RESNA
Working to Restore Nature

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SUBSURFACE INVESTIGATION AND INTERIM REMEDIATION SYSTEM EVALUATION

Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

5-16-94

Report prepared for:

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May 16, 1994
RESNA Report 130009.04

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SUBSURFACE INVESTIGATION AND INTERIM REMEDIATION SYSTEM EVALUATION

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For Exxon Company, U.S.A.

1.0 INTRODUCTION

Exxon Company, U.S.A. (Exxon) contracted with RESNA Industries Inc. (RESNA) to perform a subsurface investigation and interim remediation system evaluation at Exxon Station 7-3399 located at 2991 Hopyard Road in Pleasanton, California. The purpose of this investigation was to drill four exploratory borings to evaluate residual gasoline hydrocarbons concentrations in the soil and the efficiency of the operating vapor extraction system. The vapor extraction system, installed in August 1989, is currently able to operate at vapor extraction wells VR-1 through VR-4 and groundwater monitoring well MW-9. However, the vapor extraction system was shut down on December 29, 1993, due to nondetectable concentrations of total petroleum hydrocarbons as gasoline (TPHg) in the influent air samples (RESNA, November 16, 1993). Work performed for this investigation included:

- Drilling soil borings B-16 and B-17 in the vicinity of monitoring well MW-9.
- Drilling soil boring B-18 in the vicinity of monitoring well MW-4.
- Drilling soil boring B-19 in the area of former monitoring well MW-2 and boring B-4.

- Collecting soil samples from the borings.
- Surveying the boring locations.
- Submitting soil samples for laboratory analysis.
- Preparing the attached report of results, conclusions, and recommendations.

The field work for this investigation was performed in accordance with RESNA's field protocol (Appendix A), the Site Safety Plan (RESNA, November 30, 1993), and RESNA's Work Plan for Interim Remediation Investigation (RESNA, November 9, 1993).

2.0 SITE DESCRIPTION

2.1 General

The Exxon station is located in a commercial and residential area at the eastern corner of the intersection of Hopyard Road and Valley Avenue in Pleasanton, California as shown on Plate 1, Site Vicinity Map. The site is bounded on the northwest by Valley Avenue, on the southwest by Hopyard Road, on the northeast by a shopping center parking lot owned by Lucky Stores, Inc., of Dublin, California, and on the southeast by an access drive and Straw Hat pizza parlor. The locations of the former and existing underground storage tanks (USTs), service islands, and other pertinent onsite features are shown on Plate 2, Generalized Site Plan. The site is at an elevation of approximately 321 feet above mean sea level.

2.2 Regional Geology and Hydrogeology

The site is in the north-central portion of the Livermore Valley, within the Coast Ranges Geomorphic Province of Northern California. The Livermore Valley is approximately 13

miles long in an east-west direction, approximately 4 miles wide, and surrounded by hills of the Diablo Range. The valley slopes gently toward the west. The principal streams in the area are Arroyo Valley Creek and Arroyo Mocho Creek, which flow toward the western end of the valley. Arroyo Mocho Creek is approximately 2 miles north of the site, and Arroyo Valley Creek is approximately ½-mile north of the site.

Livermore Valley is underlain by sediments, water-bearing rocks, and non-water-bearing rocks. The sediments and water-bearing units comprise the Livermore Valley groundwater basin and include valley-fill materials, the Tassajara Formation, and the Livermore Formation (California Department of Water Resources, 1966, 1974). The Livermore Valley groundwater basin is divided into sub-basins on the basis of fault traces or other hydrologic discontinuities (California Department of Water Resources, 1974). The groundwater system in Livermore Valley is a multilayered system with an unconfined aquifer overlying a sequence of leaky or semi-confined aquifers. Groundwater in the basin flows downslope toward the east-west-trending axis of the valley and then flows generally to the west (Alameda County Flood Control and Water Conservation District - Zone 7, 1991). Local groundwater flow is to the northwest based on groundwater monitoring data collected at the site (RESNA, September 10, 1992).

3.0 PREVIOUS WORK

Prior to the present investigation, RESNA (formerly Applied GeoSystems [AGS]) performed environmental investigations and subsequent limited subsurface investigations related to the removal and replacement of three gasoline USTs and one used-oil UST, installation of monitoring and vapor extraction wells, and the installation and operation of soil-vapor extraction and groundwater treatment systems. The results of these investigations are presented in the reports listed in the references section. Quarterly groundwater monitoring

began in April 1988. A detailed history of previous work is presented in Appendix B, Previous Environmental Work.

4.0 FIELD WORK

4.1 Drilling

The well construction permit was acquired from the Alameda County Water District (ACWD), prior to drilling. A copy of the permit is included in Appendix C, Drilling Permit. To check the soil boring locations for the presence of underground utilities prior to drilling, RESNA pre-marked the exploratory boring locations, contacted Underground Service Alert (USA), and contracted with Cruz Brothers, a subsurface locator.

Four borings (B-16 through B-19) were drilled on December 1 and 2, 1993, in areas of the site where the highest hydrocarbon concentrations had been found during previous investigations. The locations of borings B-16 through B-19 are shown on Plate 2. A summary of the field procedures used by RESNA are included in Appendix A.

4.2 Soil Sampling and Description

Borings B-16 through B-19 were drilled to depths ranging from 54 to 55½ feet. In all borings, soil samples were collected at intervals of approximately five feet or less, beginning at the 5-foot-depth interval. Soil samples were screened in the field for the presence of petroleum hydrocarbons using a photoionization Organic Vapor Meter (OVM). Samples were described using the Unified Soil Classification System (see Appendix D, Unified Soil Classification System and Symbol Key and Logs of Borings).

Subsurface materials encountered in borings B-16 through B-19 consist primarily of silty clay to clayey silt, interbedded with clayey sand to sandy gravel (see Plates D3 through D9 in Appendix D, and Plates 3 through 5, Geologic Cross Sections A-A', B-B', and C-C'). Locations of geologic cross sections are shown on Plate 2.

Based on subsurface information from this and previous investigations, soil stratigraphy beneath the site consists of an uppermost unsaturated, silty clay to clayey silt unit which extended to depths of approximately 3 to 11 feet. This unit was underlain by an unsaturated, silty sand to medium-grained sand to depths ranging from 6 to 13 feet, which was in turn underlain by an unsaturated unit similar to the uppermost unit to depths of approximately 36 to 41 feet. Below this fine-grained unit was an unsaturated, clayey sand to gravel unit to depths of approximately 54 to 60 feet, which was in turn underlain by an unsaturated, silty clay to clayey silt unit to depths of approximately 62 to 68 feet. Below this was a saturated silty sand to sandy gravel to a depth of approximately 74 feet, which was in turn underlain by an unsaturated clay to silty clay to a depth of approximately 121 feet. From a depth of 121 to 139 feet was a saturated silty sand to gravel.

Subjective evidence of gasoline hydrocarbons in the soil was noted and recorded on the boring logs of B-16 through B-19 during drilling. Field OVM readings of samples from borings B-16 through B-19 are listed on the boring logs in the column labeled PID (photoionization detector), and are considered an approximate magnitude of petroleum hydrocarbons present in the soil.

4.3 Stockpile Soil Sampling

During drilling, soil cuttings from the borings were stockpiled onsite pending disposal. Soils were placed on and covered with 6 millimeter visquene. Four soil samples were collected

from the soil stockpile on December 2, 1993. A description of the sampling protocol is included in Appendix A.

5.0 SITE SURVEY

On January 17, 1993, the boring locations were surveyed by Ron Archer Civil Engineer, Inc., of Pleasanton, California, a licensed land surveyor. The results of this survey are included in Appendix E, Boring Location Survey.

6.0 LABORATORY METHODS

6.1 Soil Samples

Soil samples from soil borings B-16 through B-19 were submitted to PACE Incorporated Laboratories (PACE) (California State Certification Number 1282) in Novato, California, for laboratory analyses for the gasoline constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons as gasoline (TPHg) using modified Environmental Protection Agency (EPA) Methods 5030/8015/8020. These soil samples were selected for laboratory analyses based on:

- areas where the presence of petroleum hydrocarbons were suspected; and
- five-foot intervals and/or change in stratigraphic unit.

6.2 Stockpile Soil Samples

The four soil samples collected on December 2, 1993, from the stockpile were sent to PACE for compositing and analyses for BTEX and TPHg using modified EPA Methods 5030/8015/8020, cyanide reactivity using EPA Solid Waste Method SW846 7.3.3.2, sulfide reactivity using EPA Solid Waste Method SW846 7.3.4.1, corrosivity using EPA Method 9040, ignitability using modified EPA Method 1010, and soluble threshold limit concentration (STLC) lead using EPA method 6010/200.7.

7.0 LABORATORY RESULTS

7.1 Soil Analyses

Results of laboratory analyses of soil samples are summarized in Table 1, Results of Laboratory Analysis of Soil Samples. Copies of laboratory reports and chain of custody documents for soil samples obtained during this investigation are included in Appendix F, Laboratory Analysis Reports and Chain of Custody Record.

Laboratory analyses reports of soil samples from borings B-16 through B-19 indicate:

- TPHg and BTEX concentrations were not detected at the laboratory method detection limits (MDLs) of 1.0 parts per million (ppm) and 0.005 ppm, respectively, in boring B-18 at all sampled depths;
- TPHg concentrations were not detected at the MDL in borings B-16 and B-19, except for 1.1 ppm at 15 feet in boring B-16;
- BTEX concentrations were not detected at the MDL in borings B-16 and B-19 except at depths of 20 and 24½ feet in B-16, and depths of 30 and 35 feet in B-19. In these samples, benzene concentrations ranged from 0.0095 ppm (B-16 at 24½ feet) to 0.094 ppm (B-19 at 30 feet); toluene was detected

at a concentration of 0.027 ppm in B-19 at 30 feet; ethylbenzene concentrations ranged from 0.038 ppm and 0.044 ppm (B-19 at 30 and 35 feet, respectively); and total xylenes concentrations ranged from 0.0066 ppm (B-19 at 35 feet) to 0.011 ppm (B-16 at 20 feet);

- TPHg and BTEX concentrations were not detected at their respective laboratory MDLs in boring B-17 at 4½ and 54½ feet. TPHg concentrations in boring B-17 ranged from not detected at the laboratory MDL at 4½ feet to 1,100 ppm at 45 feet. The highest BTEX concentrations were 14 ppm benzene, 42 ppm toluene, 19 ppm ethylbenzene, and 80 ppm total xylenes at 15 feet. The lowest BTEX concentrations were benzene not detected at the laboratory MDL, and 0.013 ppm toluene, 0.0066 ppm ethylbenzene, and 0.036 ppm total xylenes at 49½ feet.

7.2 Stockpile Soil Analyses

Laboratory analytical results of the composited soil sample from the stockpile indicted concentrations of 66 ppm TPHg, 0.037 ppm of benzene, 1.3 ppm toluene, 1.1 ppm ethylbenzene, 5.0 ppm total xylenes, a pH of 7.5, less than 0.5 ppm reactive cyanide, less than 0.5 ppm reactive sulfide, less than 1.0 ppm lead, and a flashpoint of greater than 60°C.

The 5 cubic yard stockpile was removed on January 20, 1994, by Dillard Environmental Services and taken to BFI Landfill in Livermore, California. Documentation of soil removal are presented in Appendix G, Soil Removal Records.

8.0 DISCUSSION AND CONCLUSIONS

Borings B-16 through B-19 were drilled at selected locations to evaluate whether the current vapor extraction system at the site has been effective at removing residual gasoline hydrocarbon concentrations in the soil, to evaluate areas where previous borings indicated soil impacted by gasoline hydrocarbons, and to evaluate gasoline hydrocarbon concentrations

in an area where soil samples from the previous boring were not submitted for laboratory analysis. The following is a discussion of these confirmation borings.

Borings B-16 and B-17 were drilled in the area of existing monitoring well MW-9. Laboratory analytical results of soil samples collected during the installation of MW-9 in September 1989, indicated the presence of TPHg concentrations ranging from 9.3 ppm to 6,200 ppm between the depths of 5 and 40 feet (AGS, April 5, 1990). In addition, liquid-phase hydrocarbons and sheen were noted on the groundwater in well MW-9 in June 1990. The results of the current investigation indicate that gasoline hydrocarbon concentrations in the soil in the vicinity well MW-9 may have decreased. Analytical results of soil samples collected from borings B-16 and B-17 indicated the following: TPHg was not detected in boring B-16 at the MDL of 1.0 ppm, except for the presence of 1.1 ppm TPHg at a depth of 15 feet; and TPHg was not detected in boring B-17 at the MDL at depths of 4½ and 54½ feet. However, TPHg was detected in boring B-17 between the depths of 10 and 49½ feet at concentrations ranging from 8.7 ppm to 1,100 ppm. Therefore, it appears that residual gasoline hydrocarbon concentrations in the vicinity of well MW-9 have decreased since the well was installed.

Boring B-18 was drilled in the area of existing well MW-4, which was drilled and installed in April 1988. Because soil samples from well MW-4 were not submitted for laboratory analyses (AGS, April 22, 1988), boring B-18 was drilled and sampled for analyses to evaluate whether the soil in the vicinity of well MW-4 had been impacted by gasoline hydrocarbons. The results of the current investigation indicate that soil in the vicinity well MW-4 does not appear to have been impacted by gasoline hydrocarbons. Analytical results of soil samples collected from boring B-18 indicated TPHg was not detected at the MDL of 1 ppm.

Boring B-19 was drilled in the area of former monitoring well MW-2. When MW-2 was installed in 1988 (AGS, April 22, 1988), it appeared that soil in the vicinity of well MW-2 had not been impacted by gasoline hydrocarbons since laboratory analytical results of a soil sample collected indicated TPHg was not detected at the MDL of 2 ppm. However, 3 inches of liquid-phase hydrocarbons were present on the groundwater in well MW-2 during installation. Well MW-2 was destroyed approximately 3 months after it was installed because it was in the area of excavation for removal of the gasoline underground storage tanks (USTs). Therefore, it was not possible to adequately evaluate the presence of gasoline hydrocarbons in the groundwater at this location. The results of the current investigation indicate that soil in the vicinity well MW-2 does not appear to have been impacted by gasoline hydrocarbons since analytical results of soil samples collected from boring B-19 indicated TPHg was not detected at the MDL of 1 ppm.

Boring B-19 was also used as a confirmation boring in the vicinity of boring B-4, which was drilled and sampled in April 1988 (AGS, April 22, 1988). Laboratory analytical results of soils samples from B-4 indicated TPHg concentrations of 965 ppm at a depth of 20 feet and 3 ppm at a depth of 28 feet. Due to the canopy in the vicinity of boring B-4, locating a confirmation boring adjacent to boring B-4 was not possible. Therefore, B-19 was also used as a confirmation boring for B-4. As previously mentioned, analytical results of soil samples collected from B-19 indicated TPHg was not detected at the MDL of 1 ppm. Therefore, boring B-19 may not be an adequate data source for determining the impact of residual gasoline hydrocarbons in the vicinity of boring B-4.

