QUARTERLY SUMMARY REPORT
Alameda County
January 1990

ARCO Service Station No. 771
899 Rincon Avenue/Pine Street
Livermore, California

Brief History

- August 25, 1987, the waste-oil tank (Plate P-1) was removed from the site by Crosby and Overton Environmental Management, Inc. The waste-oil tank pit was excavated to a depth of 10 feet and a soil sample collected by Brown and Caldwell for laboratory analysis. Results of analyses indicated total petroleum fuel hydrocarbon levels of 378 ppm. Solvents, BTX, and PCB's were not detected.

- September 1, 1987, the waste-oil tank pit was further excavated and Brown and Caldwell collected a soil sample from a depth of 12 feet. Petroleum fuel hydrocarbons were not detected in the sample.

- October 19, 1987, waste-oil contaminated soil was transported to a Class I landfill in Casmalia, California.

Future Work

- ARCO plans no further work at the site at this time.

QUARTERLY SUMMARY REPORT
Alameda County
January 1990

ARCO Service Station No. 276
10600 MacArthur Boulevard
Oakland, California

Brief History

- September 29, 1989, a waste-oil tank was removed from the site. Pacific Environmental Group, Inc. (PEG) collected soil samples from beneath the tank. Laboratory analyses of the soil samples indicated concentrations of total oil and grease (TOG) and high boiling point hydrocarbons (HBPH) between 3,300 to 7,300 parts per million (ppm).

- November 4, 1989, the waste-oil tank excavation was extended downward. PEG collected samples from the bottom of the excavation and from the excavation sidewalls. Laboratory analysis of these samples indicated TOG and HBPH at concentrations ranging from 10 to 21,000 ppm.

- December 6, 1988, the waste-oil tank excavation was extended further to the north and south. PEG collected samples from the excavation sidewalls. Laboratory results of these two samples indicated nondetectable concentrations of TOG and HBPH.

- March 20, 1989, Applied GeoSystems initiated a subsurface environmental investigation at the site involving installation of 5 onsite monitoring wells. Soil contamination found from 16 to 25 feet below the ground surface in boring B-2, located adjacent to the station's underground storage tanks in a shallow perched zone, and at 16 feet below the surface in boring B-5 located 10 feet from B-2 (Table 1 and Plate P-1). Ground-water samples collected in April 1989 suggested hydrocarbon contamination in wells MW-2 through MW-5 (Table 2 and 3). Nine inches of free product was subsequently measured in well MW-2. Repeated bailing by Applied GeoSystems has reduced product thickness in well MW-2 to a sheen.

- June 21, 1989, PEG performed a soil vapor survey at the offsite property south of site. PEG reported an offsite contaminant plume in the shallow subsurface soil.

- August 3, 1989, based on PEG survey, Applied GeoSystems drilled 9 soil borings on the offsite property south of site to confirm and assess lateral and vertical extent of soil contamination (Plate P-1). The majority of soil contamination appears to be laterally confined to an elliptical area encompassing MW-2, MW-5, and borings

TABLE 1
ANALYTICAL RESULTS OF WASTE-OIL TANK SAMPLES
ARCO Station No. 276
Oakland, California

Sample Number	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
S-26-B1	<2	<0.05	<0.05	<0.05	<0.05
S-31-B1	<2	<0.05	<0.05	<0.05	<0.078
S-5.5-B2	<2	<0.05	<0.05	<0.05	<0.05
S-11-B2	<2	<0.05	<0.066	<0.05	0.079
S-16-B2	38	0.30	0.91	0.38	2.4
S-20-B2	690	7.4	36	10	62
S-24.5-B2	4.2	<0.05	0.10	<0.05	0.18
S-28-B2	<2	<0.05	<0.05	<0.05	<0.05
S-30.5-B3	<2	<0.05	<0.05	<0.05	<0.05
S-21-B4*	<5.0	<0.05	<0.05	<0.05	<0.05
S-31-B4	<5.0	<0.05	<0.05	<0.05	<0.05
S-11-B5	<5.0	0.13	<0.05	<0.05	<0.05
S-16-B5	220.0	0.83	3.4	2.2	14
S-18-B5	<5.0	0.23	0.11	<0.05	<0.05
S-24-B5	<5.0	0.086	<0.05	<0.05	<0.05
S-31-B5	<5.0	<0.05	<0.05	<0.05	<0.05

