 10:00:00 AM          |   | Carrier name:                         |             | <u>FedEx</u>   |
| Temperature:                   | 4                            | ·-· · · · · · · · · · · · · · · · · · · | · · · · · · · · · · · · · · · · · · · | ·           |                |
| Shipping container/cooler in g | ood condition?               | Yes 🗹                                   | No 🗌                                  | Not Present |                |
| Custody seals intact on shipp  | ping container/cooler?       | Yes 🗌                                   | No 🗌                                  | Not Present | lacksquare     |
| Custody seals intact on samp   | le bottles?                  | Yes                                     | No 🗌                                  | Not Present | $ \mathbf{Z} $ |
| Chain of custody present?      |                              | Yes 🗹                                   | No 🗌                                  |             |                |
| Chain of custody signed when   | n relinquished and received? | Yes 🗹                                   | No 🗌                                  |             |                |
| Chain of custody agrees with   | sample labels?               | Yes 🗹                                   | No 🗌                                  |             |                |
| Samples in proper container/t  | pottle?                      | Yes 🗹                                   | No 🗌                                  |             |                |
| Sample containers intact?      |                              | Yes 🗹                                   | No 🗌                                  |             |                |
| Sufficient sample volume for i | ndicated test?               | Yes 🗹                                   | No 🗔                                  |             |                |
| All samples received within he | olding time?                 | Yes 🗹                                   | No 🗌                                  |             |                |
| Container/Temp Blank temper    | rature in compliance?        | Yes 🗹                                   | No 🗌                                  |             |                |
| Water - VOA vials have zero i  | neadspace?                   | Yes 🗹                                   | No 🗌                                  | Not Present |                |
| Water - pH acceptable upon r   | eceipt?                      | Yes 🗹                                   | No 🗌                                  |             |                |
|                                |                              |   |                                       |             |                |