In summary, laboratory results from soil samples collected from the confirmation borings drilled during the current investigation indicated the soil in the vicinity of former monitoring well MW-2 (boring B-19) and existing monitoring well MW-4 (boring B-18) has not been impacted by gasoline hydrocarbons. However, laboratory results from soil samples collected from the confirmation borings drilled in the vicinity of monitoring well MW-9 (borings B-16

and B-17) indicated the soil remains impacted by residual gasoline hydrocarbons. Although residual gasoline hydrocarbons remain in the soil, the soil vapor extraction system appears to have decreased concentrations near well MW-9. In addition, laboratory results from soil samples collected near boring B-4 are inconclusive because boring B-19 was not located adjacent to boring B-4. Therefore, it is not known whether soil in the vicinity of boring B-4 remains impacted by residual gasoline hydrocarbons.

9.0 LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental geological practice in California at the time this investigation was performed. This investigation was conducted solely for the purpose of evaluating the concentrations of gasoline hydrocarbons in the subsurface soil to evaluate the vapor extraction system hydrocarbon removal efficiency. No soil engineering or geotechnical references are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available. This report has been prepared solely for Exxon Company, U.S.A. and any reliance on this report by third parties shall be at such party's sole risk.

10.0 REFERENCES

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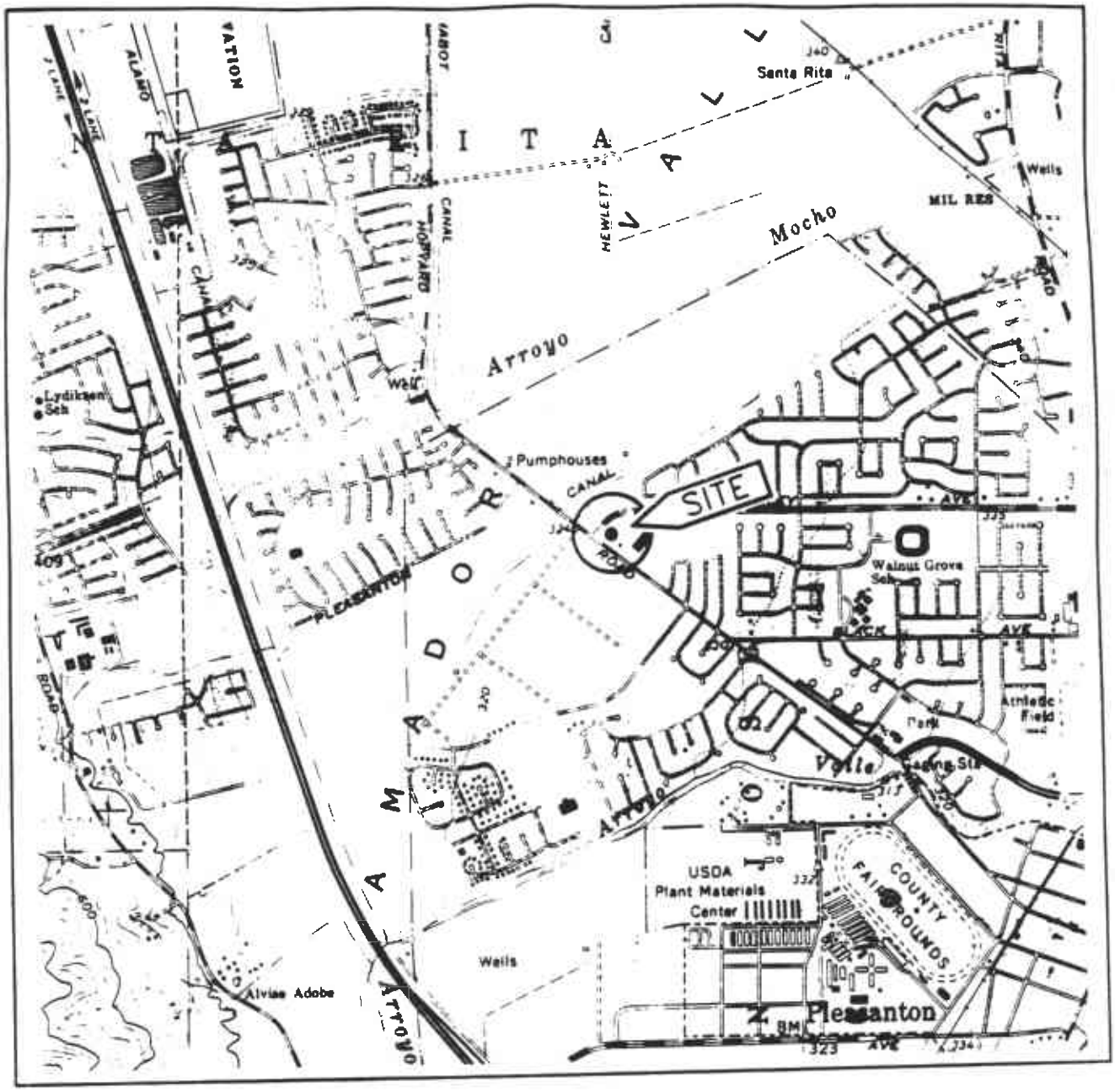
California Department of Health Services, October, 1990. Title 22, California Administrative Code, Section 64444.5.

RESNA Industries Inc. November 9, 1993. Work Plan for Interim Remediation Investigation at Exxon Station No. 7-3399, 2991 Hopyard Road, Pleasanton, California. 130009.

RESNA Industries Inc. November 16, 1993. Letter Report of Groundwater Monitoring and Remediation Activities, Third Quarter 1993 at Exxon Station No. 7-3399, 2991 Hopyard Road, Pleasanton, California. 130009.01.

RESNA Industries Inc. November 30, 1993. Site Safety Plan for Interim Remediation Investigation at Exxon Station No. 7-3399, 2991 Hopyard Road, Pleasanton, California. 130009.



Source: U.S. Geological Survey
7.5-Minute Quadrangle
Dublin, California
Photorevised 1980

N

Approximate Scale
2000 1000 0 2000
feet

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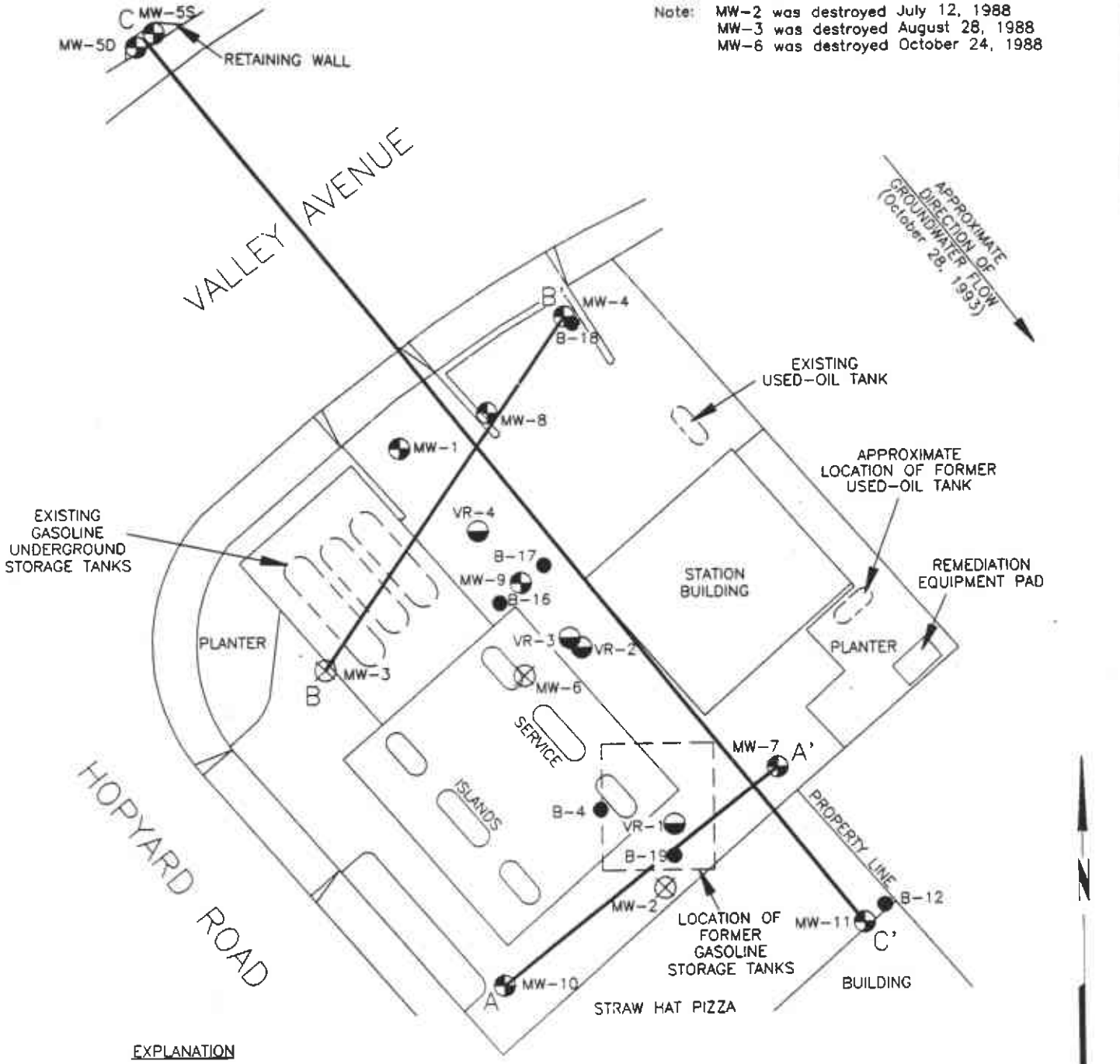
SITE VICINITY MAP
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
1



Source: Surveyed by Ron Archer, Civil Engineer, July 27, 1989
Revised January 5, 1994.

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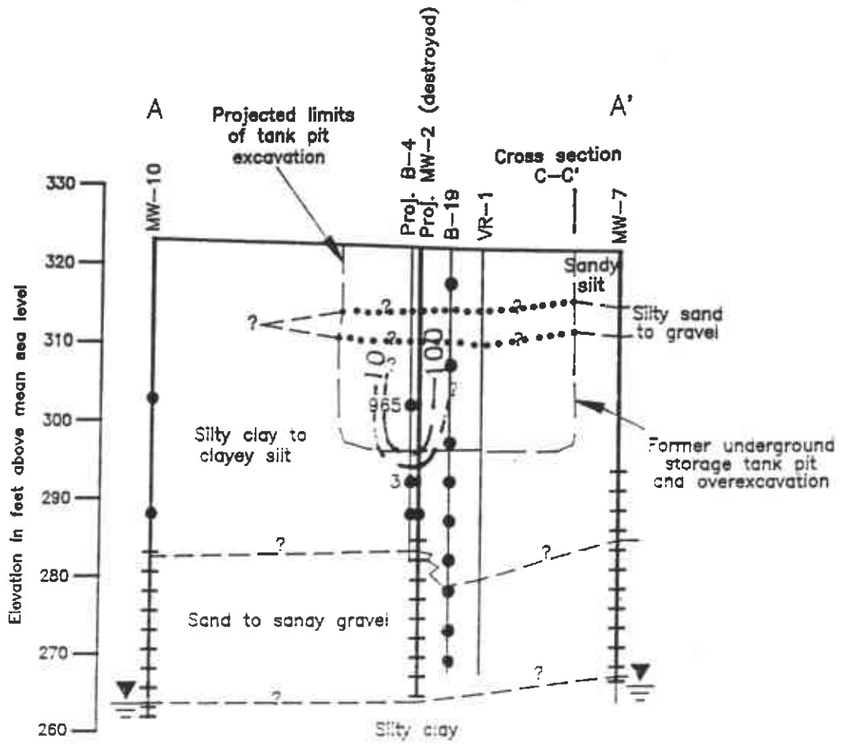
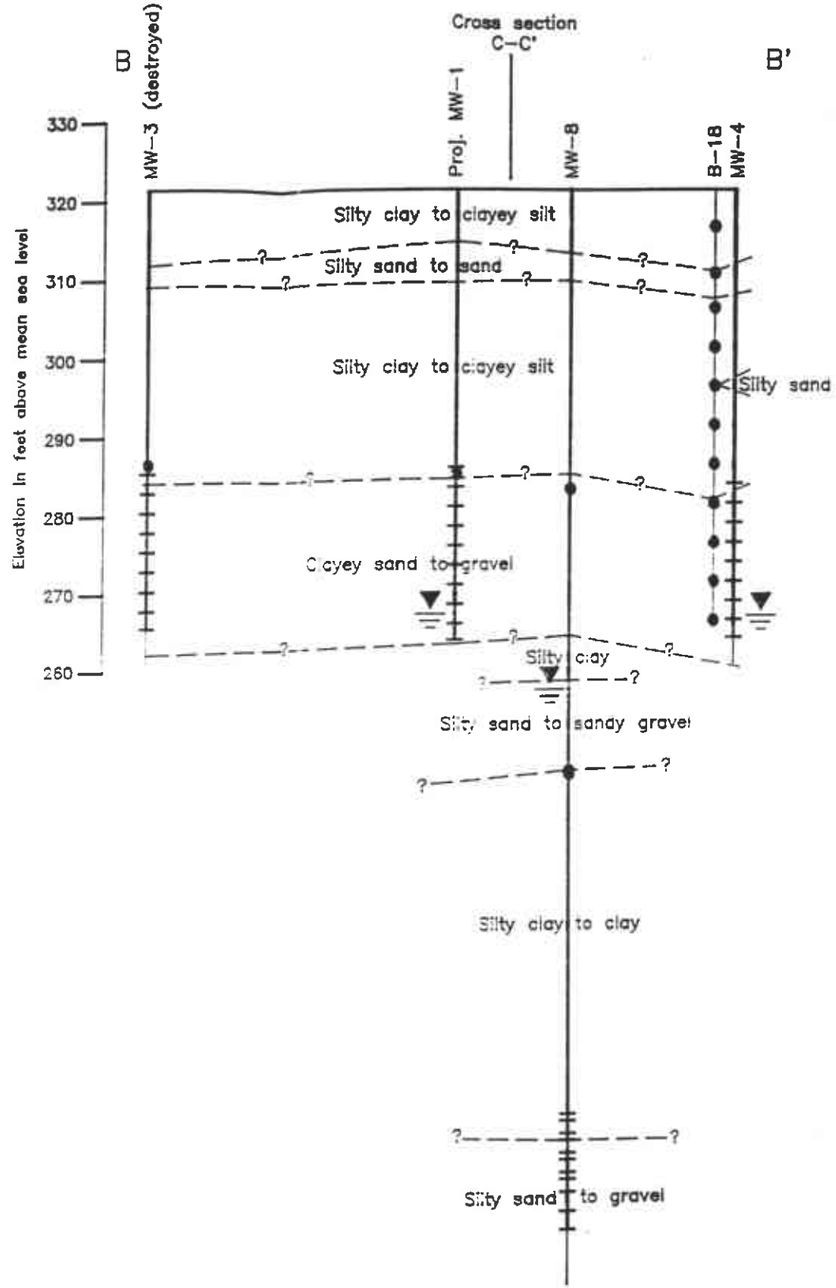
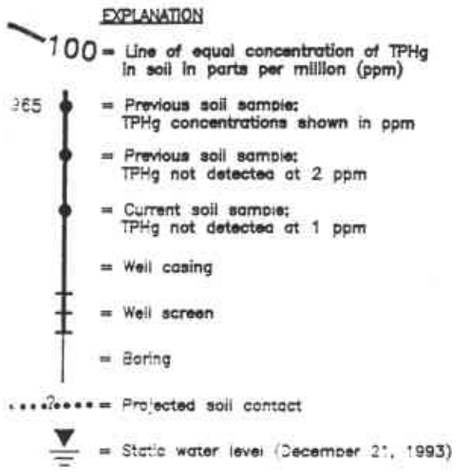
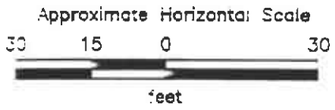
GENERALIZED SITE PLAN
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

