Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

April 17, 1992
91C0954A

Mr. Tony Sullins
Don-Sol Inc.
187 North L Street
Livermore, California 94550

Subject: Additional Soil Exploration
Arrow Rentals Site, 187 North L Street
Livermore, California

Dear Mr. Sullins:

This report presents the results of additional exploration to evaluate evidence of leakage of gasoline from the gasoline supply pipes to the former Mobil Oil pump island at Arrow Rentals, 187 North "L" Street, Livermore, California. This report supersedes the draft report dated February 18, 1992. The work was performed by Woodward-Clyde Consultants (WCC) in accordance with the approved Right of Entry and Testing Agreement dated September 10, 1991, and Mobil Work Release FCO 9966 dated October 11, 1991. The scope of work included the excavation of underground gasoline pipelines, drilling of supplemental exploratory borings, and laboratory analysis of soil samples. This information was evaluated and presented below in a report along with a site map showing piping detail and boring locations, logs of borings, and copies of the laboratory analysis reports.

SITE BACKGROUND

Previous exploration at this site discovered soil and groundwater contaminated with leaded gasoline (WCC 1991). The laboratory analyses of groundwater indicated that gasoline in the groundwater has characteristics which indicate the primary source is a reported spill of Chevron gasoline at the site in 1985. The location of leaded gasoline contamination in the soil (at boring B-F), with a high lead content suggests that pipelines from the pump island for a former Mobil service station may have contributed to the soil and groundwater contamination. Exploration and removal of these pipelines, and analysis of underlying soil for gasoline and lead was recommended to evaluate possible pipeline leaks as sources of the site gasoline contamination.

PIPELINE EXCAVATION

On January 15 and 16, 1992, WCC observed the excavation of gasoline supply lines from the former Mobil Oil pump island towards the former underground tank locations. Balch Petroleum Inc. of Milpitas, California conducted the pipeline excavation under contract with Mobil. The piping was exposed with a backhoe, diagrammed, removed, labeled, and examined for cracks and points of weakness. Surrounding soil was also examined for evidence of contamination by piping leakage. Soil samples were collected for chemical analysis from selected points below the exposed piping.

The piping was exposed initially at a valve box near the southern end of the former pump island (Figure 1). Three gate-valve knobs were visible within the box. Upon removing the elliptical-shaped box and surrounding soil, the gate valves were observed to be connected to three separate pipes. The pipes were followed by excavation from this 3-valve box towards their unknown end point locations. At approximately three feet southward from the 3-valve box, the pipes turned at a 90-degree angle, heading in a westerly direction, parallel with the concrete pad edge (Figure 1). Approximately 8 feet from the 90 degree bend, a second valve box enclosure was discovered below a thin layer of asphalt. This valve box was circular and contained two gate-valve knobs. With further removal of surrounding soil, a fourth pipe was observed at the 2-valve junction. This fourth pipe was trailed back to the former pump island bypassing the 3-valve box. At the 2-valve box, the newly discovered fourth pipe connected to two pipes. Subsequent excavation west of the 2-valve box resulted in the detection of a fifth pipe. A schematic diagram of the five pipes is presented in Figure 1. Excavated soil was placed on, sampled and then covered with polyethylene sheeting, and stored at the site for later disposal.

Three of the five pipes (pipes 1, 2, and 3) were followed westward and ended approximately 35 feet from the former Mobil pump island. These three pipes ended where three of the former underground storage tanks were reportedly located (Figure 1). Pipes 4 and 5 were followed to the southwest and ended approximately 24 and 18 feet, respectively, from the former pump island (Figure 1). Pipes 4 and 5 ended in an area not previously reported to contain underground storage tanks.

Pipe Condition

Pipe sections removed from the excavation were observed for visual evidence of holes or cracks where leakage of gasoline could have occurred. Approximately three-fourths of the

pipe appeared to be corroded and rusting with portions of corrosive buildup along the pipe bottoms. Remnants of a black "tar-paper" outer seal were observed on approximately 20 percent of the pipe. Bends in the pipeline were constructed by either bending the pipe or using a threaded elbow coupling. The pipe sections were labeled, wrapped in polyethylene sheeting, and stored at the WCC Laboratory in Pleasant Hill, California.

Soil Sampling of Pipeline Excavation

Pipeline excavation soil samples were collected at selected points approximately 0.5 to 2 feet below the existing pipe for chemical analysis. The selected points were located at suspected leak locations (pipe ends), areas of unique pipe character (bends and elbows), and flow control points (valve junctions). No visible staining or odors were observed during the pipe excavation and removal activities. Soil sample locations were approved by Mr. Brian Oliva, of Alameda County, Department of Environmental Health, Division of Hazardous Materials, who was present at the site during excavation and sampling. A copy of the county's Hazardous Materials Inspection Form for the excavation work is included in Attachment A. Pipeline trench soil samples collected for chemical analysis were placed in clean 2-inch I.D. by 4-inch long brass sample tubes sealed with Teflon and plastic endcaps, labeled, placed on ice and transported under chain-of-custody procedures to Sequoia Analytical, a California certified analytical laboratory.

Soil samples SS1,2E, SS3E, SS4E, and SS5E were collected below the points where pipes No. 1, No. 2, No. 3, No. 4 and No. 5 ended, respectively. No odors or staining were observed during sampling at these points. Sample SS5E was collected approximately one foot below the end of pipe No. 5 from a depth of 4.5 feet below existing grade. Samples SS1,2E, SS3E, and SS4E were collected approximately 0.5 feet below the ends of their respective pipes.

Soil samples SS1PB, SS3PB, SS5PB, and SSM90 were collected below the points where bends in the pipe were observed. Sample SSM90 was collected approximately one foot below the 90 degree turn just south of the 3-valve box, at a depth of 2.5 feet below existing grade. Samples SS1PB, SS3PB, and SS5PB were collected below pipes No. 1, No. 3, and No. 5, respectively. Samples SS1PB and SS3PB were collected at a depth of 2 feet below grade. Sample SS5PB was collected at a depth of 3 feet below existing grade. No odors or staining of native soil was observed at these sampling points.

Soil samples SS2V and SS3V were collected below the 2-valve and 3-valve boxes, respectively. Sample SS2V was collected at a depth of 4 feet below existing grade and approximately 1.5 feet below the 2-valve box. Sample SS3V was collected at a depth of 2.5 feet below existing grade and approximately one foot below the 3-valve box. No odors or stained soil was observed at these sampling points. A summary of pipeline excavation trench soil sample analyses is presented in Table 1.

Excavation Backfilling

The trench excavation was backfilled by Balch on January 16 and 17, 1992 using clean imported granular fill. The fill was placed in 1-foot lifts, compacted by vibratory compactor, brought to approximately six-inches below surface grade, then finished to surface grade with concrete.

SUPPLEMENTAL BORINGS

On January 31, 1992, WCC observed the drilling of two exploratory borings to a depth of 41.5 feet at locations near pipeline excavation trench soil samples that contained elevated concentrations of total lead. Soil boring B-G was drilled to a depth of 41.5 feet where pipes No. 1 and No. 2 ended at the westernmost end of the pipeline excavation trench, near the location of pipeline trench soil sample SS1,2E (Figure 1). Soil samples were collected at one-foot depth intervals in boring B-G from a depth of 4 feet to 20 feet below surface, then every five feet to the termination depth just above the groundwater table. A total of 16 soil samples were collected from B-G for chemical analysis. Soil boring B-H was drilled to a depth of 41.5 feet in the middle of the former Mobile pump island near pipeline trench soil sample SS1PB (Figure 1). Soil samples were collected at 1.5-feet intervals from 3.5 feet to 14 feet, then every five feet to the bottom of the borehole. A total of 12 samples were collected for chemical analysis from boring B-H.

The borings were drilled to explore for evidence of gasoline in soil at greater depths. The borings were drilled by Weeks Drilling and Pump of Sebastopol, California with a truck-mounted drill rig using 8-inch diameter hollow-stem augers. Logs of the borings are shown in Attachment B. Soil samples were collected using a 2-1/2-inch I.D. split-spoon sampler with stainless steel 2-1/2-inch I.D. by 6-inch long sample tubes for analytical testing and

preparation of detailed log of each boring. Drilling and sampling equipment was steam cleaned between each boring. Sampling equipment was cleaned between samples with an alconox detergent wash and double rinsed in tap water to reduce the potential for cross-contamination.

Soil samples collected for chemical analysis were handled in a similar manner as described for pipeline excavation trench soil sampling. Sixteen samples were collected from boring B-G, twelve samples were collected from boring B-H. Some sampled soil was placed in a zip-lock plastic bag to develop a headspace for volatile compounds to emerge if present. The headspace samples were monitored with a HNu photoionization detector for presence of volatile constituents in the soil. The value of the HNu readings were recorded on each boring log. Soil cuttings from each boring were placed alongside the stockpiled soil from the pipeline excavation stored at the site for later disposal. Upon completion, both borings were backfilled to surface grade with a cement grout mixture.

The general subsurface conditions encountered in the borings consists of 5-inch thick concrete, underlain by 2 to 4 feet of sandy gravel granular aggregate fill, which is underlain by up to 6 feet of dark brown, medium dense, clayey sandy gravel. The dark brown sandy gravel is underlain by 15 to 30 feet of dark grayish brown to yellowish brown, dense, clayey gravel. The dense clayey gravel is interlayered with sandy clayey gravels and stiff silty clay. The clayey gravel is underlain by a light olive brown stiff clayey silt to sandy clay unit. Both borings were terminated just above the groundwater table in the moist to very moist clayey silt/sandy clay unit at 41.5 feet below surface grade. Logs of the borings showing the materials encountered, soil sample locations and HNu headspace readings are attached. A summary of the subsurface soil sample analyses is presented in Table 2.

