Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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LETTER REPORT
GROUND-WATER MONITORING AND TESTING
at
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

AGS Job No. 18034-6
8-29-89

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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August 29, 1989
0820jhun
AGS 18034-6

Mr. J. Kevin Hunter
Exxon Company, U.S.A.
P.O. Box 4415
Houston, Texas 77210-4415

Subject: Letter Report on Ground-Water Monitoring and Testing at Exxon Station No. 7-3399, 2991 Hopyard Road, Pleasanton, California.

Mr. Hunter:

This letter report summarizes the results of ground-water monitoring and testing performed at Exxon Station No. 7-3399, 2991 Hopyard Road, Pleasanton, California. Work at the site included

1) Measuring water levels in onsite and offsite ground-water monitoring wells and City of Pleasanton Municipal Well No. 7 (Municipal Well No. 7);

2) Subjectively examining water from the monitoring wells for evidence of hydrocarbon contamination;

3) Purging the wells; and

4) Collecting ground-water samples for laboratory testing. Applied GeoSystems performed the work at the request of Exxon Company, U.S.A. (Exxon), to evaluate whether or not pumping ground water from Municipal Well No. 7 would influence movement of hydrocarbon contaminants toward this well. We conducted the work between July 17 and August 17, 1989.

Exxon Station No. 7-3399 is at the eastern corner of Hopyard Road and Valley Avenue in Pleasanton, as shown on the Site Vicinity Map (Plate P-1). The Generalized Site Plan, Plate P-2, shows the general layout of station facilities, ground-water monitoring wells MW-1, MW-4, MW-5d (deep), and MW-5s (shallow); ground-water recovery well MW-7; and vapor recovery well VR-1. In July and August 1988, Exxon excavated approximately 1,900 cubic yards of soil from the area of the former gasoline storage tank pit (to a depth of 31 feet); aerated hydrocarbon-contaminated soil and removed it from the site; and backfilled the tank pit with pea gravel. Applied GeoSystems performed a pump test of

former well MW-2 in June 1988 and during the test removed and treated approximately 25,000 gallons of ground water. We conducted longer-term ground-water remediation from July 14 to September 1, 1988, February 9 to June 4, 1989, and from June 30, 1989, through the present. During this time, approximately 7 million gallons of ground water were removed. Ground-water remediation is in progress. We commenced our hydrocarbon-vapor extraction program on July 28, 1989, and pumped at a rate of approximately 75 cubic feet per minute until August 22, 1989. We shut the system off on this date to change the carbon filtration system and receive final approval of our system from the Bay Area Air Quality Management District. The system will be restarted on September 5, 1989. The location of the remediation equipment pad is shown on Plate P-2.

Municipal Well No. 7 is approximately 275 feet northwest of the station site and is shown on Plate P-1. According to computer records from the City of Pleasanton, the City began pumping well No. 7 sometime between 2:11 and 2:26 p.m. on July 17, 1989; pumping continued until sometime between 10:33 and 10:48 a.m. on August 3, 1989. We understand from representatives of the City of Pleasanton that pumping system was shut down at that time for mechanical repairs. The pumping rate varied between approximately 1,620 and 1,920 gallons per minute during the time the well was in operation. The City resumed pumping this well on August 24, 1989.

Field Procedures and Laboratory Testing

Field personnel from Applied GeoSystems visited the site on July 17 through 21, 26, and August 3 and 17, 1989, to measure the water levels in wells MW-1, MW-4, MW-5s, MW-5d, and Municipal Well No. 7, and to examine the water for evidence of hydrocarbons. We measured the depth to water in each well using a Solinst water-level indicator. The water-level indicator is accurate to the nearest 0.01 foot. We could not measure the water level in Municipal Well No. 7 on August 3 because the well's pump shaft had bent the small diameter access pipe in the well. We then collected water samples by gently lowering approximately half the length of a clean Teflon bailer past the air-water interface, and examined these samples for floating product and sheen. We found no floating product or sheen on the water in the wells. Table 1, included with this letter report, presents the results of the water-level measurements and subjective analyses.

During site visits on July 17, 20, 26, and August 2, 1989, Applied GeoSystems personnel purged and sampled water from the wells for laboratory testing. We purged each well of approximately 3 well volumes of water with either a 1 1/2-inch-diameter or a 3-inch-diameter submersible pump before sampling for laboratory testing. We cleaned the pumps with a commercial biodegradable soap (Alconox) and rinsed them with water before use in each well. We monitored the discharge water for temperature, pH, and conductivity, and continued to pump until these measurements were stable. Purge water was directed into the onsite oil-water separator tank that discharges into the sewer. Exxon is authorized to

discharge fluids into the sewer system under Wastewater Discharge Permit No. 5541-001, issued by the Dublin-San Ramon Services District. We sampled water from recovery well MW-7 and Municipal Well No. 7 when these wells were pumping, and we considered the wells properly purged for sampling. Approximately 10 and 44 million gallons, respectively, had been pumped from Municipal Well No. 7 on the dates (July 20 and August 2, 1989,) we sampled water from this well.

After pumping was completed (except well MW-7 and Municipal Well No. 7), the water in the wells recharged to the static water level before we sampled for laboratory testing. We collected samples with a Teflon bailer that we cleaned before each use. The bailer was lowered approximately half its length past the air-water interface to retrieve the samples. We collected water from recovery well MW-7 (August 2 only) from a newly installed sample port at the oil-water separator and water from Municipal Well No. 7 from a sample port at the wellhead. The samples were transferred slowly to laboratory-cleaned, 40-milliliter volatile organic analysis sample vials that contained hydrochloric acid as a preservative. We sealed the sample containers with Teflon-lined caps, labeled them, and placed them in iced storage for transport to the analytical laboratories. Except for our sampling on August 2, 1989, we also included a field blank with each group of samples submitted for testing. The blank consisted of tap water that was pumped through the submersible pump to evaluate whether hydrocarbon contaminants were being introduced by the pump. We collected the blank before sampling wells MW-1 and MW-4 because we found detectable hydrocarbons in these wells in March 1989. The field geologist initiated Chain of Custody Records that accompanied the samples to the laboratories and we include copies of these forms in the Appendix to this letter report.

Water samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by modified Environmental Protection Agency (EPA) Method 8015 and for the purgeable gasoline constituents benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) by EPA Method 602. These analyses were performed at the laboratory of Applied GeoSystems in Fremont, California, which is certified by the State of California to perform the requested analyses (Hazardous Waste Testing Laboratory Certificate No. 153). On July 20 and August 2, 1989, we also submitted samples from well MW-4 and Municipal Well No. 7 to Clayton Environmental Consultants, Inc., of Pleasanton, California, (Certified Hazardous Waste Testing Laboratory Certificate No. 163) to test for 58 volatile organic compounds (VOCs). Exxon Company, U.S.A., requested that samples be tested for VOCs because the City of Pleasanton previously tested water from Municipal Well No. 7 for VOCs by EPA Method 502.2. The samples we submitted on July 20, 1989, were tested by EPA Method 502.2 and those submitted on August 2, 1989, were tested by EPA Method 524.2. (Clayton Environmental Consultants, Inc., could not provide a rush analysis by Method 502.2 on August 2.) Table 2 and the Analysis Reports included with this letter report (Appendix) show the results of these analyses.

Interpretation of Data

We used the depths to ground-water measured in the wells during the site visits (Table 1) and wellhead elevations to calculate the difference in water-level elevations (with respect to mean sea level) in the uppermost aquifer. (Ron Archer, Civil Engineer, Inc., surveyed the wellhead elevations on July 17, 1989). Table 3 presents the ground-water surface elevation data and Plates P-3 through P-10, Ground-Water Surface Maps, show graphical interpretations of the data. Because of space constraints in recovery well MW-7, we could not measure the water level in this well. We also include in Table 3 the elevations of water levels in well MW-5d and in Municipal Well No. 7. Plate P-11 is a hydrograph of water levels in the ground-water monitoring wells and in the municipal well. The hydrograph is provided to show relative water levels during the time of pumping. On July 19, 1989, representatives of the City of Pleasanton temporarily shut down the pump in Municipal Well No. 7 (for 10 to 20 minutes) before Applied GeoSystems personnel measured the water level in this well. The measured water level reflects a recharging condition.

Discussion

Plates P-3 through P-10 show that between July 17 and August 3, 1989, the ground water in the uppermost aquifer flowed away from Municipal Well No. 7, primarily toward the southwest and also toward the south (July 18, August 3, and 17, 1989) and southeast (July 20, 1989). The ground-water gradients were shallow, ranging from 0.0003 (0.03 foot vertical distance to 100 feet horizontal distance) on July 20, 1989, to 0.0009 (0.09 foot vertical distance to 100 feet horizontal distance) on July 26, 1989.

The water levels declined in both the uppermost and second aquifers during pumping of Municipal Well No. 7 (Plate P-11). During this time, the average rate of decline in the uppermost aquifer (wells MW-1, MW-4, and MW-5s) was 0.079 foot per day, whereas the average rate of decline in the second aquifer (well MW-5d) was 0.108 foot per day. After Municipal Well No. 7 was shut down on August 3, the water levels of the uppermost and second aquifers declined (through August 17), but at the lower rates of 0.067 foot per day (wells MW-1, MW-4, and MW-5s) and 0.043 foot per day, respectively. Between April 26 and June 30, 1989, the water level in wells MW-1, MW-4, and MW-5s (uppermost aquifer) declined at an average rate of 0.033 foot per day, and in well MW-5d (second aquifer) declined at an average rate of 0.037 foot per day (see Applied GeoSystems Letter Report No. 18034-4, August 28, 1989). Lower rates of decline occurred before and after the pump for Municipal Well No. 7 was placed in operation. Plate P-11 also shows that the water level in the uppermost aquifer was consistently higher than the water level in the second aquifer, which follows the trend of water levels since May 1988 (see Applied GeoSystems Letter Report No. 18034-4, August 28, 1988).

Table 2 shows that concentrations of BTEX were nondetectable in water from monitoring wells MW-1, MW-4, MW-5s and MW-5d for each sampling event between July 17 and August 2. At each sampling event, the water tested from the four wells was within drinking water standards for BTEX. Detectable TPHg was found in water from well MW-1 on July 17 but none was found in that well on July 20, 26, or August 2. Detectable TPHg also was found in water from monitoring well MW-4 and this concentration declined between the July 17 and 26 sampling events. In our letter report No. 18034-4 (Applied GeoSystems, August 28, 1989), we show that concentrations of TPHg and BTEX in the water pumped from recovery well MW-7 decreased between February and June 1989. This trend continued through the August 2, 1989, sampling event where TPHg was less than 1 part per million (ppm) and benzene and total xylene isomers were found at levels less than 0.002 ppm. Of the four purgeable gasoline constituents, only benzene exceeded its Maximum Contaminant Level for drinking water.

The results of the analyses for VOCs show no detectable concentrations of any of the 58 compounds in water from well MW-4 and Municipal Well No. 7 for both the July 20 and August 2 sampling events (see Analysis Reports in Appendix). The results indicate that water from both wells is within acceptable standards for drinking water.

Conclusions

Our interpretations of the ground-water gradients (Plates P-3 through P-10) suggest that the ground water beneath Exxon Station No. 7-3399 was not migrating toward Municipal Well No. 7 during the time this well was being pumped. Water levels in the uppermost aquifer and the second aquifer have declined since April 1989 and the rates of decline in water levels appear to have been greater during the time ground water was being pumped in Municipal Well No. 7 than before or after pumping occurred in this well. We conclude from the data gathered thus far that pumping from Municipal Well No. 7 appears to have contributed to increasing the rates at which water levels dropped in the uppermost and second aquifers beneath the site but does not appear to have reversed the local ground-water gradient of the uppermost aquifer. The data also suggest that the operation of Municipal Well No. 7 has not induced flow of gasoline hydrocarbons toward this well, because the contaminants would be expected to migrate preferentially in the direction of ground-water flow.

The relatively consistent lowering of water levels in both the uppermost and second aquifers without affecting the ground-water gradient in the uppermost aquifer suggests that the drop also may be related to regional ground-water withdrawal and that the interconnection between shallower and deeper aquifers appears to be outside the area of our investigation. The consistent difference in water levels in wells monitoring the uppermost (wells MW-1, MW-4, and MW-5s) and second (MW-5d) aquifers supports the conclusion that these two

aquifers are separated by a relatively impermeable sedimentary unit in the area of our investigation.