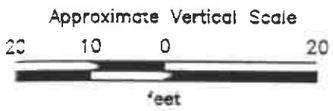
PLATE 2











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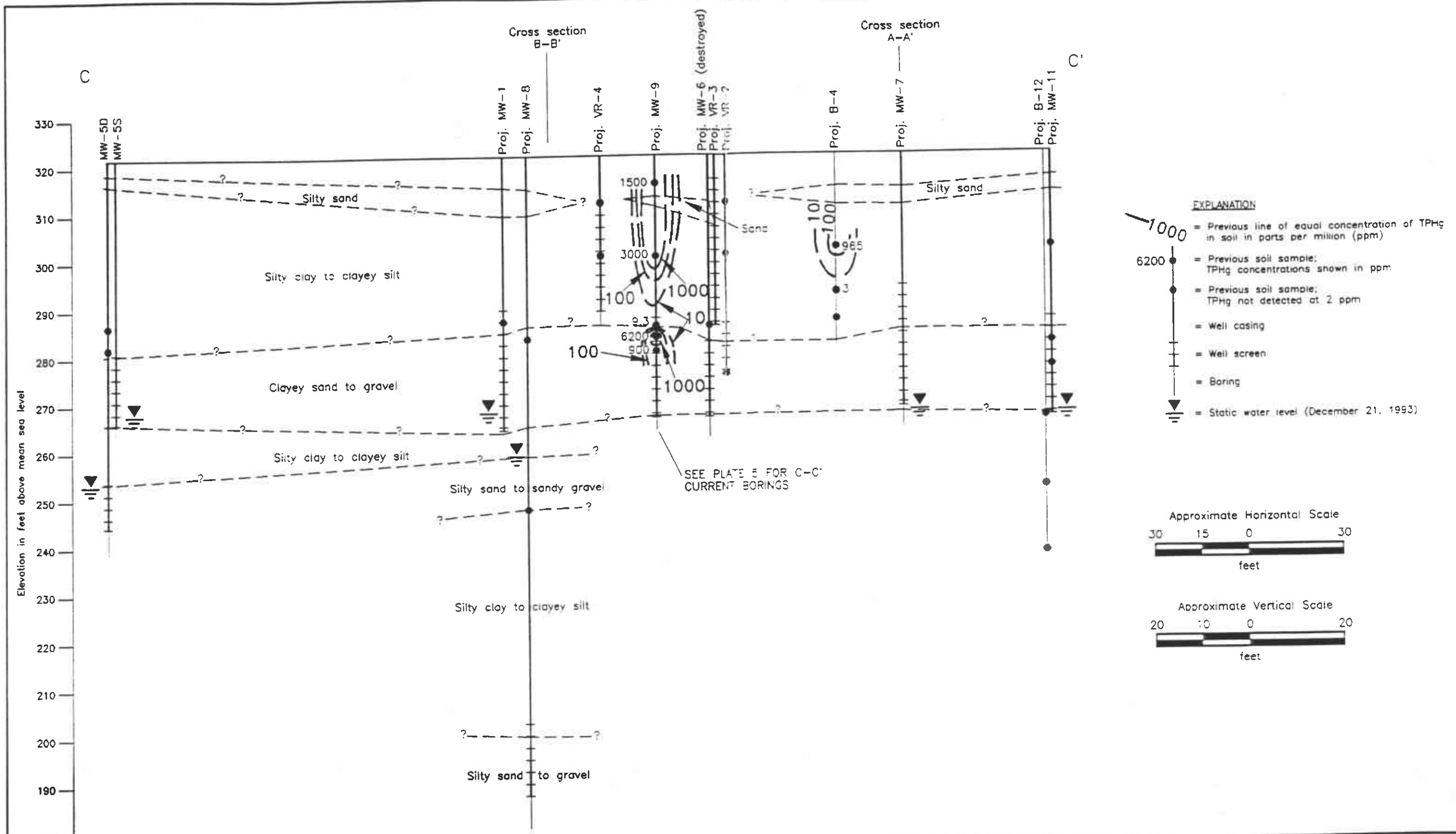
GEOLOGIC CROSS SECTIONS A-A' AND B-B'
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE 3



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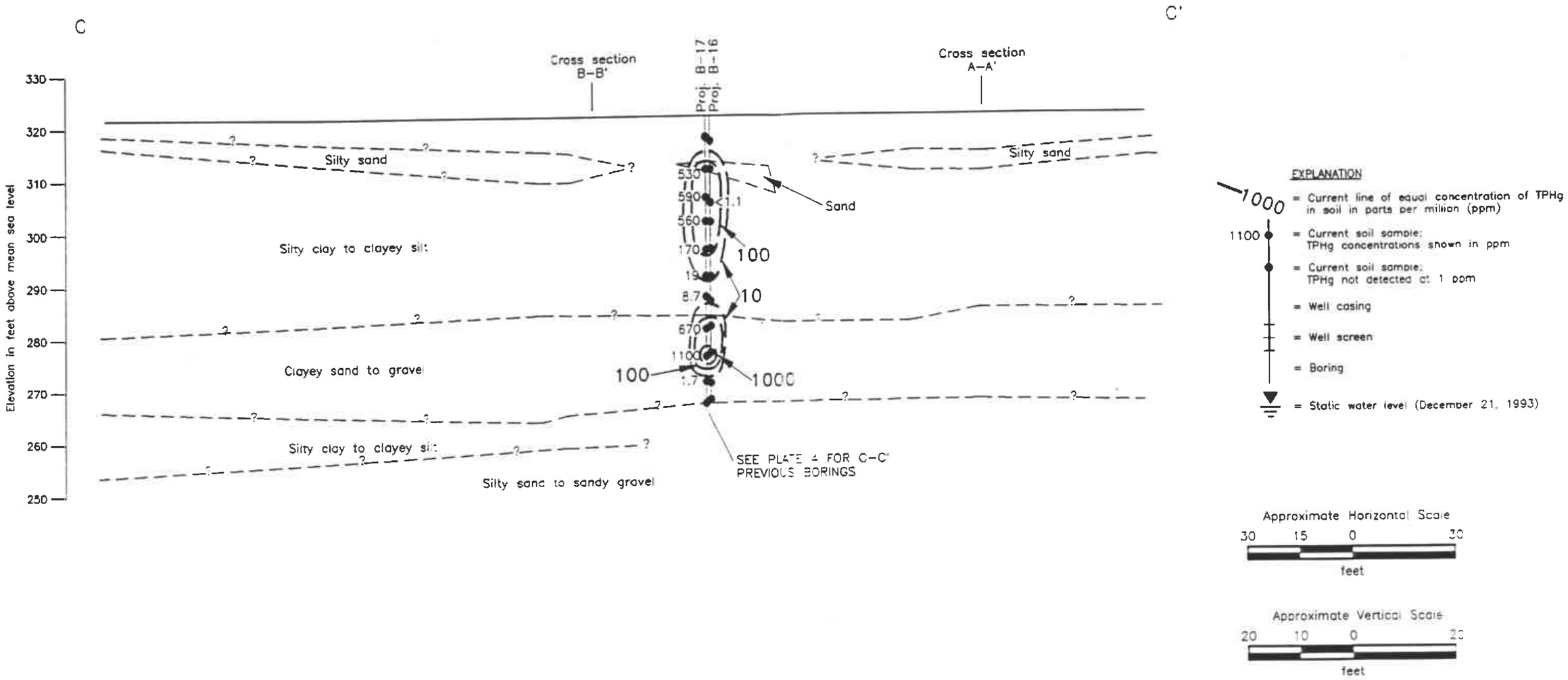
GEOLOGIC CROSS SECTION C-C' (Previous)
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
4



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GEOLOGIC CROSS SECTION C-C' (Current)
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE 5

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TABLE 1
RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES
Exxon Station 7-3399
Pleasanton, California
(Page 1 of 4)

	TPHg	B	T	E	X
	< ..... parts per million ..... >				
April 1988					
S-34½-B1 (MW-1)	<2.0	NA	NA	NA	NA
S-34½-B2 (MW-2)	<2.0	NA	NA	NA	NA
S-35-B3 (MW-3)	<2.0	NA	NA	NA	NA
S-19½-B4	965	NA	NA	NA	NA
S-29½-B4	3	NA	NA	NA	NA
S-34½-B4	<2.0	NA	NA	NA	NA
S-35-B5 (MW-5)	<2.0	NA	NA	NA	NA
S-40-B5 (MW-5)	<2.0	<0.050	<0.050	<0.050	<0.050
S-36-B6 (MW-6)	<2.0	<0.050	<0.050	<0.050	<0.050
1989					
S-38½-MW8	<2.0	<0.050	<0.050	<0.050	<0.050
S-74-MW8	<2.0	<0.050	<0.050	<0.050	<0.050
S-6-MW9	1500	4.9	40	26	150
S-21-MW9	3000	23	1230	51	240
S-36-MW9	9.3	0.89	0.37	0.16	0.40
S-38-MW9	6200	100	560	150	720
S-41-MW9	900	3.6	42	18	90
S-20-MW10	<2.0	<0.050	<0.050	<0.050	<0.050
S-35-MW10	<2.0	<0.050	<0.050	<0.050	<0.050
S-20-B11	<2.0	<0.050	<0.050	<0.050	0.087
S-40-B11	<2.0	<0.050	<0.050	<0.050	<0.050
S-45-B11	<2.0	<0.050	0.059	<0.050	<0.050

See notes on page 4 of 4.

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TABLE 1
RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES
Exxon Station 7-3399
Pleasanton, California
(Page 2 of 4)

	TPHg	B	T	E	X
	< ..... parts per million ..... >				
1989 (cont.)					
S-55-B12	<2.0	<0.050	<0.050	<0.050	0.060
S-70-B12	<2.0	<0.050	<0.050	<0.050	<0.050
S-84-B12	<2.0	<0.050	<0.050	<0.050	0.051
December 1993					
S-4½-B16	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-10-B16	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-15-B16	1.100	<0.0050	<0.0050	<0.0050	<0.0050
S-20-B16	<1.000	0.031	<0.0050	<0.0050	0.011
S-24½-B16	<1.000	0.0095	<0.0050	<0.0050	<0.0050
S-30-B16	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-35-B16	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-39½-B16	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-45-B16	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-50-B16	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-54-B16	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-4½-B17	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-10-B17	530.000	0.210	5.100	7.000	63.000
S-15-B17	590.000	14.000	42.000	19.000	80.000
S-19½-B17	560.000	5.100	28.000	16.000	70.000
S-24½-B17	170.000	2.300	12.000	5.400	26.000
S-30-B17	19.000	1.400	3.100	0.530	2.800
S-34½-B17	8.700	1.500	2.000	0.650	2.000
S-39½-B17	670.000	2.700	17.000	11.000	71.000
S-45-B17	1100	<0.050	0.200	0.530	6.700
S-49½-B17	1.700	<0.0050	0.013	0.0066	0.036
S-54½-B17	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-5-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-10-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-15-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-20-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050

See notes on page 4 of 4.

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TABLE 1
RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES
Exxon Station 7-3399
Pleasanton, California
(Page 3 of 4)

	TPHg	B	T	E	X
	< ..... parts per million ..... >				
December 1993 (cont.)					
S-25-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-30-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-35-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-39½-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-45-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-49½-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-54½-B18	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-5-B19	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-15-B19	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-25½-B19	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-30-B19	<1.000	0.094	0.027	0.038	0.072
S-35-B19	<1.000	0.057	<0.0050	0.044	0.0066
S-40-B19	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-44½-B19	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-49½-B19	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
S-53-B19	<1.000	<0.0050	<0.0050	<0.0050	<0.0050
SP-A+B+C+D	66.000	0.370	1.300	1.100	5.000
	7.5 pH, <0.5 ppm reactive cyanide, >60 °C flash point, <0.5 ppm reactive sulfide, <1.0 lead				

See notes on page 4 of 4.

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TABLE 1
RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES
Exxon Station 7-3399
Pleasanton, California
(Page 4 of 4)

<	:	Less than the laboratory detection limit.
NA	:	Not Analyzed.
TPHg	:	Total petroleum hydrocarbons as gasoline analyzed using modified EPA method 3550/8015.
B	:	Benzene.
T	:	Toluene.
E	:	Ethylbenzene.
X	:	total Xylene isomers.
BTEX	:	Analyzed using modified EPA methods 5030/8020.

Sample designation:

S-53-B19
- B19 — Boring number
- 53 — Sample depth in feet below the ground surface
- S — Soil sample

SP-A+B+C+D
- A+B+C+D — Stockpile Composite Sample

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TABLE 2
CUMULATIVE RESULTS OF INFLUENT AND EFFLUENT VAPOR SAMPLES
Exxon Station 7-3399
Pleasanton, California
(Page 1 of 1)

Date	Sample	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
11/30/90	influent	1800*	19*	21*	15*	52*
12/14/90	influent	1.4	<0.0001	0.0005	0.0003	0.0008
12/17/90	influent	0.20	0.0024	0.016	0.0010	0.0026
	effluent	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
12/28/90	influent	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
	effluent	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
01/04/91	influent	0.94	0.013	0.0005	0.0006	0.0015
01/14/91	influent	1.2	0.0023	0.0013	0.0009	0.0039
01/28/91	influent	0.96	0.028	0.0008	0.0005	0.0005
02/28/91			System Inoperative			
03/18/91	influent	0.91	0.0037	0.0015	0.0018	0.0091
04/22/91			System Inoperative			
05/03/91	influent	0.62	<0.0005	<0.0005	<0.0005	0.0009
06/20/91	influent	0.49	0.026	0.041	0.0089	0.050
10/12/92	influent	97*	<0.5*	0.7*	<0.5*	0.7*
	between canisters	<50*	<0.5*	<0.5*	<0.5*	1.0*
	effluent	<50*	<0.5*	<0.5*	<0.5*	0.7*
09/15/93	influent	<50**	<0.5**	2.3**	1.2**	3.7**
	effluent	<50**	<0.5**	2.7**	1.0**	3.1**
	VR-1	<50**	<0.5**	3.8**	1.2**	4.0**
	VR-1 + VR-2	<50**	<0.5**	1.3**	1.2**	4.0**
	VR-1 + VR-3	<50**	<0.5**	2.0**	0.8**	2.1**
	VR-1 + VR-4	<50**	<0.5**	2.1**	1.1**	3.3**
	VR-1 + MW-1	<50**	<0.5**	1.6**	1.3**	4.1**

Notes:
Results are in parts per million per volume (ppmv)

<	:	Less than the method detection limit.
TPHg	:	total petroleum hydrocarbons as gasoline analyzed by modified EPA method 5030/8015.
*	:	Results in milligrams per cubic meter (mg/m^3).
**	:	Results in micrograms per liter (μ/L).
VR-1	:	Vapor extraction well 1.
VR-2	:	Vapor extraction well 2.
VR-3	:	Vapor extraction well 3.
VR-4	:	Vapor extraction well 4.
MW-1	:	Groundwater monitoring well 1.