Results are in parts per million (ppm)
TPHg = total petroleum hydrocarbons as gasoline
< = below the reporting limits of the analysis
* = sample S-21-B4 also analyzed for TOG. (Not found)

Sample designation: S-31-B5

- S = Soil sample
- 31 = Sample depth in feet
- B5 = Boring number

TABLE 2
ANALYTICAL RESULTS OF WATER SAMPLES
ARCO Service Station 276
10600 MacArthur Boulevard
Oakland, California

Sample Number	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
W-35-MW1	<0.050	<0.00050	<0.00050	<0.00050	<0.00050
W-19-MW2	165	13	21	2.1	12.7
W-35-MW3	0.56	0.00054	0.00075	<0.00050	<0.00050
W-34-MW4	2.5	0.27	0.0014	<0.05	0.079
W-34-MW5	0.13	0.00067	<0.00050	<0.00050	<0.00050

Results are in parts per million (ppm)
TPHg = total petroleum hydrocarbons as gasoline
< = below the reporting limits of the analysis
Sample designation: W-34-MW5
W = Water sample
34 = Sample depth in feet
MW5 = Well number

TABLE 3
RESULTS OF EPA 624 WATER SAMPLE ANALYSIS
COLLECTED FROM MONITORING WELL MW-4
ARCO Service Station 276
10600 MacArthur Boulevard
Oakland, California
(April 24, 1989)

Sample Number	Benzene	Total Xylenes	Tetra-chloro-ethene	Total Oil& Grease	1-ethyl-2-methyl-benzene	1,3,5-trimethyl-benzene
W-34-MW4	0.780	0.130	1.50	<5.0	**	**

Results are in parts per million (ppm)
< = below the reporting limits of the analysis
** = compound identified at concentrations below the reporting limits of the method used.

Sample designation: W-34-MW4
- W = Water sample
- 34 = Sample depth in feet
- MW4 = Well number

TABLE 4
ANALYTICAL RESULTS OF OFFSITE INVESTIGATION
ARCO Service Station 276
10600 MacArthur Boulevard
Oakland, California
Page 1 of 3
(August 1989)

Sample ID	TPHg	TPHd	B	T	E	X
S-16.5-B1	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-21.5-B1	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-24.0-B1	<1	<10	<0.005	<0.005	<0.005	<0.005
S-29.0-B1	2.3	NA	0.27	0.087	0.054	0.15
S-06.5-B2	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-16.5-B2	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-24.0-B2	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-24/26.5-B2	NA	<10	NA	NA	NA	NA
S-29.0-B2	<1	NA	<0.005	<0.005	<0.005	<0.005
S-11.5-B3	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-16.5-B3	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-21.5-B3	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-26.5-B3	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-29.0-B3	<1	NA	<0.005	<0.005	<0.005	<0.005
S-06.5-B4	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-16.5-B4	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-21.5-B4	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-26.5-B4	4	<10	0.41	0.07	0.08	0.16
S-29.0-B4	<2.0	NA	<0.050	<0.050	<0.050	<0.050

See notes on Page 3 of 3.

TABLE 4
ANALYTICAL RESULTS OF OFFSITE INVESTIGATION
ARCO Service Station 276
10600 MacArthur Boulevard
Oakland, California
Page 2 of 3
(August 1989)

