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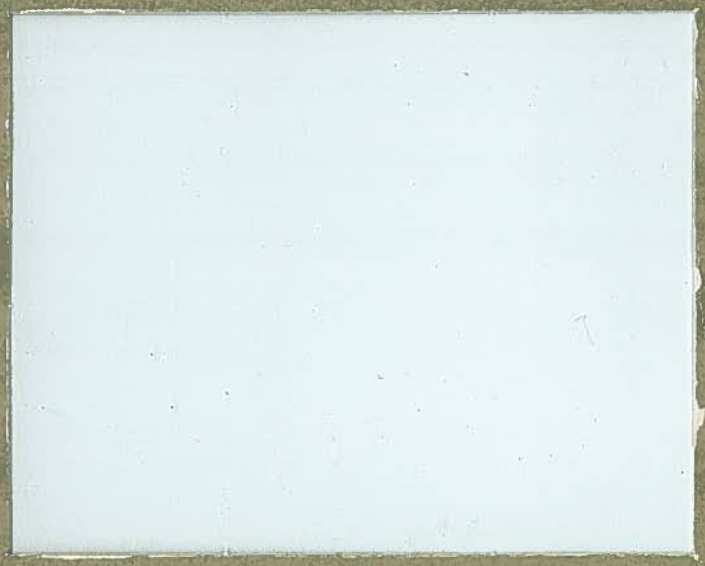

PROGRESS REPORT NO. 1
REMEDIAL MONITORING PROGRAM
CIRCLE K FACILITY 1461
SEATTLE, WASHINGTON
FOR
CIRCLE K CORPORATION

9/23/90

2350 24th Ave E.
Seattle

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August 23, 1990

Consulting Geotechnical
Engineers and Geologists

The Circle K Corporation
P.O. Box 52084
Phoenix, Arizona 85072

Attention: Mr. Robert F. Staab

We are submitting two copies of "Progress Report No. 1" regarding ongoing remedial actions at the site of Circle K Facility 1461 in Seattle, Washington. The general scope of our services is described in our proposal dated January 18, 1990. Our services were authorized by Mr. Robert F. Staab of the Circle K Corporation on January 24, 1990.

We appreciate the opportunity to be of service to the Circle K Corporation. Please call if you have any questions regarding this report.

Yours very truly,

GeoEngineers, Inc.

James A. Miller
Principal

OKP:JAM:cs

cc: Mr. Joseph Hickey
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File No. 1780-002-B04

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PROGRESS REPORT NO. 1
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CIRCLE K FACILITY 1461
SEATTLE, WASHINGTON
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INTRODUCTION

This progress report summarizes the results of the subsurface fuel recovery and ground water monitoring programs at the site of Circle K Facility 1461 between January 5 and June 28, 1990. Facility 1461 is located in Seattle, Washington and consists of a convenience store which formerly marketed leaded and unleaded gasoline. Initial results of our subsurface remedial monitoring are presented in our report dated March 6, 1990. The free product recovery and ground water treatment systems started operating on a full-time basis on December 6, 1989. This report presents data from the monitoring of remediation activities and site conditions and evaluates the effectiveness of the remedial plan.

Chemical Processors, Inc., Environmental Services Division (ChemPro) installed the free product recovery, ground water treatment, and vapor extraction system at the site. ChemPro was also responsible for maintenance of the equipment until March 1, 1990. After that time, Glacier Environmental Services, Inc. (Glacier) acquired the responsibilities associated with the operation and maintenance of the recovery and treatment systems.

MONITORING ACTIVITIES

MONITOR WELL MEASUREMENTS

The locations of all existing monitor wells at the site are shown in Figure 1. Free product thicknesses, ground water elevations and well casing hydrocarbon vapor concentrations were measured monthly in each well during this reporting period. Field procedures used to monitor and sample the wells are described in Appendix A.

Product Thickness: Free product was detected in Wells MW-4, MW-8 and MW-9. Product thicknesses in the three wells ranged from 0.14 feet to 1.19 feet between January and June 1990. Monthly free product thicknesses

measured in the monitor wells are listed in Table 1. The product thickness fluctuations in each well as based on our monthly measurements is shown in Figure 2.

Product thickness in MW-9, located approximately 60 feet from the recovery well, has decreased steadily since March 1990. The product thickness in MW-4 and MW-8 increased during the same time period. MW-4, located closest to the recovery well and backfilled tank excavation, generally contains the greatest amount of product.

Contour maps of the apparent thickness of free product as measured in the well casings on March 8 and June 8, 1990, are presented as Figures 3 and 4, respectively. The lateral extent of the product plume remained stable during this reporting period. Free product is bailed monthly from the monitor wells as part of our monitoring activities at the site.

Water Levels: Ground water elevations were measured monthly in each of the monitor wells. Ground water elevations measured between January and June, 1990 are presented in Table 2. A ground water contour map based on the March 8, 1990 data is presented as Figure 5. As discussed in our March 6, 1990 report, shallow ground water in the vicinity of the site flows towards the northeast, except where water levels are influenced by pumping in the recovery well.

Ground water elevations in individual wells fluctuated in response to pumping and seasonal precipitation. A graph of the ground water elevations measured in MW-4, MW-8 and MW-11 for the period of October 9, 1989 to June 8, 1990 is shown in Figure 6. Ground water levels were highest in mid-January and early February due to increased precipitation during this period. From October 1989 to February 1990, water levels in wells outside of the ground water cone of depression increased by as much as 4 feet. Ground water elevations measured at the site decreased by 0.31 feet to 2.96 feet during the period of January 11 to June 8, 1990. Ground water levels in monitoring wells located within the cone of depression fluctuated by less than 2 feet between January 11 and June 8, 1990.

Hydrocarbon Vapor Concentrations: Hydrocarbon vapor concentrations in the monitor well casings were measured monthly using a Bacharach TLV Sniffer calibrated to hexane. Table 3 lists the hydrocarbon vapor concentrations measured in the well casings during this reporting period.

Hydrocarbon vapor concentrations were detected consistently at concentrations greater than 10,000 parts per million (91% LEL) in MW-4, MW-8, MW-9 and MW-13 during this reporting period. Vapor concentrations in MW-6, MW-14 and MW-15 varied from less than 100 parts per million (ppm) to greater than 10,000 ppm. Hydrocarbon vapor concentrations did not exceed 400 ppm in the other monitor wells.

GROUND WATER QUALITY

Two rounds of water quality samples were obtained from monitor wells located near the edge of the free product plume on March 8-9 and June 11, 1990. Samples were not collected from wells that contained free product. The water samples were analyzed for benzene, ethylbenzene, toluene and xylenes (BETX) using EPA Method 8020. A summary of the analytical results is presented in Table 4. Laboratory data sheets and chain-of-custody records are included in Appendix B. The concentrations of benzene detected in ground water samples collected from the wells are indicated in Figure 4.

Water samples collected from MW-13 and MW-15 contained high concentrations of BETX compounds. The benzene concentrations in these two wells appears to have decreased slightly during the period between our March and June sampling episodes. Samples collected from the other monitor wells during this reporting period contained relatively low or non-detected concentrations of BETX. Based on the water quality data obtained from the monitor wells, the plume of BETX-contaminated ground water at the site has remained relatively stable from March to June, 1990.

FREE PRODUCT RECOVERY SYSTEM

The volume of free product recovered at the site using the Filter Scavenger pumping system has been measured by ChemPro or Glacier personnel as part of the routine maintenance of the recovery and treatment systems. Since March 1, 1990 the amount of free product recovered at the site has been reported by Glacier on a weekly basis. Product is pumped to an aboveground storage drum prior to removal from the site. The Filter

Scavenger recovery system has been operating continuously at the site since December 6, 1989, except for several pump maintenance and repair episodes totaling about 10 to 20 days.

Approximately 189 gallons of product were pumped from the recovery well between January 5 and June 25, 1990. A total of 502 gallons of product have been recovered at the site since pumping began on December 6, 1989. Product recovery data are summarized in Table 5.

A plot of the rate of free product recovery during the period from January 9 to June 25, 1990 is shown in Figure 7. The product recovery rate gradually decreased from 4.6 gallons per day (gpd) in mid-January to approximately 0.5 gpd during May and June 1990.

GROUND WATER TREATMENT SYSTEM

The ground water depression pump has been operating almost continuously since December 6, 1989. The pump was shut down during demolition of the service island between March 21 and March 23, 1990. The ground water treatment system was turned off from June 10 to June 12, 1990 for equipment maintenance.

Approximately 110,000 gallons of water were pumped, treated and discharged to the Metro sewer from January 11 to June 8, 1990. The average rate of ground water recovery during this period was 740 gallons per day. As shown in Figure 5, the recovery well appears to be drawing shallow ground water from the vicinity of all wells containing free product. The ground water cone of depression has remained relatively stable since the recovery system began continuous operation in December 1989. The depth to ground water in the recovery well is approximately 15.5 feet below ground surface.

Eight rounds of water samples were collected from the water treatment system sampling ports during this reporting period. The samples were analyzed for BETX (EPA Method 8020) to evaluate the effectiveness of the two carbon filters in removing fuel-related contaminants from the recovered ground water. The locations of the sampling ports and a description of the water treatment system is included in our March 6, 1990 report. Table 6 summarizes the chemical data obtained from BETX analysis of samples

collected from the water treatment system. Laboratory data sheets and chain-of-custody records for the samples collected from the water treatment system are included in Appendix C.

Benzene concentrations in untreated ground water samples collected from Sampling Port No. 1 ranged from 20,000 to 33,000 parts per billion (ppb). As shown in Table 6, the benzene concentrations detected in the samples collected from Sampling Port No. 2 fluctuated between 5.8 and 4,700 ppb during this reporting period. Based on the chemical data obtained from Sampling Port No. 2, the primary carbon filter was replaced with the secondary (polishing) carbon filter, and a new carbon filter was installed as the polishing filter. Spent carbon filters were replaced on February 1, March 13, May 5 and July 2, 1990. The primary carbon filters appear to have a life span of approximately six weeks before significant concentrations of BETX are discharged into the polishing filter. The polishing filter has been effective in removing any remaining BETX compounds from the treated water prior to discharge into the sanitary sewer line (Table 6).

One round of samples was obtained from the three sampling ports on January 11, 1990 and analyzed for total petroleum hydrocarbons (TPH) by EPA Method 418.1. These samples were collected and analyzed to determine if significant concentrations of petroleum hydrocarbons other than gasoline were present in the ground water passing through the treatment system. TPH concentrations of 13, 0.08 and 0.08 ppm were detected in the samples collected from Sampling Port Nos. 1, 2 and 3, respectively.

The discharge from the water treatment system to the Municipality of Metropolitan Seattle (Metro) sanitary sewer was monitored and sampled in accordance with the requirements outlined in the Metro Authorization for Discharge. Samples of the treated discharge water were collected monthly from Sampling Port No. 3. Samples were analyzed for nine metals (EPA Method 7000 series), cyanide (EPA Method 9010), fats/oil/grease (EPA Method 413.2) and pH (EPA Method 150.1). Analytical results for these samples are summarized in Table 7. The discharged water contained undetected or trace concentrations of the analyzed compounds. The pH of the discharge water is typical of clean ground water. Laboratory data sheets for these samples are included in Appendix C.

Hydrocarbon vapor concentrations were measured monthly at the point of discharge to the lateral sanitary sewer line using a Bacharach TLV Sniffer calibrated to hexane. Hydrocarbon vapor concentrations ranged from non-detected to 1,000 ppm (9% LEL) during this reporting period.

Results of our monthly sampling and monitoring of the discharge from the ground water treatment system were submitted to Metro on February 12, March 16, April 20, June 1 and June 26, 1990. Metro approved our request to discontinue monthly testing for metals and cyanide after the February 1990 sampling episode.

VAPOR EXTRACTION SYSTEM (VES)

Preliminary testing of the VES in December 1990 indicated the presence of high concentrations of combustible hydrocarbon vapors in the tank excavation backfill and the surrounding subsurface soils. Vapor measurements obtained from the sampling ports while testing the system on February 8, 1990 indicated that the primary and secondary carbon filters were saturated with fuel vapors after the VES had operated for less than eight hours. Details of the VES currently installed at the site are included in our March 6, 1990 report. The VES was not operated continuously during this reporting period.

Additional VES testing was performed on March 13, 1990. A portable internal combustion unit (ICU) was connected to the existing VES piping. The slotted PVC piping is buried in the pea gravel backfill of the former gasoline tank excavation. A vacuum blower fan was used to extract subsurface vapors through the ICU. A mixture of ambient air and soil vapor passed through the ICU at a flow rate of approximately 60 cubic feet per minute for about two hours. A concentration of 20,000 ppm (2% by volume) combustible hydrocarbon vapors was measured entering into the ICU throughout the duration of the test. This concentration represents a minimum vapor concentration, as greater concentrations of combustible hydrocarbon vapors would have exceeded the limits of the ICU operating temperature.

The VES testing confirmed our opinion that treatment of vapors using a carbon filtration system would not be cost-effective if free product is present in the excavation backfill. Therefore, the VES was not utilized for subsurface remediation during most of this reporting period.

DISCUSSION OF RESULTS

ASSESSMENT OF SUBSURFACE CONTAMINATION

Free product was observed floating on shallow ground water in three monitor wells from January to June 1990. Product thicknesses in the wells ranged from 0.14 to 1.19 feet during this period. Based on product thickness measurements, the lateral extent of the product plume appears to have remained stable since product recovery began in December 1989. Floating product appears to be confined to a relatively small area located north and northwest of the former leaky underground fuel tank (Figures 3 and 4).