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APPENDIX A

FIELD PROTOCOL

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FIELD PROTOCOL

The following presents RESNA Industries' field protocol for a typical site investigation involving gasoline hydrocarbon-impacted soil and/or groundwater.

Site Safety Plan

The Site Safety Plan describes the safety requirements for the evaluation of gasoline hydrocarbons in soil, groundwater, and the vadose-zone at the site. The site Safety Plan is applicable to personnel of RESNA Industries and its subcontractors. RESNA Industries personnel and subcontractors of RESNA Industries scheduled to perform the work at the site are briefed on the contents of the Site Safety Plan before work begins. A copy of the Site Safety Plan is available for reference by appropriate parties during the work. A site Safety Officer is assigned to the project.

Sampling of Stockpiled Soil

One composite soil sample is collected for each 50 cubic yards of stockpiled soil, and for each individual stockpile composed of less than 50 cubic yards. Composite soil samples are obtained by first evaluating relatively high, average, and low areas of hydrocarbon concentration by digging approximately one to two feet into the stockpile and placing the intake probe of a field calibrated OVM against the surface of the soil; and then collecting one sample from the "high" reading area, and three samples from the "average" areas. Field instruments such as the OVM are useful for measuring relative concentrations of vapor content, but cannot be used to measure levels of gasoline hydrocarbons with the accuracy of laboratory analysis. Samples are collected by removing the top one to two feet of soil, then driving laboratory-cleaned brass sleeves into the soil. The samples are sealed in the sleeves using aluminum foil, plastic caps, and plastic zip-lock bags or aluminized duct tape; labeled; and promptly placed in iced storage for transport to the laboratory, where compositing is performed.

Soil Borings

Prior to the drilling of borings and construction of monitoring wells, permits are acquired from the appropriate regulatory agency. In addition to the above-mentioned permits, encroachment permits from the City or State are acquired if drilling of borings offsite on City or State property is necessary. Copies of the permits are included in the appendix of the project report. Prior to drilling, Underground Service Alert (USA) is notified of our intent to drill, and known underground utility lines and structures are approximately marked.

The borings are drilled by a truck-mounted drill rig equipped with 8- or 10-inch-diameter, solid-stem or hollow-stem augers. Other methods such as rotary or casing hammer may be used if special conditions are encountered. The augers, sampling equipment and other equipment that comes into contact with the soil are steam-cleaned prior to drilling each boring to minimize the possibility of cross-contamination. Sampling equipment is cleaned with a trisodium phosphate solution and rinsed with clean water between samples. After drilling the borings, monitoring wells are constructed in the borings, or neat-cement grout with bentonite is used to backfill the borings to the ground surface.

Borings for groundwater monitoring wells are drilled to a depth of no more than 20 feet below the depth at which a saturated zone is first encountered, or a short distance into a stratum beneath the saturated zone which is of sufficient texture, moisture, and consistency to be judged as a perching layer by the field geologist, whichever is shallower. Drilling into a deeper aquifer below the shallowest aquifer is begun only after a conductor casing is properly installed and allowed to set, to seal the shallow aquifer.

Drill Cuttings

Drill cuttings subjectively evaluated as containing gasoline hydrocarbons at levels greater than 100 parts per million (ppm) are separated from those subjectively evaluated as containing gasoline hydrocarbons at levels less than 100 ppm. Evaluation is based either on subjective evidence of soil discoloration, or on measurements made using a field calibrated OVM. Readings are taken by placing a soil sample into a ziplock-type plastic bag and allowing volatilization to occur. The intake probe of the OVM is then inserted into the headspace created in the plastic bag immediately after opening it. The drill cuttings from the borings are placed in labeled 55-gallon drums approved by the Department of Transportation, or on plastic at the site, and covered with plastic. The cuttings remain the responsibility of the client.

Soil Sampling in Borings

Soil samples are collected at no greater than 5-foot intervals from the ground surface to the total depth of the borings. The soil samples are collected by advancing the boring to a point immediately above the sampling depth, and then driving a California-modified, split-spoon sampler containing brass sleeves through the hollow center of the auger into the soil. (A standard penetrometer, which does not contain liners, may be used to collect samples when laboratory analysis for volatile components is not an issue. The sampler and brass sleeves are laboratory-cleaned, steam-cleaned, or washed thoroughly with Alconox® and water, prior to each use. The sampler is driven with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows to drive the sampler each successive six inches are counted and recorded to evaluate the relative consistency of the soil. When necessary, the sampler

may be pushed by the drill rig hydraulics. In this case, the pressure exerted (in pounds per square inch) is recorded.

The samples selected for laboratory analysis are removed from the sampler and quickly sealed in their brass sleeves with aluminum foil, plastic caps, and plastic zip-lock bags or aluminized duct tape. The samples are then labeled, promptly placed in iced storage, and delivered to a laboratory certified by the State of California to perform the analyses requested.

One of the samples in brass sleeves not selected for laboratory analysis at each sampling interval is tested in the field using an OVM that is field calibrated at the beginning of each day it is used. This testing is performed by inserting the intake probe of the OVM into the headspace in the plastic bag containing the soil sample as described in the Drill Cuttings section above. The OVM readings are presented in Logs of Borings included in the project report.

Logging of Borings

A geologist is present to log the soil cuttings and samples using the Unified Soil Classification System. Samples not selected for chemical analysis, and the soil in the sampler shoe, are extruded in the field for inspection. Logs include texture, color, moisture, plasticity, consistency, blow counts, and any other characteristics noted. Logs also include subjective evidence for the presence of gasoline hydrocarbons, such as soil staining, noticeable or obvious product odor, and OVM readings.

Sample Labeling and Handling

Sample containers are labeled in the field with the job number, unique sample location, depth, and date, and promptly placed in iced storage for transport to the laboratory. A Chain of Custody Record is initiated by the field geologist and updated throughout handling of the samples, and accompanies the samples to a laboratory certified by the State of California for the analyses requested. Samples are transported to the laboratory promptly to help ensure that recommended sample holding times are not exceeded. Samples are properly disposed of after their useful life has expired.

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APPENDIX B

PREVIOUS ENVIRONMENTAL WORK

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PREVIOUS ENVIRONMENTAL WORK

Well Installation

Applied GeoSystems (AGS) performed an initial investigation that included installing groundwater monitoring wells MW-1 through MW-4, drilling boring B-4, performing a soil vapor survey, sampling groundwater, and removing liquid-phase hydrocarbons (AGS, April 22, 1988). Approximately 3 inches of liquid-phase petroleum hydrocarbons were present in well MW-2 when it was installed on April 2, 1988. A product skimmer-pump that removes product from the well was installed between April 7 and June 1, 1988. Approximately 55 gallons of product were skimmed from the water in well MW-2 during this time. Minor amounts of product were bailed from well MW-2 between June 1 and June 17, 1988. An additional boring (B-4) was drilled adjacent to the tank where the gasoline release occurred. Boring B-4 was drilled to a depth of 40 feet deep to evaluate gasoline hydrocarbons in the soil beneath the reported release point. Soil samples from depths of 19½, 29½, and 34½ feet were submitted for laboratory analysis for total petroleum hydrocarbons as gasoline (TPHg). The results indicated TPHg concentrations of 965 parts per million (ppm), 3 ppm, and less than 2 ppm, at the respective depths. A soil vapor survey was performed on April 7 and 14, 1988, which included testing soil vapor concentrations from 17 points on the site at depths of 10, 20, and 33 feet. Vapor concentrations greater than 1,000 ppm benzene and toluene were found only at 10 feet near the former tank pit. Vapor concentrations between 242 and 614 ppm were found at 10 feet near former product lines.

A second subsurface investigation (AGS, July 15, 1988; August 17, 1988) was performed which included installing groundwater monitoring wells MW-5s, MW-5d, MW-6, and recovery well MW-7, conducting two pumping tests, sampling groundwater, and commencing groundwater extraction.

AGS collected unsaturated soil samples for laboratory testing when the borings were being drilled for groundwater monitoring wells MW-1 through MW-6. One soil sample from each boring, collected within the depth interval between 34½ and 40 feet, was submitted for testing for TPHg. Concentrations of TPHg were not detected. Soil samples were not taken during drilling of well MW-7.

Vapor recovery well VR-1 was installed in the former tank pit (AGS, October 10, 1988). The boring was drilled to a depth of approximately 30 feet (the depth to the base of the excavated pit). The vapor recovery well was constructed of 4-inch-diameter, Schedule 40 PVC casing. The 0.020-slotted casing was set from 30 feet to 10 feet below the ground surface.

During September and October 1989, AGS drilled five borings (B-8 through B-12) and installed four groundwater monitoring wells (MW-8 through MW-11) (AGS, April 5, 1990). Well MW-8 was installed to monitor the aquifer that is present at the top of the slotted casing (approximately 120 feet below ground surface) of the City of Pleasanton Municipal Well No. 7. The boring for this double-cased well was drilled to a depth of approximately 140 feet. The well was constructed using 8-inch-diameter steel conductor casing from 2 to 93 feet below ground surface, and 4-inch-diameter slotted PVC casing from the total depth of the well at 133 feet to 118 feet. On October 11, 1989, recovery well MW-7 was drilled out and replaced with a 5-inch-diameter well to accommodate downhole equipment and water level measurements.

AGS observed the drilling and installation of three vapor recovery wells (VR-2 through VR-4) on November 20 and 21, 1989 (AGS, April 5, 1990). The wells were drilled to delineate the extent and concentrations of hydrocarbons found when installing groundwater monitoring well MW-9.

Pumping Tests

Two pumping tests were performed in June 1988 (AGS, July 15, 1988). The first test (June 23 through 24, 1988) involved pumping water from well MW-2 for over 21 hours and monitoring the water levels in wells MW-1, MW-3 through MW-6, and Municipal Well No. 7, located approximately 275 feet northwest of the subject site. On the first day of the test, liquid-phase hydrocarbons were measured in well MW-2 at a thickness of 1½ inches. No liquid-phase hydrocarbons were found in any other wells. The drawdown in Municipal Well No. 7 during the pumping test did not correspond to the drawdown in the shallow observation wells. The reason for the difference in drawdown was most likely due to isolation from deeper aquifer(s) from which water is drawn by Municipal Well No. 7. The radius of influence of pumping from well MW-2 was approximately 680 feet. Approximately 2 weeks after the pumping test, a slight sheen on the water in well MW-2 was noted.

The second test (June 28 through 29, 1988) involved pumping from Municipal Well No. 7 for slightly more than 29 hours while monitoring water levels in wells MW-1 through MW-6. The resulting water level fluctuations in the wells, which coincided among the six wells, were probably related to changes in the barometric pressure during the day and night and not related to pumping from Municipal Well No. 7. This information supported data from the first pump test indicating that the two uppermost aquifers were not hydraulically connected to the deeper aquifers penetrated by Municipal Well No. 7.

Groundwater Treatment System

A groundwater treatment system was installed in June 1988 to treat groundwater pumped from well MW-2 (AGS, August 17, 1988). Approximately 25,550 gallons were pumped, treated, and discharged to the sanitary sewer. The initial treatment system included an oil/water separator followed by two 1,000-pound carbon canisters placed in series. When well MW-2 was destroyed on July 12, 1988, the treatment system was relocated to pump from recovery well MW-7.

Pumping from well MW-7 began on July 14, 1988, and continued until September 1, 1988. Groundwater was pumped at approximately 20 gallons per minute (gpm) during operation for a total of approximately 975,000 gallons. Groundwater was discharged to the sewer under Wastewater Discharge Permit No. 5541-001 issued by the Dublin-San Ramon Services District (DSRSD) (AGS, July 15, 1988; August 17, 1988). The DSRSD extended the term of the permit through September 30, 1989, with revised conditions allowing the carbon filtration system to be removed and a maximum TPHg concentration of 15 ppm to be discharged.

The groundwater treatment system was shut down on September 1, 1988, disassembled on October 17, 1988, and moved offsite to avoid damage when the site was graded. Trenches were excavated and groundwater discharge and electrical lines were installed on December 16, 1988. L & L Construction of Antioch, California, installed the groundwater remediation system on the approximately 14-foot-square concrete pad between January 25 and 27, 1989. Pumping groundwater resumed on February 9, 1989.

The groundwater recovery system included a 5-horsepower, 3½ inch-diameter submersible pump (capacity rating of approximately 60 gallons per minute), which was suspended in recovery well MW-7. Groundwater was directed through a 2-inch-diameter polyvinyl chloride (PVC) line into a 250-gallon oil-water separator tank and then drained into the sewer system by gravity feed. An in-line orifice, a flowmeter, and a sampling valve were installed upstream of the separator tank. Electrical power was supplied by a line from the service station building. The pump was operated by a control panel that included a low water level shutoff sensor to the pump and a high water level shutoff sensor to the separator tank.

Based on flowmeter readings, the average pumping rate from February 9 through June 3, 1989, was approximately 24.4 gallons per minute, for a total quantity pumped of approximately 4.12 million gallons. Between June 30 and August 31, 1989, approximately 2.21 million gallons were pumped at an approximate pumping rate of 24 gpm. A total of approximately 7.33 million gallons of groundwater were pumped during the pumping test in 1988 (25,000 gallons), groundwater remediation in 1988 (975,000 gallons), and

groundwater remediation through August 1989 (6.33 million gallons). During this time, hydrocarbon concentrations in the extracted groundwater decreased to near or within drinking water standards (AGS, August 28, 1989; August 29, 1989). A ½ horsepower, 3½-inch-diameter submersible pump was installed in well MW-7, and groundwater recovery was resumed on October 30, 1989. Between October 30, 1989, and January 22, 1990, approximately 31,950 gallons of water were recovered from well MW-7 with an average pumping rate of 0.5 gallons per minute.

Between January 22 and June 11, 1990, an estimated 100,400 gallons of groundwater were recovered from well MW-7. Operation of the groundwater remediation system was discontinued on June 11, 1990, due to declining groundwater levels. As a result of the drought, the water levels remained low and the treatment system remained inoperative. In July 1993, at the request of DSRSD, a temporary cap was installed at the discharge point.