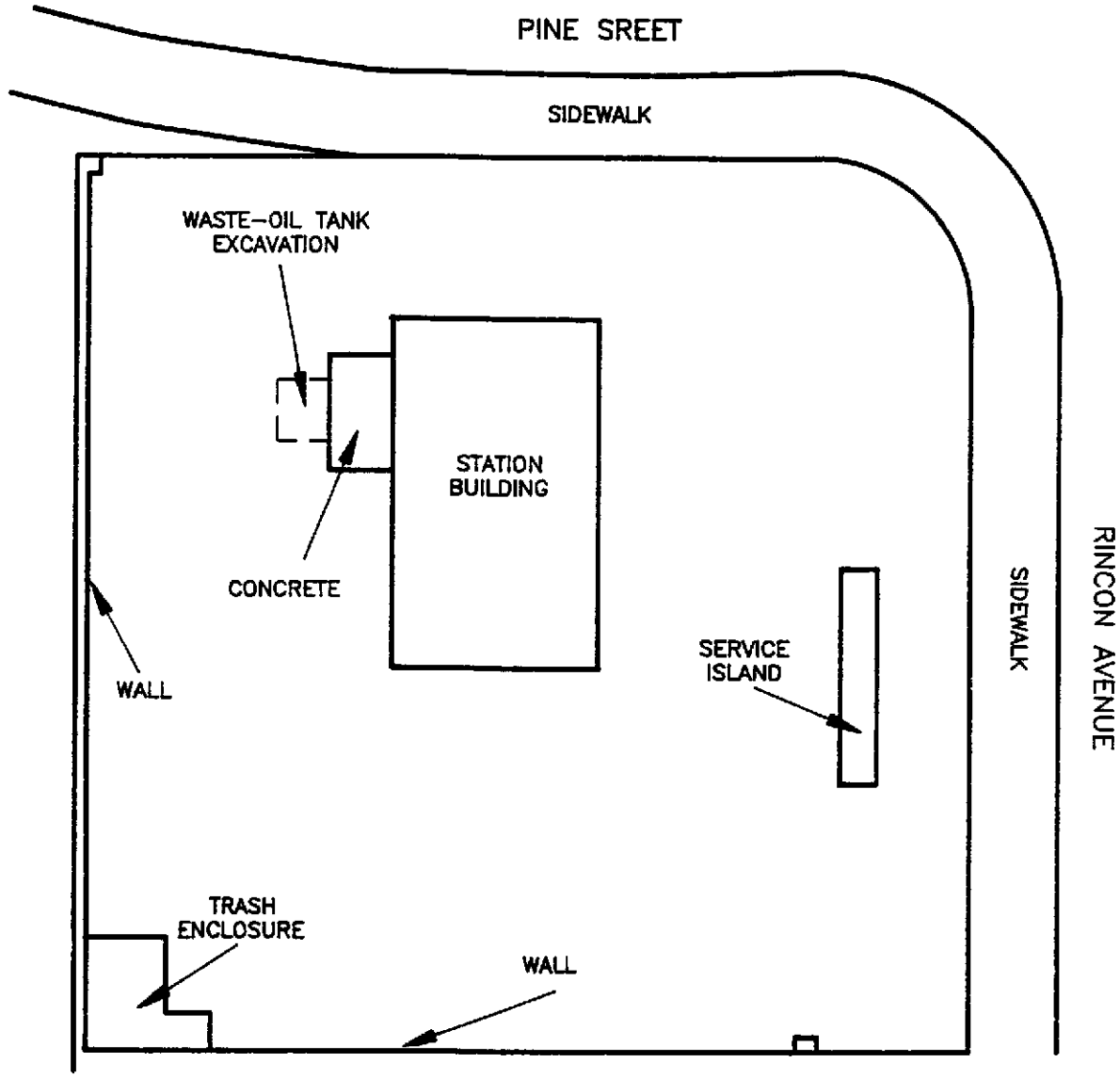
Sample ID	TPHg	TPHd	B	T	E	X
S-06.5-B5	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-16.5-B5	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-21.5-B5	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-26.5-B5	<1	NA	0.032	<0.005	<0.005	<0.005
S-29.0-B5	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-06.5-B6	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-16.5-B6	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-21.5-B6	<2.0	NA	0.22	0.14	0.13	0.56
S-26.5-B6	1400	320	<2	19	12	63
S-31.5-B6	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-16.0-B7	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-21.0-B7	530	NA	1.1	5.8	5.8	30
S-26.0-B7	<2.0	NA	0.084	<0.050	<0.050	<0.050
S-31.0-B7	15	NA	0.61	0.57	0.24	0.92
S-36.0-B7	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-16.0-B8	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-21.0-B8	<2.0	NA	0.18	<0.050	0.72	<0.050
S-23.0-B8	<2.0	NA	0.11	<0.050	<0.050	0.075
S-26.0-B8	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-31.0-B8	<2.0	NA	<0.050	<0.050	<0.050	<0.050

