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PHASE 1 AND 2 FIELD SAMPLING ANALYSIS AND TESTING AT LANDFILLS 4 AND 5 NAS FORT WORTH TX

8/1/1993

INTERNATIONAL TECHNOLOGIES

File: 17G
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164000

NAVAL AIR STATION
FORT WORTH JRB
CARSWELL FIELD
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 164

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INTERNATIONAL TECHNOLOGY CORPORATION

Project No. 305895
August 1993

Summary Report

Phase I and II Report
Field Sampling, Analysis and Testing
Carswell Air Force Base, Landfills 4 and 5
Fort Worth, Texas

Contract No. DACA56-92-D-0008
Delivery Order No. 0013

Prepared for:

Department of the Army
Tulsa District, Corps of Engineers
Tulsa, Oklahoma

Prepared by:

IT Corporation
Monroeville, Pennsylvania

RESPONSIVE TO THE NEEDS OF ENVIRONMENTAL MANAGEMENT

164002

PHASE I AND PHASE II REPORT
FIELD SAMPLING, ANALYSIS, AND TESTING
CARSWELL AIR FORCE BASE, LANDFILLS 4 AND 5
FORT WORTH, TEXAS

164003

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164095

1.0 Introduction

This report has been prepared to summarize the field activities and data collected during Phase I and Phase II of the groundwater remediation in the Landfills 4 and 5 area (LF 4/5) of Carswell Air Force Base in Fort Worth, Texas. This summary report was prepared for the Tulsa District, U.S. Army Corps of Engineers (USACE) under USACE Contract No. DACA56-92-D-008, Delivery Order No. 0013.

The purpose of the Phase I field program was to obtain hydrogeologic and groundwater quality data to design the recovery and treatment system. Previous remedial investigation (RI) wells were not designed to act as recovery wells. The purpose of the Phase II program was to install additional groundwater recovery wells. RI groundwater sampling was done on a single point in time basis and not a continuous large volume discharge stream typical to recovery well operations.

The summary report is organized as follows. Chapter 2.0 is a description of the actual field and sampling program. Chapter 3.0 summarizes the results of the field program. Boring logs, well construction diagrams, and well development data are presented in Appendix A; step-drawdown aquifer test data are presented in Appendix B; sample collection logs are presented in Appendix C; and certificates of analysis and chain of custody forms are presented in Appendix D.

2.0 Field Investigation

The Phase I field program was conducted during April and May 1993. The program included the drilling, installation, and development of three groundwater recovery wells, the collection of groundwater samples, and the conductance of recovery well step-drawdown aquifer tests. Field work commenced on Monday, April 26, 1993, when mobilization and site setup activities were conducted. Utility clearances and drilling permits were also issued by the Civil Engineering Squadron of Carswell Air Force Base. Recovery well installation was conducted from Tuesday, April 27, 1993 through Friday, April 30 1993. The recovery wells were developed on Monday May 10, 1993 and Tuesday, May 11, 1993. Step-drawdown tests and groundwater sample collection were conducted from Thursday, May 13, 1993 through Saturday, May 15, 1993. Time gaps between well installation, development, and step-drawdown testing were due to the Air Force Plant No. 4 - Windows area Phase II work being

done concurrently with the LF 4/5 work. This lead to reduced time to complete both projects. Site cleanup and driller demobilization was conducted on Saturday, May 15, 1993.

The Phase II field program was conducted during June 1993. After discussions with the USACE and U.S. Air Force in May 1993, it was decided that the Phase II scope of work would be to install, on an expedited basis, five additional groundwater recovery wells along or near White Settlement Road. These locations were selected so the recovery wells would encounter the maximum thickness of sands and gravels, the highest trichloroethylene (TCE) concentrations, and have minimal impact on the use of the golf course.

The Phase II program included the drilling, installation, and development of five groundwater recovery wells. Field work commenced on Monday, June 20, 1993 when mobilization and site setup were conducted. Drilling permits and utility clearances were received from the Base Closure office. Recovery well installation and development activities were conducted from Tuesday, June 21, 1993 through Saturday, June 25, 1993. Groundwater samples were collected for each well at the end of development on Friday, June 24, 1993 and Saturday, June 25, 1993.

2.1 Recovery Well Installation and Development

Figure 1 shows the location of the recovery wells installed during the Phase I and Phase II programs. Recovery wells were installed with varying lengths of either 0.010-inch or 0.020-inch continuous slotted 6-inch diameter stainless steel screen. Stainless steel riser pipe was used in the well construction. The bottom of the screen was set at or near the top of bedrock. The screens were set in the lower portion of the upper zone aquifer to intercept saturated sands and gravels. The top of the bedrock was determined by slower drilling rates and drill bit and pipe chatter. The 12-inch diameter recovery well borings were drilled using an Ingersoll-Rand TH-60 drill rig adopted for mud rotary work.

Phase I soil cuttings and drilling mud were stored in 55-gallon drums. Phase II soil cuttings and drilling mud were stored in two 20-cubic yard roll-off containers with water tight tops. Plastic sheeting and personal protective equipment (PPE) was stored in 55-gallon drums. All the drums were labelled, placed on pallets over plastic sheeting, and stored inside the fence of the former radar station along with the roll-off boxes. Development water, and water

produced during sampling and step-drawdown tests was stored in two 22,000-gallon Baker Tanks parked along White Settlement Road.

Phase I recovery wells include CAR-RW1, CAR-RW2, and CAR-RW3. Recovery Well CAR-RW1 is located approximately 69 feet south of Monitoring Well LF04-4H. The bottom of the well was set at 34 feet with 15 feet of screen intercepting sands and gravels. Recovery Well CAR-RW2 is located approximately 14.5 feet east of Monitoring Well LF04-4G. The bottom of the well was set at 34.5 feet with 15 feet of screen intercepting sands and gravels. Recovery Well CAR-RW3 is located approximately 20.7 feet south of Monitoring Well LF05-5G. The bottom of the well was set at 26.0 feet which is 1 foot below the top of a 3-foot thick dark gray-blue clay layer that overlies the bedrock at this location. Recovery Well CAR-RW3 has 10 feet of screen intercepting 9 feet of sands and gravels and 1 foot of clay.

Phase II wells include Recovery Wells CAR-RW4, CAR-RW5, CAR-RW6, CAR-RW7, and CAR-RW8. Recovery Well CAR-RW4 is located approximately 100 feet south of Recovery Well CAR-RW2. The bottom of the well is set at 32 feet with 15 feet of screen intercepting sands and gravels. Recovery Well CAR-RW5 is located approximately 100 feet north of Recovery Well CAR-RW2. The bottom of the well is set at 31.2 feet with 15 feet of screen intercepting sands and gravels. Recovery Well CAR-RW6 is located approximately 100 feet west of Recovery Well CAR-RW4. The bottom of the well is set at 33 feet with 20 feet of screen intercepting sands and gravels. Recovery Well CAR-RW7 is located approximately 260 feet west of Recovery Well CAR-RW2. The bottom of the well is set at 33.7 feet with 15 feet of screen intercepting sands and gravels. Recovery Well CAR-RW8 is located 100 feet west of Recovery Well CAR-RW7. The bottom of the well is set at 37 feet with 20 feet of screen intercepting sands and gravels.

Static water level measurements in the eight recovery wells indicate that the average saturated thickness in the upper zone aquifer sands and gravels is 12.5 feet.

The eight recovery wells were completed with flush mount protective casings so they would not interfere with or be damaged by golf course activities.

Recovery Wells CAR-RW1 through CAR-RW6 were developed by surging the well for approximately 1/2 hour and bailing approximately 50 to 100 gallons of water. At some locations, a second 1/2 hour surging and an additional 50 to 100 gallons of bailing was conducted. After surging and bailing, 200 to 450 gallons of water were removed from each well by submersible pump. Temperature, pH, and conductivity readings were recorded during the pumping phase of well development.

Recovery Wells CAR-RW7 and CAR-RW8 were developed slowly with repeated surging and bailing cycles over a two-day period. These wells would bail dry. Water was added to the well to wash fines out of the gravel pack and screen. Bailing and pumping were conducted to remove the volume of water added to the wells. Recovery Well CAR-RW8 was able to produce between 1 and 2 gallons per minute (gpm). Recovery Well CAR-RW8 could barely make 1 gpm.

Initial discharge water for each well during pumping had high turbidity. At the end of development, the discharge water from each well was clear. Photoionization detector (PID) readings on the water discharged into the drum, taken below the top of the drum, were approximately 2 parts per million (ppm) for Recovery Wells CAR-RW4, CAR-RW5, CAR-RW6, CAR-RW7, and CAR-RW8. PID readings were not collected during the development of Recovery Wells CAR-RW1, CAR-RW2, and CAR-RW3 due to instrument malfunction. Odors were not noticed coming from the groundwater during development.

2.2 Recovery Well Step-Drawdown Testing

Step-drawdown tests were conducted in Phase I Recovery Wells CAR-RW1, CAR-RW2, and CAR-RW3 to determine the optimum pumping rate from each well and to assist in sizing the extraction well field and groundwater treatment system. Water produced during the step-drawdown tests was collected and contained in the Baker Tanks. This water will be stored in the Baker Tanks for treatment in the temporary system being installed for CAR-RW2.

The step-drawdown test in Recovery Well CAR-RW1 was conducted on Saturday, May 15, 1993. The test consisted of pumping the well at 10 gpm for 3.3 hours, 20 gpm for 2.6 hours, and 30 gpm for 3.8 hours. Recovery Well CAR-RW1 had a maximum drawdown of approximately 0.70 feet at 10 gpm. At 20 gpm, the maximum drawdown increased to

0.86 feet and at the end of the test at a pumping rate of 30 gpm, the maximum drawdown was 1.29 feet.

The step-drawdown tests in Recovery Well CAR-RW2 was conducted on Friday, May 14, 1993 using a pumping rate of 10 gpm for 3.5 hours, 20 gpm for almost 2.6 hours, and 25 gpm for 3.1 hours. Between the 10 gpm and 20 gpm step, the pump failed. A delay of 2 hours between the steps occurred. This delay had no effect on CAR-RW2 data since drawdown was small and well recovery was quick. At 10 gpm, the maximum drawdown was 0.66 feet. At 20 gpm, the maximum drawdown was 1.80 feet. When the pumping rate was increased to 25 gpm, at the end of the test the maximum drawdown increased to 2.98 feet.

The step-drawdown tests in Recovery Well CAR-RW3 were conducted on Thursday, May 13, 1993 using a pumping rate of 1 gpm for 3.0 hours, 3 gpm for 0.3 hours, and a return to 2 gpm for the remaining 3.5 hours of the test. The pumping rate was reduced from 3 to 2 gpm when significant drawdown was observed in the well. The low step-drawdown test pumping rates for this well were based on the low recharge rates observed during well development.

Water produced from Recovery Wells CAR-RW1, CAR-RW2, and CAR-RW3 was clear throughout the step-drawdown tests. Odors were not detected coming from the discharge waters. During the step-drawdown tests, water levels were monitored in the closest monitoring well to the recovery wells. Monitoring Well LF04-4H, located 69 feet north of Recovery Well CAR-RW1 did not exhibit any drawdown. It should be noted that Monitoring Well LF04-4H is located downhill from Recovery Well CAR-RW1, and was almost dry at the time of the test with only 0.2 feet of water. Monitoring Well LF04-4G, located 14.5 feet west of Recovery Well CAR-RW2, had a maximum drawdown of 0.34 feet at the end of the test. Monitoring Well LF05-5G, located 20.7 feet north of Recovery Well CAR-RW3, had a maximum drawdown of 0.19 feet at the end of the test.

2.3 Analytical Program

Groundwater samples were collected after the development of the Phase I wells, during the Phase I step-drawdown tests, and at the end of Phase II recovery well development.

At the request of the Texas Water Commission, groundwater samples were collected after development from Phase I recovery wells for volatile organic, chemical oxygen demand (COD), alkalinity, and nitrate/nitrite. These samples were designated CAR-RW1-1, CAR-RW2-1, and CAR-RW3-1.

During Phase I, the step-drawdown test groundwater samples from Recovery Wells CAR-RW1, CAR-RW2, and CAR-RW3 were collected from the discharge stream using a small diameter hose attached to a gate valve. This was done in order to minimize turbulence during sample collection. Samples were collected at the end of each step to determine the characteristic of the groundwater for treatment system design. The sequence of samples collected during each step is denoted by A, B, or C following the well name.

Groundwater samples were collected for volatile organic analysis only at the end of well development from Phase II Recovery Wells CAR-RW4, CAR-RW5, CAR-RW6, CAR-RW7, and CAR-RW8. These samples were collected to help define the volatile organic compound concentration at these locations and to assist in the treatment system design.

Table 1 provides a description of the Phase I and Phase II groundwater sample laboratory analysis parameter and sample numbers. Groundwater sample collection procedures and documentation were done in accordance with the Contract Quality Control Plan (IT Corporation [IT], 1993).

BOD and TSS samples were not collected at the end of each step during the Phase I step-drawdown test for Recovery Wells CAR-RW1 and CAR-RW2. Based on the field schedule, analysis of these parameters during the step-drawdown test would have exceeded the holding times. To compensate for this, stand alone BOD and TSS grab samples were collected from Recovery Wells CAR-RW1 and CAR-RW2 after purging three volumes of water from the well. These samples were designated as CAR-RW1 and CAR-RW2.

Quality control (QC) samples including a duplicate and triplicate were collected during the step-drawdown test for Recovery Well CAR-RW2. Trip blanks for volatile organic analysis were sent with each sample shipment. Trip blank samples were designated by having a TB in the sample name. The Phase I groundwater samples were analyzed by IT Analytical Services (ITAS) in Export, Pennsylvania. The Phase II groundwater samples were analyzed by ITAS

in Austin, Texas. The Phase I triplicate sample, CAR-RW2-A-T, was analyzed by the USACE Southwest Division Laboratory in Dallas, Texas.

Table 2 provides a summary of the Phase I volatile organic groundwater sample analytical results. Table 3 provides a summary of the Phase II volatile organic groundwater sample analytical results. Field quality control triplicate analytical results were not sent to IT from the USACE Southwest Division Laboratory for evaluation in this report. Analyses of the groundwater samples collected during Phase I and Phase II activities detected TCE and 1-2 dichloroethylene. Semivolatile compounds were not detected in the Phase I groundwater samples. Volatile organics were not detected in the field QC trip blank samples. Analytical results of Duplicate Sample CAR-RW2-A-D were above or equal to the results of the Primary Sample CAR-RW2-A. All holding times were met.

Sample collection logs are provided in Appendix C and ITAS Certificate of Analysis and Chain of Custody forms are in Appendix D.

164013

Table 1
Phase I and Phase II Laboratory Analysis Parameters
Carswell Air Force Base - Landfills 4 and 5

Test	Method	Field Samples	Number of Field QC Duplicate Samples	Trip Blanks	Field QC Triplicate Samples	Sample Container	Preservative
VOA	SW-846[a] 8240	17	1 +	7	1	3 x 40 ml VOA clear glass	HCl to pH<2
Semi-VOA	SW-846[a] 8270	9	1		1	2 x 1 liter amber glass or 1 x 2.5 liter amber glass	None
Metals (8 heavy metals)	SW-846[a] 6000 & 7000 series	9	1		1	1 x 1 liter plastic	HNO_3 to pH<2
Nitrate/Nitrite	LACHAT[b] 10-107-04-1A or MCAWW 353.2	12	1		1	1 x 1 liter plastic	H_2SO_4 to pH<2
Sulfate	MCAWW[c] 375.2	9	1		1	1 x 1 liter plastic	None Cool to 4°C
Chloride	MCAWW[c] 325.3	9	1		1	1 x 1 liter plastic	None Cool to 4°C
Alkalinity	MCAWW[c] 310.1	12	1		1	1 x 1 liter plastic	None Cool to 4°C
BOD	SM[d] 507	5				1 x 1 liter plastic	None Cool to 4°C
COD	MCAWW[c] 410.1	12	1			1 x 1 liter plastic	H_2SO_4 to pH<2
Settleable Solids	SM[d] 209E	5				1 x 1 liter plastic	None Cool to 4°C
TSS	MCAWW[c] 160.1	9	1		1	1 x 1 liter plastic	None Cool to 4°C
TDS	MCAWW[c] 160.2	9	1		1	1 x 1 liter plastic	None Cool to 4°C

[a]Test Methods for Evaluating Solid Waste. Physical Chemical Methods, U.S. EPA SW-846, 3rd Revised Edition, November 1986.
[b]Quick Chem Method, LACHAT Instruments, 1987.
[c]Methods for the Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983.
[d]Standards Methods for the Examination of Water and Wastewater, 17th ed., 1989.

Note:

1. Field QA Triplicate samples were shipped to USACE SWE Laboratory in Dallas, Texas
2. One Trip Blank by cooler containing aqueous volatile samples
3. Metals include: arsenic, barium, cadmium, calcium, chromium, copper, iron, manganese, lead, nickel, selenium, silver, sodium, and zinc.

164014

Table 2

Summary of Detected Phase I Volatile Organics in µg/L
Carswell Air Force Base - Landfills 4 and 5

Sample	Number of Gallons Pumped	Parameter	
		1,2-Dichloroethene (Total)	Trichloroethene
CAR-RW1-A	1,800	600	960
CAR-RW1-B	5,400	520	980
CAR-RW1-C	12,600	490	930
CAR-RW2-A	1,900	420	4,600
CAR-RW2-A-D	1,900	440	3,900
CAR-RW2-B	4,892	440	4,600
CAR-RW2-C	9.642	440	3,900
CAR-RW3-A	200	410	1,100
CAR-RW3-B	250	580	1,600
CAR-RW3-C	683	600	1,500
CAR-RW1-1	NA	310	580
CAR-RW2-1	NA	340	3,400
CAR-RW3-1	NA	410	1,400

NA = Not applicable.

Table 3

Summary of Detected Phase II Volatile Organics in µg/L
Carswell Air Force Base - Landfills 4 and 5

Sample	CAR-RW4	CAR-RW5	CAR-RW6	CAR-RW7	CAR-RW8
Parameter					
Cis-1,2-Dichloroethylene	300	380	360	310	290
Trichloroethylene	2,800	1,300	1,700	5,000	3,500

164017

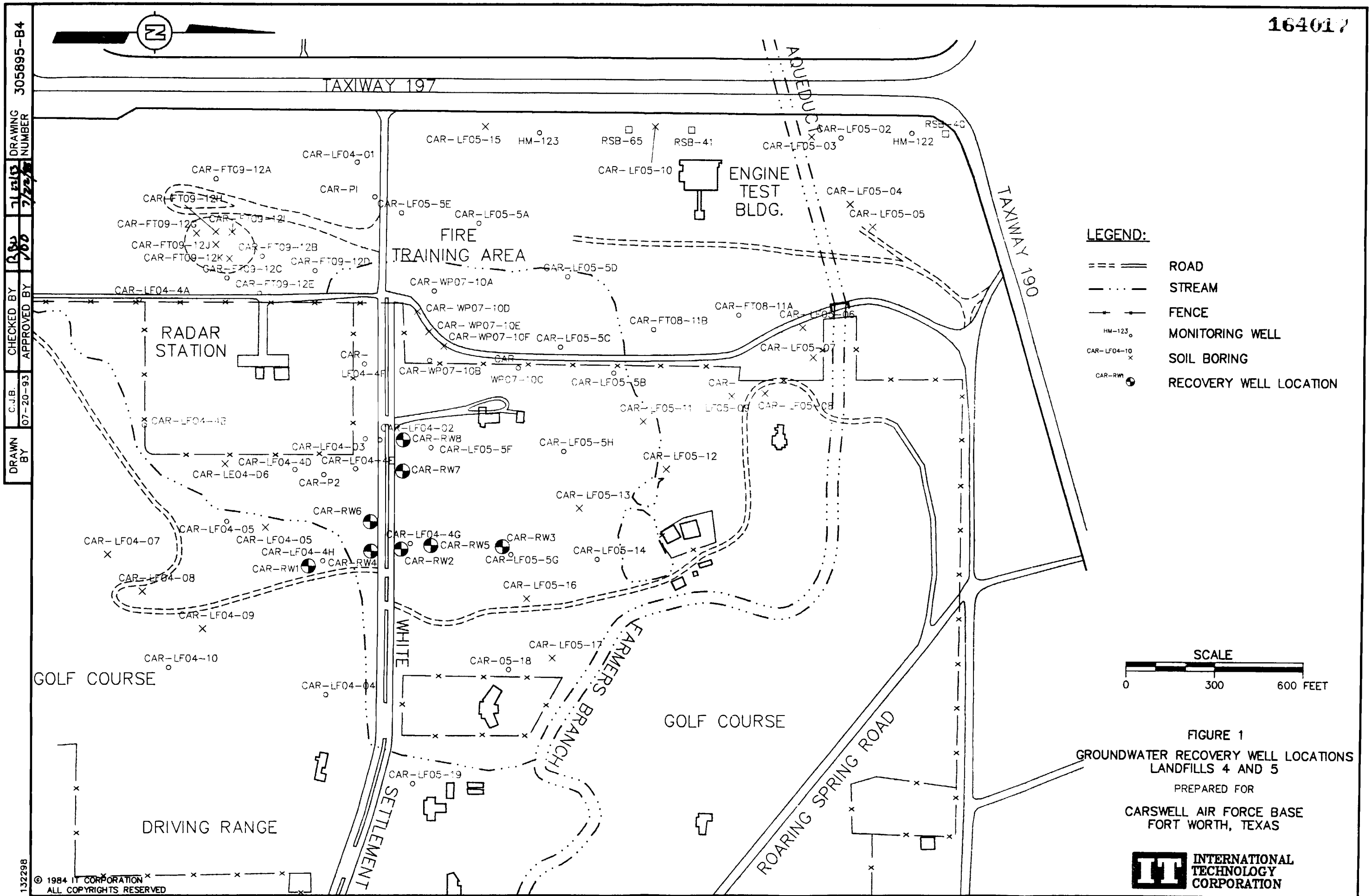


FIGURE 1
GROUNDWATER RECOVERY WELL LOCATIONS
LANDFILLS 4 AND 5
PREPARED FOR
CARSWELL AIR FORCE BASE
FORT WORTH, TEXAS

164018

APPENDIX A

BORING LOGS, WELL CONSTRUCTION DIAGRAMS, AND WELL DEVELOPMENT DATA

Hole No. CAR-RW1

DRILLING LOG

DIVISION	USACE-TULSA
INSTALLATION	CARSWELL AFB
SHEET	1 OF 1 SHEETS
1. PROJECT	~~Air Force No. 4~~ Phase I - CARSWELL AFB
2. LOCATION (Coordinates or Station)	LANDFILLS 4, 5
3. DRILLING AGENCY	GEO PROJECTS, INC
4. HOLE NO. (As shown on drawing title and file number)	CAR-RW1
5. NAME OF DRILLER	JAMES WALKER
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	34.1'
8. DEPTH DRILLED INTO ROCK	N/A
9. TOTAL DEPTH OF HOLE	34.1'
10. SIZE AND TYPE OF BIT	12" TRICONE
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	164019
12. MANUFACTURER'S DESIGNATION OF DRILL	INGERSOL-RAND TK 60
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED — UNDISTURBED —
14. TOTAL NUMBER CORE BOXES	—
15. ELEVATION GROUND WATER	
16. DATE HOLE	STARTED 4/29/93 COMPLETED 4/29/93
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	%
19. SIGNATURE OF INSPECTOR	[signature]

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			0-1': TOPSOIL			FIELD SCREENING — AMBIENT / BOREHOLE
	5	SM	1-10': BROWN F-C SAND, SOME SILT, LITTLE F. GRAVEL			0 ppm / 0 ppm
	10					0 ppm / 0 ppm
	15	SP-SW	10'-25': BROWN F-C SAND, SOME F. SUBANGULAR GRAVEL			0 ppm / 0 ppm
	20					0 ppm / 0 ppm
	25					0 ppm / 0 ppm
	30	GW	25'-34.1': BROWN C. GRAVEL, SOME F. GRAVEL AND F-C SAND			0 ppm / 0 ppm
			34.1': BEDROCK (LIMESTONE)			0 ppm / 0 ppm
	35	RX	TOTAL DEPTH = 34.1'			

- FIELD SCREENING CONDUCTED WITH HNU MODEL PI 101
- SANDS AND GRAVELS CONSIST OF CHERT, QUARTZ, LIMESTONE, AND SHELL FRAGMENTS
- BOREHOLE DRILLED MUD ROTARY, LITHOLOGY DETERMINED BY DRILL CUTTINGS

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT HOLE NO.

Hole No. CAR-RW 2

DRILLING LOG	DIVISION USACE-TULSA	INSTALLATION Carswell AFB	SHEET 1 OF 1 SHEETS

1. PROJECT ~~Air Force Site 4~~ Phase I - Carswell AFB	10. SIZE AND TYPE OF BIT 12" Tricone
2. LOCATION (Coordinates or Station) Land Fills 4, 5	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) 164020
3. DRILLING AGENCY Geo Projects, Inc.	12. MANUFACTURER'S DESIGNATION OF DRILL Ingersol-Rand TK 60
4. HOLE NO. (As shown on drawing title and file number) CAR-RW2	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED — ; UNDISTURBED —
5. NAME OF DRILLER James Walker	14. TOTAL NUMBER CORE BOXES 0
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER
	16. DATE HOLE: STARTED 4/28/93; COMPLETED 4/28/93
7. THICKNESS OF OVERBURDEN 34.8'	17. ELEVATION TOP OF HOLE
8. DEPTH DRILLED INTO ROCK NA	18. TOTAL CORE RECOVERY FOR BORING %
9. TOTAL DEPTH OF HOLE 34.8'	19. SIGNATURE OF INSPECTOR [signature]

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g: Field Screening Ambient	Field Screening Borehole
			0-1': Top soil				
		Sm	1-5': F. Sand, some silt, little m-c sand			0 ppm	0 ppm
	5						
	10	SW-SP	5'-20': F-C brown sand, some F. gravel, little silt			0 ppm	0 ppm
						0 ppm	0 ppm
	15						
	20		20-25: Brown F. Gravel, some F-C sand			0 ppm	0 ppm
	25	GW	25-34.8': Brown, saturated, F-C Gravel, little F-C sand			0 ppm	0 ppm
	30					0 ppm	0 ppm
	35	Rx	34.8': Bedrock (Limestone) Total Depth = 34.8'			0 ppm	0 ppm

- Field screening conducted with HNu model PI 101
- Sands and gravels consist of chert, quartz, limestone, and shell fragments
- Boring drilled mud rotary, lithology determined by drill cuttings

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT | HOLE NO.

Hole No. [illegible]

164021

DRILLING LOG	DIVISION: USAEE - TULSA	INSTALLATION: CARSWELL AFB	SHEET 1 OF 1 SHEETS

1. PROJECT: ~~Air Force No. 4~~ Phase I CARSWELL AFB
2. LOCATION (Coordinates or Station): LANDFILLS 4, 5
3. DRILLING AGENCY: GEO PROJECTS, INC.
4. HOLE NO. (As shown on drawing title and file number): CAR-RW3
5. NAME OF DRILLER: JAMES WALKER
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE: 28'
10. SIZE AND TYPE OF BIT: 12" TRI-CONE ROLLER BIT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
12. MANUFACTURER'S DESIGNATION OF DRILL: INGERSOL-RAND TR 60
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED ____ UNDISTURBED ____
14. TOTAL NUMBER CORE BOXES: ____
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED 4/27/93 COMPLETED 4/28/93
17. ELEVATION TOP OF HOLE
18. TOTAL CORE RECOVERY FOR BORING %
19. SIGNATURE OF INSPECTOR: [illegible]

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g: FIELD SCREENING AMBIENT	BOREHOLE
			0-1' TOPSOIL				
			1-5': F-M BROWN SAND, LITTLE GRAVEL			0 ppm	0 ppm
	5						
		SW-SP	5-10' F-M BROWN SAND, LITTLE GRAVEL			0 ppm	0 ppm
	10		10-20': F-M BROWN SAND, LITTLE GRAVEL				
	15					0 ppm	0 ppm
	20		20-25': BROWN GRAVEL, SUBANGULAR, LITTLE F-C SAND			0 ppm	0 ppm
		GW					
	25		25-28': DARK GRAY-BLUE CLAY			0 ppm	0 ppm
		CL	28': END BORING				
			TOTAL DEPTH = 28.0'				
	30						

- FIELD SCREENING CONDUCTED WITH A HNU PI 101 PID
- SANDS AND GRAVELS CONSIST OF QUARTZ, CHERT, LIMESTONE, AND SHELL FRAGMENTS
- LITHOLOGY DETERMINED BY DRILL CUTTINGS
- BOREHOLE DRILLED MUD ROTARY

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT | HOLE NO.

Hole No. CAR-RW4

164022

DRILLING LOG	DIVISION USACE-TULSA	INSTALLATION CARSWELL AFB	SHEET 1 OF 1 SHEETS

1. PROJECT Phase II - Carswell AFB ~~AIR FORCE NO. 4~~	10. SIZE AND TYPE OF BIT 6" Pilot with 12" Reamer
2. LOCATION (Coordinates or Station) LANDFILLS 4,5	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
3. DRILLING AGENCY GEO PROJECTS, INC.	12. MANUFACTURER'S DESIGNATION OF DRILL INGERSOL-RAND TH-60
4. HOLE NO. (As shown on drawing title and file number) CAR-RW4	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED — ; UNDISTURBED —
5. NAME OF DRILLER JAMES WALKER	14. TOTAL NUMBER CORE BOXES —
6. DIRECTION OF HOLE ☑ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.	15. ELEVATION GROUND WATER —
	16. DATE HOLE: STARTED 06-24-93; COMPLETED 06-24-93
7. THICKNESS OF OVERBURDEN 33.0 FT.	17. ELEVATION TOP OF HOLE
8. DEPTH DRILLED INTO ROCK N/A	18. TOTAL CORE RECOVERY FOR BORING %
9. TOTAL DEPTH OF HOLE 33.0 FT	19. SIGNATURE OF INSPECTOR Robert John Stephan Jr.