Underground Storage Tank Removal and Backfilling

Between July 15 and 29, 1988, three former gasoline underground storage tanks (USTs) and one used-oil UST were removed and the gasoline USTs pit was overexcavated to remove soil impacted by gasoline hydrocarbons (AGS, August 22, 1988). Approximately 1,900 cubic yards of soil were excavated. The work was performed as part of Exxon's planned reconstruction of station facilities and to attempt to remove soil that might be a future source of gasoline hydrocarbons. Well MW-2 was destroyed on July 12, 1988, because it was located in the planned excavation area (AGS, August 17, 1988).

The gasoline UST pit was excavated to a depth of approximately 31 feet below grade and overexcavated in an 8-foot by 8-foot section in the western part of the pit (beneath the tank where the gasoline release occurred) to a depth of 39 feet. An organic vapor meter (OVM) was used during excavation to monitor relative hydrocarbon vapor concentrations. The OVM readings of soil were several hundred ppm to a depth of approximately 18 feet, greater than 1,000 ppm between 18 and 21 feet, from 100 to 1,000 ppm between 21 and 27 feet, and 10 to 20 ppm from 27 feet to the bottom of the excavation.

The soil from depths between 18 and 21 feet below grade was discolored. This zone of impacted soil coincides with the soil sampled from 19½ feet in boring B-4 (drilled adjacent to the point of the product release), with a TPHg concentration of 965 ppm. No discolored soil was found below 21 feet deep and laboratory analyses of soil from the bottom of the excavation showed no detectable concentrations of TPHg.

In August 1988, the former gasoline UST pit was backfilled with pea gravel. The pea gravel was placed from total depth to approximately 12 feet below grade. The new tank pit was excavated near the western corner of the station property. Soil excavated from the new tank

pit was used to backfill the upper 12 feet of the former tank pit (AGS, October 10, 1988). Vapor recovery well VR-1 was installed in the former tank pit to recover residual gasoline hydrocarbons that remained in the unsaturated soil.

Well MW-3 was destroyed on August 29, 1988, because the new underground gasoline-storage tank pit would encompass the area of the well. Well MW-6 was destroyed on October 24, 1988, because this well was located where the footing of the new dispenser island canopy was to be constructed.

Vapor Extraction Tests

Vapor recovery well VR-2 was used for two vapor extraction tests on December 14 and 15, 1989 (AGS, April 5, 1990). A 100 cubic feet per minute (cfm), 7½ horsepower vacuum pump capable of developing 12 inches of mercury vacuum was used to pump the well for approximately 9 hours each day. Before being vented to the atmosphere, the extracted vapors were passed through two 150-pound carbon canisters in series. The laboratory analyses of the influent vapor samples indicated concentrations of TPHg ranging from 1,880 parts per million per volume (ppmv) to 4,600 ppmv. Neither a downward, nor upward, trend in TPHg concentrations was recorded during the tests.

Vapor Extraction System

The Bay Area Air Quality Management District (BAAQMD) issued an Authority to Construct (Application No. 2821) a vapor extraction system by letter of July 20, 1989. L & L Construction installed the components of the system between July 5 and 31, 1989. The vapor extraction system consisted of 4-inch-diameter vapor recovery well VR-1; 4-inch-diameter PVC discharge piping from the well to the remediation equipment pad; a liquid-ring vacuum pump with an air-liquid separator; a flame-ionization hydrocarbon analyzer; and two 200-pound activated carbon canisters arranged in series. The liquid-ring vacuum pump was 5 horsepower and capable of generating a vacuum of up to 28 inches of mercury at 75 cfm. Water was cycled from the oil-water separator tank (groundwater remediation system) to provide the sealing action between the pump rotor and housing. The extracted vapor was passed through a knockout drum (air-water separator) that removed moisture picked up from the soil and liquid-ring pump. The dry vapor then was passed through the activated carbon drums, which are designed to remove hydrocarbons with a calculated efficiency of 99.68 percent.

Three vapor sample valves were installed in the system. One valve was upstream of the vacuum pump, one valve was at the inlet to the first carbon unit, and one valve was at the outlet of the first carbon unit. Treated vapors were vented from the second carbon canister. The flame-ionization hydrocarbon analyzer continuously monitored vapor influent to and

effluent from the first activated carbon canister. The analyzer was connected to the effluent line from the first carbon canister and was designed to automatically shut down the vacuum pump when hydrocarbons in vapor exiting the first carbon unit exceed 6 ppm (i.e., breakthrough).

The vapor extraction system started on August 7, 1989, and on August 22, 1989, breakthrough was noted in the second carbon canister. Between August 7 and 22, influent hydrocarbon concentrations decreased from 2,274 ppm to 293 ppm. Concentrations of TPHg decreased approximately 87 percent between August 7 and 15 and showed no decrease between August 15 and 22, 1989. Vapor extraction resumed on September 11, 1989, after two new carbon canisters were installed. The system continued until September 15, 1989, when breakthrough occurred in the second series of carbon canisters. The system was shut down on September 15, 1989. On September 25, 1989, the system was modified so the vacuum pump was downstream of the carbon canisters. In addition, since there was not sufficient cooling water being pumped from recovery well MW-7, an alternate water source and associated piping was installed on October 25, 1989. Operation of the vapor extraction system resumed on January 11, 1990.

A 100 cfm vacuum pump and catalytic oxidizer were installed at the site in November 1990. The vacuum system was connected to six wells: VR-1, installed in the former UST backfill; wells VR-2, MW-1, and MW-9, installed in the uppermost aquifer; and wells VR-3 and VR-4, installed in the silty clay overlying the uppermost aquifer. The vapor extraction system was permitted by the BAAQMD under Authority to Construct No. 5125, dated August 2, 1990, and permit to operate, dated January 4, 1991 [RESNA (formerly AGS), July 20, 1992]. Between November 30 and December 28, 1990, the six vapor extraction wells were set in an open mode for venting during an initial period of system adjustment and influent vapor sampling (AGS, January 16, 1991). The laboratory results of the influent vapor samples show decreasing concentrations of TPHg and benzene, toluene, ethylbenzene, and total xylenes (BTEX). On December 28, 1990, the vapor wells in the silty clay (VR-3 and VR-4) were closed, while vapor wells in the uppermost aquifer (VR-1, VR-2, MW-1, and MW-9) were opened. On January 4, 1991, laboratory results of influent vapor samples indicated TPHg concentrations of 0.94 ppm and BTEX concentrations ranging from 0.0005 ppm to 0.013 ppm. On January 4, 1991, the vapor wells in the silty clay were opened and the vapor wells in the uppermost aquifer were closed. On January 14, 1991, laboratory results of influent vapor samples indicated a TPHg concentration of 1.2 ppm and BTEX concentrations ranging from 0.0009 ppm to 0.0039 ppm.

The catalytic oxidizer unit was shut down on July 24, 1991, and the system underwent modification to an activated carbon abatement system on March 10, 1992 (RESNA, May 4, 1992). The carbon system has two 200-pound vapor phase carbon canisters, and an additional 200-pound vapor phase carbon canister was requested by BAAQMD to replace

the catalytic oxidizer as the abatement device. The carbon system was started on October 12, 1992, and monitored with a photoionization detector (PID) on a daily basis (RESNA, February 1, 1993). The monitoring frequency changed to weekly on December 1, 1992, bi-weekly on March 4, 1993, and monthly on October 13, 1993. On December 29, 1993, the soil-vapor extraction system was shut-down for evaluation.

Liquid-Phase Hydrocarbon Removal

Between November 28 and December 7, 1989, approximately 1 to 2 gallons of liquid-phase hydrocarbons were removed from well MW-9 (AGS, April 5, 1990).

Quarterly Groundwater Monitoring and Sampling

Since April 1988, quarterly groundwater monitoring and sampling has been performed at the subject site by AGS and RESNA.

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APPENDIX C

DRILLING PERMIT

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94566 • (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT
2991 Hopyard Rd.
Pleasanton, CA 94566

(2) CLIENT
Name Exxon Company USA, PO Box 4037
Address 2300 Clayton Rd Phone (510) 246-8736
City Concord Zip 94520

(3) APPLICANT
Name RESNA Industries Inc
3315 Almaden Expressway
Address Suite 39 Phone (408) 264-7723
City San Jose Zip 95118

(4) DESCRIPTION OF PROJECT
Water Well Construction ___ Geotechnical X
Cathodic Protection ___ Well Destruction ___

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring ___ Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

WELL PROJECTS
Drill Hole Diameter ___ in. Depth(s) ___ ft.
Casing Diameter ___ in. Number
Surface Seal Depth ___ ft. of Wells ___
Driller's License No. 484288

GEOTECHNICAL PROJECTS
Number 4
Diameter 4 in. Maximum Depth 55 ft.

(7) ESTIMATED STARTING DATE 11/19/93
ESTIMATED COMPLETION DATE 11/19/93

(8) I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S [illegible]

FOR OFFICE USE

PERMIT NUMBER 93649
LOCATION NUMBER

Approved Wyman Hong Date 18 Nov 93
Wyman Hong

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
(1.) A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Notify this office (484-2600) at least one day prior to starting work on permitted work and before placing well seals.
(3.) Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or bore hole logs and location sketch for geotechnical projects. Permitted work is completed when the last surface seal is placed or the last boring is completed.
4. Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie, or equivalent.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic, irrigation, and monitoring wells unless a lesser depth is specially approved.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie, or equivalent.

E. WELL DESTRUCTION. See attached.

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APPENDIX D

UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL KEY AND LOGS OF BORINGS

UNIFIED SOIL CLASSIFICATION SYSTEM AND KEY TO BORING LOGS

MAJOR DIVISION		LTR	DESCRIPTION
COARSE-GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel-sand mixtures, little or no fines.
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines.
		GM	Silty gravels, gravel-sand-silt mixtures.
		GC	Clayey gravel, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS	SW	Well-graded sand or gravelly sands, little or no fines.
		SP	Poorly-graded sands or gravelly sands, little or no fines.
		SM	Silty sands, sand-silt mixtures.
		SC	Clayey sands, sand-clay mixtures.

MAJOR DIVISION		LTR	DESCRIPTION
FINE-GRAINED SOILS	SILTS AND CLAYS LL<50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity.
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		OL	Organic silts and organic silt-clays of low plasticity.
	SILTS AND CLAYS LL>50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH	Inorganic clays of high plasticity, fat clays.
		OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils.

Depth through which sampler is driven

Relatively undisturbed sample

No sample recovered

Static water level observed in well/boring

Initial water level observed in boring

S-10 Sample number

Sand pack

Bentonite

Neat cement

Caved native soil

Blank PVC

Machine-slotted PVC

P.I.D. Photoionization detector

Stratigraphic contact

Gradational contact

Inferred contact

OR Over range

NS No sample for P.I.D. reading

BLOWS REPRESENT THE NUMBER OF BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES TO DRIVE THE SAMPLER THROUGH EACH 6 INCHES OF AN 18-INCH PENETRATION.

GRADATIONAL AND INFERRED CONTACT LINES SEPARATING UNITS ON THE LOG REPRESENT APPROXIMATE BOUNDARIES ONLY. ACTUAL BOUNDARIES MAY BE GRADUAL. LOGS REPRESENT SUBSURFACE CONDITIONS AT THE BORING LOCATION AT THE TIME OF DRILLING ONLY.

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PROJECT 130009.04

UNIFIED SOIL CLASSIFICATION SYSTEM
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE D1

Total depth of boring:	54-1/2 feet	Casing diameter:	NA
Diameter of boring:	6 inches	Casing material:	NA
Date drilled:	12-2-93	Slot size:	NA
Drilling Company:	Exploration Geoservices, Inc.	Sand size:	NA
Driller:	John Collins	Screen Interval:	NA
Drilling method:	Hollow-Stem Auger	Field Geologist:	Jeanne Buckthal

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: CA

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
					Concrete (6 inches).	
			2	ML	Clayey silt, dark brown, damp, low plasticity, hard.	
0	S-4.5	39 40	4			
			6			
			8	SP	Sand, fine-grained, brown, damp, dense.	
0	S-10	13 18 29	10	CL	Silty clay, brown, damp, low plasticity, hard.	
			12			
0	S-15	13 17 25	14		Greenish-gray; slight hydrocarbon odor, some charcoal, few roots.	
			16			
			18			
213.1	S-20	10 12 24	20		Dark greenish-gray; strong hydrocarbon odor, few vertical roots.	
			22			
OR	S-24.5	15 18 25	24		With brown mottling; vertical fine-grained sand stringer, strong hydrocarbon/diesel (?) odor.	
			26			
			28			
OR	S-30	17 26 32	30		Strong hydrocarbon odor.	
			32			
OR	S-35	17 22 40	34			
			36			
			38	SP	Sand, fine- to medium-grained, brown, damp, very dense; unidentified odor.	
244	S-39.5	28 50/4"	40		(Section continues downward)	

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PROJECT: 130009.04

LOG OF BORING B-16

Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE D2

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
			42	SP	Sand, fine– to medium–grained, brown, damp, very dense; unidentified odor.	
			44	GW	Sandy gravel, trace clay, fine to coarse gravel (up to 2–1/4" in diameter), fine– to coarse–grained sand, brown, moist, very dense.	
61.2	S–45	50/6"	46			
			48			
			50	SW	Gravelly sand, fine– to coarse–grained sand, fine to coarse gravel (up to 1" in diameter), brown, moist, very dense.	
OR	S–50	50/6"	52			
234.25	S–54	50/6"	54			
			56		Total Depth = 54–1/2 feet.	
			58			
			60			
			62			
			64			
			66			
			68			
			70			
			72			
			74			
			76			
			78			
			80			
			82			
			84			
			86			
			88			
			90			

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PROJECT: 130009.04

LOG OF BORING B-16

Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE D3

Total depth of boring:	55-1/2 feet	Casing diameter:	NA
Diameter of boring:	6 inches	Casing material:	NA
Date drilled:	12-2-93	Slot size:	NA
Drilling Company:	Exploration Geoservices, Inc.	Sand size:	NA
Driller:	John Collins	Screen Interval:	NA
Drilling method:	Hollow-Stem Auger	Field Geologist:	Jeanne Buckthal

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: CA

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
					Concrete (6 inches).	
			2	ML	Clayey silt, dark brown, damp, low plasticity, hard.	
OR	S-4.5	8 32	4			
			6			
			8			
		12		SP	Sand, fine-grained, brown, damp, medium dense; hydrocarbon odor.	
OR	S-10	13 12	10	CL	Silty clay, dark brown, damp, low plasticity, hard; sewage odor, some rootlets and minor charcoal.	
			12			
		9	14			
OR	S-15	12 20	16			
			18			
		12				
OR	S-20	20 21	20		Dark blue-gray; strong hydrocarbon odor, many vertical roots.	
			22			
		12	24			
OR	S-24.5	16 26	26		Gray with brown mottling; strong hydrocarbon odor, some vertical roots.	
			28			
		12				
OR	S-30	13 21	30		Few vertical roots.	
			32			
		28	34			
OR	S-34.5	37 24	36		Brown with gray mottling; hydrocarbon odor.	
			38			
		21		SP-SM	Sand with silt, fine-grained sand, olive-brown, damp, very dense; strong hydrocarbon odor.	
OR	S-39.5	50/6	40		(Section continues downward)	