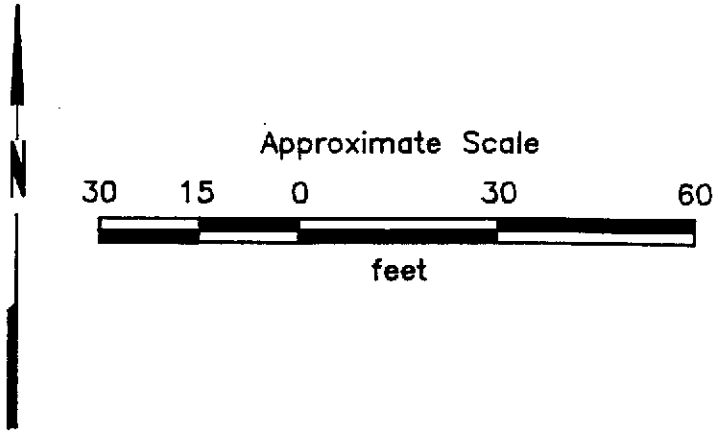
See notes page 3 of 3.

TABLE 4
ANALYTICAL RESULTS OF OFFSITE INVESTIGATION
ARCO Service Station 276
10600 MacArthur Boulevard
Oakland, California
Page 3 of 3
(August 1989)

Sample ID	TPHg	TPHd	B	T	E	X
S-16.0-B9	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-21.0-B9	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-26.0-B9	<2.0	NA	<0.050	<0.050	<0.050	<0.050
S-31.0-B9	<2.0	NA	<0.050	<0.050	<0.050	<0.050

Results are in parts per million (ppm)
TPHg(d) = total petroleum hydrocarbons as gasoline (diesel)
B = benzene; T = toluene; E = ethylbenzene; X = total xylenes
NA = not analyzed;
< = below the reporting limits of the analysis
Sample designation: S-31.0-B9
| | └ Boring number
| └ Sample depth in feet
└ Soil sample





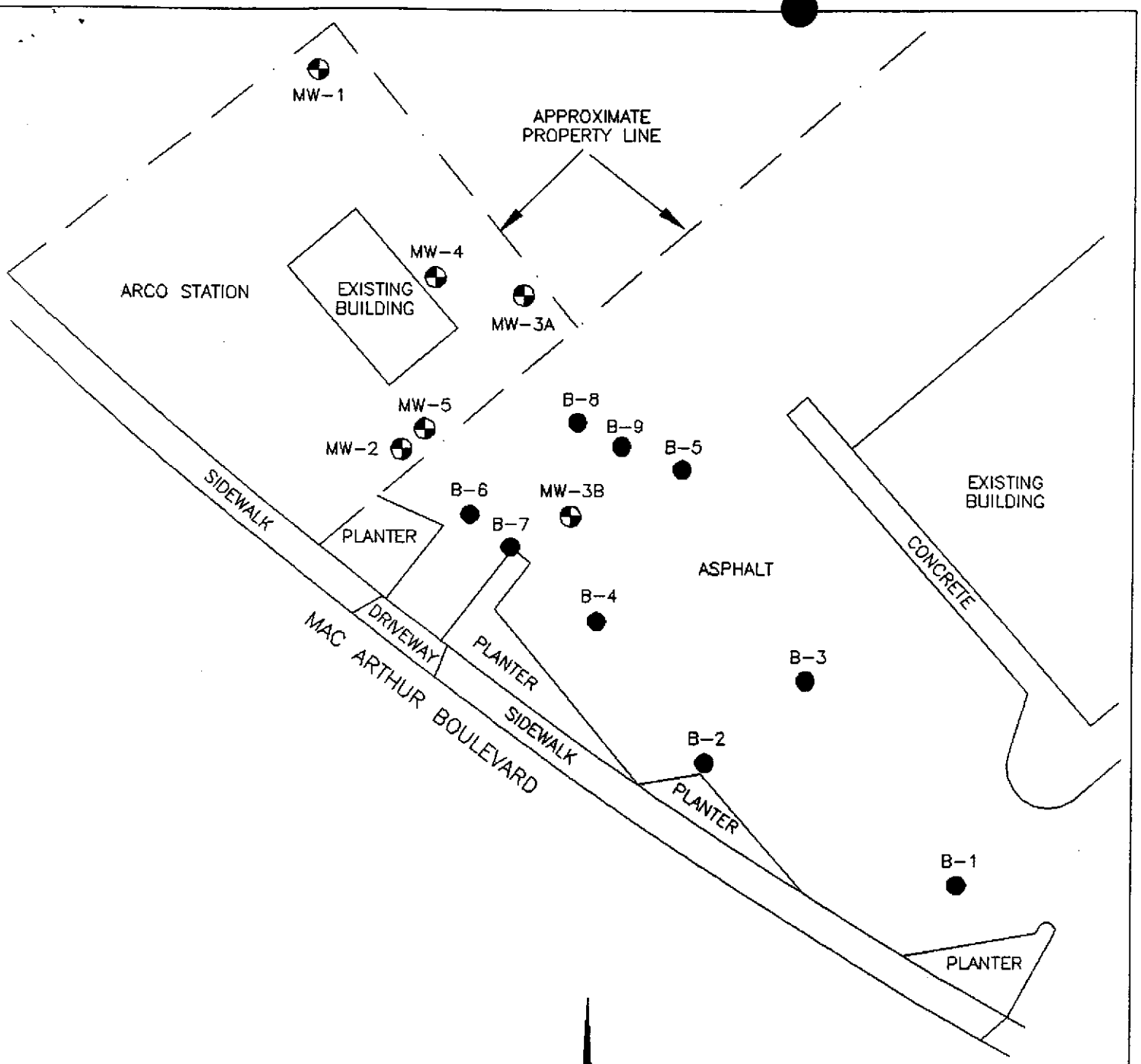
Source: Based on ARCO site plan dated 1980