Soil sample B-G-5.5 was collected from a depth of 5.5 feet below ground surface in clayey sandy gravel that contained and exhibited visible petroleum-like product and odor. Samples B-G-7 and B-G-8, collected from depths of 7 and 8 feet, did not exhibit petroleum-like odor. However, HNu headspace readings of 6 parts per million (ppm) and 13 ppm were measured from B-G-7 and B-G-8 samples, respectively. Significant petroleum-like odors and HNu headspace readings were experienced in soil samples collected from 8.5 feet to 41 feet depths in boring B-G. Soil samples B-G-9.5, -11.5,-13, -14, -15, -16, -17.5, -19, -20.5, -26, -31.5, -36, and -41 had measured HNu headspace readings of 38 ppm, 62 ppm, 320 ppm, 420 ppm, 390 ppm, 390 ppm, 260 ppm, 280 ppm, 280 ppm, 220 ppm, 180 ppm, 180 ppm, and 100 ppm, respectively.

No significant odors or HNu headspace readings were measured from soil samples B-H-4.5, -6, -7.5, -9.5, -11, -12.5, -14, and -21. Soil samples collected from 26.5 feet in a sandy clayey gravel unit to the bottom of the borehole at 41 feet in the light olive brown sandy clay unit, exhibited significant petroleum-like odors and HNu readings. Soil samples B-H-26.5, -31, -36, and -41 had HNu headspace readings of 120 ppm, 200 ppm, 200 ppm, and 40 ppm, respectively.

LABORATORY RESULTS

Pipeline Excavation Soil Samples

A total of 10 soil samples were collected from the pipeline excavation and were analyzed for total petroleum hydrocarbons (TPH) as gasoline by modified EPA Method 8015, benzene, toluene, ethylbenzene, xylenes (BTEX) by EPA Method 8020, and total lead by EPA Method 6010. None of the samples contained concentrations above the detection limit for TPH as gasoline and BTEX.

Total lead concentrations of the samples ranged from 6.7 mg/kg (parts per million) to 250 mg/kg. Soil samples SS1,2E, SS3V, SS3PB, and SS1PB contained 250 mg/kg, 120 mg/kg, 130 mg/kg and 170 mg/kg of total lead, respectively. These four samples were also analyzed for organic lead by LUFT Method. No detectable concentrations of organic lead were found in these four samples. A summary of pipeline excavation trench soil sample analyses is presented in Table 1. Laboratory data reports are provided in Attachment C.

Supplemental Boring Soil Samples

A total of 28 soil samples were collected from borings B-G and B-H and were analyzed for TPH as gasoline by modified EPA Method 8015, BTEX by EPA Method 8020, and total lead by EPA Method 6010.

The results of laboratory analyses of soil samples from borings B-G and B-H are summarized in Table 2. Total lead was detected above background levels in the soil from boring B-G at depths of 5.5 feet down to about 11.5 feet. Lead was detected at background levels of about 5 mg/kg below that depth to 36 feet. At a depth of 41 feet lead was detected at an elevated concentration of 16 mg/kg. TPH gasoline was detected at 570 mg/kg at 5.5 in B-G and <1mg/kg from 7 feet to 9.5 feet. In boring B-G TPH gasoline was then detected in soil samples from 11.5 feet to the bottom of the boring at concentrations ranging from 490 mg/kg (at 11.5 feet) to 12,000 mg/kg (at 41 feet).

GW should be analyzed for Pb

Analysis of soil samples from boring B-H showed detected concentrations of total lead ranging from 3.4 mg/kg to 8.2 mg/kg. TPH gasoline was not detected in soil samples from B-H from 4.5 feet to 21 feet. However, TPH gasoline was detected at 160 mg/kg at 26.5 feet, 1,900 mg/kg at 31 feet, and 8,000 mg/kg at 36 feet.

Stockpiled Soil Sampling and Analysis

Approximately 10 cubic yards of excavated soil was stockpiled on-site and sampled and analyzed for TPH-gas, BTEX and total lead. Four clean brass sample tubes were used to collect samples that were later composited by the laboratory and labeled soil sample SS-1.

Laboratory analysis of soil sample SS-1 contained non-detectable values of TPH-gas, and BTEX. Sample SS-1 contained 59 mg/kg total lead.

Tetraethyl Lead Analysis

Two soil samples (B-G-11.5 and B-H-26.5) were analyzed for concentrations of tetraethyl lead using a method previously developed by Dr. Brian Andresen, Consultant, for our previous investigation of this site, (Woodward-Clyde Consultants, 1991). The ratio of tetraethyl lead to total petroleum hydrocarbons, as gasoline was used to estimate the amount of tetraethyl lead in the gasoline product released into the soil.

The analysis of the soil sample from 26.5 feet in boring B-H resulted in no detection of tetraethyl lead, and no detection of total petroleum hydrocarbons. The analysis of the soil sample from 11.5 feet in boring B-G resulted in 0.10 mg/kg tetraethyl lead and 30 mg/kg of total petroleum hydrocarbons. Other alkylated lead compounds were detected at 0.15 mg/kg. Coast-to-Coast Analytical Laboratories reports the concentration of tetraethyl lead found in the weathered gasoline is 6.2 g/gallon, and other alkylated lead compounds are 9.3 g/gallon (see Attachment C).

CONCLUSIONS

Excavations revealed the presence of five gasoline pipes extending from the former Mobil pump island to the locations of five former Mobil underground fuel storage tanks. Observations of the condition of those pipes indicate that their exterior surfaces are pitted and rusted, but no clearly visible cracks or holes were found. However, elevated concentrations of lead were detected in soil beneath the pipes at the pump island (170 ppm of total

lead) and near the pipe ends as they approach the tanks (250 ppm total lead.) Two of the pipes end at locations nearer to north of L Street than were anticipated based upon the previously reported tank locations. Based upon interviews at the site with Mr. Tony Sullins, these two pipes (No. 4 and No. 5) may indicate the location of previously unknown tanks.

Laboratory analyses of soil from boring B-G show evidence of lead contamination just beneath the pipes (250 mg/kg at 3.5 feet, sample SS-1,2E) decreased to 7.3 mg/kg at 13 feet. It is our opinion that these concentrations of total lead in soil indicate leakage of leaded gasoline from the pipelines. Total petroleum hydrocarbons as gasoline was detected at 570 mg/kg at a depth of 5.5 feet in boring B-G. No TPH gasoline was detected at 7, 8, and 9.5 foot depths. However, TPH gasoline was detected at 490 mg/kg at 11.5 feet with increasing concentrations with depth up to 12,000 mg/kg TPH gasoline at 41 feet in B-G. The absence of TPH gasoline in soil samples from 7, 8 and 9.5 foot depths may be a result of selective biodegradation of the TPH in this zone. It is our opinion that the laboratory data show that gasoline contamination in the soil in boring B-G resulted from pipeline leaks.

The laboratory tests of soil from boring B-H, located at the pump island, show only background concentrations of total lead at 3.4 to 8.2 mg/kg from 4.5 feet to 41 feet. TPH gasoline was not detected in soil from B-H above a depth of 26.5 feet, where 160 mg/kg of TPH gasoline was detected. There is no clear pattern of gasoline contamination in boring B-H suggesting that the source of gasoline in soil is potentially from leaks in pipes near the former pump island.

Several selected soil samples (B-G-11.5 and B-H-26.5) from the borings with detected TPH gasoline were analyzed by Coast-to-Coast Analytical Laboratory using a special method previously developed (WCC, 1991) to evaluate the lead content of the spilled gasoline. The laboratory results (Attachment C) show no detection of tetraethyl lead in soil from 26.5 feet in boring B-H, near the former pump island. However, the analysis of soil from a depth of 11.5 feet in boring B-G shows 6.2 g/gallon of tetraethyl lead in gasoline in the soil. Based upon previous laboratory reports (WCC, 1991) it is our opinion that this amount of tetraethyl lead per gallon of gasoline most likely represents a gasoline manufactured before 1985.

LIMITATIONS

The scope of this investigation is limited by time constraints, expense, and practicality. A limited number of samples were taken at selected locations and depths on the site, and a

limited number of chemical analyses were performed on those samples. Professional opinions concerning the presence of gasoline and petroleum products were developed based upon the resulting locations on and off site for all substances which are now, or in the future might be, considered hazardous. Therefore, WCC cannot be held responsible should the investigation fail to detect the presence or quantity of all hazardous substances at all locations on and off site in the study area.

If you have any questions regarding this report, please call Mr. Ridley at (510) 874-3125. Woodward Clyde has appreciated this opportunity to assist Mobil Oil.

Sincerely,

William Loskutoff
Senior Staff Geologist

Albert P. Ridley, CEG
Senior Associate

ADB/WPDOCS/RIDLEY/A-0399.MBL

cc: Mr. Edgar M. Hoepker, Mobil Oil Corporation

References: Woodward-Clyde Consultants, 1991. "Soil and Groundwater Characterization Study, 187 North L Street, Livermore, California". June 12. Submitted to Don-Sul, Inc.

Table 1 Analytical Results of Soil from Pipeline Excavation Trench
Table 2 Analytical Results of Soil from Soil Borings
Figure 1 Site Plan of Piping Detail, Pipeline Excavation Trench Soil Sample Locations and Soil Boring Locations

Attachment A: Alameda County Hazardous Materials Inspection Form
Attachment B: Logs of Borings B-G and B-H
Attachment C: Laboratory Data Reports

TABLE 1. ANALYTICAL RESULTS OF SOIL SAMPLES COLLECTED FROM PIPELINE EXCAVATION TRENCH, ARROW RENTALS, LIVERMORE, CALIFORNIA
(Results in mg/kg)

Sample number	Location	Depth in feet	TPH gasoline (1)	Benzene (2)	Toluene (2)	Ethylbenzene (2)	Xylenes (2)	Total Lead (3)	Organic Lead (4)
SS5E	End of pipe # 5	4.5	<1.0	<0.005	<0.005	<0.005	<0.005	32	NA
SSM90	Below 90 degree turn	2.5	<1.0	<0.005	<0.005	<0.005	<0.005	6.7	NA
SS4E	End of pipe #4	4	<1.0	<0.005	<0.005	<0.005	<0.005	17	NA
SS3E	End of pipe #3	3.5	<1.0	<0.005	<0.005	<0.005	<0.005	82	NA
SS1,2E	End of pipes #1&#2	3.5	<1.0	<0.005	<0.005	<0.005	<0.005	250	<0.050
SS2V	Below 2-valve junction	4	<1.0	<0.005	<0.005	<0.005	<0.005	10	NA
SS3V	Below 3-valve junction	2.5	<1.0	<0.005	<0.005	<0.005	<0.005	120	<0.050
SS5PB	Below pipe #5 to pumpe	3	<1.0	<0.005	<0.005	<0.005	<0.005	60	NA
SS3PB	Below pipe #3 to pumpe	2	<1.0	<0.005	<0.005	<0.005	<0.005	130	<0.050
SS1PB	Below pipe #1 to pumpe	2	<1.0	<0.005	<0.005	<0.005	<0.005	170	<0.050

Notes:
1 Total Petroluem Hydrocarbons as gasoline by modified EPA Method 8015
2 BTEX by EPA Method 8020
3 Total Lead by EPA Method 6010
4 Organic Lead by LUFT Method
NA = Not Analyzed

TABLE 2. ANALYTICAL RESULTS OF SOIL SAMPLES COLLECTED FROM BORINGS B-G AND B-H, ARROW RENTALS, LIVERMORE, CALIFORNIA (Results in mg/kg)

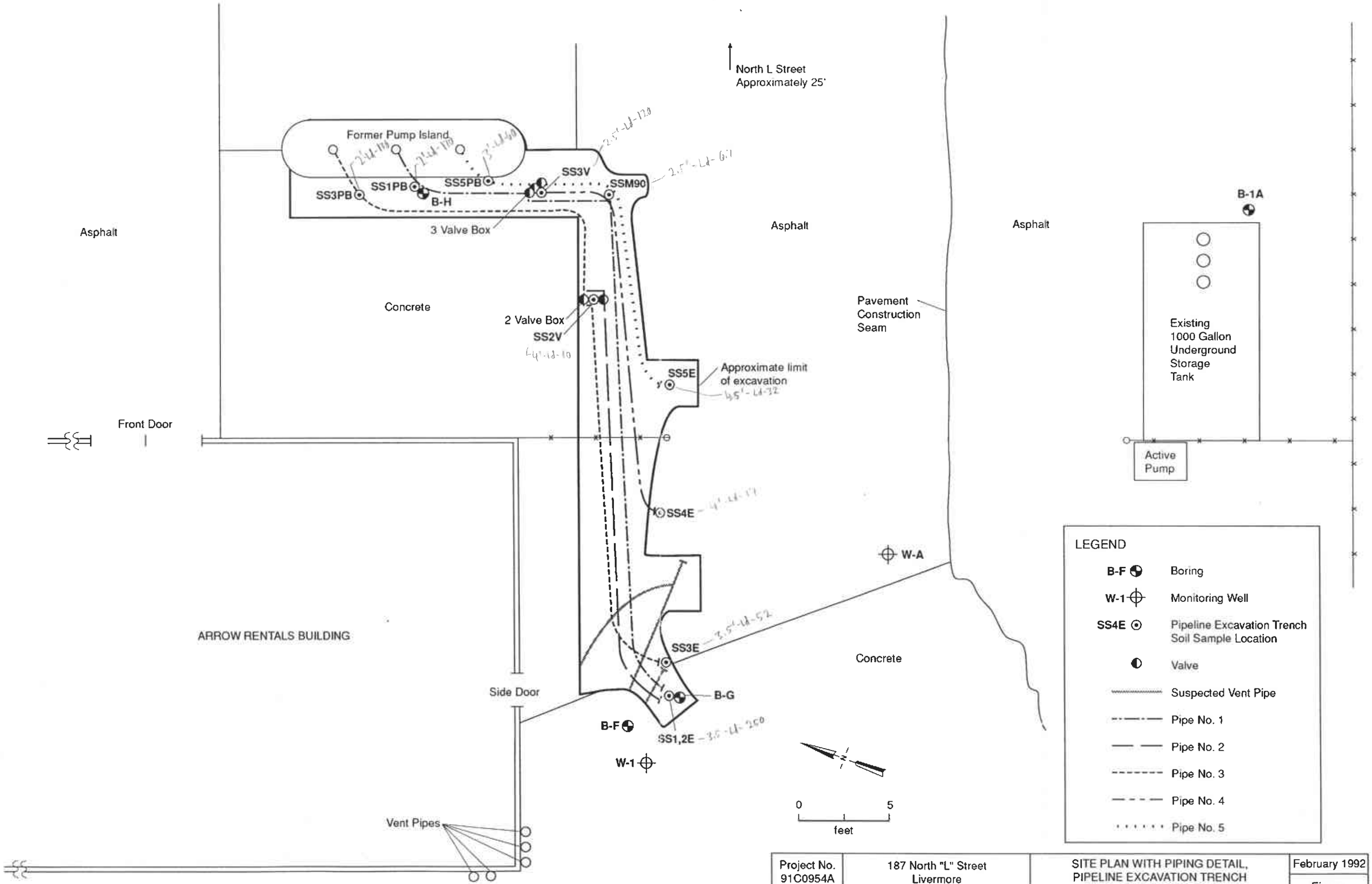
Sample number	Depth in feet	TPH gasoline (1)	Benzene (2)	Toluene (2)	Ethylbenzene (2)	Xylenes (2)	Total Lead (3)
BORING B-G							
B-G-5.5	5.5	570	0.55	1.3	<0.25	2.8	92
B-G-7	7	<1.0	<0.005	<0.005	<0.005	<0.005	35
B-G-8	8	<1.0	<0.005	<0.005	<0.005	<0.005	43
B-G-9.5	9.5	<1.0	<0.005	<0.005	<0.005	<0.005	14
B-G-11.5	11.5	490	<0.10	<0.10	<0.10	0.53	9.8
B-G-13	13	3100	<2.0	4.4	38	330	7.3
B-G-14	14	750	<0.5	<0.5	3.9	38	9.2
B-G-15	15	1800	<0.5	16	31	220	8
B-G-16	16	6700	<20	96	120	790	9.1
B-G-17.5	17.5	3000	<1.3	2.2	19	220	5.3
B-G-19	19	240	<0.05	0.45	1.3	5.9	5.1
B-G-20.5	20.5	2100	4	75	29	180	5.4
B-G-26	26	150	1	3.2	0.9	5.3	5.3
B-G-31.5	31.5	40	4	4.4	0.48	2.8	5.7
B-G-36	36	1900	1.8	63	21	120	5.7
B-G-41	41	12000	150	520	130	710	16
BORING B-H							
B-H-4.5	4.5	<1.0	<0.005	0.016	<0.005	<0.010	3.4
B-H-6	6	<1.0	<0.005	<0.005	<0.005	<0.005	5.2
B-H-7.5	7.5	<1.0	<0.005	<0.005	<0.005	<0.005	8.2
B-H-9.5	9.5	<1.0	<0.005	0.008	<0.005	<0.005	7.9
B-H-11	11	<1.0	<0.005	0.009	<0.005	<0.005	5.3
B-H-12.5	12.5	<1.0	<0.005	<0.005	<0.005	<0.005	5.7
B-H-14	14	<1.0	<0.005	<0.005	<0.005	<0.005	6.2
B-H-21	21	<1.0	<0.005	<0.005	<0.005	<0.005	5.2
B-H-26.5	26.5	160	<0.025	0.12	0.11	2.2	4.6
B-H-31	31	1900	0.59	1.1	1.1	3.3	8.2
B-H-36	36	8000	16	18	26	210	2.8
B-H-41	41	<1.0	0.058	<0.005	<0.005	<0.005	8

Notes:

1 Total Petroluem Hydrocarbons as gasoline by modified EPA Method 8015

2 BTEX by EPA Method 8020

3 Total Lead by EPA Method 6010



Project No. 91C0954A	187 North "L" Street Livermore	SITE PLAN WITH PIPING DETAIL, PIPELINE EXCAVATION TRENCH SOIL SAMPLE LOCATIONS AND BORING LOCATIONS	February 1992
Woodward-Clyde Consultants			Figure 1

Woodward-Clyde Consultants

ATTACHMENT A

ALAMEDA COUNTY HAZARDOUS MATERIALS INSPECTION FORM

white -env.health
yellow -facility
pink -files

ALAMEDA COUNTY, DEPARTMENT OF ENVIRONMENTAL HEALTH

80 Swan Way, #200
Oakland, CA 94621
(415) 271-4320

Hazardous Materials Inspection Form

II,III

Site ID # ____ Site Name: Arrow Rentals   Today's Date: 1/15/92 and 1/16/92

Site Address: 187 N "L" Street

City: Livermore   Zip: 94550   Phone: EPA CAC ... on site 11:00 am

____ MAX AMT stored > 500 lbs, 55 gal., 200 cft.?

Inspection Categories:

____ I. Haz. Mat/Waste GENERATOR/TRANSPORTER
____ II. Business Plans, Acute Hazardous Materials
__✓__ III. Underground Tanks   Piping removal/sampling

* Calif. Administration Code (CAC) or the Health & Safety Code (HS&C)

A. BUSINESS PLANS (Title 19)

___	1. Immediate Reporting	2703
___	2. Bus. Plan Stds.	25503(b)
___	3. RR Cars > 30 days	25503.7
___	4. Inventory Information	25504(a)
___	5. Inventory Complete	2730
___	6. Emergency Response	25504(b)
___	7. Training	25504(c)
___	8. Deficiency	25505(a)
___	9. Modification	25505(b)

B. ACUTELY HAZ. MAT'LS

___	10. Registration Form Filed	25533(a)
___	11. Form Complete	25533(b)
___	12. RMPP Contents	25534(c)
___	13. Implement Sch. Req'd? (Y/N)	___
___	14. OffSite Conseq. Assess.	25524(c)
___	15. Probable Risk Assessment	25534(d)
___	16. Persons Responsible	25534(g)
___	17. Certification	25534(f)
___	18. Exemption Request? (Y/N)	25536(b)
___	19. Trade Secret Requested?	25538