ELEVATION a	DEPTH (FT) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			0-1' TOPSOIL.			HNU READINGS
		SC	1-6' Brown, sandy clay.			AMBIENT (PPM) / HOLE (PPM) / DEPTH (FT.)
	5.0					0 / 0 / 0
		SM	6-12' Light Brown, Coarse sand, with Fine gravel and Clay.			0 / 0 / 5
	10.0					0 / 0 / 10
		GM	12-25' Brown, Coarse, Gravel with medium-Coarse Sand and Clay. Fossils Present.			0 / 0 / 15
	15.0					0 / 0 / 20
	20.0					0 / 0 / 25
	25.0					0 / 0 / 30
		GW	25-33' Brown, Coarse, Gravel with Coarse Sand. V. Little Clay. Fossils Present.			0 / 0 / 33
	30.0					
	35.0		33' BEDROCK (LIMESTONE) TOTAL DEPTH = 33.0 FT.			← Rig chatter from 12 FT. to 33 FT. Louder at 33.0 FT.
						← Sand and Gravel composed of Quartz, Chert, limestone, and shell material.
						← Field screening conducted with HNU MODEL PI-101

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT | HOLE NO.

Hole No. CAR-RW5

DRILLING LOG	DIVISION USAGE-TULSA	INSTALLATION CARSWELL AFB	SHEET 1 OF 1 SHEETS

1. PROJECT PHASE II CARSWELL ~~AIR FORCE NO. 4~~	10. SIZE AND TYPE OF BIT 6" Pilot with 12" Reamer
2. LOCATION (Coordinates or Station) LANDFILLS 4, 5	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
3. DRILLING AGENCY GEO PROJECTS INC.	12. MANUFACTURER'S DESIGNATION OF DRILL INGERSOL-RAND TH-60
4. HOLE NO. (As shown on drawing title and file number) CAR-RW5	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED – ; UNDISTURBED –
5. NAME OF DRILLER JAMES WALKER	14. TOTAL NUMBER CORE BOXES –
6. DIRECTION OF HOLE ☑ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER –
7. THICKNESS OF OVERBURDEN 31.8 FT.	16. DATE HOLE: STARTED 06-22-93; COMPLETED 06-22-93
8. DEPTH DRILLED INTO ROCK N/A	17. ELEVATION TOP OF HOLE
9. TOTAL DEPTH OF HOLE 31.8 FT.	18. TOTAL CORE RECOVERY FOR BORING %
	19. SIGNATURE OF INSPECTOR Robert John Stephen Jr.

ELEVATION a	DEPTH (FT.) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		SC	0-2.5' Brown Clay with Fine Sand. Topsoil in upper 6".			HNU READINGS
	5.0	SC-SM	2.5-7.5' Brown Clay with Fine Sand and Gravel.			AMBIENT (PPM) / HOLE (PPM) / DEPTH (FT.)
	10.0	GC	7.5-18.0' Brown, Fine, Subangular gravel with medium sands and clay. Some fossils present.			0 / 0 / 0
						0 / 0 / 5
						0 / 0 / 10
	15.0					0 / 0 / 15
						0 / 0 / 20
	20.0	GC	18-30' Brown, fine - coarse gravel with medium sands and clay. Abundant fossils.			0 / 0 / 25
						0 / 0 / 30
	25.0					0 / 0 / 31.8
	30.0	GW	30-31.8' Brown coarse gravel with fossils.			← Rig chatter at 30 FT. Caused by coarser gravel.
			31.8' BEDROCK (LIMESTONE) TOTAL DEPTH = 31.8'			← Loud Rig chatter at 31.8 FT.
	35.0					← Sand and Gravel composed of Quartz, Chert, limestone, and shell material.
						← Field screening conducted with HNU MODEL PI-101.

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT | HOLE NO

Hole No. CAR-RW6

164024

DRILLING LOG	DIVISION USACE-TULSA	INSTALLATION CARSWELL AFB	SHEET 1 OF 1 SHEETS

1. PROJECT ~~PHASE II~~ CARSWELL ~~AIR FORCE NO. 4~~	10. SIZE AND TYPE OF BIT 6" Pilot with 12" Reamer
2. LOCATION (Coordinates or Station) LANDFILLS 4,5	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
3. DRILLING AGENCY GEO PROJECTS INC.	12. MANUFACTURER'S DESIGNATION OF DRILL INGERSOL - RAND TH-60
4. HOLE NO. (As shown on drawing title and file number) CAR-RW6	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED – ; UNDISTURBED –
5. NAME OF DRILLER JAMES WALKER	14. TOTAL NUMBER CORE BOXES –
	15. ELEVATION GROUND WATER –
6. DIRECTION OF HOLE ☑ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.	16. DATE HOLE: STARTED 06-24-93; COMPLETED 06-24-93
7. THICKNESS OF OVERBURDEN 33.0 FT	17. ELEVATION TOP OF HOLE
8. DEPTH DRILLED INTO ROCK N/A	18. TOTAL CORE RECOVERY FOR BORING %
9. TOTAL DEPTH OF HOLE 33.0 FT	19. SIGNATURE OF INSPECTOR Robert John Stephan Jr.

ELEVATION a	DEPTH (FT.) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		SC	0-3' Brown clay. TOPSOIL in upper 6".			HNU READINGS
	5.0	SC	3-6' Brown clay with fine sand.			AMBIENT (PPM) / HOLE (PPM) / DEPTH (FT.)
	10.0	SM	6-13' Brown, medium sands with clay			0 / 0 / 0
						0 / 0 / 5
	15.0	GC	13-25' Brown, fine gravels with sand and clay. Fossils present			0 / 0 / 10
						0 / 0 / 15
	20.0					0 / 0 / 20
						0 / 0 / 25
	25.0	GW	25-33' Brown, fine gravels with coarse sand, v. little clay. Fossils present.			0 / 0 / 30
	30.0					0 / 0 / 33
	35.0		33' BEDROCK (LIMESTONE) TOTAL DEPTH = 33 FT.			- Sand and Gravel composed of Quartz, Chert, limestone, and Shell material.
						- Field Screening conducted with HNU MODEL PI-101

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT | HOLE NO.

Hole No. CAR-RW7

164025

DRILLING LOG	DIVISION USACE-TULSA	INSTALLATION CARSWELL AFB	SHEET 1 OF 1 SHEETS

1. PROJECT	PHASE II CARSWELL ~~AIR FORCE NO. 4~~
2. LOCATION (Coordinates or Station)	LANDFILLS 4,5
3. DRILLING AGENCY	GEO PROJECTS INC.
4. HOLE NO. (As shown on drawing title and file number)	CAR-RW7
5. NAME OF DRILLER	JAMES WALKER
6. DIRECTION OF HOLE	☑ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	34.5 FT
8. DEPTH DRILLED INTO ROCK	0.5 FT
9. TOTAL DEPTH OF HOLE	35.0 FT
10. SIZE AND TYPE OF BIT	6" Pilot with 12" Reamer
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	INGERSOL - Rand TH-60
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED – ; UNDISTURBED –
14. TOTAL NUMBER CORE BOXES	–
15. ELEVATION GROUND WATER	–
16. DATE HOLE	STARTED 06-23-93 ; COMPLETED 06-23-93
17. ELEVATION TOP OF HOLE	–
18. TOTAL CORE RECOVERY FOR BORING	%
19. SIGNATURE OF INSPECTOR	Robert John Stephen Jr.

ELEVATION a	DEPTH (FT) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		SC	0-4' Brown Clay. TOPSOIL in upper 6".			HNU READINGS AMBIENT (PPM.) / HOLE (PPM.) / DEPTH (FT.) 0 / 0 / 0
	5.0	SM	4-9' Light brown medium Sand with Clay.			0 / 0 / 5
	10.0	GC	9-18' Brown, fine, Subangular, Gravel with medium sand and clay. Some fossils present.			0 / 0 / 10
	15.0					0 / 0 / 15
	20.0	GC	18-32' Brown, fine, Subangular, gravel with medium-coarse sand, Some Clay. Abundant Fossils.			0 / 0 / 20
	25.0					0 / 0 / 25
	30.0					0 / 0 / 30
		GM	32-34.5' Brown fine-medium gravel, with coarse sand and Clay. Abundant fossils.			0 / 0 / 35
	35.0		34.5' BEDROCK (Limestone) TOTAL DEPTH = 35.0 FT			← Rig chatter at 32' from coarser gravels.
	40.0					← Loud Rig chatter at 34.5' from Limestone Bedrock
						← Sand and gravel Composed of Quartz chert, limestone, and shell material.
						← Field Screening conducted with HNU MODEL PI-101

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT HOLE NO.

Hole No. CAR-RW8

DRILLING LOG	DIVISION USACE-TULSA	INSTALLATION CARSWELL AFB	SHEET 1 OF 1 SHEETS

1. PROJECT PHASE II - CARSWELL ~~AIR FORCE NO. 4~~	10. SIZE AND TYPE OF BIT 6" Pilot with 12" Reamer
2. LOCATION (Coordinates or Station) LANDFILLS 4,5	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
3. DRILLING AGENCY GEO PROJECTS INC.	12. MANUFACTURER'S DESIGNATION OF DRILL INGERSOL-Rand TH-60
4. HOLE NO. (As shown on drawing title and file number) CAR-RW8	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED - ; UNDISTURBED -
5. NAME OF DRILLER JAMES WALKER	14. TOTAL NUMBER CORE BOXES -
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.	15. ELEVATION GROUND WATER -
	16. DATE HOLE: STARTED 06-22-93; COMPLETED 06-22-93
7. THICKNESS OF OVERBURDEN 37 FT	17. ELEVATION TOP OF HOLE
8. DEPTH DRILLED INTO ROCK N/A	18. TOTAL CORE RECOVERY FOR BORING %
9. TOTAL DEPTH OF HOLE 37 FT	19. SIGNATURE OF INSPECTOR Robert John Stephan Jr.

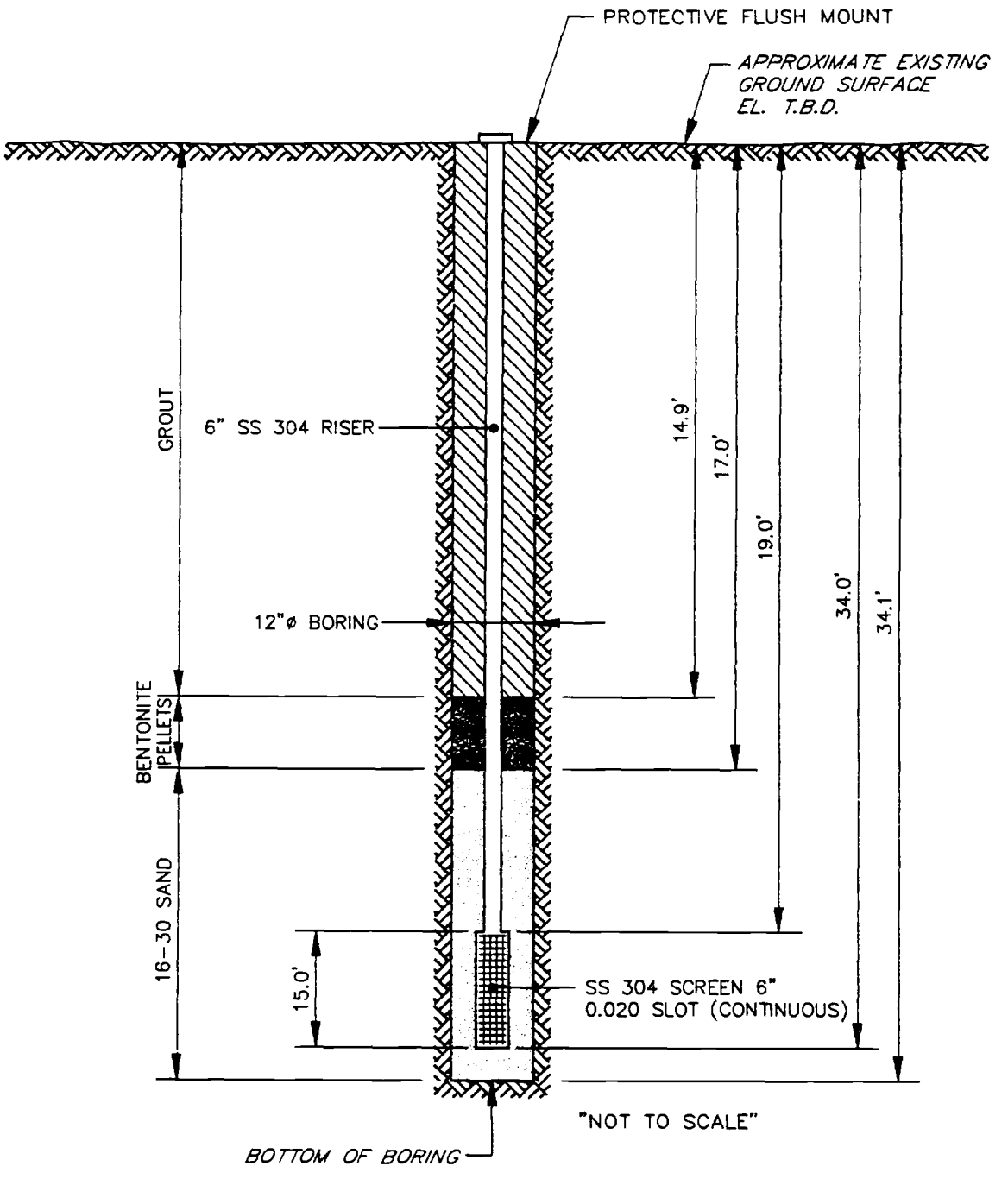
164026

ELEVATION a	DEPTH (FT) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
		SC	0-4FT Brown Clay. Topsoil in upper 6".			HNU READINGS
	5.0	SM	4-7FT Light Brown, Medium Sand with clay.			AMBIENT (ppm) / HOLE (ppm) / DEPTH (FT)
		GM	7-30 FT. Brown, Fine, gravels with Coarse, Sand and Clay. Fossils Abundant.			0 0 0
	10.0					0 0 5
						0 0 10
	15.0					0 0 15
						0 0 20
	20.0					0 0 25
	25.0					0 0 30
						0 0 35
	30.0	GM	30-37FT Coarse sands with Brown gravel and some clay			0 0 37
	35.0					
	40.0		37' BEDROCK (Limestone) TOTAL DEPTH = 37.0 FT.			← Rig chatter from 37 FT from Limestone Bedrock.
						← Sand and Gravel composed of Quartz, Chert, limestone, and Shell material.
						← Field screening conducted with HNU MODEL PI-101

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT HOLE NO.

164027

DRAWN BY	C.J.B	CHECKED BY	RBL	7/22/93	DRAWING NUMBER	305895-A7
	7-7-93	APPROVED BY		7/22/93		



RECOVERY WELL CAR-RW1
LANDFILL 4 & 5
CARSWELL AIR FORCE BASE

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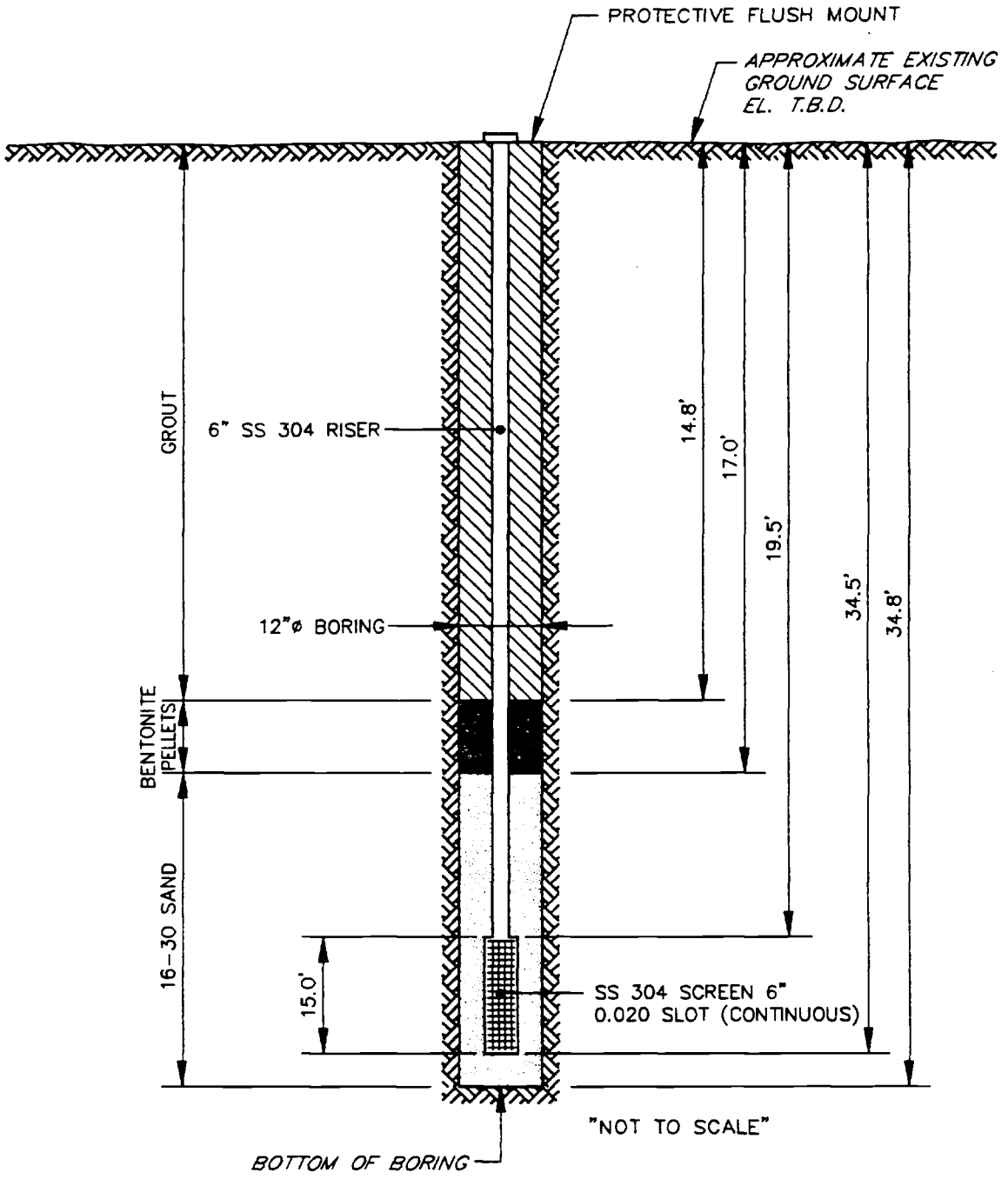
	7-7-93	APPROVED BY	RDD	7/23/93		



RECOVERY WELL CAR-RW2
LANDFILL 4 & 5
CARSWELL AIR FORCE BASE

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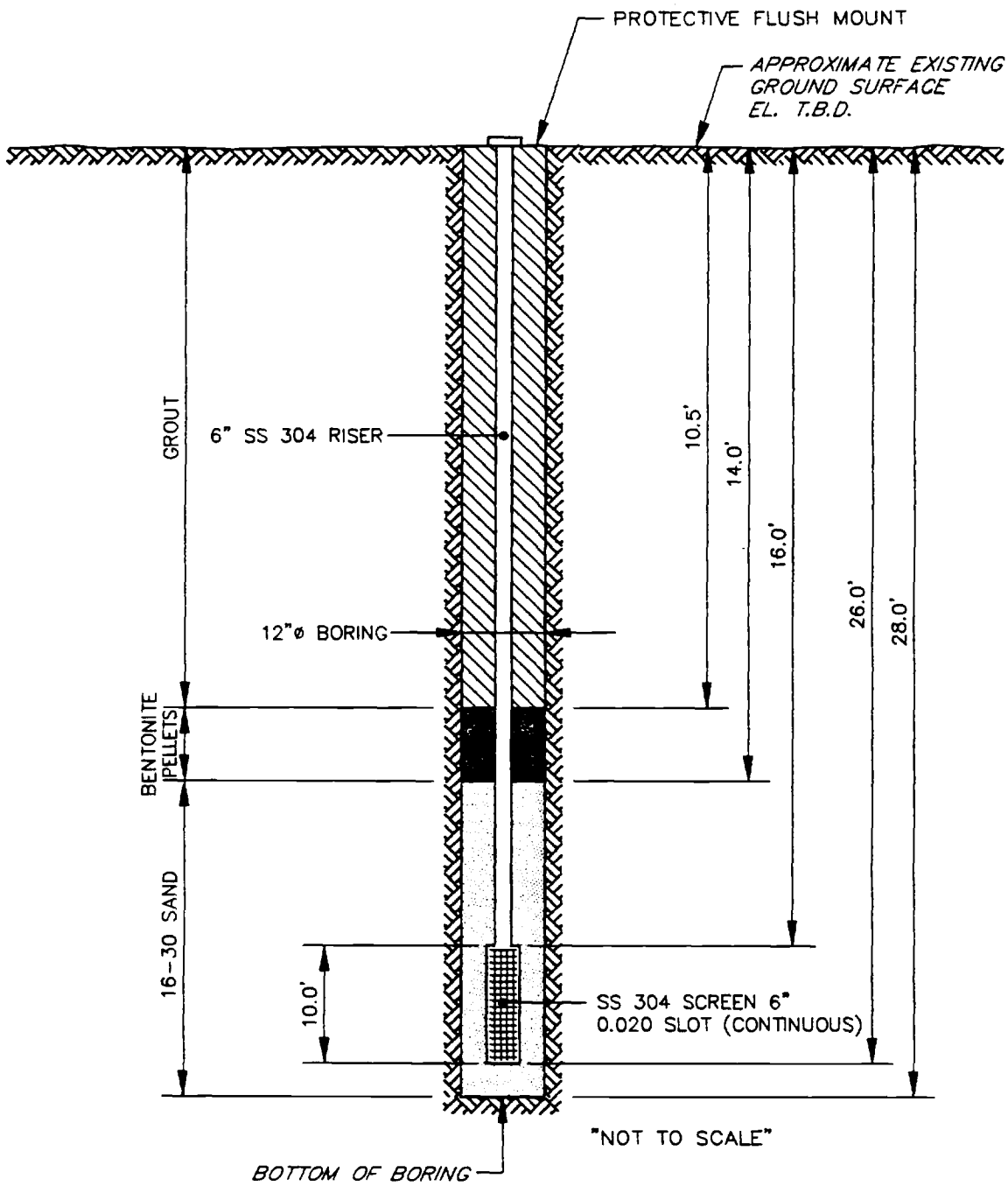
	7-7-93	APPROVED BY	DD	7/22/93		



RECOVERY WELL CAR-RW3
LANDFILL 4 & 5
CARSWELL AIR FORCE BASE

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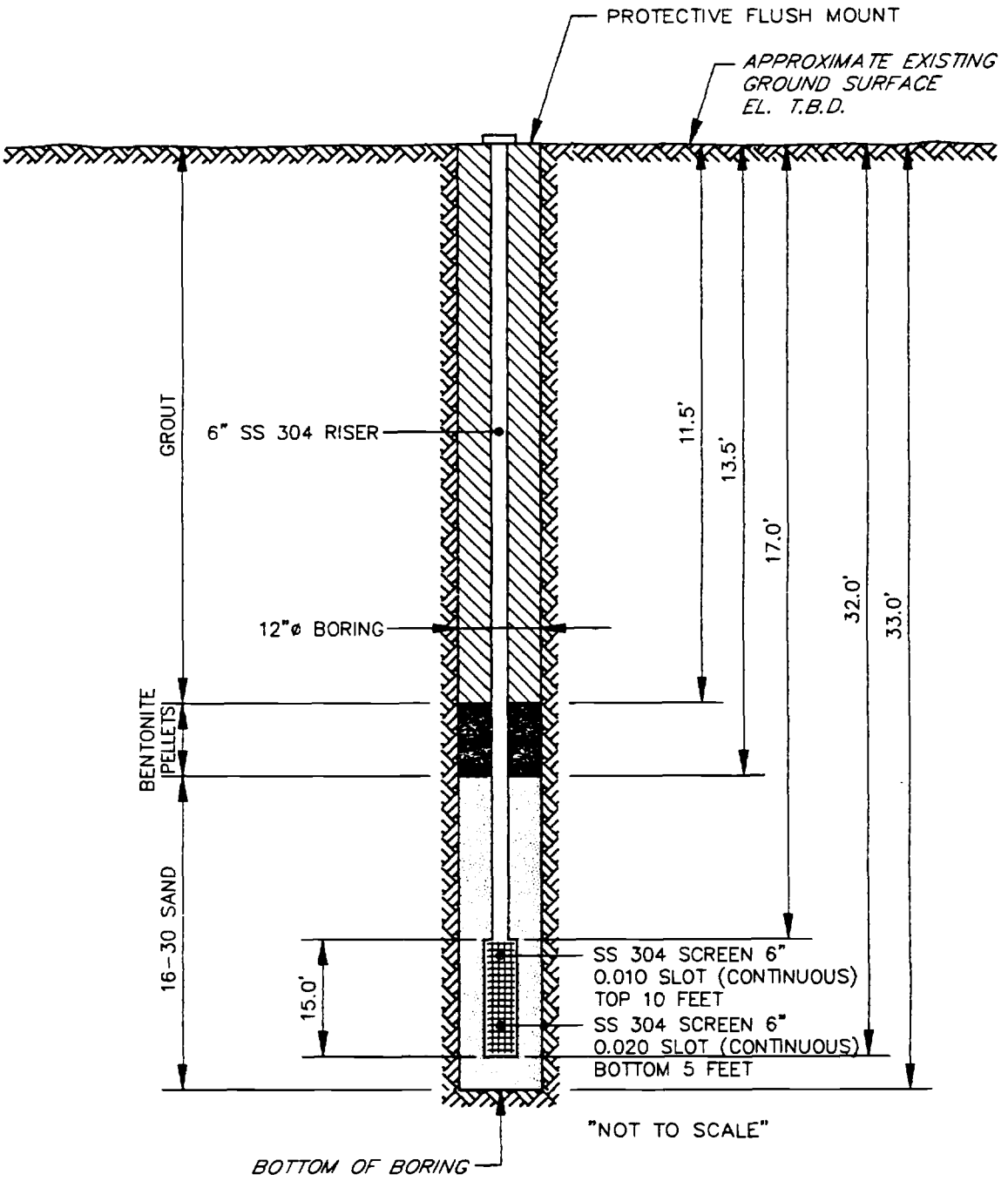
164030

DRAWN BY	C.J.B	CHECKED BY	RBJ	7/27/93	DRAWING NUMBER	305895-A10
	7-7-93	APPROVED BY	JDD	7/27/93		



RECOVERY WELL CAR-RW4
LANDFILL 4 & 5
CARSWELL AIR FORCE BASE

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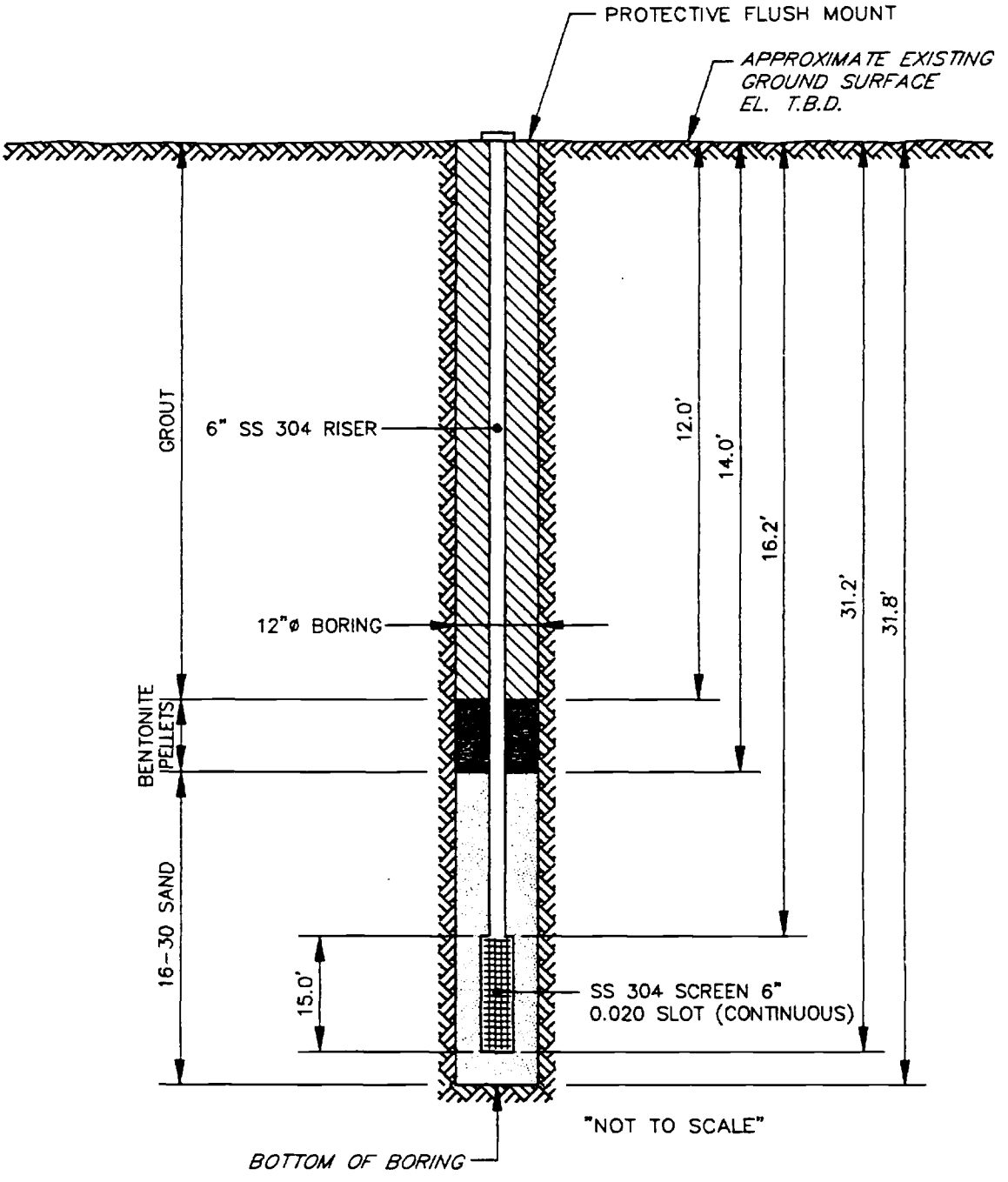
DRAWN BY	C.J.B	CHECKED BY	KBH	7/22/93	DRAWING NUMBER	305895-A11
	7-7-93	APPROVED BY	JBD	7/22/93		