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PROJECT: 130009.04

LOG OF BORING B-17

Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE D4

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
			42	SP-SM	Sand with silt, fine-grained sand, olive-brown, damp, very dense; strong hydrocarbon odor.	
			44	SW	Gravelly sand, trace clay, fine- to coarse-grained sand, fine to coarse gravel (up to 2-1/2" in diameter), brown, damp to wet, very dense; strong hydrocarbon odor.	
OR	S-45	50/6"	46			
			48			
OR	S-49.5	50/6"	50		Gravels fining downward (up to 1-1/2" in diameter); slight hydrocarbon odor.	
			52			
OR	S-54.5	50/6"	54	CL	Silty clay, brown, damp, low plasticity, hard; slight hydrocarbon odor.	
			56		Total Depth = 55-1/2 feet.	
			58			
			60			
			62			
			64			
			66			
			68			
			70			
			72			
			74			
			76			
			78			
			80			
			82			
			84			
			86			
			88			
			90			

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PROJECT: 130009.04

LOG OF BORING B-17

Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE D5

Total depth of boring:	55 feet	Casing diameter:	NA
Diameter of boring:	6 inches	Casing material:	NA
Date drilled:	12-1-93	Slot size:	NA
Drilling Company:	Exploration Geoservices, Inc.	Sand size:	NA
Driller:	John Collins	Screen Interval:	NA
Drilling method:	Hollow-Stem Auger	Field Geologist:	Jeanne Buckthal

Signature of Registered Professional: [signature]

Registration No.: CEG 1463 State: CA

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
			0		Concrete (6 inches).	
			2	CL	Silty clay, trace sand, light brown, damp, low plasticity, very stiff; fine-grained sand, abundant rootlets and root holes.	
0	S-5	11 12 16	4 6 8			
0	S-10	18 24 25	10 12	SP	Sand, fine-grained, reddish-brown, damp, very dense.	
0	S-15	13 17 18	14 16 18	CL	Clay with silt, blue-gray, moist, low plasticity, hard; some rootlets and charcoal lamina.	
0	S-20	7 10 15	20 22		Increasing silt, blue-gray with olive mottling, damp, very stiff; vertical roots.	
0	S-25	10 16 30	24 26 28	ML	Clayey silt, gray with light brown mottling, damp, low plasticity, hard.	
0	S-30	14 20 25	30 32		Olive-gray with light brown mottling.	
0	S-35	18 23 30	34 36 38	CL	Silty clay, brown, damp, low plasticity, hard.	
	S-39.5	50/4"	40	SW	Gravelly sand, fine- to coarse-grained sand, fine to coarse gravel (up to 1" in diamter), damp, very dense. (Section continues downward)	

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LOG OF BORING B-18

Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE D6

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
			42	SW	Gravelly sand, fine- to coarse-grained sand, fine to coarse gravel (up to 1" in diameter), brown, damp, very dense.	
			44			
0	S-45	13 50/6"	46	SW-SC	Gravelly sand with clay, fine- to coarse-grained sand, fine to coarse gravel (up to 2" in diameter), brown, moist to wet, very dense.	
			48			
NS	S-49.5	50/6"	50			
			52			
0	S-54.5	50/6"	54			
			56		Total Depth = 55 feet.	
			58			
			60			
			62			
			64			
			66			
			68			
			70			
			72			
			74			
			76			
			78			
			80			
			82			
			84			
			86			
			88			
			90			

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LOG OF BORING B-18

Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
D7

Total depth of boring:	54 feet	Casing diameter:	NA
Diameter of boring:	6 inches	Casing material:	NA
Date drilled:	12-1-93	Slot size:	NA
Drilling Company:	Exploration Geoservices, Inc.	Sand size:	NA
Driller:	John Collins	Screen Interval:	NA
Drilling method:	Hollow-Stem Auger	Field Geologist:	Jeanne Buckthal

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
					Concrete (6 inches).	
			2	CL	Silty clay, grayish-brown, damp, low plasticity, very stiff; tank backfill.	
0	S-5	11 27	4			
			6			
			8			
NS		11 22 18	10	GP-GC	Gravel with sand and clay, fine gravel (up to 3/4" in diameter), dark brown, moist, dense; tank backfill.	
			12			
			14	GP	Gravel with sand, fine gravel (up to 3/4" in diameter), medium- to coarse-grained sand, light brown, moist, medium dense; tank backfill.	
0	S-15	11 12 16	16			
			18			
NS		14 26 21	20			
			22			
			24			
0	S-25.5	13 13 14	26	CL	Clay with silt, bluish-gray, damp, low plasticity, very stiff; slight hydrocarbon odor; tank backfill to 31'?	
			28			
20.8	S-30	11 13 25	30		Light brown with orange mottling, hard.	
			32			
			34			
0	S-35	23 25 30	36		Brown.	
			38			
0	S-40	25 50/4	40	CL	Silty clay with sand, trace gravel, light brown, damp to moist, low plasticity, hard; fine- to medium-grained sand, coarse gravel (up to 2" in diameter). (Section continues downward)	

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PROJECT: 130009.04

LOG OF BORING B-19

Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE D8

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
			42	CL	Silty clay with sand, trace gravel, light brown, damp to moist, low plasticity, hard; fine- to medium-grained sand, coarse gravel (up to 2" in diameter).	
0	S-44.5	50/6"	44	SP	Sand with gravel, medium-grained sand, fine to coarse gravel (up to 2" in diameter), brown, moist, very dense.	
			46			
			48			
0	S-49.5	50/6"	50	SW	Gravelly sand, fine- to medium-grained sand, fine to coarse gravel (up to 1" in diameter), brown, moist to wet, very dense.	
			52			
0	S-53	50/6"	54		Total Depth = 54 feet.	
			56			
			58			
			60			
			62			
			64			
			66			
			68			
			70			
			72			
			74			
			76			
			78			
			80			
			82			
			84			
			86			
			88			
			90			

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PROJECT: 130009.04

LOG OF BORING B-19

Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE D9

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APPENDIX E

BORING LOCATION SURVEY

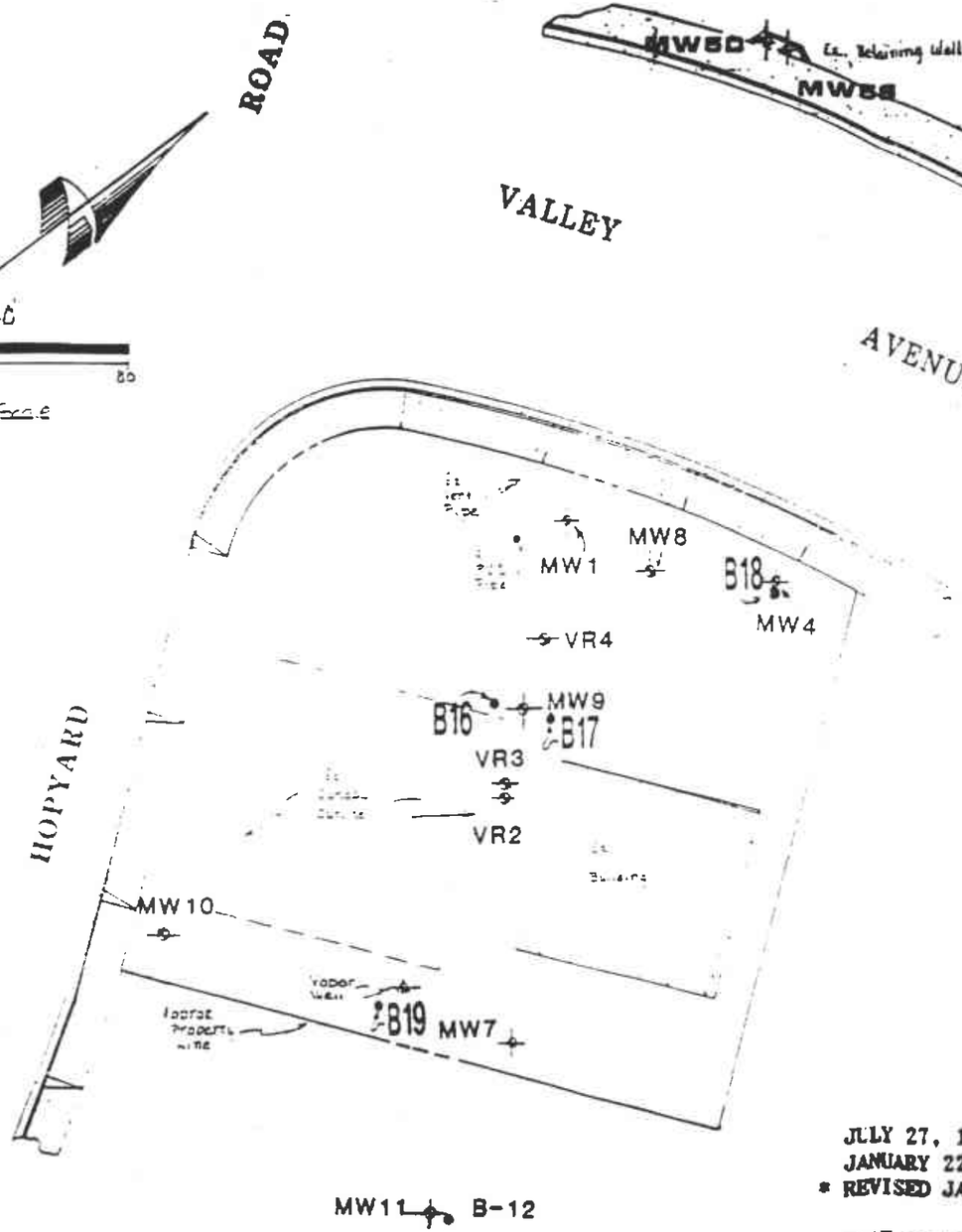

TABLE VI

MONITOR WELL DATA TABULATION

WELL DESIGNATION	ELEV	DESCRIPTION
MW1	321.41 321.90	TOP OF PVC CASING TOP OF BOX
MW4	321.56 321.95	TOP OF PVC CASING TOP OF BOX
MW5-D	321.79 322.16	TOP OF PVC CASING TOP OF BOX
MW5-S	321.64 322.10	TOP OF PVC CASING TOP OF BOX
MW7	321.27 321.71	TOP OF PVC CASING TOP OF BOX
VAPOR WELL	321.68 321.97	TOP OF PVC CASING TOP OF BOX
MW8	321.86 322.04	TOP OF PVC CASING TOP OF BOX
MW9	321.44 321.83	TOP OF PVC CASING TOP OF BOX
MW10	322.09 323.27	TOP OF PVC CASING TOP OF BOX
MW11	321.41 322.12	TOP OF PVC CASING TOP OF BOX
VR2	321.80 322.07	TOP OF PVC CASING TOP OF BOX
VR3	321.49 322.05	TOP OF PVC CASING TOP OF BOX
VR4	321.32 321.78	TOP OF PVC CASING TOP OF BOX

JULY 27, 1989
JANUARY 22, 1990
* REVISED JANUARY 17, 1994

JOB NO. 1586

PLAT SHOWING EXISTING MONITORING WELLS AND BORE HOLES AT THE EXXON SERVICE STATION, LOCATED AT 2991 HOPYARD ROAD AT VALLEY AVENUE, CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA.

FOR: RESNA INDUSTRIES INC.

BENCHMARK: BC-972 (RESET IN 1987)
FOUND BRASS DISC SET IN CONCRETE ABUTMENT, 15' NORTH OF THE SOUTHEAST CORNER OF THE SOUTH BOUND CONCRETE BRIDGE OVER THE NOCHO CANAL. ELEVATION TAKEN AS 338.545 M.S.L. C & G.S. SURVEY, CITY OF PLEASANTON DATUM.

RON ARCHER
CIVIL ENGINEER, INC.
CONSULTING • PLANNING • DESIGN • SURVEYING
4123 Mohr Ave., Suite E • Pleasanton, CA 94566

RESNA
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APPENDIX F

LABORATORY ANALYSIS REPORTS AND CHAIN OF CUSTODY RECORD

pace INCORPORATED
THE ASSURANCE OF QUALITY

30009.04

REPORT OF LABORATORY ANALYSIS

RECEIVED
DEC 1993

December 10, 1993

Mr. Marc Briggs
RESNA
3315 Almaden Expressway Suite 34
San Jose, CA 95118

RE: PACE Project No. 431202.508
Client Reference: Exxon 7-3399 (EE)

Dear Mr. Briggs:

Enclosed is the report of laboratory analyses for samples received December 02, 1993.