Fuel-contaminated ground water is present in the monitor wells located immediately outside of the edge of the free product plume. Analytical data for MW-13 and MW-15 water quality samples indicate benzene concentrations ranging from 20,000 to 54,000 ppb in the vicinity of these two wells. Benzene concentrations in ground water from MW-6 ranged from 14 to 18 ppb. The current Washington State Department of Ecology cleanup guideline for benzene in ground water at underground storage tank sites is 66 ppb. The current drinking water quality standard for benzene is 5 ppb. The proposed compliance cleanup level for benzene in ground water as listed in the DRAFT Model Toxics Control Act Cleanup Regulation (June 21, 1990) is also 5 ppb.

High concentrations of hydrocarbon vapors were measured in the monitor well casings located adjacent to the free product plume. The low concentrations of hydrocarbon vapors measured in outlying wells indicate that the subsurface hydrocarbon vapors in the soil have not migrated a significant distance laterally from the edge of the free product plume.

REMEDIATION SYSTEM PERFORMANCE

The ground water remediation system has been operating almost continuously during this reporting period. Our remedial monitoring indicates the system is effective in recovering free product and contaminated ground water from the estimated limits of the free product plume. Ground water elevations measured in the monitor wells confirm the presence of a stable cone of depression encompassing the lateral extent of the free product plume.

The rate of free product recovery decreased from approximately 4.0 gpd in mid-January to 0.5 gpd in May and June 1990. Factors which likely control the product recovery rate at this site include (1) the decreasing volume of free product in the subsurface, (2) seasonal fluctuations in the ground water table elevation, and (3) the relative permeability of the subsurface soils. The relatively large volume of product recovered during the first month of pumping probably resulted from high flow rates within the tank excavation backfill material and the native soils located in the immediate vicinity of the recovery well.

Although product thicknesses in MW-4, MW-8 and MW-9 fluctuated throughout this reporting period, a significant amount of free product likely remains in the subsurface. We expect product recovery to continue at a rate of about 0.5 gpd for at least six more months.

The ground water remediation system effectively treated 110,000 gallons of fuel-contaminated ground water recovered at the site from January 11 to June 8, 1990. Water quality at the edge of the contaminated water plume has improved after six months of ground water pumping. Benzene concentrations in MW-11 and MW-16 decreased to below laboratory detection limits in June 1990. The concentrations of benzene detected in the water samples obtained from MW-6 decreased from 250 ppb in October 1989 to 18 ppb in June 1990. High benzene concentrations continued to be detected in the water samples collected from MW-13 and MW-15 during March and June 1990. The high BETX concentrations detected in these two wells indicate that subsurface free product may be present near both of these wells. The BETX concentrations detected in the ground water near MW-13 and MW-15 will likely decline as free product is removed from the ground water adjacent to the wells.

The VES currently installed at the site was not operated during most of this reporting period. Results from a preliminary test using a portable ICU indicate that high concentrations of hydrocarbon vapors are present in the pea gravel backfill of the former tank excavation and the surrounding subsurface soils.

RECOMMENDATIONS

Continued operation and monitoring of the free product recovery and ground water treatment system is recommended. The ground water elevation,

free product thickness and concentration of hydrocarbon vapors should be measured monthly in each of the fourteen existing monitor wells. Quarterly water quality samples should be collected from the wells located near the edge of the free product plume, and the samples should be analyzed for BETX.

Monthly sampling and monitoring of the treated water discharged into the sanitary sewer system is required by the Metro Authorization for Discharge. Monthly reports containing results from the sampling and analyses outlined in the Authorization for Discharge are required by Metro. Additional samples should be collected from the three water sampling ports on a routine basis and analyzed for BETX to evaluate the effectiveness of the treatment system and whether the carbon filters need replacement.

We recommend that the VES not be operated as presently installed. The VES is not cost-effective for treating the high concentrations of hydrocarbon vapors resulting from the presence of free product currently being recovered through the backfilled tank excavation. A thermal oxidation unit is currently being evaluated for the treatment of subsurface hydrocarbon vapors recovered at the site.

Additional progress reports summarizing the results of our ongoing remedial monitoring at this site will be submitted at approximate six-month intervals.

LIMITATIONS

We have prepared this report for use by the Circle K Corporation. The report may be made available to regulatory agencies. This report is not intended for use by others, and the information contained herein may not be applicable to other sites.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in this area at the time this report was prepared. No other conditions, express or implied, should be understood.

- o O o -

Please call if your have questions regarding this report.

Respectfully submitted,

GeoEngineers, Inc.

James G. Roth
Hydrogeologist

Otto K. Paris
Project Geologist

James A. Miller, P.E.
Principal

JGR:OKP:JAM:cs

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TABLE 1
PRODUCT THICKNESS IN GROUND WATER MONITOR WELLS

Well Number	Measurement Date	Product Thickness (feet)
MW-04	01/11/90	0.95
	02/08/90	1.06
	03/08/90	0.88
	04/09/90	0.56
	05/09/90	1.19
	06/08/90	1.01
MW-08	01/11/90	0.98
	02/08/90	0.60
	03/08/90	0.43
	04/09/90	0.46
	05/09/90	0.48
	06/08/90	0.86
MW-09	01/11/90	0.15
	02/08/90	0.31
	03/08/90	0.66
	04/09/90	0.51
	05/09/90	0.31
	06/08/90	0.14

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TABLE 2
GROUND WATER ELEVATIONS IN MONITOR WELLS

Monitor Well No.	TOC Elevation (feet)	Ground Water Surface Elevations (feet)					
		01/11/90	02/08/90	03/08/90	04/09/90	05/09/90	06/08/90
MW-01	100.94	89.03	88.74	88.74	88.90	89.08	88.72
MW-04*	98.38	85.01	85.23	84.76	84.67	84.11	84.04
MW-05	90.94	81.35	81.75	81.28	80.85	80.85	80.78
MW-06	97.92	87.02	87.09	86.71	86.39	86.09	85.97
MW-07	97.43	89.22	90.17	89.10	88.18	87.92	87.48
MW-08*	98.36	87.63	87.82	86.90	86.45	86.01	85.99
MW-09*	99.03	88.16	88.56	87.82	87.43	87.32	87.33
MW-10	97.55	87.88	88.12	87.84	87.43	87.21	87.04
MW-11	98.62	91.72	91.14	90.14	88.99	88.89	89.17
MW-12	96.56	86.68	86.90	86.64	86.22	86.34	86.28
MW-13	99.95	87.58	87.59	87.43	87.27	87.27	87.25
MW-14	98.07	90.37	90.37	89.07	88.19	87.76	87.41
MW-15	99.04	90.98	90.94	89.52	88.56	88.29	88.29
MW-16	99.04	89.81	89.64	89.11	88.33	88.22	88.39

Notes:

"TOC" = top of well casing; elevations based on assumed datum of 100.00 feet.

* = free product present in well; reported water surface elevations are corrected for the equivalent column height of water.

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TABLE 3
HYDROCARBON VAPOR CONCENTRATIONS IN GROUND WATER MONITOR WELL CASINGS

Monitor Well No.	Hydrocarbon Vapor Concentrations (ppm)					
	01/11/90	02/08/90	03/08/90	04/09/90	05/09/90	06/08/90
MW-01	210	120	130	<100	100	150
MW-04	>10,000	>10,000	>10,000	>10,000	>10,000	>10,000
MW-05	<100	<100	<100	<100	<100	<100
MW-06	>10,000	6,200	10,000	2,400	120	2,200
MW-07	300	180	110	<100	<100	190
MW-08	>10,000	>10,000	>10,000	>10,000	>10,000	>10,000
MW-09	>10,000	>10,000	>10,000	>10,000	>10,000	>10,000
MW-10	210	<100	<100	<100	<100	100
MW-11	180	<100	105	<100	400	<100
MW-12	200	<100	<100	<100	<100	110
MW-13	>10,000	>10,000	>10,000	>10,000	>10,000	>10,000
MW-14	1,400	<100	<100	1,000	2,000	<100
MW-15	960	2,900	5,000	560	2,800	>10,000
MW-16	<100	<100	<100	<100	<100	<100

Notes:
"ppm" = parts per million
Hydrocarbon vapor concentrations were measured in the monitor well casings using a Bacharach TLV Sniffer calibrated to hexane (110 ppm = 1% LEL)

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TABLE 4
SUMMARY OF GROUND WATER QUALITY DATA, MONITOR WELL SAMPLES

Monitor Well	Date	Benzene (ppb)	Ethlybenzene (ppb)	Toluene (ppb)	Xylenes (ppb)
MW-01	09/13/89	1.5	ND	1.9	1.6
	03/09/90	ND	ND	ND	ND
	06/11/90	NA	NA	NA	NA
MW-06	10/09/89	250	ND	3.2	110
	03/08/90	14	0.5	2.8	1.8
	06/11/90	18	1.7	6.2	7.9
MW-07	10/09/89	2.8	ND	1.4	ND
	03/08/90	0.5	ND	ND	ND
	06/11/90	NA	NA	NA	NA
MW-10	10/09/89	1.2	ND	ND	ND
	03/08/90	ND	ND	ND	ND
	06/11/90	ND	ND	ND	ND
MW-11	10/09/89	2.6	ND	ND	3
	03/09/90	0.9	ND	0.9	ND
	06/11/90	ND	ND	ND	ND
MW-13	12/21/89	13,000	1,700	20,000	8,800
	03/09/90	54,000	3,500	50,000	18,000
	06/11/90	31,000	1,800	24,000	12,000
MW-14	12/21/89	1.1	1.9	5.7	13
	03/08/90	4.7	0.7	6.3	4.5
	06/11/90	ND	ND	49	ND
MW-15	12/21/89	7,300	1,000	9,000	5,800
	03/09/90	28,000	1,400	22,000	6,500
	06/11/90	20,000	1,800	28,000	10,000
MW-16	12/21/89	4.3	7.1	20	36
	03/09/90	ND	ND	ND	ND
	06/11/90	ND	ND	ND	0.8

Notes:
BETX by EPA Method 8020
"ppb" = parts per billion
"ND" = not detected; see laboratory data sheets in Appendix B for analyte detection limits.
"NA" = not analyzed

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TABLE 5 (Page 1 of 2)
SUMMARY OF FREE PRODUCT RECOVERY DATA

Date	Free Product Recovered (gallons)	Cumulative Free Product Recovered (gallons)	Free Product Recovery Rate (gpd)
12/07/89	40	40.0	40
12/11/89	150	190.0	37.5
12/13/89	60	250.0	30
12/14/89	20	270.0	20
12/19/89	38	308.0	7.6
12/20/89	1.0	309.0	1.0
12/22/89	2.0	311.0	1.0
12/27/89	2.0	313.0	0.4
01/02/90	0.0	313.0	0.0
01/03/90	0.0	313.0	0.0
01/09/90	13.5	326.5	2.3
01/11/90	2.4	328.9	1.2
01/16/90	22.8	351.7	4.6
01/19/90	6.4	358.1	2.1
01/23/90	14.4	372.5	3.6
01/26/90	8.8	381.3	2.9
01/30/90	5.6	386.9	1.4
02/02/90	5.6	392.5	1.9
02/06/90	6.0	398.5	1.5
02/10/90	11.2	409.7	2.8
02/13/90	7.2	416.9	2.4
02/16/90	3.2	420.1	1.1
02/20/90	7.6	427.7	1.9
02/24/90	2.8	430.5	0.7
03/02/90	4.8	435.3	0.8
03/09/90	7.2	442.5	1.0
03/13/90	4.0	446.5	1.0
03/16/90	2.8	449.3	0.9
03/23/90*	2.7	452.0	0.4
03/31/90	5.2	457.2	0.7

Notes:
"gpd" = gallons per day
*Product pump was inoperative for part of this period

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TABLE 5 (Page 2 of 2)

Date	Free Product Recovered (gallons)	Cumulative Free Product Recovered (gallons)	Free Product Recovery Rate (gpd)
04/06/90*	0.2	457.4	0.0
04/13/90	8.2	465.6	1.2
04/21/90	5.8	471.4	0.7
04/27/90	5.6	477.0	0.9
05/04/90	3.2	480.2	0.5
05/11/90	3.6	483.8	0.5
05/18/90	4.0	487.8	0.6
05/25/90	3.6	491.4	0.5
06/04/90	2.5	493.9	0.2
06/11/90	3.3	497.2	0.5
06/17/90*	3.6	500.8	0.6
06/25/90*	1.2	502.0	0.2

Notes:
"gpd" = gallons per day
*Product pump was inoperative for part of this period.