RECOVERY WELL CAR-RW5
LANDFILL 4 & 5
CARSWELL AIR FORCE BASE

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164032

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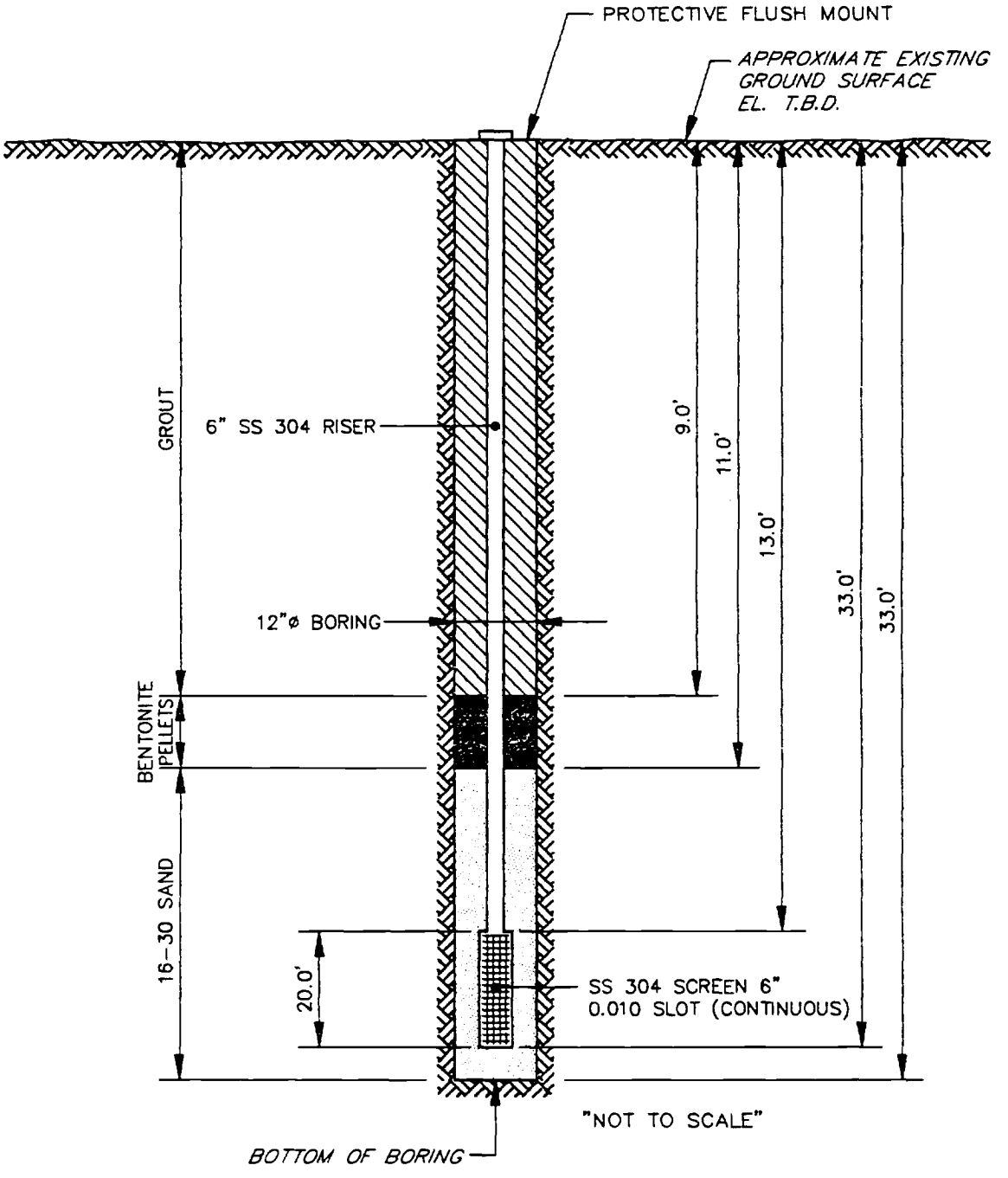
	7-7-93	APPROVED BY	VDD		



RECOVERY WELL CAR-RW6
LANDFILL 4 & 5
CARSWELL AIR FORCE BASE

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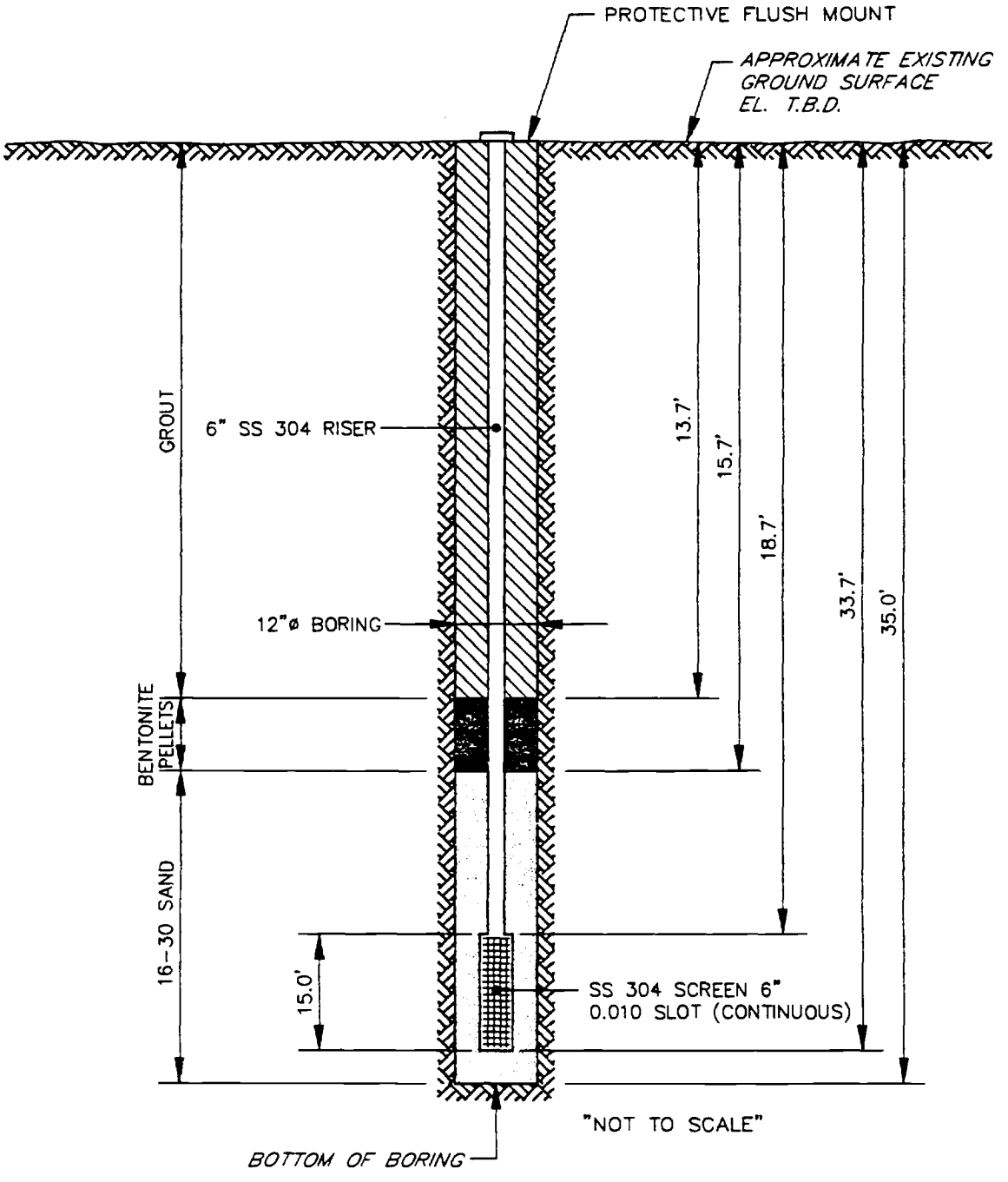
	7-7-93	APPROVED BY	VDD	7/22/93		



RECOVERY WELL CAR-RW7
LANDFILL 4 & 5
CARSWELL AIR FORCE BASE

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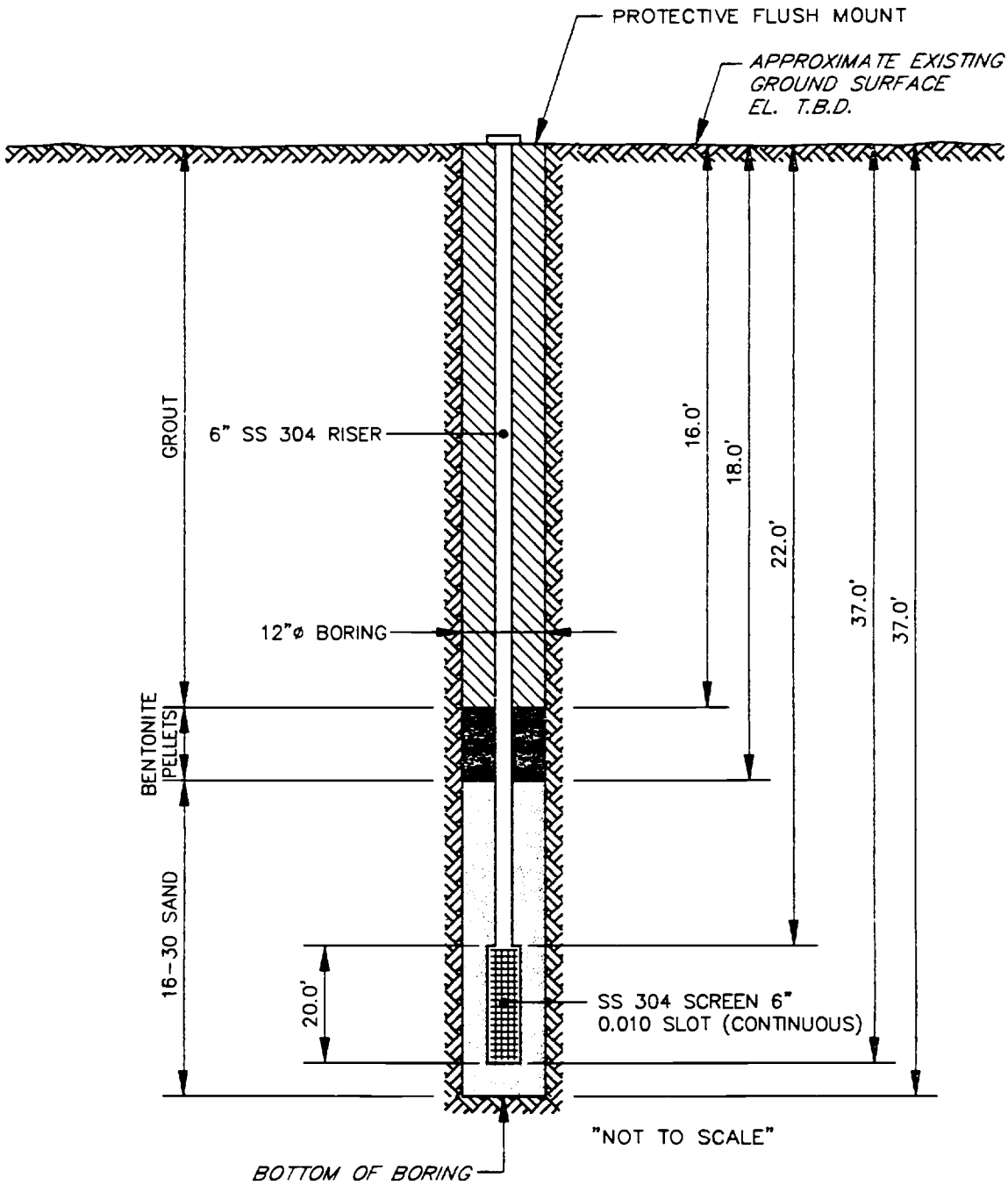
DRAWN BY	C.J.B 7-7-93	CHECKED BY	RBW	7/13/93	DRAWING NUMBER	305895-A14
		APPROVED BY	VDP	7/13/93		



RECOVERY WELL CAR-RW8
LANDFILL 4 & 5
CARSWELL AIR FORCE BASE

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MONITORING WELL DEVELOPMENT RECORD

164035

Project Name: CARSWELL AIR FORCE BASE LANDFILL 4/5 Project No.: 305895

Well No.: CAR - RW1 Date Developed: MAY 10-10, 1993

Field Personnel: R. WICE, J. SUMROW

Weather Conditions: SUNNY COOL 60 - 70's MAY 10; PARTLY CLOUDY RAIN 70's MAY 11

Well Development Method: SURGE, BAIL, PUMP

Total Well Depth:	34.0 FEET	Time Started:	1805 - 1905 MAY 10
Depth to Water Table:	18.64 FEET	Time Completed:	pumped MAY 11 1545 HRS
Height of Water Column:	15.36 FEET	Notes:	1805-1825 SURGED well 1830-1905 BAILED 200 gallons pumped 1525 ON MAY 11 - 1545 MAY 11
Well Diameter:	6.0 INCHES		
Well Volume:	23.04 Gallons		

PUMPING DATA

Well Volume Removed	Temperature	pH	Specific Conductance	Turbidity
Initial Reading	67.1	6.97	887	CLOUDY
25 Gallons	66.4	6.87	885	CLOUDY
50 Gallons	65.8	6.83	878	CLOUDY
75 Gallons	65.8	6.78	878	CLEARING
100 Gallons	65.8	6.71	878	CLEARING
150 Gallons	65.6	6.79	877	CLEAR
175 Gallons	65.6	6.83	870	CLEAR
200 Gallons	65.6	6.78	872	CLEAR

Comments: WELL DEVELOPED AT APPROX 15 gpm, 1-2 FEET DRAWDOWN WELL RETURNED TO STATIC IN 5 MINUTES

Prepared by: Richard B. Wice

Signature: Richard B. Wice

Date: MAY 12, 1993

GRB.8.92

INTERNATIONAL TECHNOLOGY CORPORATION

MONITORING WELL DEVELOPMENT RECORD

164036

Project Name: CARSWELL AIR FORCE BASE LANDFILL 415 Project No.: 305895

Well No.: CAR-RW7 Date Developed: MAY 10-11, 1993

Field Personnel: R. WICE, J. SUMROK

Weather Conditions: SUNNY cool 60-70's MAY 10; PARTLY CLOUDY RAIN 70's MAY 11

Well Development Method: SURGE, BAIL, PUMP

Total Well Depth:	~34.41 FEET	Time Started:	1125-1410 MAY 10
Depth to Water Table:	20.28 FEET	Time Completed:	PUMPED MAY 11 1047 HRS
Height of Water Column:	14.13 FEET	Notes:	1125-1153 SURGED well 1205-1235 BAILED 100 gallons 1235-1410 BAILED 100 gallons 1040-1047 MAY 11, PUMPED 200 gallon
Well Diameter:	6.0 INCHES		
Well Volume:	21.19 GALLONS		

PUMPING DATA

Well Volume Removed	Temperature	pH	Specific Conductance	Turbidity
Initial Reading NR	—	—	—	—
50 Gallons	67.4°F	7.04	998 µS/cm	CLOUDY
75 Gallons	67.5°F	6.97	984 µS/cm	CLEARING
100 Gallons	67.7°F	7.01	983 µS/cm	CLEAR
150 Gallons	67.8°F	6.99	982 µS/cm	CLEAR
200 Gallons	67.5°F	6.96	979 µS/cm	CLEAR

Comments: well developed at approx 15 gpm, minimal drawdown

Prepared by: Richard B. Wice

Signature: Richard B. Wice

Date: MAY 11, 1993

DRB.A.92

INTERNATIONAL TECHNOLOGY CORPORATION

MONITORING WELL DEVELOPMENT RECORD

164037

Project Name: Caswell AFB, landfill 415 Project No.: 305895

Well No.: CAR- RW3 Date Developed: May 10-11, 1993

Field Personnel: R. Wice, J. Sumrok

Weather Conditions: Sunny cool 60-70's May 10; partly cloudy, rain 70's May 11

Well Development Method: Surge, Bail, Pump

Total Well Depth: ~ 26.0 Feet	Time Started: 1445 May 10 surge May 10
Depth to Water Table: 15.72 Feet	Time Completed: pumped May 11 1317 hrs
Height of Water Column: 10.28 Feet	Notes: 1445- 1570 surged well 1515-1615 Baled 100 gallons 1620- 1635 surged well 1635- 1725 Baled well, 100 gallons 1200 - 1317 pumped well
Well Diameter: 6.0 Inches	
Well Volume: 15.42 Gallons	

Pumping Data

Well Volume Removed	Temperature	pH	Specific Conductance	Turbidity
Initial Reading 50 Gallons	68.7°F	7.42	1067 µS/cm	Clear
100 Gallons	68.6° F	7.41	981 µS/cm	Clear
150 Gallons	67.8° F	7.52	1026 µS/cm	Clear
200 Gallons	67.4° F	7.47	1031 µS/cm	Clear

Comments: Well Developed with pumping rate of 3-4 gpm. Well could not sustain 5-10 gpm

Prepared by: Rick Wice

Signature: [signature]

Date: 5/11/93

INTERNATIONAL TECHNOLOGY CORPORATION

MONITORING WELL DEVELOPMENT RECORD

164038

Project Name: CARSWELL AFB Project No.: 305895

Well No.: CAR RW4 Date Developed: 6/26/93

Field Personnel: R. WICE, B. J. STEPHAN

Weather Conditions: SUNNY, V. HOT 90's. WIND 5-10 S-SW

Well Development Method: SURGE, BAIL, PUMP

Total Well Depth: SOUNDS 31.6' /	Time Started: 1058
Depth to Water Table: 18.82'	Time Completed: 1402
Height of Water Column: 12.78'	Notes: 1058- ~~surge~~ 1130, surge 1132- 1137 Bailed, 50 gallons 1139- 1154 surge 1155- 1200 Bailed 50 gallons 1332- 1402 pumped well
Well Diameter: 6"	
Well Volume: 19.17 GALLONS	

PUMPING DATA

Well Volume Removed	Temperature	pH	Specific Conductance	Turbidity	DTW
Initial Reading 150 Bailed	—	—	—	TURBID	—
150 Gallons	73.5 °F	6.72	514 µS/cm	CLOUDY	19.20
200 "	73.2 °F	6.81	530	CLOUDY	19.25'
250 "	74.2 °F	6.95	505	CLOUDY	19.20'
300	74.8 °F	6.89	517	CLOUDY	19.20'
350	74.1 °F	7.01	503	CLEAR	19.20
400	74.3 °F	6.95	511	CLEAR	19.20'

Comments: WELL DEVELOPED AT 10 gpm, MINIMAL DRAWDOWN
HNU READINGS ON WATER DISCHARGED INTO DRUM 2ppm, NO ODORS

Prepared by: Richard B. WICE

Signature: R. B. Wice

Date: 6/26/93

INTERNATIONAL TECHNOLOGY CORPORATION

MONITORING WELL DEVELOPMENT RECORD

164039

Project Name: CARSWELL AFB LF4/5 Project No.: 305895

Well No.: CAR-RW5 Date Developed: 6/25/93

Field Personnel: R. WICE, B. J. STEPHAN

Weather Conditions: SUNNY HOT 90's, SLIGHT BREEZE FROM S

Well Development Method: SURGE, BAIL PUMPING

Total Well Depth: 31.8 FT	Time Started: 1455
Depth to Water Table: 20.92 FT	Time Completed: 1640
Height of Water Column: 10.88 FT	Notes: 1455- 1515 SURGE 1525- 1555 BAILED 100 gallons 1606- 1640 PUMPED
Well Diameter: 6 INCHES	
Well Volume: 16.32 Gallons	

PUMPING DATA

Well Volume Removed	Temperature	pH	Specific Conductance	Turbidity	DTW
Initial Reading BAILED 100 Gallon	✓	✓	✓	TURBID	
150 Gallons	77.6 °F	6.47	676 µS/cm	CLOUDY	21.0'
250 Gallons	74.4 °F	6.51	600	CLEAR	21.0'
300 Gallons	72.4 °F	6.53	597	CLEAR	21.0'

Comments: Well Developed AT 5-10 gpm WITH minimal drawdown HNU READINGS ON WATER DISCHARGE INTO BARREL 2ppm

Prepared by: Richard B. WICE

Signature: Richard B. Wice

Date: 6/25/93

INTERNATIONAL TECHNOLOGY CORPORATION

MONITORING WELL DEVELOPMENT RECORD

164010

Project Name: CARSWELL AFB, LF4/5 Project No.: 305895

Well No.: CAR-RW6 Date Developed: 6/26/93

Field Personnel: R. WICE, R.J STEPHAN

Weather Conditions: SUNNY V. HOT 90's, SLIGHT BREEZE S-SW

Well Development Method: SURGE, BAIL, PUMP

Total Well Depth:	32.6 FEET	Time Started:	810
Depth to Water Table:	21.4 FEET	Time Completed:	
Height of Water Column:	11.20 FEET	Notes:	810-840 Surge 844-850 Bailed 50 gallons 854-910 Surge 912-916 Bailed 50 gallons 936-1015 Pumped
Well Diameter:	6 INCHES		
Well Volume:	16.8 Gallons		

PUMPING DATA

Well Volume Removed	Temperature	pH	Specific Conductance	Turbidity	DTW
Initial Reading Bailed 100 Gallons	/	/		TURBID	
150	73.1°F	6.78	474 µS/cm	CLOUDY	21.80'
200	72.5°F	6.82	464	CLEARING	21.60'
250	71.3°F	6.76	470	CLOUDY	21.65
300	73.4°F	6.71	475	CLEARING	21.70
350	73.3°F	6.76	474	SLI CLOUDY	21.75
400	72.2°F	6.84	462	ALMOST CLEAR	21.80'
450	72.2°F	6.82	470	ALMOST CLEAR	21.80'

Comments: WELL DEVELOPED AT 10gpm WITH MINIMAL DRAWDOWN HNU READINGS ON WATER DISCHARGE INTO DRUMS AVERAGED 2ppm, PEAK 3ppm

Prepared by: Richard B. WICE

Signature: Richard B. Wice

Date: 6/26/93

INTERNATIONAL TECHNOLOGY CORPORATION

MONITORING WELL DEVELOPMENT RECORD

164041

Project Name: CARSWELL AFB LF415 Project No.: 305895

Well No.: CAR- RW7 Date Developed: 6/26/93

Field Personnel: R. WICE, B.S. STEPHAN

Weather Conditions: SUNNY, V. HOT 90'S, SLIGHT BREEZE S-SW

Well Development Method: REPEAT SURGING AND BAILING CYCLES AFTER WELL RECOVERY PUMPED AT END TO GET UVA SAMPLE AND CLEAR WATER

Total Well Depth:	33.48 @ 1427 hrs	Time Started:	750
Depth to Water Table:	23.16 @ 1432 hrs	Time Completed:	
Height of Water Column:	10.32 FEET	Notes:	750 - 800 surge, 800-810 Bailed 30 gallons 820 - 855 surge, added water 830 855 - 900 Bailed Total 60 gallons 1435 - 1505 Surge, 1506-1514 Bailed 25 gallons 1514 - 1727 Well recovered DTW 23.18 1727 - 1840 Pumped
Well Diameter:	6 INCHES		
Well Volume:	15.48 GALLONS		

PUMPING DATA

Well Volume Removed	Temperature	pH	Specific Conductance	Turbidity	DTW
Initial Reading BAILED 115 Gallon	✓	✓	✓	TURBID	
130 Gallons	~~No Reading~~ 84°F	7.40	506 µS/cm	CLEAR	23.18'
165 Gallons	No Reading	~~7.40~~ No Reading	No Reading	CLEAR	~~26.0~~
NOTE well pumped					
1-2 gpm					

PUMPED WELL DRY 31.0' 1727 RECOVERED TO DTW 25.50 FEET IN 25 MINUTES 0.2'/MINUTE

Comments: THIS WELL WAS SURGED BAILED OVER SEVERAL CYCLES, 75 ~~50~~ gallons OF WATER WERE ADDED TO FLUSH SCREEN. THE WELL made 1-2 gpm BEFORE going DRY. WHEN BAILED OR PUMPED DOWN WELL ALLOWED TO RECOVERY TO 90% HNU on discharge water 2ppm.

Prepared by: R. WICE

Signature: R. B. W

Date: 6/26/93

INTERNATIONAL TECHNOLOGY CORPORATION

MONITORING WELL DEVELOPMENT RECORD

164042

Project Name: CARSWELL AFB, IE 4/5 Project No.: 305895

Well No.: CAR- RW 8 Date Developed: 6/26/93

Field Personnel: R. WICE, B.J. STEPHAN

Weather Conditions: SUNNY, W. HOT 90's, SLIGHT BREEZE S-SW

Well Development Method: REPEATED SURGING AND BAILING CYCLES AFTER WELL RECOVERY. PUMPED AT END TO GET WQA SAMPLE AND CLEAR WATER

Total Well Depth: 37.0 FEET TOPC	Time Started: 930
Depth to Water Table: 23.0 FEET TOPC	Time Completed: 1707
Height of Water Column: 14.0 FEET	Notes: 930 - 945 SURGING 50
Well Diameter: 6.0 INCHES	1000 - 1030 Bailed 50 gallons
Well Volume: 21.0 Gallons	1030 - ADDED 2 50 gallons water in hole
	1045 - 1100 Surge well
	1105 - 1115 Bailed 15 gallons, 1115-1140 recovery, 1140-1144 Bailed 25 gallons
	1335 - 1345 Surged well, 1345-1400 Bailed 10 gallons
	1502-1515 Surge, 1520-1525 Bailed 25 gallons
	1604-1707 Pumping w Recovery periods

PUMPING DATA

Well Volume Removed	Temperature	pH	Specific Conductance	Turbidity	DTW
Initial Reading Approx 100-125 gallons bailed	/	/	/	TURBID	
Pumped only 146 Gallons	/	/	/	CLOUDY	
recovered 148 gallons	78.1°F	7.07	497 uS/cm	CLEARING	25.0'
184 gallons	79.1°F	7.29	498 uS/cm	CLEAR	27.24
198 gallons	No Reading	No Reading	No Reading	CLEAR	

Comments: WELL SURGED AND BAILED OVER SEVERAL CYCLES, PUMPED 1-2 GPM AND had DRAWDOWN. 50 gallons OF WATER ADDED TO FLUSH screen. HNU Reading discharge water 2ppm

Prepared by: R. WICE

Signature: R. Wice

Date: 6/26/93

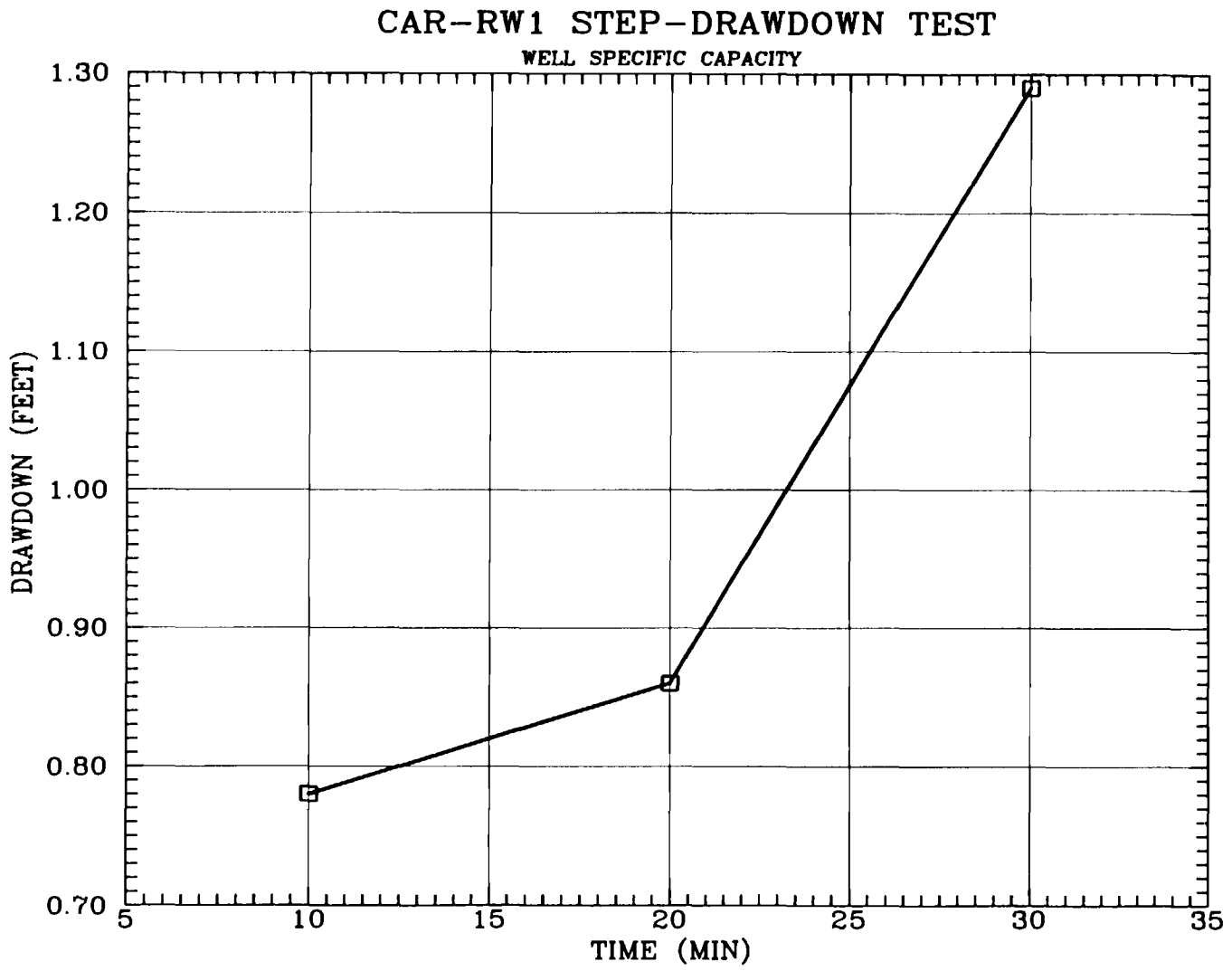
164043

APPENDIX B
STEP-DRAWDOWN TEST DATA

CARSWELL AIR FORCE BASE – LANDFILL 4 AND 5

PROJECT NO. 305895
STEP DRAWDOWN TEST DATA FOR WELL CAR–RW1 TAKEN 5/15/93
FILE: AF_RW–1.WK1
BY WHL 7/15/93
CHKD BY RW 7/15/93