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Ronald M. Cohen

for Stephanie Matzo
Project Manager

Enclosures

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

RESNA
3315 Almaden Expressway Suite 34
San Jose, CA 95118

December 10, 1993
PACE Project Number: 431202508

Attn: Mr. Marc Briggs

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202116	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-10-B18	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
Page 2

December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202124	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-15-818	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
Page 3

December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202132	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-20-B18	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
Page 4

December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202140	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-25-B18	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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TEL: 415-883-6100
FAX: 415-883-2673

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
Page 5

December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202159	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-30-B18	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202167	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-35-B18	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	70 0202175 12/01/93 12/02/93 S-39 1/2- B-18	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
Client Sample ID:				
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202183	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-45-818	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	PACE Sample Number: 70 0202191 Client Sample ID: S-49 1/2-B18	DATE ANALYZED
Date Collected:			12/01/93	
Date Received:			12/02/93	
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	70 0202205 12/01/93 12/02/93 S-54 1/2- B18	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
Client Sample ID:				
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202213	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-5-B19	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL		DATE ANALYZED
PACE Sample Number:			70 0202221	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-15-B19	
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	5.0	ND	12/08/93
Toluene	ug/kg wet	5.0	ND	12/08/93
Ethylbenzene	ug/kg wet	5.0	ND	12/08/93
Xylenes, Total	ug/kg wet	5.0	ND	12/08/93

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Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202248	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-25 1/2-	
Parameter	Units	MDL	B19	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202272	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-30-B19	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	94	12/07/93
Toluene	ug/kg wet	5.0	27	12/07/93
Ethylbenzene	ug/kg wet	5.0	38	12/07/93
Xylenes, Total	ug/kg wet	5.0	72	12/07/93

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Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202280	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-35-B19	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	57	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	44	12/07/93
Xylenes, Total	ug/kg wet	5.0	6.6	12/07/93

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Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202302	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-40-B19	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	70 0202310 12/01/93 12/02/93 S-44 1/2- B19	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
Client Sample ID:				
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202329	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-49 1/2-B19	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	5.0	ND	12/08/93
Toluene	ug/kg wet	5.0	ND	12/08/93
Ethylbenzene	ug/kg wet	5.0	ND	12/08/93
Xylenes, Total	ug/kg wet	5.0	ND	12/08/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202345	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-53-B19	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	5.0	ND	12/08/93
Toluene	ug/kg wet	5.0	ND	12/08/93
Ethylbenzene	ug/kg wet	5.0	ND	12/08/93
Xylenes, Total	ug/kg wet	5.0	ND	12/08/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202361	
Date Collected:			12/01/93	
Date Received:			12/02/93	
Client Sample ID:			S-5-B18	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	5.0	ND	12/08/93
Toluene	ug/kg wet	5.0	ND	12/08/93
Ethylbenzene	ug/kg wet	5.0	ND	12/08/93
Xylenes, Total	ug/kg wet	5.0	ND	12/08/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	70 0202388 12/02/93 12/02/93 S-4 1/2- B16	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
Client Sample ID:				
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202418	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-10-B16	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202426	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-15-B16	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	1100	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	5.0	ND	12/08/93
Toluene	ug/kg wet	5.0	ND	12/08/93
Ethylbenzene	ug/kg wet	5.0	ND	12/08/93
Xylenes, Total	ug/kg wet	5.0	ND	12/08/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202434	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-20-B16	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	5.0	31	12/08/93
Toluene	ug/kg wet	5.0	ND	12/08/93
Ethylbenzene	ug/kg wet	5.0	ND	12/08/93
Xylenes, Total	ug/kg wet	5.0	11	12/08/93

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Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202442	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-24 1/2-	
Parameter	Units	MDL	B16	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	9.5	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202469	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-30-B16	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202477	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-35-B16	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	PACE Sample Number: 70 0202485 Client Sample ID: S-39 1/2-B16	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	5.0	ND	12/08/93
Toluene	ug/kg wet	5.0	ND	12/08/93
Ethylbenzene	ug/kg wet	5.0	ND	12/08/93
Xylenes, Total	ug/kg wet	5.0	ND	12/08/93

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REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202493	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-45-B16	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	5.0	ND	12/08/93
Toluene	ug/kg wet	5.0	ND	12/08/93
Ethylbenzene	ug/kg wet	5.0	ND	12/08/93
Xylenes, Total	ug/kg wet	5.0	ND	12/08/93

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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202507	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-50-B16	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	5.0	ND	12/08/93
Toluene	ug/kg wet	5.0	ND	12/08/93
Ethylbenzene	ug/kg wet	5.0	ND	12/08/93
Xylenes, Total	ug/kg wet	5.0	ND	12/08/93

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Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202515	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-54-B16	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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FAX: 415-883 2673

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	PACE Sample Number: 70 0202523 Date Collected: 12/02/93 Date Received: 12/02/93 Client Sample ID: S-4 1/2-B17	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/07/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/07/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/07/93
Benzene	ug/kg wet	5.0	ND	12/07/93
Toluene	ug/kg wet	5.0	ND	12/07/93
Ethylbenzene	ug/kg wet	5.0	ND	12/07/93
Xylenes, Total	ug/kg wet	5.0	ND	12/07/93

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REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL		DATE ANALYZED
PACE Sample Number:			70 0202531	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-10-B17	
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	20000	530000	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	100	210	12/08/93
Toluene	ug/kg wet	100	5100	12/08/93
Ethylbenzene	ug/kg wet	100	7000	12/08/93
Xylenes, Total	ug/kg wet	100	63000	12/08/93

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REPORT OF LABORATORY ANALYSIS

December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0202540	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-15-B17	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	40000	590000	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	50	14000	12/08/93
Toluene	ug/kg wet	50	42000	12/08/93
Ethylbenzene	ug/kg wet	50	19000	12/08/93
Xylenes, Total	ug/kg wet	50	80000	12/08/93

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Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	70 0202558 12/02/93 12/02/93 S-19 1/2- B17	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
Client Sample ID:				
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	20000	560000	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	100	5100	12/08/93
Toluene	ug/kg wet	100	28000	12/08/93
Ethylbenzene	ug/kg wet	100	16000	12/08/93
Xylenes, Total	ug/kg wet	100	70000	12/08/93

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Mr. Marc Briggs
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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	70 0202574 12/02/93 12/02/93 S-24 1/2- B17	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
Client Sample ID:				
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	50000	170000	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	250	2300	12/08/93
Toluene	ug/kg wet	250	12000	12/08/93
Ethylbenzene	ug/kg wet	250	5400	12/08/93
Xylenes, Total	ug/kg wet	250	26000	12/08/93

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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL		DATE ANALYZED
PACE Sample Number:			70 0202582	
Date Collected:			12/02/93	
Date Received:			12/02/93	
Client Sample ID:			S-30-B17	
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	4000	19000	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	2.5	1400	12/08/93
Toluene	ug/kg wet	2.5	3100	12/08/93
Ethylbenzene	ug/kg wet	2.5	530	12/08/93
Xylenes, Total	ug/kg wet	2.5	2800	12/08/93

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December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	70 0202590 12/02/93 12/02/93 S-34 1/2- B17	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
Client Sample ID:				
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/08/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	8700	12/08/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/08/93
Benzene	ug/kg wet	5.0	1500	12/08/93
Toluene	ug/kg wet	5.0	2000	12/08/93
Ethylbenzene	ug/kg wet	5.0	650	12/08/93
Xylenes, Total	ug/kg wet	5.0	2000	12/08/93

These data have been reviewed and are approved for release.

Stephen Chan for

Darrell C. Cain
Regional Director

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Client Reference: Exxon 7-3399 (EE)

MDL Method Detection Limit
ND Not detected at or above the MDL.

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QUALITY CONTROL DATA

December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PURGEABLE FUELS AND AROMATICS
Batch: 70 26793
Samples: 70 0202116, 70 0202124

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/kg wet	1.0	ND
Toluene	ug/kg wet	1.0	ND
Ethylbenzene	ug/kg wet	1.0	ND
Xylenes, Total	ug/kg wet	1.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	1000	90%	83%	8%
Benzene	ug/kg wet	1.0	40.0	85%	85%	0%
Toluene	ug/kg wet	1.0	40.0	86%	84%	2%
Ethylbenzene	ug/kg wet	1.0	40.0	91%	87%	4%
Xylenes, Total	ug/kg wet	1.0	120	93%	87%	6%

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Client Reference: Exxon 7-3399 (EE)

PURGEABLE FUELS AND AROMATICS
Batch: 70 26837
Samples: 70 0202132, 70 0202140, 70 0202159, 70 0202167, 70 0202175
70 0202183, 70 0202191, 70 0202205, 70 0202213, 70 0202221
70 0202248, 70 0202280, 70 0202302, 70 0202310, 70 0202329
70 0202345, 70 0202361

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/kg wet	1.0	ND
Toluene	ug/kg wet	1.0	ND
Ethylbenzene	ug/kg wet	1.0	ND
Xylenes, Total	ug/kg wet	1.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	1000	94%	95%	1%
Benzene	ug/kg wet	1.0	40.0	92%	88%	4%
Toluene	ug/kg wet	1.0	40.0	99%	97%	2%
Ethylbenzene	ug/kg wet	1.0	40.0	112%	111%	0%
Xylenes, Total	ug/kg wet	1.0	120	114%	111%	2%

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REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Client Reference: Exxon 7-3399 (EE)

PURGEABLE FUELS AND AROMATICS
Batch: 70 26870
Samples: 70 0202388, 70 0202418, 70 0202426, 70 0202434, 70 0202442
70 0202469, 70 0202477, 70 0202485, 70 0202493, 70 0202515
70 0202523, 70 0202582

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/kg wet	1.0	ND
Toluene	ug/kg wet	1.0	ND
Ethylbenzene	ug/kg wet	1.0	ND
Xylenes, Total	ug/kg wet	1.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	1000	88%	84%	4%
Benzene	ug/kg wet	1.0	40	92%	93%	1%
Toluene	ug/kg wet	1.0	40	91%	92%	1%
Ethylbenzene	ug/kg wet	1.0	40	90%	91%	1%
Xylenes, Total	ug/kg wet	1.0	120	92%	92%	0%

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QUALITY CONTROL DATA

December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

PURGEABLE FUELS AND AROMATICS
Batch: 70 26891
Samples: 70 0202272, 70 0202507, 70 0202531, 70 0202540, 70 0202558
70 0202574, 70 0202590

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/kg wet	1.0	ND
Toluene	ug/kg wet	1.0	ND
Ethylbenzene	ug/kg wet	1.0	ND
Xylenes, Total	ug/kg wet	1.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	1000	77%	82%	6%
Benzene	ug/kg wet	1.0	40.0	108%	103%	4%
Toluene	ug/kg wet	1.0	40.0	105%	100%	4%
Ethylbenzene	ug/kg wet	1.0	40.0	111%	105%	5%
Xylenes, Total	ug/kg wet	1.0	120	110%	105%	4%

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FOOTNOTES
for pages 40 through 43

December 10, 1993
PACE Project Number: 431202508

Client Reference: Exxon 7-3399 (EE)

MDL	Method Detection Limit
ND	Not detected at or above the MDL.
RPD	Relative Percent Difference

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[ ] Huntington Beach, CA, 5702 Bolsa Avenue, 92649 (714) 892-2565

Consultant's Name: RESNA

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Address: 3315 Almaden Exp., #34, San Jose, CA 95118

Site Location: 2991 Hopyard Rd.

Project #:

Consultant Project #: 130009.04

Consultant Work Release #:

Project Contact: Marc Briggs

Phone # (408) 264-7723 Fax #: 264 2435

Laboratory Work Release #: 09300140

EXXON Contact: Marla Guensler [X] EE [ ] C&M

Phone #: Fax #:

EXXON RAS #: 7 3399

Sampled by (print): Jeanne Buckthal

Sampler's Signature: Jeanne Buckthal

Shipment Method: courier

Air Bill #:

Shipment Date: 12/2/93

TAT: [ ] 24 hr [ ] 48 hr [ ] 72 hr [X] Standard (5 day)

Sample Condition as Received: Temperature °C: 4.4; Cooler #: B/4, B192; Inbound Seal Yes No; Outbound Seal Yes No

Sample Description	Collection Date/Time	Matrix Soil Water	Prsv	# of Cont	PACE Sample #	TPH GAS BTEX EPA 8015/8020	TPH Diesel EPA 8015	TRPH EPA 418.1											COMMENTS
S-5-B19	12/1/93 705	soil	no	1	20221.3	X													
S-15-B19	720	↓	↓	1	20222.1	X													
S-25½-B19	740	↓	↓	1	20224.8	X													
S-30-B19	950	↓	↓	1	20226.2	X													
S-35-B19	955	↓	↓	1	20228.0	X													
S-40-B19	1010	↓	↓	1	20230.2	X													
S-44½-B19	1020	↓	↓	1	20231.0	X													
S-49½-B19	1040	↓	↓	1	20232.9	X													
S-53-B19	1100	↓	↓	1	20234.5	X													
S-5-B18	1330	↓	↓	1	20236.1	X													

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time
Jeanne Buckthal / RESNA	12/1/93	1530	[illegible] PACE	12/2	1420
[illegible] Pace	12/2	1634	[illegible] Pace	12/2/93	1634

Additional Comments: S/3

Distribution: White - Original; Yellow - Exxon; Pink - Lab; Goldenrod - Consultant Field Staff

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4312025 SCS

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[ ] Huntington Beach, CA, 5702 Bolsa Avenue, 92649 (714) 892-2565

Consultant's Name: RESNA

Address: 3315 Almaden Exp, #34, San Jose, CA 95118

Site Location: 2991 Hopyard Rd

Project #:

Consultant Project #: 130004.04

Consultant Work Release #:

Project Contact: Marc Briggs

Phone # (408) 264-7723 Fax #: 264-2435

Laboratory Work Release #: 09380140

EXXON Contact: Marla Guensler [X] EE [ ] C&M

Phone #

Fax #:

EXXON RAS #: 7-3399

Sampled by (print): Jeanne Buckthal

Sampler's Signature: Jeanne Buckthal

Shipment Method: Courier

Air Bill #:

Shipment Date: 12/1/93

TAT: [ ] 24 hr [ ] 48 hr [ ] 72 hr [X] Standard (5 day)

Sample Condition as Received
Temperature ° C: 4.4
Cooler #: B14, B192
Inbound Seal Yes No
Outbound Seal Yes No

Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	PACE Sample #	TPH/GAS BTEX EPA 8015/8020	TPH/Diesel EPA 8015	TRPH EPA 418.1										COMMENTS
S-10-B18	12/1/93	soil	Ice	1	20211.6	X												
S-15-B18	1340	↓	↓	1	20212.4	X												
S-20-B18	1350			1	20213.2	X												
S-25-B18	1400			1	20214.0	X												
S-30-B18	1410			1	20215.9	X												
S-35-B18	1420			1	20216.7	X												
S-39½-B18	1430			1	20217.5	X												
S-45-B18	1450			1	20218.3	X												
S-49½-B18	1515			1	20219.1	X												
S-54½-B18	1530	↓	↓	1	20220.5	X												

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time
Jeanne Buckthal/RESNA	12/1/93	1630	[illegible]	12/2	1430
[illegible]	12/1	1431	[illegible] Pace	12/2/93	1630

Additional Comments:

Distribution: White - Original Yellow - Exxon Pink - Lab Goldenrod - Consultant Field Staff

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Consultant's Name: RESNA

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Site Location: 2911 Hopyard Rd.

Project #:

Consultant Project #: 130009.104

Consultant Work Release #:

Project Contact: Marc Briggs

Phone #: (408) 264 7723 Fax #: 264 2435

Laboratory Work Release #: 093001190

EXXON Contact: Marla Quenzer ☒ EE ☐ C&M

Phone #: Fax #:

EXXON RAS #: 7-3399

Sampled by (print): Jeanne Buckthal

Sampler's Signature: Jeanne Buckthal

Shipment Method: Courier

Air Bill #:

Shipment Date: 12/2/93

TAT: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☑ Standard (5 day)

ANALYSIS REQUIRED

Sample Condition as Received
Temperature °C: 4.2
Cooler #: B14 B192
Inbound Seal Yes No
Outbound Seal Yes No

Sample Description	Collection Date/Time	Matrix Soil/Water	Preservation	# of Cont	PACE Sample #	TPH/GAS BTEX EPA 8015/8020	TPH/Diesel EPA 8015	TRPH EPA 418.1	COMMENTS
S-41/2-B16	12/2/93 930	Soil	ice	1	202388	X			
S-10-B16	915			1	202418	X			
S-15-B16	920			1	202426	X			
S-20-B16	930			1	202434	X			
S-24 1/2-B16	940			1	202442	X			
S-30-B16	950			1	202469	X			
S-35-B16	955			1	202477	X			
S-39 1/2-B16	1005			1	202485	X			
S-45-B16	1020			1	202493	X			
S-50-B16	1030			1	202501	X			

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time
Jeanne Buckthal/RESNA	12/2/93	1090	[illegible] Pace	12/2	1430
[illegible] Pace	12/2	1630	[illegible] Pace	12/2/93	1630

Additional Comments:

Distribution: White - Original Yellow - Exxon Pink - Lab Goldenrod - Consultant Field Staff

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THE ASSURANCE OF QUALITY

EXXON COMPANY, U.S.A.