III. UNDERGROUND TANKS (Title 23)

General

___	1. Permit Application	25284 (H&S)
___	2. Pipeline Leak Detection	25292 (H&S)
___	3. Records Maintenance	2712
___	4. Release Report	2651
___	5. Closure Plans	2670

Monitoring for Existing Tanks

___ 6. Method
1) Monthly Test
2) Daily Vadose
Semi-annual gndwater
One time soils
3) Daily Vadose
One time soils
Annual tank test
4) Monthly Gndwater
One time soils
5) Daily Inventory
Annual tank testing
Cont pipe leak det
Vadose/gndwater mon.
6) Daily Inventory
Annual tank testing
Cont pipe leak det
7) Weekly Tank Gauge
Annual tank tstng
8) Annual Tank Testing
Daily Inventory
9) Other ________

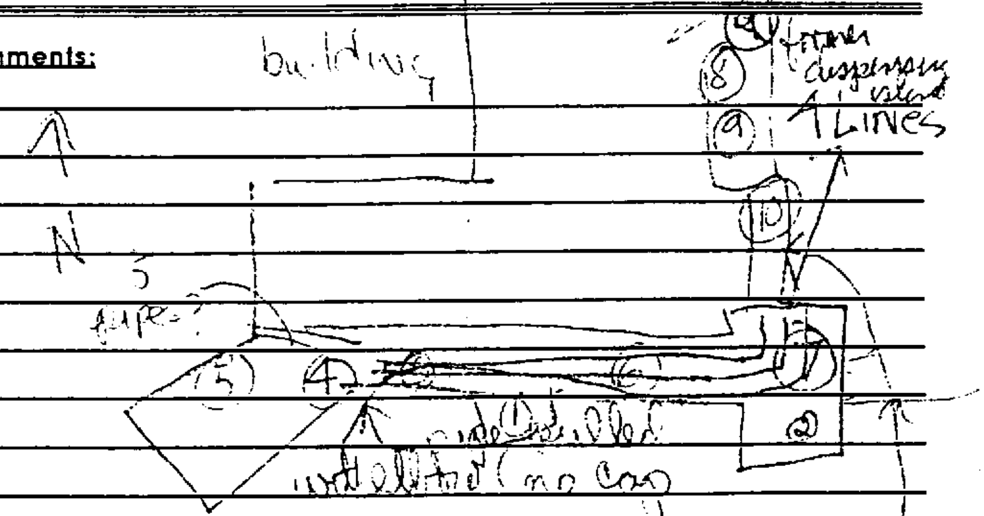
___	7. Precis Tank Test Date: ______	2643
___	8. Inventory Rec.	2644
___	9. Soil Testing	2646
___	10. Ground Water.	2647

New Tanks

___	11. Monitor Plan	2632
___	12. Access. Secure	2634
___	13. Plans Submit Date: ______	2711
___	14. As Built Date: ______	2635

Rev 6/88

Comments:



Sampling 9 total samples to be taken
TDH & BTEX
1) ... @ 4'
2) ... @ 2.5'
3) @ 3.5'
4) @ 3.5'
5) @ 3.5'

Improper to island not tested today
* needs to be excavated and tested

Brian Oliver **II, III**

Contact: ______________________
Title: ______________________   Inspector: ______________________
Signature: ______________________   Signature: ______________________

Woodward-Clyde Consultants

ATTACHMENT B

LOGS OF BORINGS B-G AND B-H

Woodward-Clyde Consultants  **Project: 187 North "L" Street** **No. 91C0954A**

Well Number and Location: Near side door to Arrow Building			Elev. and Datum:
Drilling Agency: Weeks Drilling & Pump	Driller: Gary		Date Started: 1/31/92 Date Completed: 1/31/92
Drilling Equipment: Mobile Drill B-53			Total Depth: 40 ft.
Drilling Method : Hollow Stem Auger	Drill bit: 7 7/8 inch		Sampler: 2-1/2-inch split spoon
Size and Type of Casing:			Water Level: First Compl. 24 HRS.
Type of Perforation:	From: ft To: ft		No. of Samples: Dist. Undist. 16
Size and Type of Pack:	From: ft To: ft		
Seal: Bentonite Pellets	From: ft To: ft		Logged by: B. Loskutoff
Grout Cement with 5% bentonite	From: 0 ft To: 40 ft		Checked by:

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
1	0-5" CONCRETE	conc				At surface 5-inches of concrete
2	@ 5"- SANDY GRAVEL,base aggregate fill rock, greenish gray, angular gravels to 1 1/2" size,15-20% fine-grained to coarse-grained sand, damp, loose	GP				From 5-inches to 4-feet log cuttings
3						From 4-feet to 20 continuous sample with 2-1/2-inch split-spoon sampler
4					5	petroluem-like
5	@ 4' CLAYEY SANDY GRAVEL, dark brown, loose to medium dense, moist, angular gravels to 1 1/2" x 2" size, 20-30% medium-grained to coarse-grained sand, 15% clay	GP		1	7 6	product at 5.5 feet odor B - G - 5.5
6					6	
7				2	5 6	HNu : 6 ppm B - G- 7
8				3	6 16 20	B - G - 8 HNu : 13 ppm
9				4	17 27 20	slight odor B - G - 9.5 HNu : 38 ppm
10						
11	@ 10.5 CLAYEY GRAVEL, dark grayish brown, dense, moist, 5 % coarse-grained sand, 30-35% clay, angular gravels to 3-inch size	GC		5	3 18 30 50	odor B - G - 11.5 HNu : 62 ppm
12						12 to 12.5' No sample
13				6	50	B - G - 13, odor HNu : 320 ppm
14				7	40 50	B - G - 14, odor HNu : 420 ppm
15				8	35 50	B - G - 15, odor HNu : 390 ppm
16				9	40 50	B - G - 16, odor HNu : 390 ppm
17				10	23 40 50	B - G - 17.5, odor HNu : 260 ppm
18						

FIELD LOG OF BORING NO. B - G

Project: 187 North "L" Street

LOG OF BORING B - G

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
17	as above, CLAYEY GRAVEL	GC				
18	same, increase clay content to 40%, also coarse-grained sand to 20%				40 35	
19				11	35 33	B - G - 19 odor HNu : 280 ppm
20	same, decrease medium to coarse-grained sand content to 10%				20	
21				12	30 38	B - G - 20.5 HNu:280 ppm, odor
22						
23						
24						
25	@ 25' SANDY CLAYEY GRAVEL, light yellowish brown, 20% coarse-grained sand, 30-40% clay, angular gravels to 2 1/2" size, moist, dense to hard	GC			25	
26				13	40 50	B- G - 26 HNu : 220 ppm, odor
27						
28						
29						
30					25 36	HNu : 180 ppm,odor
31	@ 31' SILTY CLAY, yellowish brown, stiff to very stiff, damp, 20-30% very fine grained sand	CL		14	25	B - G - 31.5
32						
33						
34						
35	@ 35' SANDY CLAYEY GRAVEL, light yellowish brown, 20% coarse-grained sand, 30-40% clay, moist, dense to hard, 2" angular gravels	GC			23	
36				15	30 30	B - G - 36, odor HNu : 180 ppm
37	@ 36.5' CLAYEY SILT, light olive brown, firm to stiff, moist to very moist at depth, 30-35% clay	ML				
38						

Project: 187 North "L" Street	LOG OF BORING B - G

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
38	as above, CLAYEY SILT	ML				
39						
40					6	
41	same, very moist at depth			16	10 13	B - G - 41 HNu : 100 ppm, odor
42	BOTTOM OF BOREHOLE					Boring terminated at 41.5 feet below grade, backfill with cement plus 5% bentonite grout mixture to surface
43						
44						
45						

Woodward-Clyde Consultants **Project: 187 North "L" Street** **No. 91C0954A**

Well Number and Location: Middle of Former Pump Island	Elev. and Datum:
Drilling Agency: Weeks Drilling & Pump / Driller: Gary	Date Started: 1/31/92 Date Completed: 1/31/92
Drilling Equipment: Mobile Drill B-53	Total Depth: 40 ft.
Drilling Method : Hollow Stem Auger / Drill bit: 7 7/8 inch	Sampler: 2-1/2-inch split spoon
Size and Type of Casing:	Water Level: First / Compl. / 24 HRS.
Type of Perforation: From: ft To: ft	No. of Samples: Dist. / Undist. 12
Size and Type of Pack: From: ft To: ft	
Seal: Bentonite Pellets From: ft To: ft	Logged by: B. Loskutoff / Checked by:
Grout Cement with 5% bentonite From: 0 ft To: 40 ft	

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
1	0-5" CONCRETE	conc				At surface 5-inches of concrete
2	@ 5"- SANDY GRAVEL,base aggregate fill rock, greenish gray, angular gravels to 1 1/2" size,15-20% fine-grained to coarse-grained sand, damp, loose	GP				5"- 3.5' log cuttings From 3.5 to 14 feet continuous sample with 2-1/2-inch split-spoon sampler
3						
4					3	
5	@ 4' SANDY GRAVEL with clay, dark brown, loose to medium dense, dry, angular to subangular gravels to 2" size, 5-10 % clay, 20% medium-grained sand	GP		1	15 17	B - H - 4.5 HNu : 6 ppm
6					23	
7	same, clay to 10%			2	40 43	B - H - 6 HNu : 6 ppm
8					15	
9				3	23 40	B - H - 7.5 HNu : 2 ppm
10					30 30	
11	@ 10' SANDY CLAYEY GRAVEL, yellowish brown, hard, dry, angular gravels, 20-30% clay, 15% medium-grained sand	GC		4	27 38	B - H - 9.5 HNu : 1 ppm
12					30	
13	same			5	45 42	B - H - 11 HNu : 2 ppm
14					20	
15				6	18 35	B - H - 12.5 HNu : 0
16					30	HNu : 1 ppm
17				7	50	B - H - 14
18						