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TABLE 6
SUMMARY OF BETX ANALYSIS, WATER TREATMENT SYSTEM SAMPLES

Sampling Port Number	Sample Date	EPA Method 8020 (ppb)			
		Benzene	Ethlybenzene	Toluene	Total Xylenes
1	01/11/90	31,000	<2,500	32,000	10,000
	02/08/90	29,000	1,900	30,000	7,000
	02/27/90	33,000	1,800	34,000	13,000
	03/15/90	25,000	1,600	26,000	9,900
	04/09/90	29,000	2,300	35,000	14,000
	04/27/90	NA	NA	NA	NA
	05/10/90	20,000	1,500	23,000	11,000
	06/11/90	20,000	1,400	26,000	12,000
2	01/11/90	1,500	ND	16	2.2
	02/08/90	19	ND	2.9	2.6
	02/27/90	4,700	3.6	420	16
	03/15/90	6.2	0.9	8	4.5
	04/09/90	150	0.5	18	2.9
	04/27/90	4,200	25	190	<25
	05/10/90	5.8	ND	5.5	5.4
	06/11/90	3,800	5.0	94	8.4
3	01/11/90	ND	ND	ND	ND
	02/08/90	ND	ND	ND	ND
	02/27/90	0.6	ND	ND	ND
	03/15/90	ND	ND	ND	ND
	04/09/90	ND	ND	ND	ND
	04/27/90	ND	ND	ND	ND
	05/10/90	ND	ND	ND	ND
	06/11/90	ND	ND	ND	1.4

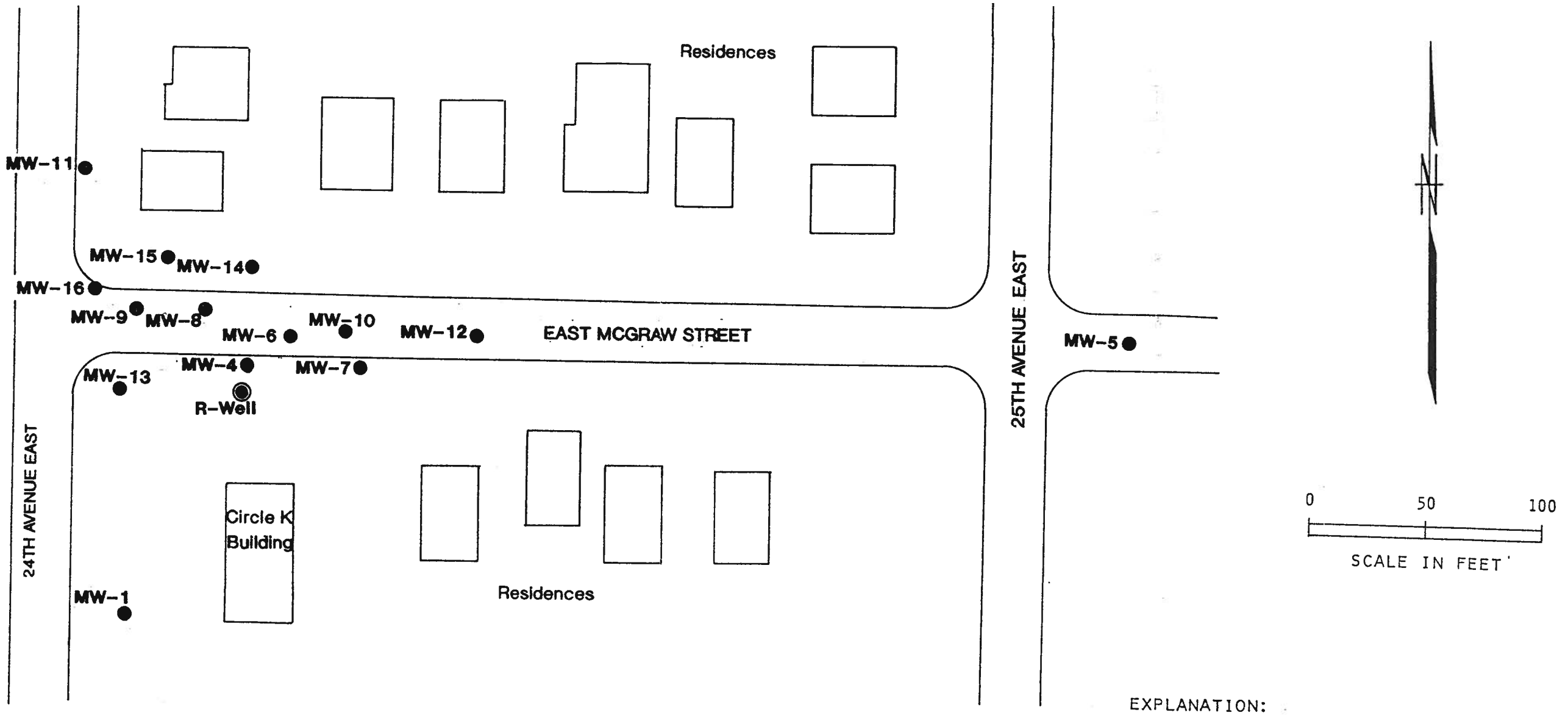
Notes:
"ppb" = parts per billion
"NA" = not analyzed
"ND" = not detected; see laboratory data sheets in Appendix C for analyte detection limits.

GeoEngineers

TABLE 7
SUMMARY OF WATER QUALITY DATA, DISCHARGE FROM WATER TREATMENT SYSTEM

Compound	EPA Method	Concentration (ppm)					
		01/11/90	02/08/90	03/09/90	04/09/90	05/09/90	06/11/90
Arsenic	7060	<0.0005	<0.005	NA	NA	NA	NA
Cadmium	7131	<0.0003	<0.0003	NA	NA	NA	NA
Chromium	7190	<0.02	<0.02	NA	NA	NA	NA
Copper	7210	<0.02	<0.02	NA	NA	NA	NA
Lead	7421	<0.005	<0.005	NA	NA	NA	NA
Mercury	7470	<0.0005	<0.0005	NA	NA	NA	NA
Nickel	7520	<0.03	0.05	NA	NA	NA	NA
Silver	7760	<0.02	<0.02	NA	NA	NA	NA
Zinc	7950	0.07	0.05	NA	NA	NA	NA
Cyanide	9012	<0.01	<0.02	NA	NA	NA	NA
Oil & Grease	413.2	0.09	<1.0	<1.0	<1.0	<1.0	<1.0
pH	150.1	6.7	6.6	6.6	6.7	6.6	6.6

Notes:
"NA" = not analyzed
Samples collected from Sampling Port No. 3; these samples are representative of water discharged from the water treatment system into the sanitary sewer line.



EXPLANATION:

MW-1 ● MONITOR WELL LOCATION AND NUMBER

R-Well ◉ RECOVERY WELL LOCATION

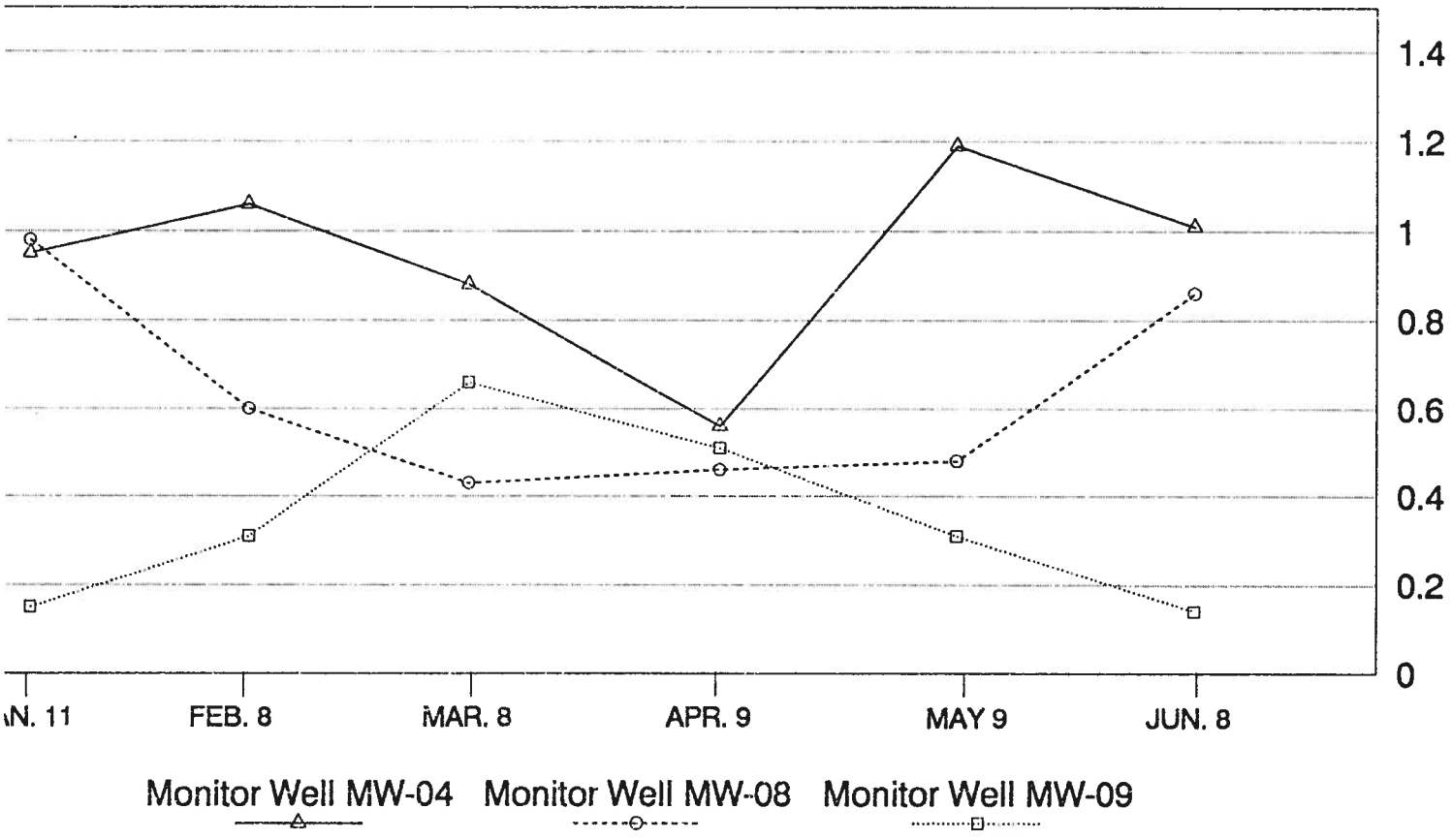
Geo Engineers

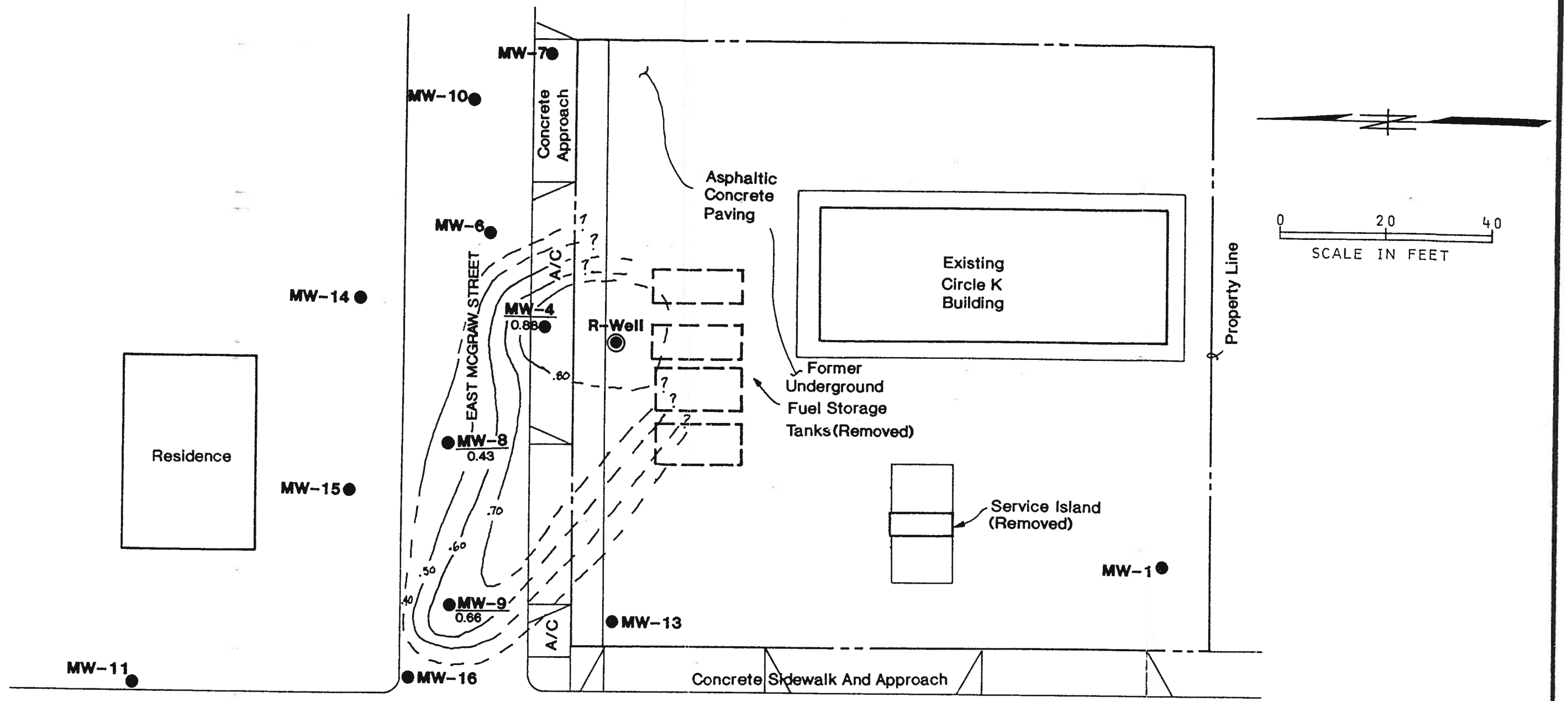
MONITOR WELL LOCATION MAP

FIGURE 1

80-002-B04 OKP:BDH 7.23.90

PRODUCT THICKNESS IN MONITOR WELLS





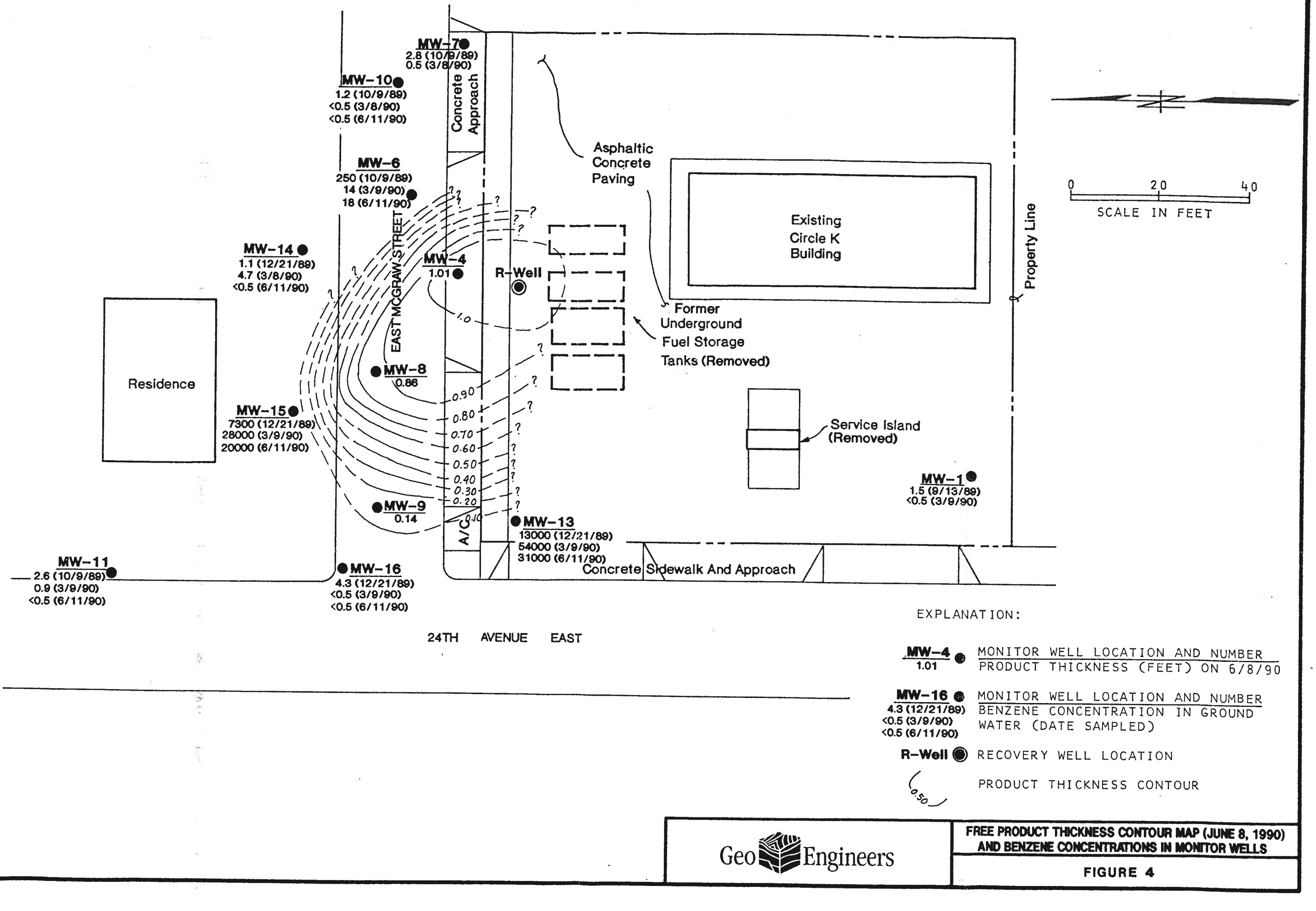
EXPLANATION:

- MW-4 / 0.88 — MONITOR WELL LOCATION AND NUMBER PRODUCT THICKNESS (FEET) ON 3/8/90
- .50 — PRODUCT THICKNESS CONTOUR
- R-Well — RECOVERY WELL LOCATION

GeoEngineers

FREE PRODUCT THICKNESS CONTOUR MAP MARCH 8, 1990

FIGURE 3



EXPLANATION:

MW-4 (1.01) — MONITOR WELL LOCATION AND NUMBER / PRODUCT THICKNESS (FEET) ON 6/8/90

MW-16 (4.3 (12/21/89), <0.5 (3/9/90), <0.5 (6/11/90)) — MONITOR WELL LOCATION AND NUMBER / BENZENE CONCENTRATION IN GROUND WATER (DATE SAMPLED)

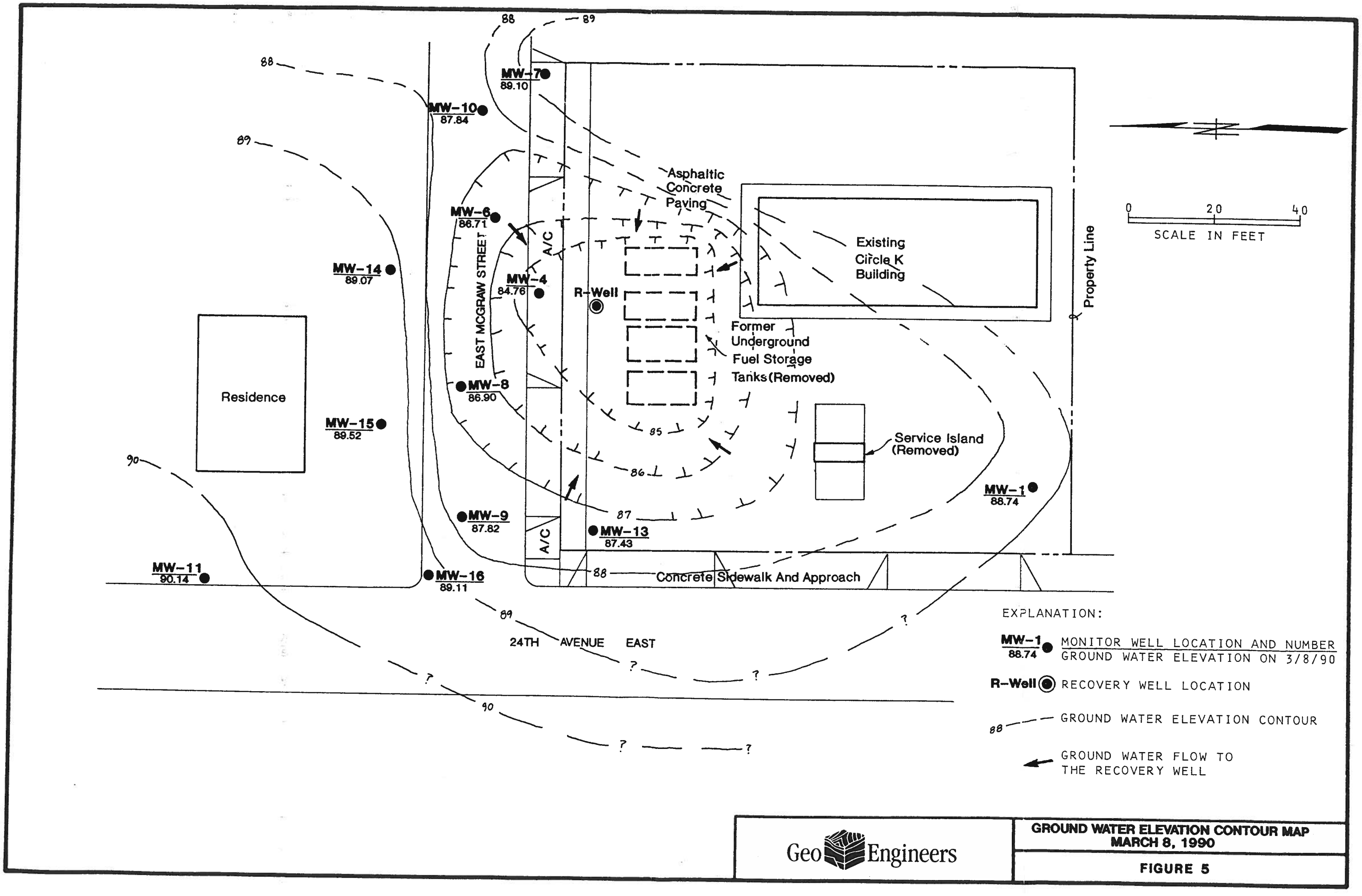
R-Well — RECOVERY WELL LOCATION

(0.50) — PRODUCT THICKNESS CONTOUR

Geo Engineers

FREE PRODUCT THICKNESS CONTOUR MAP (JUNE 8, 1990) AND BENZENE CONCENTRATIONS IN MONITOR WELLS

FIGURE 4



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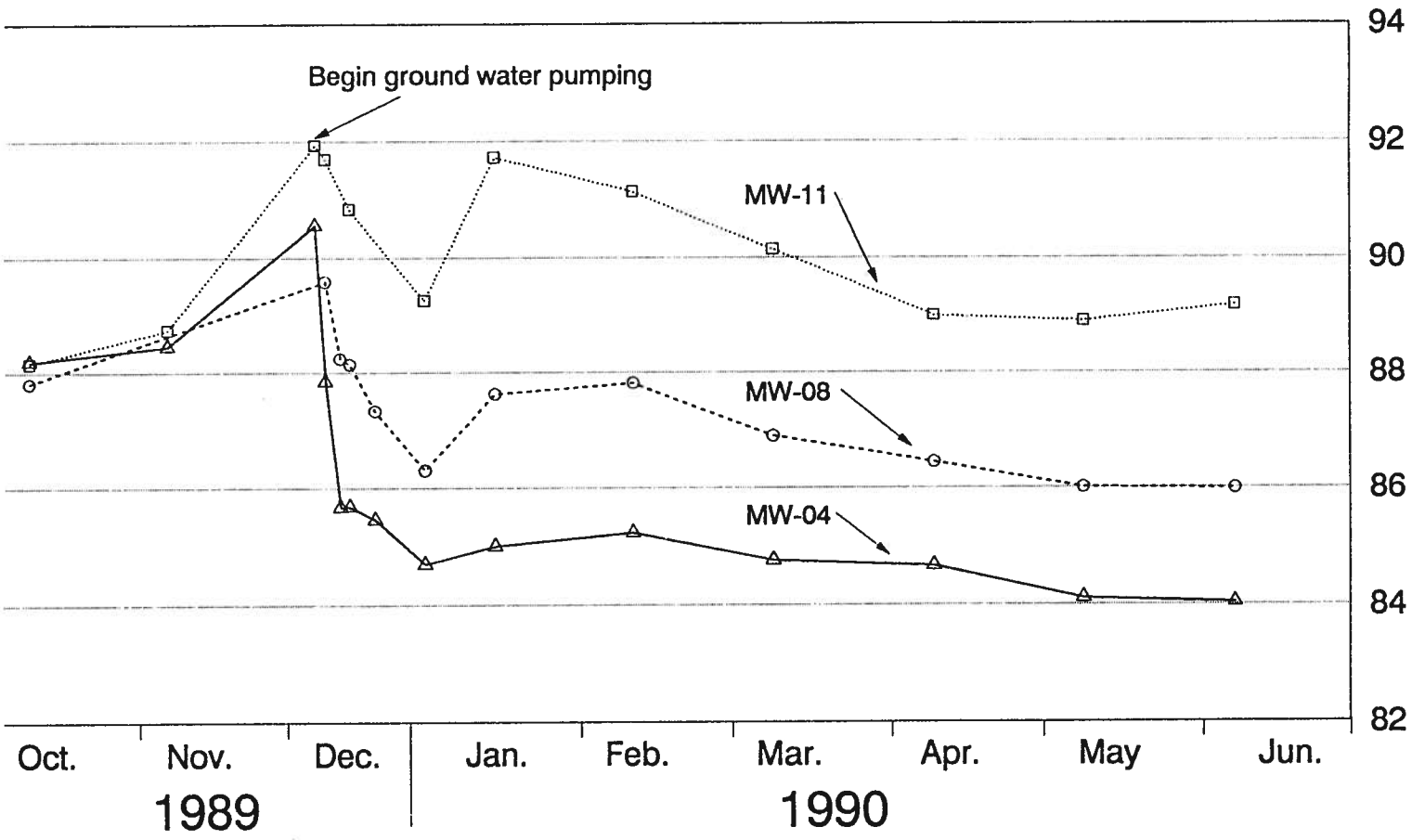
GROUND WATER ELEVATION CONTOUR MAP
MARCH 8, 1990