Applied GeoSystems

PROJECT NO. 19011-1

GENERALIZED SITE PLAN
ARCO Station No. 771
899 Rincon Avenue
Livermore, California

PLATE
P - 1



MW-5 ⊕ = Approximate location of ground-water monitoring well

B-9 ● = Approximate location of soil boring

Source: Surveyed by Ron Archer Civil Engineer, Inc.

N

Approximate Scale

50 25 0 50 100

feet

Applied GeoSystems

PROJECT NO. 19014-3

GENERALIZED SITE PLAN
ARCO Station No. 276
10600 Mac Arthur Boulevard
Oakland, California

PLATE

P - 2

SUMMARY REPORT
Third Quarter 1990

ARCO Service Station 771
899 Rincon Avenue/Pine Street
Livermore, California
Alameda County

BACKGROUND

For site history prior to 1990 refer to the October-December 1989 Quarterly Summary Report issued in January 1990.

- February 1 and 2, 1990 - Applied GeoSystems performed a Limited Environmental Site Assessment, including drilling three soil borings to depths ranging from 31-1/2 to 35 feet in the area of the underground storage tanks (Plate 1). This assessment was performed prior to future tank replacement activities at the site. Ground water was encountered at 33 feet. (Applied GeoSystems 60000-1, dated June 22, 1990). The report was submitted to RWQCB and ACHA in June 1990.

- September 1990, submitted Work Plan for investigation of hydrocarbons in soil and ground water to RWQCB and ACHA (Applied GeoSystems, 60000-3, September 20, 1990).

SOIL CONDITIONS

Analysis of soil samples collected from the soil borings on February 1 and 2, 1990 indicated concentrations of TPHg and BTEX compounds in seven samples analyzed. The highest concentrations of TPHg, benzene, and ethylbenzene (190 ppm, 0.047 ppm and 0.011 ppm respectively) were detected in samples from depths of 25 and 32-1/2 feet in boring B-3 (Table 1). Approximately 1/8 inch of floating gasoline product was present on the ground water that entered boring B-1 at a depth of 33 feet.

QUARTERLY GROUND-WATER MONITORING

No monitoring wells onsite.

STATUS SUMMARY: REMEDIATION

No change from last quarter.

ANTICIPATED WORK FOR NEXT QUARTER

- Implement Applied GeoSystems Work Plan (AGS, September 1990) upon approval from ACHA.
- ARCO plans to replace the underground storage tanks during 1990-1991.
- An assessment to evaluate the extent of hydrocarbons in soil adjacent to the tanks will be performed during tank replacement activities at the site.