Time (min)	Drawdown (ft)	Comments
0.0	0	STATIC WATER LEVEL = 18.70 FT
1.0	0.60	10 gpm
2.0	0.41	
3.0	0.30	
8.0	0.32	
10.0	0.32	
20.0	0.32	
30.0	0.34	
50.0	0.35	
70.0	0.35	
90.0	0.33	
110.0	0.35	
130.0	0.33	
150.0	0.37	
170.0	0.37	
180.0	0.37	
190.0	0.37	
196.0	0.78	
198.0	0.70	
200.0	0.72	20 gpm
220.0	0.74	
240.0	0.83	
260.0	0.84	
280.0	0.84	
300.0	0.85	
320.0	0.86	
340.0	0.86	
360.0	0.86	30 gpm
366.0	1.20	
367.0	1.20	
368.0	1.20	
369.0	1.20	
370.0	1.20	
380.0	1.23	
400.0	1.25	
420.0	1.25	
440.0	1.27	
460.0	1.28	
480.0	1.29	
520.0	1.29	
530.0	1.29	
540.0	1.29	
550.0	1.29	
560.0	1.29	
580.0	1.29	
590.0	1.29	

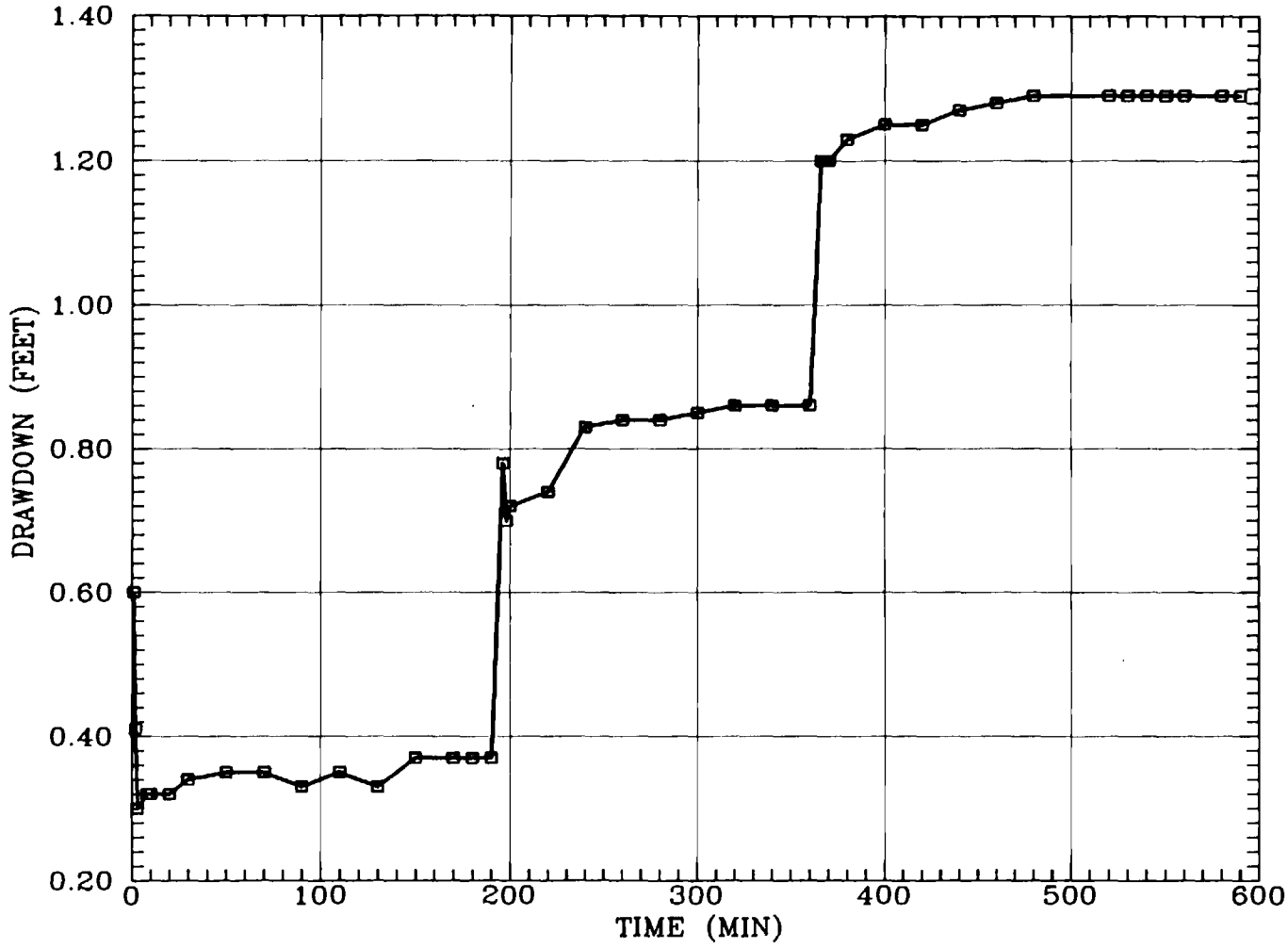


Carswell Air Force Base – Landfill 4 and 5
IT Corporation Project No. 305895

164045

CAR-RW1 STEP-DRAWDOWN TEST

DRAWDOWN VS. TIME



Carswell Air Force Base - Landfill 4 and 5
IT Corporation Project No. 305895

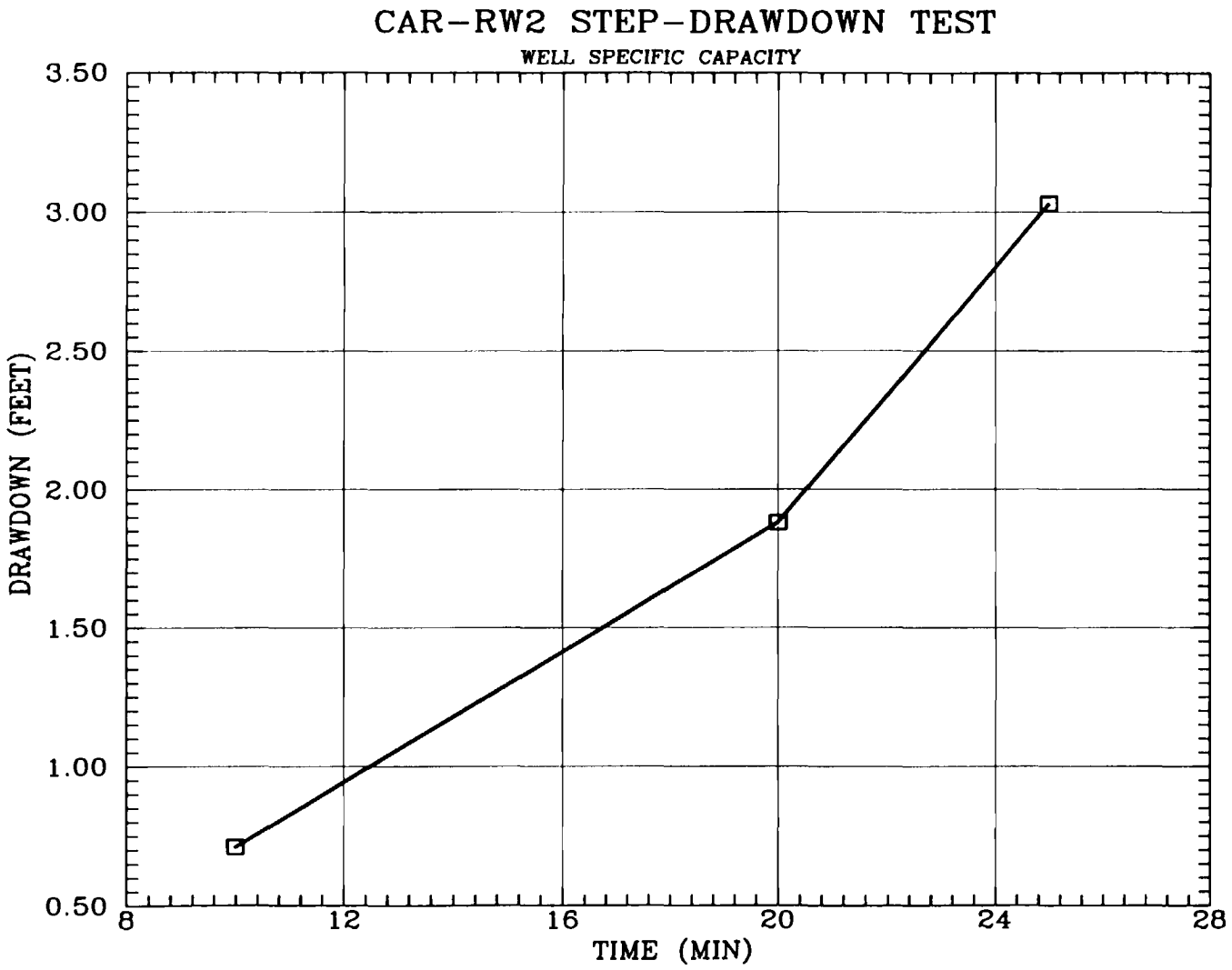
164046

CARSWELL AIR FORCE BASE – LANDFILL 4 AND 5
PROJECT NO. 305895
STEP DRAWDOWN TEST DATA FOR WELL CAR–RW2 TAKEN 5/14/93
FILE: AF_RW–2.WK1
BY WHL 7/14/93
CHKD BY RW 7/15/93

Time (min)	Drawdown (ft)	Comments
0.0	0.0	STATIC WATER LEVEL = 20.36 FT
0.5	0.54	10 gpm
1.0	1.04	
2.0	0.68	
3.0	0.70	
4.0	0.72	
5.0	0.72	
6.0	0.72	
8.0	0.72	
9.0	0.73	
10.0	0.73	
20.0	0.63	
30.0	0.64	
40.0	0.64	
50.0	0.64	
60.0	0.64	
70.0	0.64	
80.0	0.64	
90.0	0.66	
100.0	0.66	
110.0	0.66	
120.0	0.66	
130.0	0.66	
140.0	0.66	
150.0	0.66	
160.0	0.66	
170.0	0.66	
180.0	0.66	
210.0	0.66	Pump failure and replacement; 120 minutes no activity
330.0	0.01	Static water level 20.37; 20 gpm
332.0	0.09	
333.0	1.04	
334.0	1.59	
335.0	1.61	
336.0	1.68	
337.0	1.72	
338.0	1.73	
339.0	1.72	
340.0	1.72	
350.0	1.78	

CARSWELL AIR FORCE BASE – LANDFILL 4 AND 5
PROJECT NO. 305895
STEP DRAWDOWN TEST DATA FOR WELL CAR–RW2 TAKEN 5/14/93
FILE: AF_RW–2.WK1
BY WHL 7/14/93
CHKD BY RW 7/15/93

Time (min)	Drawdown (ft)	Comments
360.0	1.73	
370.0	1.73	
380.0	1.73	
400.0	1.70	
440.0	1.79	
450.0	1.82	
460.0	1.83	
470.0	1.80	
490.0	2.54	25 gpm
500.0	2.65	
600.0	2.89	
610.0	2.91	
630.0	2.88	
640.0	2.92	
650.0	2.95	
660.0	2.95	
670.0	2.98	
680.0	2.98	

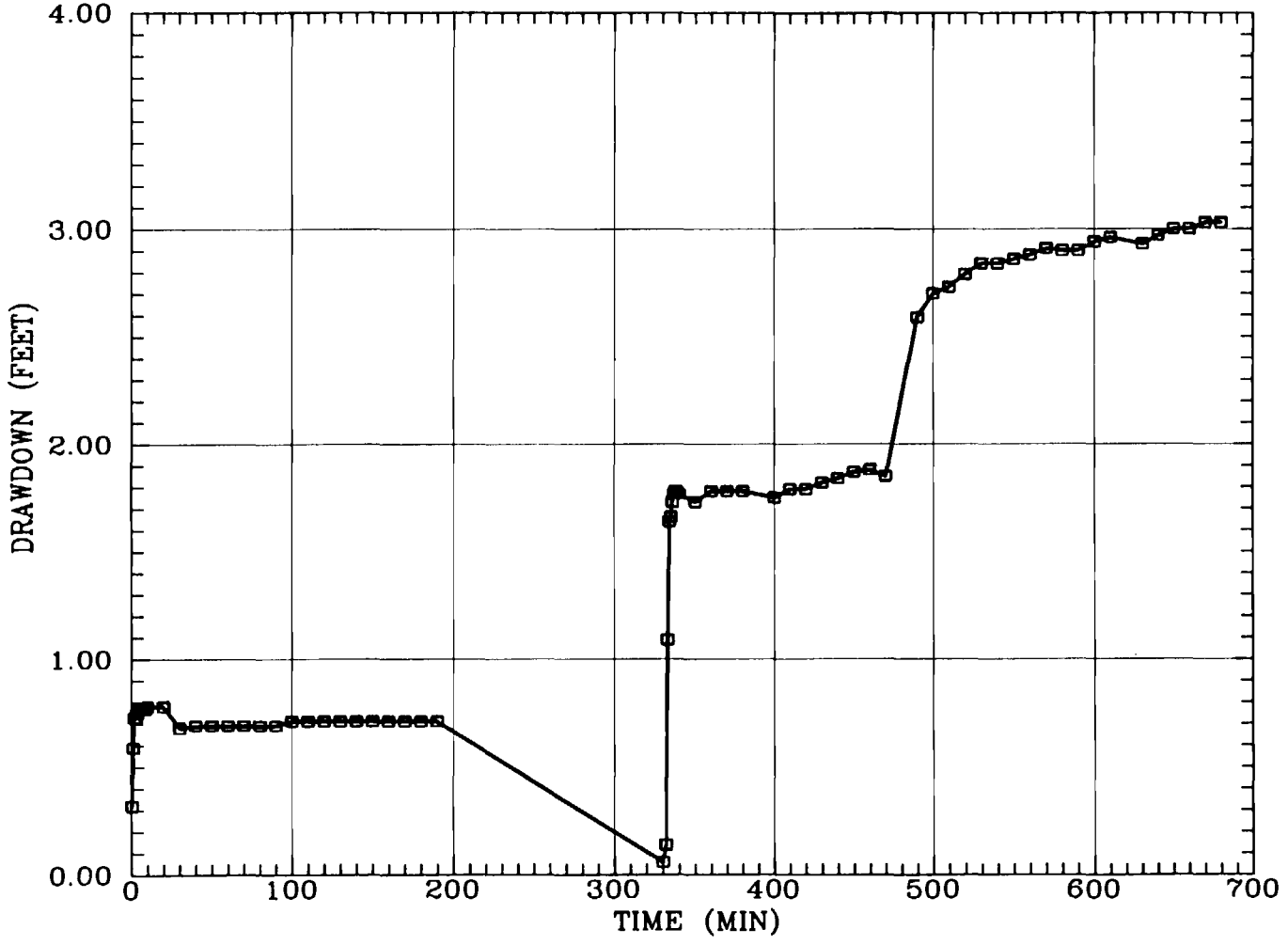


Carswell Air Force Base – Landfill 4 and 5
IT Corporation Project No. 305895

164043

CAR-RW2 STEP-DRAWDOWN TEST

DRAWDOWN VS. TIME



Carswell Air Force Base – Landfill 4 and 5
IT Corporation Project No. 305895

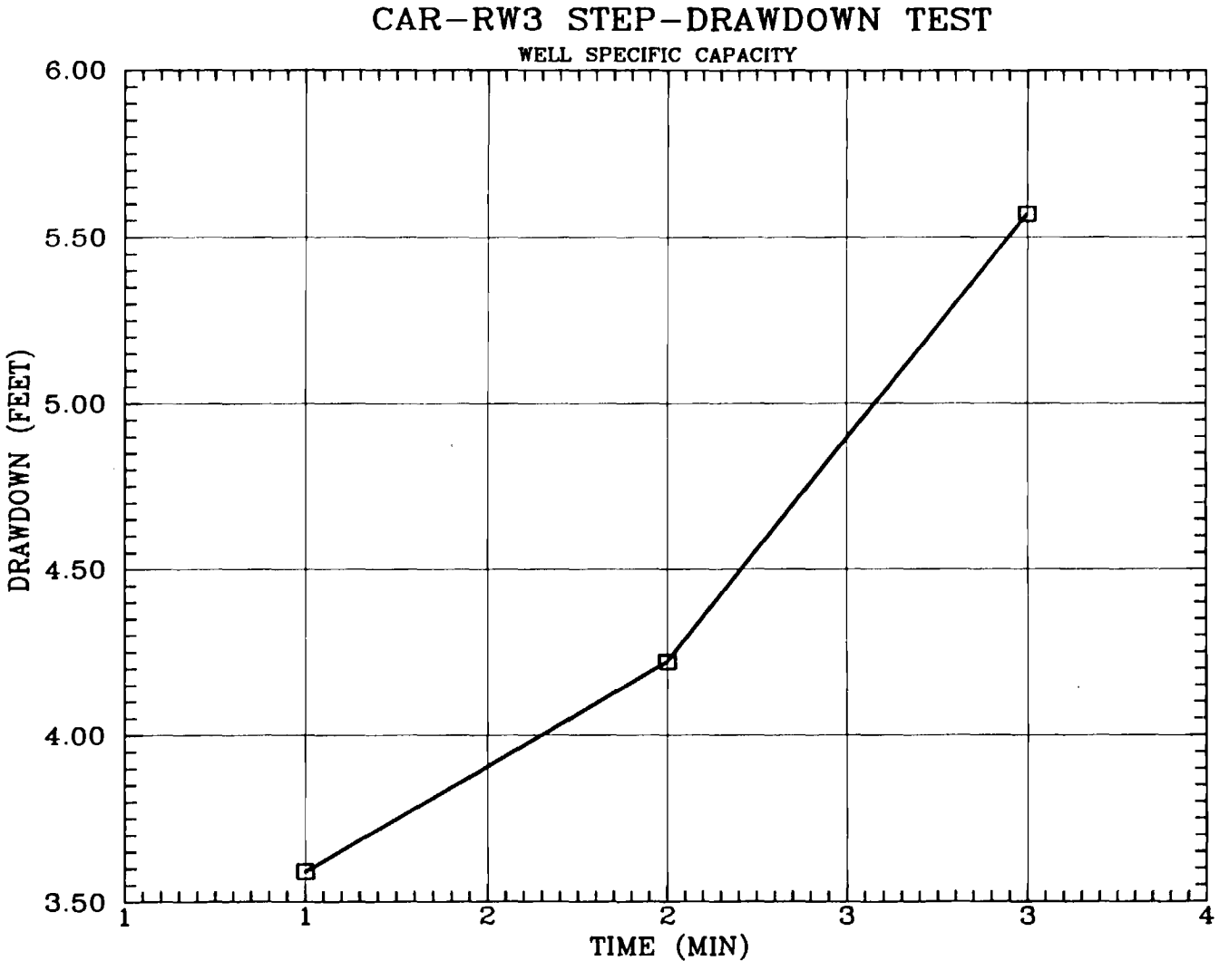
164050

CARSWELL AIR FORCE BASE – LANDFILL 4 AND 5
PROJECT NO. 305895
STEP DRAWDOWN TEST DATA FOR WELL CAR–RW3 TAKEN 5/13/93
FILE: AF_RW–3.WK1
BY WHL 7/14/93
CHKD BY RW 7/15/93

Time (min)	Drawdown (ft)	Comments
0	0	STATIC WATER LEVEL = 15.75 FT
0.5	0.85	1 gpm
1.0	1.00	
1.5	1.00	
2.0	1.03	
2.5	1.00	
3.0	0.90	
3.5	0.86	
4.0	0.85	
5.0	0.83	
6.0	0.87	
7.0	0.88	
8.0	0.90	
9.0	0.90	
10.0	0.91	
15.0	0.95	
20.0	0.95	
25.0	0.95	
30.0	0.99	
40.0	1.15	
41.0	1.75	
42.0	2.11	
43.0	2.25	
45.0	2.37	
46.0	2.46	
47.0	2.52	
48.0	2.60	
51.0	2.80	
53.0	2.84	
55.0	2.93	
60.0	3.01	
65.0	3.07	
70.0	3.15	
75.0	3.19	
85.0	3.25	
90.0	3.27	
100.0	3.34	
110.0	3.42	
120.0	3.45	
140.0	3.55	
150.0	3.55	

CARSWELL AIR FORCE BASE – LANDFILL 4 AND 5
PROJECT NO. 305895
STEP DRAWDOWN TEST DATA FOR WELL CAR–RW3 TAKEN 5/13/93
FILE: AF_RW–3.WK1
BY WHL 7/14/93
CHKD BY RW 7/15/93

Time (min)	Drawdown (ft)	Comments
160.0	3.55	
170.0	3.56	
180.0	3.59	
183.0	4.03	3 gpm
184.0	4.46	
185.0	5.05	
186.0	5.25	
189.0	5.57	
190.0	5.20	
200.0	4.03	2 gpm; Backed down rate
210.0	3.86	so well did not pump dry
220.0	3.83	
230.0	3.83	
240.0	3.85	
260.0	3.90	
270.0	3.90	
280.0	3.92	
290.0	3.92	
300.0	3.95	
310.0	3.95	
320.0	3.95	
330.0	4.00	
340.0	4.02	
350.0	4.07	
360.0	4.10	
370.0	4.19	
380.0	4.19	
390.0	4.22	
400.0	4.22	
410.0	4.22	

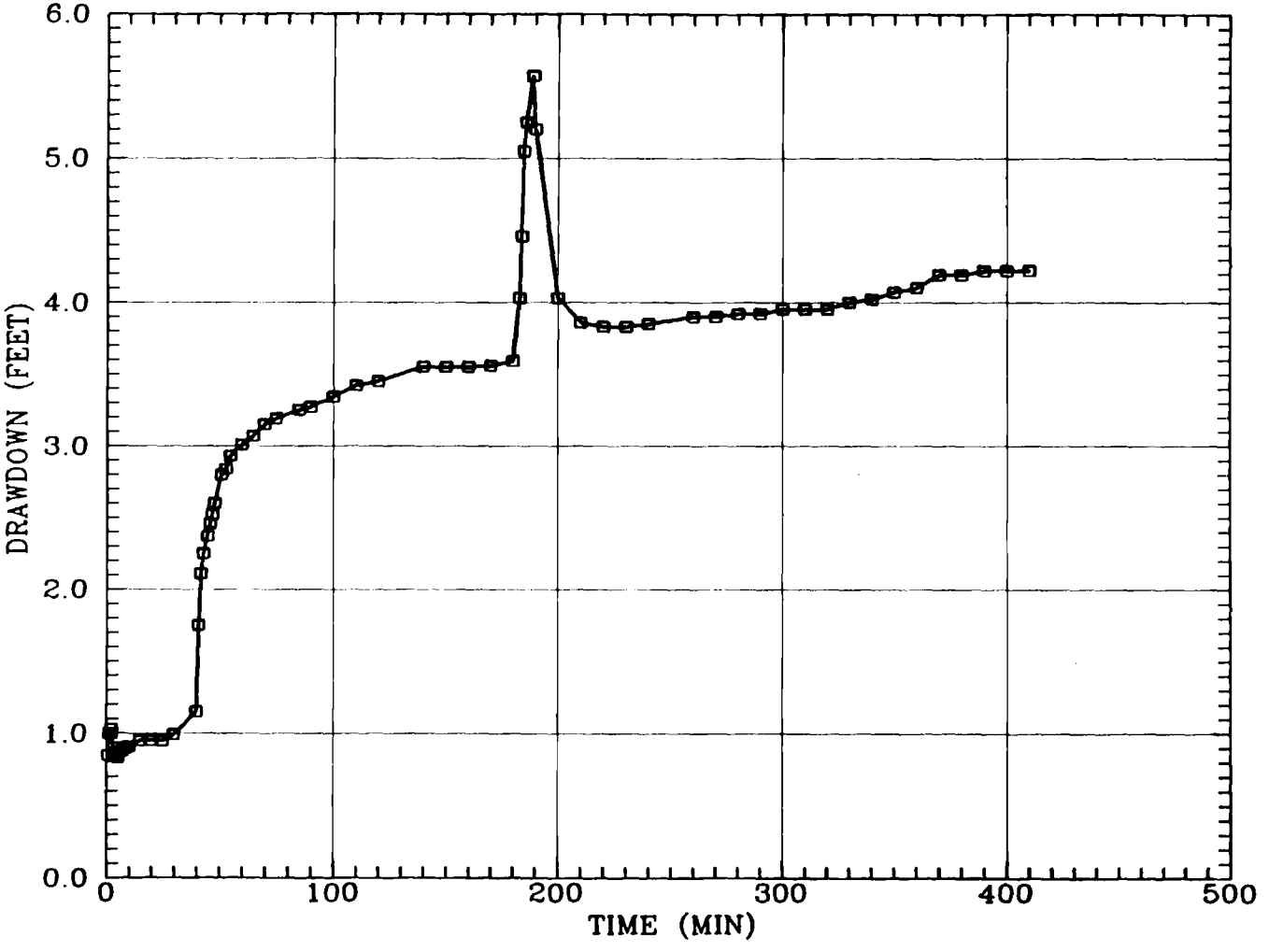


Carswell Air Force Base – Landfill 4 and 5
IT Corporation Project No. 305895

164053

CAR-RW3 SETP-DRAWDOWN TEST

DRAWDOWN VS. TIME



Air Force Plant 4
IT Corporation Project No. 305849

164054

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INTERNATIONAL TECHNOLOGY CORPORATION

DATE	05 11 93
TIME	1 8 0 3
PAGE	1 OF 1
PAGE	0 0 0 0 3
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: Air Force No. 4 LF 4/5 (Cmswell)

SAMPLE NO.: CAR-RW3-1

SAMPLE LOCATION: CAR-RW3

SAMPLE TYPE: Aqueous

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: —

DEPTH OF SAMPLE: —

WEATHER: Partly cloudy, 70's

CONTAINERS USED	AMOUNT COLLECTED
1 l plastic	2
40 ml vial	3

COMMENTS: Groundwater sample collected after well development, prior to step-drawdown test. Well CAR-RW3 purged of 65 gallons prior to sampling (3 well volumes). Sample collected by Teflon bailer; consists of:

Container	Number	Analysis
1 l plastic	1	Gen. Chemistry
1 l plastic	1	Nutrients
40 ml vial	3	VOA

Field Measurements:

Temp = 66.8°

pH = 6.87

Conductivity = 1050 µS/cm

PREPARED BY: J. Sumrok

164056

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ___ OF ___	
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL, VEGETATION, WIPE, SEDIMENT
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR "
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE, 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

FILE C1947

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	05 11 93
TIME	1 7 4 5
PAGE 1 OF 1	
PAGE	0 0 0 0 2
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE NO. 4 LF 4/5 (CARSWELL)

SAMPLE NO.: CAR-RW2-1

SAMPLE LOCATION: CAR-RW2

SAMPLE TYPE: AQUEOUS

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: —

DEPTH OF SAMPLE: —

WEATHER: PARTLY CLOUDY, 70'S

CONTAINERS USED	AMOUNT COLLECTED
1 l PLASTIC	2
40 ml VIAL	3

COMMENTS: GROUNDWATER SAMPLE COLLECTED AFTER WELL DEVELOPMENT PRIOR TO STEP-DRAWDOWN TEST. WELL CAR-RW2 PURGED OF 65 GALLONS PRIOR TO SAMPLING (3 WELL VOLUMES). SAMPLE COLLECTED BY TEFLON BAILER, CONSISTS OF:

CONTAINER	NUMBER	ANALYSIS
1 l PLASTIC	1	GEN. CHEMISTRY
1 l PLASTIC	1	NUTRIENTS
40 ml VIAL	3	VOA

FIELD MEASUREMENTS:

TEMP = 65.8°

pH = 7.07 S.U.

CONDUCTIVITY = 909 µS/cm

PREPARED BY: J. SUMROK

COMMENTS:
(Continued)

DATE
TIME
PAGE ____ OF ____
PAGE
PROJECT NO.

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL, WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION, WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

FILE COPY 164059

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	5	1	1	1	9	3
TIME	1	7	2	0		
PAGE 1 OF 1						
PAGE	0	0	0	0	1	
PROJECT NO. 305845						

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE NO. 4 LF 4/5 (CARSWELL)

SAMPLE NO.: CAR-RW1-1

SAMPLE LOCATION: CAR-RW1

SAMPLE TYPE: AQUEOUS

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: —

DEPTH OF SAMPLE: —

WEATHER: PARTLY CLOUDY, 70'S

CONTAINERS USED	AMOUNT COLLECTED
1 l PLASTIC	2
40 ml VIALS	3

COMMENTS: GROUNDWATER SAMPLE COLLECTED AFTER WELL DEVELOPMENT, PRIOR TO STEP-DRAWDOWN TEST. WELL CAR-RW1 PURGED OF 75 GALLONS PRIOR TO SAMPLING (3 WELL VOLUMES). SAMPLE COLLECTED BY TEFLON BAILER, CONSISTS OF

CONTAINER	NUMBER	ANALYSIS
1 l PLASTIC	1	GEN. CHEMISTRY
1 l PLASTIC	1	NUTRIENTS
40 ml VIAL	3	VOA

FIELD MEASUREMENTS:

TEMP. = 67.2°

pH = 7.14 S.U.

CONDUCTIVITY = 883 µS/cm

PREPARED BY: J. Sumrok

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ___ OF ___	
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION; WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL,COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164061

APPENDIX C
SAMPLE COLLECTION LOGS

164062

FILE COPY

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	051393
TIME	1430
PAGE	1 OF 1
PAGE	00001
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT No.4- LF4/5 (CARSWELL) PHASE I

SAMPLE NO.: CAR - RW3-A

SAMPLE LOCATION: Recovery well

SAMPLE TYPE: WATER

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: ___

DEPTH OF SAMPLE: NOT Applicable

WEATHER: SUNNY, WARM

CONTAINERS USED	AMOUNT COLLECTED
VOC- 3x40ml	120 ml
SEMIVOA 1x2.5L	2.5L
TAL METALS ~~500ml~~ 1L	~~500ml~~ 1L
NITRATE/NITRITE, COD 1L	1L
WATER QUALITY PARAMETERS 1L	1L
TSS 1L	1L
BOD 1x1L	1L

COMMENTS:

AFTER collection ALL Samples were sealed and packed in coolers for shipment to IT Analytical Services
5103 OLD WILLIAM PENN HWY.
Export, PA 15632
Att: CARRIE SMITH ; (412) 731-8806

ALL Samples were pre-preserved and Sample Bottles were not pre-washed in the field

WATER CLARITY : CLEAR
pH : 6.3
TEMPERATURE : 76.9
CONDUCTIVITY : 1,030

GALLONS PRODUCED : 200 GALLONS

PREPARED BY: R. WICE

164063

COMMENTS:
(Continued)

DATE	
TIME	
PAGE 24 OF ____	
PAGE	
PROJECT NO.	