FIGURE 5

'80-002-B04 OKP:BDH 7.23.90

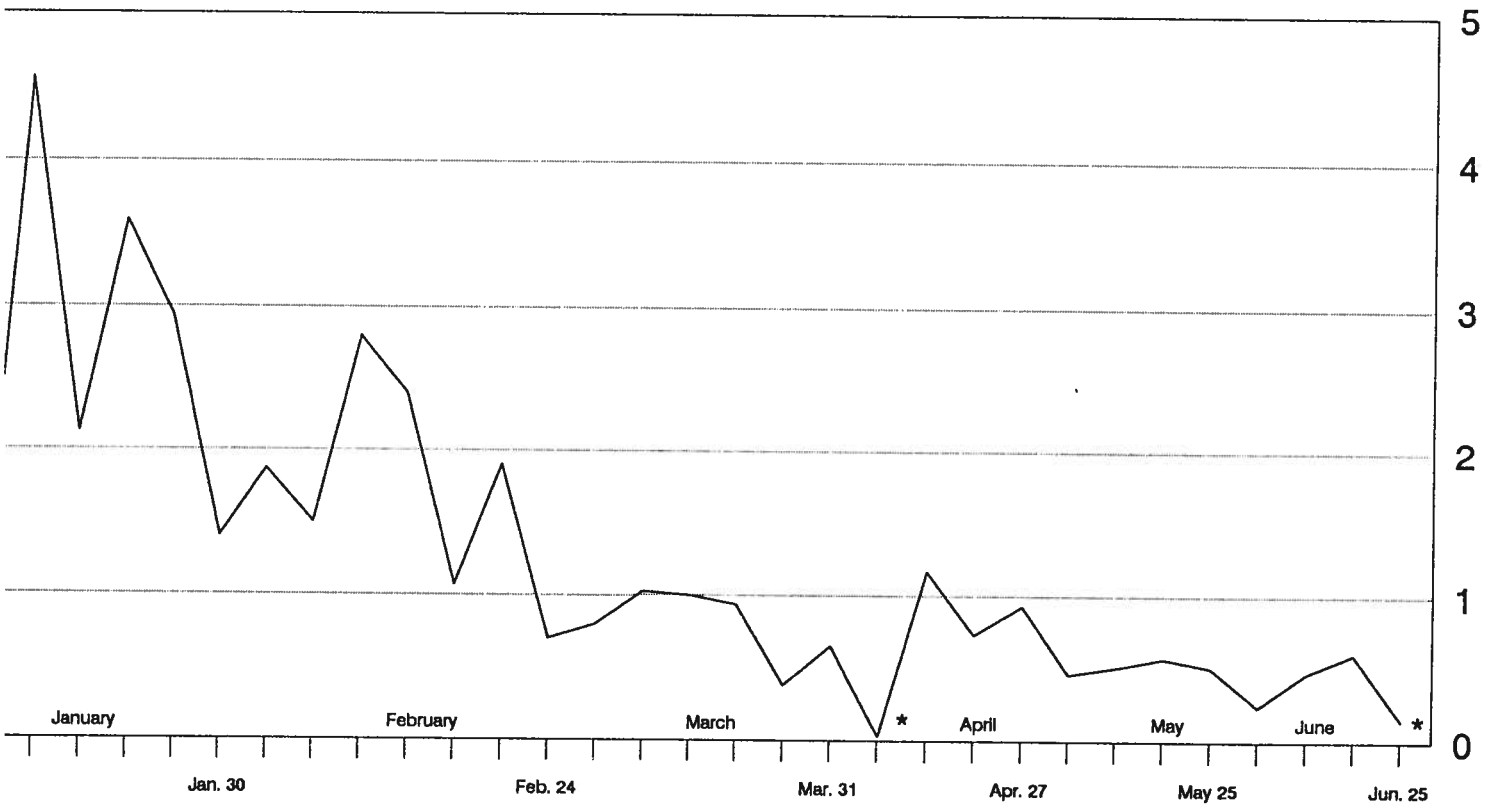
ROUND WATER ELEVATION FROM 10/09/89 TO 06/08/90 FOR MONITOR WELLS MW-04, MW-08 AND MW-11



lote: Ground water elevations based on assumed datum of 100.00 feet.
Ground water elevations in MW-04 and MW-08 are adjusted for free product thickness.
Ground water depression pump began continuous operation on 12/06/90.

1780-002-B04 OKP:BDH 7-20-90

FREE PRODUCT RECOVERY
JANUARY 9 TO JUNE 25, 1990



roduct recovery due to temporary malfunction of product recovery pump.

APPENDIX A

FIELD MEASUREMENTS AND SAMPLING

GeoEngineers

A P P E N D I X A

FIELD MEASUREMENTS AND SAMPLING

WATER SAMPLING PROGRAM

Ground water samples were collected from selected monitor wells by GeoEngineers on March 8-9 and on June 11, 1990. The water samples were collected with a stainless steel bailer after at least three well volumes of water were removed from each well casing. The samples were transferred to septum vials in the field and kept cool during transport to the testing laboratory. The bailer was cleaned prior to each sampling attempt with a fresh water rinse, trisodium phosphate (TSP) wash and a distilled water rinse.

Samples were obtained from the sampling ports on the water treatment system on January 11, February 8, February 27, March 9, March 15, April 9, April 27, May 10 and June 11, 1990. The samples were collected in septum vials and kept cool during transport to the laboratory.

Chain-of-custody procedures were followed in transporting all of the water samples to the analytical laboratory.

GROUND WATER ELEVATIONS AND PRODUCT THICKNESS

The depth to the ground water table relative to the monitor well casing rims was measured monthly with an electric water level probe. Ground water elevations were calculated by subtracting the water table depth from the casing rim elevations. A correction factor was applied to the ground water elevations in the wells containing free product. Product thicknesses in MW-4, MW-8 and MW-9 were measured monthly using an ORS Product-Water Interface Probe.

HYDROCARBON VAPOR CONCENTRATIONS

Hydrocarbon vapor concentrations were measured monthly in each monitor well. A Bacharach TLV Sniffer calibrated to hexane was used for the vapor measurements. The lower threshold of significance for the TLV Sniffer in this application is 400 ppm, or 4 percent of the Lower Explosive Limit (LEL)

CHEMICAL ANALYTICAL PROGRAM

The water samples collected from the monitor wells and the ground water treatment system were analyzed by Analytical Technologies, Inc. of Renton, Washington. Standard EPA methods were used for all the chemical analyses. The laboratory data sheets and chain-of-custody forms for the samples collected from the monitor wells are included in Appendix B. Appendix C contains the laboratory data sheets and chain-of-custody forms for the samples obtained from the water treatment system.

APPENDIX B

CHEMICAL ANALYTICAL DATA,

GROUND WATER SAMPLES COLLECTED FROM MONITOR WELLS

Analytical Technologies, Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9003-043

GeoEngineers

MAR 29 1990

Routing OKP

File

March 27, 1990

GeoEngineers, Inc.
2405 140th Avenue N.E.
Suite 105
Bellevue, WA 98005

Attention : Otto Paris

Project Number : 1780-01-B4

Project Name : Circle K

On March 9, 1990 Analytical Technologies, Inc. received 11 water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Karen L. Mixon
Project Manager

Karen L. Mixon and FWG
Frederick W. Grothkopp
Technical Manager

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9003-043-1	MW-1	03/09/90	WATER
9003-043-2	MW-6	03/09/90	WATER
9003-043-3	MW-7	03/08/90	WATER
9003-043-4	MW-10	03/08/90	WATER
9003-043-5	MW-11	03/09/90	WATER
9003-043-6	MW-13	03/09/90	WATER
9003-043-7	MW-14	03/08/90	WATER
9003-043-8	MW-15	03/09/90	WATER
9003-043-9	MW-16	03/09/90	WATER
9003-043-10	PORT 3, PH	03/09/90	WATER
9003-043-11	PORT 3, FATS, OIL, GREASE	03/09/90	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	11

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ANALYTICAL SCHEDULE

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-01-B4
PROJECT NAME : CIRCLE K

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
OIL & GREASE	IR	EPA 413.2	R
PH	ELECTRODE	EPA 150.1	R

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5
SURROGATE PERCENT RECOVERY	
BROMOFLUOROBENZENE	77

ATI I.D. # 9003-043

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: 1780-01-B4	DATE RECEIVED	: N/A
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 03/16/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	80

EPA METHOD : 8020 (BETX) DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5
SURROGATE PERCENT RECOVERY	
BROMOFLUOROBENZENE	76

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: 1780-01-B4	DATE RECEIVED	: N/A
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 03/23/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	82

EPA METHOD : 8020 (BETX) DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5
SURROGATE PERCENT RECOVERY	
BROMOFLUOROBENZENE	82

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 03/09/90
PROJECT #	: 1780-01-B4	DATE RECEIVED	: 03/09/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-6	DATE ANALYZED	: 03/19/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	14
ETHYLBENZENE	0.5
TOLUENE	2.8
TOTAL XYLENES	1.8

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	78

EPA METHOD : 8020 (BETX) DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	73

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 03/08/90
PROJECT #	: 1780-01-B4	DATE RECEIVED	: 03/09/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-10	DATE ANALYZED	: 03/15/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	72

EPA METHOD : 8020 (BETX) DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	0.9
ETHYLBENZENE	<0.5
TOLUENE	0.9
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	80

ATI I.D. # 9003-043-6

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 03/09/90
PROJECT #	: 1780-01-B4	DATE RECEIVED	: 03/09/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-13	DATE ANALYZED	: 03/16/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1000

COMPOUND	RESULT
BENZENE	54,000
ETHYLBENZENE	3,500
TOLUENE	50,000
TOTAL XYLENES	18,000

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	81

EPA METHOD : 8020 (BETX) DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	4.7
ETHYLBENZENE	0.7
TOLUENE	6.3
TOTAL XYLENES	4.5
SURROGATE PERCENT RECOVERY	
BROMOFLUOROBENZENE	93

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 03/09/90
PROJECT #	: 1780-01-B4	DATE RECEIVED	: 03/09/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-15	DATE ANALYZED	: 03/16/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1000

COMPOUND	RESULT
BENZENE	28,000
ETHYLBENZENE	1,400
TOLUENE	22,000
TOTAL XYLENES	6,500

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	80

EPA METHOD : 8020 (BETX) DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5
SURROGATE PERCENT RECOVERY	
BROMOFLUOROBENZENE	74

PURGEABLE AROMATICS
QUALITY CONTROL DATA

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-01-B4
PROJECT NAME : CIRCLE K
EPA METHOD : 8020 (BETX)

SAMPLE I.D. : 9003-043-4
DATE ANALYZED : 03/15/90
MATRIX : WATER
UNITS : ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	8.0	8.17	102	7.36	92	10
TOLUENE	<0.5	8.0	7.85	98	7.10	89	10
TOTAL XYLENES	<0.5	16.6	15.8	95	13.8	83	14

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	8.0	8.38	105	8.49	106	1
TOLUENE	<0.5	8.0	8.18	102	8.09	101	1
TOTAL XYLENES	<0.5	16.6	17.6	106	17.4	105	1

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

es, Inc.
enton, WA 98055

Chain of Custody 9003-043

DATE 3/9/90 PAGE 1 OF 1

air

SAMPLED BY: JGR

SAL INSTRUCTIONS

☐ Return ☐ Pickup (will call)

LABORATORY NUMBER:

ANALYSIS REQUEST

DATE	TIME	MATRIX	LAB ID	8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY	8240 GCMS Volatiles	8270 GCMS BNA	8310 HPLC PNA	8080 Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015 (Modified)	TOC 9060	TOX 9020	% Moisture	TCLP	Priority Pollutant Metals (13)	EPTOX Metals (8) Total	EP TOX Metals (8) EP EXT	pH	NUMBER OF CONTAINERS
3/9/90		H2O	-1			X																				2
3/9/90			-2			X																				
3/8/90			-3			X																				
3/8/90			-4			X	← headspace in one vial																			
3/9/90			-5			X				will preserved																
3/9/90			-6			X																				
3/8/90			-7			X																				
3/9/90			-8			X	← headspace in one vial																			
3/9/90			-9			X																				
3/9/90			-10																					X		
3/9/90		↓	-11													X										

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	20
CHAIN OF CUSTODY SEALS Y/N/NA	N
INTACT? Y/N/NA	NA
RECEIVED GOOD COND./COLD	Y/Y

☐ 72 HRS ☐ 1 WK ☑ 2 WKS (Normal)

ED FOR RUSH DATA

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Time: 3:00PM	Signature: Time:	Signature: Time:
Printed Name: Jim Pohl Date: 3/9/90	Printed Name: Date:	Printed Name: Date:
Company: GEI	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 1.**
Signature: Time:	Signature: Time:	Signature: Time: 3/9/90
Printed Name: Date:	Printed Name: Date:	Printed Name: V. PENNICK Date: 1535
Company:	Company:	Analytical Technologies, Inc.

Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (f -1001 DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC.• Pin 'GINATOR

July 5, 1990

JUL 6 1990

Routing

File

GeoEngineers, Inc.
2405-140th Avenue NE
Suite 105
Bellevue, WA 98005

Attention : Otto Paris

Project Number : 1780-02-B4

Project Name : Circle K

On June 12, 1990 Analytical Technologies, Inc. received 10 water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Karen L. Mixon
Project Manager

Frederick W. Grothkopp
Technical Manager

FWG/tc

SAMPLE CROSS REFERENCE SHEET

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9006-077-1	PORT 1	06/11/90	WATER
9006-077-2	PORT 2	06/11/90	WATER
9006-077-3	PORT 3	06/11/90	WATER
9006-077-4	MW-6	06/11/90	WATER
9006-077-5	MW-10	06/11/90	WATER
9006-077-6	MW-11	06/11/90	WATER
9006-077-7	MW-13	06/11/90	WATER
9006-077-8	MW-14	06/11/90	WATER
9006-077-9	MW-15	06/11/90	WATER
9006-077-10	MW-16	06/11/90	WATER

----- TOTALS -----

MATRIX	# SAMPLES

BETX	GC/PID	EPA 8020	R
PH	ELECTRODE	EPA 150.1	R
OIL & GREASE	IR	EPA 413.2	R

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: 1780-02-B4	DATE RECEIVED	: N/A
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 06/19/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	99

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	106

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 06/11/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 06/12/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-6	DATE ANALYZED	: 06/19/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	18
ETHYLBENZENE	1.7
TOLUENE	6.2
TOTAL XYLENES	7.9

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	91

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	98

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 06/11/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 06/12/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-11	DATE ANALYZED	: 06/19/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	96

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1,000

COMPOUND	RESULT
BENZENE	31,000
ETHYLBENZENE	1,800
TOLUENE	24,000
TOTAL XYLENES	12,000

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	97

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 06/11/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 06/12/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-14	DATE ANALYZED	: 06/20/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	49
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	105

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 2,500

COMPOUND	RESULT
BENZENE	20,000
ETHYLBENZENE	1,800
TOLUENE	28,000
TOTAL XYLENES	10,000

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	87

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 06/11/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 06/12/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-16	DATE ANALYZED	: 06/20/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	0.8

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	93

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	12.0	11.7	97	10.6	88	10
TOLUENE	1.0	12.0	11.5	88	12.0	92	4
TOTAL XYLENES	<0.5	16.6	16.7	101	15.4	93	8

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PURGEABLE AROMATICS
QUALITY CONTROL DATA

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K
EPA METHOD : 8020 (BETX)

SAMPLE I.D. : 9006-077-8
DATE ANALYZED : 06/20/90
MATRIX : WATER
UNITS : ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	12.0	12.2	102	10.9	91	11
TOLUENE	48.8	12.0	64.3	129*	63.1	119	2
TOTAL XYLENES	<0.5	16.6	17.9	108	15.4	93	15

* Out of limits due to matrix interference.