In our opinion, the decreases in BTEX and TPHg in the effluent from recovery well MW-7 are related to continued extraction of ground water. These decreases may also be related to the water level falling and the hydrocarbons being left in the unsaturated soil.

Recommendations

We recommend that copies of this letter report be sent to Ms. Dyan Whyte of the California Regional Water Quality Control Board, San Francisco Bay Region, 1111 Jackson Street, Room 6040, Oakland, California 94607; Mr. Steve Cusenza of the City of Pleasanton, Public Works Department, 200 Old Bernal Avenue, Pleasanton, California 94566-08092; Mr. Jerry Taylor, City of Pleasanton Water Laboratory, 5335 Sunol Boulevard, Pleasanton, California 94566-0802; and Mr. Jerry Killingstad of the Alameda County Flood Control and Water Conservation District, Zone 7, 5997 Parkside Drive, Pleasanton, California 94566.

Please call if you have any questions.

Sincerely,
Applied GeoSystems

Rodger C. Witham
Senior Project Geologist

Walter H. Howe
R.G. 730

Enclosures: Results of Subjective Analyses, Table 1
Results of Analyses of Ground Water, Table 2
Ground-Water Elevation Data, Table 3
Site Vicinity Map, Plate P-1
Generalized Site Plan, Plate P-2
Ground-Water Surface Map, July 17, 1989, Plate P-3
Ground-Water Surface Map, July 18, 1989, Plate P-4
Ground-Water Surface Map, July 19, 1989, Plate P-5
Ground-Water Surface Map, July 20, 1989, Plate P-6
Ground-Water Surface Map, July 21, 1989, Plate P-7
Ground-Water Surface Map, July 26, 1989, Plate P-8
Ground-Water Surface Map, August 3, 1989, Plate P-9
Ground-Water Surface Map, August 17, 1989, Plate P-10
Hydrograph of Water in Wells, Plate P-11
Appendix - Chain of Custody Records (6)
Analysis Reports (36)

TABLE 1
RESULTS OF SUBJECTIVE ANALYSES
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California
(page 1 of 2)

Well/Boring	Date	Depth to Water	Floating Product	Sheen
MW-1	7/17/89	44.74	None	None
	7/18/89	44.76	NR	NR
	7/19/89	44.82	NR	NR
	7/20/89	44.85	None	None
	7/21/89	44.95	NR	NR
	7/26/89	45.42	None	None
	8/2/89	NR	NR	NR
	8/3/89	46.18	NR	NR
	8/17/89	47.12	NR	NR
MW-4	7/17/89	44.85	None	None
	7/18/89	44.88	NR	NR
	7/19/89	44.92	NR	NR
	7/20/89	44.98	None	None
	7/21/89	45.04	NR	NR
	7/26/89	45.50	None	None
	8/2/89	NR	NR	NR
	8/3/89	46.28	NR	NR
	8/17/89	47.22	NR	NR
MW-5s	7/17/89	44.91	None	None
	7/18/89	44.93	NR	NR
	7/19/89	44.98	NR	NR
	7/20/89	45.02	None	None
	7/21/89	45.10	NR	NR
	7/26/89	45.57	None	None
	8/2/89	NR	NR	NR
	8/3/89	46.31	NR	NR
	8/17/89	47.25	NR	NR

See notes on page 2 of 2.

TABLE 1
RESULTS OF SUBJECTIVE INSPECTIONS
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California
(page 2 of 2)

Well/Boring	Date	Depth to Water	Floating Product	Sheen
MW-5d	7/17/89	45.73	None	None
	7/18/89	45.75	NR	NR
	7/19/89	44.89	NR	NR
	7/20/89	46.02	None	None
	7/21/89	46.18	NR	NR
	7/26/89	46.83	None	None
	8/2/89	NR	NR	NR
	8/3/89	47.67	NR	NR
	8/17/89	48.27	NR	NR
Well 7	7/17/89	54.15	NR	NR
	7/18/89	62.44*	NR	NR
	7/19/89	58.50	NR	NR
	7/20/89	67.55*	NR	NR
	7/21/89	67.93*	NR	NR
	7/26/89	70.18*	NR	NR
	8/2/89	NR	NR	NR
	8/3/89	NR	NR	NR
	8/17/89	57.10	NR	NR

Depth to static water is in feet below top of casing.
Well 7 = City of Pleasanton Municipal Well No. 7
* = Pumping water level
NR = Not recorded

TABLE 2
RESULTS OF ANALYSES OF GROUND WATER
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California
(page 1 of 2)

Date	Sample No.	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	EPA 502.2	EPA 524.2
MW-1								
7/17/89	W-45-MW1	<0.0005	<0.0005	<0.0005	<0.0005	0.023	--	--
7/20/89	W-45-MW1	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
7/26/89	W-46-MW1	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
8/2/89	W-46-MW1	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
MW-4								
7/17/89	W-45-MW4	<0.0005	<0.0005	<0.0005	<0.0005	0.39	--	--
7/20/89	W-45-MW4	<0.0005	<0.0005	<0.0005	<0.0005	0.20	ND*	--
7/26/89	W-46-MW4	<0.0005	<0.0005	<0.0005	<0.0005	0.066	--	--
8/2/89	W-46-MW4	--	--	--	--	--	--	ND*
MW-5d								
7/17/89	W-46-MW5d	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
7/20/89	W-47-MW5d	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
7/26/89	W-47-MW5d	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
8/2/89	W-48-MW5d	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
MW-5s								
7/17/89	W-46-MW5s	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
7/20/89	W-46-MW5s	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
7/26/89	W-46-MW5s	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
8/2/89	W-47-MW5s	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--

See notes on page 2 of 2.

TABLE 2
RESULTS OF ANALYSES OF GROUND WATER
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California
(page 2 of 2)

Date	Sample No.	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	EPA 502.2	EPA 524.2
MW-7 (recovery well)								
8/2/89	W-TAP-MW7	0.0016	<0.0005	<0.0005	0.00060	0.031	--	--
Blank								
7/17/89	W-Blank	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
7/20/89	Blank	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	--	--
Well 7								
7/20/89	Well 7	--	--	--	--	--	ND*	--
8/2/89	W-TAP-CW7	--	--	--	--	--	--	ND*

Results in milligrams per liter (mg/l) = parts per million (ppm)
TPH = total petroleum hydrocarbons by Environmental Protection Agency Method 8015
EPA 502.2 = Environmental Protection Agency Method 502.2 (volatile organic compounds)
EPA 524.2 = Environmental Protection Agency Method 524.2 (volatile organic compounds)
-- = Not analyzed or not applicable
ND = Nondetectable or below the method detection limit(s) of the laboratory
* = Nondetectable concentrations for 58 volatile organic compounds (see Analysis Reports in Appendix)
Well 7 = City of Pleasanton Municipal Well No. 7
Well designation: W-47-MW5s
- W = water
- 47 = depth of sample to the nearest foot (TAP indicates sample collected from a sample port at the surface)
- MW5s = monitoring well number

TABLE 3
GROUND-WATER ELEVATION DATA
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California
(page 1 of 2)

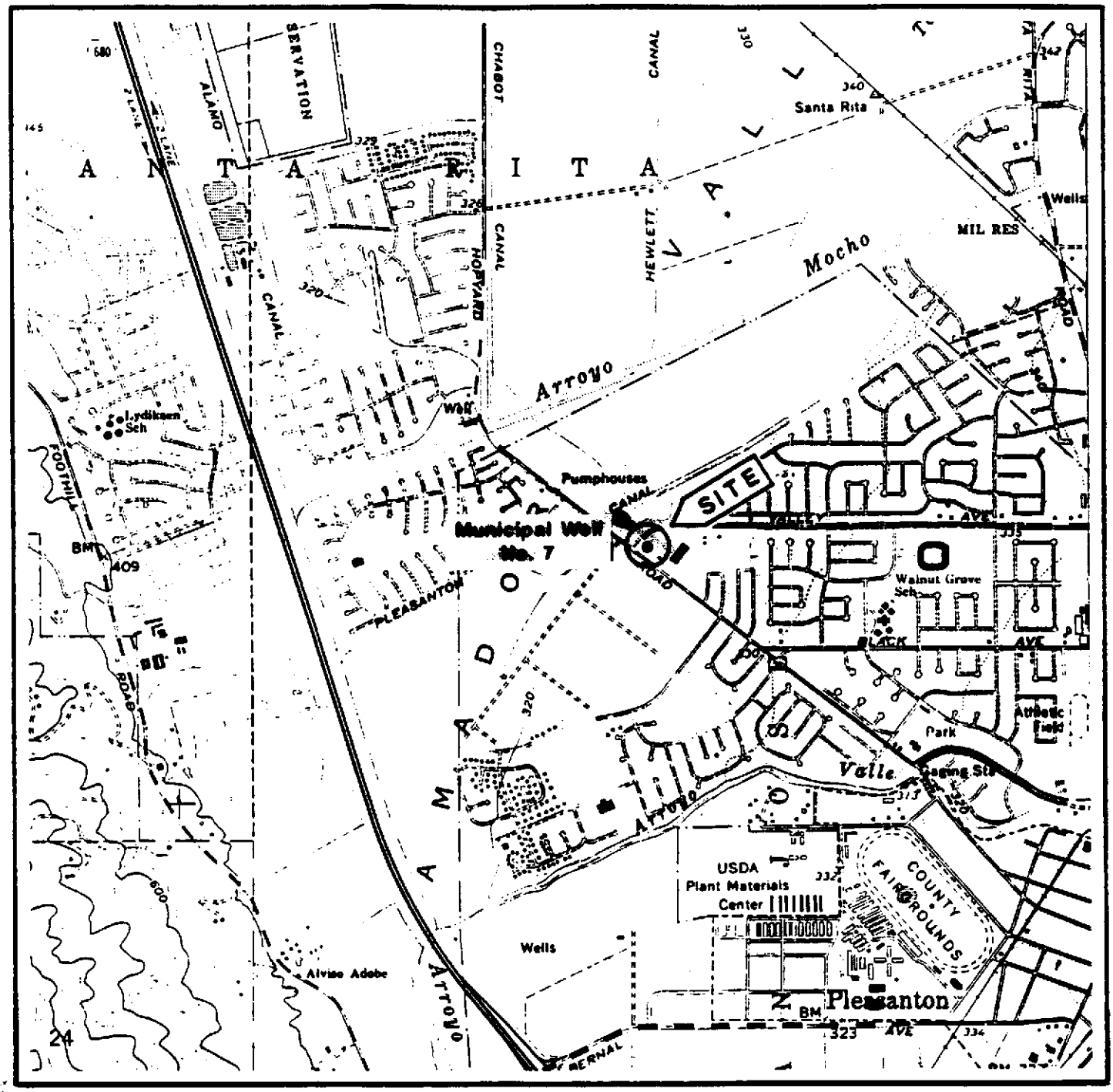
Well No.	Casing Elevation	Depth to Ground Water	Ground-Water Elevation
July 17, 1989			
MW-1	321.43	44.74	276.69
MW-4	321.56	44.85	276.71
MW-5s	321.64	44.91	276.73
MW-5d	321.79	45.73	276.06
Well 7	325.94	54.15	271.79
July 18, 1989			
MW-1	321.43	44.76	276.67
MW-4	321.56	44.88	276.68
MW-5s	321.64	44.93	276.71
MW-5d	321.79	45.75	276.04
Well 7	325.94	62.44*	263.50
July 19, 1989			
MW-1	321.43	44.82	276.61
MW-4	321.56	44.92	276.64
MW-5s	321.64	44.98	276.66
MW-5d	321.79	45.89	275.90
Well 7	325.94	58.50	267.44
July 20, 1989			
MW-1	321.43	44.85	276.58
MW-4	321.56	44.98	276.58
MW-5s	321.64	45.02	276.62
MW-5d	321.79	46.02	275.77
Well 7	325.94	67.55*	258.39
July 21, 1989			
MW-1	321.43	44.95	276.48
MW-4	321.56	45.04	276.52
MW-5s	321.64	45.10	276.54
MW-5d	321.79	46.18	275.61
Well 7	325.94	67.93*	258.01

See notes on page 2 of 2.

TABLE 3
GROUND-WATER ELEVATION DATA
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California
(page 2 of 2)

Well No.	Casing Elevation	Depth to Ground Water	Ground-Water Elevation
July 26, 1989			
MW-1	321.43	45.42	276.01
MW-4	321.56	45.50	276.06
MW-5s	321.64	45.57	276.07
MW-5d	321.79	46.83	274.96
Well 7	325.94	70.18*	255.76
August 3, 1989			
MW-1	321.43	46.18	275.25
MW-4	321.56	46.28	275.28
MW-5s	321.64	46.31	275.33
MW-5d	321.79	47.67	274.12
Well 7	325.94	--	--
August 17, 1989			
MW-1	321.43	47.12	274.31
MW-4	321.56	47.22	274.34
MW-5s	321.64	47.25	274.39
MW-5d	321.79	48.27	273.52
Well 7	325.94	57.10	268.84

Elevation is in feet above mean sea level.
Depth to ground water is in feet below the top of the casing.
-- = not recorded
* = pumping water level

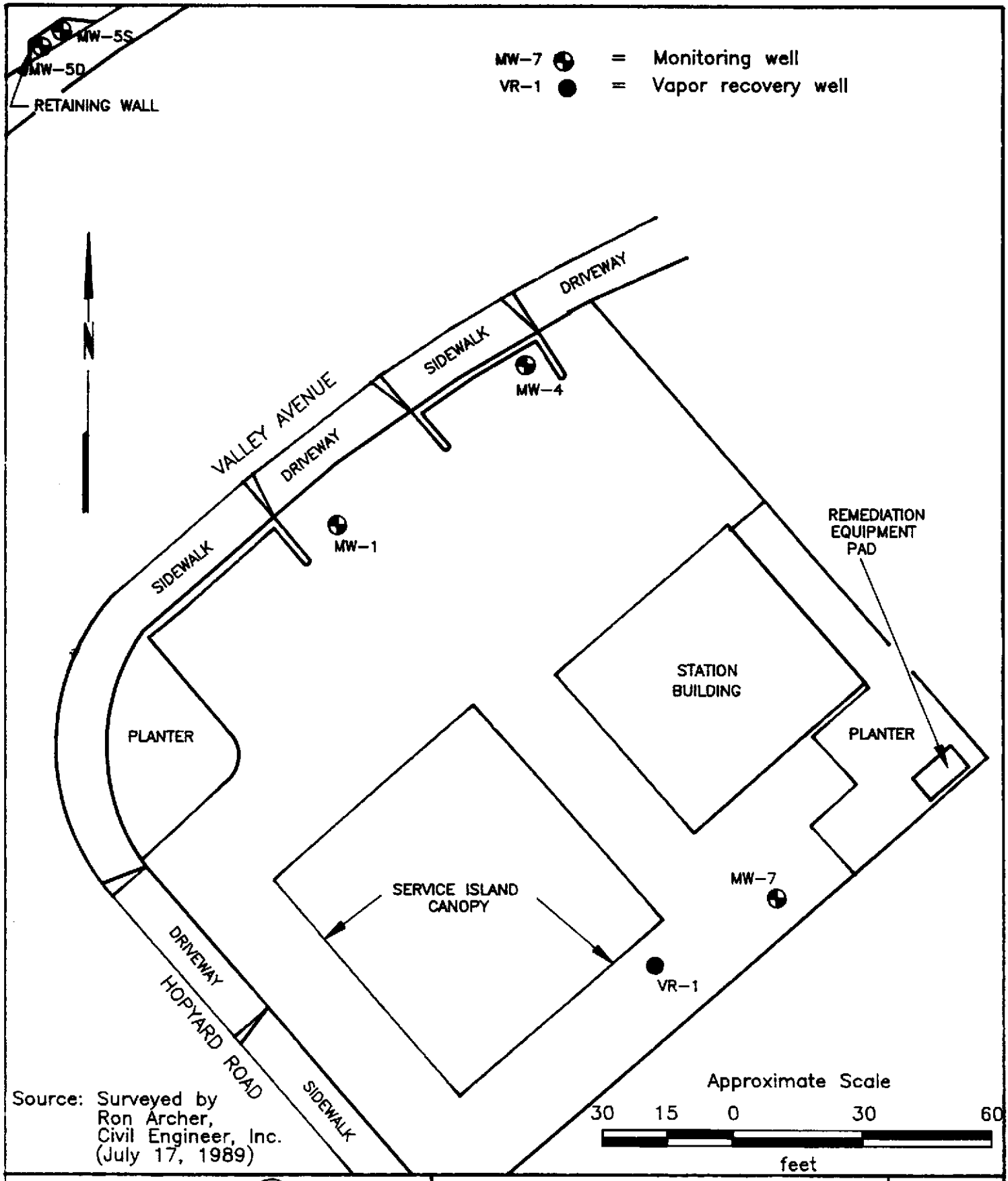


Source: U.S. Geological Survey
7.5-Minute Quadrangle
Dublin, California
Photorevised 1980

N

Approximate Scale
2000 1000 0 2000 4000
feet

Applied GeoSystems PROJECT NO. 18084-6	SITE VICINITY MAP Exxon Station No. 7-3399 2991 Hopyard Road Pleasanton, California	PLATE P - 1



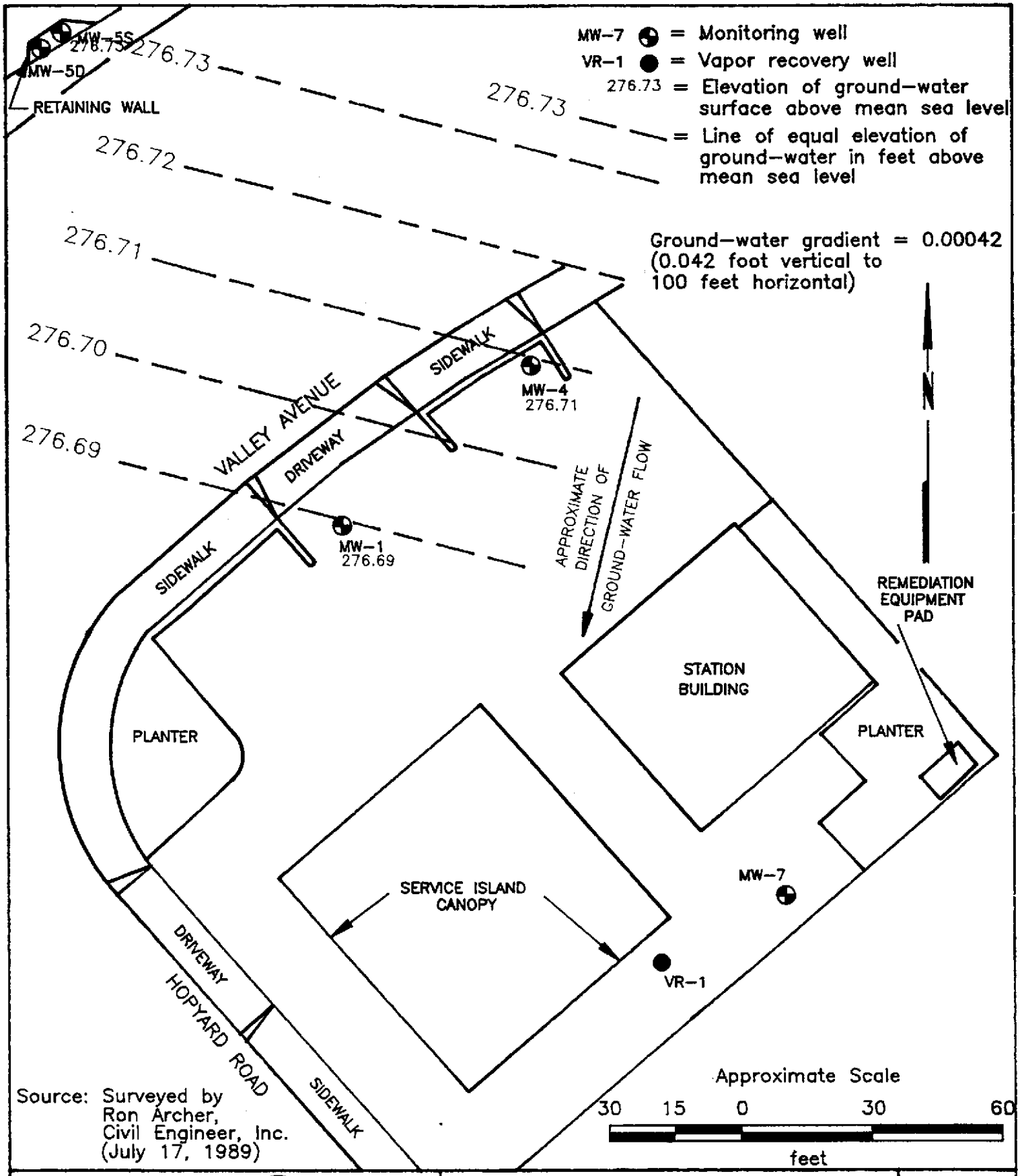
Source: Surveyed by Ron Archer, Civil Engineer, Inc. (July 17, 1989)

Applied GeoSystems

PROJECT NO. 18034-6

GENERALIZED SITE PLAN
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
P - 2



Source: Surveyed by Ron Archer, Civil Engineer, Inc. (July 17, 1989)

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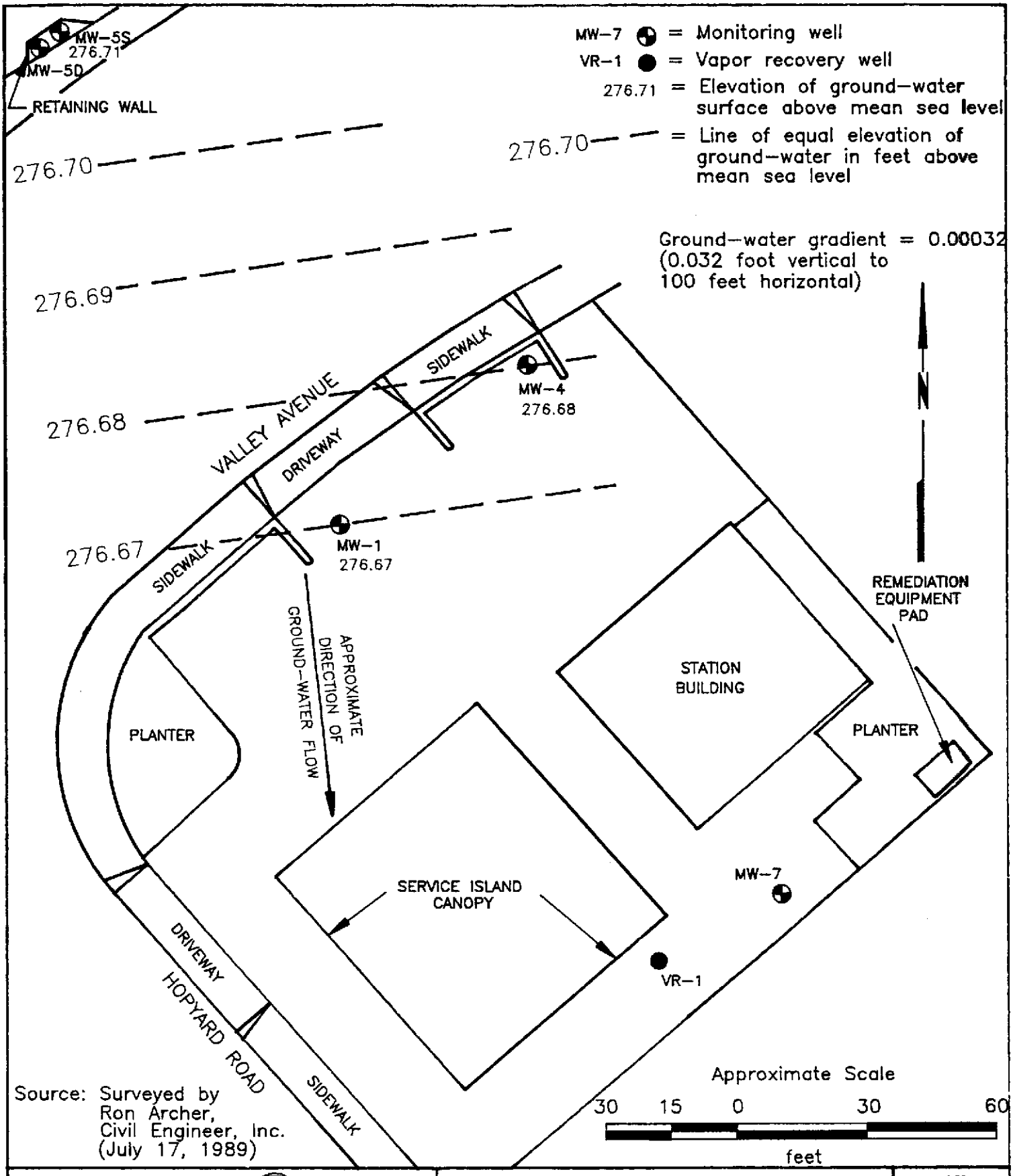
PROJECT NO. 18034-6