RW

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE, DRUM CONTENTS, OIL, VEGETATION; WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL, 1 - 400 ML PLASTIC, 1 - 3 INCH STEEL TUBE, 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

FILE COPY 164064

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	051393
TIME	1640
PAGE 1 OF 1	
PAGE	00002
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT No.4- LF4/5 (CARSWELL) PHASE I

SAMPLE NO.: CAR- RW3-B

SAMPLE LOCATION: Recovery Well CAR-RW3

SAMPLE TYPE: WATER

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: ___

DEPTH OF SAMPLE: NOT Applicable

WEATHER: SUNNY WARM

CONTAINERS USED	AMOUNT COLLECTED
VOC- 3x40ml	120 ml
SEMIVOA 1x2.5L	2.5L
TAL METALS 1-500ml 1L	500ml 1L
NITRATE/NITRITE/COD 1L	1L
WATER QUALITY PARAMETER 1L	1L
TSS 500 1x1L	1L

COMMENTS:

AFTER COLLECTION ALL SAMPLES WERE SEALED AND PACKED IN COOLERS FOR SHIPMENT TO IT ANALYTICAL SERVICES
5103 OLD WILLIAM PENN HWY.
EXPORT, PA 15632
ATT: CARRIE SMITH ; (412) 731-8806

ALL SAMPLES WERE PRE-PRESERVED AND SAMPLE BOTTLES WERE NOT PRE-WASHED IN THE FIELD

WATER CLARITY : CLEAR
pH : 6.88
TEMPERATURE : 77.6
CONDUCTIVITY : 961

GALLONS PRODUCED:
MAGN 147440
2506 GALLONS

PREPARED BY: R. Wice

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1 A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.

2 ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.

3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.

4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85

5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.

6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.

7 SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.

8. SAMPLE TYPE: USE THE FOLLOWING - SOIL, WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION, WIPE, SEDIMENT.

9 COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.

10 DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".

11 WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.

12 CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).

13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164066

FILE COPY

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	051393
TIME	1735
PAGE	1 OF 1
PAGE	00003
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT NO.4 LF4/5 (CARSWELL) PHASE I

SAMPLE NO.: CAR-RW~~8~~-~~8~~

SAMPLE LOCATION: RECOVERY WELL CAR-RW~~8~~1

SAMPLE TYPE: WATER

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: N/A

DEPTH OF SAMPLE: N/A

WEATHER: SUNNY WARM

CONTAINERS USED	AMOUNT COLLECTED
BOD - 1L	1L
TSS 1L	1L

COMMENTS:

THESE SAMPLES WERE COLLECTED SINCE THE HOLDING TIME WOULD BE EXCEEDED IF BOD AND TSS WERE COLLECTED DURING PUMP TEST. PRIOR TO SAMPLING 3 WELL VOLUMES WERE PURGED

SAMPLES WERE SEALED AND PACKED FOR SHIPMENT TO:

IT ANALYTICAL SERVICES
5103 OLD WILLIAM PENN HWY.
EXPORT, PA 15632
ATTN: CARRIE SMITH

PREPARED BY: R. Wice

164067

COMMENTS: (Continued)

DATE	
TIME	
PAGE RW OF	
PAGE	
PROJECT NO.	

RW

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION, WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR "
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - 1L GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC, 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164063

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	051393
TIME	1810
PAGE	1 OF 1
PAGE	00004
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT NO.4, LF415 (CARSWELL) PHASE I

SAMPLE NO.: CAR-RW2

SAMPLE LOCATION: Recovery well CAR-RW2

SAMPLE TYPE: WATER

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: N/A

DEPTH OF SAMPLE: N/A

WEATHER: Sunny warm

CONTAINERS USED	AMOUNT COLLECTED
BOD 1L	1L
TSS 1L	1L

COMMENTS:

THIS SAMPLE WAS COLLECTED SINCE THE HOLDING TIME WOULD BE EXCEEDED IF BOD AND TSS WERE COLLECTED DURING STEP DRAWDOWN TESTS.
PRIOR TO SAMPLING 3 well VOLUMES WERE PURGED

SAMPLES WERE SEALED AND PACKED FOR SHIPMENT TO:

IT ANALYTICAL SERVICES
5103 OLD WILLIAM PENN HWY.
EXPORT, PA 15632
ATTN: CARRIE SMITH

PREPARED BY: R. WICE

164063

COMMENTS:
(Continued)

DATE	
TIME	
PAGE 2 OF ____	
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET, DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

FILE COPY 164070

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	05 13 93
TIME	1840
PAGE	1 OF 1
PAGE	00005
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT No.4- LF4/5 (CARSWELL) PHASE I

SAMPLE NO.: CAR- RW 3-C

SAMPLE LOCATION: RECOVERY WELL RW3

SAMPLE TYPE: WATER

COMPOSITE: ____ YES X NO

COMPOSITE TYPE: ____

DEPTH OF SAMPLE: NOT Applicable

WEATHER: SUNNY WARM

CONTAINERS USED	AMOUNT COLLECTED
VOC- 3x40ml	120 ml
SEMIVOA 1x2.5L	2.5L
TAL METALS 1-~~500ml~~/1L	~~500ml~~ 1L
NITRATE/NITRITE/COD 1L	1L
WATER QUALITY PARAMETERS 1L	1L
TSS	1L
BOD 1x1L	1L

COMMENTS:

AFTER COLLECTION ALL SAMPLES WERE SEALED AND PACKED IN COOLERS FOR SHIPMENT TO IT ANALYTICAL SERVICES
5103 OLD WILLIAM PENN HWY.
EXPORT, PA 15632
ATT: CARRIE SMITH ; (412) 731-8806

ALL SAMPLES WERE PRE-PRESERVED AND SAMPLE BOTTLES WERE NOT PRE-WASHED IN THE FIELD

WATER CLARITY :
pH : 6.81
TEMPERATURE : 73.9
CONDUCTIVITY : 1013

GALLONS PRODUCED :
6836 GALLONS

PREPARED BY: R. WICE

COMMENTS:
(Continued)

DATE	
TIME	
PAGE	OF
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME. USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS OIL, VEGETATION; WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE. GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL, 1 - 400 ML PLASTIC, 1 - 3 INCH STEEL TUBE, 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164072

FILE COPY

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	051493
TIME	1200
PAGE	1 OF 1
PAGE	00006
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT No.4- LF4/5 (CARSWELL) PHASE I

SAMPLE NO.: CAR-RW2-A

SAMPLE LOCATION: Recovery well CAR-RW2

SAMPLE TYPE: WATER

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: N/A

DEPTH OF SAMPLE: NOT Applicable

WEATHER: SUNNY WARM

CONTAINERS USED	AMOUNT COLLECTED
VOC- 3x40ml	120 ml
SEMIVOA 1x2.5L	2.5L
TAL METALS 1-~~500ml~~/1L	~~500ml~~ 1L
NITRATE/NITRITE/COD 1L	1L
WATER QUALITY PARAMETERS 1L	1L
~~TSS 1L~~	~~1L~~
~~BOD 1L~~	~~1L~~

COMMENTS:

AFTER COLLECTION ALL SAMPLES WERE SEALED AND PACKED IN COOLERS FOR SHIPMENT TO IT ANALYTICAL SERVICES
5103 OLD WILLIAM PENN HWY.
EXPORT, PA 15632
ATT: CARRIE SMITH ; (412) 731-8806

ALL SAMPLES WERE PRE-PRESERVED AND SAMPLE BOTTLES WERE NOT PRE-WASHED IN THE FIELD

WATER CLARITY : CLEAR
pH : 7.03
TEMPERATURE : 75.8
CONDUCTIVITY : 870

GALLONS PRODUCED : 1900 GALLONS

PREPARED BY: R. Wice

164073

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ___ OF ___	
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED. IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION; WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164074

FILE COPY

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	051493
TIME	1200
PAGE	1 OF 1
PAGE	00007
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT No.4- LF4/5 (CARWell) PHASE I

SAMPLE NO.: CAR-RW2-A-D

SAMPLE LOCATION: Recovery well RW2

SAMPLE TYPE: WATER

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: N/A

DEPTH OF SAMPLE: NOT Applicable

WEATHER: Sunny warm

CONTAINERS USED	AMOUNT COLLECTED
VOC- 3x40ml	120 ml
SEMIVOA 1x2.5L	2.5L
TAL METALS 1-~~500ml~~ 1L	~~500ml~~ 1L
NITRATE/NITRITE/COD 1L	1L
WATER QUALITY PARAMETERS 1L	1L
~~500 mL~~	~~1L~~

COMMENTS:

AFTER COLLECTION ALL SAMPLES WERE SEALED AND PACKED IN COOLERS FOR SHIPMENT TO IT ANALYTICAL SERVICES
5103 OLD WILLIAM PENN HWY.
EXPORT, PA 15632
ATT: CARRIE SMITH ; (412) 731-8806

ALL SAMPLES WERE PRE-PRESERVED AND SAMPLE BOTTLES WERE NOT PRE-WASHED IN THE FIELD.

WATER CLARITY : CLEAR
pH : 7.03
TEMPERATURE : 75.8
CONDUCTIVITY : 870

GALLONS PRODUCED : 1900 GALLONS

THIS IS A DUPLICATE SAMPLE

PREPARED BY: R. WICE

164075

COMMENTS: (Continued)

DATE	
TIME	
PAGE	OF
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION; WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - 1L GLASS; 4 - 40 ML GLASS VIAL, 1 - 400 ML PLASTIC, 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164076
E-3

INTERNATIONAL TECHNOLOGY CORPORATION

FILE COPY

DATE	05/14/93
TIME	1200
PAGE 1 OF 1	
PAGE	00008
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT NO.4 - LF415 (CARSWELL) PHASE I

SAMPLE NO.: CAR-RW2-A-T

SAMPLE LOCATION: RECOVERY WELL CAR-RW2

SAMPLE TYPE: WATER

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: N/A

DEPTH OF SAMPLE: N/A

WEATHER: SUNNY WARM

CONTAINERS USED	AMOUNT COLLECTED
VOC 3x40ml	120ml
SEMIVOA 1x2.5L	2.5L
METALS 1L	1L
NITRATE/NITRITE/COD	1L
WATER QUALITY 1L	1L

COMMENTS:

THIS SAMPLE WAS COLLECTED AS A QA TRIPLICATE SAMPLE
IT WAS HAND DELIVERED AFTER COLLECTION TO THE US ARMY CORPS OF ENGINEERS SOUTHWEST DIVISION LABORATORY AT CARS BLVD IN DALLAS TEXAS
DELIVERY TIME WAS 1420

A USACE C-O-C / DFA FORM WAS USED
SAMPLE COLLECTION SAME AS DUPLICATE

WATER CLARITY: CLEAR
pH 7.03
TEMPERATURE 75.8
CONDUCTIVITY 870

GALLONS PRODUCED 1900

PREPARED BY: R. WICE

164677

COMMENTS: (Continued)

DATE	
TIME	
PAGE	OF
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - 1L GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164073

INTERNATIONAL TECHNOLOGY CORPORATION

FILE COPY

DATE	051493
TIME	1520 RW
PAGE	1 OF 1
PAGE	00009
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT NO.4, LF415 (CARSWELL)

SAMPLE NO.: CAR-RW2-B

SAMPLE LOCATION: RECOVERY WELL CAR-RW2

SAMPLE TYPE: WATER

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: N/A

DEPTH OF SAMPLE: N/A

WEATHER: SUNNY HOT

CONTAINERS USED	AMOUNT COLLECTED
VOC - 3x40ml	120ml
SEMIVOA 1x2.5L	2.5L
TAL metals 1L	1L
NITRITE/NITRATE COD 1L	1L
WATER QUALITY	1L

COMMENTS: AFTER COLLECTION ALL SAMPLES WERE SEALED AND PACKED IN COOLERS FOR SHIPMENT TO:

IT ANALYTICAL SERVICES
5103 OLD WILLIAM PENN HWY.
EXPORT, PA 15632
ATT CARRIE SMITH

SAMPLES WERE PRE-PRESERVED, SAMPLE BOTTLES WERE NOT PRELABELED IN THE FIELD

WATER CLARITY: CLEAR
pH 7.20
Temperature 76.5
Conductivity 885

GALLONS PRODUCED: 4892

PREPARED BY: R. Wice

COMMENTS:
(Continued)

DATE	
TIME	
PAGE	OF ____
PAGE	
PROJECT NO.	

RW

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164080

FILE COPY

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	051493
TIME	1830
PAGE 1 OF 1	
PAGE	00010
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT No. 4, LF4/5 (CARSWELL)

SAMPLE NO.: CAR-RW2-C

SAMPLE LOCATION: Recovery well CAR-RW2

SAMPLE TYPE: WATER

COMPOSITE: ____ YES X NO

COMPOSITE TYPE: N/A

DEPTH OF SAMPLE: N/A

WEATHER: SUNNY HOT

CONTAINERS USED	AMOUNT COLLECTED
VOC 3x40ml	120ml
SEMIVOA 1x2.5L	2.5L
TOT METALS 1L	1L
NITRATE/NITRITE/COD 1L	1L
WATER QUALITY	1L

COMMENTS: After collection the samples were sealed and packed in ice in coolers for shipment to:

IT Analytical Services
5103 Old William Penn Hwy.
Export, PA 15632
Att: Carrie Smith

Sample containers were preservered in laboratory

WATER CLARITY: CLEAR
pH: 7.05
Temperature: 73.9
Conductivity: 860

Gallons produced: 9642

PREPARED BY: R. Wice

164081

COMMENTS: (Continued)

DATE	
TIME	
PAGE	OF
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
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8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION, WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - 1L GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164086

INTERNATIONAL TECHNOLOGY CORPORATION

FILE COPY

DATE	051593
TIME	1050
PAGE 1 OF 1	
PAGE	00011
PROJECT NO. 305895	

SAMPLE COLLECTION LOG

PROJECT NAME: AIR FORCE PLANT NO.4, LF415 (CARSWELL)

SAMPLE NO.: CAR-RW1-A

SAMPLE LOCATION: RECOVERY WELL CAR-RW1

SAMPLE TYPE: AQUEOUS

COMPOSITE: ____ YES X NO

COMPOSITE TYPE: N/A

DEPTH OF SAMPLE: N/A

WEATHER: SUNNY HOT

CONTAINERS USED	AMOUNT COLLECTED
VOC - 3x40ml	120 ml
SEMIVOA 1x2.5L	2.5L
METALS 1L	1L
NITRITE/NITRATE	1L
WATER QUALITY	1L

COMMENTS: AFTER COLLECTION ALL SAMPLES WERE SEALED AND PACKED IN COOLERS FOR SHIPMENT TO:

IT ANALYTICAL SERVICES
5103 WILLIAM PENN HWY.
EXPORT, PA 15632
ATT: CARRIE SMITH

SAMPLES CONTAINERS WERE PRE-PRESERVED IN THE LABORATORY. CONTAINERS WERE NOT PRESERVED BEFORE COLLECTION IN FIELD.

WATER CLARITY: CLEAR
pH: 7.15
TEMPERATURE: 72.5
CONDUCTIVITY: 845

SAMPLES KEPT COLD UNTIL SHIPMENT ON 5/17/93

Gallons Produced: 1800

PREPARED BY: R. WICE

COMMENTS:
(Continued)

DATE	
TIME	
PAGE	OF
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION; WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC, 1 - 3 INCH STEEL TUBE, 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164087 3

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	051593
TIME	1345
PAGE 1 OF 1	
PAGE	0001 2
PROJECT NO. 305895	

SAMPLE COLLECTION LOG

PROJECT NAME AIR FORCE PLANT NO.4, LF 415 (CARSWELL)

SAMPLE NO. CAR-RW1-B

SAMPLE LOCATION Recovery well CAR-RW1

SAMPLE TYPE Aqueous

COMPOSITE ___ YES X NO

COMPOSITE TYPE N/A

DEPTH OF SAMPLE N/A

WEATHER Sunny very HOT

CONTAINERS USED	AMOUNT COLLECTED
VOC 3x40ml	120ml
SemiVOA 2L	2L
METALS 1L	1L
NITRITE/NITRATE/COD	1L
WATER QUALITY	1L

COMMENTS: After collection all samples were sealed and packed in coolers for shipment to:

IT Analytical Services
5103 William Penn Hwy
Export, PA 15632
Att Carrie Smith

Samples containers were pre-preserved in the laboratory. Sample containers were not worked in the field.

Water Clarity: Clear
pH: 7.03
Conductivity 853
Temperature 75.0

Samples kept cold until shipment on 5/17/93

Gallons produced: 5400

PREPARED BY: R. Wice

COMMENTS: (Continued)

DATE	
TIME	
PAGE	OF
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
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8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

FILE COPY 164086

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	05 15 93
TIME	1740
PAGE	1 OF 1
PAGE	00013
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME: Air Force Plant No. 4, LF415 (Carswell)

SAMPLE NO.: CAR-RW1-C

SAMPLE LOCATION: Recovery well CAR-RW1

SAMPLE TYPE: ~~Reco~~ Aqueous

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: N/A

DEPTH OF SAMPLE: N/A

WEATHER: Sunny very Hot

CONTAINERS USED	AMOUNT COLLECTED
VOC 3x40ml	120ml
SEMIVOA 4x2.5L	2.5L
METALS 1L	1L
NITRATE/NITRITE/COD	1L
WATER QUALITY	1L

COMMENTS: After collection all samples were sealed and packed in coolers for shipment to:

IT Analytical Services
5103 Old William Penn Hwy.
Export, PA 15632

Sample containers were pre-preserved in laboratory.
Sample bottles were NOT prewashed in the field

Water Clarity: Clear
pH: 7.06
Temperature: 75.0
Conductivity 864
Gallons produced: 12,600

Samples were kept cold until shipment on 5/17/93

PREPARED BY: R. Wire

164087

COMMENTS: (Continued)

DATE	
TIME	
PAGE	OF ____
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
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8. SAMPLE TYPE: USE THE FOLLOWING - SOIL, WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION; WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC, 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164088

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	0 6 2 5 9 3
TIME	1 6 4 0
PAGE 1 OF 1	
PAGE	0 0 0 0 1
PROJECT NO. 305895	

SAMPLE COLLECTION LOG

PROJECT NAME CARSWELL AIR FORCE BASE LANDFILL 4/5 PHASE II

SAMPLE NO. CAR-RW5

SAMPLE LOCATION Recovery well CAR-RW5

SAMPLE TYPE AQUEOUS - GW

COMPOSITE ____ YES X NO

COMPOSITE TYPE N/A

DEPTH OF SAMPLE N/A

WEATHER Sunny, Hot 90's

CONTAINERS USED	AMOUNT COLLECTED
VOC 2x80ml (METHOD 8240)	160ml

COMMENTS:

SAMPLES WERE collected AT THE END OF Recovery well DEVELOPMENT SAMPLE CONTAINERS PREPESERVED in LABORATORY WITH HCL. NO FIELD WASHING OF SAMPLE BOTTLES.

SAMPLES collected AND SENT TO IT ANALYTICAL SERVICES → ITAS
5307 INDUSTRIAL OAKS BLVD.
SUITE 100
AUSTIN, TX 78735
ATT: KARMEN DEAN

WATER CLARITY : CLEAR
pH : 6.53
TEMPERATURE : 72.4
CONDUCTIVITY : 653
APPROX QUANTITY WATER
produced : 100 gallons bailed, 200 gallons pumped
300 gallons

PREPARED BY: [signature]

164089

COMMENTS:
(Continued)

DATE	
TIME	
PAGE	2 OF ___
PAGE	
PROJECT NO.	

PREPARED BY: R Wice

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION; WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC, 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164090

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	06 26 93
TIME	1015
PAGE 1 OF 1	
PAGE	00002
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME CARSWELL AIR FORCE BASE LANDFILL 4/5 PHASE II

SAMPLE NO. CAR-RW6

SAMPLE LOCATION RECOVERY WELL CAR-RW6

SAMPLE TYPE AQUEOUS - GW

COMPOSITE ____ YES X NO

COMPOSITE TYPE N/A

DEPTH OF SAMPLE N/A

WEATHER SUNNY, V. HOT 90's

CONTAINERS USED	AMOUNT COLLECTED
VOC 2 x 80ml	160 ml

COMMENTS:

SAMPLES WERE COLLECTED AT THE END OF RECOVERY WELL DEVELOPMENT. SAMPLE CONTAINERS PREPERED IN LABORATORY WITH HCL. NO FIELD WASHING OF SAMPLE BOTTLES.

SAMPLES COLLECTED AND SENT TO IT ANALYTICAL SERVICES → ITAS
5307 INDUSTRIAL OAKS BLVD.
SUITE 100
AUSTIN, TX 78735
ATT: KATHEN DEAN

WATER CLARITY : CLEAR
pH : 6.82
TEMPERATURE : 72.2°F
CONDUCTIVITY : 470 µS/cm
APPROX QUANTITY WATER PRODUCED : 450 Gallons

PREPARED BY: R. Wice

164091

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ___ OF ___	
PAGE	
PROJECT NO.	

PREPARED BY: R WICE

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED. IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/86
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL, VEGETATION; WIPE; SEDIMENT
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - 1L GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164092

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	06 26 93
TIME	1 4 0 2
PAGE	1 OF 1
PAGE	0 0 0 0 3
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME CARSWELL AIR FORCE BASE LANDFILL 4/5 PHASE II

SAMPLE NO. CAR-RW4

SAMPLE LOCATION Recovery well CAR-RW4

SAMPLE TYPE AQUEOUS - GW

COMPOSITE ____ YES X NO

COMPOSITE TYPE ____

DEPTH OF SAMPLE ____

WEATHER ____

CONTAINERS USED	AMOUNT COLLECTED
VOC 2x80ml	160ml

COMMENTS:

SAMPLES WERE COLLECTED AT THE END OF RECOVERY WELL DEVELOPMENT. SAMPLE CONTAINERS PREPERED IN LABORATORY W/ INT HCL. NO FIELD WASHING OF SAMPLE BOTTLES.

SAMPLES COLLECTED AND SENT TO IT ANALYTICAL SERVICES → ITAS
5307 INDUSTRIAL OAKS BLVD.
SUITE 100
AUSTIN, TX 78735
ATT: KARMEN DEAN

WATER CLARITY :
pH : 6.95
TEMPERATURE : 74.3
CONDUCTIVITY : 511 µS/cm
APPROX QUANTITY WATER PRODUCED : 400 Gallons BAILED AND PUMPED

PREPARED BY: R. Wice

COMMENTS:
(Continued)

DATE	
TIME	
PAGE	OF
PAGE	
PROJECT NO.	

PREPARED BY: R. Wice

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL, VEGETATION; WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164094

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	062693
TIME	1700
PAGE	1 OF 1
PAGE	00004
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME CARSWELL AIR FORCE BASE LANDFILL 4/5 PHASE II

SAMPLE NO. CAR-RW8

SAMPLE LOCATION Recovery well CAR-RW8

SAMPLE TYPE AQUEOUS - GW

COMPOSITE ____ YES X NO

COMPOSITE TYPE N/A

DEPTH OF SAMPLE N/A

WEATHER Sunny v. hot 90's

CONTAINERS USED	AMOUNT COLLECTED
VOC 2x80ml	160ml

COMMENTS:

SAMPLES WERE COLLECTED AT THE END OF RECOVERY WELL DEVELOPMENT. SAMPLE CONTAINERS PREPESERVED IN LABORATORY WITH HCL. NO FIELD WASHING OF SAMPLE BOTTLES.

SAMPLES COLLECTED AND SENT TO IT ANALYTICAL SERVICES → ITAS
5307 INDUSTRIAL OAKS BLVD.
SUITE 100
AUSTIN, TX 78735
ATT: KARMEN DEAN

WATER CLARITY:
pH : 7.29
TEMPERATURE : 79.1°F
CONDUCTIVITY : 498 µS/cm
APPROX QUANTITY WATER PRODUCED : 184 GALLONS

PREPARED BY: _____

COMMENTS:
(Continued)

DATE	
TIME	
PAGE	OF
PAGE	
PROJECT NO.	

PREPARED BY: R. WICE

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED. IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - 1L GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164096

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	062693
TIME	1820
PAGE	1 OF 1
PAGE	00005
PROJECT NO.	305895

SAMPLE COLLECTION LOG

PROJECT NAME CARSWELL AIR FORCE BASE LANDFILL 4/5 PHASE II

SAMPLE NO. CAR-RW7

SAMPLE LOCATION RECOVERY WELL CAR-RW7

SAMPLE TYPE AQUEOUS - GW

COMPOSITE ____ YES X NO

COMPOSITE TYPE N/A

DEPTH OF SAMPLE N/A

WEATHER SUNNY HOT 90's

CONTAINERS USED	AMOUNT COLLECTED
VOC 2x80ml	160ml

COMMENTS:

SAMPLES WERE COLLECTED AT THE END OF RECOVERY WELL DEVELOPMENT. SAMPLE CONTAINERS PREPERVED IN LABORATORY WITH HCL. NO FIELD WASHING OF SAMPLE BOTTLES.

SAMPLES COLLECTED AND SENT TO IT ANALYTICAL SERVICES → ITAS
5307 INDUSTRIAL OAKS BLVD.
SUITE 100
AUSTIN, TX 78735
ATT: KARMEN DEAN

WATER CLARITY : CLEAR
pH : 7.40
TEMPERATURE : 80.4°F HOT
CONDUCTIVITY : 5706 uS/cm
APPROX QUANTITY WATER PRODUCED : ~~[illegible]~~ 130 GALLONS BAILED AND PUMPED

PREPARED BY: [signature]

164097

COMMENTS:
(Continued)

DATE	
TIME	
PAGE	OF
PAGE	
PROJECT NO.	

PREPARED BY: R Wick

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
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8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION; WIPE, SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - 1L GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC, 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

164093

APPENDIX D

CERTIFICATES OF ANALYSIS AND CHAIN OF CUSTODY FORMS

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

164099

CERTIFICATE OF ANALYSIS

IT Corporation/Carswell
2790 Mosside Boulevard
Monroeville, PA 15146
Attn: Vic Dozzi

June 1, 1993

Job Number: Q305128

The Certificate of Analysis is for the following:

Client Project ID:	305895
Date Received by Lab:	05/12/93
Number of Samples:	Four
Sample Type:	Water

1.0 Introduction

On May 12, 1993, four water samples were received at ITAS Pittsburgh, labeled as follows:

CAR-TB1-1
CAR-RW1-1
CAR-RW2-1
CAR-RW3-1

2.0 Analytical Results/Methodology

Results are presented in the enclosed tables and were determined in accordance with Methods 310.1 and 410.2, Methods for the Chemical Analysis of Water and Waste, EPA, 600/4-79-020, 1983 revision; Quick Chem Method No. 10-107-04-1-C, LACHAT Instruments; Method 8240, referenced in Test Methods for Evaluating Solid Waste, EPA SW-846, 3rd ed., 1986.

Results are based on sample concentration and expressed in milligrams per liter or parts per million and micrograms per liter or parts per billion. ND denotes that the compound is not detected at or above the indicated detection limit.

Volatiles

Samples CAR-RW3-1, CAR-RW3-1 Matrix Spike, and CAR-RW3-1 Matrix Spike Duplicate were all analyzed at a dilution. Samples CAR-RW1-1 and CAR-RW2-1 were initially analyzed undiluted then analyzed at a dilution due to certain compounds being above calibration. Both sets of results have been included.

Reviewed and Approved: Carrie L. Smith

Carrie L. Smith, Project Manager

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

3.0 Quality Control

QA/QC information can be found immediately following the analytical data.

IT Corporation/Carswell
06/01/93

164191

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

General Chemistry Analysis

Client Sample ID: CAR-RW1-1
Sample Date: 05/11/93
Lab Sample ID: Q30512801
Analysis Date: 05/13, 17, 25/93

Parameter	Concentration mg/L
Alkalinity	370
Chemical Oxygen Demand	10
Nitrate/Nitrite	0.8

Client Sample ID: CAR-RW2-1
Sample Date: 05/11/93
Lab Sample ID: Q30512802
Analysis Date: 05/13, 17, 25/93

Parameter	Concentration mg/L
Alkalinity	330
Chemical Oxygen Demand	8
Nitrate/Nitrite	1.6

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

General Chemistry Analysis

Client Sample ID: CAR-RW3-1
Sample Date: 05/11/93
Lab Sample ID: Q30512803
Analysis Date: 05/13, 17, 25/93

Parameter	Concentration mg/L	Matrix Spike Percent Recovery
Alkalinity	410/400	91%
Chemical Oxygen Demand	13/13	110%
Nitrate/Nitrite	0.3/0.3	90%

Lab Sample ID: Method Blank
Analysis Date: 05/13, 17, 25/93

Parameter	Concentration mg/L
Alkalinity	2
Chemical Oxygen Demand	ND5
Nitrate/Nitrite	ND0.2

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

Volatile Organic Compounds

Client Sample ID: CAR-RW1-1
Sample Date: 05/11/93
Lab Sample ID: Q30512801
Analysis Date: 05/18/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	810*
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	390*	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Method Blank 1	
Toluene-d_8	98%
Bromofluorobenzene	87%
1,2-Dichloroethane-d_4	94%

*Above calibration.