FIELD LOG OF BORING NO. B - H

Project: 187 North "L" Street	LOG OF BORING B - H

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
17	as above, SANDY CLAYEY GRAVEL	GC				
18						
19						
20					10	
21	same, 15-20% medium to coarse-grained sand, clay to 40%			8	37 37	B - H - 21 HNu: 1 ppm
22						
23						
24						
25					20 40	HNu : 120 ppm
26	same			9	44	B- H - 26.5
27						
28						
29						
30					30	HNu : 200 ppm,odor
31	same			10	50	B - H - 31
32						
33						
34						
35					37	
36	same			11	50	B - H - 36, odor HNu : 200 ppm
37						
38						

Project: 187 North "L" Street	LOG OF BORING B - H

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
38	as above, SANDY CLAYEY GRAVEL	GC				
39						
40	@ 40' SANDY CLAY, light olive brown, firm to stiff, moist to very moist, 25% very fine to fine-grained sand	CL			5	
41				12	7 10	B - H - 41 HNu : 40 ppm, odor
42	BOTTOM OF BOREHOLE					Boring terminated at 41.5 feet below grade, backfill with cement plus 5% bentonite grout mixture to surface
43						
44						
45						

Woodward-Clyde Consultants

ATTACHMENT C

LABORATORY DATA REPORTS

COPY

Woodward-Clyde Consultants

.500 12th Street, Suite 100, Oakland, CA 94607[redacted]
(415) 893-3600 —4014

Chain of Custody Record

PROJECT NO.: Mobil – RVL

SAMPLERS: (Signature) Bill [signature]

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method Mod 8015	EPA Method 8020	~~EPA Method~~ Total Pb	EPA Method	ANALYSES		Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
1/16/92	1135	SS5E	S	X	X	X		2012235		1	EPA Mod 8015 TPH-gas
↓	1140	SSM90	S	X	X	X		36		1	EPA 8020 BTEX
	1150	SS4E	S	X	X	X		37		1	and Total Lead
	1210	SS3E	S	X	X	X		38		1	All samples
	1224	SS1,2E *	S	X	X	X		39		1	
	1245	SS2V	S	X	X	X		40		1	
	1250	SS3V *	S	X	X	X		41		1	
	1255	SS5PB	S	X	X	X		42		1	
	1300	SS3PB *	S	X	X	X		43		1	
	1305	SS1PB *	S	X	X	X		44		1	
↓	1415	SS-1	S	X	X	X		45		4	> Composite into one sample

Send Results to Al Ridley @(510)874-3125

5 day TAT

TOTAL NUMBER OF CONTAINERS: 14

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Bill [signature]	1/16/92 1435	[signature]			

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
Frank Courier			[signature]	1-16 4:40

SEQUOIA ANALYTICAL
Woodward-Clyde Consultants
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants	Client Project ID:	Mobil, 10-RVL	Sampled:	Jan 16, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 16, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	1/17-18/92
Attention: Al Ridley	First Sample #:	201-2235	Reported:	Jan 22, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-2235	SS5E	N.D.	N.D.	N.D.	N.D.	N.D.
201-2236	SSM90	N.D.	N.D.	N.D.	N.D.	N.D.
201-2237	SS4E	N.D.	N.D.	N.D.	N.D.	N.D.
201-2238	SS3E	N.D.	N.D.	N.D.	N.D.	N.D.
201-2239	SS1, 2E	N.D.	N.D.	N.D.	N.D.	N.D.
201-2240	SS2V	N.D.	N.D.	N.D.	N.D.	N.D.
201-2241	SS3V	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Marie A. Springer
Project Manager

SEQUOIA ANALYTICAL
Woodward-Clyde Consultants
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants	Client Project ID:	Mobil, 10-RVL	Sampled:	Jan 16, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 16, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 18, 1992
Attention: Al Ridley	First Sample #:	201-2242	Reported:	Jan 22, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-2242	SS5PB	N.D.	N.D.	N.D.	N.D.	N.D.
201-2243	SS3PB	N.D.	N.D.	N.D.	N.D.	N.D.
201-2244	SS1PB	N.D.	N.D.	N.D.	N.D.	N.D.
201-2245	SS-1, Composite	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Malle A. Springer
Project Manager

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Woodward-Clyde Consultants
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants	Client Project ID:	Mobil, 10-RVL	Sampled:	Jan 16, 1992
500 12th St., Suite 100	Sample Descript:	Soil	Received:	Jan 16, 1992
Oakland, CA 94607-4014	Analysis for:	Lead	Extracted:	Jan 21, 1992
Attention: Al Ridley	First Sample #:	201-2235	Analyzed:	Jan 21, 1992
			Reported:	Jan 22, 1992

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg
201-2235	SS5E	5.0	32
201-2236	SSM90	5.0	6.7
201-2237	SS4E	5.0	17
201-2238	SS3E	5.0	52
201-2239	SS1.2E	5.0	250
201-2240	SS2V	5.0	10
201-2241	SS3V	5.0	120
201-2242	SS5PB	5.0	60
201-2243	SS3PB	5.0	130
201-2244	SS1PB	5.0	170
201-2245	SS-1, Composite	5.0	59

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Marie A. Springer
Project Manager

SEQUOIA ANALYTICAL
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(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants
500 12th St., Suite 100
Oakland, CA 94607-4014
Attention: Al Ridley

Client Project ID: Mobil, 10-RVL

QC Sample Group: 2012241 - 45

Reported: Jan 22, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A.Maralit	A.Maralit	A.Maralit	A.Maralit
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Jan 18, 1992	Jan 18, 1992	Jan 18, 1992	Jan 18, 1992
QC Sample #:	GBLK011892	GBLK011892	GBLK011892	GBLK011892
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.20	0.21	0.21	0.61
Matrix Spike % Recovery:	100	105	105	102
Conc. Matrix Spike Dup.:	0.19	0.19	0.19	0.57
Matrix Spike Duplicate % Recovery:	95	95	95	95
Relative % Difference:	5.1	10	10	6.8

SEQUOIA ANALYTICAL

Marie A. Springer
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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Woodward-Clyde Consultants
500 12th St., Suite 100
Oakland, CA 94607-4014
Attention: Al Ridley

Client Project ID: Mobil, 10-RVL

QC Sample Group: 2012235 - 40

Reported: Jan 22, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	E.Cunanan	E.Cunanan	E.Cunanan	E.Cunanan
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Jan 17, 1992	Jan 17, 1992	Jan 17, 1992	Jan 17, 1992
QC Sample #:	GBLK011792	GBLK011792	GBLK011792	GBLK011792
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.20	0.20	0.20	0.62
Matrix Spike % Recovery:	100	100	100	103
Conc. Matrix Spike Dup.:	0.21	0.22	0.21	0.65
Matrix Spike Duplicate % Recovery:	105	110	105	108
Relative % Difference:	4.9	9.5	4.9	4.7

SEQUOIA ANALYTICAL

Marie A. Springer
Project Manager

% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$

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Woodward-Clyde Consultants
500 12th St., Suite 100
Oakland, CA 94607-4014
Attention: Al Ridley

Client Project ID: Mobil, 10-RVL

QC Sample Group: 2012235 - 45

Reported: Jan 22, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Lead

Method:	EPA 6010
Analyst:	R. Sharma
Reporting Units:	mg/kg
Date Analyzed:	Jan 21, 1992
QC Sample #:	201-2236

Sample Conc.:	6.7
Spike Conc. Added:	500
Conc. Matrix Spike:	500
Matrix Spike % Recovery:	99
Conc. Matrix Spike Dup.:	500
Matrix Spike Duplicate % Recovery:	99
Relative % Difference:	0.0

SEQUOIA ANALYTICAL

Malle A. Springer
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL
Consultants
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants	Client Project ID:	10-RVL, Mobil	Sampled:	Jan 16, 1992
500 12th St., Suite 100	Sample Descript:	Soil	Received:	Jan 16, 1992
Oakland, CA 94607-4014	Analysis Method:	California LUFT Manual, 12/87		
Attention: Al Ridley	First Sample #:	201-2239	Analyzed:	Jan 28, 1992
			Reported:	Jan 29, 1992

ORGANIC LEAD

Sample Number	Sample Description	Sample Results mg/kg (ppm)
201-2239	SS1, 2E	N.D.
201-2241	SS3V	N.D.
201-2243	SS3PB	N.D.
201-2244	SS1PB	N.D.

Detection Limits:	**0.050**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Malle A. Springer
Project Manager

SEQUOIA ANALYTICAL
Woodward-Clyde Consultants
680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants
500 12th St., Suite 100
Oakland, CA 94607-4014
Attention: Al Ridley

Client Project ID: 10-RVL, Mobil

QC Sample Group: 2012239, 41, 43-44

Reported: Jan 29, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Organic Lead
Method:	LUFT
Analyst:	M.Mistry
Reporting Units:	mg/kg
Date Analyzed:	Jan 28, 1992
QC Sample #:	201-3964
Sample Conc.:	N.D.
Spike Conc. Added:	0.60
Conc. Matrix Spike:	0.47
Matrix Spike % Recovery:	78
Conc. Matrix Spike Dup.:	0.45
Matrix Spike Duplicate % Recovery:	75
Relative % Difference:	4.3

SEQUOIA ANALYTICAL

Marie A. Springer
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607[redacted]
(415) 893-3600
—4014

Chain of Custody Record

COPY

PROJECT NO. Mobil-RVL

SAMPLERS: (Signature) Bill [signature]

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method mod 8015 gas	EPA Method 8020 BTEX	~~EPA Method~~ Total Lead	EPA Method	ANALYSES	Number of Containers
1/31/92	0929	B-6-5.5'	S	X	X	X		2014915	1
	0935	B-6-7'	S	X	X	X		16	1
	0938	B-6-8'	S	X	X	X		17	1
	0943	B-6-9.5'	S	X	X	X		18	1
	0949	B-6-11.5'	S	X	X	X		19	1
	1016	B-6-13'	S	X	X	X		20	1
	1020	B-6-14'	S	X	X	X		21	1
	1025	B-6-15'	S	X	X	X		22	1
	1031	B-6-16'	S	X	X	X		23	1
	1035	B-6-17.5'	S	X	X	X		24	1
	1043	B-6-19'	S	X	X	X		25	1
	1047	B-6-20.5'	S	X	X	X		26	1
	1100	B-6-26'	S	X	X	X		27	1
	1110	B-6-31.5'	S	X	X	X		28	1
	1118	B-6-36'	S	X	X	X		29	1
	1124	B-6-41'	S	X	X	X		30	1
	1253	B-H-4.5'	S	X	X	X		31	1
	1258	B-H-6'	S	X	X	X		32	1
	1303	B-H-7.5'	S	X	X	X		33	1
	1308	B-H-9.5'	S	X	X	X		34	1
	1315	B-H-11'	S	X	X	X		35	1
	1320	B-H-12.5'	S	X	X	X		36	1
	1326	B-H-14'	S	X	X	X		37	1
	1337	B-H-21'	S	X	X	X		38	1
	1344	B-H-26.5'	S	X	X	X		39	1
	1352	B-H-31'	S	X	X	X		40	1
	1402	B-H-36'	S	X	X	X		41	1
	1409	B-H-41'	S	X	X	X		42	1

TOTAL NUMBER OF CONTAINERS: 28

REMARKS (Sample preservation, handling procedures, etc.)

All Samples in 2½ x 6" SS liners.
All samples for TPH-gas, BTEX and Total Lead

5 day TAT

Send Results to Al Ridley (510) 874-3125
FAX (510) 874-3268

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Bill [signature]	1/31/92 1515	Bob Keegan 430	Bob Keegan 430	1/31/92 1607	Jim [signature]

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
Prime Courier				

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 1, 1992
Attention: Al Ridley	First Sample #:	201-4915	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4915	B-G-5.5'	570	0.55	1.3	N.D.	2.8
Detection Limits:		**50**	**0.25**	**0.25**	**0.25**	**0.25**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 1, 1992
Attention: Al Ridley	First Sample #:	201-4916	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4916	B-G-7'	N.D.	N.D.	N.D.	N.D.	N.D.
201-4917	B-G-8'	N.D.	N.D.	N.D.	N.D.	N.D.
201-4918	B-G-9.5'	N.D.	N.D.	N.D.	N.D.	N.D.
201-4931	B-H-4.5'	N.D.	N.D.	0.016	N.D.	0.010
201-4932	B-H-6'	N.D.	N.D.	N.D.	N.D.	N.D.
201-4933	B-H-7.5'	N.D.	N.D.	N.D.	N.D.	N.D.
201-4934	B-H-9.5'	N.D.	N.D.	0.0080	N.D.	N.D.
201-4935	B-H-11'	N.D.	N.D.	0.0090	N.D.	N.D.
201-4936	B-H-12.5'	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 2, 1992
Attention: Al Ridley	First Sample #:	201-4937	Amended:	Feb 10, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4937	B-H-14'	N.D.	N.D.	N.D.	N.D.	N.D.
201-4938	B-H-21'	N.D.	N.D.	N.D.	N.D.	N.D.
201-4942	B-H-41'	N.D.	0.058	N.D.	N.D.	N.D.
201-4926	B-G-20.5'	2,100	4.0	75	29	180
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 1, 1992
Attention: Al Ridley	First Sample #:	201-4919	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4919	B-G-11.5'	490	N.D.	N.D.	N.D.	0.53
Detection Limits:		**20**	**0.10**	**0.10**	**0.10**	**0.10**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 2, 1992
Attention: Al Ridley	First Sample #:	201-4920	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4920	B-G-13'	3,100	N.D.	4.4	38	330
Detection Limits:		**400**	**2.0**	**2.0**	**2.0**	**2.0**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 2, 1992
Attention: Al Ridley	First Sample #:	201-4921	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4921	B-G-14'	750	N.D.	N.D.	3.9	38
201-4922	B-G-15'	1,800	N.D.	16	31	220
201-4940	B-H-31'	1,900	0.59	1.1	1.1	3.3
Detection Limits:		**100**	**0.50**	**0.50**	**0.50**	**0.50**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 2, 1992
Attention: Al Ridley	First Sample #:	201-4923	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4923	B-G-16'	6,700	N.D.	96	120	790
Detection Limits:		**4,000**	**20**	**20**	**20**	**20**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 2, 1992
Attention: Al Ridley	First Sample #:	201-4824	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4824	B-G-17.5'	3,000	N.D.	2.2	19	220
201-4929	B-G-36'	1,900	1.8	63	21	120
Detection Limits:		**250**	**1.3**	**1.3**	**1.3**	**1.3**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 6, 1992
Attention: Al Ridley	First Sample #:	201-4925	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4925	B-G-19'	240	N.D.	0.45	1.3	5.9
201-4926	B-G-26'	150	1.0	3.2	0.90	5.3
Detection Limits:		**10**	**0.050**	**0.050**	**0.050**	**0.050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 2, 1992
Attention: Al Ridley	First Sample #:	201-4928	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4928	B-G-31.5'	40	4.0	4.4	0.48	2.8
201-4939	B-H-26.5'	160	N.D.	0.12	0.11	2.2
Detection Limits:		**5.0**	**0.025**	**0.025**	**0.025**	**0.025**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 5, 1992
Attention: Al Ridley	First Sample #:	201-4930	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4930	B-G-41'	12,000	150	520	130	710
Detection Limits:		**1,000**	**5.0**	**5.0**	**5.0**	**5.0**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Matrix Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Feb 5, 1992
Attention: Al Ridley	First Sample #:	201-4941	Reported:	Feb 7, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
201-4941	B-H-36'	8,000	16	18	26	210
Detection Limits:		**2,000**	**10**	**10**	**10**	**10**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Sample Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis for:	Lead		
Attention: Al Ridley	First Sample #:	201-4915	Analyzed:	2/4-5/92

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg
201-4915	B-G-5.5'	5.0	92
201-4916	B-G-7'	5.0	35
201-4917	B-G-8'	5.0	43
201-4918	B-G-9.5'	5.0	14
201-4919	B-G-11.5	5.0	9.8
201-4920	B-G-13'	5.0	7.3
201-4921	B-G-14'	5.0	9.2
201-4922	B-G-15'	0.25	8.0
201-4923	B-G-16'	5.0	9.1
201-4924	B-G-17.5'	5.0	5.3
201-4925	B-G-19'	5.0	5.1

Analytes reported as N.D. were not present above the stated limit of detection.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Sample Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis for:	Lead		
Attention: Al Ridley	First Sample #:	201-4926	Analyzed:	2/4-5/92
			Amended:	Feb 10, 1992

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg
201-4926	B-G-20.5'	5.0	5.4
201-4927	B-G-26'	0.25	5.3
201-4928	B-G-31.5'	5.0	5.7
201-4929	B-G-36'	5.0	5.7
201-4930	B-G-41'	5.0	16
201-4931	B-H-4.5'	0.25	3.4
201-4932	B-H-6'	0.25	5.2
201-4933	B-H-7.5'	0.25	8.2
201-4934	B-H-9.5'	0.25	7.9
201-4935	B-H-11'	0.25	5.3
201-4936	B-H-12.5'	5.0	5.7

Analytes reported as N.D. were not present above the stated limit of detection.

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Woodward-Clyde Consultants	Client Project ID:	Mobil, RV1	Sampled:	Jan 31, 1992
500 12th St., Suite 100	Sample Descript:	Soil	Received:	Jan 31, 1992
Oakland, CA 94607-4014	Analysis for:	Lead		
Attention: Al Ridley	First Sample #:	201-4937	Analyzed:	2/4-5/92
			Reported:	Feb 7, 1992

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg
201-4937	B-H-14'	0.25	6.2
201-4938	B-H-21'	0.25	5.2
201-4939	B-H-26.5'	0.25	4.6
201-4940	B-H-31'	0.25	8.2
201-4941	B-H-36'	0.25	2.8
201-4942	B-H-41'	0.25	8.0

Analytes reported as N.D. were not present above the stated limit of detection.

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Woodward-Clyde Consultants
500 12th St., Suite 100
Oakland, CA 94607-4014
Attention: Al Ridley

Client Project ID: Mobil, RV1

QC Sample Group: 2014920 - 24, 26, 28

Reported: Feb 7, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A.Maraftab	A.Maraftab	A.Maraftab	A.Maraftab
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Feb 2, 1992	Feb 2, 1992	Feb 2, 1992	Feb 2, 1992
QC Sample #:	GBLK020292	GBLK020292	GBLK020292	GBLK020292
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.19	0.19	0.19	0.57
Matrix Spike % Recovery:	95	95	95	95
Conc. Matrix Spike Dup.:	0.19	0.20	0.19	0.58
Matrix Spike Duplicate % Recovery:	95	100	95	97
Relative % Difference:	0.0	5.1	0.0	1.7

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$$\% \text{ Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

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Woodward-Clyde Consultants
500 12th St., Suite 100
Oakland, CA 94607-4014
Attention: Al Ridley

Client Project ID: Mobil, RV1

QC Sample Group: 2014932 - 38-42

Reported: Feb 7, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A.Maraftab	A.Maraftab	A.Maraftab	A.Maraftab
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Feb 2, 1992	Feb 2, 1992	Feb 2, 1992	Feb 2, 1992
QC Sample #:	GBLK020292 MS/MSD	GBLK020292 MS/MSD	GBLK020292 MS/MSD	GBLK020292 MS/MSD
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.18	0.19	0.19	0.55
Matrix Spike % Recovery:	90	95	95	92
Conc. Matrix Spike Dup.:	0.19	0.18	0.18	0.54
Matrix Spike Duplicate % Recovery:	95	90	90	90
Relative % Difference:	5.4	5.4	5.4	1.8

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% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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Woodward-Clyde Consultants
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Oakland, CA 94607-4014
Attention: Al Ridley

Client Project ID: Mobil, RV1

QC Sample Group: 2014915 - 19

Reported: Feb 7, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A.Maraftab	A.Maraftab	A.Maraftab	A.Maraftab
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Feb 1, 1992	Feb 1, 1992	Feb 1, 1992	Feb 1, 1992
QC Sample #:	GBLK020192 MS/MSD	GBLK020192 MS/MSD	GBLK020192 MS/MSD	GBLK020192 MS/MSD
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.21	0.21	0.22	0.68
Matrix Spike % Recovery:	105	105	110	113
Conc. Matrix Spike Dup.:	0.21	0.22	0.22	0.67
Matrix Spike Duplicate % Recovery:	105	110	110	112
Relative % Difference:	0.0	4.7	0.0	1.5

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

$$\%\ \text{Recovery:} = \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} = \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Woodward-Clyde Consultants
500 12th St., Suite 100
Oakland, CA 94607-4014
Attention: Al Ridley

Client Project ID: Mobil, RV1

QC Sample Group: 2014925, 27

Reported: Feb 7, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C.Donohue	C.Donohue	C.Donohue	C.Donohue
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Feb 6, 1992	Feb 6, 1992	Feb 6, 1992	Feb 6, 1992
QC Sample #:	GBLK020292 MS/MSD	GBLK020292 MS/MSD	GBLK020292 MS/MSD	GBLK020292 MS/MSD
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.21	0.20	0.19	0.57
Matrix Spike % Recovery:	105	100	95	95
Conc. Matrix Spike Dup.:	0.21	0.20	0.20	0.59
Matrix Spike Duplicate % Recovery:	105	100	100	98
Relative % Difference:	0.0	0.0	5.1	3.4

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$

SEQUOIA ANALYTICAL

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Woodward-Clyde Consultants
500 12th St., Suite 100
Oakland, CA 94607-4014
Attention: Al Ridley

Client Project ID: Mobil, RV1

QC Sample Group: 2014929 - 31, 39-41

Reported: Feb 7, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	D. Dreblow	D. Dreblow	D. Dreblow	D. Dreblow
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Feb 5, 1992	Feb 5, 1992	Feb 5, 1992	Feb 5, 1992
QC Sample #:	GBLK020292 MS/MSD	GBLK020292 MS/MSD	GBLK020292 MS/MSD	GBLK020292 MS/MSD
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.19	0.20	0.20	0.60
Matrix Spike % Recovery:	95	100	100	100
Conc. Matrix Spike Dup.:	0.19	0.21	0.21	0.62
Matrix Spike Duplicate % Recovery:	95	105	105	103
Relative % Difference:	0.0	4.9	4.9	3.3

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

$$\%\ \text{Recovery:} = \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} = \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

SEQUOIA ANALYTICAL

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Attention: Al Ridley

Client Project ID: Mobil, RV1

QC Sample Group: 2014915 - 42

Reported: Feb 7, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Lead	Lead	Lead
Method:	EPA 6010	EPA 6010	EPA 7421
Analyst:	C.Medefesser	C.Medefesser	Suzanne
Reporting Units:	mg/kg	mg/kg	mg/kg
Date Analyzed:	Feb 4, 1992	Feb 4, 1992	Feb 5, 1992
QC Sample #:	201-4931	201-4942	201-4931
Sample Conc.:	N.D.	N.D.	3.4
Spike Conc. Added:	50	50	50
Conc. Matrix Spike:	42	41	53
Matrix Spike % Recovery:	84	82	100
Conc. Matrix Spike Dup.:	43	40	55
Matrix Spike Duplicate % Recovery:	86	80	103
Relative % Difference:	2.4	2.5	3.7

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

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San Luis Obispo Division
141 Suburban Road, San Luis Obispo, California 93401

(805) 543-2553
FAX (805) 543-2685

CLIENT: Bill Loskutoff
Woodward-Clyde Consultants
500 12th St. Ste. 100
Oakland, CA 94607

Lab Number : I-0862-1
Project : Mobil RVL

Analyzed : 03/04/92
Analyzed by: RF
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
I0586-1 B-G-11.5	Soil		01/31/92	02/13/92

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				2,3,4,5
Benzene	(71432)	0.001	ND	
Toluene	(108883)	0.001	0.003	
Ethylbenzene	(100411)	0.001	ND	
Xylenes		0.001	0.006	
1,2-Dichloroethane (EDC)	(107062)	0.001	ND	
Ethylene Dibromide (EDB)	(106934)	0.001	ND	
Total Petroleum Hydrocarbons (Weathered Gas)		0.1	76.	
BTX as a percent of fuel			1.2	
Percent Surrogate Recovery			95.	

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)
(3) The concentration of Tetraethyl Lead found in the Weathered Gasoline is 6.2 g/Gallon.
(4) The concentration of Other Alkylated Lead Compounds found in the Weathered Gasoline is 9.3 g/Gallon.
(5) Weathering of the more volatile portion of Gasoline may cause the concentration of the less volatile Alkylated Lead Compounds to be higher than that in fresh, unweathered product.

03/24/92
MSD2/2T22-24C
MH/bpl/cmo/dez/drc/gd
IC042SF
CC: Sequoia Analytical Lab
680 Chesapeak Drive
Redwood City, CA 94063

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek, Ph.D.
President

COAST - TO - COAST ANALYTICAL SERVICES

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141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

CLIENT: Bill Loskutoff
Woodward-Clyde Consultants
500 12th St. Ste. 100
Oakland, CA 94607

Lab Number : I-0862-2
Project : Mobil RVL

Analyzed : 03/04/92
Analyzed by: QP
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
I0586-2 B-H-26.5	Soil		01/31/92	02/13/92

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2,3
Benzene	(71432)	0.005	0.006	
Toluene	(108883)	0.005	0.010	
Ethylbenzene	(100411)	0.005	0.047	
Xylenes		0.005	1.2	
1,2-Dichloroethane (EDC)	(107062)	0.005	ND	
Ethylene Dibromide (EDB)	(106934)	0.005	ND	
Total Petroleum Hydrocarbons (Weathered Gas)		0.5	100.	
BTX as a percent of fuel			0.5	
Percent Surrogate Recovery			95.	

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)
(3) Sample was extracted by EPA 5030 (purge-and-trap) for Gasoline determination and by EPA 3550 for Tetraethyl Lead determination.

03/19/92
MSD2/2T21C
MH/bpl/cmo/drc/gd
IC042SF
CC: Sequoia Analytical Lab
680 Chesapeak Drive
Redwood City, CA 94063

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek, Ph.D.
President

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141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: IC042SF

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 03/04/92
Analyzed by: RF
Method : As Listed

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
METHOD BLANK	Solid			

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2,3
Benzene	(71432)	0.001	ND	
Toluene	(108883)	0.001	ND	
Ethylbenzene	(100411)	0.001	ND	
Xylenes		0.001	ND	
1,2-Dichloroethane (EDC)	(107062)	0.001	ND	
Ethylene Dibromide (EDB)	(106934)	0.001	ND	
Total Petroleum Hydrocarbons		0.1	ND	
BTX as a percent of fuel			Not Appl.	
Percent Surrogate Recovery			95.	

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)
(3) Total Petroleum Hydrocarbons (gasoline, diesel 2, jet fuel, kerosene, Stoddard solvent or crude oil) were not detected at the listed PQL.

03/06/92
MSD2/2T06C
MH/bpl/cmo/gd
I0862-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek, Ph.D.
President

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QC Batch ID: IC042SF

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 03/04/92
Analyzed by: RF
Method : As Listed

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE	Solid			

CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	NOTE
FUEL FINGERPRINT ANALYSIS					1,2,3
Benzene	0.001		NS		
Toluene	0.001		NS		
Ethylbenzene	0.001		NS		
Xylenes	0.001		NS		
1,2-Dichloroethane (EDC)	0.001		NS		
Ethylene Dibromide (EDB)	0.001		NS		
Total Petroleum Hydrocarbons (Kerosene)	0.1	1.7	1.7	100.	
BTX as a percent of fuel			<0.1		
Percent Surrogate Recovery			92.		

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
* RESULTS listed as 'NS' were not spiked. PQL = Practical Quantitation Limit
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)
(3) Spike was in analyte-free soil.

03/06/92
MSD2/2T02C
MH/bpl/cmo/gd
I0862-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek, Ph.D.
President

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QC Batch ID: IC042SF

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 03/04/92
Analyzed by: RF
Method : As Listed

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE DUPLICATE	Solid			

CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	%DIFF	NOTE
FUEL FINGERPRINT ANALYSIS						1,2,3
Benzene	0.001		NS			
Toluene	0.001		NS			
Ethylbenzene	0.001		NS			
Xylenes	0.001		NS			
1,2-Dichloroethane (EDC)	0.001		NS			
Ethylene Dibromide (EDB)	0.001		NS			
Total Petroleum Hydrocarbons (Kerosene)	0.1	1.7	1.7	100.	0.	
BTX as a percent of fuel			<0.1			
Percent Surrogate Recovery			95.			

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
* RESULTS listed as 'NS' were not spiked. PQL = Practical Quantitation Limit
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)
(3) Spike was in analyte-free soil.