TABLE 1
RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES
ARCO Station 771
899 Rincon Avenue
Livermore, California

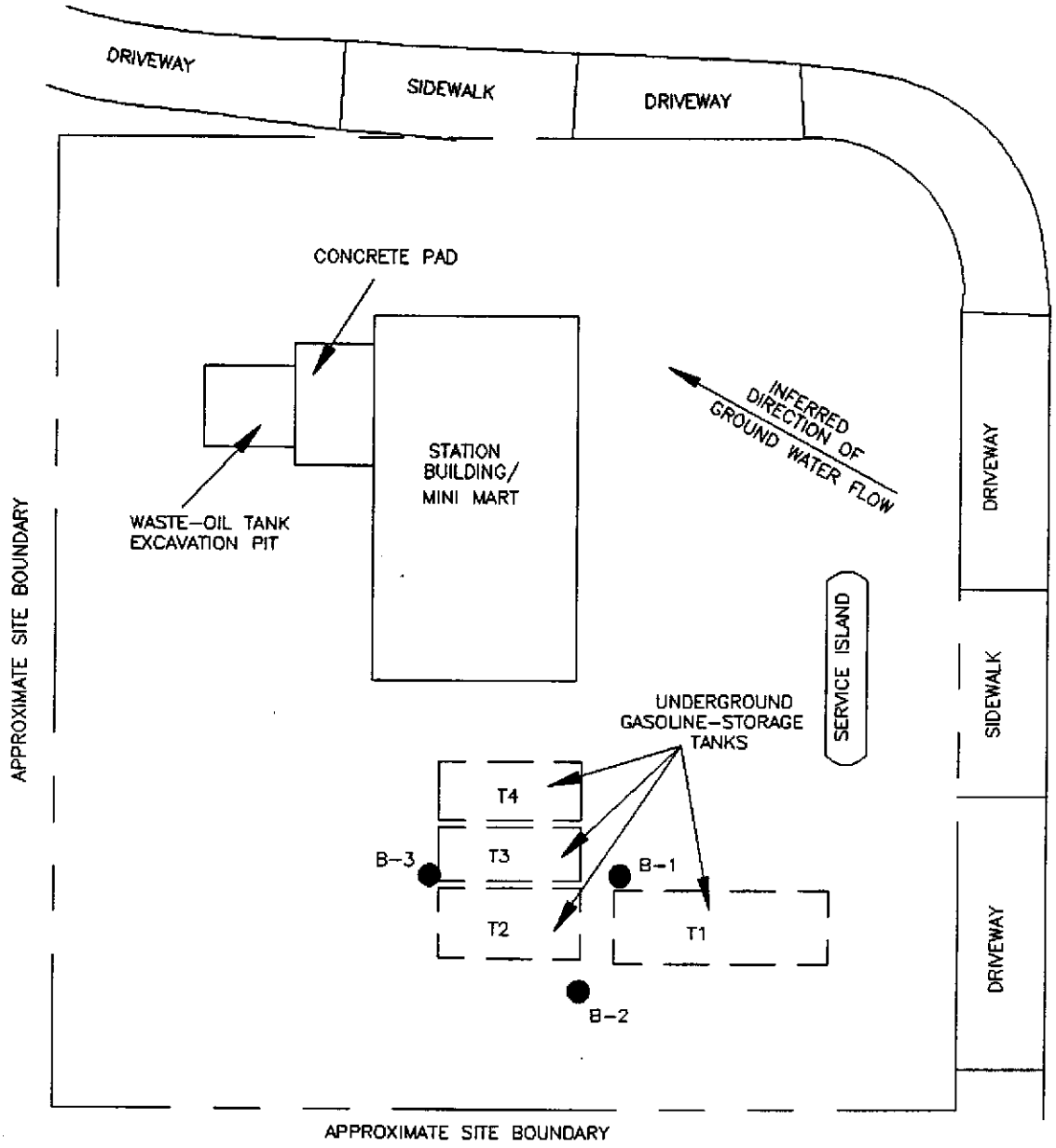
Sample Number	Date	TPHg	B	T	E	X
S-10-B1	2/1/90	<1.0	<0.005	<0.005	<0.005	<0.005
S-19.5-B1	2/1/90	<1.0	0.022	0.024	<0.005	0.022
S-24.5-B1	2/1/90	<1.0	0.022	0.015	0.010	0.048
S-29.5-B1	2/1/90	<1.0	<0.005	<0.005	<0.005	<0.005
S-10-B2	2/1/90	<1.0	<0.005	<0.005	<0.005	<0.005
S-20-B2	2/1/90	<1.0	0.016	0.020	<0.005	0.025
S-25-B2	2/1/90	1.4	<0.01	<0.01	<0.01	0.018
S-31-B2	2/1/90	<1.0	<0.005	<0.005	<0.005	<0.005
S-10-B3	2/2/90	<1.0	<0.005	<0.005	<0.005	<0.005
S-19.5-B3	2/2/90	<1.0	0.028	<0.005	<0.005	0.017
S-25-B3	2/2/90	4.5	0.047	<0.01	0.011	0.038
S-32.5-B3	2/2/90	190	<1.0	<1.0	<1.0	1.7