Volatile Organic Compounds

Client Sample ID: CAR-RW1-1 Dilution
Sample Date: 05/11/93
Lab Sample ID: Q30512801
Analysis Date: 05/18/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND50	cis-1,3-Dichloropropene	ND25
Bromomethane	ND50	Trichloroethene	580
Vinyl chloride	ND50	Dibromochloromethane	ND25
Chloroethane	ND50	1,1,2-Trichloroethane	ND25
Methylene chloride	ND25	Benzene	ND25
Acetone	ND500	trans-1,3-Dichloropropene	ND25
Carbon disulfide	ND25	2-Chloroethylvinylether	ND50
1,1-Dichloroethene	ND25	Bromoform	ND25
1,1-Dichloroethane	ND25	4-Methyl-2-pentanone	ND250
1,2-Dichloroethene (total)	310	2-Hexanone	ND250
Chloroform	ND25	Tetrachloroethene	ND25
1,2-Dichloroethane	ND25	1,1,2,2-Tetrachloroethane	ND25
2-Butanone	ND500	Toluene	ND25
1,1,1-Trichloroethane	ND25	Chlorobenzene	ND25
Carbon tetrachloride	ND25	Ethylbenzene	ND25
Vinyl acetate	ND250	Styrene	ND25
Bromodichloromethane	ND25	Xylenes (total)	ND25
1,2-Dichloropropane	ND25		

	Surrogate Spike Percent Recovery
Method Blank 1	
Toluene-d_8	102%
Bromofluorobenzene	99%
1,2-Dichloroethane-d_4	104%

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

Volatile Organic Compounds

Client Sample ID: CAR-RW2-1
Sample Date: 05/11/93
Lab Sample ID: Q30512802
Analysis Date: 05/18/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND50	cis-1,3-Dichloropropene	ND25
Bromomethane	ND50	Trichloroethene	4100*
Vinyl chloride	ND50	Dibromochloromethane	ND25
Chloroethane	ND50	1,1,2-Trichloroethane	ND25
Methylene chloride	ND25	Benzene	ND25
Acetone	ND500	trans-1,3-Dichloropropene	ND25
Carbon disulfide	ND25	2-Chloroethylvinylether	ND50
1,1-Dichloroethene	ND25	Bromoform	ND25
1,1-Dichloroethane	ND25	4-Methyl-2-pentanone	ND250
1,2-Dichloroethene (total)	350	2-Hexanone	ND250
Chloroform	ND25	Tetrachloroethene	ND25
1,2-Dichloroethane	ND25	1,1,2,2-Tetrachloroethane	ND25
2-Butanone	ND500	Toluene	ND25
1,1,1-Trichloroethane	ND25	Chlorobenzene	ND25
Carbon tetrachloride	ND25	Ethylbenzene	ND25
Vinyl acetate	ND250	Styrene	ND25
Bromodichloromethane	ND25	Xylenes (total)	ND25
1,2-Dichloropropane	ND25		

	Surrogate Spike Percent Recovery
Method Blank 1	
Toluene-d_8	101%
Bromofluorobenzene	94%
1,2-Dichloroethane-d_4	107%

*Above calibration.

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

Volatile Organic Compounds

Client Sample ID: CAR-RW2-1 Dilution
Sample Date: 05/11/93
Lab Sample ID: Q30512802
Analysis Date: 05/18/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND250	cis-1,3-Dichloropropene	ND120
Bromomethane	ND250	Trichloroethene	3400
Vinyl chloride	ND250	Dibromochloromethane	ND120
Chloroethane	ND250	1,1,2-Trichloroethane	ND120
Methylene chloride	ND120	Benzene	ND120
Acetone	ND2500	trans-1,3-Dichloropropene	ND120
Carbon disulfide	ND120	2-Chloroethylvinylether	ND250
1,1-Dichloroethene	ND120	Bromoform	ND120
1,1-Dichloroethane	ND120	4-Methyl-2-pentanone	ND1200
1,2-Dichloroethene (total)	340	2-Hexanone	ND1200
Chloroform	ND120	Tetrachloroethene	ND120
1,2-Dichloroethane	ND120	1,1,2,2-Tetrachloroethane	ND120
2-Butanone	ND2500	Toluene	ND120
1,1,1-Trichloroethane	ND120	Chlorobenzene	ND120
Carbon tetrachloride	ND120	Ethylbenzene	ND120
Vinyl acetate	ND1200	Styrene	ND120
Bromodichloromethane	ND120	Xylenes (total)	ND120
1,2-Dichloropropane	ND120		

	Surrogate Spike Percent Recovery
Method Blank 1	
Toluene-d_8	101%
Bromofluorobenzene	95%
1,2-Dichloroethane-d_4	105%

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

Volatile Organic Compounds

Client Sample ID: CAR-RW3-1
Sample Date: 05/11/93
Lab Sample ID: Q30512803
Analysis Date: 05/18/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND100	cis-1,3-Dichloropropene	ND50
Bromomethane	ND100	Trichloroethene	1400
Vinyl chloride	ND100	Dibromochloromethane	ND50
Chloroethane	ND100	1,1,2-Trichloroethane	ND50
Methylene chloride	ND50	Benzene	ND50
Acetone	ND1000	trans-1,3-Dichloropropene	ND50
Carbon disulfide	ND50	2-Chloroethylvinylether	ND100
1,1-Dichloroethene	ND50	Bromoform	ND50
1,1-Dichloroethane	ND50	4-Methyl-2-pentanone	ND500
1,2-Dichloroethene (total)	410	2-Hexanone	ND500
Chloroform	ND50	Tetrachloroethene	ND50
1,2-Dichloroethane	ND50	1,1,2,2-Tetrachloroethane	ND50
2-Butanone	ND1000	Toluene	ND50
1,1,1-Trichloroethane	ND50	Chlorobenzene	ND50
Carbon tetrachloride	ND50	Ethylbenzene	ND50
Vinyl acetate	ND500	Styrene	ND50
Bromodichloromethane	ND50	Xylenes (total)	ND50
1,2-Dichloropropane	ND50		

	Surrogate Spike Percent Recovery
Method Blank 1	
Toluene-d_8	103%
Bromofluorobenzene	96%
1,2-Dichloroethane-d_4	101%

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

Volatile Organic Compounds

Client Sample ID: CAR-RW3-1 Matrix Spike
Sample Date: 05/11/93
Lab Sample ID: Q30512805
Analysis Date: 05/19/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND100	cis-1,3-Dichloropropene	ND50
Bromomethane	ND100	Trichloroethene	ND50
Vinyl chloride	ND100	Dibromochloromethane	ND50
Chloroethane	ND100	1,1,2-Trichloroethane	ND50
Methylene chloride	ND50	Benzene	ND50
Acetone	ND1000	trans-1,3-Dichloropropene	ND50
Carbon disulfide	ND50	2-Chloroethylvinylether	ND100
1,1-Dichloroethene	ND50	Bromoform	ND50
1,1-Dichloroethane	ND50	4-Methyl-2-pentanone	ND500
1,2-Dichloroethene (total)	470	2-Hexanone	ND500
Chloroform	ND50	Tetrachloroethene	ND50
1,2-Dichloroethane	ND50	1,1,2,2-Tetrachloroethane	ND50
2-Butanone	ND1000	Toluene	ND50
1,1,1-Trichloroethane	ND50	Chlorobenzene	ND50
Carbon tetrachloride	ND50	Ethylbenzene	ND50
Vinyl acetate	ND500	Styrene	ND50
Bromodichloromethane	ND50	Xylenes (total)	ND50
1,2-Dichloropropane	ND50		

	Surrogate Spike Percent Recovery
Method Blank 2	
Toluene-d_8	101%
Bromofluorobenzene	93%
1,2-Dichloroethane-d_4	102%

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

Volatile Organic Compounds

Client Sample ID: CAR-RW3-1 Matrix Spike Duplicate
Sample Date: 05/11/93
Lab Sample ID: Q30512804
Analysis Date: 05/19/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND100	cis-1,3-Dichloropropene	ND50
Bromomethane	ND100	Trichloroethene	ND50
Vinyl chloride	ND100	Dibromochloromethane	ND50
Chloroethane	ND100	1,1,2-Trichloroethane	ND50
Methylene chloride	ND50	Benzene	ND50
Acetone	ND1000	trans-1,3-Dichloropropene	ND50
Carbon disulfide	ND50	2-Chloroethylvinylether	ND100
1,1-Dichloroethene	ND50	Bromoform	ND50
1,1-Dichloroethane	ND50	4-Methyl-2-pentanone	ND500
1,2-Dichloroethene (total)	540	2-Hexanone	ND500
Chloroform	ND50	Tetrachloroethene	ND50
1,2-Dichloroethane	ND50	1,1,2,2-Tetrachloroethane	ND50
2-Butanone	ND1000	Toluene	ND50
1,1,1-Trichloroethane	ND50	Chlorobenzene	ND50
Carbon tetrachloride	ND50	Ethylbenzene	ND50
Vinyl acetate	ND500	Styrene	ND50
Bromodichloromethane	ND50	Xylenes (total)	ND50
1,2-Dichloropropane	ND50		

	Surrogate Spike Percent Recovery
Method Blank 2	
Toluene-d_8	100%
Bromofluorobenzene	96%
1,2-Dichloroethane-d_4	97%

Volatile Organic Compounds

Client Sample ID: CAR-TB1-1
Sample Date: 05/11/93
Lab Sample ID: Q30512806
Analysis Date: 05/18/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Method Blank 1	
Toluene-d_8	104%
Bromofluorobenzene	97%
1,2-Dichloroethane-d_4	104%

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

Volatile Organic Compounds

Lab Sample ID: Method Blank 1
Analysis Date: 05/18/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Toluene-d_8	98%
Bromofluorobenzene	89%
1,2-Dichloroethane-d_4	103%

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

Volatile Organic Compounds

Lab Sample ID: Method Blank 2
Analysis Date: 05/18/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Toluene-d_8	108%
Bromofluorobenzene	101%
1,2-Dichloroethane-d_4	97%

IT Corporation/Carswell
06/01/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305128

Volatile Matrix Spike Percent Recovery

Client Sample ID: CAR-RW3-1

Compound	Matrix Spike Percent Recovery
1,1-Dichloroethene	131%/127%
Trichloroethene	84%/74%
Benzene	99%/107%
Toluene	101%/109%
Chlorobenzene	101%/110%

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 3461
Page 1 of ___

Project Name/No. [1] Air Force No. 4 LF 4/5 (Caswell) 305895
Sample Team Members [2] J. Sumrok
Profit Center No. [3] 3811
Project Manager [4] Vic Dozzi
Purchase Order No. [6]
Required Report Date [11]

Samples Shipment Date [7] 5/11/93
Lab Destination [8] IT - Export, PA.
Lab Contact [9] Carrie Smith
Project Contact/Phone [12]
Carrier/Waybill No. [13]

Bill to: [5] AS PER ECPO
Report to: [10] Vic Dozzi

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
CAR-RW1-1	Groundwater Sample From RW1	5/11/93 1720	1 l Plastic	1 l	None	~~Gen. Chemistry~~ alkalinity	OK	
CAR-RW-1	Groundwater Sample From RW1	5/11/93 1720	1 l Plastic	1 l	H_2SO_4	~~Nutrients~~ NO3/NO2/COD		
CAR-RW-1	Groundwater Sample From RW1	5/11/93 1720	40 ml Vial	(3) 40 ml Vials	HCl	VOA		
CAR-RW2-1	Groundwater, RW2	5/11/93 1745	1 l Plastic	1 l	None	~~Gen. Chemistry~~ alkalinity		
CAR-RW2-1	Groundwater, RW2	5/11/93 1745	1 l Plastic	1 l	~~None~~ H_2SO_4	~~Nutrients~~ NO3/NO2/COD		
CAR-RW2-1	Groundwater, RW2	5/11/93 1745	40 ml Vial	(3) 40 ml Vials	HCl	VOA		
CAR-RW3-1	Groundwater, RW3	5/11/93 1803	1 l Plastic	1 l	None	~~Gen. Chemistry~~ alkalinity		
CAR-RW3-1	Groundwater, RW3	5/11/93 1803	1 l Plastic	1 l	H_2SO_4	~~Nutrients~~ NO3/NO2/COD		

FOR LAB USE ONLY

FOR LAB USE ONLY

Special Instructions: [23] Any questions, call Rick Wice 214-535-1845

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☒ Archive ____ (mos

Turnaround Time Required: [26]
Normal ☒ Rush ☒

QC Level: [27]
I. ☐ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) [signature] / ITCorp.	Date: 5/11/93 Time: 1920	1. Received by [28] (Signature/Affiliation) FED-EX AIRBILL #6841218882	Date: 5/11/93 Time: 1920
2. Relinquished by (Signature/Affiliation) Fed Ex	Date: 05/12/93 Time: 0925	2. Received by (Signature/Affiliation) Glenn A. Peterson	Date: 05/12/93 Time: 0925
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29] Potential TCE Hazard; 3000-4000 ppb

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 3461

Project Name Air Force No.4 LF4/5 (Carswell) Project No. 305895 Samples Shipment Date 5/11/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
CAR-RW3-1	GROUNDWATER, RW3	5/11/93 1803	40 ml VIAL	(3) 40ml VIALS	HCl	VOA	OK	
CAR-TB-1	TRIP BLANK	—	40 ml VIAL	(3) 40ml VIALS	HCl	VOA	FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	

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MCA 3/15/9

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INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation/Carswell
2790 Mosside Boulevard
Monroeville, PA 15146
Attn: Vic Dozzi

June 7, 1993

Job Number: Q305159/197/227 Revised

The Certificate of Analysis is for the following:

Client Project ID:	305895
Date Received by Lab:	05/14, 15, 18/93
Number of Samples:	Sixteen
Sample Type:	Water

1.0 Introduction

On May 14, 15, and 18, 1993, sixteen water samples were received at ITAS Pittsburgh, labeled as follows:

CAR-RW1	CAR-RW1-TB1	CAR-RW2-B	CAR-RW3-A
CAR-RW1-A	CAR-RW2	CAR-RW2-C	CAR-RW3-B
CAR-RW1-B	CAR-RW2-A	CAR-RW2-TB1	CAR-RW3-C
CAR-RW1-C	CAR-RW2-A-D	CAR-RW2-TB2	CAR-RW3-TB1

2.0 Analytical Results/Methodology

Results are presented in the enclosed tables and were determined in accordance with Methods 160.1, 160.2, 310.1, 325.2, 375.2, and 410.2, Methods for the Chemical Analysis of Water and Waste, EPA, 600/4-79-020, 1983 revision; Methods 209E and 507, Standard Methods for the Examination of Water and Wastewater, American Public Health Association, 16th ed., 1985; Quick Chem Method No. 10-107-04-1-C, LACHAT Instruments; Method 3010, 6010, 7060, 7740, 8240, and 8270 referenced in Test Methods for Evaluating Solid Waste, EPA SW-846, 3rd ed., 1986.

Results are based on sample concentration and expressed in milligrams per liter or parts per million and micrograms per liter or parts per billion. ND denotes that the compound is not detected at or above the indicated detection limit.

Reviewed and Approved: Carrie L. Smith

Carrie L. Smith, Project Manager

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

2.0 Analytical Results/Methodology (Continued)

General Chemistry

The DO depletion did not reach 2 as stated in Method 507.

Volatiles

Sample CAR-RW3-C was initially analyzed undiluted. Total 1,2-dichloroethene and trichloroethene exceeded calibration limit. The sample was then analyzed at a dilution. Both sets of data have been included.

The recovery of trichloroethene in sample CAR-RW3-A matrix spike was below QC limits due to the high concentration of trichloroethene in the sample. The RPD for this sample was acceptable.

The following samples were diluted due to the level of trichloroethene present: CAR-RW1-A, CAR-RW2-A, CAR-RW2-A-D, CAR-RW2-C, CAR-RW3-A, CAR-RW1-B, CAR-RW2-B, CAR-RW3-B, and CAR-RW1-C.

Semivolatiles

*Sample CAR-RW2-A-D had a surrogate outside the QC limits. This sample has been reextracted and is enclosed. The reextract was performed past the holding time. Both sets of data have been reported. Bis(2-ethylhexyl)phthalate was found in both the blank and the reextract.

1,4-Dichlorobenzene had matrix spike and matrix spike duplicate recoveries in the acceptable range; however, the RPD was outside the limits. Also, 4-nitrophenol had recoveries for matrix spike and matrix spike duplicate outside the QC limits, confirming matrix interference.

The matrix spike and matrix spike duplicates were extracted at less volume due to the limited amount of samples submitted.

3.0 Quality Control

QA/QC information can be found immediately following the analytical data.

Note: This report has been revised to show the additional metals requested June 3, 1993 from Rick Wice. The samples affected are CAR-RW3-C, CAR-RW2-C, and CAR-RW1-C.

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

General Chemistry Analysis

Client Sample ID: CAR-RW1
Sample Date: 05/13/93
Lab Sample ID: Q30515906
Analysis Date: 05/14/93

Parameter	Concentration mg/L
BOD	ND2*
Settlable Solids	18

Client Sample ID: CAR-RW1-A
Sample Date: 05/15/93
Lab Sample ID: Q30522701
Analysis Date: 05/18, 19, 20, 24/93

Parameter	Concentration mg/L
Alkalinity	340
Chemical Oxygen Demand	ND5
Chloride	25
Nitrate/Nitrite	0.8
Sulfate	48
Total Dissolved Solids	490
Total Suspended Solids	ND4

*The DO depletion did not reach 2 as per Method 507.

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

General Chemistry Analysis

Client Sample ID: CAR-RW1-B
Sample Date: 05/15/93
Lab Sample ID: Q30522702
Analysis Date: 05/18, 19, 20, 24/93

Parameter	Concentration mg/L
Alkalinity	350
Chemical Oxygen Demand	ND5
Chloride	25
Nitrate/Nitrite	0.8
Sulfate	48
Total Dissolved Solids	490
Total Suspended Solids	ND4

Client Sample ID: CAR-RW1-C
Sample Date: 05/15/93
Lab Sample ID: Q30522703
Analysis Date: 05/18, 19, 20, 24/93

Parameter	Concentration mg/L
Alkalinity	350
Chemical Oxygen Demand	ND5
Chloride	25
Nitrate/Nitrite	0.9
Sulfate	49
Total Dissolved Solids	490
Total Suspended Solids	ND4

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

General Chemistry Analysis

Client Sample ID: CAR-RW2
Sample Date: 05/13/93
Lab Sample ID: Q30515907
Analysis Date: 05/14/93

Parameter	Concentration mg/L
BOD	ND2*
Settlable Solids	0.2

Client Sample ID: CAR-RW2-A
Sample Date: 05/14/93
Lab Sample ID: Q30519701
Analysis Date: 05/18, 19, 20/93

Parameter	Concentration mg/L
Alkalinity	350
Chemical Oxygen Demand	ND5
Chloride	28
Nitrate/Nitrite	1.9
Sulfate	70
Total Dissolved Solids	510
Total Suspended Solids	ND4

*The DO depletion did not reach 2 as per Method 507.

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

General Chemistry Analysis

Client Sample ID: CAR-RW2-A-D
Sample Date: 05/14/93
Lab Sample ID: Q30519704
Analysis Date: 05/18, 19, 20/93

Parameter	Concentration mg/L
Alkalinity	360
Chemical Oxygen Demand	5
Chloride	29
Nitrate/Nitrite	1.9
Sulfate	59
Total Dissolved Solids	500
Total Suspended Solids	ND4

Client Sample ID: CAR-RW2-B
Sample Date: 05/14/93
Lab Sample ID: Q30519702
Analysis Date: 05/18, 19, 20/93

Parameter	Concentration mg/L
Alkalinity	340
Chemical Oxygen Demand	ND5
Chloride	29
Nitrate/Nitrite	1.9
Sulfate	68
Total Dissolved Solids	500
Total Suspended Solids	ND4

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

General Chemistry Analysis

Client Sample ID: CAR-RW2-C
Sample Date: 05/14/93
Lab Sample ID: Q30519703
Analysis Date: 05/18, 19, 20/93

Parameter	Concentration mg/L
Alkalinity	340
Chemical Oxygen Demand	ND5
Chloride	29
Nitrate/Nitrite	1.9
Sulfate	54
Total Dissolved Solids	510
Total Suspended Solids	ND4

Client Sample ID: CAR-RW3-A
Sample Date: 05/13/93
Lab Sample ID: Q30515901
Analysis Date: 05/14, 17, and 19/93

Parameter	Concentration mg/L	Matrix Spike Percent Recovery
Alkalinity	400/410	95%
BOD	ND2*/ND2*	--
Chemical Oxygen Demand	5/6	114%
Chloride	50/50	88%
Nitrate/Nitrite	0.3/0.3	96%
Settlable Solids	ND1	--
Sulfate	49/49	105%
Total Dissolved Solids	580/580	--
Total Suspended Solids	ND4/ND4	--

*The DO depletion did not reach 2 as per Method 507.

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

General Chemistry Analysis

Client Sample ID: CAR-RW3-B
Sample Date: 05/13/93
Lab Sample ID: Q30515904
Analysis Date: 05/14, 17, and 19/93

Parameter	Concentration mg/L
Alkalinity	410
BOD	ND2*
Chemical Oxygen Demand	12
Chloride	50
Nitrate/Nitrite	0.3
Settlable Solids	ND1
Sulfate	49
Total Dissolved Solids	590
Total Suspended Solids	ND4

Client Sample ID: CAR-RW3-C
Sample Date: 05/13/93
Lab Sample ID: Q30515905
Analysis Date: 05/14, 17, and 19/93

Parameter	Concentration mg/L
Alkalinity	400
BOD	ND2*
Chemical Oxygen Demand	8
Chloride	50
Nitrate/Nitrite	0.3
Settlable Solids	ND1
Sulfate	48
Total Dissolved Solids	580
Total Suspended Solids	ND4

*The DO depletion did not reach 2 as per Method 507.

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

General Chemistry Analysis

Lab Sample ID: Method Blank
Analysis Date: 05/14, 17, 19/93

Parameter	Concentration mg/L
Alkalinity	2
BOD	ND2*
Chemical Oxygen Demand	ND5
Chloride	ND1
Nitrate/Nitrite	ND0.2
Settlable Solids	ND1
Sulfate	ND2
Total Dissolved Solids	ND10
Total Suspended Solids	ND4

Lab Sample ID: Method Blank
Analysis Date: 05/18, 20/93

Parameter	Concentration mg/L
Alkalinity	1
Nitrate/Nitrite	ND0.2
Total Dissolved Solids	ND10
Total Suspended Solids	ND4

*The DO depletion did not reach 2 as per Method 507.

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

General Chemistry Analysis

Lab Sample ID: Method Blank
Analysis Date: 05/24/93

Parameter	Concentration mg/L
Total Dissolved Solids	ND10
Total Suspended Solids	ND4

Volatile Organic Compounds

Client Sample ID: CAR-RW1-A
Sample Date: 05/15/93
Lab Sample ID: Q30522701
Analysis Date: 05/29/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND50	cis-1,3-Dichloropropene	ND25
Bromomethane	ND50	Trichloroethene	960
Vinyl chloride	ND50	Dibromochloromethane	ND25
Chloroethane	ND50	1,1,2-Trichloroethane	ND25
Methylene chloride	ND25	Benzene	ND25
Acetone	ND500	trans-1,3-Dichloropropene	ND25
Carbon disulfide	ND25	2-Chloroethylvinylether	ND50
1,1-Dichloroethene	ND25	Bromoform	ND25
1,1-Dichloroethane	ND25	4-Methyl-2-pentanone	ND250
1,2-Dichloroethene (total)	600	2-Hexanone	ND250
Chloroform	ND25	Tetrachloroethene	ND25
1,2-Dichloroethane	ND25	1,1,2,2-Tetrachloroethane	ND25
2-Butanone	ND500	Toluene	ND25
1,1,1-Trichloroethane	ND25	Chlorobenzene	ND25
Carbon tetrachloride	ND25	Ethylbenzene	ND25
Vinyl acetate	ND250	Styrene	ND25
Bromodichloromethane	ND25	Xylenes (total)	ND25
1,2-Dichloropropane	ND25		

	Surrogate Spike Percent Recovery
Method Blank 4	
Toluene-d_8	100%
Bromofluorobenzene	92%
1,2-Dichloroethane-d_4	97%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Volatile Organic Compounds

Client Sample ID: CAR-RW1-B
Sample Date: 05/15/93
Lab Sample ID: Q30522702
Analysis Date: 05/29/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND50	cis-1,3-Dichloropropene	ND25
Bromomethane	ND50	Trichloroethene	980
Vinyl chloride	ND50	Dibromochloromethane	ND25
Chloroethane	ND50	1,1,2-Trichloroethane	ND25
Methylene chloride	ND25	Benzene	ND25
Acetone	ND500	trans-1,3-Dichloropropene	ND25
Carbon disulfide	ND25	2-Chloroethylvinylether	ND50
1,1-Dichloroethene	ND25	Bromoform	ND25
1,1-Dichloroethane	ND25	4-Methyl-2-pentanone	ND250
1,2-Dichloroethene (total)	520	2-Hexanone	ND250
Chloroform	ND25	Tetrachloroethene	ND25
1,2-Dichloroethane	ND25	1,1,2,2-Tetrachloroethane	ND25
2-Butanone	ND500	Toluene	ND25
1,1,1-Trichloroethane	ND25	Chlorobenzene	ND25
Carbon tetrachloride	ND25	Ethylbenzene	ND25
Vinyl acetate	ND250	Styrene	ND25
Bromodichloromethane	ND25	Xylenes (total)	ND25
1,2-Dichloropropane	ND25		

	Surrogate Spike Percent Recovery
Method Blank 4	
Toluene-d_8	101%
Bromofluorobenzene	92%
1,2-Dichloroethane-d_4	92%

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Volatile Organic Compounds

Client Sample ID: CAR-RW1-C
Sample Date: 05/15/93
Lab Sample ID: Q30522703
Analysis Date: 05/29/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND70	cis-1,3-Dichloropropene	ND35
Bromomethane	ND70	Trichloroethene	930
Vinyl chloride	ND70	Dibromochloromethane	ND35
Chloroethane	ND70	1,1,2-Trichloroethane	ND35
Methylene chloride	ND35	Benzene	ND35
Acetone	ND700	trans-1,3-Dichloropropene	ND35
Carbon disulfide	ND35	2-Chloroethylvinylether	ND70
1,1-Dichloroethene	ND35	Bromoform	ND35
1,1-Dichloroethane	ND35	4-Methyl-2-pentanone	ND350
1,2-Dichloroethene (total)	490	2-Hexanone	ND350
Chloroform	ND35	Tetrachloroethene	ND35
1,2-Dichloroethane	ND35	1,1,2,2-Tetrachloroethane	ND35
2-Butanone	ND700	Toluene	ND35
1,1,1-Trichloroethane	ND35	Chlorobenzene	ND35
Carbon tetrachloride	ND35	Ethylbenzene	ND35
Vinyl acetate	ND350	Styrene	ND35
Bromodichloromethane	ND35	Xylenes (total)	ND35
1,2-Dichloropropane	ND35		

	Surrogate Spike Percent Recovery
Method Blank 4	
Toluene-d_8	99%
Bromofluorobenzene	88%
1,2-Dichloroethane-d_4	86%

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Volatile Organic Compounds

Client Sample ID: CAR-RW1-TB1
Sample Date: 05/15/93
Lab Sample ID: Q30522704
Analysis Date: 05/29/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Method Blank 4	
Toluene-d_8	103%
Bromofluorobenzene	92%
1,2-Dichloroethane-d_4	91%

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IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Volatile Organic Compounds

Client Sample ID: CAR-RW2-A
Sample Date: 05/14/93
Lab Sample ID: Q30519701
Analysis Date: 05/28/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND250	cis-1,3-Dichloropropene	ND120
Bromomethane	ND250	Trichloroethene	4600
Vinyl chloride	ND250	Dibromochloromethane	ND120
Chloroethane	ND250	1,1,2-Trichloroethane	ND120
Methylene chloride	ND120	Benzene	ND120
Acetone	ND2500	trans-1,3-Dichloropropene	ND120
Carbon disulfide	ND120	2-Chloroethylvinylether	ND250
1,1-Dichloroethene	ND120	Bromoform	ND120
1,1-Dichloroethane	ND120	4-Methyl-2-pentanone	ND1200
1,2-Dichloroethene (total)	420	2-Hexanone	ND1200
Chloroform	ND120	Tetrachloroethene	ND120
1,2-Dichloroethane	ND120	1,1,2,2-Tetrachloroethane	ND120
2-Butanone	ND2500	Toluene	ND120
1,1,1-Trichloroethane	ND120	Chlorobenzene	ND120
Carbon tetrachloride	ND120	Ethylbenzene	ND120
Vinyl acetate	ND1200	Styrene	ND120
Bromodichloromethane	ND120	Xylenes (total)	ND120
1,2-Dichloropropane	ND120		

Surrogate Spike
Percent Recovery

Method Blank 3

Toluene-d_8	110%
Bromofluorobenzene	104%
1,2-Dichloroethane-d_4	92%

Volatile Organic Compounds

Client Sample ID: CAR-RW2-A-D
Sample Date: 05/14/93
Lab Sample ID: Q30519704
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND250	cis-1,3-Dichloropropene	ND120
Bromomethane	ND250	Trichloroethene	3900
Vinyl chloride	ND250	Dibromochloromethane	ND120
Chloroethane	ND250	1,1,2-Trichloroethane	ND120
Methylene chloride	ND120	Benzene	ND120
Acetone	ND2500	trans-1,3-Dichloropropene	ND120
Carbon disulfide	ND120	2-Chloroethylvinylether	ND250
1,1-Dichloroethene	ND120	Bromoform	ND120
1,1-Dichloroethane	ND120	4-Methyl-2-pentanone	ND1200
1,2-Dichloroethene (total)	440	2-Hexanone	ND1200
Chloroform	ND120	Tetrachloroethene	ND120
1,2-Dichloroethane	ND120	1,1,2,2-Tetrachloroethane	ND120
2-Butanone	ND2500	Toluene	ND120
1,1,1-Trichloroethane	ND120	Chlorobenzene	ND120
Carbon tetrachloride	ND120	Ethylbenzene	ND120
Vinyl acetate	ND1200	Styrene	ND120
Bromodichloromethane	ND120	Xylenes (total)	ND120
1,2-Dichloropropane	ND120		

	Surrogate Spike Percent Recovery
Method Blank 2	
Toluene-d_8	100%
Bromofluorobenzene	87%
1,2-Dichloroethane-d_4	103%

Volatile Organic Compounds

Client Sample ID: CAR-RW2-B
Sample Date: 05/14/93
Lab Sample ID: Q30519702
Analysis Date: 05/28/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND250	cis-1,3-Dichloropropene	ND120
Bromomethane	ND250	Trichloroethene	4600
Vinyl chloride	ND250	Dibromochloromethane	ND120
Chloroethane	ND250	1,1,2-Trichloroethane	ND120
Methylene chloride	ND120	Benzene	ND120
Acetone	ND2500	trans-1,3-Dichloropropene	ND120
Carbon disulfide	ND120	2-Chloroethylvinylether	ND250
1,1-Dichloroethene	ND120	Bromoform	ND120
1,1-Dichloroethane	ND120	4-Methyl-2-pentanone	ND1200
1,2-Dichloroethene (total)	440	2-Hexanone	ND1200
Chloroform	ND120	Tetrachloroethene	ND120
1,2-Dichloroethane	ND120	1,1,2,2-Tetrachloroethane	ND120
2-Butanone	ND2500	Toluene	ND120
1,1,1-Trichloroethane	ND120	Chlorobenzene	ND120
Carbon tetrachloride	ND120	Ethylbenzene	ND120
Vinyl acetate	ND1200	Styrene	ND120
Bromodichloromethane	ND120	Xylenes (total)	ND120
1,2-Dichloropropane	ND120		