03/06/92
MSD2/2T03C
MH/bpl/cmo/gd
I0862-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek, Ph.D.
President

CLIENT: [redacted] & Clyde

REPORT TO: [redacted]

T[redacted]OUND[redacted]: [redacted]

ADDRESS: 500 12 St. Suite 100
Oakland, CA 94607

PHONE: 510-893-3600

BILLING TO:

		8 HR.
24 HR.	48 HR.	72 HR.
5 DAY	10 DAY	15 DAY

PROJECT NAME/SITE: Mobil RVL

PO#/BILLING REFERENCE:

SAMPLER:

DATE:

SAMPLE ID#/ STATION	SAMPLE DESCRIPTION	NUMBER OF CONT.	TYPE CONT.	SAMPLING TIME/DATE	ANALYSIS REQUESTED	REMARKS	SAMPLE NUMBER
	B-6-11.5	1	Core	1/31/92 0949	I0862-1	I0586-1	
	B-11-26.5	1	Core	↓ 1344	-2	-2	

RELINQUISHED BY	DATE	TIME:	RECEIVED BY:
K. Walters	2/12/92	3:00pm	
RELINQUISHED BY:	DATE	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME:	RECEIVED IN LAB BY: Kelley Wilson 2/13/92 1040

TRAVEL TIME:

ON SITE TIME:

OTHER:

WERE SAMPLES:	YES	NO
PRESERVED ?	N	
IN GOOD CONDITION?	Y	

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(805) 543-2553
FAX (805) 543-2685

CLIENT: Bill Loskutoff
Woodward-Clyde Consultants
500 12th St. Ste. 100
Oakland, CA 94607

Lab Number : I-0586-2
Project : Mobil RVL

Analyzed : 02/25/92
Analyzed by: DP
Method : EPA 8270/SIM

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
B-H-26.5	Soil		01/31/92	02/14/92

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
Semi-Volatile Organic Analysis				1,2
Tetraethyl Lead		0.01	ND	
Total Petroleum Hydrocarbons (Diesel #2)		5.	ND	

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 02/20/92 by TJD using EPA 3550
(2) TPH was analyzed on 03/10/92 by EPA Method 8270.

03/23/92
MSD5/YB08-IC17A
MH/lap/bdm/cmo/drc/dsp
IB20M550
CC: Sequoia Analytical Lab
680 Chesapeak Drive
Redwood City, CA 94063

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek, Ph.D.
President

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141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: IB20M550

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 02/25/92
Analyzed by: DP
Method : EPA 8270/SIM

INSTRUMENT BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
INSTRUMENT BLANK	Solid			

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
Semi-Volatile Organic Analysis				
Tetraethyl Lead		0.01	ND	
Total Petroleum Hydrocarbons		5.	ND	

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

03/26/92
MSD5/YB06A
MH/lap/bdm/cmo/dsp
I0586-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek

Mary Havlicek, Ph.D.
President

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141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: IB20M550

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 02/25/92
Analyzed by: DP
Method : EPA 8270/SIM

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
METHOD BLANK	Solid			

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
Semi-Volatile Organic Analysis				1,2
Tetraethyl Lead		0.01	ND	
Total Petroleum Hydrocarbons		5.	ND	

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 02/20/92 by TJD using EPA 3550
(2) TPH was analyzed on 03/10/92 by EPA Method 8270.

03/25/92
MSD5/YB07-IC16A
MH/lap/bdm/cmo/dsp
I0586-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek, Ph.D.
President

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141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: IB20M550

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 02/26/92
Analyzed by: DP
Method : EPA 8270/SIM

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE	Solid			

CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	NOTE
Semi-Volatile Organic Analysis					1,2,3
Tetraethyl Lead	0.01	1.4	0.62	44.	
Total Petroleum Hydrocarbons (Diesel #2)	5.	170.	84.	49.	

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 02/20/92 by TJD using EPA 3550
(2) TPH was analyzed on 03/10/92 by EPA Method 8270.
(3) Spike was in analyte-free soil.

03/25/92
MSD5/YB10-IC19A
MH/lap/bdm/cmo/dsp
I0586-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek, Ph.D.
President

COAST - TO - COAST ANALYTICAL SERVICES

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141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

QC Batch ID: IB20M550

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 02/26/92
Analyzed by: DP
Method : EPA 8270/SIM

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE DUPLICATE	Solid			

CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	%DIFF	NOTE
Semi-Volatile Organic Analysis						1,2,3
Tetraethyl Lead	0.01	1.4	0.56	40.	10.	
Total Petroleum Hydrocarbons (Diesel #2)	5.	170.	110.	65.	27.	

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 02/20/92 by TJD using EPA 3550
(2) TPH was analyzed on 03/10/92 by EPA Method 8270.
(3) Spike was in analyte-free soil.

03/25/92
MSD5/YB11-IC20A
MH/lap/bdm/cmo/dsp
I0586-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek, Ph.D.
President

Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607 [redacted]-4014
(415) 893-3600

Chain of Custody Record

PROJECT NO. Mobil-RUL

SAMPLERS: (Signature) Bill Yoshuta

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	ANALYSES: EPA Method mod 8015 gas	EPA Method 8020 BTEX	EPA Method Total Lead	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
1/31/92	0929	B-G-5.5'	S	X	X	X	201495	1	All samples in 2½ x 6" SS liners.
	0935	B-G-7'	S	X	X	X	16	1	
	0938	B-G-8'	S	X	X	X	17	1	
	0943	B-G-9.5'	S	X	X	X	18	1	
	0949	B-G-11.5'	S	X	X	X	19	1	
	1016	B-G-13'	S	X	X	X	20	1	
	1020	B-G-14'	S	X	X	X	21	1	
	1025	B-G-15'	S	X	X	X	22	1	
	1031	B-G-16'	S	X	X	X	23	1	
	1035	B-G-17.5'	S	X	X	X	24	1	
	1043	B-G-19'	S	X	X	X	25	1	
	1047	B-G-20.5'	S	X	X	X	26	1	
	1100	B-G-26'	S	X	X	X	27	1	
	1110	B-G-31.5'	S	X	X	X	28	1	
	1118	B-G-36'	S	X	X	X	29	1	
	1124	B-G-41'	S	X	X	X	30	1	
	1253	B-H-4.5'	S	X	X	X	31	1	
	1258	B-H-6'	S	X	X	X	32	1	
	1303	B-H-7.5'	S	X	X	X	33	1	
	1308	B-H-9.5'	S	X	X	X	34	1	
	1315	B-H-11'	S	X	X	X	35	1	
	1320	B-H-12.5'	S	X	X	X	36	1	
	1326	B-H-14'	S	X	X	X	37	1	
	1337	B-H-21'	S	X	X	X	38	1	
	1344	B-H-26.5'	S	X	X	X	39	1	
	1352	B-H-31'	S	X	X	X	40	1	
	1402	B-H-36'	S	X	X	X	41	1	
✓	1409	B-H-41'	S	X	X	X	42	1	

All samples for TPH-gas, BTEX and Total Lead

5 day TAT

Send Results to Al Ridley (510)874-3125 FAX(510)874-3268

TOTAL NUMBER OF CONTAINERS: 28

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Bill Yoshuta	1/31/92 1515	Bob Keegan 430	Bob Keegan 430	11/31/92 1607	Jim Costello

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
Prime Courier				

Soil, and Hazardous Materials

CHAIN OF CUSTODY REPORT

CLIENT: Woodward Clyde

ADDRESS: 500 12 St. Suite 120
Oakland, CA 94607

PHONE: (510) 893-3600

PROJECT NAME/SITE: Mobil RVL

SAMPLER:

DATE:

REPORT TO:

BILLING TO:

TURNAROUND TIME:

8 HR.			
24 HR.		48 HR.	72 HR.
5 DAY		10 DAY	15 DAY

PO#/BILLING REFERENCE:

SAMPLE ID#/ STATION	SAMPLE DESCRIPTION	NUMBER OF CONT.	TYPE CONT.	SAMPLING TIME/DATE	REMARKS	SAMPLE NUMBER
	B-6-11.5	1	Core	1/31/92 0949	I0586-1	
	B-14-26.5	1	Core	1349	-2	

ANALYSIS REQUESTED

RELINQUISHED BY	DATE	TIME:
K. Woodward	2/12/92	3:00pm
RELINQUISHED BY:	DATE	TIME:
RELINQUISHED BY:	DATE	TIME:

RECEIVED BY:

RECEIVED BY:

RECEIVED IN LAB BY: Kelley Wilson 2/13/92 1040

TRAVEL TIME:

ON SITE TIME:

OTHER:

	YES	NO
WERE SAMPLES: PRESERVED ?	N	
IN GOOD CONDITION?	Y	

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

San Luis Obispo, CA • Goleta, CA • Benicia, CA • Camarillo, CA • Newport Beach, CA • Valparaiso, IN

San Luis Obispo Division (805) 543-2553
141 Suburban Road, San Luis Obispo, California 93401 FAX (805) 543-2685

CLIENT: Bill Loskutoff
Woodward-Clyde Consultants
500 12th St. Ste. 100
Oakland, CA 94607

Lab Number : I-0586-1
Project : Mobil RVL

Analyzed : 02/26/92
Analyzed by: DP
Method : EPA 8270/SIM

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
B-G-11.5	Soil		01/31/92	02/14/92

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
Semi-Volatile Organic Analysis				2,3,4,5
Tetraethyl Lead		0.01	0.10	
Total Petroleum Hydrocarbons (Diesel #2)		5.	30.	
Other Alkylated Lead Compounds		0.01	0.15	

Lab Certifications: CAELAP#1598, NYELAP#11177, UTELAP#E-142, A2LA#0136-01, L.A.Co.CSD#10187.
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 02/20/92 by TJD using EPA 3550
(2) TPH was analyzed on 03/10/92 by EPA Method 8270.
(3) The concentration of Tetraethyl Lead found in the Weathered Gasoline is 6.2 g/Gallon.
(4) The concentration of Other Alkylated Lead Compounds found in the Weathered Gasoline is 9.3 g/Gallon.
(5) Weathering of the more volatile portion of Gasoline may cause the concentration of the less volatile Alkylated Lead Compounds to be higher than that in fresh, unweathered product.

03/23/92
MSD5/YB09-IC18A
MH/lap/bdm/cmo/drc/dsp/phi
IB20M550
CC: Sequoia Analytical Lab
680 Chesapeak Drive
Redwood City, CA 94063

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Mary Havlicek, Ph.D.
President