P.O. Box 4415, Houston, TX 77210-4415

CHAIN OF CUSTODY

92120-503

☒ Novato, CA, 1 Digital Drive, 94949 (415) 883-6100

☐ Huntington Beach, CA, 5702 Bolsa Avenue, 92649 (714) 892-2565

Page 1 of 1

Consultant's Name: RESNA

Address: 3315 Almaden Expy., Suite 34 San Jose, CA 95118

Site Location: 2901 Hyperion Ave

Project #:

Consultant Project #: 152009.04

Consultant Work Release #:

Project Contact: Marc Briggs

Phone #: (408) 264-1113 Fax #: 264-1533

Laboratory Work Release #: 093001140

EXXON Contact: Marla Guenzler ☒ EE ☐ C&M

Phone #: Fax #:

EXXON RAS #: 7-5399

Sampled by (print): Jeanne Bickthal

Sampler's Signature: Jeanne Bickthal

Shipment Method: Courier

Air Bill #:

Shipment Date: 12/2/93

TAT: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☑ Standard (5 day)

ANALYSIS REQUIRED

Sample Condition as Received
Temperature °C: 4.4
Cooler #: B14 B192
Inbound Seal Yes No
Outbound Seal Yes No

Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	PACE Sample #	TPH/GAS BTEX EPA 8015/8020	TPH/Diesel EPA 8015	TRPH EPA 418.1	COMMENTS
S-5-B16	12/1/93 1040	Soil	HCl	1	202515	X			
S-9½-B17	1305			1	202523	X			
S-10-B17	1315			1	202531	X			
S-15-B17	1320			1	202540	X			
S-19½-B17	1330			1	202558	X			
S-29½-B17	1340			1	202571	X			
S-30-B17	1350			1	202582	X			
S-34½-B17	1400	↓	↓	1	202590	X			

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time
Jeanne Bickthal	12/2/93	1740	[illegible]	12/2	1735
[illegible]	12/2	1830	[illegible]	12/2/93	1830

Additional Comments:

White - Original Yellow - Exxon Pink - Lab Goldenrod - Consultant Field Staff

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13C009.03

REPORT OF LABORATORY ANALYSIS

December 16, 1993

Mr. Marc Briggs
RESNA
3315 Almaden Expressway Suite 34
San Jose, CA 95118

RE: PACE Project No. 431203.520
Client Reference: Exxon 7-3399 (EE)

Dear Mr. Briggs:

Enclosed is the report of laboratory analyses for samples received December 03, 1993.

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Stephanie Matzo

Stephanie Matzo
Project Manager

Enclosures

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

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REPORT OF LABORATORY ANALYSIS

RESNA
3315 Almaden Expressway Suite 34
San Jose, CA 95118

December 16, 1993
PACE Project Number: 431203520

Attn: Mr. Marc Briggs

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0204275	
Date Collected:			12/02/93	
Date Received:			12/03/93	
			S-39 1/2-	
Parameter	Units	MDL	B17	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/09/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	40000	670000	12/09/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/09/93
Benzene	ug/kg wet	50	2700	12/09/93
Toluene	ug/kg wet	50	17000	12/09/93
Ethylbenzene	ug/kg wet	50	11000	12/09/93
Xylenes, Total	ug/kg wet	50	71000	12/09/93

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REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
Page 2

December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0204283	
Date Collected:			12/02/93	
Date Received:			12/03/93	
Client Sample ID:			S-45-B17	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/09/93
Purgeable Fuels, as Gasoline (EPA 8015M)	mg/kg wet	50	1100 (PPM)	12/09/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/09/93
Benzene	ug/kg wet	50	ND	12/09/93
Toluene	ug/kg wet	50	200	12/09/93
Ethylbenzene	ug/kg wet	50	530	12/09/93
Xylenes, Total	ug/kg wet	50	6700	12/09/93

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REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
Page 3

December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	70 0204291 12/02/93 12/03/93 S-49 1/2- B17	DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/09/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	1700	12/09/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/09/93
Benzene	ug/kg wet	5.0	ND	12/09/93
Toluene	ug/kg wet	5.0	13	12/09/93
Ethylbenzene	ug/kg wet	5.0	6.6	12/09/93
Xylenes, Total	ug/kg wet	5.0	36	12/09/93

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December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0204305	
Date Collected:			12/02/93	
Date Received:			12/03/93	
Client Sample ID:			S-54 1/2-B17	
Parameter	Units	MDL		DATE ANALYZED
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/09/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	1000	ND	12/09/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/09/93
Benzene	ug/kg wet	5.0	ND	12/09/93
Toluene	ug/kg wet	5.0	ND	12/09/93
Ethylbenzene	ug/kg wet	5.0	ND	12/09/93
Xylenes, Total	ug/kg wet	5.0	ND	12/09/93

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REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
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December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

Parameter	Units	MDL	70 0204313 12/02/93 12/03/93 SP-A+B+C+D Composite	DATE ANALYZED
PACE Sample Number:				
Date Collected:				
Date Received:				
Client Sample ID:				
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Corrosivity (pH)	Units	0.1	7.5	12/08/93
Cyanide, Reactive	mg/kg	0.5	ND	12/14/93
Flash Point, Closed Cup	Degrees C	25	>60 (FL)	12/08/93
Sulfide, Reactive	mg/kg	0.5	ND	12/08/93
ORGANIC ANALYSIS				
PURGEABLE FUELS AND AROMATICS				
TOTAL FUEL HYDROCARBONS, (LIGHT):			-	12/10/93
Purgeable Fuels, as Gasoline (EPA 8015M)	ug/kg wet	2000	66000	12/10/93
PURGEABLE AROMATICS (BTXE BY EPA 8020M):			-	12/10/93
Benzene	ug/kg wet	5.0	370	12/10/93
Toluene	ug/kg wet	10	1300	12/10/93
Ethylbenzene	ug/kg wet	5.0	1100	12/10/93
Xylenes, Total	ug/kg wet	10	5000	12/10/93

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REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
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December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

PACE Sample Number:			70 0204321	
Date Collected:			12/02/93	
Date Received:			12/03/93	
Client Sample ID:			SP-A+B+C+D	
			CAM	
Parameter	Units	MDL	EXTRACT	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Lead (EPA Method 6010/200.7, ICP)	mg/L	1.0	ND	12/13/93

These data have been reviewed and are approved for release.

Stephen Khan for

Darrell C. Cain
Regional Director

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Novato, CA 94949
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FAX: 415-883-2673

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Mr. Marc Briggs
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FOOTNOTES
for pages 1 through 6

December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

>	Greater than reported value.
MDL	Method Detection Limit
ND	Not detected at or above the MDL.
(PPM)	Results reported in parts per million due to high levels present in sample.
(FL)	Please note there is no California DHS approved EPA method for flash point in soils. A modification of method 1010 was used.

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QUALITY CONTROL DATA

December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

Corrosivity (pH)
Batch: 70 26876
Samples: 70 0204313

SAMPLE DUPLICATE:

Parameter	Units	MDL	700204313 SP-A+B+C+D Composite	Duplicate of 70 0204313	RPD
Corrosivity (pH)	Units	0.1	7.5	7.5	0%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Corrosivity (pH)	Units	0.1	7.0	100%	101%	0%

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REPORT OF LABORATORY ANALYSIS

Mr. Marc Briggs
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QUALITY CONTROL DATA

December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

Cyanide, Reactive
Batch: 70 27016
Samples: 70 0204313

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	MDL	Method Blank	700204313 SP-A+B+C+D Composite	Duplicate of 70 0204313	RPD
Cyanide, Reactive	mg/kg	0.5	ND	ND	ND	NC

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Cyanide, Reactive	mg/kg	0.5	1000	21%	22%	4%

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QUALITY CONTROL DATA

December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

Flash Point, Closed Cup
Batch: 70 26865
Samples: 70 0204313

SAMPLE DUPLICATE:

Parameter	Units	MDL	700204313 Composite	Duplicate SP-A+B+C+D of 70 0204313
Flash Point, Closed Cup	Degrees C	25	>60	>60

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Flash Point, Closed Cup	Degrees C	25	30	100%	100%	0%

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QUALITY CONTROL DATA

December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

Lead (EPA Method 6010/200.7, ICP)
Batch: 70 26987
Samples: 70 0204321

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Lead (EPA Method 6010/200.7, ICP)	mg/L	1.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Lead (EPA Method 6010/200.7, ICP)	mg/L	1.0	5.0	103%	104%	0%

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QUALITY CONTROL DATA

December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

Sulfide, Reactive
Batch: 70 26889
Samples: 70 0204313

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	MDL	Method Blank	700204313 SP-A+B+C+D Composite	Duplicate of 70 0204313	RPD
Sulfide, Reactive	mg/kg	0.5	ND	ND	ND	NC

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Sulfide, Reactive	mg/kg	0.5	506	45%	45%	0%

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QUALITY CONTROL DATA

December 16, 1993
PACE Project Number: 431203520

Client Reference: Exxon 7-3399 (EE)

PURGEABLE FUELS AND AROMATICS
Batch: 70 26891
Samples: 70 0204275, 70 0204283, 70 0204291, 70 0204305, 70 0204313

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020M)			-
Benzene	ug/kg wet	1.0	ND
Toluene	ug/kg wet	1.0	ND
Ethylbenzene	ug/kg wet	1.0	ND
Xylenes, Total	ug/kg wet	1.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015M	ug/kg wet	200	1000	77%	82%	6%
Benzene	ug/kg wet	1.0	40.0	108%	103%	4%
Toluene	ug/kg wet	1.0	40.0	105%	100%	4%
Ethylbenzene	ug/kg wet	1.0	40.0	111%	105%	5%
Xylenes, Total	ug/kg wet	1.0	120	110%	105%	4%

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Client Reference: Exxon 7-3399 (EE)

>	Greater than reported value.
MDL	Method Detection Limit
NC	No calculation due to value below detection limit.
ND	Not detected at or above the MDL.
RPD	Relative Percent Difference

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P.O. Box 4415, Houston, TX 77210-4415

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[ ] Huntington Beach, CA, 5702 Bolsa Avenue, 92649 (714) 892-2565

Consultant's Name: RESNA — Page 1 of 1

Address: 3315 Almaden Exp., #34, San Jose, CA 95118 — Site Location: 2991 Hopyard Rd.

Project #: — Consultant Project #: 130009.04 — Consultant Work Release #:

Project Contact: Marc Briggs — Phone #: (408)2647723 — Fax #: 2642435 — Laboratory Work Release #: 09300140

EXXON Contact: Marla Guensler [X] EE [ ] C&M — Phone #: — Fax #: — EXXON RAS #: 7-3399

Sampled by (print): Jeanne Buckthal — Sampler's Signature: Jeanne Buckthal

Shipment Method: courier — Air Bill #: — Shipment Date: 12/3/93

TAT: [ ] 24 hr [ ] 48 hr [ ] 72 hr [X] Standard (5 day)

Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	PACE Sample #	TPH/GAS/BTEX EPA 8015/8020	TPH/Diesel EPA 8015	TRPH EPA 418.1	RCI	STLC Pb							COMMENTS
S-39½-B17	12/2/93 1410	Soil	no	1	204227.5	X											
S-45-B17	1420	↓	↓	1	20428.3	X											
S-49½-B17	1430	↓	↓	1	20429.1	X											
S-54½-B17	1440	↓	↓	1	20430.5	X											
SP-A	1515	↓	↓	1	}		}										}
SP-B	1515	↓	↓	1	}20431.3	X	}		X	X							} Composite
SP-C	1515	↓	↓	1	}		}										}
SP-D	1515	↓	↓	1	}		}										}
Leachate					20432.1												

Sample Condition as Received
Temperature ° C: ______
Cooler #: ______
Inbound Seal Yes No
Outbound Seal Yes No

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time
Jeanne Buckthal / RESNA	12/3/93	1530	[signature] / Pace	12/3	[illegible]
[signature] / Pace	12/3	1915	[signature] / [illegible]	12/3/93	1915

Additional Comments: ① Collected date 12-2-93 per sample label. SB 12/6

Distribution: White - Original Yellow - Exxon Pink - Lab Goldenrod - Consultant Field Staff

RESNA
Working to Restore Nature

APPENDIX G

SOIL REMOVAL RECORD

Dillard Environmental Services

A Division of Dillard Trucking, Inc.

P.O. Box 218 • Byron, CA 94514
Phone (510) 634-6850 • Fax (510) 634-0569
EPA #CAD981692809 • D.O.H.S. #1715 • CA LIC. #624685-A HAZ

January 25, 1994

RESNA
3315 Almaden Expressway #34
San Jose, CA 94118

Fax# (408)264-2435

Attn: Jeanne Buckthal

Re: Exxon Station #7-3399 - 2991 Hopyard Rd., Pleasanton
Removed - 5 yards of drill cutting soil

Dear Jeanne:

Please be advised that the drill cutting soil from the above referenced site has been removed. The soil was taken to BFI Landfill, Livermore, CA on January 20, 1994.

I trust that you will find everything in order. If you have any questions, please do not hesitate to call.

Sincerely,

DILLARD ENVIRONMENTAL SERVICES
A Divison of Dillard Trucking, Inc.

Donna L. Pedersen
Project Manager

DLP/st

FAXED 1-25-94

Waste Systems™ BROWNING-FERRIS INDUSTRIES

No. 1023861

NON-HAZARDOUS SPECIAL WASTE MANIFEST

GENERATOR

Generator Name Exxon Company, U.S.A.
Generating Location Exxon Station #7-3399

Address P.O. Box 4415
Houston, Texas 77310-4415

Address 2991 Hopyard Road
Pleasanton, CA

Phone No. 510 - 2468700
Phone No.

BFI Waste Code CA 405 122993 03285

Description of Waste	Quantity	Units	Containers No.	Containers Type
NON HAZARDOUS SOIL	00005	Y	02	T

Type: D - Drum, C - Carton, B - Bag, T - Truck, P - Pounds, Y - Yards, O - Other

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Marla D. Guerrler — Generator Authorized Agent Name
[signature] — Signature
012094 — Shipment Date

TRANSPORTER

Truck No. 87 811
Phone No. (510) 634-6850

Transporter Name Dillard Trucking, Inc. 2000/74
Driver Name (Print) Troy Girard

Address P.O. Box 218
Byron, CA 94514

Vehicle License No./State 2119842? / 1CB2270
Vehicle Certification 427671 / 427679

I hereby certify that the above named material was picked up at the generator site listed above.

[signature] 012094 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

[signature] Driver Signature 012094 Delivery Date

DESTINATION

Site Name B.F.I. Vasco Rd., Landfill P.O.#02-10151
Phone No. 510 - 4470491

Address 4001 North Vasco Road, Livermore, CA 94550

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate

Name of Authorized Agent
[signature] Signature
1/20/94 Receipt Date

PASS CODE

TRANSPORTER RETAIN