	Surrogate Spike Percent Recovery
Method Blank 3	
Toluene-d_8	106%
Bromofluorobenzene	102%
1,2-Dichloroethane-d_4	92%

Volatile Organic Compounds

Client Sample ID: CAR-RW2-C
Sample Date: 05/14/93
Lab Sample ID: Q30519703
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND250	cis-1,3-Dichloropropene	ND120
Bromomethane	ND250	Trichloroethene	3900
Vinyl chloride	ND250	Dibromochloromethane	ND120
Chloroethane	ND250	1,1,2-Trichloroethane	ND120
Methylene chloride	ND120	Benzene	ND120
Acetone	ND2500	trans-1,3-Dichloropropene	ND120
Carbon disulfide	ND120	2-Chloroethylvinylether	ND250
1,1-Dichloroethene	ND120	Bromoform	ND120
1,1-Dichloroethane	ND120	4-Methyl-2-pentanone	ND1200
1,2-Dichloroethene (total)	440	2-Hexanone	ND1200
Chloroform	ND120	Tetrachloroethene	ND120
1,2-Dichloroethane	ND120	1,1,2,2-Tetrachloroethane	ND120
2-Butanone	ND2500	Toluene	ND120
1,1,1-Trichloroethane	ND120	Chlorobenzene	ND120
Carbon tetrachloride	ND120	Ethylbenzene	ND120
Vinyl acetate	ND1200	Styrene	ND120
Bromodichloromethane	ND120	Xylenes (total)	ND120
1,2-Dichloropropane	ND120		

	Surrogate Spike Percent Recovery
Method Blank 2	
Toluene-d_8	100%
Bromofluorobenzene	94%
1,2-Dichloroethane-d_4	109%

Volatile Organic Compounds

Client Sample ID: CAR-RW2-TB1
Sample Date: 05/14/93
Lab Sample ID: Q30519705
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Method Blank 2	
Toluene-d_8	101%
Bromofluorobenzene	97%
1,2-Dichloroethane-d_4	111%

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IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Volatile Organic Compounds

Client Sample ID: CAR-RW2-TB2
Sample Date: 05/14/93
Lab Sample ID: Q30519706
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Method Blank 2	
Toluene-d_8	106%
Bromofluorobenzene	93%
1,2-Dichloroethane-d_4	107%

Volatile Organic Compounds

Client Sample ID: CAR-RW3-A
Sample Date: 05/13/93
Lab Sample ID: Q30515901
Analysis Date: 05/20/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND80	cis-1,3-Dichloropropene	ND40
Bromomethane	ND80	Trichloroethene	1100
Vinyl chloride	ND80	Dibromochloromethane	ND40
Chloroethane	ND80	1,1,2-Trichloroethane	ND40
Methylene chloride	ND40	Benzene	ND40
Acetone	ND800	trans-1,3-Dichloropropene	ND40
Carbon disulfide	ND40	2-Chloroethylvinylether	ND80
1,1-Dichloroethene	ND40	Bromoform	ND40
1,1-Dichloroethane	ND40	4-Methyl-2-pentanone	ND400
1,2-Dichloroethene (total)	410	2-Hexanone	ND400
Chloroform	ND40	Tetrachloroethene	ND40
1,2-Dichloroethane	ND40	1,1,2,2-Tetrachloroethane	ND40
2-Butanone	ND800	Toluene	ND40
1,1,1-Trichloroethane	ND40	Chlorobenzene	ND40
Carbon tetrachloride	ND40	Ethylbenzene	ND40
Vinyl acetate	ND400	Styrene	ND40
Bromodichloromethane	ND40	Xylenes (total)	ND40
1,2-Dichloropropane	ND40		

	Surrogate Spike Percent Recovery
Method Blank 1	
Toluene-d_8	101%
Bromofluorobenzene	94%
1,2-Dichloroethane-d_4	91%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Volatile Organic Compounds

Client Sample ID: CAR-RW3-A Matrix Spike
Sample Date: 05/13/93
Lab Sample ID: Q30515903
Analysis Date: 05/20/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND80	cis-1,3-Dichloropropene	ND40
Bromomethane	ND80	Trichloroethene	ND40
Vinyl chloride	ND80	Dibromochloromethane	ND40
Chloroethane	ND80	1,1,2-Trichloroethane	ND40
Methylene chloride	ND40	Benzene	ND40
Acetone	ND800	trans-1,3-Dichloropropene	ND40
Carbon disulfide	ND40	2-Chloroethylvinylether	ND80
1,1-Dichloroethene	ND40	Bromoform	ND40
1,1-Dichloroethane	ND40	4-Methyl-2-pentanone	ND400
1,2-Dichloroethene (total)	390	2-Hexanone	ND400
Chloroform	ND40	Tetrachloroethene	ND40
1,2-Dichloroethane	ND40	1,1,2,2-Tetrachloroethane	ND40
2-Butanone	ND800	Toluene	ND40
1,1,1-Trichloroethane	ND40	Chlorobenzene	ND40
Carbon tetrachloride	ND40	Ethylbenzene	ND40
Vinyl acetate	ND400	Styrene	ND40
Bromodichloromethane	ND40	Xylenes (total)	ND40
1,2-Dichloropropane	ND40		

	Surrogate Spike Percent Recovery
Method Blank 1	
Toluene-d_8	105%
Bromofluorobenzene	93%
1,2-Dichloroethane-d_4	101%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Volatile Organic Compounds

Client Sample ID: CAR-RW3-A Matrix Spike Duplicate
Sample Date: 05/13/93
Lab Sample ID: Q30515902
Analysis Date: 05/20/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND80	cis-1,3-Dichloropropene	ND40
Bromomethane	ND80	Trichloroethene	ND40
Vinyl chloride	ND80	Dibromochloromethane	ND40
Chloroethane	ND80	1,1,2-Trichloroethane	ND40
Methylene chloride	ND40	Benzene	ND40
Acetone	ND800	trans-1,3-Dichloropropene	ND40
Carbon disulfide	ND40	2-Chloroethylvinylether	ND80
1,1-Dichloroethene	ND40	Bromoform	ND40
1,1-Dichloroethane	ND40	4-Methyl-2-pentanone	ND400
1,2-Dichloroethene (total)	360	2-Hexanone	ND400
Chloroform	ND40	Tetrachloroethene	ND40
1,2-Dichloroethane	ND40	1,1,2,2-Tetrachloroethane	ND40
2-Butanone	ND800	Toluene	ND40
1,1,1-Trichloroethane	ND40	Chlorobenzene	ND40
Carbon tetrachloride	ND40	Ethylbenzene	ND40
Vinyl acetate	ND400	Styrene	ND40
Bromodichloromethane	ND40	Xylenes (total)	ND40
1,2-Dichloropropane	ND40		

	Surrogate Spike Percent Recovery
Method Blank 1	
Toluene-d_8	100%
Bromofluorobenzene	91%
1,2-Dichloroethane-d_4	94%

Volatile Organic Compounds

Client Sample ID: CAR-RW3-B
Sample Date: 05/13/93
Lab Sample ID: Q30515904
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND100	cis-1,3-Dichloropropene	ND50
Bromomethane	ND100	Trichloroethene	1600
Vinyl chloride	ND100	Dibromochloromethane	ND50
Chloroethane	ND100	1,1,2-Trichloroethane	ND50
Methylene chloride	ND50	Benzene	ND50
Acetone	ND1000	trans-1,3-Dichloropropene	ND50
Carbon disulfide	ND50	2-Chloroethylvinylether	ND100
1,1-Dichloroethene	ND50	Bromoform	ND50
1,1-Dichloroethane	ND50	4-Methyl-2-pentanone	ND500
1,2-Dichloroethene (total)	580	2-Hexanone	ND500
Chloroform	ND50	Tetrachloroethene	ND50
1,2-Dichloroethane	ND50	1,1,2,2-Tetrachloroethane	ND50
2-Butanone	ND1000	Toluene	ND50
1,1,1-Trichloroethane	ND50	Chlorobenzene	ND50
Carbon tetrachloride	ND50	Ethylbenzene	ND50
Vinyl acetate	ND500	Styrene	ND50
Bromodichloromethane	ND50	Xylenes (total)	ND50
1,2-Dichloropropane	ND50		

	Surrogate Spike Percent Recovery
Method Blank 2	
Toluene-d_8	98%
Bromofluorobenzene	93%
1,2-Dichloroethane-d_4	90%

Volatile Organic Compounds

Client Sample ID: CAR-RW3-C
Sample Date: 05/13/93
Lab Sample ID: Q30515905
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	1300*
Vinyl chloride	18	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	490*	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Method Blank 2	
Toluene-d_8	105%
Bromofluorobenzene	94%
1,2-Dichloroethane-d_4	93%

*Above calibration.

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Volatile Organic Compounds

Client Sample ID: CAR-RW3-C Dilution
Sample Date: 05/13/93
Lab Sample ID: Q30515905
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND100	cis-1,3-Dichloropropene	ND50
Bromomethane	ND100	Trichloroethene	1500
Vinyl chloride	ND100	Dibromochloromethane	ND50
Chloroethane	ND100	1,1,2-Trichloroethane	ND50
Methylene chloride	ND50	Benzene	ND50
Acetone	ND1000	trans-1,3-Dichloropropene	ND50
Carbon disulfide	ND50	2-Chloroethylvinylether	ND100
1,1-Dichloroethene	ND50	Bromoform	ND50
1,1-Dichloroethane	ND50	4-Methyl-2-pentanone	ND500
1,2-Dichloroethene (total)	600	2-Hexanone	ND500
Chloroform	ND50	Tetrachloroethene	ND50
1,2-Dichloroethane	ND50	1,1,2,2-Tetrachloroethane	ND50
2-Butanone	ND1000	Toluene	ND50
1,1,1-Trichloroethane	ND50	Chlorobenzene	ND50
Carbon tetrachloride	ND50	Ethylbenzene	ND50
Vinyl acetate	ND500	Styrene	ND50
Bromodichloromethane	ND50	Xylenes (total)	ND50
1,2-Dichloropropane	ND50		

	Surrogate Spike Percent Recovery
Method Blank 2	
Toluene-d_8	99%
Bromofluorobenzene	92%
1,2-Dichloroethane-d_4	96%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Volatile Organic Compounds

Client Sample ID: CAR-RW3-TB1
Sample Date: 05/13/93
Lab Sample ID: Q30515908
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Method Blank 2	
Toluene-d_8	100%
Bromofluorobenzene	88%
1,2-Dichloroethane-d_4	103%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Volatile Organic Compounds

Lab Sample ID: Method Blank 1
Analysis Date: 05/20/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Toluene-d_8	103%
Bromofluorobenzene	95%
1,2-Dichloroethane-d_4	99%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Volatile Organic Compounds

Lab Sample ID: Method Blank 2
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Toluene-d_8	104%
Bromofluorobenzene	100%
1,2-Dichloroethane-d_4	108%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Volatile Organic Compounds

Lab Sample ID: Method Blank 3
Analysis Date: 05/28/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Toluene-d_8	98%
Bromofluorobenzene	96%
1,2-Dichloroethane-d_4	109%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Volatile Organic Compounds

Lab Sample ID: Method Blank 4
Analysis Date: 05/28/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Chloromethane	ND10	cis-1,3-Dichloropropene	ND5
Bromomethane	ND10	Trichloroethene	ND5
Vinyl chloride	ND10	Dibromochloromethane	ND5
Chloroethane	ND10	1,1,2-Trichloroethane	ND5
Methylene chloride	ND5	Benzene	ND5
Acetone	ND100	trans-1,3-Dichloropropene	ND5
Carbon disulfide	ND5	2-Chloroethylvinylether	ND10
1,1-Dichloroethene	ND5	Bromoform	ND5
1,1-Dichloroethane	ND5	4-Methyl-2-pentanone	ND50
1,2-Dichloroethene (total)	ND5	2-Hexanone	ND50
Chloroform	ND5	Tetrachloroethene	ND5
1,2-Dichloroethane	ND5	1,1,2,2-Tetrachloroethane	ND5
2-Butanone	ND100	Toluene	ND5
1,1,1-Trichloroethane	ND5	Chlorobenzene	ND5
Carbon tetrachloride	ND5	Ethylbenzene	ND5
Vinyl acetate	ND50	Styrene	ND5
Bromodichloromethane	ND5	Xylenes (total)	ND5
1,2-Dichloropropane	ND5		

	Surrogate Spike Percent Recovery
Toluene-d_8	98%
Bromofluorobenzene	90%
1,2-Dichloroethane-d_4	90%

Volatile Matrix Spike Percent Recovery

Client Sample ID: CAR-RW3-A
Sample Date: 05/13/93
Lab Sample ID: Q30515902
Analysis Date: 05/20/93

Compound	Matrix Spike Percent Recovery
1,1-Dichloroethene	91%/91%
Trichloroethene	70%*/75%
Benzene	89%/88%
Toluene	84%/86%
Chlorobenzene	85%/88%

*Outside QC limits.

Semivolatile Organic Compounds

Client Sample ID: CAR-RW1-A
Sample Date: 05/15/93
Lab Sample ID: Q30522701
Extraction Date: 05/18/93
Analysis Date: 05/26/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 1	
Nitrobenzene-d_5	72%	Phenol-d_6	62%
2-Fluorobiphenyl	83%	2-Fluorophenol	67%
Terphenyl	57%	2,4,6-Tribromophenol	82%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Semivolatile Organic Compounds

Client Sample ID: CAR-RW1-B
Sample Date: 05/15/93
Lab Sample ID: Q30522702
Extraction Date: 05/18/93
Analysis Date: 05/26/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 1	
Nitrobenzene-d_5	81%	Phenol-d_6	73%
2-Fluorobiphenyl	92%	2-Fluorophenol	76%
Terphenyl	48%	2,4,6-Tribromophenol	88%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Semivolatile Organic Compounds

Client Sample ID: CAR-RW1-C
Sample Date: 05/15/93
Lab Sample ID: Q30522703
Extraction Date: 05/18/93
Analysis Date: 05/26/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 1	
Nitrobenzene-d_5	58%	Phenol-d_6	56%
2-Fluorobiphenyl	65%	2-Fluorophenol	56%
Terphenyl	52%	2,4,6-Tribromophenol	78%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Semivolatile Organic Compounds

Client Sample ID: CAR-RW2-A
Sample Date: 05/14/93
Lab Sample ID: Q30519701
Extraction Date: 05/18/93
Analysis Date: 05/26/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 1	
Nitrobenzene-d_5	78%	Phenol-d_6	70%
2-Fluorobiphenyl	86%	2-Fluorophenol	72%
Terphenyl	41%	2,4,6-Tribromophenol	87%

Semivolatile Organic Compounds

Client Sample ID: CAR-RW2-A-D
Sample Date: 05/14/93
Lab Sample ID: Q30519704
Extraction Date: 05/18/93
Analysis Date: 05/26/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 1	
Nitrobenzene-d_5	61%	Phenol-d_6	41%
2-Fluorobiphenyl	68%	2-Fluorophenol	43%
Terphenyl	26% *	2,4,6-Tribromophenol	60%

*Outside QC limits.

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Semivolatile Organic Compounds

Client Sample ID: CAR-RW2-A-D Reextracted
Sample Date: 05/14/93
Lab Sample ID: Q30519704
Extraction Date: 05/28/93
Analysis Date: 06/01/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	12*
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 3	
Nitrobenzene-d_5	72%	Phenol-d_6	71%
2-Fluorobiphenyl	76%	2-Fluorophenol	64%
Terphenyl	50%	2,4,6-Tribromophenol	81%

*Compound also found in blank.

Semivolatile Organic Compounds

Client Sample ID: CAR-RW2-B
Sample Date: 05/14/93
Lab Sample ID: Q30519702
Extraction Date: 05/18/93
Analysis Date: 05/26/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 1	
Nitrobenzene-d_5	76%	Phenol-d_6	61%
2-Fluorobiphenyl	80%	2-Fluorophenol	62%
Terphenyl	49%	2,4,6-Tribromophenol	80%

Semivolatile Organic Compounds

Client Sample ID: CAR-RW2-C
Sample Date: 05/14/93
Lab Sample ID: Q30519703
Extraction Date: 05/18/93
Analysis Date: 05/26/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 1	
Nitrobenzene-d_5	53%	Phenol-d_6	40%
2-Fluorobiphenyl	60%	2-Fluorophenol	44%
Terphenyl	38%	2,4,6-Tribromophenol	60%

Semivolatile Organic Compounds

Client Sample ID: CAR-RW3-A
Sample Date: 05/13/93
Lab Sample ID: Q30515901
Extraction Date: 05/15/93
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 2	
Nitrobenzene-d_5	72%	Phenol-d_6	56%
2-Fluorobiphenyl	85%	2-Fluorophenol	49%
Terphenyl	68%	2,4,6-Tribromophenol	64%

Semivolatile Organic Compounds

Client Sample ID: CAR-RW3-A Matrix Spike
Sample Date: 05/13/93
Lab Sample ID: Q30515903
Extraction Date: 05/15/93
Analysis Date: 05/22/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND14	3-Nitroaniline	ND72
bis(2-Chloroethyl)ether	ND14	Acenaphthene	ND14
2-Chlorophenol	ND14	2,4-Dinitrophenol	ND72
1,3-Dichlorobenzene	ND14	4-Nitrophenol	ND72
1,4-Dichlorobenzene	ND14	Dibenzofuran	ND14
Benzyl alcohol	ND29	2,4-Dinitrotoluene	ND14
1,2-Dichlorobenzene	ND14	Diethylphthalate	ND14
2-Methylphenol	ND14	4-Chlorophenyl-phenylether	ND14
bis(2-Chloroisopropyl)ether	ND14	Fluorene	ND14
4-Methylphenol	ND14	4-Nitroaniline	ND72
N-Nitroso-di-n-propylamine	ND14	4,6-Dinitro-2-methylphenol	ND72
Hexachloroethane	ND14	N-Nitrosodiphenylamine	ND14
Nitrobenzene	ND14	4-Bromophenyl-phenylether	ND14
Isophorone	ND14	Hexachlorobenzene	ND14
2-Nitrophenol	ND14	Pentachlorophenol	ND72
2,4-Dimethylphenol	ND14	Phenanthrene	ND14
Benzoic acid	ND72	Anthracene	ND14
bis(2-Chloroethoxy)methane	ND14	Di-n-butylphthalate	ND14
2,4-Dichlorophenol	ND14	Fluoranthene	ND14
1,2,4-Trichlorobenzene	ND14	Pyrene	ND14
Naphthalene	ND14	Butylbenzylphthalate	ND14
4-Chloroaniline	ND29	3,3'-Dichlorobenzidine	ND29
Hexachlorobutadiene	ND14	Benzo(a)anthracene	ND14
4-Chloro-3-methylphenol	ND29	Chrysene	ND14
2-Methylnaphthalene	ND14	bis(2-Ethylhexyl)phthalate	ND14
Hexachlorocyclopentadiene	ND14	Di-n-octylphthalate	ND14
2,4,6-Trichlorophenol	ND14	Benzo(b)fluoranthene	ND14
2,4,5-Trichlorophenol	ND14	Benzo(k)fluoranthene	ND14
2-Chloronaphthalene	ND14	Benzo(a)pyrene	ND14
2-Nitroaniline	ND72	Indeno(1,2,3-cd)pyrene	ND14
Dimethylphthalate	ND14	Dibenzo(a,h)anthracene	ND14
Acenaphthylene	ND14	Benzo(g,h,i)perylene	ND14
2,6-Dinitrotoluene	ND14		

Surrogate Spike Percent Recovery:		Method Blank 2	
Nitrobenzene-d_5	59%	Phenol-d_6	52%
2-Fluorobiphenyl	73%	2-Fluorophenol	46%
Terphenyl	70%	2,4,6-Tribromophenol	64%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Semivolatile Organic Compounds

Client Sample ID: CAR-RW3-A Matrix Spike Duplicate
Sample Date: 05/13/93
Lab Sample ID: Q30515902
Extraction Date: 05/15/93
Analysis Date: 05/22/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND14	3-Nitroaniline	ND72
bis(2-Chloroethyl)ether	ND14	Acenaphthene	ND14
2-Chlorophenol	ND14	2,4-Dinitrophenol	ND72
1,3-Dichlorobenzene	ND14	4-Nitrophenol	ND72
1,4-Dichlorobenzene	ND14	Dibenzofuran	ND14
Benzyl alcohol	ND29	2,4-Dinitrotoluene	ND14
1,2-Dichlorobenzene	ND14	Diethylphthalate	ND14
2-Methylphenol	ND14	4-Chlorophenyl-phenylether	ND14
bis(2-Chloroisopropyl)ether	ND14	Fluorene	ND14
4-Methylphenol	ND14	4-Nitroaniline	ND72
N-Nitroso-di-n-propylamine	ND14	4,6-Dinitro-2-methylphenol	ND72
Hexachloroethane	ND14	N-Nitrosodiphenylamine	ND14
Nitrobenzene	ND14	4-Bromophenyl-phenylether	ND14
Isophorone	ND14	Hexachlorobenzene	ND14
2-Nitrophenol	ND14	Pentachlorophenol	ND72
2,4-Dimethylphenol	ND14	Phenanthrene	ND14
Benzoic acid	ND72	Anthracene	ND14
bis(2-Chloroethoxy)methane	ND14	Di-n-butylphthalate	ND14
2,4-Dichlorophenol	ND14	Fluoranthene	ND14
1,2,4-Trichlorobenzene	ND14	Pyrene	ND14
Naphthalene	ND14	Butylbenzylphthalate	ND14
4-Chloroaniline	ND29	3,3'-Dichlorobenzidine	ND29
Hexachlorobutadiene	ND14	Benzo(a)anthracene	ND14
4-Chloro-3-methylphenol	ND29	Chrysene	ND14
2-Methylnaphthalene	ND14	bis(2-Ethylhexyl)phthalate	ND14
Hexachlorocyclopentadiene	ND14	Di-n-octylphthalate	ND14
2,4,6-Trichlorophenol	ND14	Benzo(b)fluoranthene	ND14
2,4,5-Trichlorophenol	ND14	Benzo(k)fluoranthene	ND14
2-Chloronaphthalene	ND14	Benzo(a)pyrene	ND14
2-Nitroaniline	ND72	Indeno(1,2,3-cd)pyrene	ND14
Dimethylphthalate	ND14	Dibenzo(a,h)anthracene	ND14
Acenaphthylene	ND14	Benzo(g,h,i)perylene	ND14
2,6-Dinitrotoluene	ND14		

Surrogate Spike Percent Recovery:		Method Blank 2	
Nitrobenzene-d_5	71%	Phenol-d_6	66%
2-Fluorobiphenyl	90%	2-Fluorophenol	55%
Terphenyl	74%	2,4,6-Tribromophenol	66%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Semivolatile Organic Compounds

Client Sample ID: CAR-RW3-B
Sample Date: 05/13/93
Lab Sample ID: Q30515904
Extraction Date: 05/15/93
Analysis Date: 05/22/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 2	
Nitrobenzene-d_5	62%	Phenol-d_6	52%
2-Fluorobiphenyl	82%	2-Fluorophenol	43%
Terphenyl	59%	2,4,6-Tribromophenol	60%

Semivolatile Organic Compounds

Client Sample ID: CAR-RW3-C
Sample Date: 05/13/93
Lab Sample ID: Q30515905
Extraction Date: 05/15/93
Analysis Date: 05/22/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:		Method Blank 2	
Nitrobenzene-d_5	63%	Phenol-d_6	52%
2-Fluorobiphenyl	72%	2-Fluorophenol	46%
Terphenyl	65%	2,4,6-Tribromophenol	56%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Semivolatile Organic Compounds

Lab Sample ID: Method Blank 1
Extraction Date: 05/15/93
Analysis Date: 05/21/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:

Nitrobenzene-d_5	66%	Phenol-d_6	52%
2-Fluorobiphenyl	77%	2-Fluorophenol	43%
Terphenyl	115%	2,4,6-Tribromophenol	56%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Semivolatile Organic Compounds

Lab Sample ID: Method Blank 2
Extraction Date: 05/18/93
Analysis Date: 05/24/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	ND10
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:

Nitrobenzene-d_5	61%	Phenol-d_6	56%
2-Fluorobiphenyl	67%	2-Fluorophenol	46%
Terphenyl	85%	2,4,6-Tribromophenol	48%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Semivolatile Organic Compounds

Lab Sample ID: Method Blank 3
Extraction Date: 05/28/93
Analysis Date: 06/01/93

Compound	Concentration µg/L	Compound	Concentration µg/L
Phenol	ND10	3-Nitroaniline	ND50
bis(2-Chloroethyl)ether	ND10	Acenaphthene	ND10
2-Chlorophenol	ND10	2,4-Dinitrophenol	ND50
1,3-Dichlorobenzene	ND10	4-Nitrophenol	ND50
1,4-Dichlorobenzene	ND10	Dibenzofuran	ND10
Benzyl alcohol	ND20	2,4-Dinitrotoluene	ND10
1,2-Dichlorobenzene	ND10	Diethylphthalate	ND10
2-Methylphenol	ND10	4-Chlorophenyl-phenylether	ND10
bis(2-Chloroisopropyl)ether	ND10	Fluorene	ND10
4-Methylphenol	ND10	4-Nitroaniline	ND50
N-Nitroso-di-n-propylamine	ND10	4,6-Dinitro-2-methylphenol	ND50
Hexachloroethane	ND10	N-Nitrosodiphenylamine	ND10
Nitrobenzene	ND10	4-Bromophenyl-phenylether	ND10
Isophorone	ND10	Hexachlorobenzene	ND10
2-Nitrophenol	ND10	Pentachlorophenol	ND50
2,4-Dimethylphenol	ND10	Phenanthrene	ND10
Benzoic acid	ND50	Anthracene	ND10
bis(2-Chloroethoxy)methane	ND10	Di-n-butylphthalate	ND10
2,4-Dichlorophenol	ND10	Fluoranthene	ND10
1,2,4-Trichlorobenzene	ND10	Pyrene	ND10
Naphthalene	ND10	Butylbenzylphthalate	ND10
4-Chloroaniline	ND20	3,3'-Dichlorobenzidine	ND20
Hexachlorobutadiene	ND10	Benzo(a)anthracene	ND10
4-Chloro-3-methylphenol	ND20	Chrysene	ND10
2-Methylnaphthalene	ND10	bis(2-Ethylhexyl)phthalate	23
Hexachlorocyclopentadiene	ND10	Di-n-octylphthalate	ND10
2,4,6-Trichlorophenol	ND10	Benzo(b)fluoranthene	ND10
2,4,5-Trichlorophenol	ND10	Benzo(k)fluoranthene	ND10
2-Chloronaphthalene	ND10	Benzo(a)pyrene	ND10
2-Nitroaniline	ND50	Indeno(1,2,3-cd)pyrene	ND10
Dimethylphthalate	ND10	Dibenzo(a,h)anthracene	ND10
Acenaphthylene	ND10	Benzo(g,h,i)perylene	ND10
2,6-Dinitrotoluene	ND10		

Surrogate Spike Percent Recovery:

Nitrobenzene-d_5	59%	Phenol-d_6	54%
2-Fluorobiphenyl	65%	2-Fluorophenol	62%
Terphenyl	96%	2,4,6-Tribromophenol	96%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Semivolatile Matrix Spike Percent Recovery

Client Sample ID: CAR-RW3-A
Sample Date: 05/13/93
Lab Sample ID: Q30515902
Extraction Date: 05/15/93
Analysis Date: 05/22/93

Compound	Matrix Spike Percent Recovery
Phenol	58%/71%
2-Chlorophenol	63%/81%
1,4-Dichlorobenzene	63%/85%
N-Nitroso-di-n-propylamine	51%/67%
1,2,4-Trichlorobenzene	62%/80%
4-Chloro-3-methylphenol	57%/64%
Acenaphthene	76%/94%
4-Nitrophenol	93%*/93%*
2,4-Dinitrotoluene	90%/94%
Pentachlorophenol	95%/98%
Pyrene	101%/100%

*Outside QC limits.