GROUND-WATER SURFACE MAP
July 17, 1989
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE

P - 3



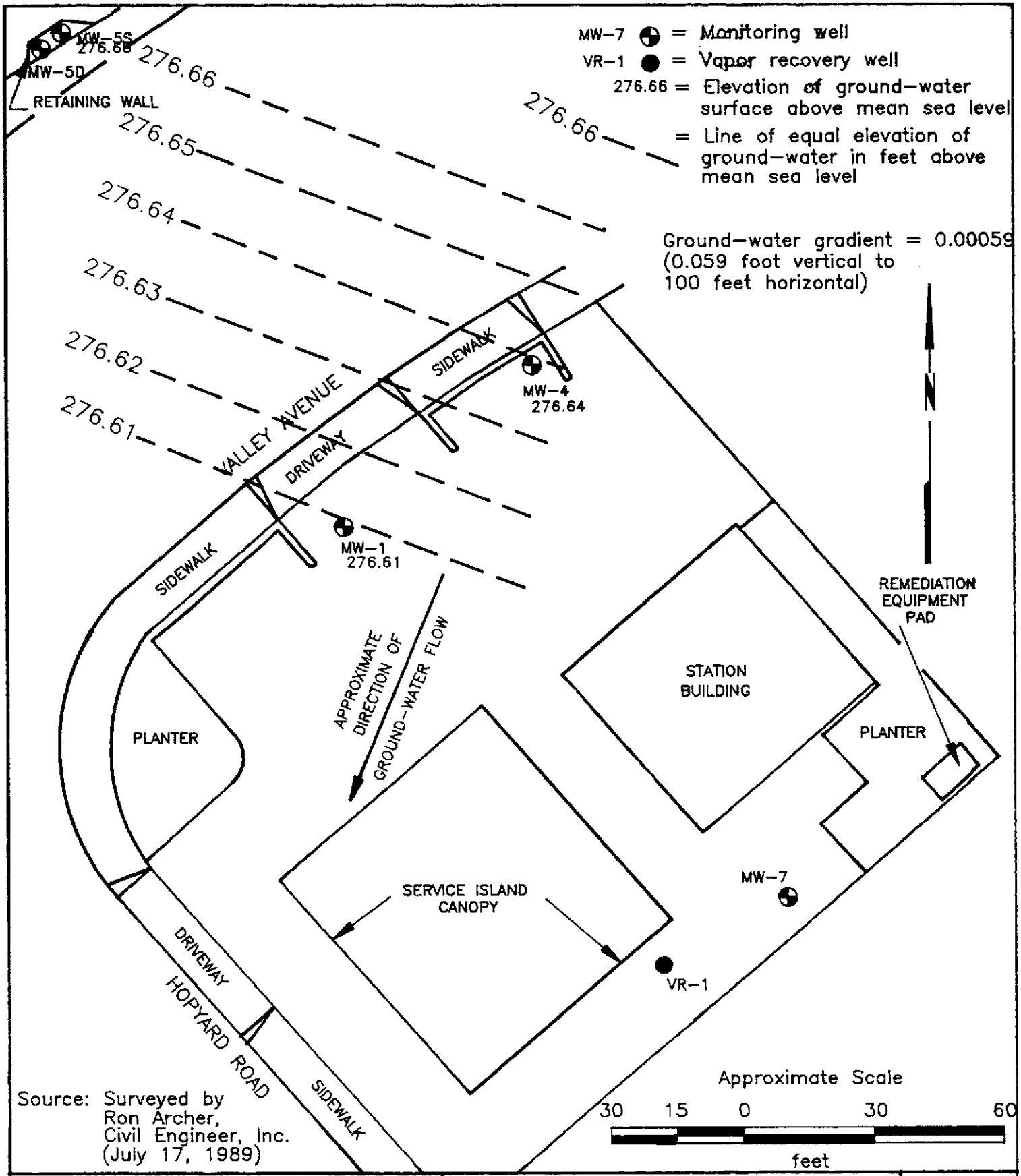
Source: Surveyed by Ron Archer, Civil Engineer, Inc. (July 17, 1989)

Applied GeoSystems

PROJECT NO. 18034-6

GROUND-WATER SURFACE MAP
July 18, 1989
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
P - 4



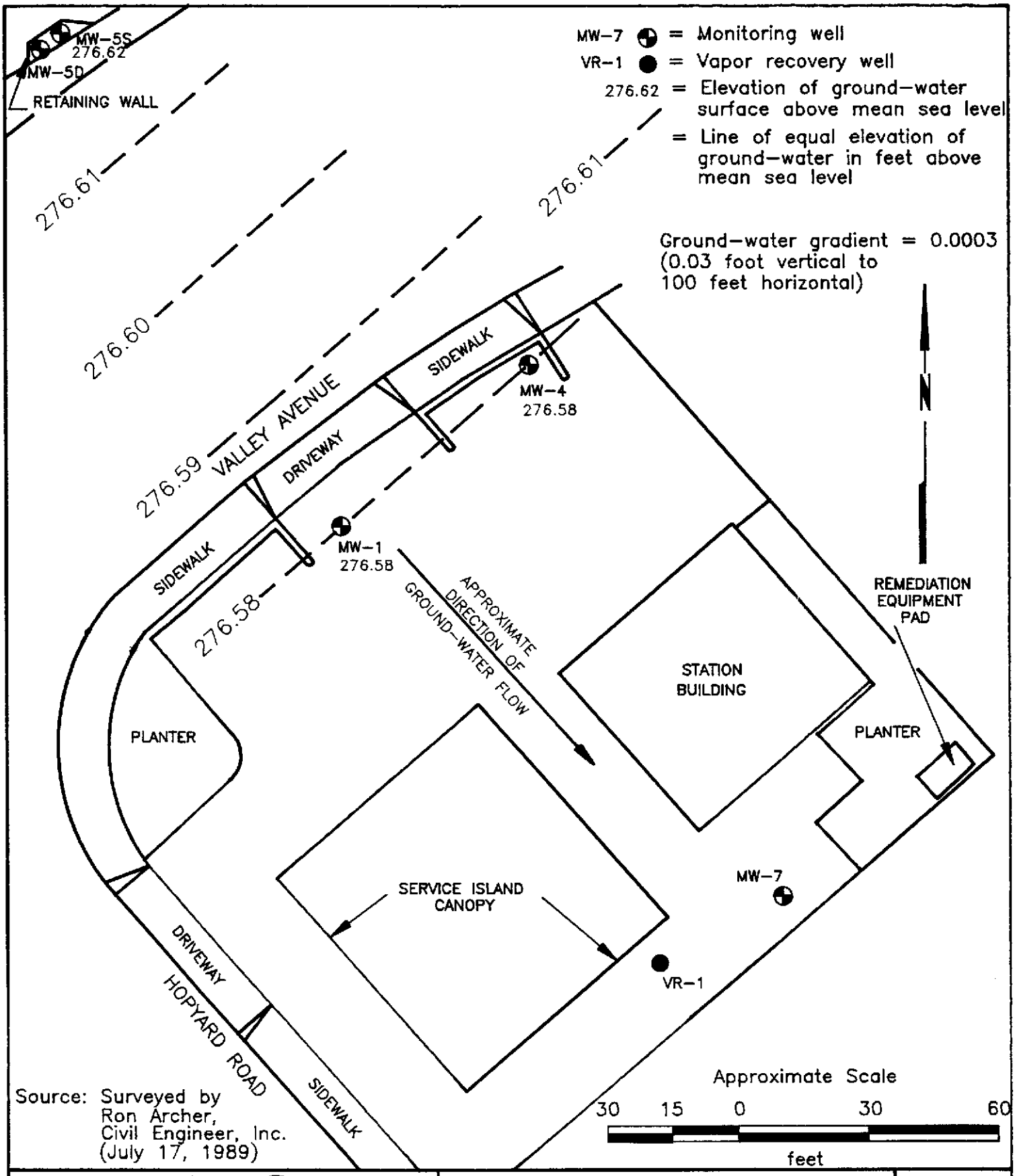
Source: Surveyed by Ron Archer, Civil Engineer, Inc. (July 17, 1989)

Applied GeoSystems

PROJECT NO. 18034-6

GROUND-WATER SURFACE MAP
July 19, 1989
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
P - 5



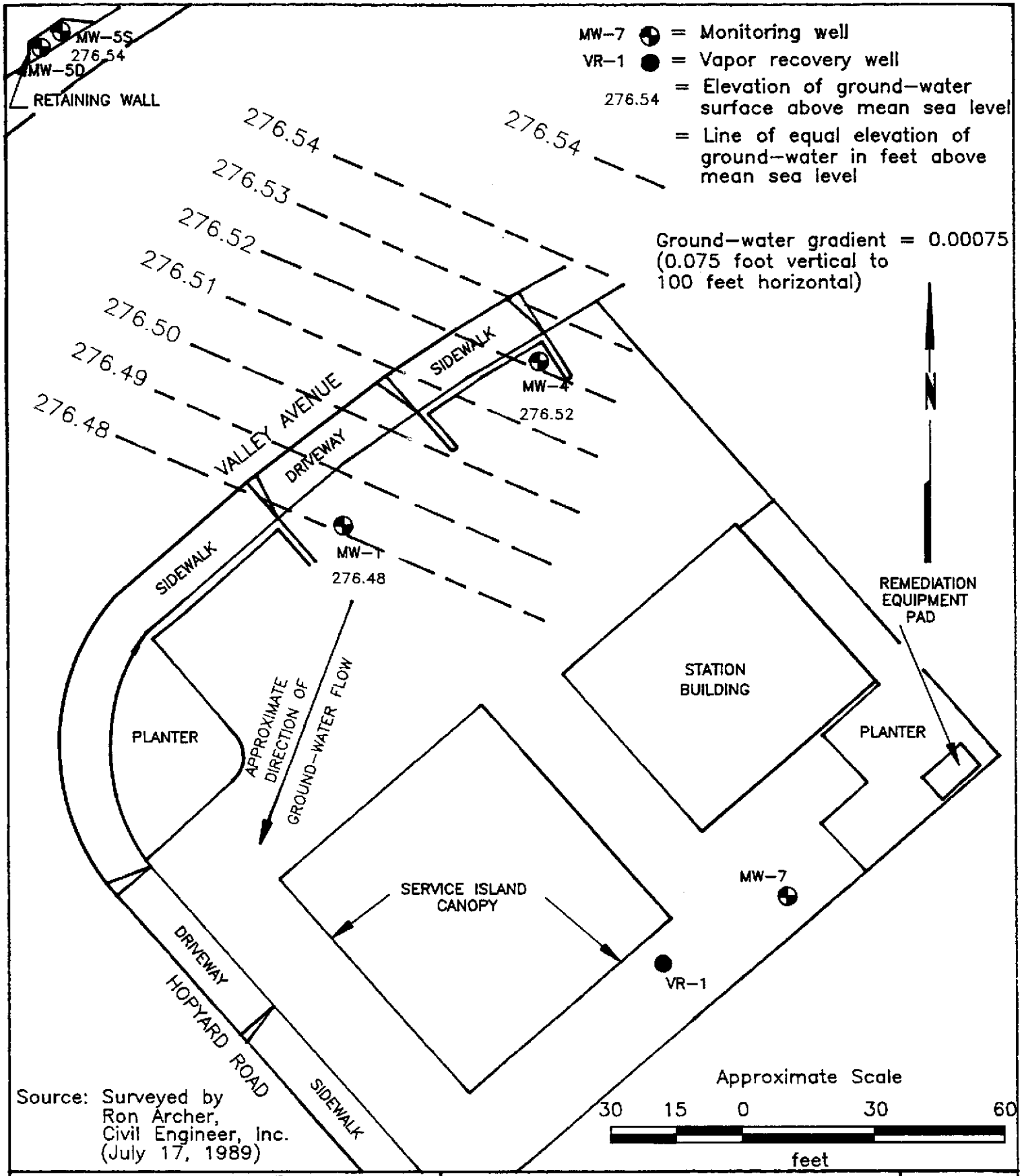
Source: Surveyed by Ron Archer, Civil Engineer, Inc. (July 17, 1989)

Applied GeoSystems

PROJECT NO. 18034-6

GROUND-WATER SURFACE MAP
July 20, 1989
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
P - 6



Source: Surveyed by Ron Archer, Civil Engineer, Inc. (July 17, 1989)

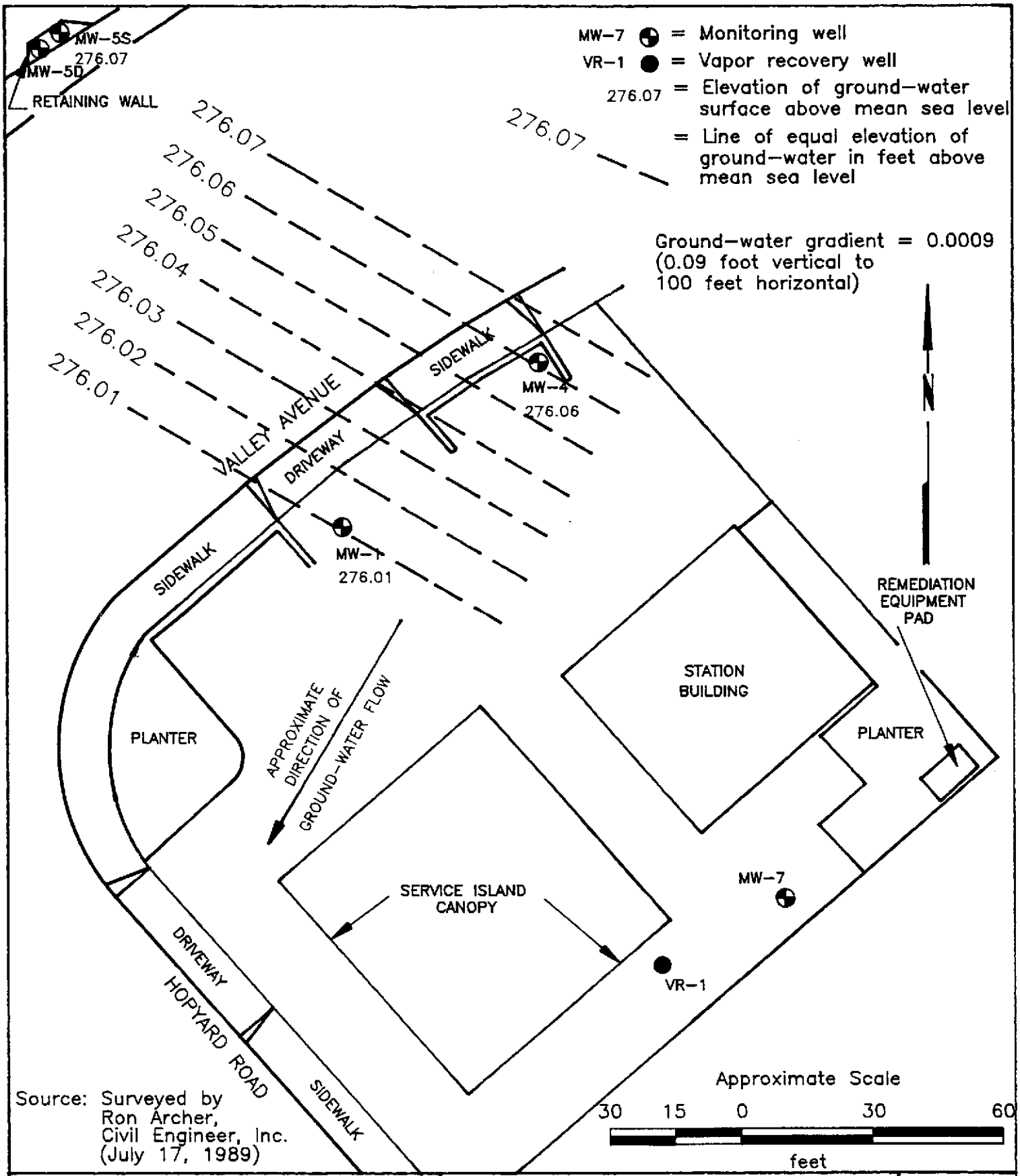
Applied GeoSystems

PROJECT NO. 18034-6

GROUND-WATER SURFACE MAP
July 21, 1989
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE

P - 7



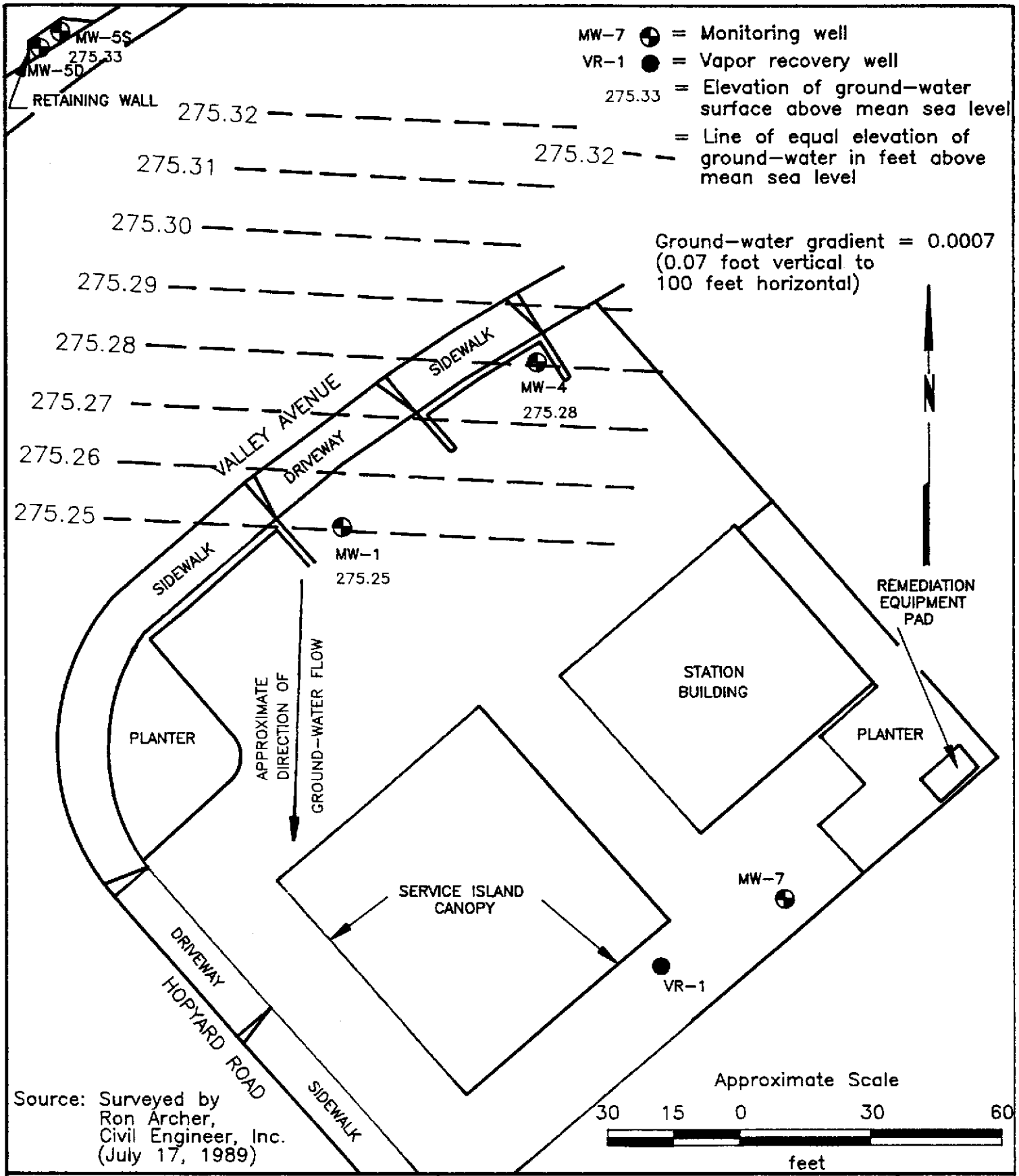
Source: Surveyed by Ron Archer, Civil Engineer, Inc. (July 17, 1989)

Applied GeoSystems

PROJECT NO. 18034-6

GROUND-WATER SURFACE MAP
July 26, 1989
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
P - 8



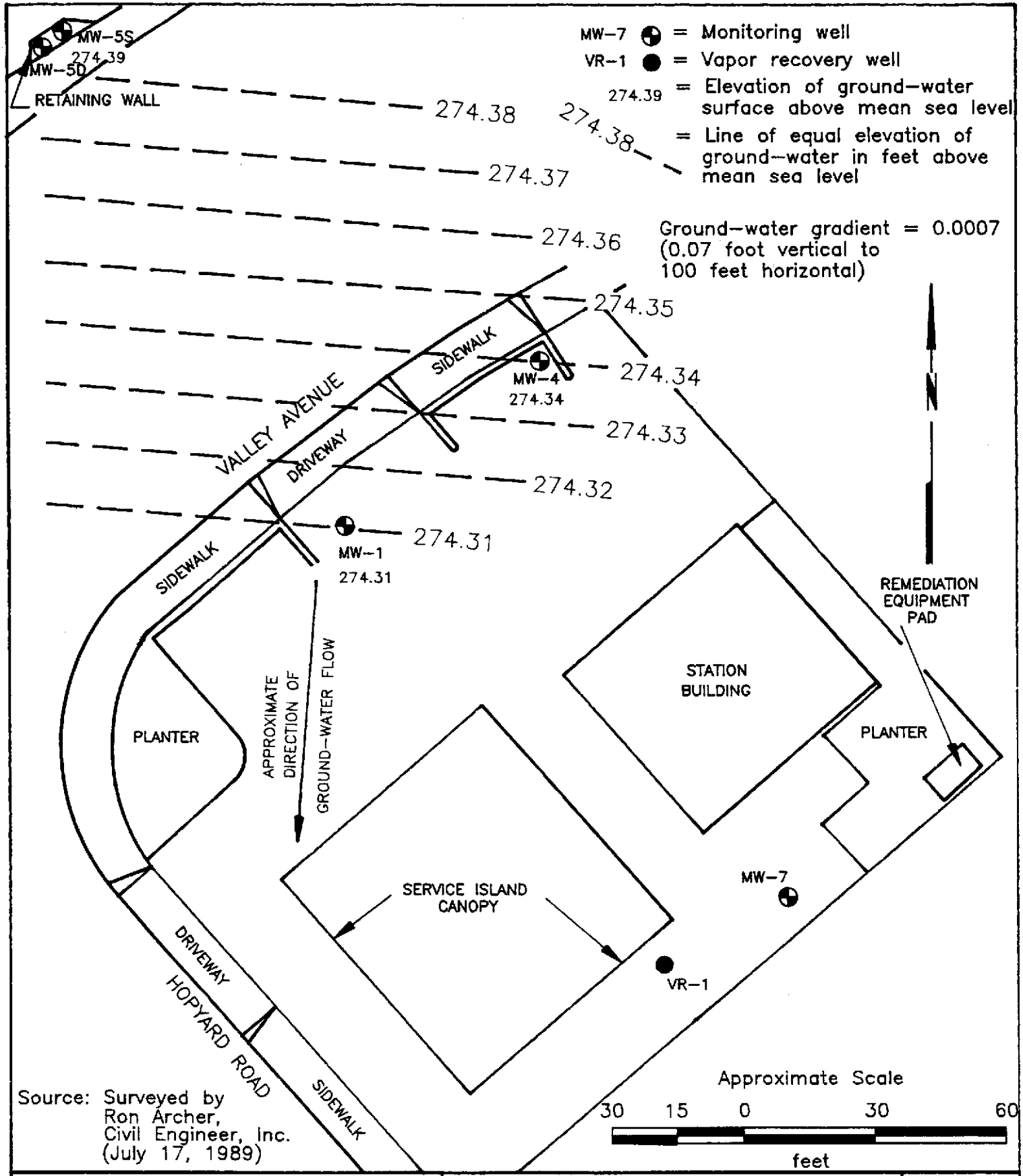
Source: Surveyed by
Ron Archer,
Civil Engineer, Inc.
(July 17, 1989)

Applied GeoSystems

PROJECT NO. 18034-6

GROUND-WATER SURFACE MAP
August 3, 1989
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
P - 9



Source: Surveyed by Ron Archer, Civil Engineer, Inc. (July 17, 1989)

Applied GeoSystems

PROJECT NO. 18034-6

GROUND-WATER SURFACE MAP
August 17. 1989
Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE

P - 10

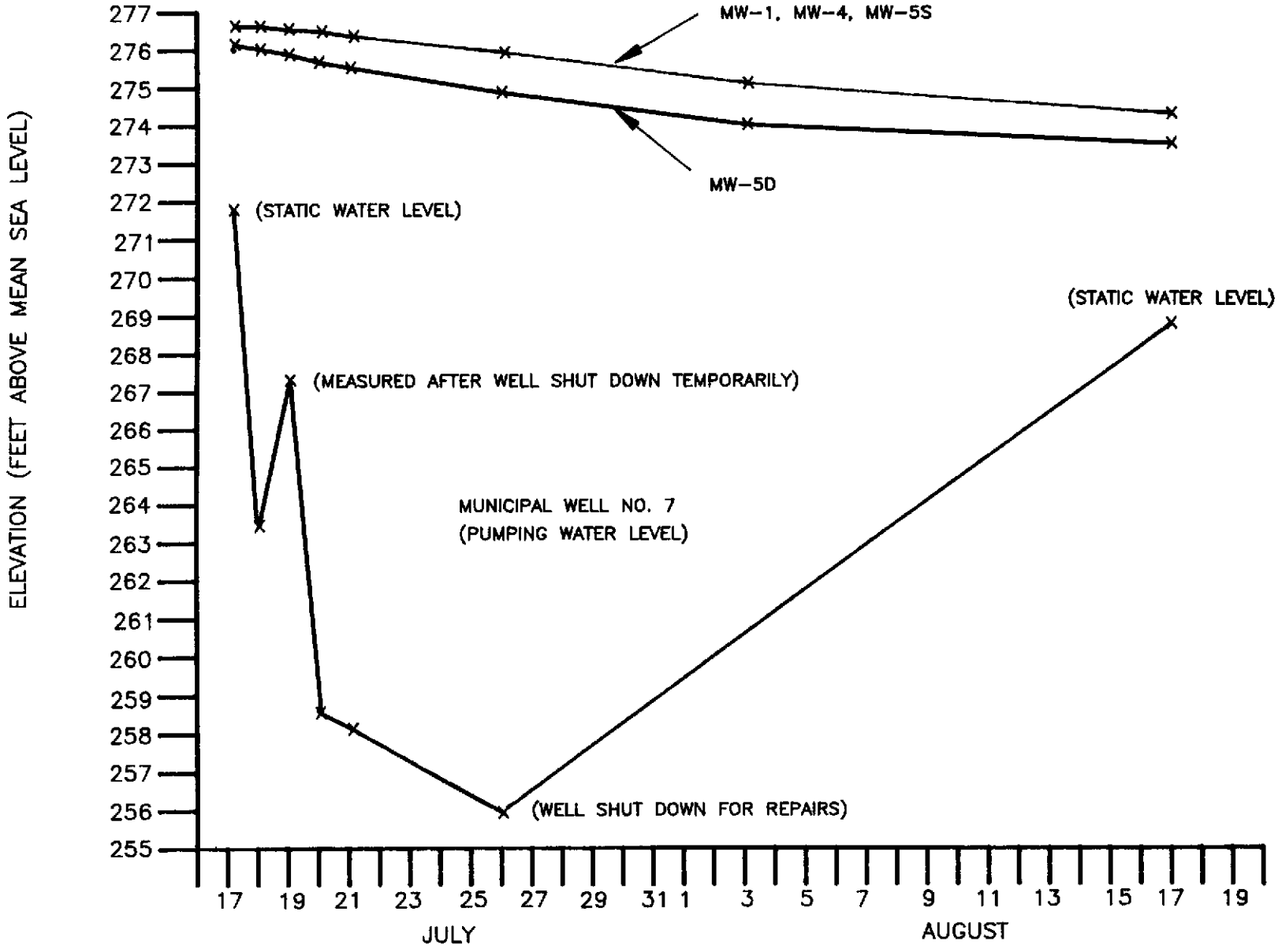


PLATE	HYDROGRAPH OF WATER IN WELLS	
P - 11	Exxon Station No. 7-3399 2991 Hopyard Road Pleasanton, California	Applied GeoSystems PROJECT NO. 18034-6

APPENDIX

CHAIN OF CUSTODY RECORD

Applied GeoSystems
43255 Mission Blvd Suite B Fremont, CA 94539 (415) 651-1906

SAMPLER (signature): Dan Kirkman
Phone: 651-1906

LABORATORY: Applied GeoSystems

TURNAROUND TIME: 48 hr

Project Leader: Rodger Witham
Phone No. 651-1906

SHIPPING INFORMATION:
Shipper
Address
Date Shipped
Service Used
Airbill No. Cooler No.

Relinquished by: (signatures)	Received by: (signatures)	Date	Time
Dan Kirkman			
	Received for laboratory by:	7-17-89	1530

LABORATORY SHOULD SIGN UPON RECEIPT AND RETURN A COPY OF THIS FORM WITH THE LABORATORY RESULTS

Sample No.	Site Identification	Date Sampled	Analyses Requested	Sample Condition Upon Receipt
W-46-MW5D	18034-6	7-17-89	TPH + BETX	Iced
W-46-MW5S	DK	DK	DK	DK
W-45-MW4				
W-45-MW1	DK	DK	DK	DK
W-Blank	DK	DK	DK	DK

CHAIN OF CUSTODY RECORD

Applied GeoSystems

43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

SAMPLER (signature): Dan Kuhman

Phone: 651-1906

LABORATORY: Applied GeoSystems

TURNAROUND TIME: 24 hr

Project Leader: Rodger Witham

Phone No. 651-1906

SHIPPING INFORMATION:

Shipper

Address

Date Shipped

Service Used

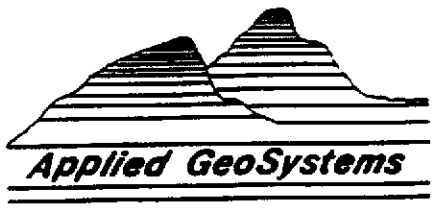
Airbill No. Cooler No.

Relinquished by: (signatures)	Received by: (signatures)	Date	Time
Dan Kuhman			
	Received for laboratory by: Mg Mahan	7/20/89	17[illegible]

LABORATORY SHOULD SIGN UPON RECEIPT AND RETURN A COPY OF THIS FORM WITH THE LABORATORY RESULTS

Sample No.	Site Identification	Date Sampled	Analyses Requested	Sample Condition Upon Receipt
W-45-MW1	18034-6	7-20-89	TPH + BETX	Iced + HCl
W-45-MW4	DK	DK	DK	DK
W-46-MW5S				
W-47-MW5D				
~~Blank~~				
DK ~~Well 7~~	DK	DK	DK	DK

CHAIN OF CUSTODY RECORD



43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

SAMPLER (signature): Dan Kirkman

Phone: 651-1906

LABORATORY: Clayton Environmental

TURNAROUND TIME: 24 hr

Project Leader: Rodger Witham

Phone No. 651-1906

SHIPPING INFORMATION:

Shipper

Address

Date Shipped

Service Used

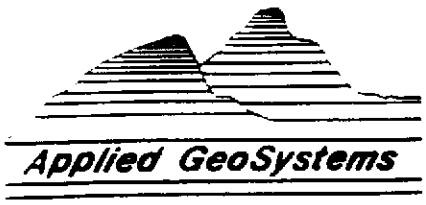
Airbill No. Cooler No.

Relinquished by: (signatures)	Received by: (signatures)	Date	Time
Dan Kirkman			
	Received for laboratory by: Tracy Schubert	7/20/89	1202 PM

LABORATORY SHOULD SIGN UPON RECEIPT AND RETURN A COPY OF THIS FORM WITH THE LABORATORY RESULTS

Sample No.	Site Identification	Date Sampled	Analyses Requested	Sample Condition Upon Receipt
Well 7	18034-6	7-20-89	EPA 502.2 4x40ml ✓	iced (preserved)
W-MW4	18034-6	7-20-89	EPA 502.2	iced ✓

CHAIN OF CUSTODY RECORD



43255 Mission Blvd Suite B Fremont, CA 94539 (415) 651-1906

SAMPLER (signature): [signature]

Phone: (415) 651-1906

LABORATORY: Applied GeoSystems

TURNAROUND TIME: 48 hours

Project Leader: Roger Witham

Phone No. (415) 651-1906

SHIPPING INFORMATION:

Shipper _____

Address _____

Date Shipped _____

Service Used _____

Airbill No. _____ Cooler No. _____

Relinquished by: (signatures)	Received by: (signatures)	Date	Time
[signature]			
	Received for laboratory by: Witham	7/26/89	17

3J

LABORATORY SHOULD SIGN UPON RECEIPT AND RETURN A COPY OF THIS FORM WITH THE LABORATORY RESULTS

Sample No.	Site Identification	Date Sampled	Analyses Requested	Sample Condition Upon Receipt
W-47-5d	1803	7-26-89	TPH Gasoline & BTEX	iced; 4 x 40ml
W-46-5s	4-4			iced; 4 x 40ml
W-46-MW1				iced; 4 x 40ml
W-46-MW4				iced; 4 x 40ml
W-blank				iced; 1 x 40ml

CHAIN OF CUSTODY RECORD

Applied GeoSystems
43255 Mission Blvd Suite B Fremont, CA 94539 (415) 651-1906

SAMPLER (signature): [signature]
Phone: (415) 651-1906

LABORATORY: Applied GeoSystems

TURNAROUND TIME: 48 hours

Project Leader: Roger Witham
Phone No. (415) 651-1906

SHIPPING INFORMATION:
Shipper
Address
Date Shipped
Service Used
Airbill No. Cooler No.

Relinquished by: (signatures)	Received by: (signatures)	Date	Time
[signature]			
	Received for laboratory by: [signature]	8/2/89	13:30

LABORATORY SHOULD SIGN UPON RECEIPT AND RETURN A COPY OF THIS FORM WITH THE LABORATORY RESULTS

Sample No.	Site Identification	Date Sampled	Analyses Requested	Sample Condition Upon Receipt
W-48-SD	1803 4-6	8-2-89	TPH (gasoline) and BTEX by EPA 602	Iced, 4x 40ml Glass
W-47-SS				
W-45-MW1				
W-TAP-MW7				

CHAIN OF CUSTODY RECORD

Applied GeoSystems

43255 Mission Blvd Suite B Fremont, CA 94539 (415) 651-1906

SAMPLER (signature): [signature]

Phone: (415) 651-1906

LABORATORY: Clayton Environmental

TURNAROUND TIME: 1 week

Project Leader: Roger Witham

Phone No. (415) 659-1906

SHIPPING INFORMATION:

Shipper

Address

Date Shipped

Service Used

Airbill No. Cooler No.

Relinquished by: (signatures)	Received by: (signatures)	Date	Time
[signature]			
	Received for laboratory by: Tracy B Bulk	8/2/89	5:00pm

LABORATORY SHOULD SIGN UPON RECEIPT AND RETURN A COPY OF THIS FORM WITH THE LABORATORY RESULTS

Sample No.	Site Identification	Date Sampled	Analyses Requested	Sample Condition Upon Receipt
W-TAP-CW7	18034-6	8-2-89	EPA 524.2	iced; 4 x 40ml leaky
W-45-MW4				

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-17-89
Laboratory Number: 90725W04
Project #: 18034-6
Sample #: W-45-MW1
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		0.023		0.020	07-17-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-17-89	
Toluene		ND		0.00050	07-17-89	
Ethylbenzene		ND		0.00050	07-17-89	
Total Xylenes		ND		0.00050	07-17-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-19-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-17-89
Laboratory Number: 90725W05
Project #: 18034-6
Sample #: W-45-MW4
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		0.39		0.020	07-17-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-17-89	
Toluene		ND		0.00050	07-17-89	
Ethylbenzene		ND		0.00050	07-17-89	
Total Xylenes		ND		0.00050	07-17-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-19-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906
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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-17-89
Laboratory Number: 90725W02
Project #: 18034-6
Sample #: W-46-5S
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-17-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-17-89	
Toluene		ND		0.00050	07-17-89	
Ethylbenzene		ND		0.00050	07-17-89	
Total Xylenes		ND		0.00050	07-17-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-19-89
Date Reported

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-17-89
Laboratory Number: 90725W03
Project #: 18034-6
Sample #: W-46-5D
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-17-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-17-89	
Toluene		ND		0.00050	07-17-89	
Ethylbenzene		ND		0.00050	07-17-89	
Total Xylenes		ND		0.00050	07-17-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-19-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-17-89
Laboratory Number: 90725W01
Project #: 18034-6
Sample #: W-Blank
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-17-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-17-89	
Toluene		ND		0.00050	07-17-89	
Ethylbenzene		ND		0.00050	07-17-89	
Total Xylenes		ND		0.00050	07-17-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-19-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-20-89
Laboratory Number: 90738W04
Project #: 18034-6
Sample #: W-45-MW1
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-20-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-20-89	
Toluene		ND		0.00050	07-20-89	
Ethylbenzene		ND		0.00050	07-20-89	
Total Xylenes		ND		0.00050	07-20-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-24-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-20-89
Laboratory Number: 90738W05
Project #: 18034-6
Sample #: W-45-MW4
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		0.20		0.020	07-20-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-20-89	
Toluene		ND		0.00050	07-20-89	
Ethylbenzene		ND		0.00050	07-20-89	
Total Xylenes		ND		0.00050	07-20-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-24-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-20-89
Laboratory Number: 90738W02
Project #: 18034-6
Sample #: W-46-5S
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-20-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-20-89	
Toluene		ND		0.00050	07-20-89	
Ethylbenzene		ND		0.00050	07-20-89	
Total Xylenes		ND		0.00050	07-20-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-24-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

0212lab.frm

Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-20-89
Laboratory Number: 90738W03
Project #: 18034-6
Sample #: W-47-5D
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-20-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-20-89	
Toluene		ND		0.00050	07-20-89	
Ethylbenzene		ND		0.00050	07-20-89	
Total Xylenes		ND		0.00050	07-20-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-24-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

0212lab.frm

Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-20-89
Laboratory Number: 90738W01
Project #: 18034-6
Sample #: Blank
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-20-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-20-89	
Toluene		ND		0.00050	07-20-89	
Ethylbenzene		ND		0.00050	07-20-89	
Total Xylenes		ND		0.00050	07-20-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-24-89
Date Reported

Clayton Environmental Consultants, Inc.

P.O. Box 9019 • 1252 Quarry Lane • Pleasanton, CA 94566 • (415) 426-2600

July 24, 1989

Mr. Rodger Witham
APPLIED GEOSYSTEMS
43255 Mission Blvd
Suite B
Fremont, CA. 94539

Client Ref. No.: 18034-6
Lab Batch No.: 8907145
Clayton Project No.: 89071.45
Client Code No: 77418

Dear Mr. Witham:

Attached is our analytical laboratory report for the samples received on July 20, 1989. Verbal results were reported to you on July 21, 1989. A copy of the Chain of Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be retained at our facility for approximately 30 days after the date of this report, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Maryann Gambino, Client Services Representative, at (415) 426-2657.

Sincerely,

Mary D. Beck for

Ronald H. Peters, CIH
Manager, Laboratory Services

RHP/tb
Attachment

VOLATILE ORGANIC COMPOUNDS
METHOD 502.2

Sample I.D.: WELL 7 | Client: APPLIED GEOSYSTEMS

Sample Received: 07/20/89 | Client Ref. No.: 18034-6

Sample Analyzed: 07/20/89 | Lab Client Code: 77418

Sample Matrix: WATER | Lab No.: 8907145-01A

Compound	CAS #	Concentration ug/L	Limit of Detection ug/L
Benzene	71-43-2	ND	0.5
Bromobenzene	108-86-1	ND	0.5
Bromochloromethane	74-97-5	ND	0.5
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
n-Butylbenzene	104-51-8	ND	0.5
sec-Butylbenzene	135-98-8	ND	0.5
tert-Butylbenzene	98-06-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
2-Chlorotoluene	95-49-8	ND	0.5
4-Chlorotoluene	106-43-4	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dibromo-3-chloropropane	96-12-8	ND	0.5
1,2-Dibromoethane	106-93-4	ND	0.5
Dibromomethane	74-95-3	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-7	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-35-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	ND	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
1,3-Dichloropropane	142-28-9	ND	0.5
2,2-Dichloropropane	594-20-7	ND	0.5
1,1-Dichloropropene	563-58-6	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
c-1,3-dichloropropene	10061-01-5	ND	0.5
t-1,3-dichloropropene	10061-02-6	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 502.2

(CONTINUED)

Sample I.D.: WELL 7 Client: APPLIED GEOSYSTEMS

Sample Received: 07/20/89 Client Ref. No.: 18034-6

Sample Analyzed: 07/20/89 Lab Client Code: 77418

Sample Matrix: WATER Lab No.: 8907145-01A

Compound	CAS #	Concentration ug/L	Limit of Detection ug/L
Hexachlorobutadiene	87-68-3	ND	0.5
Isopropylbenzene	98-82-8	ND	0.5
p-Isopropyltoluene	99-87-6	ND	0.5
Methylene chloride	75-09-2	ND	0.5
Naphthalene	91-20-3	ND	0.5
n-Propylbenzene	103-65-1	ND	0.5
1,1,2,2-Tetrachloroethane	79-32-5	ND	0.5
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
Toluene	108-88-3	ND	0.5
1,2,3-Trichlorobenzene	87-61-6	ND	0.5
1,2,4-Trichlorobenzene	120-82-1	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	ND	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,2,3-Trichloropropane	96-18-4	ND	0.5
1,2,4-Trimethylbenzene	95-63-6	ND	0.5
1,3,5-Trimethylbenzene	108-67-8	ND	0.5
Vinyl chloride	75-01-4	ND	0.5
o-Xylene and Styrene	-----	ND	0.5
p,m-Xylenes	-----	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 502.2

Sample I.D.: W-45-MW-4 Client: APPLIED GEOSYSTEMS

Sample Received: 07/20/89 Client Ref. No.: 18034-6

Sample Analyzed: 07/20/89 Lab Client Code: 77418

Sample Matrix: WATER Lab No.: 8907145-02A

Compound	CAS #	Concentration ug/L	Limit of Detection ug/L
Benzene	71-43-2	ND	0.5
Bromobenzene	108-86-1	ND	0.5
Bromochloromethane	74-97-5	ND	0.5
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
n-Butylbenzene	104-51-8	ND	0.5
sec-Butylbenzene	135-98-8	ND	0.5
tert-Butylbenzene	98-06-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
2-Chlorotoluene	95-49-8	ND	0.5
4-Chlorotoluene	106-43-4	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dibromo-3-chloropropane	96-12-8	ND	0.5
1,2-Dibromoethane	106-93-4	ND	0.5
Dibromomethane	74-95-3	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-7	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-35-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	ND	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
1,3-Dichloropropane	142-28-9	ND	0.5
2,2-Dichloropropane	594-20-7	ND	0.5
1,1-Dichloropropene	563-58-6	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
c-1,3-dichloropropene	10061-01-5	ND	0.5
t-1,3-dichloropropene	10061-02-6	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 502.2

(CONTINUED)

Sample I.D.: W-45-MW-4 Client: APPLIED GEOSYSTEMS

Sample Received: 07/20/89 Client Ref. No.: 18034-6

Sample Analyzed: 07/20/89 Lab Client Code: 77418

Sample Matrix: WATER Lab No.: 8907145-02A

Compound	CAS #	Concentration ug/L	Limit of Detection ug/L
Hexachlorobutadiene	87-68-3	ND	0.5
Isopropylbenzene	98-82-8	ND	0.5
p-Isopropyltoluene	99-87-6	ND	0.5
Methylene chloride	75-09-2	ND	0.5
Naphthalene	91-20-3	ND	0.5
n-Propylbenzene	103-65-1	ND	0.5
1,1,2,2-Tetrachloroethane	79-32-5	ND	0.5
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
Toluene	108-88-3	ND	0.5
1,2,3-Trichlorobenzene	87-61-6	ND	0.5
1,2,4-Trichlorobenzene	120-82-1	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	ND	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,2,3-Trichloropropane	96-18-4	ND	0.5
1,2,4-Trimethylbenzene	95-63-6	ND	0.5
1,3,5-Trimethylbenzene	108-67-8	ND	0.5
Vinyl chloride	75-01-4	ND	0.5
o-Xylene and Styrene	-----	ND	0.5
p,m-Xylenes	-----	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 502.2

Sample I.D.: Method Blank
Client: APPLIED GEOSYSTEMS

Sample Received: 07/20/89
Client Ref. No.: 18034-6

Sample Analyzed: 07/20/89
Lab Client Code: 77418

Sample Matrix: WATER
Lab No.: 8907145-03A

Compound	CAS #	Concentration ug/L	Limit of Detection ug/L
Benzene	71-43-2	ND	0.5
Bromobenzene	108-86-1	ND	0.5
Bromochloromethane	74-97-5	ND	0.5
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	0.5
n-Butylbenzene	104-51-8	ND	0.5
sec-Butylbenzene	135-98-8	ND	0.5
tert-Butylbenzene	98-06-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.5
2-Chlorotoluene	95-49-8	ND	0.5
4-Chlorotoluene	106-43-4	ND	0.5
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dibromo-3-chloropropane	96-12-8	ND	0.5
1,2-Dibromoethane	106-93-4	ND	0.5
Dibromomethane	74-95-3	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-7	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	0.5
1,1-Dichloroethane	75-35-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	ND	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
1,3-Dichloropropane	142-28-9	ND	0.5
2,2-Dichloropropane	594-20-7	ND	0.5
1,1-Dichloropropene	563-58-6	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
c-1,3-dichloropropene	10061-01-5	ND	0.5
t-1,3-dichloropropene	10061-02-6	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 502.2

(CONTINUED)

Sample I.D.: Method Blank
Client: APPLIED GEOSYSTEMS

Sample Received: 07/20/89
Client Ref. No.: 18034-6

Sample Analyzed: 07/20/89
Lab Client Code: 77418

Sample Matrix: WATER
Lab No.: 8907145-03A

Compound	CAS #	Concentration ug/L	Limit of Detection ug/L
Hexachlorobutadiene	87-68-3	ND	0.5
Isopropylbenzene	98-82-8	ND	0.5
p-Isopropyltoluene	99-87-6	ND	0.5
Methylene chloride	75-09-2	ND	0.5
Naphthalene	91-20-3	ND	0.5
n-Propylbenzene	103-65-1	ND	0.5
1,1,2,2-Tetrachloroethane	79-32-5	ND	0.5
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
Toluene	108-88-3	ND	0.5
1,2,3-Trichlorobenzene	87-61-6	ND	0.5
1,2,4-Trichlorobenzene	120-82-1	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	ND	0.5
Trichlorofluoromethane	75-69-4	ND	0.5
1,2,3-Trichloropropane	96-18-4	ND	0.5
1,2,4-Trimethylbenzene	95-63-6	ND	0.5
1,3,5-Trimethylbenzene	108-67-8	ND	0.5
Vinyl chloride	75-01-4	ND	0.5
o-Xylene and Styrene	-----	ND	0.5
p,m-Xylenes	-----	ND	0.5

ND = Not detected at or above limit of detection

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-26-89
Laboratory Number: 90757W03
Project #: 18034-4
Sample #: W-46-MW1
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-27-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-27-89	
Toluene		ND		0.00050	07-27-89	
Ethylbenzene		ND		0.00050	07-27-89	
Total Xylenes		ND		0.00050	07-27-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-31-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-26-89
Laboratory Number: 90757W04
Project #: 18034-4
Sample #: W-46-MW4
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		0.066		0.020	07-27-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-27-89	
Toluene		ND		0.00050	07-27-89	
Ethylbenzene		ND		0.00050	07-27-89	
Total Xylenes		ND		0.00050	07-27-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-31-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-26-89
Laboratory Number: 90757W01
Project #: 18034-4
Sample #: W-46-MW5S
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-27-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-27-89	
Toluene		ND		0.00050	07-27-89	
Ethylbenzene		ND		0.00050	07-27-89	
Total Xylenes		ND		0.00050	07-27-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-31-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

0212lab.frm

Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-26-89
Laboratory Number: 90757W02
Project #: 18034-4
Sample #: W-47-MW5D
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-27-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-27-89	
Toluene		ND		0.00050	07-27-89	
Ethylbenzene		ND		0.00050	07-27-89	
Total Xylenes		ND		0.00050	07-27-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-31-89
Date Reported

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 07-26-89
Laboratory Number: 90757W05
Project #: 18034-4
Sample #: W-Blank
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	07-27-89	
TEH as Diesel						NR
Benzene		ND		0.00050	07-27-89	
Toluene		ND		0.00050	07-27-89	
Ethylbenzene		ND		0.00050	07-27-89	
Total Xylenes		ND		0.00050	07-27-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

07-31-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 08-02-89
Laboratory Number: 90807W03
Project #: 18034-6
Sample #: W-45-MW1
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	08-02-89	
TEH as Diesel						NR
Benzene		ND		0.00050	08-02-89	
Toluene		ND		0.00050	08-02-89	
Ethylbenzene		ND		0.00050	08-02-89	
Total Xylenes		ND		0.00050	08-02-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

08-03-89
Date Reported

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 08-02-89
Laboratory Number: 90807W02
Project #: 18034-6
Sample #: W-47-5S
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	08-02-89	
TEH as Diesel						NR
Benzene		ND		0.00050	08-02-89	
Toluene		ND		0.00050	08-02-89	
Ethylbenzene		ND		0.00050	08-02-89	
Total Xylenes		ND		0.00050	08-02-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

08-03-89
Date Reported

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 08-02-89
Laboratory Number: 90807W01
Project #: 18034-6
Sample #: W-48-5D
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		ND		0.020	08-02-89	
TEH as Diesel						NR
Benzene		ND		0.00050	08-02-89	
Toluene		ND		0.00050	08-02-89	
Ethylbenzene		ND		0.00050	08-02-89	
Total Xylenes		ND		0.00050	08-02-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

08-03-89
Date Reported

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ANALYSIS REPORT

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Report Prepared for:
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Attention: Rodger C. Witham

Date Received: 08-02-89
Laboratory Number: 90807W04
Project #: 18034-6
Sample #: W-TAP-MW7
Matrix: Water

Parameter	Result (mg/kg)	Result (mg/L)	Detection Limit (mg/kg)	Detection Limit (mg/L)	Date Analyzed	Notes
TVH as Gasoline						NR
TPH as Gasoline		0.031		0.020	08-02-89	
TEH as Diesel						NR
Benzene		0.0016		0.00050	08-02-89	
Toluene		ND		0.00050	08-02-89	
Ethylbenzene		ND		0.00050	08-02-89	
Total Xylenes		0.00060		0.00050	08-02-89	

mg/kg = milligrams per kilogram = parts per million (ppm).
mg/L = milligrams per liter = ppm.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not required.

PROCEDURES

TVH/BTEX--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TPH--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

TEH--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

08-03-89
Date Reported

Clayton Environmental Consultants, Inc.

P.O. Box 9019 • 1252 Quarry Lane • Pleasanton, CA 94566 • (415) 426-2600

August 17, 1989

Mr. Roger Witham
APPLIED GEOSYSTEMS
43225 Mission Blvd.
Suite B
Fremont, CA 94539

REVISED REPORT
Client Ref. No.: 18034-6
Lab Batch No.: 8908028
Clayton Project No.: 89080.28
Client Code No.: 77821

Dear Mr. Witham:

Attached is our revised analytical laboratory report for the samples received on August 2, 1989 and originally reported to you on August 7, 1989. A copy of the Chain of Custody form acknowledging receipt of these samples is attached.

We have re-analyzed a retained portion of your sample W-TAP-CW7. The re-analysis indicated all EPA 524.2 compounds were non-detectable. The sample was re-analyzed within 14 days of collection, however the samples had not been field preserved . Therefore, the non-chlorinated compounds may have degraded with storage past seven days.

We suspect that the sample compositing step or residual contamination from a previously analyzed sample may have contaminated the portion of sample originally analyzed and reported. This contamination was not evident at the time of analysis, since your other sample analyzed with Well #7 was non-detectable, as was the method blank for the run. Clayton maintains an excellent quality assurance program, however, random contamination is not always detected. We regret this apparent reporting error and hope that it has not greatly inconvenienced you.

We have arranged with Jerry Taylor of the City of Pleasanton to analyzed an additional sample for Well #7 at no charge. He will collect the sample of August 18 and we will report results to him within one week.

We appreciate the opportunity to be of assistance to you. If you have any questions, please call me at (415) 426-2662.

Sincerely,

Ronald H. Peters, CIH
Manager, Laboratory Services

RHP/tb
Attachment

VOLATILE ORGANIC COMPOUNDS
METHOD 524.2

Sample I.D.:	W-TAP-CW7	Client:	APPLIED GEOSYSTEMS
Sample Received:	08/02/89	Client Ref. No.:	18034-6
Sample Analyzed:	08/16/89	Lab Client No.:	77821
Sample Matrix:	Water	Lab No.:	8908028-01

Compound	Concentration µg/L (ppb)	Limit of Detection µg/L (ppb)
Benzene	ND	0.5
Bromobenzene	ND	0.5
Bromochloromethane	ND	0.5
Bromodichloromethane	ND	0.5
Bromoform	ND	0.5
Bromomethane	ND	0.5
n-Butylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
tert-Butylbenzene	ND	0.5
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromo-3-chloropropane	ND	0.5
1,2-Dibromoethane	ND	0.5
Dibromomethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	0.5
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
1,3-Dichloropropane	ND	0.5
2,2-Dichloropropane	ND	0.5
1,1-Dichloropropene	ND	0.5
Ethylbenzene	ND	0.5
C-1,3-Dichloropropene	ND	0.5
t-1,3-Dichloropropene	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 524.2
(CONTINUED)

Sample I.D.: W-TAP-CW7 Client: APPLIED GEOSYSTEMS

Compound	Concentration µg/L (ppb)	Limit of Detection µg/L (ppb)
Hexachlorobutadiene	ND	0.5
Isopropylbenzene	ND	0.5
p-Isopropyltoluene	ND	0.5
Methylene chloride	ND	0.5
Naphthalene	ND	0.5
n-Propylbenzene	ND	0.5
Styrene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Toluene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
Vinyl chloride	ND	0.5
o-Xylene	ND	0.5
m & p-Xylene	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 524.2

Sample I.D.:	Method Blank	Client:	APPLIED GEOSYSTEMS
Sample Received:		Client Ref. No.:	18034-6
Sample Analyzed:	08/16/89	Lab Client No.:	77821
Sample Matrix:	Water	Lab No.:	8908028-MB

Compound	Concentration µg/L (ppb)	Limit of Detection µg/L (ppb)
Benzene	ND	0.5
Bromobenzene	ND	0.5
Bromochloromethane	ND	0.5
Bromodichloromethane	ND	0.5
Bromoform	ND	0.5
Bromomethane	ND	0.5
n-Butylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
tert-Butylbenzene	ND	0.5
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromo-3-chloropropane	ND	0.5
1,2-Dibromoethane	ND	0.5
Dibromomethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	0.5
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
1,3-Dichloropropane	ND	0.5
2,2-Dichloropropane	ND	0.5
1,1-Dichloropropene	ND	0.5
Ethylbenzene	ND	0.5
C-1,3-Dichloropropene	ND	0.5
t-1,3-Dichloropropene	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 524.2
(CONTINUED)

Sample I.D.: Method Blank Client: APPLIED GEOSYSTEMS

Compound	Concentration µg/L (ppb)	Limit of Detection µg/L (ppb)
Hexachlorobutadiene	ND	0.5
Isopropylbenzene	ND	0.5
p-Isopropyltoluene	ND	0.5
Methylene chloride	ND	0.5
Naphthalene	ND	0.5
n-Propylbenzene	ND	0.5
Styrene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Toluene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
Vinyl chloride	ND	0.5
o-Xylene	ND	0.5
m & p-Xylene	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 524.2

Sample I.D.:	W-45-MW4	Client:	APPLIED GEOSYSTEMS
Sample Received:	08/02/89	Client Ref. No.:	18034-6
Sample Analyzed:	08/02/89	Lab Client No.:	77821
Sample Matrix:	Water	Lab No.:	8908028-02

Compound	Concentration µg/L (ppb)	Limit of Detection µg/L (ppb)
Benzene	ND	0.5
Bromobenzene	ND	0.5
Bromochloromethane	ND	0.5
Bromodichloromethane	ND	0.5
Bromoform	ND	0.5
Bromomethane	ND	0.5
n-Butylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
tert-Butylbenzene	ND	0.5
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromo-3-chloropropane	ND	0.5
1,2-Dibromoethane	ND	0.5
Dibromomethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	0.5
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
1,3-Dichloropropane	ND	0.5
2,2-Dichloropropane	ND	0.5
1,1-Dichloropropene	ND	0.5
Ethylbenzene	ND	0.5
C-1,3-Dichloropropene	ND	0.5
t-1,3-Dichloropropene	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 524.2
(CONTINUED)

Sample I.D.: W-45-MW4 Client: APPLIED GEOSYSTEMS

Compound	Concentration µg/L (ppb)	Limit of Detection µg/L (ppb)
Hexachlorobutadiene	ND	0.5
Isopropylbenzene	ND	0.5
p-Isopropyltoluene	ND	0.5
Methylene chloride	ND	0.5
Naphthalene	ND	0.5
n-Propylbenzene	ND	0.5
Styrene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Toluene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
Vinyl chloride	ND	0.5
o-Xylene	ND	0.5
m & p-Xylene	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 524.2

Sample I.D.:	Method Blank	Client:	APPLIED GEOSYSTEMS
Sample Received:		Client Ref. No.:	18034-6
Sample Analyzed:	08/02/89	Lab Client No.:	77821
Sample Matrix:	Water	Lab No.:	8908028-MB

Compound	Concentration µg/L (ppb)	Limit of Detection µg/L (ppb)
Benzene	ND	0.5
Bromobenzene	ND	0.5
Bromochloromethane	ND	0.5
Bromodichloromethane	ND	0.5
Bromoform	ND	0.5
Bromomethane	ND	0.5
n-Butylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
tert-Butylbenzene	ND	0.5
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromo-3-chloropropane	ND	0.5
1,2-Dibromoethane	ND	0.5
Dibromomethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	0.5
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
1,3-Dichloropropane	ND	0.5
2,2-Dichloropropane	ND	0.5
1,1-Dichloropropene	ND	0.5
Ethylbenzene	ND	0.5
C-1,3-Dichloropropene	ND	0.5
t-1,3-Dichloropropene	ND	0.5

ND = Not detected at or above limit of detection

VOLATILE ORGANIC COMPOUNDS
METHOD 524.2
(CONTINUED)

Sample I.D.: Method Blank Client: APPLIED GEOSYSTEMS

Compound	Concentration µg/L (ppb)	Limit of Detection µg/L (ppb)
Hexachlorobutadiene	ND	0.5
Isopropylbenzene	ND	0.5
p-Isopropyltoluene	ND	0.5
Methylene chloride	ND	0.5
Naphthalene	ND	0.5
n-Propylbenzene	ND	0.5
Styrene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Toluene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
Vinyl chloride	ND	0.5
o-Xylene	ND	0.5
m & p-Xylene	ND	0.5

ND = Not detected at or above limit of detection