Results in milligrams/kilogram (mg/kg) or parts per million (ppm).
TPHg: Total petroleum hydrocarbons as gasoline.
B = benzene T = toluene E = ethylbenzene X = total xylene isomers
< = indicates less than the reported limit

Sample identification:

S-2.5-B3

- S: Soil sample
- 2.5: Approximate sample depth in feet
- B3: Boring number



EXPLANATION

B-3 ● = Soil boring (Applied GeoSystems, February 1 and 2, 1990)

Approximate Scale

20 10 0 20 40

feet

Source: Modified from plan supplied by ARCO

Applied GeoSystems

PROJECT 19011-1

GENERALIZED SITE PLAN
ARCO Station 771
899 Rincon Avenue
Livermore, California

PLATE 1

SUMMARY REPORT
First Quarter 1990

ARCO Service Station No. 771
899 Rincon Avenue/Pine Street
Livermore, California 94550
Alameda County

BACKGROUND

For site history prior to 1990 refer to the October-December 1989 Quarterly Summary Report issued in January 1990.

- February 1 and 2, 1990 - Applied GeoSystems performed a Limited Environmental Site Assessment, including drilling three soil borings to depths ranging from 30 to 34 feet in the area of the underground storage tanks (Plate 1). A report summarizing the results of the assessment is presently in draft form.

SOIL CONDITIONS

Analysis of soil samples collected from the soil borings on February 1 and 2, 1990 indicated elevated concentrations of TPHg and BTEX compounds in seven samples analyzed. The highest concentrations of TPHg, benzene, and ethylbenzene (190 ppm, 0.047 ppm and 0.011 ppm respectively) were detected in samples from depths of 25 and 32-1/2 feet in boring B-3 (Table 1). Approximately 1/8 inch of floating gasoline product was present on the ground water that entered boring B-1 at a depth of 33 feet.

QUARTERLY GROUND-WATER MONITORING

No monitoring wells onsite.

STATUS SUMMARY REMEDIATION

No remediation taking place at present time.

ANTICIPATED WORK FOR THE NEXT QUARTER

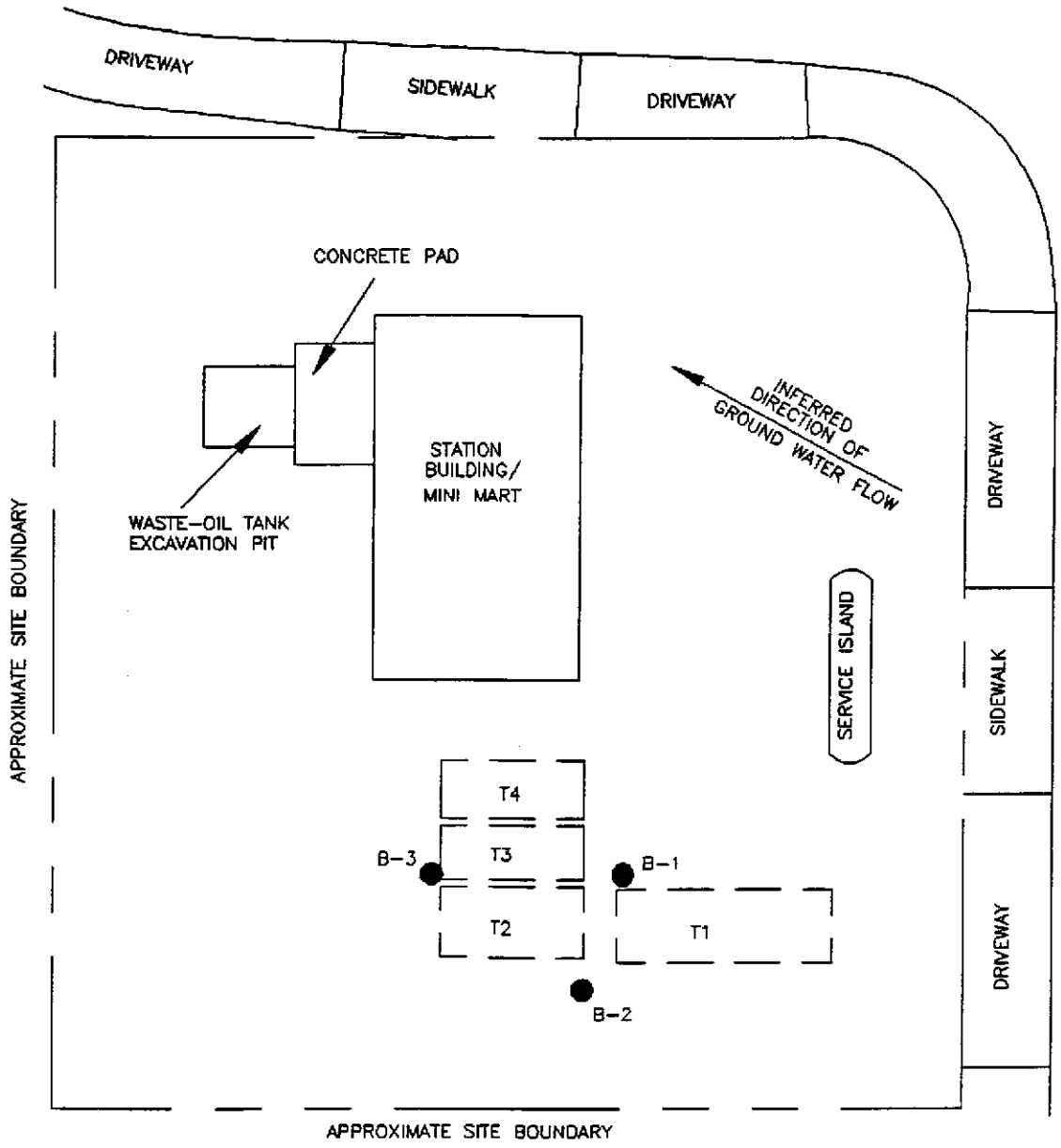
- Prepare a Work Plan to evaluate the extent of hydrocarbons in soil and confirm the presence of floating product.

TABLE 1
RESULTS OF LABORATORY ANALYSES
OF SOIL SAMPLES
ARCO Station 771
899 Rincon Avenue
Livermore, California

Sample ID	Date	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
S-10-B1	2/1/90	<1.0	<0.005	<0.005	<0.005	<0.005
S-19.5-B1	2/1/90	<1.0	0.022	0.024	<0.005	0.022
S-24.5-B1	2/1/90	<1.0	0.022	0.015	0.010	0.048
S-29.5-B1	2/1/90	<1.0	<0.005	<0.005	<0.005	<0.005
S-10-B2	2/1/90	<1.0	<0.005	<0.005	<0.005	<0.005
S-20-B2	2/1/90	<1.0	0.016	0.020	<0.005	0.025
S-25-B2	2/1/90	1.4	<0.01	<0.01	<0.01	0.018
S-31-B2	2/1/90	<1.0	<0.005	<0.005	<0.005	<0.005
S-10-B3	2/2/90	<1.0	<0.005	<0.005	<0.005	<0.005
S-19.5-B3	2/2/90	<1.0	0.028	<0.005	<0.005	0.017
S-25-B3	2/2/90	4.5	0.047	<0.01	0.011	0.038
S-32.5-B3	2/2/90	190	<1.0	<1.0	<1.0	1.7

Results in parts per million (ppm)
TPHg = Total Petroleum Hydrocarbons as gasoline
< = Indicates less than the detection limit for the specified method of analysis.

S-32.5-B3
- S = Soil sample
- 32.5 = Approximate sample depth
- B3 = Boring number



EXPLANATION

B-3 ● = Soil boring (Applied GeoSystems, February 1 and 2, 1990)

N

Approximate Scale

20 10 0 20 40

feet

Source: Modified from plan supplied by ARCO

Applied GeoSystems

PROJECT 19011-1

GENERALIZED SITE PLAN
ARCO Station 771
899 Rincon Avenue
Livermore, California

PLATE 1