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Total Metals Analysis

Client Sample ID: CAR-RW2-C
Sample Date: 05/14/93
Lab Sample ID: Q30519703
Analysis Date: 05/21, 22, and 27/93

Parameter	Concentration µg/L
Arsenic	ND10.0
Barium	111
Cadmium	ND5.0
Calcium	139,000
Chromium	ND10.0
Copper	ND25.0
Iron	67.8
Lead	ND50.0
Manganese	ND10.0
Nickel	ND40.0
Selenium	ND5.0
Silver	ND10.0
Sodium	28,000
Zinc	ND20.0

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Total Metals Analysis

Client Sample ID: CAR-RW1-C
Sample Date: 05/15/93
Lab Sample ID: Q30522703
Analysis Date: 05/21, 22, and 27/93

Parameter	Concentration µg/L
Arsenic	ND10.0
Barium	58.9
Cadmium	ND5.0
Calcium	139,000
Chromium	ND10.0
Copper	ND25.0
Iron	ND30.0
Lead	ND50.0
Manganese	ND10.0
Nickel	ND40.0
Selenium	ND5.0
Silver	ND10.0
Sodium	25,900
Zinc	ND20.0

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Total Metals Analysis

Client Sample ID: CAR-RW3-C
Sample Date: 05/13/93
Lab Sample ID: Q30515905
Analysis Date: 05/21, 22, and 27/93

Parameter	Concentration µg/L
Arsenic	ND10.0
Barium	138
Cadmium	ND5.0
Calcium	157,000
Chromium	ND10.0
Copper	ND25.0
Iron	43.2
Lead	ND50.0
Manganese	21.6
Nickel	ND40.0
Selenium	ND5.0
Silver	ND10.0
Sodium	36,100
Zinc	57.6

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Total Metals Analysis

Lab Sample ID: Method Blank
Analysis Date: 05/21, 22, and 27/93

Parameter	Concentration µg/L
Arsenic	ND10.0
Barium	ND10.0
Cadmium	ND5.0
Calcium	ND500
Chromium	ND10.0
Copper	ND25.0
Iron	ND30.0
Lead	ND50.0
Manganese	ND10.0
Nickel	ND40.0
Selenium	ND5.0
Silver	ND10.0
Sodium	ND500
Zinc	ND20.0

Total Metals Analysis

Client Sample ID: CAR-RW1-A
Sample Date: 05/15/93
Lab Sample ID: Q30522701
Analysis Date: 05/21, 22, 27/93

Parameter	Concentration µg/L
Arsenic	ND10
Barium	60.1
Cadmium	ND5.0
Chromium	ND10.0
Lead	ND50.0
Selenium	ND5.0
Silver	ND10.0

Client Sample ID: CAR-RW1-B
Sample Date: 05/15/93
Lab Sample ID: Q30522702
Analysis Date: 05/21, 22, 27/93

Parameter	Concentration µg/L
Arsenic	ND10
Barium	58.6
Cadmium	ND5.0
Chromium	ND10.0
Lead	ND50.0
Selenium	ND5.0
Silver	ND10.0

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Total Metals Analysis

Client Sample ID: CAR-RW2-A
Sample Date: 05/14/93
Lab Sample ID: Q30519701
Analysis Date: 05/21, 22, 27/93

Parameter	Concentration µg/L
Arsenic	ND10.0
Barium	112
Cadmium	ND5.0
Chromium	ND10.0
Lead	ND50.0
Selenium	ND5.0
Silver	ND10.0

Client Sample ID: CAR-RW2-A-D
Sample Date: 05/14/93
Lab Sample ID: Q30519704
Analysis Date: 05/21, 22, 27/93

Parameter	Concentration µg/L
Arsenic	ND10.0
Barium	113
Cadmium	ND5.0
Chromium	ND10.0
Lead	ND50.0
Selenium	ND5.0
Silver	ND10.0

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Total Metals Analysis

Client Sample ID: CAR-RW2-B
Sample Date: 05/14/93
Lab Sample ID: Q30519702
Analysis Date: 05/21, 22, 27/93

Parameter	Concentration µg/L
Arsenic	ND10.0
Barium	113
Cadmium	ND5.0
Chromium	ND10.0
Lead	ND50.0
Selenium	ND5.0
Silver	ND10.0

Client Sample ID: CAR-RW3-A
Sample Date: 05/13/93
Lab Sample ID: Q30515901
Analysis Date: 05/21, 22, 27/93

Parameter	Concentration µg/L	Matrix Spike Percent Recovery
Arsenic	ND10.0	104%/106%
Barium	142	97%/97%
Cadmium	ND5.0	100%/98%
Chromium	ND10.0	94%/92%
Lead	ND50.0	98%/95%
Selenium	ND5.0	84%/82%
Silver	ND10.0	98%/92%

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Total Metals Analysis

Client Sample ID: CAR-RW3-B
Sample Date: 05/13/93
Lab Sample ID: Q30515904
Analysis Date: 05/21, 22, 27/93

Parameter	Concentration µg/L
Arsenic	ND10.0
Barium	141
Cadmium	ND5.0
Chromium	ND10.0
Lead	ND50.0
Selenium	ND5.0
Silver	ND10.0

IT Corporation/Carswell
06/07/93

IT ANALYTICAL SERVICES
PITTSBURGH, PA

Client Project ID: 305895

Job Number: Q305159/197/227 Revised

Total Metals Analysis

Lab Sample ID: Method Blank
Analysis Date: 05/21, 22, 27/93

Parameter	Concentration µg/L
Arsenic	ND10.0
Barium	ND10.0
Cadmium	ND5.0
Chromium	ND10.0
Lead	ND50.0
Selenium	ND5.0
Silver	ND10.0

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 346131
Page 1 of 2

Project Name/No. [1] AIR FORCE NO. 4 (EAKSWELL) 305895
Sample Team Members [2] J. SUMROK / R. WICE
Profit Center No. [3] 3811
Project Manager [4] VIC DOZZI
Purchase Order No. [6]
Required Report Date [11]

Samples Shipment Date [7] 5/13/93
Lab Destination [8] IT - EXPORT, PA.
Lab Contact [9] CARRIE SMITH
Project Contact/Phone [12]
Carrier/Waybill No. [13] FED-EX 6841281915

Bill to: [5] AS PER ICPD
Report to: [10] VIC DOZZI

White: To accompany samples
Yellow: Field copy

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
CAR-RW3-A	GROUNDWATER	5/13/93 AT 1430	1l PLASTIC	1l	NONE	GEN. CHEMISTRY	OK	
			1l PLASTIC	1l	NONE	TSS	FOR LAB USE ONLY	
			1l PLASTIC	1l	HNO_3	METALS		
			1l PLASTIC	1l	H_2SO_4	NUTRIENTS		
			1l PLASTIC	1l	NONE	BOD		
			80 OZ. AMBER	80 OZ	NONE	BNA	FOR LAB USE ONLY	
			40 ml VIAL	120ml	HCl	VOA		
CAR-RW3-B	GROUNDWATER	5/13/93 AT 1640	1l PLASTIC	1l	NONE	GEN. CHEMISTRY	✓	

Special Instructions: [23] ANY QUESTIONS, CALL RICK WICE 214-535-1845

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☒ Archive _____ (mos.)

Turnaround Time Required: [26]
Normal ☐ Rush ☒

QC Level: [27]
I. ☐ II. ☐ III. ☐ Project Specific (specify): _____

1. Relinquished by [28] (Signature/Affiliation) J.T. Sk	Date: 5/13/93 Time: 1905	1. Received by [28] (Signature/Affiliation) FED-EX AIRBILL # 6841281915	Date: 5/13/93 Time: 1905
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation) J Smith	Date: 5/14/93 Time: 0915
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29] POTENTIAL TCE HAZARD, 3000 - 4000 ppb.

*See back of form for special instructions

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INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 346131
Page 2 of 2

Project Name LF 4/5 (CARSWELL) AIR FORCE No. 4

Project No. 305895

Samples Shipment Date 5/13/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
CAR-RW3-B	GROUNDWATER	5/13/93 AT 1640	1l PLASTIC	1l	NONE	TSS	OK	
			1l PLASTIC	1l	HNO_3	METALS		
			1l PLASTIC	1l	H_2SO_4	NUTRIENTS		
			1l PLASTIC	1l	NONE	BOD		
			80 OZ. AMBER ~~1l PLAST~~	80 oz.	NONE	BNA		
			40 ml VIAL	120 ml	HCl	VOA		
CAR-RW3-C	GROUNDWATER	5/13/93 1640	1l PLASTIC	1l	NONE	GEN. CHEMISTRY		
			1l PLASTIC	1l	NONE	TSS		
			1l PLASTIC	1l	HNO_3	METALS		
			1l PLASTIC	1l	H_2SO_4	NUTRIENTS		
			1l PLASTIC	1l	NONE	BOD		
			80 OZ. AMBER	80 oz	NONE	BNA		
			40 ml VIAL	120 ml	HCl	VOA		
CAR-RW3-TB1	TRIP BLANK	NA	40 ml VIAL	120 ml	HCl	VOA		
~~CAR-RW3-TB2~~	~~TRIP BLANK~~		~~40 ml VIAL~~	~~120 ml~~	~~HCl~~	~~VOA~~		
CAR-RW1	GROUNDWATER	5/13/93 1735	1l PLASTIC	1l	NONE	~~TSS~~ SS per Rick Dow because of 24 hr holdtime 5/14/93 CMY		
			1l PLASTIC	1l	NONE	BOD		
CAR-RW2	GROUNDWATER	5/13/93 1810	1l PLASTIC	1l	NONE	~~TSS~~ SS same as above CMY 5/14/93		
			1l PLASTIC	1l	NONE	BOD		

FOR LAB USE ONLY

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 546133
Page 1 of 2

Project Name/No. [1] AIR FORCE NO. 4 LF 4/5 (CRAWELL) 305895
Sample Team Members [2] J. SUMROK/R. WICE
Profit Center No. [3] 3811
Project Manager [4] VIC DOEZI
Purchase Order No. [6]
Required Report Date [11]

Samples Shipment Date [7] 5/14/93
Lab Destination [8] IT - EXPORT, PA.
Lab Contact [9] CARRIE SMITH
Project Contact/Phone [12]
Carrier/Waybill No. [13] FED-EX # 6841281926

Bill to: [5] AS PER IC PO
Report to: [10] VIC DOEZI

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21] OK	Disposal Record No. [22]
CAR-RW2-A	GROUNDWATER	5/14/93 1200	1l PLASTIC	1 l	NONE	GEN. CHEMISTRY	FOR LAB USE ONLY	
			1l PLASTIC	1 l	HNO_3	METALS		
			1l PLASTIC	1 l	H_2SO_4	NUTRIENTS		
			80 oz AMBER	80 oz	NONE	BNA		
			40 ml VIAL	120 ml	HCl	VOA		
							FOR LAB USE ONLY	
CAR-RW2-A-D	GROUNDWATER	5/14/93 1200	1 l PLASTIC	1 l	NONE	GEN. CHEMISTRY		
			1 l PLASTIC	1 l	HNO_3	METALS		

Special Instructions: [23] ANY QUESTIONS, CALL RICK WICE 214-535-1845

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☒ Archive ___ (mos.)

Turnaround Time Required: [26]
Normal ☐ Rush ☒

QC Level: [27]
I. ☐ II. ☐ III. ☐ Project Specific (specify)

1. Relinquished by [28] (Signature/Affiliation) IT COLP	Date: 5/14/93 Time: 1905	1. Received by [28] (Signature/Affiliation) FED-EX AIRBILL #6841281926	Date: 5/14/93 Time: 1905
2. Relinquished by (Signature/Affiliation) Fed Ex	Date: Time:	2. Received by (Signature/Affiliation) Alan A. Peterson/ITASgh	Date: 05/15/93 Time: 0930
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29] POTENTIAL TCE HAZARD, 3000 - 4000 ppb

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 346133

Project Name AIR FORCE NO. 4 LF 4/5 (CARSWELL)

Project ~~Name~~ 305895

Samples Shipment Date 5/14/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
CAR-RW2-A-D	GROUNDWATER	5/14/93 1200	1 l PLASTIC	1 l	H_2SO_4	NUTRIENTS	OK	
↓	↓	↓	80 oz AMBER	80 oz	NONE	BNA	FOR LAB USE ONLY	
↓	↓	↓	40 ml VIAL	120 ml	HCl	VOA		
CAR-RW2-B	GROUNDWATER	5/14/93 1545	1 l PLASTIC	1 l	NONE	GEN. CHEMISTRY	FOR LAB USE ONLY	
↓	↓	↓	1 l PLASTIC	1 l	HNO_3	METALS		
↓	↓	↓	1 l PLASTIC	1 l	H_2SO_4	NUTRIENTS		
↓	↓	↓	80 oz AMBER ~~1 l PLASTIC~~	80 oz	NONE	BNA	FOR LAB USE ONLY	
↓	↓	↓	40 ml VIAL	120 ml	HCl	VOA		
CAR-RW2-C	GROUNDWATER	5/14/93 1830	1 l PLASTIC	1 l	NONE	GEN. CHEMISTRY	FOR LAB USE ONLY	
↓	↓	↓	1 l PLASTIC	1 l	HNO_3	METALS		
↓	↓	↓	1 l PLASTIC	1 l	H_2SO_4	NUTRIENTS		
↓	↓	↓	80 oz. AMBER	80 oz	NONE	BNA	FOR LAB USE ONLY	
↓	↓	↓	40 ml VIAL	120 ml	HCl	VOA		
CAR-RW2-TB1	TRIP BLANK	—	40 ml VIAL	120 ml	HCl	VOA	FOR LAB USE ONLY	
CAR-RW2-TB2	TRIP BLANK	—	40 ml VIAL	120 ml	HCl	VOA		

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions

MCA 3/15/91

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 34613
Page 1 of 2

Project Name/No. [1] AFN04 CRASWELL
Sample Team Members [2] R. WICE / J SCHMAL
Profit Center No. [3] 3811
Project Manager [4] VIC DOZZI
Purchase Order No. [6]
Required Report Date [11] ASAP

Samples Shipment Date [7] 5/17/93
Lab Destination [8] IT EXPORT
Lab Contact [9] C. SMITH
Project Contact/Phone [12] R. WICE (817) 738-731
Carrier/Waybill No. [13] FedEx 6841281941

Bill to: [5]
Report to: [10] VIC DOZZI

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Pre-servative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
CAR-RW1-A	GROUNDWATER	5/15/93 @ 1050	1l PLASTIC	1l	NONE	GEN. CHEMISTRY	OK	
			1l PLASTIC	1l	HNO_3	METALS	FOR LAB USE ONLY	
			1l PLASTIC	1l	H_2SO_4	NUTRIENTS		
			80 oz. AMBER	80 oz.	NONE	BNA		
			40 ml VIAL	120 ml	HCl	VOA		
CAR-RW1-B	GROUNDWATER	5/15/93 1345	1l PLASTIC	1l	NONE	GEN. CHEMISTRY	FOR LAB USE ONLY	
			1l PLASTIC	1l	HNO_3	METALS		
			1l PLASTIC	1l	H_2SO_4	NUTRIENTS		

Special Instructions: [23]

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

Sample Disposal: [25]
Return to Client ☐ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required: [26]
Normal ☐ Rush ☐

QC Level: [27]
I. ☐ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) Richard Blake IT — Date: 5/17/93 Time: 1030
2. Relinquished by (Signature/Affiliation) — Date: Time:
3. Relinquished by (Signature/Affiliation) — Date: Time:

1. Received by [28] (Signature/Affiliation) Glenn A. Peterson / ITASph — Date: 05/18/93 Time: 0930
2. Received by (Signature/Affiliation) — Date: Time:
3. Received by (Signature/Affiliation) — Date: Time:

Comments: [29]
POTENTIAL TCE 3-41000 ppb

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INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 346134
Page 2 of 2

Project Name LF4/5 Carswell

Project No.

Samples Shipment Date 5/17/93

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
CAR-RW1-B	GROUNDWATER	5/15/93 AT 1345	80 oz. AMBER	80 oz.	NONE	BNA	OK	
↓	↓	↓	40 ml VIAL	120 ml	HCl	VOA	FOR LAB USE ONLY	
CAR-RW1-C	GROUNDWATER	5/15/93 AT 1740	1l PLASTIC	1l	NONE	GEN. CHEMISTRY		
↓	↓	↓	1l PLASTIC	1l	HNO_3	METALS	FOR LAB USE ONLY	
			1l PLASTIC	1l	H_2SO_4	NUTRIENTS		
			80 oz. AMBER	80 oz	NONE	BNA		
↓	↓	↓	40 ml VIAL	120 ml	HCl	VOA	FOR LAB USE ONLY	
CAR-RW1-TB1	TRIP BLANK	—	40 ml VIAL	120 ml	HCl	VOA		
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

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MCA 3/15/91

MIPR NO. E 879301 27	CHEST NO. _____	TEMPERATURE _____ °C	PAGE 1 OF 1

CHAIN OF CUSTODY RECORD
QUALITY ASSURANCE SAMPLES

US Army Corps of Engineers
Fort Worth District, Fort Worth, Texas

Location Air Force No. 4 LF 4/5 (Carswell) Date 5/14/93 Time 1200
Site Recovery Well CAR-RW2 Commercial Lab IT Analytical Lab Location Export, PA
Sampler J. Sumrok USACE Proj Engr Todd Smith Engr's Phone No. 9069130

SAMPLE INFORMATION

Analysis Parameters	No. of Containers (Size and Type)	Test Method	Preservative	Matrix	SWD Sample No.	Field Sample No.
GEN CHEMISTRY	(1) 1 l Plastic	McAwin 310.1, 325.3, 375.2	None	Groundwater	~~[illegible]~~	CAR-RW2-A-T
METALS	(1) 1 l Plastic	SW-846 6000, 7000 Series	HNO_3	↓		↓
NUTRIENTS	(1) 1 l Plastic	LACHAT 10-107-04-1A or McAwin 353.2	H_2SO_4	↓		↓
BNA	(1) 80 oz. Amber	SW-846 8270	None	↓		↓
VOA	(3) 40 ml Vial	SW-846 8240	HCl	↓		↓
VOA	(3) 40 ml Vial	SW-846 8240	HCl	Trip Blank		CAR-RW2-TB3

CUSTODY RECORD

Relinquished By	Received By	Date	Time
Richard B. Vice	K. Shaw	14/5/93	1420
Richard B. Vice IT			

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INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT CORPORATION
2790 MOSSIDE BLVD.
MONROEVILLE, PA 15146-2792
RICK WICE

Date: 07/02/93

Work Order: B3-06-288

This is the Certificate of Analysis for the following samples:

Client Work ID: CARSWELL 305895-000
Date Received: 06/29/93
Number of Samples: 6
Sample Type: AQUEOUS

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
CAR-RW-5	B3-06-288-01
CAR-RW-6	B3-06-288-02
CAR-RW-4	B3-06-288-03
CAR-RW-8	B3-06-288-04
CAR-RW-7	B3-06-288-05
TB-1	B3-06-288-06

Reviewed and Approved:

Jon Bartell
Laboratory Director

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

Company: IT CORPORATION
Date: 07/02/93
Client Work ID: CARSWELL 305895-000 Work Order: B3-06-288

II. QA/QC

The results presented in this report meet the statement of work requirements in accordance with Quality Control and Quality Assurance protocol except as noted in Section IV or in an optional sample narrative at the end of Section III.

In the presented analytical data, 'ND' or '<' indicates that the compound is not detected at the specified limit.

III. Analytical Data

The following page(s) supply results for requested analyses performed on the samples listed above.

The test results relate to tested items only. ITAS-Austin reserves the right to control report production except in whole.

Company: IT CORPORATION
Date: 07/02/93
Client Work ID: CARSWELL 305895-000

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684
Work Order: B3-06-288

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **CAR-RW-5**
SAMPLE DATE: **06/25/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **07/01/93**
UNITS: **ug/L**

	Result	Reporting Limit		Result	Reporting Limit
Methyl chloride	ND	100	1,2-Dichloropropane	ND	50
Methyl bromide	ND	50	trans-1,3-Dichloropropene	ND	50
Vinyl chloride	ND	100	Trichloroethylene	1300	50
Chloroethane	ND	100	Chlorodibromomethane	ND	50
Methylene chloride	ND	100	1,1,2-Trichloroethane	ND	50
Acetone	ND	1000	Benzene	ND	50
Carbon disulfide	ND	50	cis-1,3-Dichloropropene	ND	50
1,1-Dichloroethylene	ND	50	2-Chloroethylvinyl ether	ND	100
1,1-Dichloroethane	ND	50	Bromoform	ND	50
trans-1,2-Dichloroethylene	ND	50	2-Hexanone	ND	500
cis-1,2-Dichloroethylene	380	50	4-Methyl-2-pentanone	ND	500
Chloroform	ND	50	Tetrachloroethylene	ND	50
1,2-Dichloroethane	ND	50	1,1,2,2-Tetrachloroethane	ND	50
2-Butanone	ND	1000	Toluene	ND	50
1,1,1-Trichloroethane	ND	50	Chlorobenzene	ND	50
Carbon tetrachloride	ND	50	Ethylbenzene	ND	50
Vinyl acetate	ND	100	Styrene	ND	50
Dichlorobromomethane	ND	50	Xylenes, total	ND	50

Surrogates	% Recovery
Toluene-D8	106
Bromofluorobenzene	101
1,2-Dichloroethane-D4	108

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Company: IT CORPORATION
Date: 07/02/93
Client Work ID: CARSWELL

305895-000

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684
Work Order: B3-06-288

TEST NAME: Hazardous Substance Vols.
METHOD REFERENCE: EPA8240

SAMPLE ID: CAR-RW-6
SAMPLE DATE: 06/26/93
SAMPLE MATRIX: WATER
ANALYSIS DATE: 07/01/93
UNITS: ug/L

	Result	Reporting Limit		Result	Reporting Limit
Methyl chloride	ND	100	1,2-Dichloropropane	ND	50
Methyl bromide	ND	50	trans-1,3-Dichloropropene	ND	50
Vinyl chloride	ND	100	Trichloroethylene	1700	50
Chloroethane	ND	100	Chlorodibromomethane	ND	50
Methylene chloride	ND	100	1,1,2-Trichloroethane	ND	50
Acetone	ND	1000	Benzene	ND	50
Carbon disulfide	ND	50	cis-1,3-Dichloropropene	ND	50
1,1-Dichloroethylene	ND	50	2-Chloroethylvinyl ether	ND	100
1,1-Dichloroethane	ND	50	Bromoform	ND	50
trans-1,2-Dichloroethylene	ND	50	2-Hexanone	ND	500
cis-1,2-Dichloroethylene	360	50	4-Methyl-2-pentanone	ND	500
Chloroform	ND	50	Tetrachloroethylene	ND	50
1,2-Dichloroethane	ND	50	1,1,2,2-Tetrachloroethane	ND	50
2-Butanone	ND	1000	Toluene	ND	50
1,1,1-Trichloroethane	ND	50	Chlorobenzene	ND	50
Carbon tetrachloride	ND	50	Ethylbenzene	ND	50
Vinyl acetate	ND	100	Styrene	ND	50
Dichlorobromomethane	ND	50	Xylenes, total	ND	50

Surrogates	% Recovery
Toluene-D8	108
Bromofluorobenzene	100
1,2-Dichloroethane-D4	106

Company: IT CORPORATION
Date: 07/02/93
Client Work ID: CARSWELL

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684

305895-000

Work Order: B3-06-288

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **CAR-RW-4**
SAMPLE DATE: **06/26/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **07/01/93**
UNITS: **ug/L**

	Result	Reporting Limit		Result	Reporting Limit
Methyl chloride	ND	100	1,2-Dichloropropane	ND	50
Methyl bromide	ND	50	trans-1,3-Dichloropropene	ND	50
Vinyl chloride	ND	100	Trichloroethylene	2800	50
Chloroethane	ND	100	Chlorodibromomethane	ND	50
Methylene chloride	ND	100	1,1,2-Trichloroethane	ND	50
Acetone	ND	1000	Benzene	ND	50
Carbon disulfide	ND	50	cis-1,3-Dichloropropene	ND	50
1,1-Dichloroethylene	ND	50	2-Chloroethylvinyl ether	ND	100
1,1-Dichloroethane	ND	50	Bromoform	ND	50
trans-1,2-Dichloroethylene	ND	50	2-Hexanone	ND	500
cis-1,2-Dichloroethylene	300	50	4-Methyl-2-pentanone	ND	500
Chloroform	ND	50	Tetrachloroethylene	ND	50
1,2-Dichloroethane	ND	50	1,1,2,2-Tetrachloroethane	ND	50
2-Butanone	ND	1000	Toluene	ND	50
1,1,1-Trichloroethane	ND	50	Chlorobenzene	ND	50
Carbon tetrachloride	ND	50	Ethylbenzene	ND	50
Vinyl acetate	ND	100	Styrene	ND	50
Dichlorobromomethane	ND	50	Xylenes, total	ND	50

Surrogates	% Recovery
Toluene-D8	103
Bromofluorobenzene	102
1,2-Dichloroethane-D4	111

Company: IT CORPORATION
Date: 07/02/93
Client Work ID: CARSWELL

IT ANALYTICAL SERVICES
AUSTIN, TX
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Work Order: B3-06-288

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **CAR-RW-8**
SAMPLE DATE: **06/26/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **07/01/93**
UNITS: **ug/L**

	Result	Reporting Limit		Result	Reporting Limit
Methyl chloride	ND	250	1,2-Dichloropropane	ND	130
Methyl bromide	ND	130	trans-1,3-Dichloropropene	ND	130
Vinyl chloride	ND	250	Trichloroethylene	3500	130
Chloroethane	ND	250	Chlorodibromomethane	ND	130
Methylene chloride	ND	250	1,1,2-Trichloroethane	ND	130
Acetone	ND	2500	Benzene	ND	130
Carbon disulfide	ND	130	cis-1,3-Dichloropropene	ND	130
1,1-Dichloroethylene	ND	130	2-Chloroethylvinyl ether	ND	250
1,1-Dichloroethane	ND	130	Bromoform	ND	130
trans-1,2-Dichloroethylene	ND	130	2-Hexanone	ND	1300
cis-1,2-Dichloroethylene	290	130	4-Methyl-2-pentanone	ND	1300
Chloroform	ND	130	Tetrachloroethylene	ND	130
1,2-Dichloroethane	ND	130	1,1,2,2-Tetrachloroethane	ND	130
2-Butanone	ND	2500	Toluene	ND	130
1,1,1-Trichloroethane	ND	130	Chlorobenzene	ND	130
Carbon tetrachloride	ND	130	Ethylbenzene	ND	130
Vinyl acetate	ND	250	Styrene	ND	130
Dichlorobromomethane	ND	130	Xylenes, total	ND	130

Surrogates	% Recovery
Toluene-D8	110
Bromofluorobenzene	103
1,2-Dichloroethane-D4	108

Company: IT CORPORATION
Date: 07/02/93
Client Work ID: CARSWELL

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Work Order: B3-06-288

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **CAR-RW-7**
SAMPLE DATE: **06/26/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: 07/01/93
UNITS: **ug/L**

	Result	Reporting Limit		Result	Reporting Limit
Methyl chloride	ND	100	1,2-Dichloropropane	ND	50
Methyl bromide	ND	50	trans-1,3-Dichloropropene	ND	50
Vinyl chloride	ND	100	Trichloroethylene	5000	50
Chloroethane	ND	100	Chlorodibromomethane	ND	50
Methylene chloride	ND	100	1,1,2-Trichloroethane	ND	50
Acetone	ND	1000	Benzene	ND	50
Carbon disulfide	ND	50	cis-1,3-Dichloropropene	ND	50
1,1-Dichloroethylene	ND	50	2-Chloroethylvinyl ether	ND	100
1,1-Dichloroethane	ND	50	Bromoform	ND	50
trans-1,2-Dichloroethylene	ND	50	2-Hexanone	ND	500
cis-1,2-Dichloroethylene	310	50	4-Methyl-2-pentanone	ND	500
Chloroform	ND	50	Tetrachloroethylene	ND	50
1,2-Dichloroethane	ND	50	1,1,2,2-Tetrachloroethane	ND	50
2-Butanone	ND	1000	Toluene	ND	50
1,1,1-Trichloroethane	ND	50	Chlorobenzene	ND	50
Carbon tetrachloride	ND	50	Ethylbenzene	ND	50
Vinyl acetate	ND	100	Styrene	ND	50
Dichlorobromomethane	ND	50	Xylenes, total	ND	50

Surrogates	% Recovery
Toluene-D8	105
Bromofluorobenzene	99
1,2-Dichloroethane-D4	108

Company: IT CORPORATION
Date: 07/02/93
Client Work ID: CARSWELL

IT ANALYTICAL SERVICES
AUSTIN, TX
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Work Order: B3-06-288

TEST NAME: **Hazardous Substance Vols.**
METHOD REFERENCE: **EPA8240**

SAMPLE ID: **TB-1**
SAMPLE DATE: **06/22/93**
SAMPLE MATRIX: **WATER**
ANALYSIS DATE: **07/01/93**
UNITS: **ug/L**

	Result	Reporting Limit		Result	Reporting Limit
Methyl chloride	ND	10	1,2-Dichloropropane	ND	5
Methyl bromide	ND	5	trans-1,3-Dichloropropene	ND	5
Vinyl chloride	ND	10	Trichloroethylene	ND	5
Chloroethane	ND	10	Chlorodibromomethane	ND	5
Methylene chloride	ND	10	1,1,2-Trichloroethane	ND	5
Acetone	ND	100	Benzene	ND	5
Carbon disulfide	ND	5	cis-1,3-Dichloropropene	ND	5
1,1-Dichloroethylene	ND	5	2-Chloroethylvinyl ether	ND	10
1,1-Dichloroethane	ND	5	Bromoform	ND	5
trans-1,2-Dichloroethylene	ND	5	2-Hexanone	ND	50
cis-1,2-Dichloroethylene	ND	5	4-Methyl-2-pentanone	ND	50
Chloroform	ND	5	Tetrachloroethylene	ND	5
1,2-Dichloroethane	ND	5	1,1,2,2-Tetrachloroethane	ND	5
2-Butanone	ND	100	Toluene	ND	5
1,1,1-Trichloroethane	ND	5	Chlorobenzene	ND	5
Carbon tetrachloride	ND	5	Ethylbenzene	ND	5
Vinyl acetate	ND	10	Styrene	ND	5
Dichlorobromomethane	ND	5	Xylenes, total	ND	5

Surrogates	% Recovery
Toluene-D8	110
Bromofluorobenzene	100
1,2-Dichloroethane-D4	104

Company: IT CORPORATION
Date: 07/02/93
Client Work ID: CARSWELL

305895-000

IT ANALYTICAL SERVICES
AUSTIN, TX
(512) 892-6684
Work Order: B3-06-288

IV. Methodology

Requested analyses were performed according to the following methods.

TEST NAME **Hazardous Substance Vols.** TEST CODE **8240**

Hazardous Substance List Volatiles	Method 8240, SW-846, Test Methods for Evaluating Solid Wastes, Third Edition. GC/MS Purge and Trap analysis.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 420658
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Project Name/No. [1] CARSWELL 305895
Sample Team Members [2] Rick Wice/ BJ Stephan
Profit Center No. [3] 3811
Project Manager [4] Vic Dozzi
Purchase Order No. [6]
Required Report Date [11]

Samples Shipment Date [7] 6/28/93
Lab Destination [8] IT- AUSTIN
Lab Contact [9] Karen Doane
Project Contact/Phone [12] R. Wice 800444-9586
Carrier/Waybill No. [13] Fed EX 7403302331

Bill to: [5] Vic Dozzi IT- Pittsburgh
Report to: [10] Rick Wice IT Pittsburgh

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
CAR-RW5	AQUEOUS METHOD 8240 VOA	6/25/93 1640	2 x 80ml	160ml	HCL	8240 VOA	RVR 6 29 93 LCC Good 7°C	B12410104
CAR-RW6	AQUEOUS	6/26/93 1015	"	"	"	"		
CAR-RW4	AQUEOUS	6/26/93 1402	"	"	"	"		
CAR-RW8	AQUEOUS	6/26/93 1700	"	"	"	"		
CAR-RW7	AQUEOUS	6/26/93 1820	"	"	"	"		
TB-1	TRIP BLANK	6/22/93 PREHOLIDAYS	1 x 80ml	80ml	"	"		B3033050 & 6 29 93 1700 by LW

Special Instructions: [23] ~~All Samples Kept~~

Possible Hazard Identification: [24]
Non-hazard [X] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ]

Sample Disposal: [25]
Return to Client [ ] Disposal by Lab [X] Archive (mos.)

Turnaround Time Required: [26]
Normal [ ] Rush [ ] AR on ICPO

QC Level: [27]
I. [ ] II. [ ] III. [ ] Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) [signature]	Date: 6/28/93 Time: 1030	1. Received by [28] (Signature/Affiliation) Lorri Church / IT	Date: 6 29 93 Time: 0941
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29] NOTE TCE 1-4,000 ppb possible
All Samples kept in cooler from time of collection

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions

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