Analytical Technologies, Inc.
560 Naches Avenue SW, Suite 101 Renton, WA 98055

Chain of Custody

9006-077

PROJECT MANAGER: O. Paris
COMPANY: GEI
ADDRESS:
PHONE: 746-5200 SAMPLED BY:

LABORATORY NUMBER:

SAMPLE DISPOSAL INSTRUCTIONS

[X] ATI Disposal @ $5.00 each [ ] Return [ ] Pickup (will call)

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY	8240 GCMS Volatiles	8270 GCMS BNA	8310 HPLC PNA	8080 Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015 (Modified)	TOC 9060	TOX 9020	% Moisture	TCLP	Priority Pollutant Metals (13)	EPTOX Metals (8) Total
Par + 1	6/11	0835	H2O	-1			X																	
Par + 2				-2			X																	
Par + 3				-3			X										X							
MW-6				-4			X																	
MW-10				-5			X																	
MW-11				-6			X																	
MW-13				-7			X																	
MW-14				-8			X																	
MW-15				-9			X																	
MW-16				-10			X																	

PROJECT INFORMATION	SAMPLE RECEIPT	
PROJECT NUMBER: 1780-02-R4	TOTAL NUMBER OF CONTAINERS	22
PROJECT NAME: Circle K	CHAIN OF CUSTODY SEALS Y/N/NA	N
PURCHASE ORDER NUMBER:	INTACT? Y/N/NA	NA
VIA:	RECEIVED GOOD COND./COLD	Y/Y

TAT: [ ] 24HR [ ] 48 HRS [ ] 72 HRS [ ] 1 WK ([X] 2 WKS (Normal))

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DATA

SPECIAL INSTRUCTIONS:
please FAX Results to O. Paris or Jim Rotl ASAP.
Vials preserved, no headspace

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature: Jim Rotl Time:	Signature: Tim
Printed Name: Jim Rotl Date: 6/12	Printed Name: Dat
Company: GEI	Company:
RECEIVED BY: 1.	**RECEIVED BY:**
Signature: Time:	Signature: Tim
Printed Name: Date:	Printed Name: Dat
Company:	Company:

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R - 24

APPENDIX C

CHEMICAL ANALYTICAL DATA,

WATER QUALITY SAMPLES COLLECTED FROM THE WATER TREATMENT SYSTEM

Analytical Technologies, Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9002-039

March 2, 1990

GeoEngineers

MAR - 5 1990

Routing

File

GeoEngineers, Inc.
2405 140th Avenue N.E.
Suite 105
Bellevue, WA 98005

Attention : Otto Paris

Project Number : 1780-02-B4

Project Name : Circle K

On February 9, 1990 Analytical Technologies, Inc. received three water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Donna M. McKinney
Project Manager

Frederick W. Grothkopp
Technical Manager

SAMPLE CROSS REFERENCE SHEET

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9002-039-1	PORT 3	02/08/90	WATER
9002-039-2	PORT 1	02/08/90	WATER
9002-039-3	PORT 2	02/08/90	WATER

----- TOTALS -----

BETX	GC/PID	EPA 8020	R
ARSENIC	AA/GF	EPA 7060	R
CADMIUM	AA/GF	EPA 7131	R
CHROMIUM	AA/F	EPA 7190	R
COPPER	AA/F	EPA 7210	R
LEAD	AA/GF	EPA 7421	R
MERCURY	AA/COLD VAPOR	EPA 7471	R
NICKEL	AA/F	EPA 7520	R
SILVER	AA/F	EPA 7760	R
ZINC	AA/F	EPA 7950	R
CYANIDE	COLORIMETRIC	EPA 9012	SD
OIL & GREASE	IR	EPA 413.2	R
PH	ELECTRODE	EPA 150.1	R

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola

ATI I.D. # 9002-039

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: 1780-02-B4	DATE RECEIVED	: N/A
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 02/12/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	107

CLIENT I.D. : REAGENT BLANK DATE ANALYZED : 02/15/96
SAMPLE MATRIX : WATER UNITS : ug/L
EPA METHOD : 8020 (BETX) DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5
SURROGATE PERCENT RECOVERY	
BROMOFLUOROBENZENE	96

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 02/08/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 02/09/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: PORT 3	DATE ANALYZED	: 02/12/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	99

EPA METHOD : 8020 (BETX) DILUTION FACTOR : 1000

COMPOUND	RESULT
BENZENE	29,000
ETHYLBENZENE	1,900
TOLUENE	30,000
TOTAL XYLENES	7,000

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	98

ATI I.D. # 9002-039-3

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 02/08/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 02/09/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: PORT 2	DATE ANALYZED	: 02/12/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	19
ETHYLBENZENE	<0.5
TOLUENE	2.9
TOTAL XYLENES	2.6

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	102

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	8.00	6.46	81	7.11	89	10
TOLUENE	<0.5	8.00	6.30	79	6.37	80	1
TOTAL XYLENES	<0.5	16.6	12.2	73	12.2	73	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

ATI I.D.# 9002-039

METALS RESULTS

CLIENT : GEOENGINEERS, INC. MATRIX : WATER
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K UNITS : mg/L

PARAMETER	PORT 3 -1
ARSENIC	<0.005
CADMIUM	<0.0003
CHROMIUM	<0.02
COPPER	<0.02
LEAD	<0.005
MERCURY	<0.0005
NICKEL	0.05
SILVER	<0.02
ZINC	0.05

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED SAMPLE	CONC	REC
ARSENIC	9002-037-6	<0.005	<0.005	0	0.047	0.050	94
CADMIUM	9002-039-1	<0.0003	<0.0003	0	0.0022	0.0020	110
CHROMIUM	9002-039-1	<0.02	<0.02	0	1.03	1.00	103
COPPER	9002-039-1	<0.02	<0.02	0	0.50	0.50	100
LEAD	9002-039-1	<0.005	<0.005	0	0.026	0.025	104
MERCURY	9002-039-1	<0.0005	<0.0005	0	0.0021	0.0020	105
NICKEL	9002-039-1	0.05	0.04	22	2.56	2.50	100
SILVER	9002-039-1	<0.02	<0.02	0	0.50	0.50	100
ZINC	9002-039-1	0.05	0.04	22	0.29	0.25	96

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

ATI I.D. # 9002-039

GENERAL CHEMISTRY RESULTS

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

SAMPLE MATRIX : WATER
UNITS : mg/L

PARAMETER	PORT 3 -1
CYANIDE	<0.02
OIL & GREASE	<1.0

PARAMETER	PORT 3 -1
PH	6.6

GENERAL CHEMISTRY QUALITY CONTROL

CLIENT : GEOENGINEERS, INC. SAMPLE MATRIX : WATER
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED CONC	SPIKE ADDED	% REC
CYANIDE	mg/L	9002-039-1	<0.02	<0.02	0	0.53	0.50	106
OIL & GREASE	mg/L	9002-039-1	<1.0	<1.0	0	4.7	10.0	47
PH	-	9002-039-1	6.58	6.59	0	N/A	N/A	N/A

Analytical Technologies, Inc.
560 Naches Avenue SW, Suite 101 Renton, WA 98055

Chain of Custody

9002-039

PROJECT MANAGER: O. Paris
COMPANY: GEI
ADDRESS:
PHONE: 746-5200 SAMPLED BY: JGR

LABORATORY NUMBER:

SAMPLE DISPOSAL INSTRUCTIONS

☒ ATI Disposal @ $5.00 each ☐ Return ☐ Pickup (will call)

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
Metals - Part 3	2/8/90		H_2O	-1
Cyanide - Part 3	↓		↓	-1
pH - Part 3				-1
FOG - Part 3				-1
BETX - Part 1				-2
BETX - Part 2				-3
BETX - Part 3	↓		↓	-1

ANALYSIS REQUEST

8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY HCl	8240 GCMS Volatiles	8270 GCMS BNA	8310 HPLC PNA	8080 Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015 (Modified)	TOC 9060	TOX 9020	% Moisture	TCLP	Priority Pollutant Metals (13)
												X						
		X																
		X																
		X																

w/ headspace preserved

PROJECT INFORMATION

PROJECT NUMBER: 1780-01-R4
PROJECT NAME: Circle K
PURCHASE ORDER NUMBER:
VIA: Courier
TAT: ☐ 24HR ☐ 48 HRS ☐ 72 HRS ☐ 1 WK ☑ 2 WKS (Normal)
PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DATA

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	10
CHAIN OF CUSTODY SEALS Y/N/NA	NO
INTACT? Y/N/NA	NA
RECEIVED GOOD COND./COLD	Y/Y

SPECIAL INSTRUCTIONS: As, Cd, Cr, Cu, Pb, Hg, Ni, Ag, Zn
per O. Paris 2/9/90 JRR

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature: Jim Rahl Time: 1000	Signature:
Printed Name: Jim Rahl Date: 2/9	Printed Name:
Company: GEI	Company:
RECEIVED BY: 1.	**RECEIVED BY:**
Signature: Time:	Signature:
Printed Name: Date:	Printed Name:
Company:	Company:

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Analytical Technologies, Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9002-110

March 20, 1990

OKP

GeoEngineers, Inc.
2405 140th Avenue N.E.
Suite 105
Bellevue, WA 98005

Attention : Otto Paris

Project Number : 1780-01-B4

Project Name : Circle K, Seattle

On February 27, 1990 Analytical Technologies, Inc. received three water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Karen L. Mixon

Frederick W. Grothkopp

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9002-110-1	PORT 1, CIRCLE K	02/27/90	WATER
9002-110-2	PORT 2, CIRCLE K	02/27/90	WATER
9002-110-3	PORT 3, CIRCLE K	02/27/90	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	3

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ANALYTICAL SCHEDULE

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-01-B4
PROJECT NAME : CIRCLE K, SEATTLE

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R

CLIENT I.D. : REAGENT BLANK
SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5
SURROGATE PERCENT RECOVERY	
BROMOFLUOROBENZENE	97

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: 1780-01-B4	DATE RECEIVED	: N/A
PROJECT NAME	: CIRCLE K, SEATTLE	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 03/05/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	107

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 100 & 5000

COMPOUND	RESULT
BENZENE	33,000 *
ETHYLBENZENE	1,800
TOLUENE	34,000 *
TOTAL XYLENES	13,000 *
SURROGATE PERCENT RECOVERY	
BROMOFLUOROBENZENE	101

* Dilution factor = 5000.

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 02/27/90
PROJECT #	: 1780-01-B4	DATE RECEIVED	: 02/27/90
PROJECT NAME	: CIRCLE K, SEATTLE	DATE EXTRACTED	: N/A
CLIENT I.D.	: PORT 2, CIRCLE K	DATE ANALYZED	: 03/02/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1 & 500

COMPOUND	RESULT
BENZENE	4,700 *
ETHYLBENZENE	3.6
TOLUENE	420 *
TOTAL XYLENES	16

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	74

* Dilution factor = 500.

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)
DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	0.6
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	81

PURGEABLE AROMATICS
QUALITY CONTROL DATA

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-01-B4
PROJECT NAME : CIRCLE K, SEATTLE
EPA METHOD : 8020 (BETX)

SAMPLE I.D. : 9002-110-2
DATE ANALYZED : 03/02/90
MATRIX : WATER
UNITS : ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	OFF SCALE	8.00	OFF SCALE	N/A	OFF SCALE	N/A	N/A
TOLUENE	OFF SCALE	8.00	OFF SCALE	N/A	OFF SCALE	N/A	N/A
TOTAL XYLENES	16	16.6	36.4	123	30.7	89	17

Analytical**Technologies**, Inc.
560 Naches Avenue SW, Suite 101 Renton, WA 98055

Chain of Custody

9002-110

PROJECT MANAGER: D. Paris
COMPANY: GEI
ADDRESS:
PHONE: 746-5200 SAMPLED BY: JGR

LABORATORY NUMBER:

SAMPLE DISPOSAL INSTRUCTIONS

☐ ATI Disposal @ $5.00 each ☐ Return ☐ Pickup (will call)

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY	8240 GCMS Volatiles	8270 GCMS BNA	8310 HPLC PNA	8080 Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015 (Modified)	TOC 9060	TOX 9020	% Moisture	TCLP	Priority Pollutant Metals (13)
Port 1, (R)	2/27		H_2O	-1			X																
Port 2, (R)	↓		↓	-2			X																
Port 3, (R)	↓		↓	-3			X																

PROJECT INFORMATION

PROJECT NUMBER: 1780-01-B4
PROJECT NAME: Circle K, Seattle
PURCHASE ORDER NUMBER:
VIA: Courier

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	6
CHAIN OF CUSTODY SEALS Y/N/NA	NA
INTACT? Y/N/NA	NA
RECEIVED GOOD COND./COLD	Y/Y

TAT: ☐ 24HR ☐ 48 HRS ☐ 72 HRS ☐ 1 WK ☑ 2 WKS (Normal)

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DATA

SPECIAL INSTRUCTIONS:

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature: Jim Rod Time: 1000	Signature:
Printed Name: Jim Rod Date: 2/27	Printed Name:
Company: GEI	Company:
RECEIVED BY: 1.	**RECEIVED BY:**
Signature: Time:	Signature:
Printed Name: Date:	Printed Name:
Company:	Company:

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Analytical Technologies, Inc. 560 Noches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9003-043

GeoEngineers

MAR 29 1990

Routing OKF

File

March 27, 1990

GeoEngineers, Inc.
2405 140th Avenue N.E.
Suite 105
Bellevue, WA 98005

Attention : Otto Paris

Project Number : 1780-01-B4

Project Name : Circle K

On March 9, 1990 Analytical Technologies, Inc. received 11 water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Karen L. Mixon

Karen L. Mixon and FWG

Frederick W. Grothkopp

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9003-043-1	MW-1	03/09/90	WATER
9003-043-2	MW-6	03/09/90	WATER
9003-043-3	MW-7	03/08/90	WATER
9003-043-4	MW-10	03/08/90	WATER
9003-043-5	MW-11	03/09/90	WATER
9003-043-6	MW-13	03/09/90	WATER
9003-043-7	MW-14	03/08/90	WATER
9003-043-8	MW-15	03/09/90	WATER
9003-043-9	MW-16	03/09/90	WATER
9003-043-10	PORT 3, PH	03/09/90	WATER
9003-043-11	PORT 3, FATS, OIL, GREASE	03/09/90	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	11

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ANALYTICAL SCHEDULE

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-01-B4
PROJECT NAME : CIRCLE K

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
OIL & GREASE	IR	EPA 413.2	R
PH	ELECTRODE	EPA 150.1	R

ATI I.D.#	CLIENT I.D.	PH
9003-043-10	PORT 3, PH	6.6

GENERAL CHEMISTRY RESULTS

CLIENT : GEOENGINEERS, INC. SAMPLE MATRIX : WATER
PROJECT # : 1780-01-B4
PROJECT NAME : CIRCLE K UNITS : mg/L

ATI I.D.#	CLIENT I.D.	OIL & GREASE
9003-043-11	PORT 3, FATS, OIL, GREASE	<1

PARAMETER	UNITS	AII I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
PH	-	9003-043-10	6.65	6.68	0	N/A	N/A	N/A
OIL & GREASE	mg/L	9003-039-4	<1	<1	0	4.20	10.0	42

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

:s, Inc.
:enton, WA 98055

Chain of Custody 9003-043

DATE 3/9/90 PAGE 1 OF 1

:ar i l

SAMPLED BY: JGK

LABORATORY NUMBER:

SAL INSTRUCTIONS

☐ Return ☐ Pickup (will call)

DATE	TIME	MATRIX	LAB ID	BETX ONLY	NUMBER OF CONTAINERS	Comments
3/9/90		H2O	-1	X	2	
3/9/90			-2	X		
3/8/90			-3	X		
3/8/90			-4	X		← headspace in one vial
3/9/90			-5	X		all preserved
3/9/90			-6	X		
3/8/90			-7	X		
3/9/90			-8	X		← headspace in one vial
3/9/90			-9	X		
3/9/90			-10		1	X (pH)
3/9/90		↓	-11			X (8270 BNA)

ANALYSIS REQUEST

Halogenated Volatiles (8010)	Aromatic Volatiles (8020)	BETX ONLY	GCMS Volatiles (8240)	GCMS BNA (8270)	HPLC PNA (8310)	Pesticides & PCB's (8080)	PCB's ONLY	Phosphate Pesticides (8140)	Herbicides (8150)	WDOE PAH/HH (WAC 173)	(TPH) 418.1	Grease & Oil 413.2	(Modified) 8015	TOC 9060	TOX 9020	% Moisture	TCLP	Priority Pollutant Metals (13)	EPTOX Metals (8) Total	EP TOX Metals (8) EP EXT	pH
		X																			X
												X									

N	SAMPLE RECEIPT	
3/-84	TOTAL NUMBER OF CONTAINERS	20
K	CHAIN OF CUSTODY SEALS Y/N/NA	N
	INTACT? Y/N/NA	NA
	RECEIVED GOOD COND./COLD	Y/Y

☐ 72 HRS ☐ 1 WK ☑ 2 WKS (Normal)

RED FOR RUSH DATA

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Jim Ford Time: 5:00PM	Signature: Time:	Signature: Time:
Printed Name: Jim Ford Date: 3/9/90	Printed Name: Date:	Printed Name: Date:
Company: GEI	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 1.**
Signature: Time:	Signature: Time:	Signature: Time: 5/4/6
Printed Name: Date:	Printed Name: Date:	Printed Name: V. PENNICK Date: 7-15-90
Company:	Company:	Analytical Technologies, Inc.

• Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (f

-1001 DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. • Pin

GINATOR

March 29, 1990

GeoEngineers, Inc.
2405 140th Avenue N.E.
Suite 105
Bellevue, WA 98005

Attention : Otto Paris

Project Number : 1780-02-B4

Project Name : Circle K Remediation

On March 15, 1990 Analytical Technologies, Inc. received three water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Karen L. Mixon
Project Manager

Frederick W. Grothkopp
Technical Manager

FWG/pes

SAMPLE CROSS REFERENCE SHEET

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K REMEDIATION

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9003-067-1	PORT 1	03/15/90	WATER
9003-067-2	PORT 2	03/15/90	WATER
9003-067-3	PORT 3	03/15/90	WATER

----- TOTALS -----

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

ATI I.D. # 9003-067

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: 1780-02-B4	DATE RECEIVED	: N/A
PROJECT NAME	: CIRCLE K REMEDIATION	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 03/19/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5
SURROGATE PERCENT RECOVERY	
BROMOFLUOROBENZENE	76

SAMPLE MATRIX : WATER UNITS : ug/L
EPA METHOD : 8020 (BETX) DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	82

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 03/15/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 03/15/90
PROJECT NAME	: CIRCLE K REMEDIATION	DATE EXTRACTED	: N/A
CLIENT I.D.	: PORT 1	DATE ANALYZED	: 03/23/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1000

COMPOUND	RESULT
BENZENE	25,000
ETHYLBENZENE	1,600
TOLUENE	26,000
TOTAL XYLENES	9,900

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	89

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	6.2
ETHYLBENZENE	0.9
TOLUENE	8.0
TOTAL XYLENES	4.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	85

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 03/15/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 03/15/90
PROJECT NAME	: CIRCLE K REMEDIATION	DATE EXTRACTED	: N/A
CLIENT I.D.	: PORT 3	DATE ANALYZED	: 03/23/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	81

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	6.2	8.0	10.0	48*	10.2	50*	2
TOLUENE	8.0	8.0	11.1	39*	11.2	40*	1
TOTAL XYLENES	4.5	16.6	17.3	77	17.8	80	3

* Out of limits.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

ATI I.D. # 9003-067

PURGEABLE AROMATICS
QUALITY CONTROL DATA

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K REMEDIATION
EPA METHOD : 8020 (BETX)

SAMPLE I.D. : BLANK SPIKE
DATE ANALYZED : 03/21/90
MATRIX : WATER
UNITS : ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	8.0	8.40	105	8.64	108	3
TOLUENE	<0.5	8.0	8.29	104	8.76	110	6
TOTAL XYLENES	<0.5	16.6	16.9	102	16.6	100	2

Analytical Technologies, Inc.
560 Naches Avenue SW, Suite 101 Renton, WA 98055

Chain of Custody

9003-067

PROJECT MANAGER: D. Davis
COMPANY: GEI
ADDRESS:
PHONE: 746-5200 SAMPLED BY: JGR

LABORATORY NUMBER:

SAMPLE DISPOSAL INSTRUCTIONS

☒ ATI Disposal @ $5.00 each ☐ Return ☐ Pickup (will call)

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
Port 1	~~3/15~~ 3/15		H_2O	-1
Port 2	↓		↓	-2
Port 3	↓		↓	-3

ANALYSIS REQUEST

8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY	8240 GCMS Volatiles	8270 GCMS BNA	8310 HPLC PNA	8080 Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015 (Modified)	TOC 9060	TOX 9020	% Moisture	TCLP	Priority Pollutant Metals (13)
		X																
		X																
		X																
		Preserved																

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER:	1780-02-84	TOTAL NUMBER OF CONTAINERS	6
PROJECT NAME:	Circle K Remediation	CHAIN OF CUSTODY SEALS Y/N/NA	N
PURCHASE ORDER NUMBER:		INTACT? Y/N/NA	NA
VIA:	Courier	RECEIVED GOOD COND./COLD	Y/Y

TAT: ☐ 24HR ☐ 48 HRS ☐ 72 HRS ☐ 1 WK ☑ 2 WKS (Normal)

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DATA

SPECIAL INSTRUCTIONS:
-3- one vial has inverted septa.

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature: Time:	Signature:
Printed Name: Jim Rizl Date: 3/15	Printed Name:
Company: GEI	Company:
RECEIVED BY: 1.	**RECEIVED BY:**
Signature: Time:	Signature:
Printed Name: Date:	Printed Name:
Company:	Company:

ATI Labs: San Diego (619)458-9141 • Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001 DISTRIBUTION: White, Canary - ANALYTICAL

Analytical Technologies, Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9004-040

April 24, 1990

GeoEngineers, Inc.
2405-140th Ave. NE
Suite 105
Bellevue, WA 98005

Attention : Otto Paris

Project Number : 1780-02-B4

Project Name : Circle K

On April 9, 1990 Analytical Technologies, Inc. received three water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Mary C. Silva
Senior Project Manager

Frederick W. Grothkopp
Technical Manager

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9004-040-1	PORT 1	04/09/90	WATER
9004-040-2	PORT 2	04/09/90	WATER
9004-040-3	PORT 3	04/09/90	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	3

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ANALYTICAL SCHEDULE

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
OIL & GREASE	IR	EPA 413.2	R
PH	ELECTRODE	EPA 150.1	R

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	114

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 04/09/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 04/09/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: PORT 1	DATE ANALYZED	: 04/10/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1000

COMPOUND	RESULT
BENZENE	29,000
ETHYLBENZENE	2,300
TOLUENE	35,000
TOTAL XYLENES	14,000

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	105

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1 & 10*

COMPOUND	RESULT
BENZENE	150 *
ETHYLBENZENE	0.5
TOLUENE	18
TOTAL XYLENES	2.9

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	103

*Dilution factor = 10.

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 04/09/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 04/09/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: PORT 3	DATE ANALYZED	: 04/10/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	106

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	12.0	11.9	99	12.1	101	2
TOLUENE	<0.5	12.0	11.7	98	12.0	100	3
TOTAL XYLENES	<0.5	16.6	16.6	100	16.9	102	2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PURGEABLE AROMATICS
QUALITY CONTROL DATA

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K
EPA METHOD : 8020 (BETX)

SAMPLE I.D. : BLANK SPIKE
DATE ANALYZED : 04/10/90
MATRIX : WATER
UNITS : ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	12.0	13.3	111	14.5	121	9
TOLUENE	<0.5	12.0	16.3	136*	19.3	161*	17
TOTAL XYLENES	<0.5	16.6	18.4	111	19.9	120	8

* Out of limits.

EPA METHOD : 8020 (BETX)

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	12.0	11.7	98	11.5	96	2
TOLUENE	<0.5	12.0	13.2	110	12.9	108	2
TOTAL XYLENES	<0.5	16.6	17.2	104	16.7	101	3

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

GENERAL CHEMISTRY RESULTS

CLIENT : GEOENGINEERS, INC. SAMPLE MATRIX : WATER
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K UNITS : mg/L

ATI I.D.#	CLIENT I.D.	OIL & GREASE
9004-040-3	PORT 3	<1.0

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
OIL & GREASE	9004-021-2	6.8	6.9	1	N/A	N/A	N/A
OIL & GREASE	BLANK SPIKE	N/A	N/A	0	6.0	10	60

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

GENERAL CHEMISTRY RESULTS

CLIENT : GEOENGINEERS, INC. SAMPLE MATRIX : WATER
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K UNITS : -

ATI I.D.#	CLIENT I.D.	PH
9004-040-3	PORT 3	6.7

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
PH	9004-040-3	6.68	6.72	1	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

...s, Inc.
Renton, WA 98055

9004040

Chain of Custody

DATE 4/9/96 PAGE 1 OF 1

...VIS

SAMPLED BY: JGR/Lynne M.

...SAL INSTRUCTIONS

☐ Return ☐ Pickup (will call)

LABORATORY NUMBER:

ANALYSIS REQUEST

DATE	TIME	MATRIX	LAB ID	8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY	8240 GCMS Volatiles	8270 .GCMS BNA	8310 HPLC PNA	8080 Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015 (Modified)	TOC 9060	TOX 9020	% Moisture	TCLP	Priority Pollutant Metals (13)	EPTOX Metals (8) Total	EP TOX Metals (8) EP EXT	pH	NUMBER OF CONTAINERS
4/9/96		H2O				X																				2
↓		↓				X																				2
						X										X								X		4
																										1

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	8
CHAIN OF CUSTODY SEALS Y/N/NA	N
INTACT? Y/N/NA	NA
RECEIVED GOOD COND./COLD	Y/Y

☐ 72 HRS ☐ 1 WK ☒ 2 WKS (Normal)

...ED FOR RUSH DATA

hr.

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Jim Roth Time: 1330	Signature: Time:	Signature: Time:
Printed Name: Jim Roth Date: 4/9	Printed Name: Date:	Printed Name: Date:
Company: GEI	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Time: 1430
Printed Name: Date:	Printed Name: Date:	Printed Name: J. VENNKE Date: 4/9
Company:	Company:	Analytical Technologies, Inc.

Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001 DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. • Pink - ORIGINATOR

May 7, 1990

MAY 8 1990

Routing

File

GeoEngineers, Inc.
2405 140th Avenue NE
Suite 105
Bellevue, WA 98005

Attention : Otto Paris

Project Number : 1780-02-B4

Project Name : Circle K

On April 27, 1990 Analytical Technologies, Inc. received two water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Mary C. Silva
Senior Project Manager

Frederick W. Grothkopp
Technical Manager

FWG/elf

SAMPLE CROSS REFERENCE SHEET

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9004-139-1	PORT 2	04/27/90	WATER
9004-139-2	PORT 3	04/27/90	WATER

----- TOTALS -----

BETX	GC/PID	EPA 8020	R

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: 1780-02-B4	DATE RECEIVED	: N/A
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 04/28/90*
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	105

* Second shift.

SAMPLE MATRIX : WATER UNITS : ug/L
EPA METHOD : 8020 (BETX) DILUTION FACTOR : 50 & 100

COMPOUND	RESULT
BENZENE	4,200 *
ETHYLBENZENE	<25
TOLUENE	190
TOTAL XYLENES	<25
SURROGATE PERCENT RECOVERY	
BROMOFLUOROBENZENE	120

* Dilution factor = 100.

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 04/27/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 04/27/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: PORT 3	DATE ANALYZED	: 04/28/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	119

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	12.0	11.7	98	11.8	98	1
TOLUENE	<0.5	12.0	11.9	99	12.0	100	1
TOTAL XYLENES	<0.5	16.6	16.4	99	16.4	99	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

es, Inc.
Renton, WA 98055

Chain of Custody 9004-139

DATE 4/27 PAGE 1 OF 1

air

SAMPLED BY: JGR

SAL INSTRUCTIONS

☐ Return ☐ Pickup (will call)

LABORATORY NUMBER:

DATE	TIME	MATRIX	LAB ID	8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY	8240 GCMS Volatiles	8270 GCMS BNA	8310 HPLC PNA	8080 Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015 (Modified)	TOC 9060	TOX 9020	% Moisture	TCLP	Priority Pollutant Metals (13)	EPTOX Metals (8) Total	EP TOX Metals (8) EP EXT	NUMBER OF CONTAINERS
4/27		H_2O	-1			X																			2
4/27		↓	-2			X																			2
				No																					

ANALYSIS REQUEST

N	SAMPLE RECEIPT	
2-BY	TOTAL NUMBER OF CONTAINERS	4
	CHAIN OF CUSTODY SEALS Y/N/NA	N
	INTACT? Y/N/NA	NA
	RECEIVED GOOD COND./COLD	Y/Y

☐ 72 HRS ☐ 1 WK ☐ 2 WKS (Normal)

ED FOR RUSH DATA

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Jim Rod Time: 0830	Signature: Time:	Signature: Time:
Printed Name: Jim Rod Date: 4/27	Printed Name: Date:	Printed Name: Date:
Company: GEI	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Time: 1304
Printed Name: Date:	Printed Name: Date:	Printed Name: J. PENNOCK Date: 4/28/95
Company:	Company:	Analytical Technologies, Inc.

• Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001 DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC.• Pink - ORIGINATOR

JUN - 1 1990

Routing OKP

File

May 31, 1990

GeoEngineers, Inc.
2405-140th Ave. NE
Suite 105
Bellevue, WA 98005

Attention : Otto Paris

Project Number : 1780-02-B4

Project Name : Circle K

On May 10, 1990 Analytical Technologies, Inc. received three water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Donna M. McKinney
Project Manager

Frederick W. Grothkopp
Technical Manager

FWG/tc

SAMPLE CROSS REFERENCE SHEET

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9005-105-1	PORT 1	05/10/90	WATER
9005-105-2	PORT 2	05/10/90	WATER
9005-105-3	PORT 3	05/10/90	WATER

----- TOTALS -----

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
PH	ELECTRODE	EPA 150.1	R
OIL & GREASE	IR	EPA 413.2	R

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: 1780-02-B4	DATE RECEIVED	: N/A
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 05/18/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	105

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1000

COMPOUND	RESULT
BENZENE	20,000
ETHYLBENZENE	1,500
TOLUENE	23,000
TOTAL XYLENES	11,000

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	93

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 05/10/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 05/10/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: PORT 2	DATE ANALYZED	: 05/18/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	5.8
ETHYLBENZENE	<0.5
TOLUENE	5.5
TOTAL XYLENES	5.4

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	101

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1

COMPOUND	RESULT
BENZEN	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	93

PURGEABLE AROMATICS
QUALITY CONTROL DATA

CLIENT	: GEOENGINEERS, INC.	SAMPLE I.D.	: 9005-178-1
PROJECT #	: 1780-02-B4	DATE ANALYZED	: 05/18/90
PROJECT NAME	: CIRCLE K	MATRIX	: WATER
EPA METHOD	: 8020 (BETX)	UNITS	: ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	21.3	8.0	30.3	113	29.7	105	2
TOLUENE	<0.5	8.0	8.21	103	7.94	99	3
TOTAL XYLENES	0.75	16.6	17.3	100	16.6	95	4

ATI I.D. #	CLIENT I.D.	PH
9005-105-3	PORT 3	6.6

METALS QUALITY CONTROL

CLIENT : GEOENGINEERS, INC. MATRIX : WATER
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
PH	9005-105-3	6.64	6.68	0	N/A	N/A	N/A

ATI I.D. #	CLIENT I.D.	OIL & GREASE
9005-105-3	PORT 3	<1

GENERAL CHEMISTRY QUALITY CONTROL

CLIENT : GEOENGINEERS, INC. SAMPLE MATRIX : WATER
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
OIL & GREASE	mg/L	9005-133-15	74	78	5	**	**	**

** Due to the necessary dilution of the sample, result was not attainable.

AnalyticalTechnologies, Inc.
560 Naches Avenue SW, Suite 101 Renton, WA 98055

Chain of Custody

9005-105

PROJECT MANAGER: O. Paris
COMPANY: GEI
ADDRESS:
PHONE: 746-5200 SAMPLED BY: JGR

LABORATORY NUMBER:

SAMPLE DISPOSAL INSTRUCTIONS

☐ ATI Disposal @ $5.00 each ☐ Return ☐ Pickup (will call)

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
Port 1	5/10		H_2O	-1
Port 2	↓		↓	-2
Port 3	↓		↓	-3

ANALYSIS REQUEST

8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY	8240 GCMS Volatiles	8270 GCMS BNA	8310 HPLC PNA	8080 Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015 (Modified)	TOC 9060	TOX 9020	% Moisture	TCLP	Priority Pollutant Metals (13)
		X																
		X																
		X										X						

Run Benzene thru Naphthalene

PROJECT INFORMATION

PROJECT NUMBER: 1780-02-B4
PROJECT NAME: Circle K
PURCHASE ORDER NUMBER:
VIA:

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	8
CHAIN OF CUSTODY SEALS Y/N/NA	Y
INTACT? Y/N/NA	Y
RECEIVED GOOD COND./COLD	Y/Y

TAT: ☐ 24HR ☐ 48 HRS ☐ 72 HRS ☐ 1 WK ☑ 2 WKS (Normal)

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DATA

SPECIAL INSTRUCTIONS:

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature: Jim Rod Time: 0845	Signature:
Printed Name: Jim Rod Date: 5/10	Printed Name:
Company: GEI	Company:
RECEIVED BY: 1.	**RECEIVED BY:**
Signature: Time: 1120	Signature:
Printed Name: Keith Stevens Date: 5/10	Printed Name:
Company: ATI	Company:

ATI Labs: San Diego (619)458-9141 • Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001 DISTRIBUTION: White, Canary - ANALYTICAL TE

AnalyticalTechnologies,Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9006-077

GeoEngineers

JUL 6 1990

Routing

File

July 5, 1990

GeoEngineers, Inc.
2405-140th Avenue NE
Suite 105
Bellevue, WA 98005

Attention : Otto Paris

Project Number : 1780-02-B4

Project Name : Circle K

On June 12, 1990 Analytical Technologies, Inc. received 10 water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and the quality control data are enclosed.

Karen L. Mixon

Frederick W. Grothkopp

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9006-077-1	PORT 1	06/11/90	WATER
9006-077-2	PORT 2	06/11/90	WATER
9006-077-3	PORT 3	06/11/90	WATER
9006-077-4	MW-6	06/11/90	WATER
9006-077-5	MW-10	06/11/90	WATER
9006-077-6	MW-11	06/11/90	WATER
9006-077-7	MW-13	06/11/90	WATER
9006-077-8	MW-14	06/11/90	WATER
9006-077-9	MW-15	06/11/90	WATER
9006-077-10	MW-16	06/11/90	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	10

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ANALYTICAL SCHEDULE

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
PH	ELECTRODE	EPA 150.1	R
OIL & GREASE	IR	EPA 413.2	R

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	99

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: 1780-02-B4	DATE RECEIVED	: N/A
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 06/20/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	<0.5

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	106

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 500

COMPOUND	RESULT
BENZENE	20,000
ETHYLBENZENE	1,400
TOLUENE	26,000
TOTAL XYLENES	12,000

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	90

PURGEABLE AROMATICS ANALYSIS
DATA SUMMARY

CLIENT	: GEOENGINEERS, INC.	DATE SAMPLED	: 06/11/90
PROJECT #	: 1780-02-B4	DATE RECEIVED	: 06/12/90
PROJECT NAME	: CIRCLE K	DATE EXTRACTED	: N/A
CLIENT I.D.	: PORT 2	DATE ANALYZED	: 06/19/90
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8020 (BETX)	DILUTION FACTOR	: 10 & 50

COMPOUND	RESULT
BENZENE	3,800 *
ETHYLBENZENE	<5.0
TOLUENE	94
TOTAL XYLENES	8.4

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	90

* Dilution factor = 50.

SAMPLE MATRIX : WATER
EPA METHOD : 8020 (BETX)

UNITS : ug/L
DILUTION FACTOR : 1

COMPOUND	RESULT
BENZENE	<0.5
ETHYLBENZENE	<0.5
TOLUENE	<0.5
TOTAL XYLENES	1.4

SURROGATE PERCENT RECOVERY

BROMOFLUOROBENZENE	92

PURGEABLE AROMATICS
QUALITY CONTROL DATA

CLIENT : GEOENGINEERS, INC.
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K
EPA METHOD : 8020 (BETX)

SAMPLE I.D. : 9006-109-1
DATE ANALYZED : 06/19/90
MATRIX : WATER
UNITS : ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	12.0	11.7	97	10.6	88	10
TOLUENE	1.0	12.0	11.5	88	12.0	92	4
TOTAL XYLENES	<0.5	16.6	16.7	101	15.4	93	8

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.5	12.0	12.2	102	10.9	91	11
TOLUENE	48.8	12.0	64.3	129*	63.1	119	2
TOTAL XYLENES	<0.5	16.6	17.9	108	15.4	93	15

* Out of limits due to matrix interference.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

GENERAL CHEMISTRY RESULTS

CLIENT : GEOENGINEERS, INC. SAMPLE MATRIX : WATER
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K UNITS : -

ATI I.D.#	CLIENT I.D.	PH
9006-077-3	PORT 3	6.6

ATI I.D. #	CLIENT I.D.	OIL & GREASE
9006-077-3	PORT 3	<1

GENERAL CHEMISTRY QUALITY CONTROL

CLIENT : GEOENGINEERS, INC. SAMPLE MATRIX : WATER
PROJECT # : 1780-02-B4
PROJECT NAME : CIRCLE K

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
PH	-	9006-077-3	6.63	6.70	1	N/A	N/A	N/A
OIL & GREASE	mg/L	9006-080-1	<1	<1	0	6.3	10	63

Analytical Technologies, Inc.
560 Naches Avenue SW, Suite 101 Renton, WA 98055

Chain of Custody

9006-077

PROJECT MANAGER: O. Paris
COMPANY: GEI
ADDRESS:
PHONE: 746-5200 SAMPLED BY:

LABORATORY NUMBER:

SAMPLE DISPOSAL INSTRUCTIONS

[X] ATI Disposal @ $5.00 each [ ] Return [ ] Pickup (will call)

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY	8240 GCMS Volatiles	8270 GCMS-BNA	8310 HPLC PNA	8080 Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015 (Modified)	TOC 9060	TOX 9020	% Moisture	TCLP	Priority Pollutant Metals (13)	EDTOX Metals (8) Test
Port 1	6/11	0835	H2O	-1			X																	
Port 2				-2			X																	
Port 3				-3			X										X							
MW-6				-4			X																	
MW-10				-5			X																	
MW-11				-6			X																	
MW-13				-7			X																	
MW-14				-8			X																	
MW-15				-9			X																	
MW-16	"		"	-10			X																	

C - 93

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER:	1780-02-R4	TOTAL NUMBER OF CONTAINERS	22
PROJECT NAME:	Circle K	CHAIN OF CUSTODY SEALS Y/N/NA	N
PURCHASE ORDER NUMBER:		INTACT? Y/N/NA	NA
VIA:		RECEIVED GOOD COND./COLD	Y/Y

TAT: [ ] 24HR [ ] 48 HRS [ ] 72 HRS [ ] 1 WK ([X] 2 WKS (Normal)

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DATA

SPECIAL INSTRUCTIONS:
please FAX Results to O. Paris or Jim Roll ASAP.
Was preserved, no headspace

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature: Jim Roll Time:	Signature: T
Printed Name: Jim Roll Date: 6/12	Printed Name: D
Company: GEI	Company:
RECEIVED BY: 1.	**RECEIVED BY:**
Signature: Time:	Signature: T
Printed Name: Date:	Printed Name: D
Company:	Company: