

AT&T Communications, Inc.

Chicago, IL



**Soil and Groundwater
Investigation and
Anti-Seep Plug Installation
at AT&T Cable Site in
Appleton, Wisconsin**

ENSR Consulting and Engineering

(Formerly ERT)

May 12, 1989

Document Number 0550-029-510



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May 12, 1989

**ENSR Consulting
and Engineering**

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Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, Room 605
Chicago, Illinois 60606

**SUBJECT: Final Report of Soil and Groundwater Investigation and
Anti-Seep Plug Installation at AT&T Cable Site in
Appleton, Wisconsin**

Dear Mr. Seigla:

Transmitted herewith are three copies of our Final Report describing ENSR services, analytical results, and conclusions regarding our services for AT&T at the subject fiberoptic cable site in Appleton, Wisconsin.

This report documents our investigation at and adjacent to the cable route (Phase I) and along potential alternate routes (Phase II). It also documents the installation of three of four planned anti-seep plugs (Phase III) and of the final anti-seep plug (Phase IV).

If you have questions or comments, please call. We appreciate the opportunity to be of continuing service to AT&T on this interesting project.

Very truly yours,

Larry M. Campbell

Larry M. Campbell, P.E.
General Manager
Chicago Operations

LMC/lmq

ENSR Program No. 0550-029-510
Ref. #89-05-Q121

Enclosures

cc: M. DeBartolo
A. Basile
D. Cheney

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TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1-1
1.1 Scope of Work	1-1
1.2 Background	1-3
2.0 PHASE I	2-1
2.1 Soil and Groundwater Investigation	2-1
2.1.1 Borings	2-1
2.1.2 Soil Sampling	2-3
2.1.3 Groundwater Samples	2-4
2.1.4 Decontamination Procedures	2-4
2.2 Analytical Results	2-5
2.2.1 Soil	2-5
2.2.2 Groundwater	2-8
2.3 Discussion	2-8
3.0 PHASE II	3-1
3.1 Soil and Groundwater Investigation	3-1
3.1.1 Borings	3-1
3.1.2 Soil Sampling	3-1
3.1.3 Groundwater Sampling	3-3
3.1.4 Decontamination Procedures	3-3
3.2 Analytical Results	3-3
3.2.1 Soil	3-3
3.2.2 Groundwater	3-3
3.3 Discussion	3-3
4.0 PHASE III	4-1
4.1 Soil and Groundwater Investigation	4-1
4.1.1 Pit Excavations	4-1
4.1.2 Soil Sampling	4-1
4.1.3 Groundwater Sampling	4-3
4.1.4 Decontamination Procedures	4-3
4.2 Analytical Results	4-4
4.2.1 Soil	4-4
4.2.2 Groundwater	4-4
4.3 Discussion	4-4
4.4 Anti-Seep Plug Construction	4-6

TABLE OF CONTENTS (Con't.)

	Page
5.0 PHASE IV	5-1
5.1 Soil Investigation	5-1
5.1.1 Soil Sampling	5-1
5.1.2 Decontamination Procedures	5-1
5.2 Analytical Results	5-1
5.3 Discussion	5-3
5.4 Anti-Seep Plug Construction	5-3
6.0 CONCLUSIONS	6-1

LIST OF FIGURES

<u>No.</u>	<u>Title</u>	<u>Page</u>
1-1	Site Location Map	1-2
2-1	Phase I Boring Locations	2-2
3-1	Phase II Boring Locations	3-2
4-1	Phase III Pit Locations	4-2

LIST OF TABLES

<u>No.</u>	<u>Title</u>	<u>Page</u>
2-1	Analytical Results: Phase I Soil	2-6
2-2	Analytical Results: Phase I Groundwater	2-9
3-1	Analytical Results: Phase II Soil	3-4
4-1	Analytical Results: Phase III Soil	4-5
4-2	Analytical Results: Phase III Groundwater	4-7
5-1	Analytical Results: Phase IV Soil (Pit B)	5-2

LIST OF APPENDICES

APPENDIX A:	SOIL BORING LOGS
APPENDIX B:	PIT LOGS
APPENDIX C:	ANALYTICAL DATA

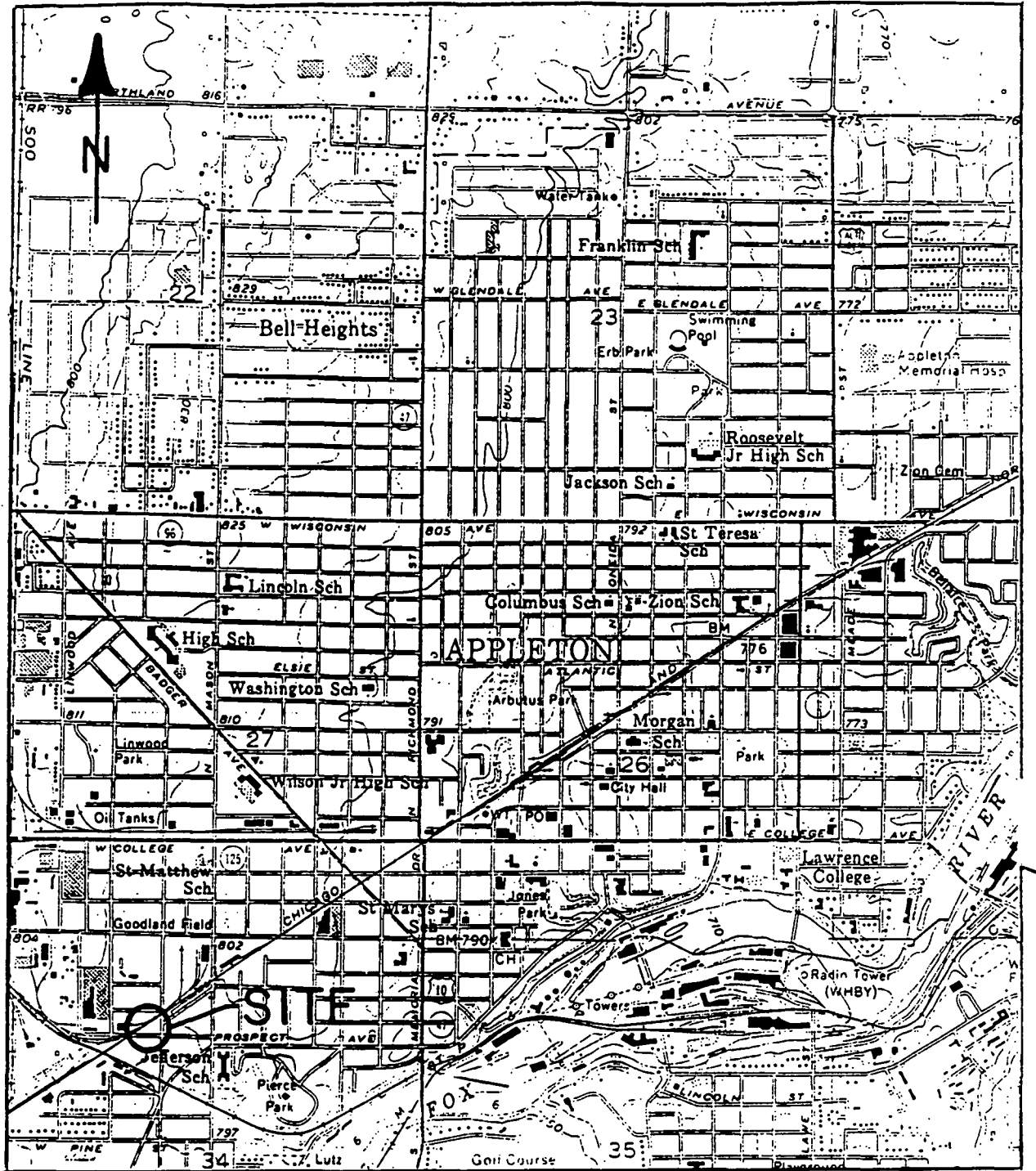
1.0 INTRODUCTION

1.1 Scope of Work

ENSR Consulting and Engineering (formerly ERT, Inc.) was retained by AT&T Communications to perform a multi-phase soil and groundwater investigation and to supervise the construction of anti-seep plugs on a site in Appleton, Wisconsin. The site, shown in Figure 1-1, contains chromium and volatile organic compounds (VOCs) deposited by another party through which AT&T Communications and U.S. Sprint, without knowledge of these chemical constituents, had each subsequently installed fiberoptic telecommunication cables.

As a result of the above actions, AT&T retained ENSR to perform the following phases of work:

- Phase I - Soil and groundwater investigation of the area adjacent to the previously installed AT&T cable.
- Phase II - Soil and groundwater investigation of two proposed alternate cable routes that bypassed the area.
- Phase III - Soil and groundwater investigation of the locations of the anti-seep plugs and the supervision of their construction.
- Phase IV - Soil investigation and construction of an anti-seep plug at a location southwest of Outagamie Street.



Ref.: USGS Map Appleton, Wi. Quadrangle 1975

ERT AN ENSR COMPANY		
FIGURE 1-1		
SITE LOCATION MAP		
DRAWN BY: JHS	DATE: 9/27/88	PROJECT NO.: 0550-029
CHK'D BY: <i>fm</i>	REVISED: —	DWG NO.: —

May 12, 1989

1.2 Background

The area in question is approximately 450 ft long and is bounded on the northeast by Outagamie Street and on the southwest by Second Street. This property is owned by the Chicago and Northwestern Railroad Company (C&NW) and has a pair of parallel railroad tracks passing through it. The AT&T cable was installed in an easement south of the southern track.

According to information provided by the Wisconsin Department of Natural Resources (WDNR) from their previous sampling in the area, the property contains elevated concentrations of chromium and chlorinated solvents in the groundwater. These constituents are attributed to a 1979 chromic acid spill from the N.W. Mauthe Co. chrome plating facility, located immediately north of and adjacent to the railroad property.

Analytical results from the WDNR sampling indicated that elevated concentrations of organic compounds (as high as 18,000 parts per billion (ppb) in the case of 1,1,1-trichloroethane) and inorganic compounds (as high as 1,510,000 ppb in the case of chromium) existed in the groundwater. To remedy the problem, the WDNR installed a French drain liquid collection system in the area, but its operation was discontinued a few years ago.

On June 21, 1988, the U.S. Environmental Protection Agency (U.S. EPA) added the site to the federal National Priorities List (NPL) of sites eligible for investigation and response under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, known as Superfund). In September 1988, WDNR entered into an agreement with U.S. EPA to conduct a Remedial Investigation/Feasibility Study of the site.

2.0 PHASE I

2.1 Soil and Groundwater Investigation

The Phase I soil and groundwater investigation was performed to investigate the nature and concentration of constituents in the area between Outagamie and Second Streets where the AT&T fiberoptics cable had been installed. Field sampling was conducted during the period October 5 through 7, 1987 in accordance with the ERT Sampling Plan (ERT Document No. G417-200) dated October 2, 1987.

2.1.1 Borings

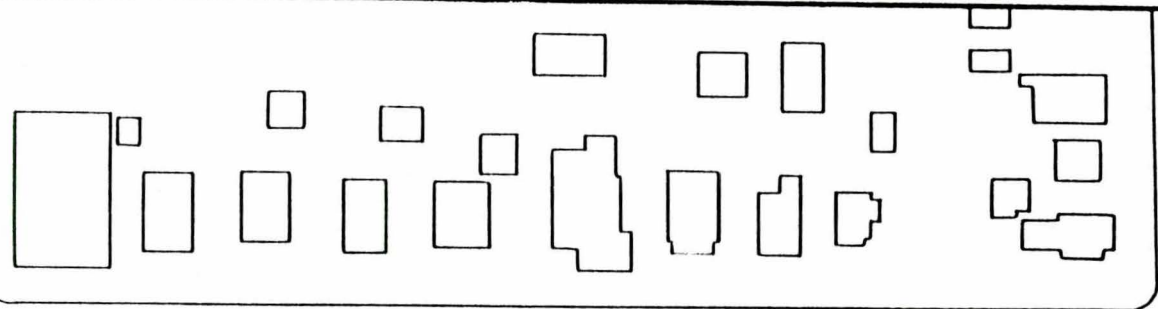
The boring locations from where the Phase I soil and groundwater samples were taken are depicted in Figure 2-1. Borings along the AT&T cable route were spaced approximately 65 ft apart and kept at least 1.5 ft south of the cable. The AT&T cable had been installed in an easement approximately 9 ft southeast of the centerline of the southern railroad track. All borings were performed at the numbered locations except for boring 9 which was abandoned due to its proximity to the U.S. Sprint cable and the WDNR groundwater collection system.

Boring locations were approved in advance by Finley Engineering Company acting as AT&T's field construction coordinator. A C&NW representative was present during all activities conducted on C&NW property.

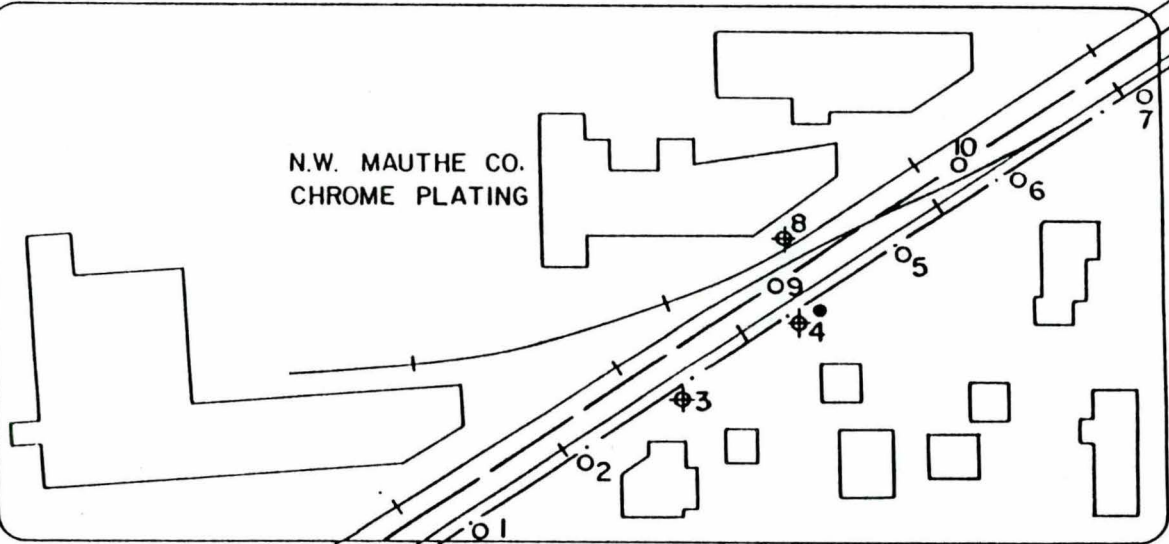
In all, nine borings were made using a stainless steel hand auger with a 3-in.-diameter bucket. With the exception of boring 6, all borings were advanced to a depth of 4 ft; boring 6 was only advanced to a depth of 3.5 ft, where an impenetrable gravel layer was encountered. Logs of the nine borings are included in Appendix A.1.



DOUGLAS STREET



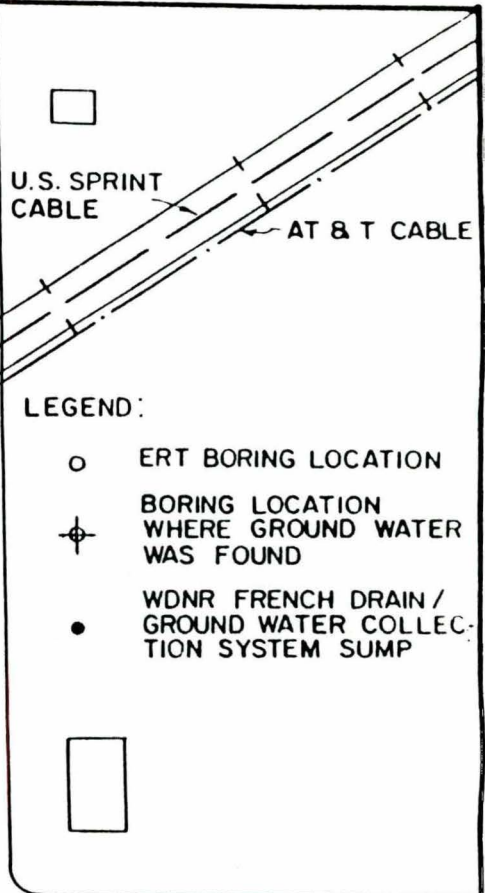
MELVIN STREET



N.W. MAUTHE CO.
CHROME PLATING

SECOND STREET

OUTAGAMIE STREET

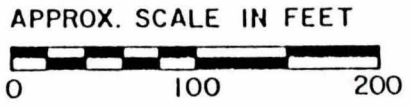
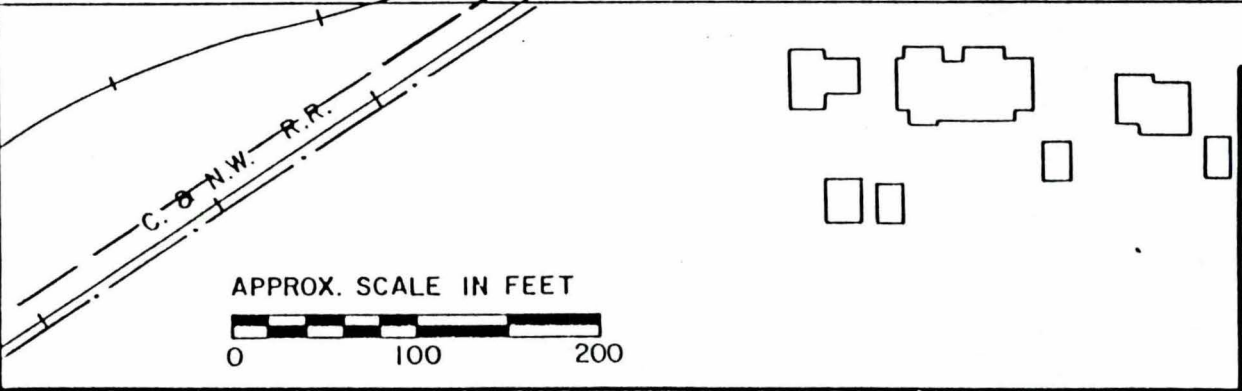


U.S. SPRINT
CABLE

AT & T CABLE

LEGEND:

- ERT BORING LOCATION
- ⊕ BORING LOCATION WHERE GROUND WATER WAS FOUND
- WDNR FRENCH DRAIN / GROUND WATER COLLECTION SYSTEM SUMP



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FIGURE 2-1

PHASE I BORING LOCATIONS

2.1.2 Soil Sampling

Phase I soil samples were collected and prepared for analyses and shipment in the following manner:

- a. Two grab samples were taken from depths of 3.5 and 4.0 ft from each boring, placed into a stainless steel mixing bowl and covered with a plastic lid. After the two grab samples had been composited, they constituted a single representative soil sample for that boring.
- b. A portion of the composited soil sample was then transferred into an 8 oz. wide-mouth glass jar (for total and hexavalent chromium analysis) and three 40 ml vials (to test for the presence of VOCs). The remainder of the soil sample was returned to the boring from which it had been taken.
- c. The soil sample jar and vials were then labeled for analysis and marked with an identification number corresponding to its boring location (unless otherwise noted).
- d. After all the soil samples had been collected and prepared for analyses, they were placed into coolers. Then, to preserve the samples at the specified 4°C, they were packed with ice and accompanied with the proper chain-of-custody forms. The coolers were then affixed with identification seals, packaged, and sent to ERT laboratories in Houston, TX, (for chromium analysis) and Wilmington, MA, (for VOC analysis) via overnight courier.

2.1.3 Groundwater Samples

Groundwater was encountered at three boring locations. These locations are shown in Figure 2-1, along with the WDNR collection system sump from which an additional groundwater sample was taken. The samples were collected with a stainless steel bailer and prepared for analyses and shipment in the following manner:

- a. A portion of the groundwater collected in the bailer was poured into two 4 oz. amber glass jars (one for total chromium and one for hexavalent chromium analyses) and three 40 ml vials (to test for the presence of VOCs).
- b. The groundwater sample for the total chromium analysis was then acidified, dropwise with nitric acid, to a pH of less than 2 for preservation purposes.
- c. The remaining portion of the groundwater in the bailer was then returned to the boring from which it had been taken.
- d. The groundwater sample jars and vials were prepared for analysis and shipment in the manner described in Sections 2.1.2.c and d.

2.1.4 Decontamination Procedures

To insure the integrity of the soil and groundwater samples, the following decontamination procedures were followed:

- a. A decontamination station was set up in the field. The station consisted of one washtub of non-phosphate Alconox detergent and deionized water, one washtub of

deionized water, a pump sprayer of deionized water, scrub brushes and Kimwipes.

- b. Between obtaining soil samples, the bucket of the hand auger was removed, scrubbed, rinsed with deionized water, and dried with Kimwipes. This procedure was also used for decontaminating the bailer between groundwater samples.
- c. Sampling personnel applied a new pair of gloves between collection of each soil and groundwater sample.
- d. All rinse water from the decontamination process was disposed into the sump of the WDNR collection system. Mr. Terry Hegeman of the WDNR approved such disposal during a telephone conversation with ERT's sample team leader, Mr. Scott Veenstra, on October 1, 1987.
- e. To check that the decontamination procedures were effective, deionized water was poured over the decontaminated sampling equipment and collected for analyses. This sample constituted a field blank. The deionized water itself was also collected for analyses and constituted a shipping blank. Both blanks were collected and prepared for shipment and analyses in the manner described in Section 2.1.3.

2.2 Analytical Results

2.2.1 Soil

The analytical results for the Phase I soil samples are summarized in Table 2-1. Each soil sample was taken from the boring location that corresponds to its sample number, unless noted otherwise (e.g., duplicate sample, field blank). All soil samples were analyzed for concentrations of total and hexavalent

TABLE 2-1

ANALYTICAL RESULTS: PHASE I SOIL

Sample No.	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	Total Chromium of Leachate (mg/kg)	VOC Detected	VOC Conc. ($\mu\text{g/g}$)
SB-01	26	<20	<2	2-Butanone	1.4 B ¹
SB-02	45	<20	<2	NA ²	-
SB-03	98	<20	<2	2-Butanone	1.4 B
SB-04	519	50	64	2-Butanone	1.4 B
SB-12 ³	478	54	72	2-Butanone	1.1 B
SB-05	59	<20	<2	NA	-
SB-06	238	<20	<2	NA	-
SB-07	26	<20	<2	2-Butanone	1.2 B
SB-08	536	108	110	NONE	BDL ⁴
SB-10	172	72	72	NA	-
MB870847 ⁵	NA	NA	NA	2-Butanone	1.9
MB870848 ⁶	NA	NA	NA	2-Butanone	18 $\mu\text{g/l}$

Notes:

- 1 B = Detected in the method blank samples
- 2 NA = Not Analyzed
- 3 SB-12 is a duplicate of SB-04
- 4 BDL = Below Detection Limits (See Appendix C.1.b for detection limits of various VOCs)
- 5 Laboratory method blank for VOC analyses of muffled sand.
- 6 Analysis of laboratory water used in analysis of muffled sand method blank MB870847.

chromium and for total chromium concentration of the hexavalent chromium leachate. In addition, selected samples were analyzed for VOCs.

The total chromium concentration was determined by either atomic adsorption (AA) or inductively coupled plasma (ICP) analyses of the extract resulting from acid digestion of the soil sample. The total chromium analysis by AA was done in Phases I and II in accordance with Method 303A (Standard Methods for the Examination of Water and Wastewater, 16th Edition, 1985, APHA-AWWA-WPCF), and that by ICP (in Phases III and IV), in accordance with Method 6010 (EPA Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 2nd Edition, 1984).

The hexavalent chromium concentration was determined by the colorimetric Method 312 B (Standard Methods). The total chromium concentration of the hexavalent chromium leachate was analyzed by a modified method in which the hexavalent chromium water leachate (without acid digestion) was analyzed by ICP for total chromium instead of by colorimetric analysis for hexavalent chromium. The total chromium analysis of the leachate was intended only to give an indication of the maximum hexavalent chromium concentration, not that of total chromium. Total chromium is more properly represented by samples analyzed subsequent to acid digestion.

VOC concentrations in soils were determined by Method 8240 (EPA, SW-846).

Quality control (QC) samples included one duplicate (SB-12 is a duplicate of SB-04), a field blank (SB-13-W), a shipping blank, and two laboratory method blanks (MB870847, muffled sand, and MB870848, laboratory water used in analysis of muffled sand method blank MB870847). Complete laboratory reports are contained in Appendices C.1.a (chromium) and C.1.b (VOCs).

2.2.2 Groundwater

Groundwater was encountered at three of the Phase I boring locations and samples were collected. The analyzed results of these samples, and that taken from the WDNR collection sump, are summarized in Table 2-2. Field-measured pH values are also reported.

Total and hexavalent chromium analyses and VOC analysis were performed on all of the groundwater samples, except for the sample taken from the sump (SB-11-W). The sump water was only tested for the presence of total and hexavalent chromium. The chromium analyses were performed using the methods described in Section 2.2.1. VOC concentrations in water were determined using Method 624 (Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, revised March 1983).

In addition, SB-12-W (a duplicate sample of SB-04) was split in the laboratory so that duplicate laboratory analyses could be performed for VOCs. Finally, the field blank (SB-13-W) and shipping blank serve the same QC purposes for both the Phase I soil and Phase I groundwater sampling programs because the same deionized water was used during both decontamination processes. Laboratory method blank MB870842 was analyzed for VOCs.

2.3 Discussion

Concentrations of total chromium in soil ranged from 26 to 536 mg/kg (parts per million (ppm)) (Table 2-1) and generally decreased markedly with increasing distance from the chrome plating facility north of the railroad tracks (Figure 2-1). The smaller chromium concentrations (e.g., less than about 100 mg/kg) are typical for normally occurring chromium in soils. The larger concentrations, however, can be indicative of the chromic acid spill attributed by WDNR to the adjacent chrome plating facility. These higher concentrations occurred in borings 4, 6, 8 and 10.

TABLE 2-2

ANALYTICAL RESULTS: PHASE I GROUNDWATER

Sample No.	Total Chromium (mg/l)	Hexavalent Chromium (mg/l)	VOC	VOC Concentration (ug/l)	Field pH (S.U.)
			Detected		
SB-03-W	31	34 ¹	1,1-Dichloroethane	16	7.20
			1,1,1-Trichloroethane	330	
			Carbon Tetrachloride	52	
			Trichloroethene	59	
SB-04-W	42	74 ¹	1,1-Dichloroethene	18	7.20
			1,1-Dichloroethane	26	
			Trans-1,2-Dichloroethene	18	
			1,1,1-Trichloroethane	530	
			Carbon Tetrachloride	86	
			Trichloroethene	41	
SB-12-W ²	105	68 ¹	1,1-Dichloroethene	17	7.15
			1,1-Dichloroethane	25	
			Trans-1,2-Dichloroethene	17	
			1,1,1-Trichloroethane	510	
			Carbon Tetrachloride	82	
			Trichloroethene	40	
SB-12-W DUP ³	NA ⁴	NA	1,1-Dichloroethene	20	NA
			1,1-Dichloroethane	28	
			Trans-1,2-Dichloroethene	19	
			1,1,1-Trichloroethane	560	
			Carbon Tetrachloride	90	
			Trichloroethene	44	
SB-08-W	280	350 ¹	1,1-Dichloroethene	94	6.90
			1,1-Dichloroethane	47	
			Trans-1,2-Dichloroethene	77	
			1,1,1-Trichloroethane	1,400	
			Carbon Tetrachloride	240	
			Trichloroethene	590	

May 12, 1989

Page 2-9

AT&T Communications, Appleton, WI

0550-029-510

TABLE 2-2 (Con't.)

Sample No.	Total Chromium (mg/l)	Hexavalent Chromium (mg/l)	VOC Detected	VOC Concentration (ug/l)	Field pH (S.U.)
SB-11-W (Collection Sump)	219	212 ¹	NA	NA	7.05
SB-13-W ⁵ (Field Blank)	<0.04	<0.5 ¹	NONE	BDL ⁶	NA
Shipping Blank ⁵	<0.04	<0.5 ¹	NONE	BDL	NA
MB870842 ⁷	NA	NA	Acetone	40	NA

Notes:

- 1 The maximum holding time for this analysis after sampling (24 hrs.) was exceeded
- 2 SB-12-W is a duplicate of SB-04-W
- 3 SB-12-W DUP is a laboratory duplicate of SB-12-W
- 4 NA = Not Analyzed
- 5 Deionized water
- 6 BDL = Below Detection Limits (See Appendix C.1.b for detection limits of various VOCs)
- 7 Laboratory method blank

Hexavalent chromium concentrations in soil were generally low except in those borings exhibiting high total chromium concentrations. The detection limit for hexavalent chromium determined by the colormetric method was typically 20 mg/kg. This detection limit was effectively lowered to 2 mg/kg by performing a total chromium analysis on the leachate of the hexavalent chromium analysis. Since the total chromium analysis measures the concentration of both trivalent and hexavalent chromium, the concentration of hexavalent chromium cannot, theoretically, exceed that of the total chromium.

With the exception of 2-butanone, VOCs were not detected in the analyzed soil samples. 2-Butanone was also found in the laboratory water used in the analysis of method blank MB870847 (see MB870848 in Table 2-1) and is considered an artifact of the laboratory procedure - not a constituent in the soil sample.

Total and hexavalent chromium were detected in all groundwater samples collected from borings 3, 4 and 8 and from the south collection sump (SB-11) (Table 2-2). Total chromium concentrations ranged from 31 to 280 mg/l (i.e., ppm), and hexavalent concentrations, from 34 to 350 mg/l - all of which exceed the WDNR 5 mg/l criteria that classifies the liquid as hazardous.

As stated previously, the concentration of hexavalent chromium cannot theoretically exceed that of total chromium for a sample. It should be understood that values reported for total chromium and hexavalent chromium were determined using two distinct methods, each of which has its own associated precision and accuracy. When the precision of the methods are considered, the values reported in Table 2-2 for each sample agree within the associated precision of the measurements. It is reasonable to assume for these samples that the reported hexavalent chromium represents all chromium present within the precision of the measurements.

These groundwater samples also exhibited elevated concentrations of various chlorinated solvents, similar to those

results obtained by WDNR during previous groundwater sampling. In particular, 1,1,1-trichloroethane was found in all analyzed groundwater samples at concentrations ranging from 330 to 1400 $\mu\text{g/l}$ (i.e., ppb). The field pH of these samples was neutral, ranging from 6.90 to 7.20.

Based on these results, ERT and AT&T concluded that the area contained constituents that would preclude maintenance of the fiberoptics cable by regular maintenance personnel and could possibly impact the operational performance of the cable. In addition, future cleanup operations by other parties could interfere with cable operations. Accordingly, AT&T requested that ERT investigate alternate routes to bypass the area investigated during Phase I activities. Alternate routes were investigated in Phase II, as described in Section 3.0.

3.0 PHASE II

3.1 Soil and Groundwater Investigation

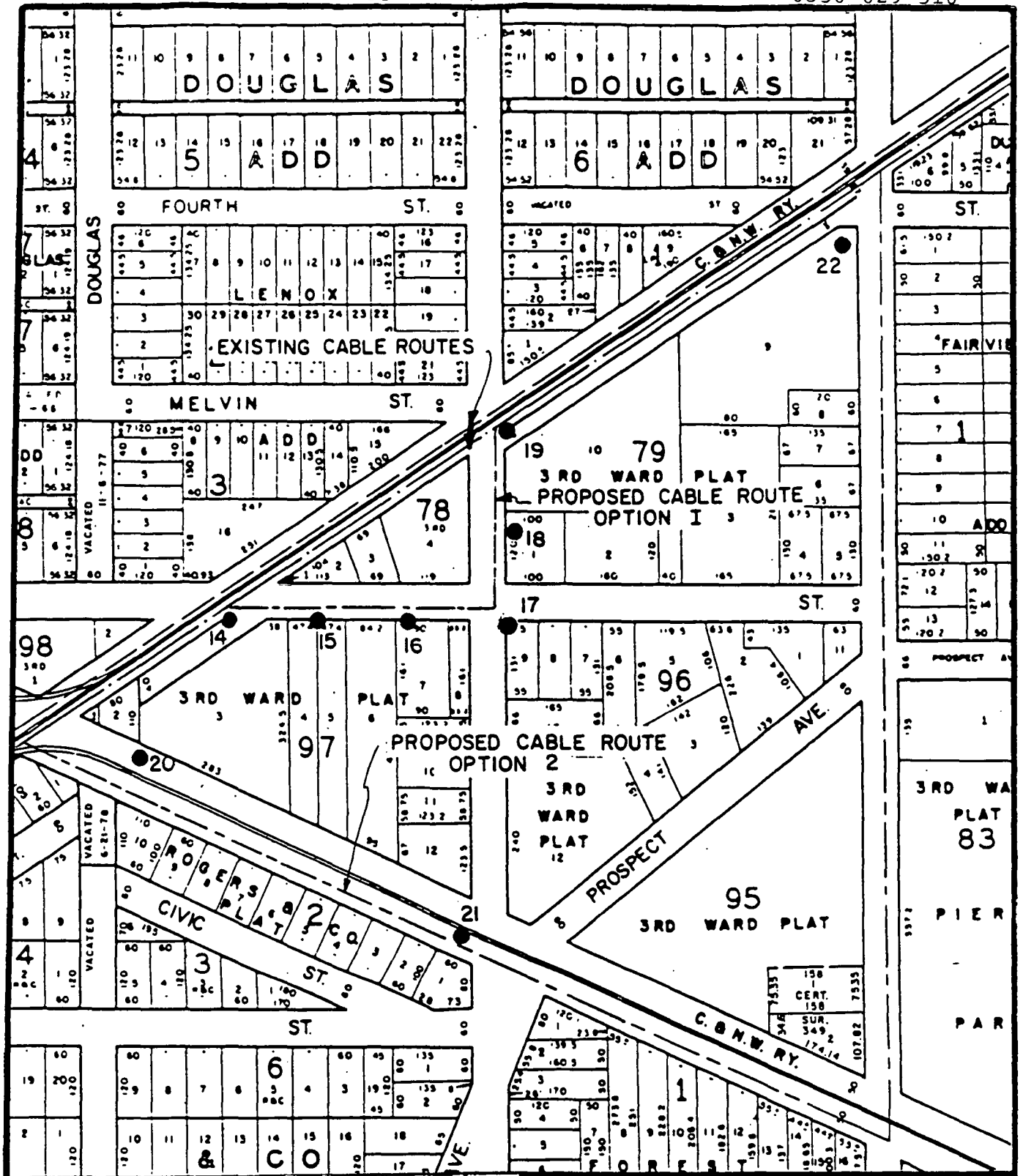
The Phase II soil and groundwater investigation was performed for AT&T to investigate the potential presence of chromium and VOC constituents along two alternate cable routes that bypassed the area studied in Phase I. The Phase II field sampling was conducted during the period October 26 and 27, 1987. The Phase II investigation procedures are described in ERT correspondence (Ref. #87-10-033) dated October 21, 1987, and applicable portions of the original Sampling Plan (ERT Document No. G417-200).

3.1.1 Borings

The borings from which the Phase II soil samples were taken are depicted in Figure 3-1. Soil boring locations were approved in advance of drilling by permit from the City of Appleton. All borings were advanced to a depth of 4 ft at the numbered locations, except for borings 20 and 22. The location of boring 20 was moved approximately 100 ft to the southeast due to encountering impenetrable fill material at the planned location. The location of boring 22 was moved to the southwestern corner of Fourth and Mason Streets to be closer to the proposed option-2 cable route. In all, nine borings were made using a stainless steel hand auger with a 3-in.-diameter bucket. Logs of these borings are included in Appendix A.2.

3.1.2 Soil Sampling

Phase II soil samples were collected and prepared for shipment and analyses in the manner described in Section 2.1.2.



LEGEND:

- ERT BORING

APPROX. SCALE IN FEET

200 100 0 100 200

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FIGURE 3-1

PHASE II BORING LOCATIONS

Ref.: N.W. 1/4 Sec 34 City of Appleton, WI.

3.1.3 Groundwater Sampling

Groundwater was not encountered at any of the Phase II boring locations.

3.1.4 Decontamination Procedures

Phase II decontamination procedures were followed in the manner described in Section 2.1.4.

3.2 Analytical Results

3.2.1 Soil

The analytical results for the Phase II soil samples are summarized in Table 3-1. Each soil sample was analyzed for total and hexavalent chromium, total chromium of the hexavalent chromium leachate, and VOCs, using the methods described in Section 2.2.1. Total chromium was analyzed using the AA technique. QC samples included one duplicate (SB-23 is a duplicate of SB-16), a field blank (SB-24-W), and a shipping blank. Complete laboratory results are contained in Appendices C.2.a (chromium) and C.2.b (VOCs).

3.2.2 Groundwater

Groundwater was not encountered in Phase II borings.

3.3 Discussion

Concentrations of total chromium in soil along the alternate cable routes ranged from 25 to 48 mg/kg, concentrations that are not unexpected in soils. Hexavalent chromium and VOCs were not found in concentrations above their detection limits (Table 3-1).

TABLE 3-1

ANALYTICAL RESULTS: PHASE II SOIL

Sample No.	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	Total Chromium of Leachate (mg/kg)	VOC Detected	VOC Conc. (μ g/kg)
SB-14	25	<20	<1	None	BDL ¹
SB-15	26	<20	<1	None	BDL
SB-16	40	<20	3.4	None	BDL
SB-23 ²	44	<20	<1	None	BDL
SB-17	26	<20	<1	None	BDL
SB-18	28	<20	<1	None	BDL
SB-19	38	<20	<1	None	BDL
SB-20	40	<20	<1	None	BDL
SB-21	40	<20	<1	None	BDL
SB-22	48	<20	<1	None	BDL
SB-24-W (Field Blank) ³	<0.04 mg/l	<2 mg/l ⁴	<0.01 mg/l	None	BDL
Shipping Blank ³	<0.04 mg/l	<2 mg/l ⁴	<0.01 mg/l	None	BDL

Notes:

- 1 BDL = Below Detection Limits (See Appendix C.2.b for detection limits of various VOCs)
- 2 SB-23 is a duplicate of SB-16
- 3 Deionized water
- 4 The maximum holding time for this analysis after sampling (24 hrs.) was exceeded

Based on these results, ERT concluded in a December 4, 1987, letter to AT&T (Ref. #87-12-H022) that neither of the alternate routes appear to have been affected by the chromium and VOC constituents that were encountered along the existing cable route. Either alternate route should therefore be suitable as a bypass route.

AT&T and U.S. Sprint subsequently installed new cables in a common trench (mandated by the City of Appleton) along the shorter route (Option 1) along Outagamie and Second Streets (Figure 3-1). They both abandoned their cables in the area between Outagamie and Second Streets that was investigated during Phase I.

4.0 PHASE III

4.1 Soil and Groundwater Investigation

The Phase III soil and groundwater investigation was performed for AT&T to investigate and document the potential chromium and VOC constituents at proposed locations of anti-seep plugs to be constructed at each end of the cable conduits under Outagamie and Second Streets. The Phase III investigation and anti-seep plug construction were performed in accordance with ERT correspondence (Ref. #87-12-H022) dated December 4, 1987, and applicable portions of the original Sampling Plan (ERT Document No. G417-200). The Phase III field work was performed during the period December 7 through 11, 1987.

4.1.1 Pit Excavations

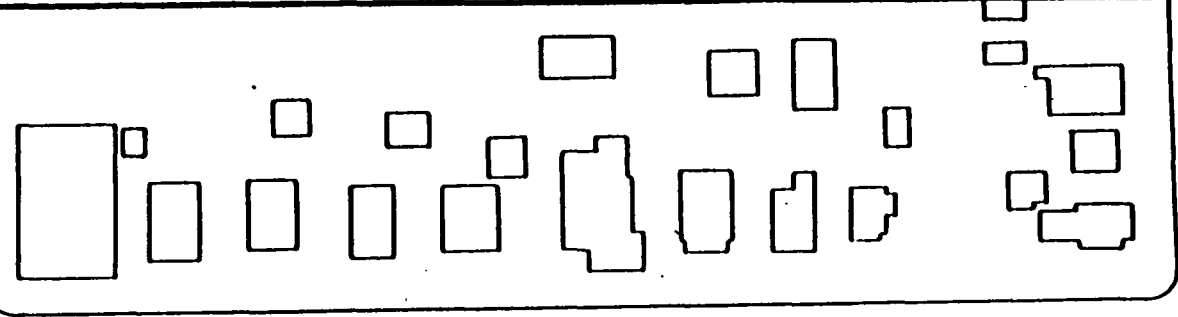
The pit excavation locations (A, B, C and D) from which the Phase III samples were taken are shown in Figure 4-1. All Phase III pit excavations were performed at the lettered locations using both a backhoe and hand labor. This work was performed by Michaels Pipeline Construction Co. Pit logs are contained in Appendix B.

4.1.2 Soil Sampling

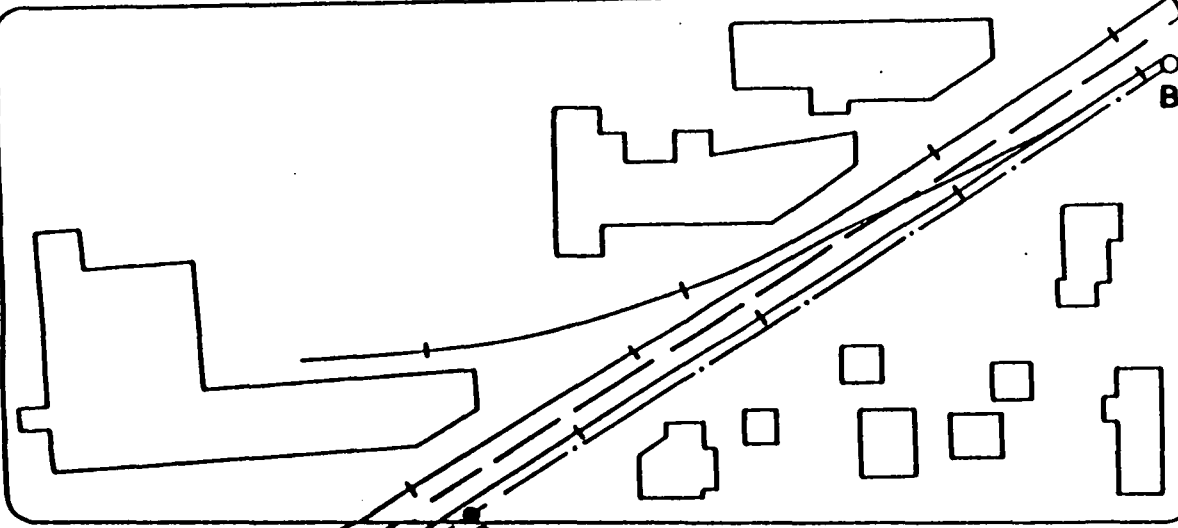
Phase III soil samples were taken from pit locations A, B, C and D. In addition, background samples were taken from pits B and C. A QC duplicate sample was also taken from pit B. The samples were collected and prepared for analyses and shipment in the following manner:



DOUGLAS STREET

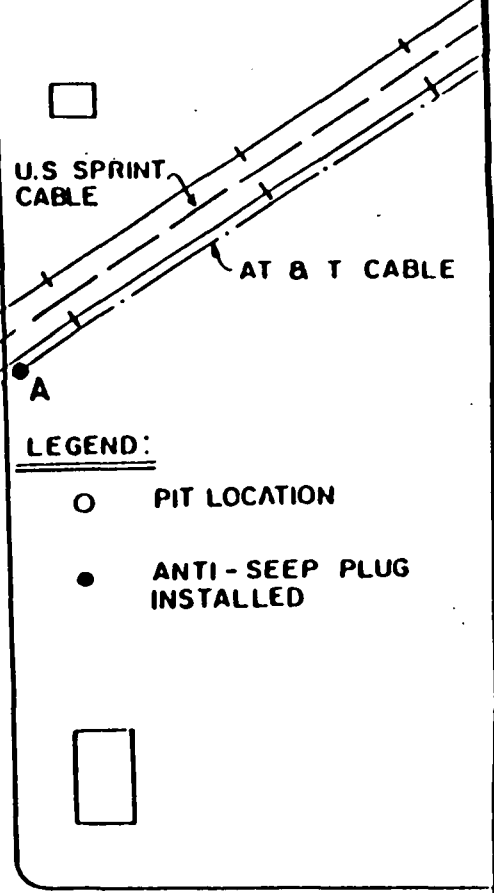


MELVIN STREET



SECOND STREET

OUTAGAMIE STREET



U.S SPRINT CABLE

AT & T CABLE

LEGEND:

- PIT LOCATION
- ANTI-SEEP PLUG INSTALLED

A

B

C

D

APPROX. SCALE IN FEET



ERT, An ENSR Company

FIGURE 4-1

PHASE III PIT LOCATIONS

- a. Each soil sample was collected with a stainless steel spoon, placed into a stainless steel bowl and covered with a plastic lid. This constituted a single soil sample. All soil samples were taken from the undisturbed soils from the pit walls closest to the Mauthe facility (i.e., southwestern walls of pits A and B, and northwestern walls of pits C and D).
- b. The actual soil samples were taken immediately below the steel conduit (pits A and D) or plastic interduct (pits B and C) exposed in each pit excavation.
- c. Background soil samples were taken in pits B and C in apparently undisturbed soil approximately 2 ft laterally from the exposed conduits and at about the same depths.
- d. Phase III soil samples were prepared for shipment and analyses in the manner described in Section 2.1.2.

4.1.3 Groundwater Sampling

Groundwater was not encountered at pit location B immediately following excavation, but seeped into the excavation during the night, as described in ERT Ref. #88-01-Q150 dated January 22, 1988. This water was collected and prepared for shipment and analysis in the manner described in Section 2.1.3.

4.1.4 Decontamination Procedures

Phase III decontamination procedures were followed as described in Section 2.1.4.

4.2 Analytical Results

4.2.1 Soil

The analytical results for the Phase III soil samples are summarized in Table 4-1. Each soil sample was taken from the pit location that corresponds to its sample number. All samples were analyzed for total and hexavalent chromium, total chromium concentration of the hexavalent chromium leachate, and VOCs, as described in Section 2.2.1. Total chromium was analyzed using the ICP technique. Complete laboratory results are contained in Appendices C.3.a (chromium) and C.3.b (VOCs).

4.2.2 Groundwater

The analytical results for the Phase III groundwater sample from pit B and liquid field and shipping blanks are summarized in Table 4-2. Total and hexavalent chromium analyses, total chromium analysis of the non-acidified hexavalent chromium leachate, and VOC analysis were performed on the sample, as described in Section 2.2.2. QC field and shipping blanks for each day that samples were taken during Phase III operations were analyzed for these same chemicals except for the total chromium of the hexavalent chromium leachate.

4.3 Discussion

Total chromium concentrations in soils at pit locations A, B and D ranged from about 28 to 59 mg/kg. Concentrations were greater, however, in pit C - 92 and 158 mg/kg. Hexavalent chromium was found above detection limits only in pit B soils, at concentrations ranging from 2.30 to 5.94 mg/kg. VOCs were not detected in any soil samples above detection limits. Although these concentrations of chromium and VOCs are not atypical of soils in the area, the chromium levels in pit C may indicate a greater disbursement of chromium toward the southwest.

TABLE 4-1

ANALYTICAL RESULTS: PHASE III SOIL

Sample No.	Location ¹	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	Total Chromium of Leachate (mg/kg)	VOC Detected	VOC Conc. (μ g/kg)
A-1	C	30.6	<0.08	<0.08	None	BDL ²
B-1	C	59.0	2.56	2.88	None	BDL
B-2 ³	C	55.8	2.30	2.61	None	BDL
B-3	B	36.8	5.94	6.99	None	BDL
C-1	C	157.4	<0.08	<0.08	None	BDL
C-2	B	92.0	<0.08	<0.08	None	BDL
D-1	C	27.6	<0.08	<0.08	None	BDL

Notes:

- 1 B = Background soil sample, approximately 2 ft laterally from C sample
C = sample collected from soil beneath conduit or interduct
- 2 BDL = Below Detection Limits (See Appendix C.3.b for detection limits of various VOCs)
- 3 Sample B-2 is a duplicate of B-1

The total and hexavalent chromium levels in the groundwater that had seeped into pit B during the night (Table 4-2) were found to be 5.84 and 5.40 mg/l, respectively, and may be considered RCRA hazardous (i.e., >5.0 mg/l) by WDNR. In addition, acetone was detected in VOC analyses of pit B groundwater. Toluene and chloroform were also detected at low levels in field and shipping blanks.

Based on these Phase III results, ERT concluded in a January 22, 1988, letter (Ref. #88-01-Q150) that chromium had not migrated along the fiberoptics cable line northeast of Outagamie Street or southwest of Second Street. This conclusion is based on the similarity of results from samples collected immediately beneath the fiberoptics cable and those collected from nearby undisturbed background locations in pits B and C (Table 4-1). In addition, the concentrations of Phase III soil samples collected from the pits (Table 4-1) are consistent with those collected from Phase I borings (Table 2-1) in those areas near Outagamie and Second Streets, and are also significantly less than those in the central portion of the site southeast of the Mauthe facility (see Figure 2-1).

4.4 Anti-Seep Plug Construction

The Phase III anti-seep plug construction was performed at pit locations A, C and D in accordance with the specifications contained in ERT correspondence (Ref. #87-12-H022) dated December 4, 1987. The anti-seep plugs were installed during the period December 7 through 11, 1987.

The construction of the anti-seep plugs was performed by Michaels Pipeline Construction Co., under the supervision of ERT, in the following manner:

- a. The pit was excavated with a backhoe and hand labor so that the minimum 4 ft square, 2 ft wide, conduit-centered anti-seep plug volume was achieved.

TABLE 4-2

ANALYTICAL RESULTS: PHASE III GROUNDWATER

Sample No.	Total Chromium (mg/l)	Hexavalent Chromium (mg/l)	Total Chromium of Leachate (mg/l)	VOC Detected	VOC Conc. (μ g/l)
B-W	5.84	5.40 ¹	5.70	Acetone	130
Field Blank ² :					
12/7/87	<0.01	<0.02	NA ³	Chloroform	8.2
12/8/87	<0.01	<0.002 ¹	NA	Chloroform	4.3
12/10/87	<0.01	<0.002 ¹	NA	Toluene	4.7
Shipping Blank ² :					
12/7/87	<0.01	<0.02	NA	Chloroform	8.0
12/8/87	<0.01	<0.002 ¹	NA	Chloroform	4.6
12/10/87	<0.01	<0.002 ¹	NA	Toluene	3.2
Laboratory Blank ²	NA	NA	NA	None	BDL ⁴

Notes:

- 1 The maximum holding time for this analysis after sampling (24 hrs.) was exceeded
- 2 Deionized water
- 3 NA = Not Analyzed
- 4 BDL = Below Detection Limits (See Appendix C.3.b for detection limits of various VOCs)

- b. The pit was formed with plywood (transverse to the cable direction) in a manner such that the plug extended into the undisturbed soil walls of the pit. The plywood form was then reinforced with 2 x 4 lumber.
- c. Before the plug mix was poured, the end of the exposed conduit was injected with an expanding polyurethane sealing compound to further decrease the chance of chromium seepage through the conduit.
- d. The anti-seep plug mixture of sand and bentonite was prepared by the 4X Corporation of Neenah, Wisconsin, and had the following composition per cubic yard:

<u>Material</u>	<u>Quantity</u>
Bentonite	600 lbs.
Sand*	2500 lbs.
Water	15 gal.

*Includes approximate 4% moisture.

The bentonite used to prepare the anti-seep plug was Volclay TFS-81, a chemically treated bentonite formulated by American Colloid Co. to contain organic and inorganic chemical constituents.

The anti-seep plug mixture was supplied and transported to the site by 4X Corporation in a concrete mixer. As the mixture was poured into the pit, additional water was added from the mixer's tank in order to hydrate the bentonite to effect the plug. Workmen mixed, placed, and tamped the mixture into the pit to at least 2 ft above the conduit.

- e. Upon completion of placement of the anti-seep plug, the excavated material was returned to the pit (behind the plywood form and above the plug mixture) and the excess smoothed over the top with a backhoe. The area was covered with coarse gravel.

Installation of the remaining anti-seep plug at location B was deferred because greenish water (possibly indicative of chromium) had seeped into the excavation during the night. Michaels Pipeline Construction Co. was not a licensed hazardous waste contractor and Michaels' personnel were not trained to handle hazardous waste. In addition, no provision existed to collect, transport or dispose of potentially hazardous groundwater or soil from pit B. Consequently, excavated materials from pit B were replaced in the excavation, backfilling it to grade.

Planning, sampling, testing and installation of the anti-seep plug at location B were conducted in Phase IV, as described in Section 5.0.

5.0 PHASE IV

5.1 Soil Investigation

Because the excavated soil used to backfill pit B may have been mixed with the greenish groundwater that had seeped into the pit, a sample of the soil was collected and analyzed. This sampling and analysis were performed as described in ERT's letter (Ref. #88-01-Q168) dated January 28, 1988, to Mr. Hegeman of WDNR. The Phase IV field sampling was conducted on June 1, 1988.

5.1.1 Soil Sampling

A boring was drilled at the location of pit B using a stainless steel hand auger with a 3-in.-diameter bucket. Samples were collected from the 3 and 4-ft-depth intervals, composited into a single sample, and shipped under chain-of-custody to ERT's Houston, TX laboratory via overnight courier.

5.1.2 Decontamination Procedures

The hand auger bucket was decontaminated both before and after collecting the samples, as described in Section 2.1.4. Similarly, deionized water poured over the decontaminated sampler was collected as a field blank. As previously, rinse water from the decontamination process was disposed into the sump of the WDNR collection system.

5.2 Analytical Results

The analytical results for the Phase IV soil sample are presented in Table 5-1, together with EP Toxicity concentrations that would classify the soil as a hazardous material. The soil sample was analyzed for concentrations of EP Toxicity metals.

TABLE 5-1
ANALYTICAL RESULTS - PHASE IV SOIL
(PIT B)

<u>Chemical</u>	<u>Sample Concentration (mg/l)</u>	<u>Hazardous Criteria (mg/l)</u>
EP TOX		
Arsenic	<0.0025	5
Barium	0.31	100
Cadmium	<0.010	1
Chromium	<0.02	5
Lead	<0.04	5
Mercury	<0.0025	0.2
Selenium	<0.0025	1
Silver	<0.02	5
FIELD BLANK		
Chromium	<0.02	

The extraction was done in accordance with Method 1310 (EPA Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 2nd Edition, 1984). Analyses for barium, cadmium, chromium and lead were done by ICP in accordance with Method 6010 (SW-846). Analyses for silver, arsenic, mercury and selenium were done, respectively, in accordance with Methods 303A, 303E, 303F and 303E (Standard Methods for Examination of Water and Wastewater, 16th Edition, 1985, APHA-AWWA-WPCF).

A QC sample included one field blank which was analyzed for total chromium in accordance with Method 200.7 (Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, revised March 1983).

Complete laboratory results are contained in Appendix C.4.

5.3 Discussion

The soil sample was analyzed for EP Toxicity metals and was found to contain no metals concentrations in the leachate that exceeded the maximum allowable concentrations. In fact, all metal concentrations were below detection limits except for barium at a concentration of 0.31 mg/l (maximum allowable concentration is 100 mg/l). Total chromium concentration in the field blank was also below the detection limit.

Accordingly, the soils at pit B are classified as non-hazardous and may be disposed at the surface near the pit excavation. This disposal method is based upon the testing and disposal criteria approved by Mr. Hegeman of WDNR, as summarized in ERT correspondence (Ref. #88-01-Q168) dated January 28, 1988.

These data were transmitted to AT&T in ERT correspondence (Ref. #88-07-Q508) dated July 22, 1988.

5.4 Anti-Seep Plug Construction

The Phase IV anti-seep plug construction was performed at pit location B in accordance with the specifications contained in

ERT correspondence (Ref. #87-12-H022) dated December 4, 1987, as modified in ERT correspondence (Ref. #88-01-Q150) dated January 22, 1988. This work was conducted under an Addendum to the AT&T Lightguide Cable Health and Safety Plan dated August 18, 1988.

The anti-seep plug at pit B was constructed on August 19, 1988, by ERT and its sister company, ENSR Constructors, Inc., in the following manner:

- a. The pit was excavated with a backhoe so that the minimum 4 ft square, 2 ft wide, conduit-centered anti-seep plug volume was achieved. Actual dimensions were approximately 7 to 8 ft long (transverse to the cable direction, by 3 to 4 ft wide (along the cable direction), by 6 ft deep. The steel conduit was located approximately 3 ft deep.
- b. The pit was excavated such that the plug extended into the undisturbed soil walls of the pit.
- c. The anti-seep plug mixture of sand and bentonite was prepared by Valley Redi-mix of Appleton, Wisconsin, and had the following composition per cubic yard:

<u>Material</u>	<u>Quantity</u>
Bentonite	600 lbs.
Sand*	2500 lbs.

*Includes approximately 3-4% moisture.

The bentonite used to prepare the anti-seep plug was Volclay TFS-81, and chemically treated bentonite formulated by American Colloid Co. to contain organic and inorganic chemical constituents.

The anti-seep plug mixture was supplied and transported

to the site by Valley Redi-mix in a concrete mixer. The mixture was poured into the pit, in approximately 6-in.-thick lifts. Water was added from the mixer's tank and the components were mixed in the pit by hand using shovels. Additional water was added from the mixer's tank in order to hydrate the bentonite to effect the plug. Workmen mixed, placed, and tamped the mixture and backfilled the pit to existing grade.

- d. Upon completion of placement of the anti-seep plug, the excavated material was disposed on the surface near the pit using a backhoe. The area was covered with coarse gravel.
- e. The backhoe bucket and other tools were decontaminated using a high pressure washer prior to being removed from the site. The decontamination was done in the area between the north and south railroad tracks west of Outagamie Street.

6.0 CONCLUSIONS

Phase I activities provided data that indicated that the area between Outagamie and Second Streets contained types and concentrations of chemicals that were not conducive to the operation and maintenance of the existing fiberoptics cable. Future cleanup operations by other parties could also impact performance of the cable.

Phase II activities provided data that demonstrated that both of the proposed alternate routes were acceptable for installation and operation of a bypass cable.

Phase III activities provided data that indicated that chromium had not migrated along the fiberoptics cable line northeast of Outagamie Street or southwest of Second Street.

Phase III and IV anti-seep plug construction on both sides of both Outagamie and Second Streets should effectively block any potential seepage from the area along the cable route.

APPENDIX A
SOIL BORING LOGS

APPENDIX A.1

PHASE I BORING LOGS

LOG OF BORING

BORING/WELL NO.
SB-01

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/6/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

ELEVATION

WHILE DRILLING none encountered

GROUND SURFACE unknown

AT COMPLETION _____

END OF BORING unknown

24 HOURS _____

DEPTH (ft)	LENGTH	RECOVY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil - Black
1.0									Silty-Clay: Reddish brown with some tan discolorations, slightly moist.
1.5									
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								
									Total Depth = 4.0 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0Z Sample SB-01 was a composite of the two indicated intervals.



LOG OF BORING

BORING/WELL NO.
SB-02

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/6/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

WHILE DRILLING none encountered

AT COMPLETION _____

24 HOURS _____

ELEVATION

GROUND SURFACE unknown

END OF BORING unknown

DEPTH (ft)	LENGTH	RECOVY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil - Black
1.0									Silty-Clay: Reddish-brown, slightly moist.
1.5									
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-02 was a composite of the two indicated intervals.



LOG OF BORING

BORING/WELL NO.
SB-03

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/6/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

WHILE DRILLING 3 feet

AT COMPLETION 3 feet

24 HOURS _____

ELEVATION _____
GROUND SURFACE unknown
END OF BORING unknown

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil - Black
1.0									Silty-clay: Reddish brown, moist.
1.5									
2.0									Water level
2.5									
3.0	X						▽		Total Depth = 4.0 feet
3.5	X								
4.0	X								OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-03 was a composite of the two indicated intervals. Sample SB-03-W was collected from the completed boring, note that the water was the color of anti-freeze.



LOG OF BORING

BORING/WELL NO.

SB-04

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/6/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

ELEVATION
GROUND SURFACE unknown
END OF BORING unknown

WHILE DRILLING 3 feet
AT COMPLETION 3 feet
24 HOURS _____

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil - Black
1.0									Clay: Grey with black mottling, slightly moist.
1.5									
2.0									
2.5									Water Level ▽
3.0	X								
3.5	X								Clay: Tan, moist.
4.0	X								Clay: Red, moist.
									Total Depth = 4.0 feet
									OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm
									Lower Explosive Limit Reading: LEL = 0 %
									Sample SB-04 was a composite of the two indicated intervals.
									Sample SB-12 was a duplicate of sample SB-04.
									Sample SB-04-W was collected from the completed boring, SB-12-W was a duplicate. The water was the color of antifreeze.



LOG OF BORING

BORING/WELL NO.

SB-05

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/7/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

WHILE DRILLING none encountered

AT COMPLETION _____

24 HOURS _____

ELEVATION

GROUND SURFACE unknown

END OF BORING unknown

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil - Black
1.0									Silty-clay: Red, slightly moist.
1.5									
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet
									OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm
									Lower Explosive Limit Reading: LEL = 0%
									Sample SB-05 was a composite of the two indicated intervals.

LOG OF BORING

BORING/WELL NO.
SB-06

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/7/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

WHILE DRILLING none encountered

AT COMPLETION _____

24 HOURS _____

ELEVATION
GROUND SURFACE unknown
END OF BORING unknown

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil - Black
1.0									Clay: Red, slightly silty.
1.5									
2.0									
2.5									Total Depth = 3.5 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0 % Sample SB-06 was a grab sample from the indicated interval. The boring was terminated at the indicated depth due to an impenetrable gravel layer.
3.0	X								
3.5	X								
4.0									



LOG OF BORING

BORING/WELL NO.

SB-07

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/7/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

ELEVATION

WHILE DRILLING none encountered

GROUND SURFACE unknown

AT COMPLETION _____

END OF BORING unknown

24 HOURS _____

DEPTH (ft)	LENGTH	RECOVY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil - Black, some gravel.
1.0									Silt-Clay: Red, slightly moist.
1.5									
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-07 was a composite of the two indicated intervals.



LOG OF BORING

BORING/WELL NO.

SB-08

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/7/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

WHILE DRILLING 1 foot

AT COMPLETION 1 foot

24 HOURS

ELEVATION

GROUND SURFACE unknown

END OF BORING unknown

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Mnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Fill - Gravel and sand
1.0							▽		Water Level
1.5									Silty-Clay: Red, moist.
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet
									OVA Readings: Breathing Zone = 0 ppm Boring Opening = 25 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-08 was a composite of the two indicated intervals. Sample SB-08-W was collected from the completed boring, note the water was the color of antifreeze.



LOG OF BORING

BORING/WELL NO.

SB-10

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/7/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

WHILE DRILLING none encountered

AT COMPLETION _____

24 HOURS _____

ELEVATION

GROUND SURFACE unknown

END OF BORING unknown

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Fill - Coal cinders and gravel.
1.0									
1.5									
2.0									Silty-Clay: Red, slightly moist.
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet
									OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-10 was a composite of the two indicated intervals.

APPENDIX A.2

PHASE II BORING LOGS

LOG OF BORING

BORING/WELL NO.

SB-14

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/27/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

ELEVATION
GROUND SURFACE unknown
END OF BORING unknown

WHILE DRILLING none encountered
AT COMPLETION _____
24 HOURS _____

DEPTH (ft)	LENGTH	RECOVY	SAMPLE		N	Hru/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Fill - Sandy some gravel
1.0									Clayey-Silt: Red Total Depth = 4.0 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-14 was a composite of the two indicated intervals.
1.5									
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								



LOG OF BORING

BORING/WELL NO.

SB-15

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/27/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

WHILE DRILLING none encountered

AT COMPLETION _____

24 HOURS _____

ELEVATION

GROUND SURFACE unknown

END OF BORING unknown

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil - Black
1.0									Silty-Clay: Red.
1.5									
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-15 was a composite of the two indicated intervals.



LOG OF BORING

BORING/WELL NO.

SB-16

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/27/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

WHILE DRILLING none encountered

AT COMPLETION _____

24 HOURS _____

ELEVATION

GROUND SURFACE unknown

END OF BORING unknown

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Mnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil
1.0									
1.5									Silty-Clay: Reddish brown.
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet OVA Reading: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-16 was a composite of the two indicated intervals. Sample SB-23 was also collected as a duplicate of SB-16.



LOG OF BORING

BORING/WELL NO.

SB-17

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/27/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

ELEVATION

WHILE DRILLING none encountered

GROUND SURFACE unknown

AT COMPLETION _____

END OF BORING unknown

24 HOURS _____

DEPTH (ft)	LENGTH	RECOV'Y	SAMPLE		N	H ₂ O/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsail
1.0									Silty-Clay: Reddish brown. Total Depth = 4.0 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-17 was a composite of the two indicated intervals.
1.5									
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								



LOG OF BORING

BORING/WELL NO.

SB-18

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/27/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

ELEVATION

WHILE DRILLING none encountered

GROUND SURFACE unknown

AT COMPLETION _____

END OF BORING unknown

24 HOURS _____

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil
1.0									Silt: Reddish brown, no clay.
1.5									
2.0									
2.5									
3.0	X								Total Depth = 4.0 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-18 was a composite of the two indicated intervals.
3.5	X								
4.0	X								
4.0									



LOG OF BORING

BORING/WELL NO.

SB-19

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/27/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

ELEVATION

WHILE DRILLING none encountered

GROUND SURFACE unknown

AT COMPLETION _____

END OF BORING unknown

24 HOURS _____

DEPTH (ft)	LENGTH	RECOVY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5		•							Fill - Sand and gravel
1.0									Silty-Clay: Red with tannish-green mottling.
1.5									Silty-Clay: red.
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-19 was a composite of the two indicated intervals.



LOG OF BORING

BORING/WELL NO.
SB-20

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/27/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

WHILE DRILLING none encountered

AT COMPLETION _____

24 HOURS _____

ELEVATION

GROUND SURFACE unknown

END OF BORING unknown

DEPTH (ft)	LENGTH	RECOV'Y	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Fill - Sand and gravel
1.0									Silty-Clay: Red, slightly moist.
1.5									
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet
									OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-20 was a composite of the two indicated intervals.



LOG OF BORING

BORING/WELL NO.

SB-21

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/27/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

ELEVATION _____

WHILE DRILLING none encountered

GROUND SURFACE unknown

AT COMPLETION _____

END OF BORING unknown

24 HOURS _____

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Fill - Sand and gravel
1.0									Silty-Clay: Red
1.5									
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 15 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-21 was a composite of the two indicated intervals. NOTE: Slight odor was present during placement of boring, similar to odor of sewer.



LOG OF BORING

BORING/WELL NO.
SB-22

PROJECT NO. G417 SITE AT&T Lightguide Cable

DATE 10/27/87

DRILLER ERT

LOCATION Appleton, WI

METHOD Hand Auger

LOGGED BY S. Veenstra

WATER LEVEL

WHILE DRILLING none encountered

AT COMPLETION _____

24 HOURS _____

ELEVATION

GROUND SURFACE unknown

END OF BORING unknown

DEPTH (ft)	LENGTH	RECOVERY	SAMPLE		N	Hnu/OVA READING	EQUIP INST.	GRAPHIC LOG	SOIL DESCRIPTION
			NO.	TYPE					
0.5									Topsoil - Black
1.0									Silty-Clay: Red, some greenish blebs were observed at approximately 3.5 feet.
1.5									
2.0									
2.5									
3.0	X								
3.5	X								
4.0	X								Total Depth = 4.0 feet OVA Readings: Breathing Zone = 0 ppm Boring Opening = 0 ppm Lower Explosive Limit Reading: LEL = 0% Sample SB-22 was a composite of the two indicated intervals.



APPENDIX B

PIT LOGS

APPENDIX C
ANALYTICAL DATA

APPENDIX C: ANALYTICAL DATA

C.1: PHASE I ANALYTICAL RESULTS

C.1.a: PHASE I, TOTAL AND HEXAVALENT CHROMIUM

C.1.b: PHASE I, VOLATILE ORGANIC COMPOUNDS

C.2: PHASE II ANALYTICAL RESULTS

C.2.a: PHASE II, TOTAL AND HEXAVALENT CHROMIUM

C.2.b: PHASE II, VOLATILE ORGANIC COMPOUNDS

C.3: PHASE III ANALYTICAL RESULTS

C.3.a: PHASE III, TOTAL AND HEXAVALENT CHROMIUM

C.3.b: PHASE III, VOLATILE ORGANIC COMPOUNDS

C.4: PHASE IV ANALYTICAL RESULTS, EP TOXICITY IN SOIL (PIT B)

APPENDIX C.1
PHASE I ANALYTICAL RESULTS

APPENDIX C.1.a
PHASE I
TOTAL AND HEXAVALENT CHROMIUM

RECEIVED
DEC 4 1987
L. M. CAMPBELL

DATE: 12/02/87
TO: Larry Campbell *LB*
FROM: Bo Blankfield, Lab Director
PROJ. NO.: G417-300 LAB NO.: 8720

Attached are reports of chemical analyses of samples received October 8, 1987. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
7	Cr - -	-HOU CHROMIUM	SM: 303A, ATOMIC ABSORPTION	10/06/87	WATER
				10/07/87	LIQUID
10	Cr -S-	-HOU CHROMIUM ON SOLID	SM: 303A, ATOMIC ABSORPTION	10/06/87	SOIL
				10/07/87	
7	Cr+6 - -	-MBA CHROMIUM, HEXAVALENT	SM: 312B, COLORIMETRIC	10/06/87	WATER
				10/07/87	LIQUID
10	Cr+6 -S-	-MBA CHROMIUM, HEXAVALENT ON SOLID	SM: 312B, COLORIMETRIC	10/06/87	SOIL
				10/07/87	

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Reports, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Narrative Log

LAB NO. 8720
PROJECT G417-300 AT&T

ERT

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A RESOURCE ENGINEERING COMPANY

3000 RICHMOND AVENUE, HOUSTON, TEXAS 77098, (713) 520-9900

environmental and engineering excellence

ERT LABORATORIES

Analytical Summary

12/02/87 14:54

Lab Number: 8720 Project: G417-300 AT&T								
Lab ID Field ID (Cont'd) Test /Matrix	1 SB-01 SOIL	2 SB-02 SOIL	3 SB-03 SOIL	4 SB-03-W WATER	5 SB-04 SOIL	6 SB-04-W WATER	7 SB-12 SOIL	8 SB-12-W WATER
Cr - - -HOU (MDL)	--	--	--	31 MG/L (4)	--	42 MG/L (4)	--	105 MG/L (4)
Cr -S- -HOU (MDL)	26 MG/KG (20)	45 MG/KG (20)	98 MG/KG (20)	--	519 MG/KG (40)	--	478 MG/KG (40)	--
Cr+6 - - -MBA (MDL)	--	--	--	34 MG/L *	--	74 MG/L *	--	68 MG/L *
Cr+6 -S- -MBA (MDL)	<20 MG/KG (20)	<20 MG/KG (20)	<20 MG/KG (20)	--	50 MG/KG	--	54 MG/KG	--

QAQC Approval: Salonna Thomason Date: 12-2-87

Mgr. Approval: Dr. [Signature] Date: 12-02-87

* Please see attached Analytical Report for remarks.

***** CONTINUED *****

ERT LABORATORIES

Analytical Summary
12/02/87 14:55

Lab Number: 8720		Project: G417-300			AT&T			
Lab ID	9	10	11	12	13	14	15	16
Field ID	SB-05	SB-06	SB-07	SB-08	SB-08-W	SB-11-W	SB-13-W	SB-10
(Cont'd)								
Test /Matrix	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	SOIL
Cr - - -HOU (MDL)	--	--	--	--	280 MG/L (16)	219 MG/L (8)	<0.04 MG/L (0.04)	--
Cr -S- -HOU (MDL)	59 MG/KG (20)	238 MG/KG (20)	26 MG/KG (20)	536 MG/KG (20)	--	--	--	172 MG/KG (20)
Cr+6 - - -MBA (MDL)	--	--	--	--	350 MG/L	212 MG/L *	<0.5 MG/L (0.5) *	--
Cr+6 -S- -MBA (MDL)	<20 MG/KG (20)	<20 MG/KG (20)	<20 MG/KG (20)	108 MG/KG	--	--	--	72 MG/KG

QAQC Approval: Salma Thomas Date: 12-2-87

Mgr. Approval: Bo Blackford Date: 12-2-87

* Please see attached Analytical Report for remarks.

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Summary
12/02/87 14:56

Lab Number: 8720	
Project: G417-300	
AT&T	
Lab ID	17
Field ID	SHIP. BL
(Cont'd)	ANK
Test /Matrix	LIQUID
Cr - - -HOU	<0.04
(MDL)	MG/L (0.04)
Cr+6 - - -MBA	<0.5
(MDL)	MG/L (0.5) *

QAQC Approval: Joanna Thomas Date: 12-2-87

Mgr. Approval: Bo. Bl. Field Date: 12-2-87

* Please see attached Analytical Report for remarks.

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:20

AT&T Proj. No.: G417-300 Lab No.: 8720	Field ID: SB-01 Lab ID: 1 Matrix: SOIL	Date Sampled: 10/06/87 Time Sampled: 1335 Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	26	MG/KG	20	10/12/87 1730
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:20

AT&T Proj. No.: G417-300 Lab No.: 8720	Field ID: SB-02 Lab ID: 2 Matrix: SOIL	Date Sampled: 10/06/87 Time Sampled: 1425 Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	45	MG/KG	20	10/12/87 1730
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:20

AT&T	Field ID: SB-03	Date Sampled: 10/06/87		
Proj. No.: G417-300	Lab ID: 3	Time Sampled: 1500		
Lab No.: 8720	Matrix: SOIL	Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	98	MG/KG	20	10/12/87 1730
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:20

AT&T Proj. No.: G417-300 Lab No.: 8720	Field ID: SB-03-W Lab ID: 4 Matrix: WATER	Date Sampled: 10/06/87 Time Sampled: 1515 Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - - -HOU CHROMIUM SM: 303A, ATOMIC ABSORPTION	31	MG/L	4	10/12/87 1730
Cr+6 - - -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	34 *1	MG/L		10/12/87

*1 HOLDING TIME EXPIRED BEFORE RECEIPT

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:20

AT&T Proj. No.: G417-300 Lab No.: 8720	Field ID: SB-04 Lab ID: 5 Matrix: SOIL	Date Sampled: 10/06/87 Time Sampled: 1600 Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	519	MG/KG	40	10/12/87 1730
Cr+6 -S- -MBA CHROMIUM, HEXVALENT ON SOLID SM: 312B, COLORIMETRIC	50	MG/KG		11/25/87

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:20

AT&T Proj. No.: G417-300 Lab No.: 8720	Field ID: SB-04-W Lab ID: 6 Matrix: WATER	Date Sampled: 10/06/87 Time Sampled: 1645 Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - - -HOU CHROMIUM SM: 303A, ATOMIC ABSORPTION	42	MG/L	4	10/12/87 1730
Cr+6 - - -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	74 *1	MG/L		10/12/87

*1 HOLDING TIME EXPIRED BEFORE RECEIPT

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:20

AT&T	Field ID: SB-12	Date Sampled: 10/06/87		
Proj. No.: G417-300	Lab ID: 7	Time Sampled: 1600		
Lab No.: 8720	Matrix: SOIL	Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	478	MG/KG	40	10/12/87 1730
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	54	MG/KG		11/25/87

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:21

AT&T	Field ID: SB-12-W	Date Sampled: 10/06/87		
Proj. No.: G417-300	Lab ID: 8	Time Sampled: 1645		
Lab No.: 8720	Matrix: WATER	Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - - -HOU CHROMIUM SM: 303A, ATOMIC ABSORPTION	105	MG/L	4	10/12/87 1730
Cr+6 - - -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	68 *1	MG/L		10/12/87

*1 HOLDING TIME EXPIRED BEFORE RECEIPT

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:21

AT&T	Field ID: SB-05	Date Sampled: 10/07/87		
Proj. No.: G417-300	Lab ID: 9	Time Sampled: 750		
Lab No.: 8720	Matrix: SOIL	Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	59	MG/KG	20	10/12/87 1730
Cr+6 -S- -MBA CHROMIUM, HEXVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:21

AT&T Proj. No.: G417-300 Lab No.: 8720	Field ID: SB-06 Lab ID: 10 Matrix: SOIL	Date Sampled: 10/07/87 Time Sampled: 830 Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	238	MG/KG	20	10/12/87 1730
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:21

AT&T	Field ID: SB-07	Date Sampled: 10/07/87		
Proj. No.: G417-300	Lab ID: 11	Time Sampled: 910		
Lab No.: 8720	Matrix: SOIL	Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	26	MG/KG	20	10/12/87 1730
Cr+6 -S- -MBA CHROMIUM, HEXVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 14:58

AT&T	Field ID: SB-08	Date Sampled: 10/07/87		
Proj. No.: G417-300	Lab ID: 12	Time Sampled: 1010		
Lab No.: 8720	Matrix: SOIL	Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	536	MG/KG	20	10/12/87 1730
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	108	MG/KG		11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:21

AT&T Proj. No.: G417-300 Lab No.: 8720	Field ID: SB-08-W Lab ID: 13 Matrix: WATER	Date Sampled: 10/07/87 Time Sampled: 1025 Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - - -HOU CHROMIUM SM: 303A, ATOMIC ABSORPTION	280	MG/L	16	10/08/87 1415
Cr+6 - - -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	350 *1	MG/L		10/12/87

*1 HOLDING TIME EXPIRED BEFORE RECEIPT

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:21

AT&T Proj. No.: G417-300 Lab No.: 8720	Field ID: SB-11-W Lab ID: 14 Matrix: WATER	Date Sampled: 10/07/87 Time Sampled: 1035 Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - - -HOU CHROMIUM SM: 303A, ATOMIC ABSORPTION	219	MG/L	8	10/12/87 1730
Cr+6 - - -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	212 *1	MG/L		10/12/87

*1 HOLDING TIME EXPIRED BEFORE RECEIPT

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:21

AT&T	Field ID: SB-13-W	Date Sampled: 10/07/87		
Proj. No.: G417-300	Lab ID: 15	Time Sampled: 1115		
Lab No.: 8720	Matrix: WATER	Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - - -HOU CHROMIUM SM: 303A, ATOMIC ABSORPTION	<0.04	MG/L	0.04	10/12/87 1730
Cr+6 - - -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	<0.5 *1	MG/L	0.5	10/12/87

*1 HOLDING TIME EXPIRED BEFORE RECEIPT

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:21

AT&T	Field ID: SB-10	Date Sampled: 10/07/87		
Proj. No.: G417-300	Lab ID: 16	Time Sampled: 1200		
Lab No.: 8720	Matrix: SOIL	Date Received: 10/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	172	MG/KG	20	10/12/87 1730
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	72	MG/KG		11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/02/87 13:21

AT&T Proj. No.: G417-300 Lab No.: 8720	Field ID: SHIP. BLANK Lab ID: 17 Matrix: LIQUID	Date Sampled: 10/07/87 Time Sampled: Date Received: 10/08/87		
Parameter (Test Code) (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - - -HOU CHROMIUM SM: 303A, ATOMIC ABSORPTION	<0.04	MG/L	0.04	10/15/87 1900
Cr+6 - - -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	<0.5 *1	MG/L	0.5	10/12/87

*1 HOLDING TIME EXPIRED BEFORE RECEIPT

ERT

ERT

A RESOURCE ENGINEERING COMPANY

Analysis Request and Chain of Custody Record

Project No. G417-300	Client/Project Name	Project Location
--------------------------------	---------------------	------------------

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
1 SB-01	10.6.87			500	Soil		Heavy Metal Chromium	
2 SB-02	10.6.87							
3 SB-03	10.6.87							
5 SB-04								
7 SB-07								
9 SB-05	10.7.87							
10 SB-06								
11 SB-07								
12 SB-08								
16 SB-10								

Samplers (Signature)	Relinquished by: (Signature) <i>[Signature]</i>	Date: 10.8.87 Time: 1030	Received by: (Signature)	Date:	Intact
Affiliation	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Intact
	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Intact
SAMPLER REMARKS: KUSH / Results due 10.12.87			Received for Laboratory (Signature)	Date:	Laboratory No.
Seal #			Data Results to:	Time:	8720

ERT

A RESOURCE ENGINEERING COMPANY

Analysis Request and Chain of Custody Record

Project No. GN17-300		Client/Project Name				Project Location				
Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED		LABORATORY REMARKS	
4 SB-03-W	10-6-87			4 oz amber	Water	HNO ₃	Hexavalent Chromium			
6 SB-04-W	↓			↓	↓	↓	↓			
8 SB-12-W	↓			↓	↓	↓	↓			
14 SB-11-W	10-7-87			↓	↓	↓	↓			
15 SB-13-W	↓			↓	↓	↓	↓			
13 SB-08-W	↓			↓	↓	↓	↓			
17 Ship Bldg	↓			↓	↓	H ₂ O ₂	↓			
Samplers: (Signature)		Relinquished by: (Signature) <i>[Signature]</i>				Date: 10-8-87 Time: 1030		Received by: (Signature)		Date: _____ Time: _____ Intact
Affiliation		Relinquished by: (Signature)				Date: _____ Time: _____		Received by: (Signature)		Date: _____ Time: _____ Intact
SAMPLER REMARKS:		Relinquished by: (Signature)				Date: _____ Time: _____		Received by: (Signature)		Date: _____ Time: _____ Intact
Seal #		Received for Laboratory (Signature)				Date: _____ Time: _____		Laboratory No.		8720
		Data Results to:								

ERT LABORATORIES
SAMPLE RECEIPT CHECKLIST

CLIENT ATEIT A PROJECT NO. 900-01/6417.300 LAB NO. 8720

shipped
 hand-delivered

NOTES: Fed Ex 5728443416

2. COC present on receipt
 no COC

NOTES:

3. COC tape on shipping container
 no COC tape

NOTES:

4. samples broken/leaking on receipt
 samples intact on receipt

NOTES: SB-D8-W sample open on receipt (lid cracked in transit) insufficient sample retained for analysis

5. ambient on receipt
 chilled on receipt

NOTES: TC Cr & Hex Cr

6. samples preserved correctly
 improper preservatives
 N/A, no recommended preservatives

NOTES:

7. received within holding times
 not received within holding times
 N/A, no analysis request on COC

NOTES: TC Cr ok Hex Cr sampled 10.6 Expired 10.7

8. COC tapes on samples
 no COC tapes

NOTES:

9. discrepancies between COC and sample labels
 no discrepancies noted
 N/A, no COC received

NOTES: Red Shipping Blank (2) not on COC

Additional comments:
PM Larry Campbell

Samples inspected and logged in by W. Smith Date/Time 10.8.87 1130

LOGIN COMMENTS:
*New prog'

MDL SPECS:

Cr6 - - HBA
Cr6-5 - - HBA

STATUS: (H) OLD (I) N PROGRESS (R) USH (S) SUBCONTRACT (C) ANCEL

TURNAROUND: 6 DAY 14DAY 21 DAY 10.12 RUSH DUE DATE 100 % PREMIUM

METHOD OF ANALYSIS SM 303A AA PARAMETER Cr MATRIX LIQ ANALYST KAS DATE 8 OCT 87 TIME 1415

CALIBRATION STANDARDS/BLANK	ABSORBANCE
BLK	0.000
1.0	0.039
2.5	0.091
5.0	0.166
SLOPE	

STANDARDS	CONCENTRATION	FOUND CONCENTRATION - ACTUAL CONCENTRATION
BLANK	-0.010	-0.010
1.0/2.5	1.002 2.461	+0.002 -0.039
5.0	4.987	-0.013
EPA 386	0.093	TU=.1 -0.007
EPA 386 X 5	0.486	TU=.5 -0.014
0.10	0.103	+0.003
METHOD BLANK		

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

8682-1 , 8706-1 , 8720-13 TOTALS
 $\frac{1}{100}$ $\frac{1}{1}$ $\frac{1}{100}$

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKE CONC. ÷ THEORETICAL CONC. x 100

LAB #-SAMPLE ID #	FIRST CONC.	DIL. FACTOR	REPL. CONC.	DIL. FACTOR	RANGE	%PRECISION	%SAMPLE x CONC.	%STANDARD x CONC.	THEO. CONC.	SPIKE CONC.	%RECOVERY
8706-1							50% 0.310	50% 2.5	1.405	1.411	100.4
8682-1	3.782	1	3.737	1	0.045	0.85%					
SAMPLES RUN BY MOA:											

PRECISION % = STANDARD DEVIATION ÷ MEAN x 100

LOAC APPROVAL Donna Hines

METHOD OF ANALYSIS AA SM 303A PARAMETER Cr MATRIX LIQ ANALYST PS DATE 15 OCT 87 TIME 1900

CALIBRATION STANDARDS/BLANK ABSORBANCE

BCK	0.000
1.0	0.035
2.5	0.084
5.0	0.149
SLOPE	

STANDARDS CONCENTRATION FOUND CONCENTRATION - ACTUAL CONCENTRATION

BLANK	0.006	+0.006
1.0	0.993	-0.007
2.5	2.494	-0.006
5.0	5.010	+0.010
6PP386 TU=0.1	0.096	-0.004
METHOD BLANK		

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

TOTALS 8732-1, 8741-[1-4] ; [8720-17 DRWKWA H₂O]
 EPTOX 8729-1 ; 8741-[1-4]

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKE CONC. ÷ THEORETICAL CONC. x 100

LAB #-SAMPLE ID #	FIRST CONC.	DIL. FACTOR	REPL. CONC.	DIL. FACTOR	RANGE	%PRECISION	%SAMPLE x CONC.	%STANDARD x CONC.	THEO. CONC.	SPIKE CONC.	%RECOVERY
8741-1	34.59	1	35.26	1	0.67	1.36%	100% 34.59	100% 5.0	39.59	38.79	98%
8729-1	<0.1	1	<0.1	1	0	0					
SAMPLES RUN BY MOA: 8729-1, 8741-[1-4]											

PRECISION % = STANDARD DEVIATION ÷ MEAN x 100

LQAC APPROVAL Salonna Thomas

ERT LABORATORIES QUALITY CONTROL LOG

EP TOX = 0.1 mg/L
 MDL TOTAL 20 mg/L

METHOD OF ANALYSIS SM 303A AA PARAMETER CV MATRIX LEACHATE + SOLID ANALYST KJS DATE 12/07/87 TIME 1730

CALIBRATION STANDARDS/BLANK	ABSORBANCE
BLK	0.000
1.0	0.028
2.5	0.066
5.0	0.124
SLOPE	

STANDARDS	CONCENTRATION	FOUND	CONCENTRATION - ACTUAL
BLANK	-0.011	-0.011	
0.05	0.047	-0.003	
0.10	0.105	+0.005	
1.0	1.011	+0.011	
2.5	2.519	+0.019	
5.0	4.991	-0.009	
7.5	7.513	+0.013	
EPA 386	0.098	TV=1	-0.002
EPA 386 X5	0.491	TV=5	-0.009
METHOD BLANK			

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

TOTALS: 8720-[1-12, 14-16] ; 8717-[1-6]

EP TOX: 8711-[1]

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKE CONC. ÷ THEORETICAL CONC. x 100

LAB #-SAMPLE ID #	FIRST CONC.	DIL. FACTOR	REPL. CONC.	DIL. FACTOR	RANGE	%PRECISION	%SAMPLE x CONC.	%STANDARD x CONC.	THEO. CONC.	SPIKE CONC.	%RECOVER
8720-2	0.453	1	0.451	1	0.002	0.31	100% 0.451	100% 5.0	5.451	4.513	82.8%
8717-1	0.875	1	0.830	1	0.045	3.7					
8711-1	<0.1	1	<0.1	1	0	0	100 <0.1	100% 4.0	4.0	3.99	99.8%
SAMPLES RUN BY MOA:	8711-1										

PRECISION Z = STANDARD DEVIATION ÷ MEAN x 100

TOPAL VETS

20 27

NARRATIVE LOG

CLIENT AT & T PROJECT NO. G417-300 LAB NO. 8720

<u>PARAMETER</u>	<u>METHOD</u>	<u>DETECTION LIMIT</u>	<u>ANALYST</u>	<u>DATE/TIME</u>
Chromium, Hexavalent Soil	Sm 312 Colori- metric & 312 B Colorimetric		MBA	10/12/87

REF.: Numbers 8720 #4=SB-03W, #6=SB-04W, #11=SB-07 and #13=SB-08W

The Hexavalent Chromium for the above ID#s yeilded higher results than total Chromiums. When results were posted by ERT, Subcontract Laboratory was notified of that fact. Subcontract Laboratory analyzed for Total Chromium and results were at levels which ERT posted. Therefore, positive unknown interferences; exists one of which is colored leachate from the extraction.

Conclusion of both laboratory managers site that the Hexavalent Chromium results are somewhat approximate because of interferences, but conclude that Hexavalent Chromium is definitely in each sample which is posted above the detection limit. Data should be carefully used.

REFERENCE:

Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

PHASE I

TOTAL CHROMIUM ANALYSIS OF HEXAVALENT CHROMIUM LEACHATE

RECEIVED
DEC 4 1987
L.M. CAMPBELL

DATE: 12/02/87
TO: Larry Campbell *LB*
FROM: Bo Blankfield, Lab Director
PROJ. NO.: G417-350 LAB NO.: 8720A

Attached are reports of chemical analyses of samples received October 28, 1987. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
10	Cr	-S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH)	Cr+6 LEACHATE, SW-846: 6010, ICP	10/06/87 10/07/87	SOIL

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Reports, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Narrative Log

LAB NO. 8720A
PROJECT G417-350 AT&T

ERT



A RESOURCE ENGINEERING COMPANY

3000 RICHMOND AVENUE, HOUSTON, TEXAS 77098, (713) 520-9900

environmental and engineering excellence

ERT LABORATORIES

Analytical Summary
12/01/87 14:31

Lab Number: 8720A Project: G417-350 AT&T								
Lab ID	1	2	3	5	7	9	10	11
Field ID	SB-01	SB-02	SB-03	SB-04	SB-12	SB-05	SB-06	SB-07
(Cont'd)								
Test /Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Cr -S-Cr6-MBA	<2.0	<2.0	<2.0	64	72	<2.0	<2.0	<2.0
(MDL)	MG/KG (2.0)	MG/KG (2.0)	MG/KG (2.0)	MG/KG	MG/KG	MG/KG (2.0)	MG/KG (2.0)	MG/KG (2.0)

QAQC Approval: *Salama Thomas* Date: 12-1-87

Mgr. Approval: *B. Bluffield* Date: 12-1-87

***** CONTINUED *****

ERT LABORATORIES

Analytical Summary
12/01/87 14:32

Lab Number: 8720A		
Project: G417-350		
AT&T		
Lab ID	12	16
Field ID	SB-08	SB-10
(Cont'd)		
Test /Matrix	SOIL	SOIL
Cr -S-Cr6-MBA	110	72
(MDL)	MG/KG	MG/KG

QAQC Approval: *Salomon Johnson* Date: 12-1-87

Mgr. Approval: *Re. Bluffield* Date: 12-1-87

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ERT LABORATORIES

Analytical Report
12/01/87 14:41

AT&T	Field ID: SB-01	Date Sampled: 10/06/87
Proj. No.: G417-350	Lab ID: 1	Time Sampled: 1355
Lab No.: 8720A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Units
(Test Method)		Method Detection Limit
Cr -S-Cr6-MBA	<2.0	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		2.0
Cr+6 LEACHATE, SW-846: 6010, ICP		11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/01/87 14:41

AT&T	Field ID: SB-02	Date Sampled: 10/06/87		
Proj. No.: G417-350	Lab ID: 2	Time Sampled: 1425		
Lab No.: 8720A	Matrix: SOIL	Date Received: 10/28/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	<2.0	MG/KG	2.0	11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/01/87 14:42

AT&T	Field ID: SB-03	Date Sampled: 10/06/87
Proj. No.: G417-350	Lab ID: 3	Time Sampled: 1500
Lab No.: 8720A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Units
(Test Method)		Method Detection Limit
Cr -S-Cr6-MBA	<2.0	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		2.0
Cr+6 LEACHATE, SW-846: 6010, ICP		11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/01/87 14:42

AT&T	Field ID: SB-04	Date Sampled: 10/07/87
Proj. No.: G417-350	Lab ID: 5	Time Sampled: 1600
Lab No.: 8720A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Units
(Test Method)		Method Detection Limit
Cr -S-Cr6-MBA	64	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		
Cr+6 LEACHATE, SW-846: 6010, ICP		11/25/87

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/01/87 14:42

AT&T	Field ID: SB-12	Date Sampled: 10/06/87		
Proj. No.: G417-350	Lab ID: 7	Time Sampled: 1600		
Lab No.: 8720A	Matrix: SOIL	Date Received: 10/28/87		
(Test Code)				
Parameter (Test Name)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
(Test Method)				
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	72	MG/KG		11/25/87

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/01/87 14:42

AT&T	Field ID: SB-05	Date Sampled: 10/07/87		
Proj. No.: G417-350	Lab ID: 9	Time Sampled: 750		
Lab No.: 8720A	Matrix: SOIL	Date Received: 10/28/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	<2.0	MG/KG	2.0	11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/01/87 14:42

AT&T	Field ID: SB-06	Date Sampled: 10/07/87		
Proj. No.: G417-350	Lab ID: 10	Time Sampled: 830		
Lab No.: 8720A	Matrix: SOIL	Date Received: 10/28/87		
(Test Code)				
Parameter (Test Name)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
(Test Method)				
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	<2.0	MG/KG	2.0	11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/01/87 14:42

AT&T	Field ID: SB-07	Date Sampled: 10/07/87		
Proj. No.: G417-350	Lab ID: 11	Time Sampled: 910		
Lab No.: 8720A	Matrix: SOIL	Date Received: 10/28/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	<2.0	MG/KG	2.0	11/02/87 1300

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/01/87 14:42

AT&T	Field ID: SB-08	Date Sampled: 10/07/87
Proj. No.: G417-350	Lab ID: 12	Time Sampled: 1010
Lab No.: 8720A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Units
(Test Method)		Method Detection Limit
Cr -S-Cr6-MBA	110	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		
Cr+6 LEACHATE, SW-846: 6010, ICP		
		Date/Time Analysis Performed
		11/25/87

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
12/01/87 14:42

AT&T	Field ID: SB-10	Date Sampled: 10/07/87		
Proj. No.: G417-350	Lab ID: 16	Time Sampled: 1210		
Lab No.: 8720A	Matrix: SOIL	Date Received: 10/28/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	72	MG/KG		11/02/87 1300

ERT

ERT A RESOURCE ENGINEERING COMPANY
 2925 RICHMOND AVENUE HOUSTON, TX 77098 (713) 520-1495

Analysis Request and Chain of Custody Record

Project No. G 417-30		Client/Project Name PIATIT				Project Location APPLETON, WS			
Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED		LABORATORY REMARKS
1 SB-01	10-6-87 13:35			8oz	SOIL		Hex. Chromium		TC or Leachate per B. Hernandez
2 SB-02	10-6-87 14:25			8oz	"		" "		
3 SB-03	10-6-87 15:00			8oz	"		" "		
5 SB-04	10-7-87 16:00			8oz	"		" "		
7 SB-02	10-7-87 18:00			8oz	"		" "		
9 SB-05	10-7-87 7:50			8oz	"		" "		
10 SB-06	10-7-87 8:30			8oz	"		" "		
11 SB-07	10-7-87 9:10			8oz	"		" "		
12 SB-08	10-7-87 10:10			8oz	"		" "		
13 SB-10	10-7-87 12:10			8oz	"		" "		
Samplers: (Signature)		Relinquished by: (Signature) <i>[Signature]</i>				Date: 10/29/87 Time: 11:45	Received by: (Signature)		Date: _____ Time: _____ Intact
Affiliation		Relinquished by: (Signature)				Date: _____ Time: _____	Received by: (Signature)		Date: _____ Time: _____ Intact
		Relinquished by: (Signature)				Date: _____ Time: _____	Received by: (Signature)		Date: _____ Time: _____ Intact
SAMPLER REMARKS: TO: MBA						Received for Laboratory (Signature)		Date: _____ Time: _____	Laboratory No. 872A

NARRATIVE LOG

CLIENT AT & T Appleton WS PROJECT NO. 900-01/G417-300 LAB NO. 8720A

<u>PARAMETER</u>	<u>METHOD</u>	<u>DETECTION LIMIT</u>	<u>ANALYST</u>	<u>DATE/TIME</u>
T-Cr of Leachate	312B	2.0 mg/kg	RV	11-2-87/1300

Procedure: Soil sample aliquot was taken from original sample container for analysis. This aliquot was mixed in distilled water for 24 hours producing a leachate as per Standard Methods 312B for Hexavalent Chromium. Total Chromium analyses were performed on this leachate as requested by our client.

REFERENCE:

Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

APPENDIX C.1.b
PHASE I
VOLATILE ORGANIC COMPOUNDS

RECEIVED
NOV 5 1987
L. M. CAMPBELL
6417-300

ANALYSIS OF SOIL AND WATER SAMPLES

ERT PROJECT NO. 0005-429
NOVEMBER 3, 1987

PREPARED FOR

L. Campbell

ERT, Lombard

Prepared by
Analytical Chemistry Laboratory
ERT, A Resource Engineering Company
33 Industrial Way, Wilmington, Massachusetts 01887

ANALYSIS OF SAMPLES
FROM
SOIL AND WATER

INTRODUCTION

This report represents the results of analysis conducted on various Soil and Water samples received by the ERT Analytical Chemistry Laboratory on October 8, 1987. The samples were to be selectively analyzed for volatile organic compounds.

SAMPLE RECEIPT AND CHAIN OF CUSTODY

Routine inspection of the samples revealed them to be packaged properly and received in good condition.

Upon receipt, information from the submitted samples was recorded in the Master Log Book (and the LIMS computer system) and assigned ERT Control Numbers. These unique sample labels were affixed to respective sample containers and subsequently utilized throughout the laboratory analysis procedures for positive traceability.

ANALYTICAL PROCEDURES

The water samples were analyzed according to procedures as outlined in:

- a. Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act, 40 CFR Part 136.
- b. Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, revised, March, 1983.
- c. Standard Methods for the Examination of Water and Wastewater, 16th Edition, APHA, 1985.

The soil samples were analyzed according to procedures as outlined in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 2nd Edition, revised April, 1984.

QUALITY CONTROL PROCEDURES

Standard quality control procedures were implemented for all analyses. Laboratory reagent (method) blanks, laboratory duplicated samples, and laboratory fortified control samples were analyzed concurrently with each case of submitted samples. The laboratory normally prepares and analyzes one (1) blank, one (1) fortified sample, and one (1) duplicate sample for each case of samples received or for each twenty (20) samples, whichever is more frequent. A case consists of a finite, usually predetermined number of samples collected over a given time period from one particular site. Duplicate sample analyses are performed only when sufficient sample volume is received. The results of the analyses are reviewed by the laboratory quality control coordinator to insure compliance with established analytical control limits.

Laboratory prepared method blank samples and fortified samples are identified in the analytical result tables under the Field Identification number using a unique numbering system and also assigning one ERT sample number to each sample. The Prefix "MB" refers to Method Blank, and "LF" refers to Laboratory Fortification (i.e., a quality control recovery sample).

In most cases, the analytical results will have been corrected using mean method blank results.

RESULTS OF ANALYSIS

Analytical results for the submitted samples are presented in the appended tables. Summary tables for the results of duplicate, blank, and fortified control samples have also been provided in the Appendix.

DISCUSSION

Review of the results of the quality control/quality assurance samples analyzed concurrently with the submitted samples indicated that the analyses were within the acceptance criteria as established by the U.S. EPA.

DATA AND REPORT APPROVAL FORM

SUBMITTED BY:

Analytical Chemistry Laboratory
ERT A Resource Engineering Company
33 Industrial Way
Wilmington, MA 01887
November 3, 1987

DATA AUDITED BY:

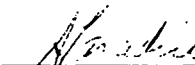
M. S. Sparlin



Quality Control Coordinator

REPORT APPROVED BY:

A. P. Paradice



Laboratory Manager

ERT ANALYTICAL LABORATORY
Screening Results
Volatile Organics in Soil

CLIENT: AT&T
PROJECT NO: 0005-429

DATE SAMPLED: 10/6-10/7 /1987
DATE SCREENED: 10/8/87

<u>ERT #</u>	<u>FIELD ID</u>	<u>RESULT</u> ^a
48279	SB-01	-
48280	SB-02	-
48281	SB-03	-
48282	SB-04	-
48283	SB-12	-
48284	SB-05	-
48285	SB-06	-
48286	SB-07	-
48287	SB-08	-
48287D	SB-08	-
48288	SB-10	-
MB870844		

a. + = greater than 1.0 ppm
- = less than 1.0 ppm

ERT ANALYTICAL LABORATORY
Screening Results
Volatile Organics in Water

CLIENT: AT&T
PROJECT NO: 0005-429

DATE SAMPLED: 10/6-7/87
DATE SCREENED: 10/9/87

<u>ERT #</u>	<u>FIELD ID</u>	<u>RESULT</u> ^a
48274	SB-08-W	-
48275	SB-13-W	-
48276	SB-03-W	-
48277	SB-04-W	-
48278	SB-12-W	-
48278D	SB-12-W	-
48356	MB870849	-

a. + = greater than 1.0 ppm
- = less than 1.0 ppm

VOLATILES ANALYSIS IN WATER
SUMMARY OF ANALYTICAL RESULTS
METHOD BLANK RESULTS
QUALITY CONTROL CHECK SAMPLE RESULTS

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48274
FLD ID: SB-08-W
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/07/87
DATE ANALYZED: 10/09/87

PARAMETER	RESULT UG/L	PARAMETER	RESULT UG/L
CHLOROMETHANE	BDL	TRANS-1,3-DICHLOROPROPENE	BDL
BROMOMETHANE	BDL	TRICHLOROETHENE	590
VINYL CHLORIDE	BDL	DIBROMOCHLOROMETHANE	BDL
CHLOROETHANE	BDL	1,1,2-TRICHLOROETHANE	BDL
METHYLENE CHLORIDE	BDL	BENZENE	BDL
ACETONE	BDL	CIS-1,3-DICHLOROPROPENE	BDL
CARBON DISULFIDE	BDL	2-CHLOROETHYL VINYL ETHER	BDL
1,1-DICHLOROETHENE	94	BROMOFORM	BDL
1,1-DICHLOROETHANE	47	2-HEXANONE	BDL
TRANS-1,2-DICHLOROETHENE	77	4-METHYL-2-PENTANONE	BDL
CHLOROFORM	BDL	TETRACHLOROETHENE	BDL
1,2-DICHLOROETHANE	BDL	1,1,2,2-TETRACHLOROETHANE	BDL
2-BUTANONE	BDL	TOLUENE	BDL
1,1,1-TRICHLOROETHANE	1400	CHLOROBENZENE	BDL
CARBON TETRACHLORIDE	240	ETHYL BENZENE	BDL
VINYL ACETATE	BDL	STYRENE	BDL
BROMODICHLOROMETHANE	BDL	TOTAL XYLENES	BDL
1,2-DICHLOROPROPANE	BDL		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	97
BENZENE, D6	100
TOLUENE, D8	101
BROMOFLUOROBENZENE	95

BDL = BELOW DETECTION LIMIT (CONC. < 10 UG/L)

REVIEWED by

ANALYST _____
SUPERVISOR *DAF 10/22/87*
QC COORD *add 10/27/87*

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48275
FLD ID: SB-13-W
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/07/87
DATE ANALYZED: 10/09/87

PARAMETER	RESULT UG/L	PARAMETER	RESULT UG/L
CHLOROMETHANE	BDL	TRANS-1,3-DICHLOROPROPENE	BDL
BROMOMETHANE	BDL	TRICHLOROETHENE	BDL
VINYL CHLORIDE	BDL	DIBROMOCHLOROMETHANE	BDL
CHLOROETHANE	BDL	1,1,2-TRICHLOROETHANE	BDL
METHYLENE CHLORIDE	BDL	BENZENE	BDL
ACETONE	BDL	CIS-1,3-DICHLOROPROPENE	BDL
CARBON DISULFIDE	BDL	2-CHLOROETHYL VINYL ETHER	BDL
1,1-DICHLOROETHENE	BDL	BROMOFORM	BDL
1,1-DICHLOROETHANE	BDL	2-HEXANONE	BDL
TRANS-1,2-DICHLOROETHENE	BDL	4-METHYL-2-PENTANONE	BDL
CHLOROFORM	BDL	TETRACHLOROETHENE	BDL
1,2-DICHLOROETHANE	BDL	1,1,2,2-TETRACHLOROETHANE	BDL
2-BUTANONE	BDL	TOLUENE	BDL
1,1,1-TRICHLOROETHANE	BDL	CHLOROBENZENE	BDL
CARBON TETRACHLORIDE	BDL	ETHYL BENZENE	BDL
VINYL ACETATE	BDL	STYRENE	BDL
BROMODICHLOROMETHANE	BDL	TOTAL XYLENES	BDL
1,2-DICHLOROPROPANE	BDL		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	94
BENZENE, D6	100
TOLUENE, D8	97
BROMOFLUOROBENZENE	100

BDL = BELOW DETECTION LIMIT (CONC. < 10 UG/L)

REVIEWED by

ANALYST
SUPERVISOR *AP 10/22/87*
QC COORD *AP 10/16/87*

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48276
FLD ID: SB-03-W
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/06/87
DATE ANALYZED: 10/09/87

PARAMETER	RESULT UG/L	PARAMETER	RESULT UG/L
CHLOROMETHANE	BDL	TRANS-1,3-DICHLOROPROPENE	BDL
BROMOMETHANE	BDL	TRICHLOROETHENE	59
VINYL CHLORIDE	BDL	DIBROMOCHLOROMETHANE	BDL
CHLOROETHANE	BDL	1,1,2-TRICHLOROETHANE	BDL
METHYLENE CHLORIDE	BDL	BENZENE	BDL
ACETONE	BDL	CIS-1,3-DICHLOROPROPENE	BDL
CARBON DISULFIDE	BDL	2-CHLOROETHYL VINYL ETHER	BDL
1,1-DICHLOROETHENE	BDL	BROMOFORM	BDL
1,1-DICHLOROETHANE	16	2-HEXANONE	BDL
TRANS-1,2-DICHLOROETHENE	BDL	4-METHYL-2-PENTANONE	BDL
CHLOROFORM	BDL	TETRACHLOROETHENE	BDL
1,2-DICHLOROETHANE	BDL	1,1,2,2-TETRACHLOROETHANE	BDL
2-BUTANONE	BDL	TOLUENE	BDL
1,1,1-TRICHLOROETHANE	330	CHLOROBENZENE	BDL
CARBON TETRACHLORIDE	52	ETHYL BENZENE	BDL
VINYL ACETATE	BDL	STYRENE	BDL
BROMODICHLOROMETHANE	BDL	TOTAL XYLENES	BDL
1,2-DICHLOROPROPANE	BDL		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4 114
BENZENE, D6 120
TOLUENE, D8 118
BROMOFLUOROBENZENE 119

BDL = BELOW DETECTION LIMIT (CONC. < 10 UG/L)

REVIEWED by

ANALYST _____
SUPERVISOR JAF 10/22/87
QC COORD ADW 10/27/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48277
FLD ID: SB-04-W
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/06/87
DATE ANALYZED: 10/09/87

PARAMETER	RESULT UG/L	PARAMETER	RESULT UG/L
CHLOROMETHANE	BDL	TRANS-1,3-DICHLOROPROPENE	BDL
BROMOMETHANE	BDL	TRICHLOROETHENE	41
VINYL CHLORIDE	BDL	DIBROMOCHLOROMETHANE	BDL
CHLOROETHANE	BDL	1,1,2-TRICHLOROETHANE	BDL
METHYLENE CHLORIDE	BDL	BENZENE	BDL
ACETONE	BDL	CIS-1,3-DICHLOROPROPENE	BDL
CARBON DISULFIDE	BDL	2-CHLOROETHYL VINYL ETHER	BDL
1,1-DICHLOROETHENE	18	BROMOFORM	BDL
1,1-DICHLOROETHANE	26	2-HEXANONE	BDL
TRANS-1,2-DICHLOROETHENE	18	4-METHYL-2-PENTANONE	BDL
CHLOROFORM	BDL	TETRACHLOROETHENE	BDL
1,2-DICHLOROETHANE	BDL	1,1,2,2-TETRACHLOROETHANE	BDL
2-BUTANONE	BDL	TOLUENE	BDL
1,1,1-TRICHLOROETHANE	530	CHLOROBENZENE	BDL
CARBON TETRACHLORIDE	86	ETHYL BENZENE	BDL
VINYL ACETATE	BDL	STYRENE	BDL
BROMODICHLOROMETHANE	BDL	TOTAL XYLENES	BDL
1,2-DICHLOROPROPANE	BDL		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	95
BENZENE, D6	101
TOLUENE, D8	96
BROMOFLUOROBENZENE	100

BDL = BELOW DETECTION LIMIT (CONC. < 10 UG/L)

REVIEWED by

ANALYST _____
SUPERVISOR DLP 10/12/87
QC COORD 10/10/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48278A
FLD ID: SB-12-W
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/06/87
DATE ANALYZED: 10/09/87

PARAMETER	RESULT UG/L	PARAMETER	RESULT UG/L
CHLOROMETHANE	BDL	TRANS-1,3-DICHLOROPROPENE	BDL
BROMOMETHANE	BDL	TRICHLOROETHENE	40
VINYL CHLORIDE	BDL	DIBROMOCHLOROMETHANE	BDL
CHLOROETHANE	BDL	1,1,2-TRICHLOROETHANE	BDL
METHYLENE CHLORIDE	BDL	BENZENE	BDL
ACETONE	BDL	CIS-1,3-DICHLOROPROPENE	BDL
CARBON DISULFIDE	BDL	2-CHLOROETHYL VINYL ETHER	BDL
1,1-DICHLOROETHENE	17	BROMOFORM	BDL
1,1-DICHLOROETHANE	25	2-HEXANONE	BDL
TRANS-1,2-DICHLOROETHENE	17	4-METHYL-2-PENTANONE	BDL
CHLOROFORM	BDL	TETRACHLOROETHENE	BDL
1,2-DICHLOROETHANE	BDL	1,1,2,2-TETRACHLOROETHANE	BDL
2-BUTANONE	BDL	TOLUENE	BDL
1,1,1-TRICHLOROETHANE	510	CHLOROBENZENE	BDL
CARBON TETRACHLORIDE	82	ETHYL BENZENE	BDL
VINYL ACETATE	BDL	STYRENE	BDL
BROMODICHLOROMETHANE	BDL	TOTAL XYLENES	BDL
1,2-DICHLOROPROPANE	BDL		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	94
BENZENE, D6	98
TOLUENE, D8	94
BROMOFLUOROBENZENE	98

BDL = BELOW DETECTION LIMIT (CONC. < 10 UG/L)

REVIEWED by

ANALYST _____
SUPERVISOR *[Signature]* 10/22/87
QC COORD *[Signature]* 10/22/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48278B
FLD ID: SB-12-W DUP
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/06/87
DATE ANALYZED: 10/09/87

PARAMETER	RESULT UG/L	PARAMETER	RESULT UG/L
CHLOROMETHANE	BDL	TRANS-1,3-DICHLOROPROPENE	BDL
BROMOMETHANE	BDL	TRICHLOROETHENE	44
VINYL CHLORIDE	BDL	DIBROMOCHLOROMETHANE	BDL
CHLOROETHANE	BDL	1,1,2-TRICHLOROETHANE	BDL
METHYLENE CHLORIDE	BDL	BENZENE	BDL
ACETONE	BDL	CIS-1,3-DICHLOROPROPENE	BDL
CARBON DISULFIDE	BDL	2-CHLOROETHYL VINYL ETHER	BDL
1,1-DICHLOROETHENE	20	BROMOFORM	BDL
1,1-DICHLOROETHANE	28	2-HEXANONE	BDL
TRANS-1,2-DICHLOROETHENE	19	4-METHYL-2-PENTANONE	BDL
CHLOROFORM	BDL	TETRACHLOROETHENE	BDL
1,2-DICHLOROETHANE	BDL	1,1,2,2-TETRACHLOROETHANE	BDL
2-BUTANONE	BDL	TOLUENE	BDL
1,1,1-TRICHLOROETHANE	560	CHLOROBENZENE	BDL
CARBON TETRACHLORIDE	90	ETHYL BENZENE	BDL
VINYL ACETATE	BDL	STYRENE	BDL
BROMODICHLOROMETHANE	BDL	TOTAL XYLENES	BDL
1,2-DICHLOROPROPANE	BDL		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	97
BENZENE, D6	99
TOLUENE, D8	95
BROMOFLUOROBENZENE	98

BDL = BELOW DETECTION LIMIT (CONC. < 10 UG/L)

REVIEWED by

ANALYST _____
SUPERVISOR *[Signature]*
QC COORD *[Signature]*

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48289
FLD ID: SHIPPING BLANK
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/09/87
DATE ANALYZED: 10/09/87

PARAMETER	RESULT UG/L	PARAMETER	RESULT UG/L
CHLOROMETHANE	BDL	TRANS-1,3-DICHLOROPROPENE	BDL
BROMOMETHANE	BDL	TRICHLOROETHENE	BDL
VINYL CHLORIDE	BDL	DIBROMOCHLOROMETHANE	BDL
CHLOROETHANE	BDL	1,1,2-TRICHLOROETHANE	BDL
METHYLENE CHLORIDE	BDL	BENZENE	BDL
ACETONE	BDL	CIS-1,3-DICHLOROPROPENE	BDL
CARBON DISULFIDE	BDL	2-CHLOROETHYL VINYL ETHER	BDL
1,1-DICHLOROETHENE	BDL	BROMOFORM	BDL
1,1-DICHLOROETHANE	BDL	2-HEXANONE	BDL
TRANS-1,2-DICHLOROETHENE	BDL	4-METHYL-2-PENTANONE	BDL
CHLOROFORM	BDL	TETRACHLOROETHENE	BDL
1,2-DICHLOROETHANE	BDL	1,1,2,2-TETRACHLOROETHANE	BDL
2-BUTANONE	BDL	TOLUENE	BDL
1,1,1-TRICHLOROETHANE	BDL	CHLOROBENZENE	BDL
CARBON TETRACHLORIDE	BDL	ETHYL BENZENE	BDL
VINYL ACETATE	BDL	STYRENE	BDL
BROMODICHLOROMETHANE	BDL	TOTAL XYLENES	BDL
1,2-DICHLOROPROPANE	BDL		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	92
BENZENE, D6	102
TOLUENE, D8	99
BROMOFLUOROBENZENE	102

BDL = BELOW DETECTION LIMIT (CONC. < 10 UG/L)

REVIEWED by

ANALYST _____
SUPERVISOR J.P. 10/22/87
QC COORD J.N. 10/27/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48299
FLD ID: MB870842
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/09/87
DATE ANALYZED: 10/09/87

PARAMETER	RESULT UG/L	PARAMETER	RESULT UG/L
CHLOROMETHANE	BDL	TRANS-1,3-DICHLOROPROPENE	BDL
BROMOMETHANE	BDL	TRICHLOROETHENE	BDL
VINYL CHLORIDE	BDL	DIBROMOCHLOROMETHANE	BDL
CHLOROETHANE	BDL	1,1,2-TRICHLOROETHANE	BDL
METHYLENE CHLORIDE	BDL	BENZENE	BDL
ACETONE	40	CIS-1,3-DICHLOROPROPENE	BDL
CARBON DISULFIDE	BDL	2-CHLOROETHYL VINYL ETHER	BDL
1,1-DICHLOROETHENE	BDL	BROMOFORM	BDL
1,1-DICHLOROETHANE	BDL	2-HEXANONE	BDL
TRANS-1,2-DICHLOROETHENE	BDL	4-METHYL-2-PENTANONE	BDL
CHLOROFORM	BDL	TETRACHLOROETHENE	BDL
1,2-DICHLOROETHANE	BDL	1,1,2,2-TETRACHLOROETHANE	BDL
2-BUTANONE	BDL	TOLUENE	BDL
1,1,1-TRICHLOROETHANE	BDL	CHLORO BENZENE	BDL
CARBON TETRACHLORIDE	BDL	ETHYL BENZENE	BDL
VINYL ACETATE	BDL	STYRENE	BDL
BROMODICHLOROMETHANE	BDL	TOTAL XYLENES	BDL
1,2-DICHLOROPROPANE	BDL		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	84
BENZENE, D6	97
TOLUENE, D8	95
BROMOFLUOROBENZENE	93

BDL = BELOW DETECTION LIMIT (CONC.<10 UG/L)

REVIEWED by

ANALYST _____

SUPERVISOR *DAF 10/22/87*

QC COORD *DAF 10/22/87*

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48305
FLD ID: LF871139
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/09/87
DATE ANALYZED: 10/09/87

PARAMETER	% RECOVERY
VINYL CHLORIDE	110
1,1-DICHLOROETHENE	110
CHLOROFORM	110
1,2-DICHLOROPROPANE	99
TOLUENE	110
ETHYL BENZENE	100

JHP 10/22/87

10/27/87

VOLATILES ANALYSIS IN SOIL
SUMMARY OF ANALYTICAL RESULTS
METHOD BLANK RESULTS
QUALITY CONTROL CHECK SAMPLE RESULTS

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN SOIL

ERT NO.:	48279	CLIENT:	AT&T
FLD ID.:	SYB-01	DATE SAMPLED:	10/06/87
SAMPLING SITE:	APPLETON, WI	DATE ANALYZED:	10/13/87

PARAMETER	RESULT (UG/G)	PARAMETER	RESULT (UG/G)
CHLOROMETHANE	< 0.5	TRANS-1,3-DICHLOROPROPENE	< 0.5
BROMOMETHANE	< 0.5	TRICHLOROETHENE	< 0.5
VINYL CHLORIDE	< 0.5	DIBROMOCHLOROMETHANE	< 0.5
CHLOROETHANE	< 0.5	1,1,2-TRICHLOROETHANE	< 0.5
METHYLENE CHLORIDE	< 0.5	BENZENE	< 0.5
ACETONE	< 2.4	CIS-1,3-DICHLOROPROPENE	< 0.5
CARBON DISULFIDE	< 2.4	2-CHLOROETHYL VINYL ETHER	< 0.5
1,1-DICHLOROETHENE	< 0.5	BROMOFORM	< 0.5
1,1-DICHLOROETHANE	< 0.5	2-HEXANONE	< 2.4
TRANS-1,2-DICHLOROETHENE	< 0.5	4-METHYL-2-PENTANONE	< 2.4
CHLOROFORM	< 0.5	TETRACHLOROETHENE	< 0.5
1,2-DICHLOROETHANE	< 0.5	1,1,2,2-TETRACHLOROETHANE	< 0.5
2-BUTANONE -----	1.4	TOLUENE	< 0.5
1,1,1-TRICHLOROETHANE	< 0.5	CHLOROBENZENE	< 0.5
CARBON TETRACHLORIDE	< 0.5	ETHYL BENZENE	< 0.5
VINYL ACETATE	< 0.5	STYRENE	< 0.5
BROMODICHLOROMETHANE	< 0.5	TOTAL XYLENES	< 0.5
1,2-DICHLOROPROPANE	< 0.5		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	110
BENZENE, D6	119
TOLUENE, D8	116
BROMOFLUOROBENZENE	115

REVIEWED by

ANALYST _____
 SUPERVISOR DP 10/22/87
 QC COORD ADD 10/20/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN SOIL

ERT NO.:	48281	CLIENT:	AT&T
FLD ID.:	SB-03	DATE SAMPLED:	10/06/87
SAMPLING SITE:	APPLETON, WI	DATE ANALYZED:	10/13/87

PARAMETER	RESULT (UG/G)	PARAMETER	RESULT (UG/G)
CHLOROMETHANE	< 0.5	TRANS-1,3-DICHLOROPROPENE	< 0.5
BROMOMETHANE	< 0.5	TRICHLOROETHENE	< 0.5
VINYL CHLORIDE	< 0.5	DIBROMOCHLOROMETHANE	< 0.5
CHLOROETHANE	< 0.5	1,1,2-TRICHLOROETHANE	< 0.5
METHYLENE CHLORIDE	< 0.5	BENZENE	< 0.5
ACETONE	< 2.4	CIS-1,3-DICHLOROPROPENE	< 0.5
CARBON DISULFIDE	< 2.4	2-CHLOROETHYL VINYL ETHER	< 0.5
1,1-DICHLOROETHENE	< 0.5	BROMOFORM	< 0.5
1,1-DICHLOROETHANE	< 0.5	2-HEXANONE	< 2.4
TRANS-1,2-DICHLOROETHENE	< 0.5	4-METHYL-2-PENTANONE	< 2.4
CHLOROFORM	< 0.5	TETRACHLOROETHENE	< 0.5
1,2-DICHLOROETHANE	< 0.5	1,1,2,2-TETRACHLOROETHANE	< 0.5
2-BUTANONE -----	1.4	TOLUENE	< 0.5
1,1,1-TRICHLOROETHANE	< 0.5	CHLOROBENZENE	< 0.5
CARBON TETRACHLORIDE	< 0.5	ETHYL BENZENE	< 0.5
VINYL ACETATE	< 0.5	STYRENE	< 0.5
BROMODICHLOROMETHANE	< 0.5	TOTAL XYLENES	< 0.5
1,2-DICHLOROPROPANE	< 0.5		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	122
BENZENE, D6	127
TOLUENE, D8	124
BROMOFLUOROBENZENE	126

REVIEWED by

ANALYST	
SUPERVISOR	<i>[Signature]</i> 10/22/87
QC COORD	<i>[Signature]</i> 10/22/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN SOIL

ERT NO.:	48282	CLIENT:	AT&T
FLD ID.:	SB-04	DATE SAMPLED:	10/06/87
SAMPLING SITE:	APPLETON, WI	DATE ANALYZED:	10/13/87

PARAMETER	RESULT (UG/G)	PARAMETER	RESULT (UG/G)
CHLOROMETHANE	< 0.5	TRANS-1,3-DICHLOROPROPENE	< 0.5
BROMOMETHANE	< 0.5	TRICHLOROETHENE	< 0.5
VINYL CHLORIDE	< 0.5	DIBROMOCHLOROMETHANE	< 0.5
CHLOROETHANE	< 0.5	1,1,2-TRICHLOROETHANE	< 0.5
METHYLENE CHLORIDE	< 0.5	BENZENE	< 0.5
ACETONE	< 2.5	CIS-1,3-DICHLOROPROPENE	< 0.5
CARBON DISULFIDE	< 2.5	2-CHLOROETHYL VINYL ETHER	< 0.5
1,1-DICHLOROETHENE	< 0.5	BROMOFORM	< 0.5
1,1-DICHLOROETHANE	< 0.5	2-HEXANONE	< 2.5
TRANS-1,2-DICHLOROETHENE	< 0.5	4-METHYL-2-PENTANONE	< 2.5
CHLOROFORM	< 0.5	TETRACHLOROETHENE	< 0.5
1,2-DICHLOROETHANE	< 0.5	1,1,2,2-TETRACHLOROETHANE	< 0.5
2-BUTANONE -----	1.4	TOLUENE	< 0.5
1,1,1-TRICHLOROETHANE	< 0.5	CHLOROBENZENE	< 0.5
CARBON TETRACHLORIDE	< 0.5	ETHYL BENZENE	< 0.5
VINYL ACETATE	< 0.5	STYRENE	< 0.5
BROMODICHLOROMETHANE	< 0.5	TOTAL XYLENES	< 0.5
1,2-DICHLOROPROPANE	< 0.5		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	115
BENZENE, D6	114
TOLUENE, D8	112
BROMOFLUOROBENZENE	114

REVIEWED by

ANALYST _____
 SUPERVISOR LP 10/22/87
 QC COORD ML 10/21/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN SOIL

ERT NO.:	48283	CLIENT:	AT&T
FLD ID.:	SB-12	DATE SAMPLED:	10/06/87
SAMPLING SITE:	APPLETON, WI	DATE ANALYZED:	10/13/87

PARAMETER	RESULT (UG/G)	PARAMETER	RESULT (UG/G)
CHLOROMETHANE	< 0.4	TRANS-1,3-DICHLOROPROPENE	< 0.4
BROMOMETHANE	< 0.4	TRICHLOROETHENE	< 0.4
VINYL CHLORIDE	< 0.4	DIBROMOCHLOROMETHANE	< 0.4
CHLOROETHANE	< 0.4	1,1,2-TRICHLOROETHANE	< 0.4
METHYLENE CHLORIDE	< 0.4	BENZENE	< 0.4
ACETONE	< 2.1	CIS-1,3-DICHLOROPROPENE	< 0.4
CARBON DISULFIDE	< 2.1	2-CHLOROETHYL VINYL ETHER	< 0.4
1,1-DICHLOROETHENE	< 0.4	BROMOFORM	< 0.4
1,1-DICHLOROETHANE	< 0.4	2-HEXANONE	< 2.1
TRANS-1,2-DICHLOROETHENE	< 0.4	4-METHYL-2-PENTANONE	< 2.1
CHLOROFORM	< 0.4	TETRACHLOROETHENE	< 0.4
1,2-DICHLOROETHANE	< 0.4	1,1,2,2-TETRACHLOROETHANE	< 0.4
2-BUTANONE -----	1.1	TOLUENE	< 0.4
1,1,1-TRICHLOROETHANE	< 0.4	CHLOROBENZENE	< 0.4
CARBON TETRACHLORIDE	< 0.4	ETHYL BENZENE	< 0.4
VINYL ACETATE	< 0.4	STYRENE	< 0.4
BROMODICHLOROMETHANE	< 0.4	TOTAL XYLENES	< 0.4
1,2-DICHLOROPROPANE	< 0.4		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	122
BENZENE, D6	122
TOLUENE, D8	120
BROMOFLUOROBENZENE	123

REVIEWED by

ANALYST _____
 SUPERVISOR DF 10/22/87
 QC COORD MH 10/20/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN SOIL

ERT NO.:	48286	CLIENT:	AT&T
FLD ID.:	SB-07	DATE SAMPLED:	10/07/87
SAMPLING SITE:	APPLETON, WI	DATE ANALYZED:	10/13/87

PARAMETER	RESULT (UG/G)	PARAMETER	RESULT (UG/G)
CHLOROMETHANE	< 0.5	TRANS-1,3-DICHLOROPROPENE	< 0.5
BROMOMETHANE	< 0.5	TRICHLOROETHENE	< 0.5
VINYL CHLORIDE	< 0.5	DIBROMOCHLOROMETHANE	< 0.5
CHLOROETHANE	< 0.5	1,1,2-TRICHLOROETHANE	< 0.5
METHYLENE CHLORIDE	< 0.5	BENZENE	< 0.5
ACETONE	< 2.5	CIS-1,3-DICHLOROPROPENE	< 0.5
CARBON DISULFIDE	< 2.5	2-CHLOROETHYL VINYL ETHER	< 0.5
1,1-DICHLOROETHENE	< 0.5	BROMOFORM	< 0.5
1,1-DICHLOROETHANE	< 0.5	2-HEXANONE	< 2.5
TRANS-1,2-DICHLOROETHENE	< 0.5	4-METHYL-2-PENTANONE	< 2.5
CHLOROFORM	< 0.5	TETRACHLOROETHENE	< 0.5
1,2-DICHLOROETHANE	< 0.5	1,1,2,2-TETRACHLOROETHANE	< 0.5
2-BUTANONE -----	1.2	TOLUENE	< 0.5
1,1,1-TRICHLOROETHANE	< 0.5	CHLOROBENZENE	< 0.5
CARBON TETRACHLORIDE	< 0.5	ETHYL BENZENE	< 0.5
VINYL ACETATE	< 0.5	STYRENE	< 0.5
BROMODICHLOROMETHANE	< 0.5	TOTAL XYLENES	< 0.5
1,2-DICHLOROPROPANE	< 0.5		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	115
BENZENE, D6	113
TOLUENE, D8	111
BROMOFLUOROBENZENE	112

REVIEWED by

ANALYST _____
 SUPERVISOR *D. F. C. / 22 / 87*
 QC COORD *DM 10/13/87*

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN SOIL

ERT NO.:	48287	CLIENT:	AT&T
FLD ID.:	SB-08	DATE SAMPLED:	10/07/87
SAMPLING SITE:	APPLETON, WI	DATE ANALYZED:	10/13/87

PARAMETER	RESULT (UG/G)	PARAMETER	RESULT (UG/G)
CHLOROMETHANE	< 0.5	TRANS-1,3-DICHLOROPROPENE	< 0.5
BROMOMETHANE	< 0.5	TRICHLOROETHENE	< 0.5
VINYL CHLORIDE	< 0.5	DIBROMOCHLOROMETHANE	< 0.5
CHLOROETHANE	< 0.5	1,1,2-TRICHLOROETHANE	< 0.5
METHYLENE CHLORIDE	< 0.5	BENZENE	< 0.5
ACETONE	< 2.3	CIS-1,3-DICHLOROPROPENE	< 0.5
CARBON DISULFIDE	< 2.3	2-CHLOROETHYL VINYL ETHER	< 0.5
1,1-DICHLOROETHENE	< 0.5	BROMOFORM	< 0.5
1,1-DICHLOROETHANE	< 0.5	2-HEXANONE	< 2.3
TRANS-1,2-DICHLOROETHENE	< 0.5	4-METHYL-2-PENTANONE	< 2.3
CHLOROFORM	< 0.5	TETRACHLOROETHENE	< 0.5
1,2-DICHLOROETHANE	< 0.5	1,1,2,2-TETRACHLOROETHANE	< 0.5
2-BUTANONE	< 2.3	TOLUENE	< 0.5
1,1,1-TRICHLOROETHANE	< 0.5	CHLOROBENZENE	< 0.5
CARBON TETRACHLORIDE	< 0.5	ETHYL BENZENE	< 0.5
VINYL ACETATE	< 0.5	STYRENE	< 0.5
BROMODICHLOROMETHANE	< 0.5	TOTAL XYLENES	< 0.5
1,2-DICHLOROPROPANE	< 0.5		

SURROGATE RECOVERY ‡

1,2-DICHLOROETHANE, D4	125
BENZENE, D6	124
TOLUENE, D8	124
BROMOFLUOROBENZENE	127

REVIEWED by

ANALYST	
SUPERVISOR	<i>D.P. 10/22/87</i>
QC COORD	<i>10/28/87</i>

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN SOIL

ERT NO.:	48356	CLIENT:	AT&T
FLD ID.:	MB870847	DATE SAMPLED:	10/13/87
SAMPLING SITE:	APPLETON, WI	DATE ANALYZED:	10/13/87

PARAMETER	RESULT (UG/G)	PARAMETER	RESULT (UG/G)
CHLOROMETHANE	< 0.5	TRANS-1,3-DICHLOROPROPENE	< 0.5
BROMOMETHANE	< 0.5	TRICHLOROETHENE	< 0.5
VINYL CHLORIDE	< 0.5	DIBROMOCHLOROMETHANE	< 0.5
CHLOROETHANE	< 0.5	1,1,2-TRICHLOROETHANE	< 0.5
METHYLENE CHLORIDE	< 0.5	BENZENE	< 0.5
ACETONE	< 2.5	CIS-1,3-DICHLOROPROPENE	< 0.5
CARBON DISULFIDE	< 2.5	2-CHLOROETHYL VINYL ETHER	< 0.5
1,1-DICHLOROETHENE	< 0.5	BROMOFORM	< 0.5
1,1-DICHLOROETHANE	< 0.5	2-HEXANONE	< 2.5
TRANS-1,2-DICHLOROETHENE	< 0.5	4-METHYL-2-PENTANONE	< 2.5
CHLOROFORM	< 0.5	TETRACHLOROETHENE	< 0.5
1,2-DICHLOROETHANE	< 0.5	1,1,2,2-TETRACHLOROETHANE	< 0.5
2-BUTANONE -----	1.9	TOLUENE	< 0.5
1,1,1-TRICHLOROETHANE	< 0.5	CHLOROBENZENE	< 0.5
CARBON TETRACHLORIDE	< 0.5	ETHYL BENZENE	< 0.5
VINYL ACETATE	< 0.5	STYRENE	< 0.5
BROMODICHLOROMETHANE	< 0.5	TOTAL XYLENES	< 0.5
1,2-DICHLOROPROPANE	< 0.5		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4	125
BENZENE, D6	141
TOLUENE, D8	133
BROMOFLUOROBENZENE	134

REVIEWED by

ANALYST _____
 SUPERVISOR *[Signature]*
 QC COORD *[Signature]* 10/12/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48355
FLD ID: MB870848
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/13/87
DATE ANALYZED: 10/13/87

PARAMETER	RESULT UG/L	PARAMETER	RESULT UG/L
CHLOROMETHANE	BDL	TRANS-1,3-DICHLOROPROPENE	BDL
BROMOMETHANE	BDL	TRICHLOROETHENE	BDL
VINYL CHLORIDE	BDL	DIBROMOCHLOROMETHANE	BDL
CHLOROETHANE	BDL	1,1,2-TRICHLOROETHANE	BDL
METHYLENE CHLORIDE	BDL	BENZENE	BDL
ACETONE	BDL	CIS-1,3-DICHLOROPROPENE	BDL
CARBON DISULFIDE	BDL	2-CHLOROETHYL VINYL ETHER	BDL
1,1-DICHLOROETHENE	BDL	BROMOFORM	BDL
1,1-DICHLOROETHANE	BDL	2-HEXANONE	BDL
TRANS-1,2-DICHLOROETHENE	BDL	4-METHYL-2-PENTANONE	BDL
CHLOROFORM	BDL	TETRACHLOROETHENE	BDL
1,2-DICHLOROETHANE	BDL	1,1,2,2-TETRACHLOROETHANE	BDL
2-BUTANONE	18	TOLUENE	BDL
1,1,1-TRICHLOROETHANE	BDL	CHLOROBENZENE	BDL
CARBON TETRACHLORIDE	BDL	ETHYL BENZENE	BDL
VINYL ACETATE	BDL	STYRENE	BDL
BROMODICHLOROMETHANE	BDL	TOTAL XYLENES	BDL
1,2-DICHLOROPROPANE	BDL		

SURROGATE RECOVERY %

1,2-DICHLOROETHANE, D4 89
BENZENE, D6 104
TOLUENE, D8 101
BROMOFLUOROBENZENE 98

BDL = BELOW DETECTION LIMIT (CONC. <10 UG/L)

REVIEWED by

ANALYST _____
SUPERVISOR J.P. 10/22/87
QC COORD J.P. 10/20/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48357
FLD ID: LF871140
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/13/87
DATE ANALYZED: 10/13/87

PARAMETER	% RECOVERY
VINYL CHLORIDE	120
1,1-DICHLOROETHENE	110
CHLOROFORM	100
1,2-DICHLOROPROPANE	100
TOLUENE	100
ETHYL BENZENE	100

✓ JHP 10/22/87

✓
10/27/87

ERT ANALYTICAL LABORATORY
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS IN WATER

ERT NO.: 48286M
FLD ID: SB-07 MATRIX OVERSPIKE
SAMPLING SITE: APPLETON, WI

CLIENT: AT&T
DATE SAMPLED: 10/07/87
DATE ANALYZED: 10/13/87

PARAMETER	% RECOVERY
VINYL CHLORIDE	120
1,1-DICHLOROETHENE	120
CHLOROFORM	120
1,2-DICHLOROPROPANE	120
TOLUENE	120
ETHYL BENZENE	120

✓ JAP 10/22/87

10/27/87

CHAIN-OF-CUSTODY RECORD

AT&T

APPLETON, WI

SAMPLE RECEIPT CHECK LIST

Client: • AT&T, Appleton WI

COC Record #(s): ~~22357~~ 9943, 9999

Matrix	Container	ERT #(s)
water	VOA	48274-48275, 48259
soil	"	48279-48285

1. Were samples shipped or hand-delivered?

Notes: # 452 4610392

Yes No

2. Was COC record present upon receipt of samples?

Notes:

Yes No

3. Was COC tape present/unbroken on outer package?

Notes: # 22357

4. Were samples received ambient or chilled?

Notes:

Yes No

5. Were any samples received broken/leaking (improperly sealed)?

Notes:

Yes No

6. Were samples properly preserved?

Notes:

Yes No

7. Were COC types present/unbroken on samples?

Notes: Present on Shipping blank not on other samples

Yes No

8. Any discrepancies between sample labels and COC records?

Notes: shipping blank not included on COC added by DAB 10/3/97

Yes No

9. Were samples received within holding times?

Notes:

Additional Comments:

AIRBILL # 4524610392

Samples inspected and logged in by

Dean Gourville

Date:

10/3/97

CHAIN OF CUSTODY RECORD

Client/Project Name AT+T	Project Location APPLETON, WS.
Project No. G417-300	Field Logbook No.
Sampler: (Signature) <i>Scott C. V...</i>	Chain of Custody Tape No. 22357

ANALYSES
 VOC GC/MS
 METRO 62A
 VOC
 METRO 82AD

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample						REMARKS
SB-01	10-7-87	10:10	48289	SOIL						
SB-05	10-7-87	7:50	48284	SOIL		✓				3 DAY VERBAL
SB-06	10-7-87	8:30	48285	SOIL		✓				"
SB-07	10-7-87	9:10	48286	SOIL		✓				"
SB-08	10-7-87	10:10	48287	SOIL		✓				"
SB-08-W	10-7-87	10:25	48274	WATER	✓					"
SB-11-W	10-7-87	10:15	48288	WATER						"
SB-13-W	10-7-87	11:15	48275	WATER	✓					"
SB-10	10-7-87	12:10	48286	SOIL		✓				"

Relinquished by: (Signature) <i>Scott C. V...</i>	Date 10/7/87	Time 14:30	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received for Laboratory: (Signature) <i>Jim Lucin</i>	Date 10/8/87	Time 10:00 AM
Sample Disposal Method:	Disposed of by: (Signature)			Date	Time

SAMPLE COLLECTOR Environmental Research and Technology, Inc. 856 Virginia Road Concord, MA 01742 617-369-8910	ANALYTICAL LABORATORY ERT 33 INDUSTRIAL WAY WILMINGTON, MA 01887 617 657 4290	ERT No 9999
131 N. EISENHOWER W LUMBARD, IL 60148 312 620 5900		

CHAIN OF CUSTODY RECORD

Client/Project Name AT+T			Project Location APPLETON, WS			ANALYSES									
Project No. G 417-300			Field Logbook No.								VOC GC/MS METHOD 624 VOC'S METHOD 8240				
Sampler: (Signature) <i>Scott C. King</i>			Chain of Custody Tape No. 22357												
Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample							REMARKS				
SB-01	10-6-87	13:35	48279 ✓	SOIL		✓					3 DAY VENTIL				
SB-02	10-6-87	14:25	48280	SOIL		✓					"				
SB-03	10-6-87	15:00	48281 ✓	SOIL		✓					"				
SB-03-W	10-6-87	15:15	48276 ✓	WATER	✓						"				
SB-04	10-6-87	16:00	48282 ✓	SOIL		✓					"				
SB-12	10-6-87	16:00	48283 ✓	SOIL		✓					"				
SB-04-W	10-6-87	16:45	48277	WATER	✓						"				
SB-12-W	10-6-87	16:45	48278	WATER	✓						"				
Relinquished by: (Signature) <i>Scott C. King</i>				Date	Time	Received by: (Signature)				Date	Time				
				10/7/87	14:30										
Relinquished by: (Signature)				Date	Time	Received by: (Signature)				Date	Time				
Relinquished by: (Signature)				Date	Time	Received for Laboratory: (Signature)				Date	Time				
						<i>Jim Lee</i>				10/8/87	10:00 AM				
Sample Disposal Method:				Disposed of by: (Signature)				Date	Time						
SAMPLE COLLECTOR				ANALYTICAL LABORATORY				ERT							
Environmental Research and Technology, Inc. 696 Virginia Road Concord, MA 01742 017-309-8910				ERT 33 INDUSTRIAL WAY WILMINGTON, MA 01897 617-657-4220											
131 N. EISENHOWER W. LOMBARD, IL 60148 312-620-5900								No 9943							

APPENDIX C.2
PHASE II ANALYTICAL RESULTS

APPENDIX C.2.a
PHASE II
TOTAL AND HEXAVALENT CHROMIUM

DATE: 11/09/87
TO: Larry Campbell
FROM: Bo Blankfield, Lab Manager
PROJ. NO.: G417-350 LAB NO.: 8777

RECEIVED
NOV 11 1987
L. M. CAMPBELL

Attached are reports of chemical analyses of samples received October 28, 1987. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
2	Cr - -	-HOU CHROMIUM	SM: 303A, ATOMIC ABSORPTION	10/27/87	WATER
10	Cr -S-	-HOU CHROMIUM ON SOLID	SM: 303A, ATOMIC ABSORPTION	10/27/87	SOIL
2	Cr+6 - -	-MBA CHROMIUM, HEXAVALENT	SM: 312B, COLORIMETRIC	10/27/87	WATER
10	Cr+6 -S-	-MBA CHROMIUM, HEXAVALENT ON SOLID	SM: 312B, COLORIMETRIC	10/27/87	SOIL

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Reports, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Billing Summary

LAB NO. 8777
PROJECT G417-350 AT&T



A RESOURCE ENGINEERING COMPANY

3000 RICHMOND AVENUE, HOUSTON, TEXAS 77098, (713) 520-9900

environmental and engineering excellence

ERT Labs
Analytical Summary
11/09/87 11:18

Lab Number: 9777			Project: 6417-350			AT&T		
Lab ID	1	2	3	4	5	6	7	8
Field ID	SB-14	SB-15	SB-16	SB-17	SB-18	SB-19	SB-20	SB-21
(Cont'd)								
Test /Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Cr -S- -HOU	25	26	40	26	28	38	40	40
	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
(HDL)	20	20	20	20	20	20	20	20
Cr+6 -S- -MBA	<20	<20	<20	<20	<20	<20	<20	<20
	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
(HDL)	20	20	20	20	20	20	20	20

QA/QC Approval: Solomon Thomason Date: 11-10-87

Mgr. Approval: B. Blackfield Date: 11-10-87

***** CONTINUED *****

ERT Labs
Analytical Summary
11/09/87 11:19

Lab Number: B777			Project: G417-350		AT&T	
Lab ID	9	10	11	12		
Field ID	SB-22	SB-23	SB-24-W	SHIPPING		
(Cont'd)				BLK		
Test /Matrix	SOIL	SOIL	WATER	WATER		
Cr - - - +HOU	—	—	<0.04	<0.04		
(MDL)			MG/L	MG/L		
			0.04	0.04		
Cr -S- +HOU	48	44	—	—		
(MDL)	MG/KG	MG/KG				
	20	20				
Cr+6 - - - +MBA	—	—	<2	<2		
(MDL)			MG/L	MG/L		
			2 *	2 *		
Cr+6 -S- +MBA	<20	<20	—	—		
(MDL)	MG/KG	MG/KG				
	20	20				

QA/QC Approval: Adama Verrax Date: 11-10-87

Mgr. Approval: Bo Sheffield Date: 11-10-87

* Please see attached Analytical Report for remarks.

ERT Labs
Analytical Report
11/09/87 11:14

AT&T	Field ID: SB-14	Date Sampled: 10/27/87		
Proj. No.: 6417-350	Lab ID: 1	Time Sampled: 740		
Lab No.: 8777	Matrix: SDIL	Date Received: 10/28/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HCU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	25	MG/KG	20	10/30/87 500
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87

***** CONTINUED *****

ERT Labs
 Analytical Report
 11/09/87 11:14

AT&T	Field ID: SB-15	Date Sampled: 10/27/87		
Proj. No.: 6417-350	Lab ID: 2	Time Sampled: 1245		
Lab No.: 8777	Matrix: SOIL	Date Received: 10/28/87		
(Test Code)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Parameter (Test Name) (Test Method)				
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	26	MG/KG	20	10/30/87 800
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87

***** CONTINUED *****

ERT Labs
Analytical Report
11/09/87 11:14

AT&T	Field ID: SB-16	Date Sampled: 10/27/87
Proj. No.: 6417-350	Lab ID: 3	Time Sampled: 1315
Lab No.: 8777	Matrix: SOIL	Date Received: 10/28/87

(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -6- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	40	MG/KG	20	10/30/87 800
Cr+6 -6- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87

***** CONTINUED *****

ERT Labs
 Analytical Report
 11/09/87 11:14

AT&T	Field ID: SB-17	Date Sampled: 10/27/87
Proj. No.: 6417-350	Lab ID: 4	Time Sampled: 1345
Lab No.: 8777	Matrix: SOIL	Date Received: 10/28/87

Parameter (Test Code) (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	26	MG/KG	20	10/30/87 800
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87

***** CONTINUED *****

ERT Labs
Analytical Report
11/09/87 11:15

AT&T	Field ID: SB-18	Date Sampled: 10/27/87		
Proj. No.: 6417-350	Lab ID: 5	Time Sampled: 1410		
Lab No.: 8777	Matrix: SOIL	Date Received: 10/28/87		
(Test Code)				
Parameter (Test Name)	Concentration	Method		
(Test Method)		Detection Limit		
		Date/Time Analysis Performed		
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	28	MG/KG	20	10/30/87 800
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87

***** CONTINUED *****

ERT Labs
 Analytical Report
 11/09/87 11:15

AT&T	Field ID: SB-19	Date Sampled: 10/27/87		
Proj. No.: 6417-350	Lab ID: 6	Time Sampled: 825		
Lab No.: 8777	Matrix: SOIL	Date Received: 10/28/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	38	MG/KG	20	10/30/87 800
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87

***** CONTINUED *****

ERT Labs
Analytical Report
11/09/87 11:15

AT&T	Field ID: SB-20	Date Sampled: 10/27/87
Proj. No.: 6417-350	Lab ID: 7	Time Sampled: 1035
Lab No.: 8777	Matrix: SOIL	Date Received: 10/28/87

(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -5- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	40	MG/KG	20	10/30/87 800
Cr+6 -5- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87

***** CONTINUED *****

ERT Labs
Analytical Report
11/09/87 11:16

AT&T	Field ID: SB-21	Date Sampled: 10/27/87
Proj. No.: 6417-350	Lab ID: 8	Time Sampled: 1115
Lab No.: 8777	Matrix: SOIL	Date Received: 10/28/87

(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	40	MG/KG	20	10/30/87 800
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87

***** CONTINUED *****

ERT Labs
Analytical Report
11/09/87 11:16

AT&T	Field ID: SB-22	Date Sampled: 10/27/87		
Proj. No.: G417-350	Lab ID: 9	Time Sampled: 905		
Lab No.: 8777	Matrix: SOIL	Date Received: 10/28/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	48	MG/KG	20	10/30/87 800
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87

***** CONTINUED *****

ERT Labs
Analytical Report
11/09/87 11:17

AT&T	Field ID: SB-23	Date Sampled: 10/27/87
Proj. No.: 6417-350	Lab ID: 10	Time Sampled: 1315
Lab No.: 8777	Matrix: SOIL	Date Received: 10/28/87

(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S- -HOU CHROMIUM ON SOLID SM: 303A, ATOMIC ABSORPTION	44	MG/KG	20	10/30/87 800
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<20	MG/KG	20	11/02/87

***** CONTINUED *****

ERT Labs
Analytical Report
11/04/87 18:07

AT&T	Field ID: SB-24-W	Date Sampled: 10/27/87
Proj. No.: G417-350	Lab ID: 11	Time Sampled: 1430
Lab No.: 8777	Matrix: WATER	Date Received: 10/28/87

(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - - -HOU CHROMIUM SM: 303A, ATOMIC ABSORPTION	<0.04	MG/L	0.04	10/29/87 1500
Cr+6 - - -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	<2 *1	MG/L	2	11/02/87

*1 HOLDING TIME EXPIRED BEFORE RECEIPT

***** CONTINUED *****

ERT Labs
 Analytical Report
 11/04/87 18:07

AT&T	Field ID: SHIPPING BLK	Date Sampled: 10/27/87
Proj. No.: B417-350	Lab ID: 12	Time Sampled:
Lab No.: 8777	Matrix: WATER	Date Received: 10/28/87

Parameter (Test Code) (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -- -- +DU CHROMIUM SM: 303A, ATOMIC ABSORPTION	<0.04	MG/L	0.04	10/29/87 1500
Cr+6 -- -- -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	<2 *1	MG/L	2	11/02/87

*1 HOLDING TIME EXPIRED BEFORE RECEIPT

ERT LABORATORIES QUALITY CONTROL LOG

MDL 20 ppm

METHOD OF ANALYSIS Stantmeth 16^H EPA 303A PARAMETER Cr MATRIX Soil ANALYST MS DATE 10-30-87 TIME 0800

CALIBRATION STANDARDS/BLANK ABSORBANCE

Blank	0.000
0.250 ppm	0.010
0.500 ppm	0.021
1.000 ppm	0.041
SLOPE	

STANDARDS CONCENTRATION FOUND CONCENTRATION - ACTUAL CONCENTRATION

BLANK	<0.2	
0.250	0.254	0.004
0.500	0.497	-0.003
1.000	1.001	0.001
EPA 386 TV=0.5	0.491	-0.009
METHOD BLANK	<0.2	I.S. 0.050 → 0.050

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

8777(1-10) by MOA 100% MOL-20 mg/kg

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKE CONC. ÷ THEORETICAL CONC. x 100

LAB #-SAMPLE ID #	FIRST CONC.	DIL. FACTOR	REPL. CONC.	DIL. FACTOR	RANGE	%PRECISION	%SAMPLE x CONC.	%STANDARD x CONC.	THEO. CONC.	SPIKE CONC.	%RECOVERY
8777-2	0.258	100	0.222	100	0.036	10.6	100% 0.258	100% 4 ppm	4.258	4.250	100.9%
8777-9	0.478	100	0.421	100	0.057	9.0	100% 0.478	100% 4 ppm	4.478	4.638	104.9%
SAMPLES RUN BY MOA:											
8777-411											

PRECISION % = STANDARD DEVIATION ÷ MEAN x 100

ERT LABORATORIES QUALITY CONTROL LOG

MDL 0.04 ppm

METHOD OF ANALYSIS Standard method 16th Ed PARAMETER Cr MATRIX H₂O ANALYST MS DATE 10-29-87 TIME 1500
305A

CALIBRATION STANDARDS/BLANK	ABSORBANCE
Blk	0.000
0.500 ppm	0.023
1.000 ppm	0.042
2.000 ppm	0.088
SLOPE	

STANDARDS	CONCENTRATION	FOUND CONCENTRATION - ACTUAL CONCENTRATION
BLANK	<0.2	
0.500	0.515	0.015
1.000	0.999	-0.001
2.000	2.013	0.013
EPA 386 TV=0.5	0.488	-0.012
METHOD BLANK	<0.2	IS. 0.05 → 0.047

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

8777-11, 12 1/5 MDL - 0.04 mg/L

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKE CONC. ÷ THEORETICAL CONC. x 100

LAB #-SAMPLE ID #	FIRST CONC.	DIL. FACTOR	REPL. CONC.	DIL. FACTOR	RANGE	%PRECISION	%SAMPLE x CONC.	%STANDARD x CONC.	THEO. CONC.	SPIKE CONC.	%RECOVERY
8777-11	0.165	0.2	0.158	0.2	0.007	3.1%					
8777-12							100% 0.186	100% 5 ppm	5.186	4.656	90%
SAMPLES RUN BY MOA:											

PRECISION % = STANDARD DEVIATION ÷ MEAN x 100

DATE APPROVED 11/1/87 BY MS

ERT LABORATORIES
SAMPLE RECEIPT CHECKLIST

10.28

CLIENT ATIT PROJECT NO. G417-350 LAB NO. 8777

- 1. shipped NOTES:
 hand-delivered
- 2. COC present on receipt NOTES:
 no COC
- 3. COC tape on shipping container NOTES:
 no COC tape
- 4. samples broken/leaking on receipt NOTES:
 samples intact on receipt
 other, see notes
- 5. ambient on receipt NOTES:
 chilled on receipt
- 6. samples preserved correctly NOTES:
 improper preservatives
 N/A, no recommended preservatives
 other, see notes
- 7. received within holding times NOTES:
 not received within holding times
 N/A, no recommended holding time
 other, see notes
- 8. COC tapes on samples NOTES:
 no COC tapes
- 9. discrepancies between COC and sample labels NOTES: SHIPPING BLANK 8777-12
 no discrepancies noted
 N/A, no COC received
 other, see notes

Additional comments:

Samples inspected and logged in by: Judy B. Hernandez Date/Time: 10-28-87 8:45

CHAIN OF CUSTODY RECORD

Client/Project Name AT+T			Project Location APPLETON, WI			ANALYSES											
Project No. G 417-350			Field Logbook No.									CHROMIUM, TOTAL METHOD 6010 CHROMIUM, HEX. METHOD 312B					
Sampler: (Signature) <i>Scott C. V...</i>			Chain of Custody Tape No. 200915														
Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample							REMARKS						
9 SB-22	10/27/87	9:05	8777-9	SOIL	✓	✓							← 3 DAY VERBALS				
10 SB-23	10/27/87	13:15	8777-10	SOIL	✓	✓							"				
11 SB-24-W	10/27/87	14:30	8777-11	WATER	✓	✓							"				
12 SHIPPING GLASS	10/27/87		8777-12	WATER	✓	✓											
Relinquished by: (Signature) <i>Scott C. V...</i>				Date	Time	Received by: (Signature)				Date	Time						
				10/27/87	16:00												
Relinquished by: (Signature)				Date	Time	Received by: (Signature)				Date	Time						
Relinquished by: (Signature)				Date	Time	Received for Laboratory: (Signature) <i>Jody B. Hernandez</i>				Date	Time						
										10/28/87	8:45						
Sample Disposal Method:				Disposed of by: (Signature)						Date	Time						
SAMPLE COLLECTOR				ANALYTICAL LABORATORY						ERT							
Environmental Research and Technology, Inc. 696 Virginia Road Concord, MA 01742 617-369-8910				ERT 3000 RICHMOND AVE. HOUSTON, TX 77098 713-520-9900								N° 7057					
131 N. EISENHOWER LOMBARD, IL 60148 312-620-5900																	

CHAIN OF CUSTODY RECORD

Client/Project Name AT+T			Project Location APPLETON, WI			ANALYSES CHROMIUM - TOTAL METHYL - COLO CHROMIUM - HEX. METHOD 312B To Add per Mr. Blankfeld for rate					
Project No. G417-350			Field Logbook No.								
Sampler: (Signature) <i>Scott C. V...</i>			Chain of Custody Tape No. 200914								
Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	Chromium - Total	Methyl - Colo	Chromium - Hex.	Method 312B	REMARKS		
1 SB-14	10/17/87	7:40	8777-1	SOIL	✓	✓			8777A < 3 DAY VERBALS		
2 SB-15	10/21/87	12:45	8777-2	SOIL	✓	✓			"		
3 SB-16	10/27/87	13:15	8777-3	SOIL	✓	✓			"		
4 SB-17	10/27/87	13:45	8777-4	SOIL	✓	✓			"		
5 SB-18	10/28/87	14:10	8777-5	SOIL	✓	✓			"		
6 SB-19	10/27/87	8:25	8777-6	SOIL	✓	✓			"		
7 SB-20	10/27/87	10:35	8777-7	SOIL	✓	✓			"		
8 SB-21	10/27/87	11:15	8777-8	SOIL	✓	✓			"		
Relinquished by: (Signature) <i>Scott C. V...</i>				Date	Time	Received by: (Signature)			Date	Time	
				10/21/87	16:00						
Relinquished by: (Signature)				Date	Time	Received by: (Signature)			Date	Time	
Relinquished by: (Signature)				Date	Time	Received for Laboratory: (Signature) <i>Judy B. Hernandez</i>			Date	Time	
									10/25/87	8:45	
Sample Disposal Method:				Disposed of by: (Signature)					Date	Time	
SAMPLE COLLECTOR				ANALYTICAL LABORATORY					ERT		
Environmental Research and Technology, Inc. 898 Virginia Road Concord, MA 01742 617-369-8910 131 N. EISENHOWER COMBATA, IL 60148 312-620-5900				ERT 3000 RICHMOND AVE. HOUSTON, TX 77098 713-520-9900							Nº 7060

PHASE II

TOTAL CHROMIUM ANALYSIS OF HEXAVALENT CHROMIUM LEACHATE

DATE: 11/18/87

TO: Larry Campbell

FROM: Bo Blankfield, Lab Manager

PROJ. NO.: G417-350 LAB NO.: 8777A

RECEIVED
NOV 19 1987
L.M. CAMPBELL

Attached are reports of chemical analyses of samples received October 28, 1987. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
2	Cr - -Cr6-MBA	CHROMIUM (Cr+6 LEACHATE)	Cr+6 LEACHATE, EPA 600: 200.7, ICP	10/27/87	WATER
10	Cr -S-Cr6-MBA	CHROMIUM ON SOLID (Cr+6 LEACH)	Cr+6 LEACHATE, SW-846: 6010, ICP	10/27/87	SOIL

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Reports, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Billing Summary

LAB NO. 8777A

PROJECT G417-350 AT&T



A RESOURCE ENGINEERING COMPANY

3000 RICHMOND AVENUE, HOUSTON, TEXAS 77098, (713) 520-9900

environmental and engineering excellence

ERT LABORATORIES

Analytical Summary

11/18/87 15:19

<i>Lab Number: 8777A</i>		<i>Project: G417-350</i>			<i>AT&T</i>				
<i>Lab ID</i>	1	2	3	4	5	6	7	8	
<i>Field ID</i>	SB-14	SB-15	SB-16	SB-17	SB-18	SB-19	SB-20	SB-21	
<i>(Cont'd)</i>									
<i>Test /Matrix</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
Cr -S-Cr6-MBA	<1.0	<1.0	3.4	<1.0	<1.0	<1.0	<1.0	<1.0	
<i>(MDL)</i>	<i>MG/KG</i> (1.0)	<i>MG/KG</i> (1.0)	<i>MG/KG</i> (1.0)	<i>MG/KG</i> (1.0)	<i>MG/KG</i> (1.0)	<i>MG/KG</i> (1.0)	<i>MG/KG</i> (1.0)	<i>MG/KG</i> (1.0)	

QAQC Approval: *LaComa Thomas* Date: 11-18-87

Mgr. Approval: *De Blafeld* Date: 11-18-87

***** CONTINUED *****

ERT LABORATORIES

Analytical Summary
11/18/87 15:20

Lab Number: 8777A		Project: G417-350		AT&T	
Lab ID	9	10	11	12	
Field ID	SB-22	SB-23	SB-24-W	SHIP BLA	
(Cont'd)				NK	
Test /Matrix	SOIL	SOIL	WATER	WATER	
Cr --Cr6-MBA	--	--	<0.01	<0.01	
(MDL)	()	()	MG/L	MG/L	
			(0.01)	(0.01)	
Cr --S-Cr6-MBA	<1.0	<1.0	--	--	
(MDL)	MG/KG	MG/KG	()	()	
	(1.0)	(1.0)			

QAQC Approval: Salonna Thompson Date: 11-18-87

Mgr. Approval: Lo Bluff Date: 11-18-87

ERT

ERT LABORATORIES

Analytical Report

11/18/87 15:22

AT&T	Field ID: SB-14	Date Sampled: 10/27/87		
Proj. No.: G417-350	Lab ID: 1	Time Sampled: 740		
Lab No.: 8777A	Matrix: SOIL	Date Received: 10/28/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	<1.0	MG/KG	1.0	11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
11/18/87 15:22

AT&T	Field ID: SB-15	Date Sampled: 10/27/87
Proj. No.: G417-350	Lab ID: 2	Time Sampled: 1245
Lab No.: 8777A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Method
(Test Method)		Detection Limit
	Units	Date/Time Analysis Performed
Cr -S-Cr6-MBA	<1.0	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		1.0
Cr+6 LEACHATE, SW-846: 6010, ICP		11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
11/18/87 15:22

AT&T	Field ID: SB-16	Date Sampled: 10/27/87		
Proj. No.: G417-350	Lab ID: 3	Time Sampled: 1315		
Lab No.: 8777A	Matrix: SOIL	Date Received: 10/28/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	3.4	MG/KG	1.0	11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
11/18/87 15:22

AT&T	Field ID: SB-17	Date Sampled: 10/27/87
Proj. No.: G417-350	Lab ID: 4	Time Sampled: 1345
Lab No.: 8777A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Units
(Test Method)		Method Detection Limit
Cr -S-Cr6-MBA	<1.0	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		1.0
Cr+6 LEACHATE, SW-846: 6010, ICP		11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
11/18/87 15:22

AT&T	Field ID: SB-18	Date Sampled: 10/27/87
Proj. No.: G417-350	Lab ID: 5	Time Sampled: 1410
Lab No.: 8777A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Units
(Test Method)		Method Detection Limit
Cr -S-Cr6-MBA	<1.0	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		1.0
Cr+6 LEACHATE, SW-846: 6010, ICP		11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
11/18/87 15:22

AT&T	Field ID: SB-19	Date Sampled: 10/27/87
Proj. No.: G417-350	Lab ID: 6	Time Sampled: 825
Lab No.: 8777A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Method Detection Limit
(Test Method)	Units	Date/Time Analysis Performed
Cr -S-Cr6-MBA	<1.0	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		1.0
Cr+6 LEACHATE, SW-846: 6010, ICP		11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
11/18/87 15:22

AT&T	Field ID: SB-20	Date Sampled: 10/27/87
Proj. No.: G417-350	Lab ID: 7	Time Sampled: 1035
Lab No.: 8777A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Units
(Test Method)		Method Detection Limit
Cr -S-Cr6-MBA	<1.0	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		1.0
Cr+6 LEACHATE, SW-846: 6010, ICP		11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
11/18/87 15:22

AT&T	Field ID: SB-21	Date Sampled: 10/27/87
Proj. No.: G417-350	Lab ID: 8	Time Sampled: 1115
Lab No.: 8777A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Method Detection Limit
(Test Method)	Units	Date/Time Analysis Performed
Cr -S-Cr6-MBA	<1.0	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		1.0
Cr+6 LEACHATE, SW-846: 6010, ICP		11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
11/18/87 15:22

AT&T	Field ID: SB-22	Date Sampled: 10/27/87
Proj. No.: G417-350	Lab ID: 9	Time Sampled: 905
Lab No.: 8777A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Units
(Test Method)		
Cr -S-Cr6-MBA	<1.0	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		
Cr+6 LEACHATE, SW-846: 6010, ICP		
		Method Detection Limit
		1.0
		Date/Time Analysis Performed
		11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
11/18/87 15:22

AT&T	Field ID: SB-23	Date Sampled: 10/27/87
Proj. No.: G417-350	Lab ID: 10	Time Sampled: 1315
Lab No.: 8777A	Matrix: SOIL	Date Received: 10/28/87
(Test Code)		
Parameter (Test Name)	Concentration	Units
(Test Method)		
Cr -S-Cr6-MBA	<1.0	MG/KG
CHROMIUM ON SOLID (Cr+6 LEACH)		
Cr+6 LEACHATE, SW-846: 6010, ICP		
		Method Detection Limit
		1.0
		Date/Time Analysis Performed
		11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
11/18/87 15:22

AT&T Proj. No.: G417-350 Lab No.: 8777A	Field ID: SB-24-W Lab ID: 11 Matrix: WATER	Date Sampled: 10/27/87 Time Sampled: 1430 Date Received: 10/28/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - -Cr6-MBA CHROMIUM (Cr+6 LEACHATE) Cr+6 LEACHATE, EPA 600: 200.7, ICP	<0.01	MG/L	0.01	11/02/87 1000

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report

11/18/87 15:22

AT&T	Field ID: SHIP BLANK	Date Sampled: 10/27/87		
Proj. No.: G417-350	Lab ID: 12	Time Sampled:		
Lab No.: 8777A	Matrix: WATER	Date Received: 10/28/87		
(Test Code)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Parameter (Test Name) (Test Method)				
Cr --Cr6-MBA CHROMIUM (Cr+6 LEACHATE) Cr+6 LEACHATE, EPA 600: 200.7, ICP	<0.01	MG/L	0.01	11/02/87 1000

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A RESOURCE ENGINEERING COMPANY

Analysis Request and Chain of Custody Record

Project No. G417-350		Client/Project Name AT&T				Project Location 5 APPLETON, WI			
Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED		LABORATORY REMARKS
1 SB-14	7:40 10/27/87			4 oz Plastic	SOIL	N/A	CHROMIUM HEX METHOD 312B		
2 SB-15	10/27/87 12:45			4 oz Plastic	SOIL		" " "		
3 SB-16	10/27/87 13:45			4 oz Plastic	SOIL		" " "		
4 SB-17	10/27/87 13:45			4 oz Plastic	SOIL		" " "		
5 SB-18	10/27/87 14:10			4 oz Plastic	SOIL		" " "		
6 SB-19	10/27/87 8:25			4 oz Plastic	SOIL		" " "		
7 SB-20	10/27/87 10:35			4 oz Plastic	SOIL		" " "		
8 SB-21	10/27/87 11:15			4 oz Plastic	SOIL		" " "		
9 SB-22	10/27/87 9:05			4 oz Plastic	SOIL		" " "		
10 SB-23	10/27/87 13:15			4 oz Plastic	SOIL		" " "		
Samplers: (Signature)		Relinquished by: (Signature) Jody B. Hendricks		Date: 10/28/87 Time: 10:50		Received by: (Signature) LITHIUM M. Miller		Date: 10/28/87 Time: noon	Intact Yes
Affiliation		Relinquished by: (Signature)		Date: _____ Time: _____		Received by: (Signature)		Date: _____ Time: _____	Intact
SAMPLER REMARKS:		Relinquished by: (Signature)		Date: _____ Time: _____		Received by: (Signature)		Date: _____ Time: _____	Intact
Seal #		MBA * VERBALS by 10-30-87 PM				Received for Laboratory (Signature)		Date: _____ Time: _____	Laboratory No. 8777
						Data Results to:			

NARRATIVE LOG

CLIENT AT & T Appleton WS PROJECT NO. 900-01/G417-350 LAB NO. 8777A

<u>PARAMETER</u>	<u>METHOD</u>	<u>DETECTION LIMIT</u>	<u>ANALYST</u>	<u>DATE/TIME</u>
T-Cr of Leachate	312B	1.0 mg/kg	RV	11-2-87/1000

Procedure: Soil sample aliquot was taken from original sample container for analysis. This aliquot was mixed in distilled water for 24 hours producing a leachate as per Standard Methods 312B for Hexavalent Chromium. Total Chromium analyses were performed on this leachate as requested by our client.

REFERENCE:

Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

APPENDIX C.2.b
PHASE II
VOLATILE ORGANIC COMPOUNDS

RECEIVED
NOV 18 1987
L. M. CAMPBELL

ANALYSIS OF SOIL AND WATER SAMPLES
FROM
AT&T APPLETON, WI

ERT PROJECT NO. 0005-429 (G417-350)
November 16, 1987

PREPARED FOR
S. Veenstra

Prepared by
Analytical Chemistry Laboratory
ERT, A Resource Engineering Company
33 Industrial Way, Wilmington, Massachusetts 01887

ANALYSIS OF SOIL AND WATER SAMPLES
FROM
AT&T APPLETON

INTRODUCTION

This report represents the results of analysis conducted on various Soil and Water samples received by the ERT Analytical Chemistry Laboratory on October 28, 1987. The samples were to be selectively analyzed for volatiles.

SAMPLE RECEIPT AND CHAIN OF CUSTODY

Routine inspection of the samples revealed them to be packaged properly and received in good condition.

Upon receipt, information from the submitted samples was recorded in the Master Log Book (and the LIMS computer system) and assigned ERT Control Numbers. These unique sample labels were affixed to respective sample containers and subsequently utilized throughout the laboratory analysis procedures for positive traceability.

ANALYTICAL PROCEDURES

The water samples were analyzed according to procedures as outlined in:

- a. Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act, 40 CFR Part 136.
- b. Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, revised, March, 1983.
- c. Standard Methods for the Examination of Water and Wastewater, 16th Edition, APHA, 1985.

The soil samples were analyzed according to procedures as outlined in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 2nd Edition, revised April, 1984.

QUALITY CONTROL PROCEDURES

Standard quality control procedures were implemented for all analyses. Laboratory reagent (method) blanks, laboratory duplicated samples, and laboratory fortified control samples were analyzed concurrently with each case of submitted samples. The laboratory normally prepares and analyzes one (1) blank, one (1) fortified sample, and one (1) duplicate sample for each case of samples received or for each twenty (20) samples, whichever is more frequent. A case consists of a finite, usually predetermined number of samples collected over a given time period from one particular site. Duplicate sample analyses are performed only when sufficient sample volume is received. The results of the analyses are reviewed by the laboratory quality control coordinator to insure compliance with established analytical control limits.

Laboratory prepared method blank samples and fortified samples are identified in the analytical result tables under the Field Identification number using a unique numbering system and also assigning one ERT sample number to each sample. The Prefix "MB" refers to Method Blank, and "LF" refers to Laboratory Fortification (i.e., a quality control recovery sample).

In most cases, the analytical results will have been corrected using mean method blank results.

RESULTS OF ANALYSIS

Analytical results for the submitted samples are presented in the appended tables. Summary tables for the results of duplicate, blank, and fortified control samples have also been provided in the Appendix.

DISCUSSION

Review of the results of the quality control/quality assurance samples analyzed concurrently with the submitted samples indicated that the analyses were within the acceptance criteria as established by the U.S. EPA.

DATA AND REPORT APPROVAL FORM

SUBMITTED BY:

Analytical Chemistry Laboratory
ERT A Resource Engineering Company
33 Industrial Way
Wilmington, MA 01887
November 16, 1987

DATA AUDITED BY:

M. S. Sparlin



Quality Control Coordinator

REPORT APPROVED BY:

A. P. Paradice



Laboratory Manager

VOLATILES ANALYSES IN SOIL

Summary of Analytical Results

Method Blank Results

Quality Control Check Sample Results

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T Appleton Project No.: 0005-429
 Sample Client ID: 48792 SB-14
 Laboratory ID: 5757-01
 Matrix: Soil Sampled: 10/27/87 Received: 10/29/87
 Authorized: 10/29/87 Prepared: 10/29/87 Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	150
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 89%

ND = Not detected.

Reported by QB

Approved by Ar JW

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T AppletonProject No.: 0005-429Sample/Client ID: 48793 SB-15Laboratory ID: 5757-02Matrix: SoilSampled: 10/27/87Received: 10/29/87Authorized: 10/29/87Prepared: 10/29/87Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 87%

ND = Not detected.

Reported by CBApproved by [Signature]

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T AppletonProject No.: 0005-429Sample/ Client ID: 48794 SB-16Laboratory ID: 5757-03Matrix: SoilSampled: 10/27/87Received: 10/29/87Authorized: 10/29/87Prepared: 10/29/87Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 86%

ND = Not detected.

Reported by CBApproved by Shu VJT

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL L1st

Client Name: AT&T Appleton Project No.: 0005-429Sample/ Client ID: 48795 SB-17Laboratory ID: 5757-04Matrix: Soil Sampled: 10/27/87 Received: 10/29/87Authorized: 10/29/87 Prepared: 10/29/87 Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 88%

ND = Not detected.

Reported by CB Approved by Am 4/7

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T AppletonProject No.: 0005-429Sample/Client ID: 48796 SB-18Laboratory ID: 5757-05Matrix: SoilSampled: 10/27/87Received: 10/29/87Authorized: 10/29/87Prepared: 10/29/87Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 93%

ND = Not detected.

Reported by CBApproved by AN 12

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T Appleton Project No.: 0005-429

Sample/ Client ID: 48797 SB-19

Laboratory ID: 5757-06

Matrix: Soil Sampled: 10/27/87 Received: 10/29/87

Authorized: 10/29/87 Prepared: 10/29/87 Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 85%

ND = Not detected.

Reported by OB Approved by An

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T Appleton Project No. 0005-429Sample/ Client ID: 48798 SB-20Laboratory ID: 5757-07Matrix: Soil Sampled: 10/27/87 Received: 10/29/87Authorized: 10/29/87 Prepared: 10/29/87 Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 87%

ND = Not detected.

Reported by GB Approved by An. VLY

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T AppletonProject No.: 0005-429Sample/ Client ID: 48799 SB-21Laboratory ID: 5757-08Matrix: Soil Sampled: 10/27/87 Received: 10/29/87Authorized: 10/29/87 Prepared: 10/29/87 Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 88%

ND = Not detected.

Reported by EBApproved by Shu 14

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T Appleton Project No.: 0005-429

Sample/ Client ID: 48800 SB-22

Laboratory ID: 5757-09

Matrix: Soil Sampled: 10/27/87 Received: 10/29/87

Authorized: 10/29/87 Prepared: 10/29/87 Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 87%

ND = Not detected.

Reported by CB Approved by Av VY

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T Appleton Project No.: 0005-429Sample/Client ID: 48801 SB-23Laboratory ID: 5757-10Matrix: Soil Sampled: 10/27/87 Received: 10/29/87Authorized: 10/29/87 Prepared: 10/29/87 Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	1,500
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 85%

ND = Not detected.

Reported by JB Approved by Am

VOLATILE ORGANICS

Surrogate Recovery Summary

Client Name: AT&T Appleton Project No.: 0005-429
 Matrix: Soil
 Authorized: 10/29/87 Received: 10/29/87

Surrogate Compound

Sample ID	Client ID	d ₄ -1,2,-Dichloro-ethane	d ₈ -Toluene	p-Bromofluoro-benzene
5757-01	48792	91	102	97
5757-02	48793	92	102	95
5757-03	48794	93	103	96
5757-04	48795	94	102	97
5757-05	48796	90	102	96
5757-06	48797	91	101	96
5757-07	48798	92	103	94
5757-08	48799	92	101	97
5757-09	48800	91	101	100
5757-10	48801	90	102	94

QC Advisory Limits: 70-121% 61-117% 74-121%

Reported by LB Approved by Am

PRIORITY POLLUTANT VOLATILE ORGANICS

EPA Method 624 + 624/HSL L1st

QUALITY CONTROL

Client Name: AT&T Appleton Project No. 0005-429

Client ID: Laboratory Control Spike Dup.

Laboratory ID: 3082LCSD

Matrix: Water Prepared: 10/29/87 Analyzed: 10/29/87

<u>Parameter</u>	<u>% Recovery</u>	<u>QC Advisory Limits</u>
1,1-Dichloroethene	84	61 - 145%
Trichloroethene	87	71 - 120%
Benzene	90	76 - 127%
Toluene	87	76 - 125%
Chlorobenzene	86	75 - 130%

✓

Reported by BB Approved by An

VOLATILES ANALYSES IN WATER

Summary of Analytical Results

Method Blank Results

Quality Control Check Sample Results

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Appleton Project No.: 0005-429
 Sample/Client ID: 48802 SB-24-W
 Laboratory ID: 5757-11
 Matrix: Water Sampled: 10/27/87 Received: 10/29/87
 Authorized: 10/29/87 Prepared: 10/29/87 Analyzed: 10/29/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	50
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform	ND	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene	ND	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

ND = Not detected.

Reported by EB Approved by Am. JY

VOLATILE ORGANICS

Surrogate Recovery Summary

Client Name: AT&T Appleton

Project No.: 0005-429

Matrix: Water

Authorized: 10/29/87

Received: 10/29/87

Lab	Erco ID	Sample Client ID	Surrogate Compound		
			d ₄ -1,2,-Dichloro-ethane	d ₆ -Toluene	p-Bromofluoro-benzene
	5757-11	48802	116	92	123
	5757-12	48803	101	90	125

QC Advisory Limits:

76-114%

61-110%

74-115%

Reported by JB

Approved by ju

PRIORITY POLLUTANT VOLATILE ORGANICS

EPA Method 624 + 624/HSL List

QUALITY CONTROL

Client Name: AT&T Appleton Project No.: 0005-429

Client ID: Laboratory Control Spike

Laboratory ID: 3068LCS

Matrix: Water Prepared: 10/28/87 Analyzed: 10/28/87

<u>Parameter</u>	<u>% Recovery</u>	<u>QC Advisory Limits</u>
1,1-Dichloroethene	93	61 - 145%
Trichloroethene	95	71 - 120%
Benzene	97	76 - 127%
Toluene	97	76 - 125%
Chlorobenzene	96	75 - 130%

1/2

Reported by CB Approved by [Signature]

CHAIN-OF-CUSTODY RECORD _

AT&T

APPLETON, WI

SAMPLE RECEIPT CHECK LIST

Client: AT&T, Appleton

COC Record #(s): 7058, 7055

Matrix	Container	ERT #(s)
<u>water</u>	<u>LeAS (sit. 55)</u>	<u>48802-48803</u>
<u>soil</u>	<u>" "</u>	<u>48792-48801</u>

1. Were samples shipped or hand-delivered?

Notes: Airbill # 6110632990

Yes No

2. Was COC record present upon receipt of samples?

Notes:

Yes No

3. Was COC tape present/unbroken on outer package?

Notes: # 200913

4. Were samples received ambient or chilled?

Notes:

Yes No

5. Were any samples received broken/leaking (improperly sealed)?

Notes:

Yes No

6. Were samples properly preserved?

Notes:

Yes No

7. Were COC types present/unbroken on samples?

Notes:

Yes No

8. Any discrepancies between sample labels and COC records?

Notes: Sample labeled Shipping Blank mat on COC

9. Were samples received within holding times?

Notes:

Yes No

Additional Comments:

Stand in RE

Samples inspected and logged in by Dean Courcier Date: 10/20/57

0005-429

CHAIN OF CUSTODY RECORD

Client/Project Name AT+T		Project Location APPLETON, WI		ANALYSES			
Project No. G 417-350		Field Logbook No.					
Sampler: (Signature) <i>Scott C. V...</i>		Chain of Custody Tape No. 200 913					

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	VOC 9C/MS	EPA METHOD 624	VOC 9C/MS	EPA METHOD 8240	REMARKS
SB-22	10/17/87	9:05	48800	SOIL		✓			< 3 DAY VERBALS
SB-23	10/21/87	13:15	48801	SOIL		✓			"
SB-24-W	10/17/87	14:30	48802	WATER	✓				"
SHIPPING BLANK			48803	"	✓				

Relinquished by: (Signature) <i>Scott C. V...</i>	Date 10/21/87	Time 15:00	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received for Laboratory: (Signature)	Date	Time
Sample Disposal Method:	Disposed of by: (Signature)			Date	Time

SAMPLE COLLECTOR Environmental Research and Technology, Inc. 696 Virginia Road Concord, MA 01742 017-369-8810	ANALYTICAL LABORATORY ERT 33 INDUSTRIAL WAY WILMINGTON, MA 01887 617-657-4290	ERT
		No 7055

APPENDIX C.3
PHASE III ANALYTICAL RESULTS

APPENDIX C.3.a
PHASE III
TOTAL AND HEXAVALENT CHROMIUM

PHASE III
CHROMIUM IN SOIL, PITS A AND B

DATE: 01/05/88

TO: Larry Campbell *BB*

FROM: Bo Blankfield, Laboratory Director

PROJ. NO.: G417-510 LAB NO.: 8913A

RECEIVED
JAN 7 1988
L.M. CAMPBELL

Attached are reports of chemical analyses of samples received December 9, 1987. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
2	Cr --ICP-HOU	CHROMIUM	EPA SW-846: 6010, ICP	12/08/87	WATER
4	Cr -S-Cr6-MBA	CHROMIUM ON SOLID (Cr+6 LEACH)	Cr+6 LEACHATE, SW-846: 6010, ICP	12/08/87	SOIL
4	Cr -S-ICP-HOU	CHROMIUM ON SOLID	EPA SW-846: 6010, ICP	12/08/87	SOIL
2	Cr+6 -- -MBA	CHROMIUM, HEXAVALENT	SM: 312B, COLORIMETRIC	12/08/87	WATER
4	Cr+6 -S- -MBA	CHROMIUM, HEXAVALENT ON SOLID	SM: 312B, COLORIMETRIC	12/08/87	SOIL

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Reports, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Billing Summary

LAB NO. 8913A
PROJECT G417-510 AT&T

ERT



A RESOURCE ENGINEERING COMPANY

3000 RICHMOND AVENUE, HOUSTON, TEXAS 77098, (713) 520-9900

environmental and engineering excellence

ERT LABORATORIES

Analytical Summary
01/05/88 14:12

Lab Number: 8913A		Project: G417-510				AT&T	
Lab ID Field ID (Cont'd) Test /Matrix	1 A-1 SOIL	2 B-1 SOIL	3 B-2 SOIL	4 B-3 SOIL	10 SHIP BLA NK WATER	11 FIELD BL ANK WATER	
Cr -- ICP-HOU (MDL)	--	--	--	--	<0.01 MG/L (0.01)	<0.01 MG/L (0.01)	
Cr -S-Cr6-MBA (MDL)	<0.08 MG/KG (0.08)	2.88 MG/KG (0.08)	2.61 MG/KG (0.08)	6.99 MG/KG (0.08)	--	--	
Cr -S-ICP-HOU (MDL)	30.6 MG/KG (0.4)	59.0 MG/KG (0.4)	55.8 MG/KG (0.4)	36.8 MG/KG (0.4)	--	--	
Cr+6 -- -MBA (MDL)	--	--	--	--	<0.002 MG/L (0.002)*	<0.002 MG/L (0.002)*	
Cr+6 -S- -MBA (MDL)	<0.08 MG/KG (0.08)	2.56 MG/KG (0.08)	2.30 MG/KG (0.08)	5.94 MG/KG (0.08)	--	--	

QAQC Approval: Salomon Tomasco Date: 1-5-88

Mgr. Approval: D. Blackfield Date: 1-6-88

* Please see attached Analytical Report for remarks.

ERT LABORATORIES

Analytical Report
01/05/88 14:14

AT&T Proj. No.: G417-510 Lab No.: 8913A	Field ID: A-1 Lab ID: 1 Matrix: SOIL	Date Sampled: 12/08/87 Time Sampled: 1300 Date Received: 12/09/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	<0.08	MG/KG	0.08	12/14/87
Cr -S-ICP-HOU CHROMIUM ON SOLID EPA SW-846: 6010, ICP	30.6	MG/KG	0.4	12/11/87 1030
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<0.08	MG/KG	0.08	12/14/87

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report

01/05/88 11:34

AT&T	Field ID: B-1	Date Sampled: 12/08/87		
Proj. No.: G417-510	Lab ID: 2	Time Sampled: 1200		
Lab No.: 8913A	Matrix: SOIL	Date Received: 12/09/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	2.88	MG/KG	0.08	12/14/87
Cr -S-ICP-HOU CHROMIUM ON SOLID EPA SW-846: 6010, ICP	59.0	MG/KG	0.4	12/11/87 1030
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	2.56	MG/KG	0.08	12/14/87

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
01/05/88 11:34

AT&T	Field ID: B-2	Date Sampled: 12/08/87		
Proj. No.: G417-510	Lab ID: 3	Time Sampled: 1200		
Lab No.: 8913A	Matrix: SOIL	Date Received: 12/09/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	2.61	MG/KG	0.08	12/14/87
Cr -S-ICP-HOU CHROMIUM ON SOLID EPA SW-846: 6010, ICP	55.8	MG/KG	0.4	12/11/87 1030
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	2.30	MG/KG	0.08	12/14/87

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
01/05/88 11:34

AT&T	Field ID: B-3	Date Sampled: 12/08/87		
Proj. No.: G417-510	Lab ID: 4	Time Sampled: 1205		
Lab No.: 8913A	Matrix: SOIL	Date Received: 12/09/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	6.99	MG/KG	0.08	12/14/87
Cr -S-ICP-HOU CHROMIUM ON SOLID EPA SW-846: 6010, ICP	36.8	MG/KG	0.4	12/11/87 1030
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	5.94	MG/KG	0.08	12/14/87

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
01/05/88 11:34

AT&T Proj. No.: G417-510 Lab No.: 8913A	Field ID: SHIP BLANK Lab ID: 10 Matrix: WATER	Date Sampled: 12/08/87 Time Sampled: 1600 Date Received: 12/09/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -- ICP-HOU CHROMIUM EPA SW-846: 6010, ICP	<0.01	MG/L	0.01	12/10/87 1330
Cr+6 -- -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	<0.002 *1	MG/L	0.002	12/14/87

*1 HOLDING TIME EXPIRED BEFORE ANALYSIS

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
01/06/88 11:03

AT&T Proj. No.: G417-510 Lab No.: 8913A	Field ID: FIELD BLANK Lab ID: 11 Matrix: WATER	Date Sampled: 12/08/87 Time Sampled: 1600 Date Received: 12/09/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -- ICP-HOU CHROMIUM EPA SW-846: 6010, ICP	<0.01	MG/L	0.01	12/10/87 1330
Cr+6 -- --MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	<0.002 *1	MG/L	0.002	12/14/87

*1 HOLDING TIME EXPIRED BEFORE ANALYSIS

ERT

* SEE TRAVELERS

PARAMETER MDL	Cr *	Cu *	Ni *	Pb *	Zn *				
BLK	0.002	0.001	0.001	0.002	0.004				
1/5	0.991 4.94	0.991 5.01	0.992 5.01	0.966 4.93	0.985 5.00				
EPA 1085	5.28	-	-	5.04	-	True value EPA 1085 = 5.0			
EPA 1085 x .5	2.64	-	-	2.47	-				
EPA 386 x 5	0.566	0.514	0.502	0.490	0.505				
EPA 386	0.111	0.099	0.096	0.095	0.109	True value EPA 386 = 0.1			
EPA 386 x .5	0.050	0.048	0.050	0.047	0.055				
EPA 386 x .2	0.021	0.019	0.020	-	0.022				
8919	0.002	0.001	0.000	0.003	0.001				
8913	0.002								
8919-3	<0.007	<0.007	<0.007	<0.017	<0.007				
DUP	<0.007	<0.007	<0.007	<0.017	<0.007				
% PREC	0	0	0	0	0				
8913B-1	0.056	-	-	-	-				
8913B-1	0.060	-	-	-	-				
% PREC	5	-	-	-	-				
8919-3	4.49	4.46	4.51	4.44	4.44				
TV	5	5	5	5	5				
% REC	89.8	89.2	90.2	88.8	88.8				
8913AB-10	4.32								
TV	5								
% REC	86.4								

BLANK AND STANDARDS

BLANKS

DUPLICATES

SPIKES

QA/QC APPROVAL Juan M. Basel

ICAP
ERT LABORATORIES QC LOG

DATE 11 DEC 87
TIME 1030
ANALYST GTB

METHOD SW-846 3rd ED #6010

PARAMETER	CR									
MDL	0.02									
BLK	0.000									
1.0/5.0	1.00 5.05									
EPA 386 x .2	0.019									
EPA 386	0.097	True value EPA 386 = 0.10								
EPA 386 x 5	0.549									
EPA 1085	5.43	True value EPA 1085 = 5.0								
EPA 1085 x .5	2.69									
8913	0.000									
8913AB-10	0.004									
8913A-1	1.53									
DUP	1.41									
% PREC	5.8									
8913B-6	1.74									
DUP	1.67									
% PREC	2.9									
8913A-1	2.93									
TU	3.265									
% REC	86.6									
8913B-6	5.17									
TU	5.74									
% REC	85.8									

BLANK AND STANDARDS

BLANKS

DUPLICATES

SPIKES

QAQC APPROVAL Juan M. Huel

QA/QC DATA

I. SM 312B

A. Calibration 12-14-87 , 9:00 a.m., Joe Kresse

<u>Concentration</u>	<u>Absorbance at 540 nms</u>
BLK	0.00
0.25 mg/l	0.222
0.50 mg/l	0.442
0.75 mg/l	0.666
1.00 mg/l	0.853

B. Duplicates and Spikes

8913 B-9 (Duplicate) <0.08 mg/kg
8924 Field Blk (DUP) <0.002 mg/l
8913 B-5 (Spike)
Amount spiked 0.5 mg/l
Amount Recovered 0.497
Recovery = 99%

8924 Ships Blank (Spike)
Amount spiked 0.50
Amount recovered 0.50
Recovery = 100%

II. ICAP Method EPA 200.7

Instrument standardized with 10 mg/l Cr standard.
Checked with EPA ICAP 19std. 1-10 dilution = 0.105 mg/l
SHOULD BE 0.103 mg/l

A-4 (Duplicate) 7.04 mg/kg
A-4 Spike Amount spiked 0.05 mg/l
Amount recovered 0.048
% recovery = 96% recovery

Joe Kresse

ERT LABORATORIES
SAMPLE RECEIPT CHECKLIST

CLIENT ATT & US SPRINT PROJECT NO. G417-510/520 LAB NO. 8913 A + 8913 B

1. shipped
 hand-delivered
NOTES: Fed Ex A/B # 670 5539411
2. COC present on receipt
 no COC
NOTES:
3. COC tape on shipping container
 no COC tape
NOTES: # 012345
4. samples broken/leaking on receipt
 samples intact on receipt
 other, see notes
NOTES:
5. ambient on receipt
 chilled on receipt
NOTES:
6. samples preserved correctly
 improper preservatives
 N/A, no recommended preservatives
 other, see notes
NOTES:
7. received within holding times
 not received within holding times
 N/A, no recommended holding time
 other, see notes
NOTES:
8. COC tapes on samples
 no COC tapes
NOTES:
9. discrepancies between COC and sample labels
 no discrepancies noted
 N/A, no COC received
 other, see notes
NOTES: ATT G417-510 Logged in AS Lab # 8913A
USSPRINT G417-520 LOGGED IN AS Lab # 8913 B

Additional comments:

Samples inspected and logged in by: Jody Henault Date/Time: 12/9/87 9:00

ERT A RESOURCE ENGINEERING COMPANY

2925 RICHMOND AVENUE HOUSTON, TX 77098 (713) 520-1495

Analysis Request and Chain of Custody Record

Project No. 2417.510.520		Client/Project Name				Project Location				
Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED		LABORATORY REMARKS	
8913 B-1 A-W-US	12-8-87 14:00			4oz AmB	Water	4°C	Method 312 B Hexavalent Chromium, Cron Cr6 Extract			
8913 B-2 B-W-US	12/8/87 14:50			4oz AmB	Water		"			
8913 A-1 A-1	12/8/87 13:00			10oz ^{Glass} SSWM	SOIL		"			
8913 B-3 A-1-US	12/8/87 13:30						"			
8913 B-2 B-1	12/8/87 12:00						"			
8913 B-4 B-1-US	12/8/87 11:30						"			
8913 B-3 B-2	12/8/87 12:00						"			
8913 B-5 B-2-US	12/8/87 11:30						"			
8913 A-4 B-3	12/8/87 12:00						"			
8913 B-6 B-3-US	12/8/87 11:45						"			
Samplers: (Signature)		Relinquished by: (Signature) <i>John B. Hernandez</i>				Date: 12/9/87 Time: 11:10	Received by: (Signature)		Date: _____ Time: _____	Intact
Affiliation		Relinquished by: (Signature)				Date: _____ Time: _____	Received by: (Signature)		Date: _____ Time: _____	Intact
		Relinquished by: (Signature)				Date: _____ Time: _____	Received by: (Signature)		Date: _____ Time: _____	Intact
SAMPLER REMARKS: To: MBA						Received for Laboratory (Signature)		Date: _____ Time: _____	Laboratory No.	
Seal #						Data Results to:		8913		
								Results due ASAP/No Premium		

ERT A RESOURCE ENGINEERING COMPANY

2925 RICHMOND AVENUE HOUSTON, TX 77098 (713) 520-1495

Analysis Request and Chain of Custody Record

Project No. <u>E417-90/520</u>	Client/Project Name	Project Location
-----------------------------------	---------------------	------------------

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
<u>C-1-US</u> <u>8913B-7</u>	<u>12/8/87</u> <u>11:00</u>			<u>100Z SSAM</u>	<u>Soil</u>	<u>4°C</u>	<u>Hexavalent Chromium</u> <u>method 312 B</u>	<u>Cr on Cr6 Ext. t</u>
<u>8913B-8</u>	<u>12/8/87</u>			<u>"</u>	<u>"</u>	<u>"</u>	↓	
<u>C-2-US</u>	<u>11:10</u>			<u>"</u>	<u>"</u>	<u>"</u>	↓	
<u>8913B-9</u>	<u>12/8/87</u>			<u>"</u>	<u>"</u>	<u>"</u>	↓	
<u>D-1-US</u>	<u>10:45</u>			<u>"</u>	<u>"</u>	<u>"</u>	↓	
<u>SAP Blank</u> <u>8913A+B</u>	<u>12/8/87</u> <u>16:00</u>			<u>40Z AMB</u>	<u>water</u>	<u>"</u>	↓	
<u>Field Blank</u> <u>8913A+B-1</u>	<u>12/8/87</u> <u>16:00</u>			<u>40Z AMB</u>	<u>water</u>	<u>"</u>	↓	

Samplers: (Signature)	Relinquished by: (Signature) <u>[Signature]</u>	Date: <u>12/9/87</u> Time: <u>11:10</u>	Received by: (Signature)	Date:	Intact
Affiliation	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Intact
	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Intact
SAMPLER REMARKS: <u>To MBA</u>			Received for Laboratory (Signature)	Date:	Laboratory No.
Seal #	<u>Results Due ASAP / No Premium</u>		Data Results to:		<u>8913</u>

PHASE III
CHROMIUM IN SOIL, PITS C AND D

DATE: 01/08/88

TO: Larry Campbell *BB*

FROM: Bo Blankfield, Laboratory Director

PROJ. NO.: G417-510 LAB NO.: 8912

RECEIVED
JAN 14 1988
L.M. CAMPBELL

Attached are reports of chemical analyses of samples received December 8, 1987. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
2	Cr - -ICP-HOU	CHROMIUM	EPA SW-846: 6010, ICP	12/07/87	WATER
3	Cr -S-Cr6-MBA	CHROMIUM ON SOLID (Cr+6 LEACH)	Cr+6 LEACHATE, SW-846: 6010, ICP	12/07/87	SOIL
3	Cr -S-ICP-HOU	CHROMIUM ON SOLID	EPA SW-846: 6010, ICP	12/07/87	SOIL
2	Cr+6 - - -MBA	CHROMIUM, HEXAVALENT	SM: 312B, COLORIMETRIC	12/07/87	WATER
3	Cr+6 -S- -MBA	CHROMIUM, HEXAVALENT ON SOLID	SM: 312B, COLORIMETRIC	12/07/87	SOIL

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Reports, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Billing Summary

LAB NO. 8912
PROJECT G417-510 AT&T

ERT



A RESOURCE ENGINEERING COMPANY

3000 RICHMOND AVENUE, HOUSTON, TEXAS 77098, (713) 520-9900

environmental and engineering excellence

ERT LABORATORIES

Analytical Summary

01/13/88 09:08

Lab Number: 8912		Project: G417-510			AT&T	
Lab ID Field ID (Cont'd) Test /Matrix	1 D1 SOIL	2 C1 SOIL	3 C2 SOIL	4 FIELD BL ANK WATER	5 SHIP BLA NK WATER	
Cr -- ICP-HOU (MDL)	--	--	--	<0.01 MG/L (0.01)	<0.01 MG/L (0.01)	
Cr -S-Cr6-MBA (MDL)	<0.08 MG/KG (0.08)	<0.08 MG/KG (0.08)	<0.08 MG/KG (0.08)	--	--	
Cr -S-ICP-HOU (MDL)	27.6 MG/KG (0.4)	157.4 MG/KG (0.4)	92.0 MG/KG (0.4)	--	--	
Cr+6 -- -MBA (MDL)	--	--	--	<0.02 MG/L (0.02)	<0.02 MG/L (0.02)	
Cr+6 -S- -MBA (MDL)	<0.08 MG/KG (0.08)	<0.08 MG/KG (0.08)	<0.08 MG/KG (0.08)	--	--	

QAQC Approval: Juan M. Ward Date: 1-13-88

Mgr. Approval: De Blatfield Date: 1-13-88

ERT LABORATORIES

Analytical Report
01/13/88 09:10

AT&T Proj. No.: G417-510 Lab No.: 8912	Field ID: D1 Lab ID: 1 Matrix: SOIL	Date Sampled: 12/07/87 Time Sampled: 1135 Date Received: 12/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	<0.08	MG/KG	0.08	/ /
Cr -S-ICP-HOU CHROMIUM ON SOLID EPA SW-846: 6010, ICP	27.6	MG/KG	0.4	12/09/87 1600
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<0.08	MG/KG	0.08	12/18/87 1800

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
01/13/88 09:10

AT&T Proj. No.: G417-510 Lab No.: 8912	Field ID: C1 Lab ID: 2 Matrix: SOIL	Date Sampled: 12/07/87 Time Sampled: 1200 Date Received: 12/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	<0.08	MG/KG	0.08	/ /
Cr -S-ICP-HOU CHROMIUM ON SOLID EPA SW-846: 6010, ICP	157.4	MG/KG	0.4	12/09/87 1600
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<0.08	MG/KG	0.08	12/18/87 1800

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
01/13/88 09:10

AT&T Proj. No.: G417-510 Lab No.: 8912	Field ID: C2 Lab ID: 3 Matrix: SOIL	Date Sampled: 12/07/87 Time Sampled: 1230 Date Received: 12/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -S-Cr6-MBA CHROMIUM ON SOLID (Cr+6 LEACH) Cr+6 LEACHATE, SW-846: 6010, ICP	<0.08	MG/KG	0.08	/ /
Cr -S-ICP-HOU CHROMIUM ON SOLID EPA SW-846: 6010, ICP	92.0	MG/KG	0.4	12/09/87 1600
Cr+6 -S- -MBA CHROMIUM, HEXAVALENT ON SOLID SM: 312B, COLORIMETRIC	<0.08	MG/KG	0.08	12/18/87 1800

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
01/13/88 09:10

AT&T	Field ID: FIELD BLANK	Date Sampled: 12/07/87		
Proj. No.: G417-510	Lab ID: 4	Time Sampled: 1300		
Lab No.: 8912	Matrix: WATER	Date Received: 12/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concen- tration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr --ICP-HOU CHROMIUM EPA SW-846: 6010, ICP	<0.01	MG/L	0.01	12/09/87 1600
Cr+6 -- -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	<0.02	MG/L	0.02	12/08/87 1800

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
01/13/88 09:10

AT&T Proj. No.: G417-510 Lab No.: 8912	Field ID: SHIP BLANK Lab ID: 5 Matrix: WATER	Date Sampled: 12/07/87 Time Sampled: 1315 Date Received: 12/08/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -- ICP-HOU CHROMIUM EPA SW-846: 6010, ICP	<0.01	MG/L	0.01	12/09/87 1600
Cr+6 -- -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	<0.02	MG/L	0.02	12/18/87 1800

ERT

	PARAMETER	Cv	/ / / / / / / / / / / /									
	MDL	0.02										
B L A N K A N D S T A N D A R D S	BLK	0.001										
	1.0	1.02										
	5.0	4.99										
	EPA 386x.2	0.020										
	EPA 386	0.104	True value EPA 386 = 0.1									
	EPA 1085	5.27	True value EPA 1085 = 5.0									
	EPA 1085x.5	2.64										
S B L A N K S	8912-BLK ^{LIQ}	0.006										
	8912-BLK ^{SOLID}	0.008										
D U P L I C A T E S	8912-4	0.007										
	DUP	0.005										
	% PREC	0										
	8912-3	4.60										
	DUP	4.73										
	% PREC	2										
S P I K E S	8912-4	3.93										
	% REC	98										
	8912-3	8.29										
	% REC	92										

QAQC APPROVAL James Hase

QA/QC DATA

I. SM 312 B (STARTED 12-8-87 FINISHED 12-8-87 @ 6:00 P.M. JOE KRESSE)

<u>A. CALIBRATION</u>	<u>ABS @ 540 nms</u>	<u>HEX. CR.</u>	<u>ICAP CR.</u>
BLK	0.00		
0.25 mg/1	0.20		
0.50 mg/1	0.41		
0.75 mg/1	0.64		
1.00 mg/1	0.86		
8912-1	0.000	< 0.08 mg/kg	< 0.08 mg/kg
8912-2	0.001	< 0.08 mg/kg	< 0.08 mg/kg
8912-3	0.000	< 0.08 mg/kg	< 0.08 mg/kg
8912-4	0.001	< 0.02 mg/1	< 0.02 mg/1
8912-5	0.002	< 0.02 mg/1	< 0.02 mg/1

II. DUPLICATES AND SPIKES

8912-3 (DUP)	0.000	< 0.08 mg/kg
8912-3 (Spike)	0.390	
% RECOVERY = $\frac{.48}{.50} \times 100 = \underline{96\% \text{ RECOVERY}}$		

III. ICAP

A. CALIBRATION

10 mg/1 Cr STD. USED FOR CALIBRATION

EPA CHECK STD (ICAP 19 1:10)

THEORETICAL 0.105 mg/1

ACTUAL 0.096 mg/1

8912-3 (DUP) = < 0.08 mg/kg

SPIKE 8912-3 THEORETICAL = 0.50

ACTUAL = 0.045

% RECOVERY = $\frac{.045}{.050} \times 100 = 90\%$

Joe Kresse

ERT LABORATORIES
SAMPLE RECEIPT CHECKLIST

CLIENT AT&T PROJECT NO. G417-510 LAB NO. 8912

- 1. shipped NOTES: Fed Ex. A/B # 670-5539-315
 hand-delivered
- 2. COC present on receipt NOTES:
 no COC
- 3. COC tape on shipping container NOTES: #200933
 no COC tape
- 4. samples broken (leaking) NOTES: sample # C-2
 samples intact on receipt
 other, see notes
- 5. ambient on receipt NOTES:
 chilled on receipt
- 6. samples preserved correctly NOTES:
 improper preservatives
 N/A, no recommended preservatives
 other, see notes
- 7. received within holding times NOTES:
 not received within holding times
 N/A, no recommended holding time
 other, see notes
- 8. COC tapes on samples NOTES:
 no COC tapes
- 9. discrepancies between COC and sample labels NOTES:
 no discrepancies noted
 N/A, no COC received
 other, see notes

Additional comments:

Samples inspected and logged in by: Jody Hernandez Date/Time: 12/8/87 9:45

CHAIN OF CUSTODY RECORD

Client/Project Name AT&T			Project Location Appleton, Wisconsin			ANALYSES @MBA Total Chromium Method 6010 Hexavalent Chromium Method 312B Chromium Extract				
Project No. 6417-510			Field Logbook No.							
Sampler: (Signature) <i>Scott M. Porady</i>			Chain of Custody Tape No. 200933							
Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample					REMARKS	
D1	12/7/87	11:35	8912.1	Soil	✓	✓	✓		3-Day Verbal	
C1	12/7/87	12:00	8912.2	Soil	✓	✓	✓		"	
C2	12/7/87	12:30	8912.3	Soil	✓	✓	✓		"	
Field Blank	12/7/87	13:00	8912.4	Water	✓	✓	✓		"	
Ship Blank	12/7/87	13:15	8912.5	Water	✓	✓	✓		"	
Relinquished by: (Signature) <i>Scott M. Porady</i>				Date 12/7/87	Time 17:00	Received by: (Signature)			Date	Time
Relinquished by: (Signature)				Date	Time	Received by: (Signature)			Date	Time
Relinquished by: (Signature)				Date	Time	Received for Laboratory: (Signature) <i>John Hernandez</i>			Date 12/8/87	Time 9:40
Sample Disposal Method:				Disposed of by: (Signature)			Date	Time		
SAMPLE COLLECTOR				ANALYTICAL LABORATORY				ERT		
Environmental Research and Technology, Inc. 696 Virginia Road Concord, MA 01742 617-369-8910				131 N. Eisenhower Ln. Lombard, IL 60148 (312) 620-5900				ERT, INC. 2925 Richmond Ave Houston, TX 77098 (713) 520-9900		No 10424

PHASE III
CHROMIUM IN GROUNDWATER, PIT B

DATE: 01/05/88

TO: Larry Campbell *LB*

FROM: Bo Blankfield, Laboratory Director

PROJ. NO.: G417-510 LAB NO.: 8924

RECEIVED
JAN 7 1988
L. M. CAMPBELL

Attached are reports of chemical analyses of samples received December 11, 1987. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
1	Cr - -Cr6-MBA	CHROMIUM (Cr+6 LEACHATE)	Cr+6 LEACHATE, EPA 600: 200.7, ICP	12/10/87	WATER
3	Cr - -ICP-HOU	CHROMIUM	EPA SW-846: 6010, ICP	12/10/87	WATER
3	Cr+6 - - -MBA	CHROMIUM, HEXAVALENT	SM: 312B, COLORIMETRIC	12/10/87	WATER

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Reports, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Billing Summary

LAB NO. 8924
PROJECT G417-510 AT&T

ERT



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3000 RICHMOND AVENUE, HOUSTON, TEXAS 77098, (713) 520-9900

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ERT LABORATORIES

Analytical Summary

01/05/88 11:41

Lab Number: 8924		Project: G417-510	
AT&T			
Lab ID Field ID (Cont'd) Test /Matrix	1 B-W WATER	2 FIELD BL ANK WATER	3 SHIP BLA NK WATER
Cr --Cr6-MBA (MDL)	5.70 MG/L	--	--
Cr --ICP-HOU (MDL)	5.84 MG/L (0.01)	<0.01 MG/L (0.01)	<0.01 MG/L (0.01)
Cr+6 -- -MBA (MDL)	5.40 MG/L (0.002)*	<0.002 MG/L (0.002)*	<0.002 MG/L (0.002)*

QAQC Approval: Saloma Thomas Date: 1-6-88

Mgr. Approval: B. Bluffield Date: 1-6-88

* Please see attached Analytical Report for remarks.

ERT LABORATORIES

Analytical Report
01/05/88 11:35

AT&T Proj. No.: G417-510 Lab No.: 8924	Field ID: B-W Lab ID: 1 Matrix: WATER	Date Sampled: 12/10/87 Time Sampled: 1500 Date Received: 12/11/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - -Cr6-MBA CHROMIUM (Cr+6 LEACHATE) Cr+6 LEACHATE, EPA 600: 200.7, ICP	5.70	MG/L		12/14/87
Cr - -ICP-HOU CHROMIUM EPA SW-846: 6010, ICP	5.84	MG/L	0.01	12/11/87 1400
Cr+6 - - -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	5.40 *1	MG/L	0.002	12/14/87

*1 HOLDING TIME EXPIRED BEFORE ANALYSIS

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
01/05/88 11:35

AT&T Proj. No.: G417-510 Lab No.: 8924	Field ID: FIELD BLANK Lab ID: 2 Matrix: WATER	Date Sampled: 12/10/87 Time Sampled: 1515 Date Received: 12/11/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - - ICP-HOU CHROMIUM EPA SW-846: 6010, ICP	<0.01	MG/L	0.01	12/11/87 1400
Cr+6 - - -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	<0.002 *1	MG/L	0.002	12/14/87

*1 HOLDING TIME EXPIRED BEFORE ANALYSIS

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
01/05/88 11:36

AT&T Proj. No.: G417-510 Lab No.: 8924	Field ID: SHIP BLANK Lab ID: 3 Matrix: WATER	Date Sampled: 12/10/87 Time Sampled: 1530 Date Received: 12/11/87		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr -- ICP-HOU CHROMIUM EPA SW-846: 6010, ICP	<0.01	MG/L	0.01	12/11/87 1400
Cr+6 -- -MBA CHROMIUM, HEXAVALENT SM: 312B, COLORIMETRIC	<0.002 *1	MG/L	0.002	12/14/87

*1 HOLDING TIME EXPIRED BEFORE ANALYSIS

ERT

ICAP
ERT LABORATORIES QC LOG

DATE 11 DEC 87
TIME 1400
ANALYST CR

METHOD SW-846 3rd ED #6010

PARAMETER	Cr									
MDL	0.01									
BLANK	0.001									
EPA 386 X.2	0.019									
EPA 386	0.104	true value for EPA 386 = 0.10								
1.0	1.04									
1085 X.5	2.68									
EPA 1085	5.18	true value EPA #1085 = 5.0								
5.0	5.03									
10.0	9.74									
BLANK	8924	0.001								
DUP	8924-2	<0.01								
% REC	DUP	<0.01								
	% REC	Ø								
SPIKES	8924-3	4.08								
	TU	4.00								
	% REC	102								

QAQC APPROVAL gramm, v. d. esch

QA/QC DATA

I. SM 312B

A. Calibration 12-14-87 , 9:00 a.m., Joe Kresse

<u>Concentration</u>	<u>Absorbance at 540 nms</u>
BLK	0.00
0.25 mg/l	0.222
0.50 mg/l	0.442
0.75 mg/l	0.666
1.00 mg/l	0.853

B. Duplicates and Spikes

8913 B-9 (Duplicate) <0.08 mg/kg
8924 Field Blk (DUP) <0.002 mg/l
8913 B-5 (Spike)
Amount spiked 0.5 mg/l
Amount Recovered 0.497
Recovery = 99%

8924 Ships Blank (Spike)
Amount spiked 0.50
Amount recovered 0.50
Recovery = 100%

II. ICAP Method EPA 200.7

Instrument standardized with 10 mg/l Cr standard.
Checked with EPA ICAP 19std. 1-10 dilution = 0.105 mg/l
SHOULD BE 0.103 mg/l

A-4 (Duplicate) 7.04 mg/kg
A-4 Spike Amount spiked 0.05 mg/l
Amount recovered 0.048
% recovery = 96% recovery

Joe Kresse

ERT LABORATORIES
SAMPLE RECEIPT CHECKLIST

CLIENT AT&T PROJECT NO. G417-510 LAB NO. 8924

1. shipped NOTES: Fed Ex A/B 670 5539396
 hand-delivered
2. COC present on receipt NOTES:
 no COC
3. COC tape on shipping container NOTES: # 200 936
 no COC tape
4. samples broken/leaking on receipt NOTES:
 samples intact on receipt
 other, see notes
5. ambient on receipt NOTES:
 chilled on receipt
6. samples preserved correctly NOTES:
 improper preservatives
 N/A, no recommended preservatives
 other, see notes
7. received within holding times NOTES:
 not received within holding times
 N/A, no recommended holding time
 other, see notes
8. COC tapes on samples NOTES:
 no COC tapes
9. discrepancies between COC and sample labels NOTES:
 no discrepancies noted
 N/A, no COC received
 other, see notes

Additional comments:

Samples inspected and logged in by Jody B. Hernandez Date/Time: 12/11/87 10/15

ERT A RESOURCE ENGINEERING COMPANY

2925 RICHMOND AVENUE HOUSTON, TX 77098 (713) 520-1495

Analysis Request and Chain of Custody Record

Project No. G417-510	Client/Project Name	Project Location
--------------------------------	---------------------	------------------

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
1 B-W	12/10/87 1500			AME 4oz	Liquid	40c	Hexavalent + Chromium method 312B, Cr on Cr-H-Extract	
2 Field Blank	12/10/87 1515			↓	↓	↓	Hexavalent + Chromium method 312B	
3 Ship Blank	12/10/87 1530			↓	↓	↓	Hexavalent + Chromium method 312B	

Samplers: (Signature)	Relinquished by: (Signature) <i>Carla Hernandez</i>	Date: 12/10/87	Received by: (Signature)	Date:	Intact
		Time: 10:30		Time:	
Affiliation	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Intact
		Time:		Time:	
	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Intact
		Time:		Time:	
SAMPLER REMARKS: TO: MBA	Received for Laboratory (Signature)		Date:	Laboratory No.	
Seal #	Data Results to:		Time:	8924	
	results Due 12/15/87				

APPENDIX C.3.b
PHASE III
VOLATILE ORGANIC COMPOUNDS

PHASE III
VOCs IN SOIL, PITS A, B, C, AND D

ANALYSIS OF SOIL & WATER SAMPLES
FROM
AT&T
APPLETON, WI

RECEIVED

JAN 18 1988

L. M. CAMPBELL

ERT PROJECT NO. 0005-467
JANUARY 18, 1988

PREPARED FOR

S. POSADZY
LOMBARD, IL

Prepared by
Analytical Chemistry Laboratory
ERT, A Resource Engineering Company
33 Industrial Way, Wilmington, Massachusetts 01887

ANALYSIS OF WATER & SOIL SAMPLES
FROM
AT&T APPLETON

INTRODUCTION

This report represents the results of analysis conducted on various soil and water samples received by the ERT Analytical Chemistry Laboratory on December 8, 1987. The samples were to be selectively analyzed for volatiles.

SAMPLE RECEIPT AND CHAIN OF CUSTODY

Routine inspection of the samples revealed them to be packaged properly and received in good condition.

Upon receipt, information from the submitted samples was recorded in the Master Log Book (and the LIMS computer system) and assigned ERT Control Numbers. These unique sample labels were affixed to respective sample containers and subsequently utilized throughout the laboratory analysis procedures for positive traceability.

ANALYTICAL PROCEDURES

The water samples were analyzed according to procedures as outlined in:

- a. Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act, 40 CFR Part 136.
- b. Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, revised, March, 1983.
- c. Standard Methods for the Examination of Water and Wastewater, 16th Edition, APHA, 1985.

The soil samples were analyzed according to procedures as outlined in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 2nd Edition, revised April, 1984.

QUALITY CONTROL PROCEDURES

Standard quality control procedures were implemented for all analyses. Laboratory reagent (method) blanks, laboratory duplicated samples, and laboratory fortified control samples were analyzed concurrently with each case of submitted samples. The laboratory normally prepares and analyzes one (1) blank, one (1) fortified sample, and one (1) duplicate sample for each case of samples received or for each twenty (20) samples, whichever is more frequent. A case consists of a finite, usually predetermined number of samples collected over a given time period from one particular site. Duplicate sample analyses are performed only when sufficient sample volume is received. The results of the analyses are reviewed by the laboratory quality control coordinator to insure compliance with established analytical control limits.

Laboratory prepared method blank samples and fortified samples are identified in the analytical result tables under the Field Identification number using a unique numbering system and also assigning one ERT sample number to each sample. The Prefix "MB" refers to Method Blank, and "LF" refers to Laboratory Fortification (i.e., a quality control recovery sample).

RESULTS OF ANALYSIS

Analytical results for the submitted samples are presented in the appended tables. Summary tables for the results of blank, and fortified control samples have also been provided in the Appendix.

DISCUSSION

Review of the results of the quality control/quality assurance samples analyzed concurrently with the submitted samples indicated that the analyses were within the acceptance criteria as established by the laboratory.

DATA AND REPORT APPROVAL FORM

SUBMITTED BY:

Analytical Chemistry Laboratory
ERT A Resource Engineering Company
33 Industrial Way
Wilmington, MA 01887
January 18, 1987

DATA AUDITED BY:

M. S. Sparlin



Quality Control Coordinator

REPORT APPROVED BY:

A. P. Paradice



Laboratory Manager

VOLATILES (GC/MS) ANALYSES IN SOIL

Summary of Analytical Results

Method Blank Results

Quality Control Check Sample Results

VOLATILE ORGANICS

Surrogate Recovery Summary

Client Name: AT&T, Appleton

Project No: 0005-467

Matrix: Soil

Authorized: 12/09/87

Received: 12/09/87

ERT ID	Client ID	Surrogate Compound		
		d ₄ -1,2,-Dichloro-ethane	d ₈ -Toluene	p-Bromofluoro-benzene
6168-01	50462 / D-1	88	102	90
6168-02	50463 / C-1	85	101	90
6168-03	50464 / C-2	94	102	99
6168-06	50500 / A-1	90	103	95
6168-07	50501 / B-1	92	106	91
6168-08	50502 / B-2	90	104	96
6168-09	50503 / B-3	90	104	95

QC Advisory Limits:

70-121%

81-117%

74-121%

Reported by

[Handwritten Signature]

Approved by

[Handwritten Signature]

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 ERT : 50462 / D-1
 Client : 6168-01
 Matrix: Soil Sampled: 12/07/87 Received: 12/09/87
 Authorized: 12/09/87 Prepared: 12/10/87 Analyzed: 12/18/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	600
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 85%

ND = Not detected.

Reported by MAApproved by CS

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 EPT : 50463 / C-1
 Client : 6168-02
 Matrix: Soil Sampled: 12/07/87 Received: 12/09/87
 Authorized: 12/09/87 Prepared: 12/10/87 Analyzed: 12/18/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 80%

ND = Not detected.

Reported by *[Signature]*

Approved by *[Signature]*

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 ERT : 50500 / A-1
 Client : 6168-06
 Matrix: Soil Sampled: 12/08/87 Received: 12/09/87
 Authorized: 12/09/87 Prepared: 12/10/87 Analyzed: 12/21/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	600
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 87%

ND = Not detected.

Reported by 

Approved by  

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 ERT : 50501 / B-1
 Client : 6168-07
 Matrix: Soil Sampled: 12/08/87 Received: 12/09/87
 Authorized: 12/09/87 Prepared: 12/10/87 Analyzed: 12/21/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 85%

ND = Not detected.

Reported by *[Signature]*

Approved by *[Signature]*

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HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 ERT : 50502 / B-2
 Client : 6168-08
 Matrix: Soil Sampled: 12/08/87 Received: 12/09/87
 Authorized: 12/09/87 Prepared: 12/10/87 Analyzed: 12/21/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	150
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 85%

ND = Not detected.

Reported by 

Approved by  

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 8240/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 ERT : 50503 / B-3
 Client : 6168-09
 Matrix: Soil Sampled: 12/08/87 Received: 12/09/87
 Authorized: 12/09/87 Prepared: 12/10/87 Analyzed: 12/21/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/kg (dry wt)	150
Bromomethane	ND	µg/kg (dry wt)	150
Vinyl chloride	ND	µg/kg (dry wt)	150
Chloroethane	ND	µg/kg (dry wt)	150
Methylene chloride	ND	µg/kg (dry wt)	300
Acetone	ND	µg/kg (dry wt)	1,500
Carbon disulfide	ND	µg/kg (dry wt)	60
1,1-Dichloroethene	ND	µg/kg (dry wt)	60
1,1-Dichloroethane	ND	µg/kg (dry wt)	60
trans-1,2-Dichloroethene	ND	µg/kg (dry wt)	60
Chloroform	ND	µg/kg (dry wt)	60
1,2-Dichloroethane	ND	µg/kg (dry wt)	60
2-Butanone	ND	µg/kg (dry wt)	300
1,1,1-Trichloroethane	ND	µg/kg (dry wt)	60
Carbon tetrachloride	ND	µg/kg (dry wt)	60
Vinyl acetate	ND	µg/kg (dry wt)	300
Bromodichloromethane	ND	µg/kg (dry wt)	60
1,2-Dichloropropane	ND	µg/kg (dry wt)	60
trans-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
Trichloroethene	ND	µg/kg (dry wt)	60
Dibromochloromethane	ND	µg/kg (dry wt)	60
1,1,2-Trichloroethane	ND	µg/kg (dry wt)	60
Benzene	ND	µg/kg (dry wt)	60
cis-1,3-Dichloropropene	ND	µg/kg (dry wt)	60
2-Chloroethyl vinyl ether	ND	µg/kg (dry wt)	300
Bromoform	ND	µg/kg (dry wt)	60
4-Methyl-2-pentanone	ND	µg/kg (dry wt)	300
2-Hexanone	ND	µg/kg (dry wt)	300
1,1,2,2-Tetrachloroethane	ND	µg/kg (dry wt)	60
Tetrachloroethene	ND	µg/kg (dry wt)	60
Toluene	ND	µg/kg (dry wt)	60
Chlorobenzene	ND	µg/kg (dry wt)	60
Ethyl benzene	ND	µg/kg (dry wt)	60
Styrene	ND	µg/kg (dry wt)	60
Total xylenes	ND	µg/kg (dry wt)	60

Solid content = 86%

ND = Not detected.

Reported by MAApproved by AS

PRIORITY POLLUTANT VOLATILE ORGANICS

EPA Method 624 + 624/HSL List

QUALITY CONTROL

Client Name: AT&T, Appleton Project No: 0005-467
ERT : Laboratory Control Spike
Client : M932LCS
Matrix: Water Prepared: 12/13/87 Analyzed: 12/13/87

<u>Parameter</u>	<u>% Recovery</u>	<u>QC Advisory Limits</u>
1,1-Dichloroethene	117	61 - 145%
Trichloroethene	94	71 - 120%
Benzene	106	76 - 127%
Toluene	101	76 - 125%
Chlorobenzene	103	75 - 130%

Reported by

[Signature]

Approved by

[Signature]

PRIORITY POLLUTANT VOLATILE ORGANICS

EPA Method 624 + 624/HSL List

QUALITY CONTROL

Client Name: - AT&T, Appleton Project No: 0005-467

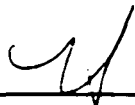
ERT : Laboratory Control Spike Dup.

Client : M947LCSD

Matrix: Water Prepared: 12/14/87 Analyzed: 12/14/87

<u>Parameter</u>	<u>% Recovery</u>	<u>QC Advisory Limits</u>
1,1-Dichloroethene	97	61 - 145%
Trichloroethene	76	71 - 120%
Benzene	85	76 - 127%
Toluene	84	76 - 125%
Chlorobenzene	89	75 - 130%

Reported by



Approved by



VOLATILES (GC/MS) ANALYSES IN WATER

Summary of Analytical Results

Method Blank Results

Quality Control Check Sample Results

VOLATILE ORGANICS

Surrogate Recovery Summary

Client Name: AT&T, Appleton Project No: 0005-467
 Matrix: Water
 Authorized: 12/09/87 Received: 12/09/87

ERT ID	Client ID	Surrogate Compound		
		d ₄ -1,2,-Dichloro-ethane	d ₈ -Toluene	p-Bromofluoro-benzene
6168-04	50465 / Field Blank	104	106	108
6168-05	50466 / Shipping Blank	100	102	109
M931B	ERT Procedural Blank - Water / 51481	98	100	101
N034B	ERT Procedural Blank - Methanol / 51482	85	100	91
N097B	ERT Procedural Blank - Methanol / 51483	94	103	96

QC Advisory Limits: 76-114% 88-110% 86-115%

Reported by *CS* Approved by *[Signature]* *[Signature]*

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 ERT : 50465 / Field Blank
 Client : 6168-04
 Matrix: Soil Sampled: 12/07/87 Received: 12/09/87
 Authorized: 12/09/87 Prepared: 12/13/87 Analyzed: 12/13/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	5
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform -----	8.2	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene	ND	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

ND = Not detected.

Reported by *cid*Approved by *DES*

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 ERT : 50466 / Shipping Blank
 Client : 6168-05
 Matrix: Soil Sampled: 12/07/87 Received: 12/09/87
 Authorized: 12/09/87 Prepared: 12/13/87 Analyzed: 12/13/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	5
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform -----	8.0	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene	ND	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

ND = Not detected.

Reported by *[Signature]* Approved by *[Signature]* *[Signature]*

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 ERT : ERT Procedural Blank - Water / 51481
 Client : M9318
 Matrix: Water Sampled: NA Received: NA
 Authorized: NA Prepared: 12/13/87 Analyzed: 12/13/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	10
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform	ND	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene	ND	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

NA = Not applicable.

ND = Not detected.

Reported by [Signature] Approved by [Signature]

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 ERT : ERT Procedural Blank - Methanol / 51482
 Client : N0348
 Matrix: Water Sampled: NA Received: NA
 Authorized: NA Prepared: 12/17/87 Analyzed: 12/17/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	130
Bromomethane	ND	µg/L	130
Vinyl chloride	ND	µg/L	130
Chloroethane	ND	µg/L	130
Methylene chloride	ND	µg/L	130
Acetone	ND	µg/L	1,300
Carbon disulfide	ND	µg/L	50
1,1-Dichloroethene	ND	µg/L	50
1,1-Dichloroethane	ND	µg/L	50
trans-1,2-Dichloroethene	ND	µg/L	50
Chloroform	ND	µg/L	50
1,2-Dichloroethane	ND	µg/L	50
2-Butanone	ND	µg/L	250
1,1,1-Trichloroethane	ND	µg/L	50
Carbon tetrachloride	ND	µg/L	50
Vinyl acetate	ND	µg/L	250
Bromodichloromethane	ND	µg/L	50
1,2-Dichloropropane	ND	µg/L	50
trans-1,3-Dichloropropene	ND	µg/L	50
Trichloroethene	ND	µg/L	50
Dibromochloromethane	ND	µg/L	50
1,1,2-Trichloroethane	ND	µg/L	50
Benzene	ND	µg/L	50
cis-1,3-Dichloropropene	ND	µg/L	50
2-Chloroethyl vinyl ether	ND	µg/L	250
Bromoform	ND	µg/L	50
4-Methyl-2-pentanone	ND	µg/L	250
2-Hexanone	ND	µg/L	250
1,1,2,2-Tetrachloroethane	ND	µg/L	50
Tetrachloroethene	ND	µg/L	50
Toluene	ND	µg/L	50
Chlorobenzene	ND	µg/L	50
Ethyl benzene	ND	µg/L	50
Styrene	ND	µg/L	50
Total xylenes	ND	µg/L	50

NA = Not applicable.

ND = Not detected.

Reported by MA Approved by CS JA

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T, Appleton Project No: 0005-467
 ERT : ERT Procedural Blank - Methanol / 51483
 Client : N0978
 Matrix: Water Sampled: NA Received: NA
 Authorized: NA Prepared: 12/20/87 Analyzed: 12/20/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	130
Bromomethane	ND	µg/L	130
Vinyl chloride	ND	µg/L	130
Chloroethane	ND	µg/L	130
Methylene chloride	ND	µg/L	130
Acetone	ND	µg/L	1,300
Carbon disulfide	ND	µg/L	50
1,1-Dichloroethene	ND	µg/L	50
1,1-Dichloroethane	ND	µg/L	50
trans-1,2-Dichloroethene	ND	µg/L	50
Chloroform	ND	µg/L	50
1,2-Dichloroethane	ND	µg/L	50
2-Butanone	ND	µg/L	250
1,1,1-Trichloroethane	ND	µg/L	50
Carbon tetrachloride	ND	µg/L	50
Vinyl acetate	ND	µg/L	250
Bromodichloromethane	ND	µg/L	50
1,2-Dichloropropane	ND	µg/L	50
trans-1,3-Dichloropropene	ND	µg/L	50
Trichloroethene	ND	µg/L	50
Dibromochloromethane	ND	µg/L	50
1,1,2-Trichloroethane	ND	µg/L	50
Benzene	ND	µg/L	50
cis-1,3-Dichloropropene	ND	µg/L	50
2-Chloroethyl vinyl ether	ND	µg/L	250
Bromoform	ND	µg/L	50
4-Methyl-2-pentanone	ND	µg/L	250
2-Hexanone	ND	µg/L	250
1,1,2,2-Tetrachloroethane	ND	µg/L	50
Tetrachloroethene	ND	µg/L	50
Toluene	ND	µg/L	50
Chlorobenzene	ND	µg/L	50
Ethyl benzene	ND	µg/L	50
Styrene	ND	µg/L	50
Total xylenes	ND	µg/L	50

NA = Not applicable.

ND = Not detected.

Reported by WApproved by DS ✓

SAMPLE RECEIPT CHECK LIST

Client: *AT&T, APPLETON 12-8-87*

0005-467

COC Record #(s): *10423*

Matrix	Container	ERT #(s)
<i>SOIL</i>	<i>VQA</i>	<i>50462-64</i>
<i>WATER</i>	<i>"</i>	<i>50465-66</i>

1. Were samples shipped or hand-delivered?

Notes: *FED EX 5437804735*

Yes No

2. Was COC record present upon receipt of samples?

Notes:

Yes No

3. Was COC tape present/unbroken on outer package?

Notes:

4. Were samples received ambient or chilled?

Notes:

Yes No

5. Were any samples received broken/leaking (improperly sealed)?

Notes:

Yes No

6. Were samples properly preserved?

Notes:

Yes No

7. Were COC types present/unbroken on samples?

Notes: *2 BUBBLE BAGS OPEN (FIELD I.D. DI, SHIPPING BLANK)*

Yes No

8. Any discrepancies between sample labels and COC records?

Notes:

Yes No

9. Were samples received within holding times?

Notes:

STORED IN: AB

Additional Comments:

NO LONGER A 3 DAY VERBAL. NORMAL TURNAROUND.

Samples inspected and logged in by

Peter Berade

Date:

12-8-87

SAMPLE RECEIPT CHECK LIST

AT+T, APPLETON
0005-467
8417-510

Client: AT+T/U.S. SPRINT

COC Record #(s): 20124

AT+T/U.S. SPRINT
0005-470
8417-520

Matrix	Container	ERT #(s)
WATER	VDA KILE	50489, 90, 91, 92 - U.S. SPRINT
SOIL	"	50500 - 03

1. Were samples shipped or hand-delivered?

Notes: FED. EX 6705539422

Yes No

2. Was COC record present upon receipt of samples?

Notes:

Yes No

3. Was COC tape present/unbroken on outer package?

Notes: 24160

4. Were samples received ambient or chilled?

Notes:

5. Were any samples received broken/leaking (improperly sealed)?

Notes:

Yes No

6. Were samples properly preserved?

Notes:

Yes No

7. Were COC types present/unbroken on samples?

Notes:

Yes No

8. Any discrepancies between sample labels and COC records?

Notes:

Yes No

9. Were samples received within holding times?

Notes:

Yes No

Additional Comments:

STORED IN: RB

NOTE: NO LONGER 3 DAY VERBAL. NORMAL TURNAROUND.

Samples inspected and logged in by

Scott Berade

Date: 12-9-87

AT&T APPLETON 6417-510

CHAIN OF CUSTODY RECORD

AT&T / U.S. SPRINT 6417-520

Client/Project Name AT&T / U.S. SPRINT		Project Location Appleton, Wisconsin		ANALYSES		
Project No. 6417-510/520		Field Logbook No.		VOC GC/MS Method 624		
Sampler: (Signature) <i>Scott M. Poadny</i>		Chain of Custody Tape No. 24160				
Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	REMARKS	

<input checked="" type="checkbox"/> A-W-US	12/8/87	14:00	ENT* 50489	water	✓						3 part Verbal's
<input checked="" type="checkbox"/> B-W-US	12/8/87	14:30	50490	water	✓						"
<input checked="" type="checkbox"/> A-1	12/8/87	13:00	50500	Soil	✓						NORMAL
<input checked="" type="checkbox"/> B-1	12/8/87	12:00	50501	Soil	✓						TURN AROUND
<input checked="" type="checkbox"/> B-2	12/8/87	12:00	50502	Soil	✓						"
<input checked="" type="checkbox"/> B-3	12/8/87	12:05	50503	Soil	✓						"
<input checked="" type="checkbox"/> Ship Blank	12/8/87	16:00	50491	water	✓						"
<input checked="" type="checkbox"/> Field Blank	12/8/87	16:00	50492	water	✓						"

Relinquished by: (Signature) <i>Scott M. Poadny</i>	Date 12/8/87	Time 18:00	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received for Laboratory: (Signature) <i>Scott Gerardo</i>	Date 12-9-87	Time 10:00A
Sample Disposal Method:	Disposed of by: (Signature)		Date	Time	

SAMPLE COLLECTOR ENT, Inc. 131 N. Eisenhower Ln. Lombard, IL 60148 (312) 620-5900		ANALYTICAL LABORATORY Environmental Research and Technology, Inc. 33 Industrial Way Wilmington, MA 01887 617-657-4290		ERT No 20124
--	--	--	--	----------------------------

CHAIN OF CUSTODY RECORD

0005-469

Client/Project Name AT+T		Project Location Appleton, Wisconsin		ANALYSES			
Project No. G417-510		Field Logbook No.					
Sampler: (Signature) Scott M. Paradise		Chain of Custody Tape No. 200934					

VOC GC/MS
Meth 624

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample					REMARKS
✓ D-1	12/7/87	11:35	ERT 50462	Soil	✓				3 day verbals Normal
✓ C-1	12/7/87	12:00	50463	Soil	✓				" Turn
✓ C-2	12/7/87	12:30	50464	Soil	✓				"
Field Blank	12/7/87	13:00	50465	Water	✓				" R-8-8
Ship Blank	12/7/87	13:15	50466	Water	✓				" Scott Jenel

Relinquished by: (Signature) Scott M. Paradise	Date 12/7/87	Time 17:00	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received for Laboratory: (Signature) Scott Berade	Date 12/8/87	Time 10:00 A
Sample Disposal Method:	Disposed of by: (Signature)			Date	Time

SAMPLE COLLECTOR Environmental Research and Technology, Inc. 606 Virginia Road Concord, MA 01742 617-369-8810	ANALYTICAL LABORATORY ERT, INC. 33 Industrial Way Wilmington, MA 01807 (617) 657-4290	ART PARADISE ERT
		No 10423

VOLATILES (GC/MS) ANALYSES IN WATER

Summary of Analytical Results

Method Blank Results

Quality Control Check Sample Results

VOLATILE ORGANICS

Surrogate Recovery Summary

Client Name: AT&T Project No: 0005-470

Matrix: Water

Authorized: 12/09/87 Received: 12/09/87

Surrogate Compound

EPT ID	Client ID		Surrogate Compound		
			d ₄ -1,2,-Dichloro-ethane	d ₈ -Toluene	p-Bromofluoro-benzene
6164-03	50491	Ship Blank	102	104	102
6164-04	50492	Field Blank	98	100	102

QC Advisory Limits: 76-114% 88-110% 86-115%

Reported by AT Approved by [Signature]

[Handwritten mark]

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Project No: 0005-470
 ERT : 50491 / Ship Blank
 Client : 6164-03
 Matrix: Water Sampled: 12/08/87 Received: 12/09/87
 Authorized: 12/09/87 Prepared: 12/14/87 Analyzed: 12/14/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	5
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform -----	4.6	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene	ND	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

ND = Not detected.

Reported by MS Approved by [Signature]

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Project No: 0005-470
 ERT : 50492 / Field Blank
 Client : 6164-04
 Matrix: Water Sampled: 12/08/87 Received: 12/09/87
 Authorized: 12/09/87 Prepared: 12/14/87 Analyzed: 12/14/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	5
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform	4.3	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene	ND	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

ND = Not detected.

Reported by AF Approved by [Signature]

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Project No: 0005-470
 ERT : ERT Procedural Blank - Water
 Client : 5080
 Matrix: Water Sampled: NA Received: NA
 Authorized: NA Prepared: 12/14/87 Analyzed: 12/14/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	5
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform	ND	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene	ND	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

NA = Not applicable.

ND = Not detected.

Reported by [Signature]

Approved by [Signature]

✓ 2/1

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Project No: 0005-470
 ERT : ERT Procedural Blank - Methanol
 Client : N097
 Matrix: Water Sampled: NA Received: NA
 Authorized: NA Prepared: 12/20/87 Analyzed: 12/20/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	130
Bromomethane	ND	µg/L	130
Vinyl chloride	ND	µg/L	130
Chloroethane	ND	µg/L	130
Methylene chloride	ND	µg/L	130
Acetone	ND	µg/L	1,300
Carbon disulfide	ND	µg/L	50
1,1-Dichloroethene	ND	µg/L	50
1,1-Dichloroethane	ND	µg/L	50
trans-1,2-Dichloroethene	ND	µg/L	50
Chloroform	ND	µg/L	50
1,2-Dichloroethane	ND	µg/L	50
2-Butanone	ND	µg/L	250
1,1,1-Trichloroethane	ND	µg/L	50
Carbon tetrachloride	ND	µg/L	50
Vinyl acetate	ND	µg/L	250
Bromodichloromethane	ND	µg/L	50
1,2-Dichloropropane	ND	µg/L	50
trans-1,3-Dichloropropene	ND	µg/L	50
Trichloroethene	ND	µg/L	50
Dibromochloromethane	ND	µg/L	50
1,1,2-Trichloroethane	ND	µg/L	50
Benzene	ND	µg/L	50
cis-1,3-Dichloropropene	ND	µg/L	50
2-Chloroethyl vinyl ether	ND	µg/L	250
Bromoform	ND	µg/L	50
4-Methyl-2-pentanone	ND	µg/L	250
2-Hexanone	ND	µg/L	250
1,1,2,2-Tetrachloroethane	ND	µg/L	50
Tetrachloroethene	ND	µg/L	50
Toluene	ND	µg/L	50
Chlorobenzene	ND	µg/L	50
Ethyl benzene	ND	µg/L	50
Styrene	ND	µg/L	50
Total xylenes	ND	µg/L	50

NA = Not applicable.

ND = Not detected.

Reported by AE Approved by AL

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Project No: 0005-470
 ERT : ERT Procedural Blank - Methanol
 Client : N034
 Matrix: Water Sampled: NA Received: NA
 Authorized: NA Prepared: 12/17/87 Analyzed: 12/17/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	130
Bromomethane	ND	µg/L	130
Vinyl chloride	ND	µg/L	130
Chloroethane	ND	µg/L	130
Methylene chloride	ND	µg/L	130
Acetone	ND	µg/L	1,300
Carbon disulfide	ND	µg/L	50
1,1-Dichloroethene	ND	µg/L	50
1,1-Dichloroethane	ND	µg/L	50
trans-1,2-Dichloroethene	ND	µg/L	50
Chloroform	ND	µg/L	50
1,2-Dichloroethane	ND	µg/L	50
2-Butanone	ND	µg/L	250
1,1,1-Trichloroethane	ND	µg/L	50
Carbon tetrachloride	ND	µg/L	50
Vinyl acetate	ND	µg/L	250
Bromodichloromethane	ND	µg/L	50
1,2-Dichloropropane	ND	µg/L	50
trans-1,3-Dichloropropene	ND	µg/L	50
Trichloroethene	ND	µg/L	50
Dibromochloromethane	ND	µg/L	50
1,1,2-Trichloroethane	ND	µg/L	50
Benzene	ND	µg/L	50
cis-1,3-Dichloropropene	ND	µg/L	50
2-Chloroethyl vinyl ether	ND	µg/L	250
Bromoform	ND	µg/L	50
4-Methyl-2-pentanone	ND	µg/L	250
2-Hexanone	ND	µg/L	250
1,1,2,2-Tetrachloroethane	ND	µg/L	50
Tetrachloroethene	ND	µg/L	50
Toluene	ND	µg/L	50
Chlorobenzene	ND	µg/L	50
Ethyl benzene	ND	µg/L	50
Styrene	ND	µg/L	50
Total xylenes	ND	µg/L	50

NA = Not applicable.

ND = Not detected.

Reported by AT&TApproved by AT&T

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Project No: 0005-470
 ERT : ERT Procedural Blank - Methanol
 Client : M983
 Matrix: Water Sampled: NA Received: NA
 Authorized: NA Prepared: 12/15/87 Analyzed: 12/15/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	130
Bromomethane	ND	µg/L	130
Vinyl chloride	ND	µg/L	130
Chloroethane	ND	µg/L	130
Methylene chloride	ND	µg/L	130
Acetone	ND	µg/L	1,300
Carbon disulfide	ND	µg/L	50
1,1-Dichloroethene	ND	µg/L	50
1,1-Dichloroethane	ND	µg/L	50
trans-1,2-Dichloroethene	ND	µg/L	50
Chloroform	ND	µg/L	50
1,2-Dichloroethane	ND	µg/L	50
2-Butanone	ND	µg/L	250
1,1,1-Trichloroethane	ND	µg/L	50
Carbon tetrachloride	ND	µg/L	50
Vinyl acetate	ND	µg/L	250
Bromodichloromethane	ND	µg/L	50
1,2-Dichloropropane	ND	µg/L	50
trans-1,3-Dichloropropene	ND	µg/L	50
Trichloroethene	ND	µg/L	50
Dibromochloromethane	ND	µg/L	50
1,1,2-Trichloroethane	ND	µg/L	50
Benzene	ND	µg/L	50
cis-1,3-Dichloropropene	ND	µg/L	50
2-Chloroethyl vinyl ether	ND	µg/L	250
Bromoform	ND	µg/L	50
4-Methyl-2-pentanone	ND	µg/L	250
2-Hexanone	ND	µg/L	250
1,1,2,2-Tetrachloroethane	ND	µg/L	50
Tetrachloroethene	ND	µg/L	50
Toluene	ND	µg/L	50
Chlorobenzene	ND	µg/L	50
Ethyl benzene	ND	µg/L	50
Styrene	ND	µg/L	50
Total xylenes	ND	µg/L	50

NA = Not applicable.

ND = Not detected.

Reported by ATApproved by AT JP

JP

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Project No: 0005-470
 ERT : ERT Procedural Blank - Water
 Client : M931
 Matrix: Water Sampled: NA Received: NA
 Authorized: NA Prepared: 12/13/87 Analyzed: 12/13/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	5
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform	ND	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene	ND	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

NA = Not applicable.

ND = Not detected.

Reported by FEApproved by AF VP

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Project No: 0005-470
 ERT : ERT Procedural Blank - Methanol
 Client : M996
 Matrix: Water Sampled: NA Received: NA
 Authorized: NA Prepared: 12/16/87 Analyzed: 12/16/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	130
Bromomethane	ND	µg/L	130
Vinyl chloride	ND	µg/L	130
Chloroethane	ND	µg/L	130
Methylene chloride	ND	µg/L	130
Acetone	ND	µg/L	1,300
Carbon disulfide	ND	µg/L	50
1,1-Dichloroethene	ND	µg/L	50
1,1-Dichloroethane	ND	µg/L	50
trans-1,2-Dichloroethene	ND	µg/L	50
Chloroform	ND	µg/L	50
1,2-Dichloroethane	ND	µg/L	50
2-Butanone	ND	µg/L	250
1,1,1-Trichloroethane	ND	µg/L	50
Carbon tetrachloride	ND	µg/L	50
Vinyl acetate	ND	µg/L	250
Bromodichloromethane	ND	µg/L	50
1,2-Dichloropropane	ND	µg/L	50
trans-1,3-Dichloropropene	ND	µg/L	50
Trichloroethene	ND	µg/L	50
Dibromochloromethane	ND	µg/L	50
1,1,2-Trichloroethane	ND	µg/L	50
Benzene	ND	µg/L	50
cis-1,3-Dichloropropene	ND	µg/L	50
2-Chloroethyl vinyl ether	ND	µg/L	250
Bromoform	ND	µg/L	50
4-Methyl-2-pentanone	ND	µg/L	250
2-Hexanone	ND	µg/L	250
1,1,2,2-Tetrachloroethane	ND	µg/L	50
Tetrachloroethene	ND	µg/L	50
Toluene	ND	µg/L	50
Chlorobenzene	ND	µg/L	50
Ethyl benzene	ND	µg/L	50
Styrene	ND	µg/L	50
Total xylenes	ND	µg/L	50

NA = Not applicable.

ND = Not detected.

Reported by TF Approved by [Signature]

SAMPLE RECEIPT CHECK LIST

AT+T, APPLETON
0005-467
8417-510

Client: AT+T/U.S. SPRINT

COC Record #(s): 20124

AT+T/U.S. SPRINT
0005-470
8417-520

Matrix	Container	ERT #(s)
WATER	VOA KILE	50489, 90, 91, 92 - U.S. SPRINT
SOIL	"	50500 - 03

1. Were samples shipped or hand-delivered?

Notes: FED. EX 6705539422

Yes No

2. Was COC record present upon receipt of samples?

Notes:

Yes No

3. Was COC tape present/unbroken on outer package?

Notes: 24160

4. Were samples received ambient or chilled?

Notes:

5. Were any samples received broken/leaking (improperly sealed)?

Yes No

Notes:

6. Were samples properly preserved?

Yes No

Notes:

7. Were COC types present/unbroken on samples?

Yes No

Notes:

8. Any discrepancies between sample labels and COC records?

Yes No

Notes:

9. Were samples received within holding times?

Yes No

Notes:

Additional Comments:

STORAGED IN: RB

NOTE: NO LONGER 3 DAY VERBAL. NORMAL TURNAROUND.

Samples inspected and logged in by

Scott Corrado

Date: 12-9-87

Client/Project Name AT&T / U.S. SPRINT		Project Location Appleton, Wisconsin		ANALYSES	
Project No. 6417-510/520		Field Logbook No.			
Sampler: (Signature) Scott M. Porady		Chain of Custody Tape No. 24160			

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	VOC Method 624					REMARKS
A-W-US	12/8/87	14:00	50489	water	✓					3 pp verbal
B-W-US	12/8/87	14:30	50490	water	✓					"
A-1	12/8/87	13:00	50500	Soil	✓					NORMAL
B-1	12/8/87	12:00	50501	Soil	✓					TURBID
B-2	12/8/87	12:00	50502	Soil	✓					"
B-3	12/8/87	12:05	50503	Soil	✓					"
Ship Blank	12/8/87	16:00	50491	water	✓					"
Field Blank	12/8/87	16:00	50492	water	✓					"

Relinquished by: (Signature) Scott M. Porady	Date 12/8/87	Time 18:00	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received for Laboratory: (Signature) Scott Gerardo	Date 4-9-89	Time 10:00A
Sample Disposal Method:	Disposed of by: (Signature)			Date	Time

SAMPLE COLLECTOR ERT, Inc. 131 N. Eisenhower Ln. Lombard, IL 60148 (312) 620-5900		ANALYTICAL LABORATORY Environmental Research and Technology, Inc. 32 Industrial Way Wilmington, MA 01887 617-657-4290		ERT No 20124
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PHASE III
VOCs IN GROUNDWATER, PIT B

ANALYSIS OF WATER SAMPLES
FROM
AT&T APPLETON

RECEIVED
JAN 8 1988
L. M. CAMPBELL

ERT PROJECT NO.0005-467
January 5, 1988

PREPARED FOR

L. Campbell ERT, Lombard

Prepared by
Analytical Chemistry Laboratory
ERT, A Resource Engineering Company
33 Industrial Way, Wilmington, Massachusetts 01887

ANALYSIS OF WATER SAMPLES
FROM
AT&T APPLETON

INTRODUCTION

This report represents the results of analysis conducted on various water samples received by the ERT Analytical Chemistry Laboratory on December 11, 1987. The samples were to be selectively analyzed for volatiles.

SAMPLE RECEIPT AND CHAIN OF CUSTODY

Routine inspection of the samples revealed them to be packaged properly and received in good condition.

Upon receipt, information from the submitted samples was recorded in the Master Log Book (and the LIMS computer system) and assigned ERT Control Numbers. These unique sample labels were affixed to respective sample containers and subsequently utilized throughout the laboratory analysis procedures for positive traceability.

ANALYTICAL PROCEDURES

The water samples were analyzed according to procedures as outlined in:

- a. Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act, 40 CFR Part 136.
- b. Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, revised, March, 1983.
- c. Standard Methods for the Examination of Water and Wastewater, 16th Edition, APHA, 1985.

QUALITY CONTROL PROCEDURES

Standard quality control procedures were implemented for all analyses. Laboratory reagent (method) blanks, laboratory duplicated samples, and laboratory fortified control samples were analyzed concurrently with each case of submitted samples. The laboratory normally prepares and analyzes one (1) blank, one (1) fortified sample, and one (1) duplicate sample for each case of samples received or for each twenty (20) samples, whichever is more frequent. A case consists of a finite, usually predetermined number of samples collected over a given time period from one particular site. Duplicate sample analyses are performed only when sufficient sample volume is received. The results of the analyses are reviewed by the laboratory quality control coordinator to insure compliance with established analytical control limits.

Laboratory prepared method blank samples and fortified samples are identified in the analytical result tables under the Field Identification number using a unique numbering system and also assigning one ERT sample number to each sample. The Prefix "MB" refers to Method Blank, and "LF" refers to Laboratory Fortification (i.e., a quality control recovery sample).

In most cases, the analytical results will have been corrected using mean method blank results.

RESULTS OF ANALYSIS

Analytical results for the submitted samples are presented in the appended tables. Summary tables for the results of duplicate, blank, and fortified control samples have also been provided in the Appendix.

DISCUSSION


Review of the results of the quality control/quality assurance samples analyzed concurrently with the submitted samples indicated that the analyses were within the acceptance criteria as established by the U.S. EPA.

SUBMITTED BY:

Analytical Chemistry Laboratory
ERT A Resource Engineering Company
33 Industrial Way
Wilmington, MA 01887
January 7, 1988

DATA AUDITED BY:

M. S. Sparlin


Quality Control Coordinator

REPORT APPROVED BY:

L. G. Pounds


Program Manager

VOLATILES (GC/MS) ANALYSES IN WATER

Summary of Analytical Results

Method Blank Results

Quality Control Check Sample Results



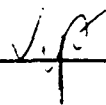
VOLATILE ORGANICS

Surrogate Recovery Summary

Client Name: AT&T Appleton Project No.: 0005-467
 Matrix: Water
 Authorized: 12/14/87 Received: 12/14/87

ERT ID	Client ID	Surrogate Compound		
		d ₄ -1,2,-Dichloro-ethane	d ₈ -Toluene	p-Bromofluoro-benzene
6228-01	50632 /B-W	101	100	106
6228-02	50633 / Field Blank	99	101	106
6228-03	50634 / Shipping Blank	99	99	107
22548	ERT Procedural Blank - Water / 51198	97	100	107

QC Advisory Limits: 76-114% 88-110% 86-115%

Reported by  Approved by  

PRIORITY POLLUTANT VOLATILE ORGANICS

EPA Method 624 + 624/HSL List

QUALITY CONTROL

Client Name: AT&T Appleton

Project No.: 0005-467

ERT ID: Laboratory Control Spike

Client ID: 2255LCS

Matrix: Water

Prepared: 12/18/87

Analyzed: 12/18/87

<u>Parameter</u>	<u>% Recovery</u>	<u>QC Advisory Limits</u>
1,1-Dichloroethene	95	61 - 145%
Trichloroethene	103	71 - 120%
Benzene	102	76 - 127%
Toluene	96	76 - 125%
Chlorobenzene	104	75 - 130%

Reported by



Approved by



PRIORITY POLLUTANT VOLATILE ORGANICS

EPA Method 624 + 624/HSL List

QUALITY CONTROL

Client Name: AT&T Appleton Project No.: 0005-467

ERT ID: Laboratory Control Spike Dup.

Client ID: 2266LCSD

Matrix: Water Prepared: 12/18/87 Analyzed: 12/18/87

<u>Parameter</u>	<u>% Recovery</u>	<u>QC Advisory Limits</u>
1,1-Dichloroethene	108	61 - 145%
Trichloroethene	99	71 - 120%
Benzene	101	76 - 127%
Toluene	92	76 - 125%
Chlorobenzene	104	75 - 130%

Reported by  Approved by  

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Appleton Project No. : 0005-467
 ERT ID: ERT Procedural Blank - Water / 51198
 Client ID: 2254B
 Matrix: Water Sampled: NA Received: NA
 Authorized: NA Prepared: 12/18/87 Analyzed: 12/18/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	5
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform	ND	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene	ND	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

NA = Not applicable.

ND = Not detected.

Reported by  Approved by 

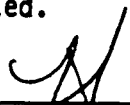

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Appleton Project No.: 0005-467
 ERT ID: 50632 / B-W
 Client ID: 6228-01
 Matrix: Water Sampled: 12/10/87 Received: 12/14/87
 Authorized: 12/14/87 Prepared: 12/18/87 Analyzed: 12/18/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	5
Acetone -----	130	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform	ND	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene	ND	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

ND = Not detected.

Reported by  Approved by 

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Appleton Project No.: 0005-467
 ERT ID: 50633 / Field Blank
 Client ID: 6228-02
 Matrix: Water Sampled: 12/10/87 Received: 12/14/87
 Authorized: 12/14/87 Prepared: 12/18/87 Analyzed: 12/18/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	5
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform	ND	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene -----	4.7	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

ND = Not detected.

Reported by  Approved by 

HAZARDOUS SUBSTANCE LIST (HSL) VOLATILE ORGANICS

EPA Method 624/HSL List

Client Name: AT&T Appleton Project No.: 0005-467
 ERT ID: 50634 / Shipping Blank
 Client ID: 6228-03
 Matrix: Water Sampled: 12/10/87 Received: 12/14/87
 Authorized: 12/14/87 Prepared: 12/18/87 Analyzed: 12/18/87

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>
Chloromethane	ND	µg/L	5
Bromomethane	ND	µg/L	5
Vinyl chloride	ND	µg/L	5
Chloroethane	ND	µg/L	5
Methylene chloride	ND	µg/L	5
Acetone	ND	µg/L	50
Carbon disulfide	ND	µg/L	2
1,1-Dichloroethene	ND	µg/L	2
1,1-Dichloroethane	ND	µg/L	2
trans-1,2-Dichloroethene	ND	µg/L	2
Chloroform	ND	µg/L	2
1,2-Dichloroethane	ND	µg/L	2
2-Butanone	ND	µg/L	10
1,1,1-Trichloroethane	ND	µg/L	2
Carbon tetrachloride	ND	µg/L	2
Vinyl acetate	ND	µg/L	10
Bromodichloromethane	ND	µg/L	2
1,2-Dichloropropane	ND	µg/L	2
trans-1,3-Dichloropropene	ND	µg/L	2
Trichloroethene	ND	µg/L	2
Dibromochloromethane	ND	µg/L	2
1,1,2-Trichloroethane	ND	µg/L	2
Benzene	ND	µg/L	2
cis-1,3-Dichloropropene	ND	µg/L	2
2-Chloroethyl vinyl ether	ND	µg/L	10
Bromoform	ND	µg/L	2
4-Methyl-2-pentanone	ND	µg/L	10
2-Hexanone	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	µg/L	2
Tetrachloroethene	ND	µg/L	2
Toluene -----	3.2	µg/L	2
Chlorobenzene	ND	µg/L	2
Ethyl benzene	ND	µg/L	2
Styrene	ND	µg/L	2
Total xylenes	ND	µg/L	2

ND = Not detected.

Reported by Approved by 

CHAIN-OF-CUSTODY RECORD

AT&T

APPLETON, WI

ERT

SAMPLE RECEIPT CHECK LIST

Client: *AT+T, APPLETON*

0005-467

COC Record #(s): *10427*

Matrix	Container	ERT #(s)
<i>WATER</i>	<i>VOA</i>	<i>50632-34</i>

1. Were samples shipped or hand-delivered?

Notes: *FED. EX. 6705539385*

Yes No

2. Was COC record present upon receipt of samples?

Notes:

Yes No

3. Was COC tape present/unbroken on outer package?

Notes: *200935*

4. Were samples received ambient or chilled?

Notes:

Yes No

5. Were any samples received broken/leaking (improperly sealed)?

Notes:

Yes No

6. Were samples properly preserved?

Notes:

Yes No

7. Were COC types present/unbroken on samples?

Notes:

Yes No

8. Any discrepancies between sample labels and COC records?

Notes:

Yes No

9. Were samples received within holding times?

Notes:

Additional Comments:

STORED IN: R8

NOTE: NO LONGER 3 DAY VERBAL. NORMAL TURN AROUND.

Samples inspected and logged in by

Scott Gerade

Date: *12-11-87*

CHAIN OF CUSTODY RECORD

0005-467

Client/Project Name AT&T			Project Location Appleton, Wisconsin			ANALYSES						
Project No. 6417-510			Field Logbook No.									
Sampler: (Signature) Scott M. Porady			Chain of Custody Tape No. 200935									
Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	VOG GC/MS METHOD 624						REMARKS	
B-W	12/10/87	15:00	ERT # 50632	water	✓							3-DAY VERBALS
Field Blank	12/10/87	15:15	50633	water	✓							✓
Surf Blank	12/10/87	15:30	50634	water	✓							✓
												NORMAL TURNAROUND
Relinquished by: (Signature) Scott M. Porady				Date	Time	Received by: (Signature)				Date	Time	
Relinquished by: (Signature)				Date	Time	Received by: (Signature)				Date	Time	
Relinquished by: (Signature)				Date	Time	Received for Laboratory: (Signature) Scott Corade				Date	Time	
Sample Disposal Method:				Disposed of by: (Signature)				Date	Time			
SAMPLE COLLECTOR				ANALYTICAL LABORATORY				ERT No 10427				
Environmental Research and Technology, Inc. 696 Virginia Road Concord, MA 01742 617-369-8910				ERT, INC. 33 Industrial Way Wilmington, MA 01887 (617) 657-4290								
131 N Eisenhower Ln. Lombard, IL 60148 (312) 620-9900												

APPENDIX C.4
PHASE IV ANALYTICAL RESULTS
EP TOXICITY IN SOIL, PIT B

DATE: 06/15/88

TO: Larry Campbell

FROM: Bo Blankfield, Laboratory Director *Bonda Bawle for BB*

PROJ. NO.: 0550-029-510 LAB NO.: 9498

RECEIVED
JUN 20 1988
L. M. CAMPBELL

Attached are reports of chemical analyses of samples received June 2, 1988. These analyses are:

Count	Test Code	Test Name	Test Method	Sampled	Matrix
1	Ag -S-EPT-HOU	EP TOXICITY SILVER ON SOLID	LEACHATE: 846:1310, Ag: SM:303A, AA	06/01/88	SOIL
1	As -S-EPT-HOU	EP TOXICITY ARSENIC ON SOLID	LEACHATE:SW846:1310, ARSENIC:SM303E	06/01/88	SOIL
1	Ba -S-EPI-HOU	EP TOXICITY BARIUM ON SOLID	LEACHATE:SW846:1310,Ba:846:6010,ICP	06/01/88	SOIL
1	Cd -S-EPI-HOU	EP TOXICITY CADMIUM ON SOLID	LEACHATE:SW846:1310,Cd:846:6010,ICP	06/01/88	SOIL
1	Cr - -ICP-HOU	CHROMIUM	EPA 600: 200.7, ICP	06/01/88	LIQUID
1	Cr -S-EPI-HOU	EP TOXICITY CHROMIUM ON SOLID	LEACHATE:SW846:1310,Cr:846:6010,ICP	06/01/88	SOIL
1	Hg -S-EPT-HOU	EP TOXICITY MERCURY ON SOLID	LEACHATE:SW846:1310, MERCURY:SM303F	06/01/88	SOIL
1	Pb -S-EPI-HOU	EP TOXICITY LEAD ON SOLID	LEACHATE:SW846:1310,Pb:846:6010,ICP	06/01/88	SOIL
1	Se -S-EPT-HOU	EP TOXICITY SELENIUM ON SOLID	LEACHATE: SW846:1310, SELENIUM:303E	06/01/88	SOIL

Data contained in this report reflect a full quality control review and have met all applicable standards established by ERT. ERT quality assurance protocols are in accordance with EPA guidelines.

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Reports, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Billing Summary

LAB NO. 9498
PROJECT 0550-029-510 AT&T

ERT



An ENSR Company
 3000 RICHMOND AVENUE, HOUSTON, TX 77098, (713) 520-9900

environmental and engineering excellence

ERT LABORATORIES

Analytical Summary
 06/15/88 06:49

Lab Number: 9498 Project: 0550-029-510 AT&T		
Lab ID Field ID (Cont'd) Test /Matrix	1 MAY-B-1 SOIL	2 FIELD BL ANK LIQUID
Ag -S-EPT-HOU (MDL)	<0.02 MG/L (0.02)	--
As -S-EPT-HOU (MDL)	<0.0025 MG/L (.0025)	--
Ba -S-EPI-HOU (MDL)	0.31 MG/L (0.02)	--
Cd -S-EPI-HOU (MDL)	<0.010 MG/L (0.010)	--
Cr --ICP-HOU (MDL)	--	<0.02 MG/L (0.02)

QAQC Approval: Salonna Thomas Date: 6/16/88

Mgr. Approval: Brenda Basile Date: 6/14/88

***** CONTINUED *****

ERT LABORATORIES

Analytical Summary
06/15/88 06:49

Lab Number: 9498		
Project: 0550-029-510		
AT&T		
Lab ID	1	2
Field ID	MAY-B-1	FIELD BL
(Cont'd)		ANK
Test /Matrix	SOIL	LIQUID
Cr -S-EPI-HOU	<0.02	--
(MDL)	MG/L (0.02)	
Hg -S-EPT-HOU	<0.0025	--
(MDL)	MG/L (.0025)	
Pb -S-EPI-HOU	<0.04	--
(MDL)	MG/L (0.04)	
Se -S-EPT-HOU	<0.0025	--
(MDL)	MG/L (.0025)	

QAQC Approval: Adonna Thomas Date: 6/16/88

Mgr. Approval: Brenda Basile Date: 6/16/88

ERT

ERT LABORATORIES

Analytical Report
06/15/88 06:47

AT&T Proj. No.: 0550-029-510 Lab No.: 9498	Field ID: MAY-B-1 Lab ID: 1 Matrix: SOIL	Date Sampled: 06/01/88 Time Sampled: 1300 Date Received: 06/02/88		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Ag -S-EPT-HOU EP TOXICITY SILVER ON SOLID LEACHATE: 846:1310, Ag: SM:303A, AA	<0.02	MG/L	0.02	06/06/88 1000
As -S-EPT-HOU EP TOXICITY ARSENIC ON SOLID LEACHATE: SW846:1310, ARSENIC: SM303E	<0.0025	MG/L	.0025	06/06/88 1430
Ba -S-EPI-HOU EP TOXICITY BARIUM ON SOLID LEACHATE: SW846:1310, Ba: 846:6010, ICP	0.31	MG/L	0.02	06/06/88 1149
Cd -S-EPI-HOU EP TOXICITY CADMIUM ON SOLID LEACHATE: SW846:1310, Cd: 846:6010, ICP	<0.010	MG/L	0.010	06/06/88 1149
Cr -S-EPI-HOU EP TOXICITY CHROMIUM ON SOLID LEACHATE: SW846:1310, Cr: 846:6010, ICP	<0.02	MG/L	0.02	06/06/88 1149
Hg -S-EPT-HOU EP TOXICITY MERCURY ON SOLID LEACHATE: SW846:1310, MERCURY: SM303F	<0.0025	MG/L	.0025	06/09/88 1300
Pb -S-EPI-HOU EP TOXICITY LEAD ON SOLID LEACHATE: SW846:1310, Pb: 846:6010, ICP	<0.04	MG/L	0.04	06/06/88 1149
Se -S-EPT-HOU EP TOXICITY SELENIUM ON SOLID LEACHATE: SW846:1310, SELENIUM: 303E	<0.0025	MG/L	.0025	06/06/88 1130

***** CONTINUED *****

ERT

ERT LABORATORIES

Analytical Report
06/15/88 06:47

AT&T	Field ID: FIELD BLANK	Date Sampled: 06/01/88		
Proj. No.: 0550-029-510	Lab ID: 2	Time Sampled: 1300		
Lab No.: 9498	Matrix: LIQUID	Date Received: 06/02/88		
(Test Code) Parameter (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Cr - -ICP-HOU CHROMIUM EPA 600: 200.7, ICP	<0.02	MG/L	0.02	06/02/88 902

ERT

ICAP
ERT LABORATORIES QC LOG

DATE 6 JUN 88

TIME 1149

ANALYST TRV

METHOD SW-846 3rd ED #6010

PARAMETER	Zn	Pb	Cd	Ni	Cr	Be	Cu	Ba		
	MDL 0.025	0.02	0.04	0.010	0.02	0.02	0.02	0.02	0.02	
BLANK	-0.001	0.005	0.000	-0.000	0.001	0.000	0.000	0.000		
MDL STD	0.041	0.080	0.021	0.038	0.042	0.040	0.042	0.040		
EPA 386	—	0.101 0.100	0.025 0.025	0.099 0.100	0.100 0.100	0.100 0.100	0.100 0.100	—	FOUND	TRUE
EPA 481-2	0.423 0.418	0.433 0.435	0.034 0.039	0.207 0.207	0.283 0.261	0.235 0.235	0.349 0.339	—		
EPA 686	—	—	—	—	—	—	—	5.08 5.00		
EPA 1085	—	5.05 5.00	1.01 1.00	—	5.24 5.00	—	—	112 100		↓
1.00 ppm	1.00	0.966	0.985	1.00	1.00	1.02	0.987	1.00		
5.00 ppm	4.99	4.97	4.99	4.97	5.00	5.00	4.99	4.99		
9505-BLK	0.007	0.017	0.000	0.004	0.003	0.002	0.014	—		
9498-BLK	—	0.012	0.004	—	0.008	—	—	0.002		
9502-BLK	—	0.023	0.003	—	0.004	—	—	0.003		
9506-BLK	—	-0.003	0.002	—	—	—	—	—		
505-1	214 212	39 37	<2.0 <2.0	286 290	58 57	<4 <4	178 163	—	SAMPLE	DUP
% PREC	0.66	3.72	∅	0.98	1.23	∅	6.22	—		
9498-1	—	<0.04 <0.04	<0.010 <0.010	—	<0.02 <0.02	—	—	0.31 0.28	SAMPLE	DUP
% PREC	—	∅	∅	—	∅	—	—	7.19		
9502-1	—	<0.04 <0.04	<0.010 <0.010	—	<0.02 <0.02	—	—	0.05 0.05	SAMPLE	DUP
% PREC	—	∅	∅	—	∅	—	—	∅		
9505-1	5.92	4.09	3.91	6.80	4.28	3.91	5.72	—		
% REC	94.5	92.5	97.8	98.5	92.5	97.8	98.5	—		
9498-1	—	3.55	3.90	—	3.51	—	—	4.26		
% REC	—	88.8	97.5	—	87.8	—	—	91.1		
9502-1	—	3.52	3.80	—	3.74	—	—	3.82		
% REC	—	88.0	95.0	—	93.5	—	—	93.0		
9506-1	—	3.71	3.84	—	—	—	—	—		
% REC	—	92.8	96.0	—	—	—	—	—		

Leo McKeown

QAQC APPROVAL *Wanner. Dorse*

CONTINUED

PARAMETER	NDL MDL @ 50% 25	Pb	Cd							
		0.04	0.010							
BLANK AND STANDARDS										
BLANKS										
DUPLICATES	06-1	$\frac{0.04}{0.04}$	$\frac{0.010}{0.010}$	SAMPLE						
	70 PREC	0	0	DUP						

Ted McKelvey

QAQC APPROVAL *Juanita Hual*

ERT LABORATORIES

Quality Control Log

Parameter: Sr Matrix: LIQ
 Method of Analysis: SM303E HYDRIDE Date/Time: 6JUN88 1130

Lab Numbers	Detection Limits	Calibration Standards/Blank	Absorbance	Check Standards	Concentration Found/True
9504	0.010 ^{mg} / _g	BCK	.000	Sample Blank	< 1.0 PPB
		2.5	.071	Method Blank	0.012
9498	0.0025	5.0	.148	EPA 378-4@1/2 P.E. Std TV=3.0	3.026
9502	mg/l	10.0	.276	7.5 Internal Std	7.423
				2.5	2.526
				5.0	5.091
				10.0	10.025
				1.0	1.039
		Comments:			

Internal Quality Control Duplicates and Spikes

Lab No. - Sample ID	Sample Conc. PPB	Duplicate Conc. PPB	Range	% R.S.D.	Spiked Sample Result	Sample Result PPB	Spike Added PPB	Percent Recovery
9504-8	< 1	< 1	*	*	5.055	< 1	5.0	101
9498-1	< 2.5	< 2.5	*	*	3.612	< 2.5	4.0	90
9502-1	1.688	1.394	*	*	5.438	1.688	4.0	94
			* BELOW		MDL			

Analyst: [Signature]

QA/QC Approval: [Signature]

ICAP
ERT LABORATORIES QC LOG

DATE 25 JUNE 88

TIME 0902

ANALYST TM

METHOD SW-846 3rd ED #6010

PARAMETER	Zn	Pb	Cd	Ni	Cr	Cu				
	MDL MDL @ 5g-225 0.02	0.04	0.010	0.02	0.02	0.02				
BLANK	0.001	0.000	0.000	0.000	0.004	0.000				
5.00 ppm	4.91	5.01	5.01	4.99	4.94	4.96				
1.00 ppm	1.00	1.00	1.01	1.00	1.01	1.04				
EPA 1085-I	—	4.99 5.00	0.991 1.00	—	5.22 5.00	—	FOUND	TRUE		
EPA 481-2	0.402 0.418	0.434 0.435	0.037 0.039	0.208 0.207	0.283 0.261	0.343 0.339				
EPA 386	—	0.107 0.100	0.023 0.025	0.099 0.100	0.107 0.100	0.099 0.100				
GW MDL	0.042	0.030	0.018	0.040	0.041	0.039				
10.00 ppm	—	9.58	—	—	—	—				
9496-BLK	0.007	0.000	0.001	0.001	0.000	0.005				
9489-9480 BLK	—	—	—	—	—	0.005				
9486-BLK	—	0.004	—	—	—	—				
9496-1	0.18 0.17	0.17 0.16	<0.010 <0.010	0.04 0.04	<0.02 <0.02	0.49 0.50	SAMPLE	DUP		
%PREC	4.0	4.3	∅	∅	∅	1.4				
9480-1	—	—	—	—	—	<0.02 <0.02				
%PREC	—	—	—	—	—	∅				
9486-3	—	58.6 57.6	—	—	—	—				* FINAL CONC. @ 5g → 100 ml (x20)
%PREC	—	1.2	—	—	—	—				
9496-1	4.42	4.45	4.02	4.04	4.00	4.82				
%REC	101.5	102.8	100.5	99.0	100.0	96.0				
9480-1	—	—	—	—	—	3.56				
%REC	—	—	—	—	—	89.0				
9486-3	—	6.68	—	—	—	—				
%REC	—	93.8	—	—	—	—				
9498-2	—	—	—	—	3.55	—				
%REC	—	—	—	—	88.8	—				

Ted McKelvey

QAQC APPROVAL J. M. M. Deal

CONTINUED

PARAMETER	CF									
	MDL MDL @ 25	0.02								
BLANK AND STANDARDS										
BLANK SAMPLES	9498-BLK	0.005								
DUPLICATES	9498-Z	<0.02								
	DUP	<0.02								
	% PREC	∅								
SPIKES										

Tom McKelvey

QAQC APPROVAL *James H. Hase*

ERT LABORATORIES

Quality Control Log

Parameter: AS Matrix: LIQ
 Method of Analysis: SM 303E HYDRIDE Date/Time: 6/20/88 1430

Lab Numbers	Detection Limits	Calibration Standards/Blank	Absorbance	Check Standards	PPB Concentration Found/True
9504	0.010 MDL 2	BLK	1.001	Sample Blank	< 2.5 PPB
		2.5	1.126	Method Blank	0.052
9498	0.0025	5.0	1.230	<small>EDA 375-4 9/4</small> P.E. Std. TV = 6.25	6.123
9502	MDL	10.0	1.369	<small>7.5</small> Internal Std	7.507
				2.5	2.461
				5.0	5.005
				10.0	9.960
				1.0	1.037
		Comments:			

Internal Quality Control Duplicates and Spikes								
Lab No. - Sample ID	Sample Conc.	Duplicate Conc.	Range	% R.S.D.	p Spiked p Sample B Result	Sample Result	Spike Added PPB	Percent Recovery
9504-8	<0.0025	<0.0025	*	*	4.854	<0.0025	5.0	97
9498-1	<0.0025	<0.0025	*	*	4.245	<0.0025	4.0	106
9502-1	<0.0025	<0.0025	*	*	4.277	<0.0025	4.0	107
			* BELOW MDL					

Analyst: [Signature]

QC Approval: [Signature]

ERT LABORATORIES

Quality Control Log

Parameter: Hg Matrix: LIQ
 Method of Analysis: SM 303F COLD VAPOR Date/Time: 9 JUN 88 1300

Lab Numbers	Detection Limits	Calibration Standards/Blank	Absorbance	Check Standards	PPB Concentration Found/True
9498	0.0025	BLK	.000	Sample Blank	0.153
9502	MDL	2.5	.013	Method Blank	0.071
9526		5.0	.026	EPA 378-12 P.E. Std. TV=4.0 @ 1/2	3.651
9541		10.0	.052	7.5 Internal Std	7.455
9517				2.5	2.369
9539				5.0	4.945
				1.0	1.039
				10.0	10.021
Comments:					

Internal Quality Control Duplicates and Spikes

Lab No. - Sample ID	Sample Conc. MDL	Duplicate Conc. MDL	Range	% R.S.D.	Spiked Sample Result	Sample Result MDL	Spike Added PPB	Percent Recovery
9498-1	<0.0025	<0.0025	*	*	4.925	<0.0025	5.0	99
9502-2	<0.0025	<0.0025	*	*	4.531	<0.0025	5.0	91
9526-17	<0.0025	<0.0025	*	*	4.927	<0.0025	5.0	99
9541-2	<0.0025	<0.0025	*	*	4.986	<0.0025	5.0	100
9517-21	<0.0025	<0.0025	*	*	4.858	<0.0025	5.0	97
9541-4	<0.0025	<0.0025	*	*	5.393	<0.0025	5.0	108

* BELOW MDL

Analyst: 

QA/QC Approval: 

ERT LABORATORIES
SAMPLE RECEIPT CHECKLIST

CLIENT AT&T Appleton PROJECT NO. 0550-029-510 LAB NO. 9498

- 1. shipped NOTES: Fed Ex a/B #6816635792
 hand-delivered
- 2. COC present on receipt NOTES:
 no COC
- 3. COC tape on shipping container NOTES: #200948
 no COC tape
- 4. samples broken/leaking NOTES:
 on receipt
 samples intact on receipt
 other, see notes
- 5. ambient on receipt NOTES:
 chilled on receipt
- 6. samples preserved correctly NOTES:
 improperly preserved
 N/A, no recommended preservatives
 other, see notes
- 7. received within holding times NOTES:
 not received within holding times
 N/A, no recommended holding time
 other, see notes
- 8. COC tapes on samples NOTES:
 no COC tapes
- 9. discrepancies between COC and sample labels NOTES:
 no discrepancies noted
 N/A, no COC received
 other, see notes

Additional comments:

Samples inspected and logged in by: Jody B. Hernandez Date/Time: 6-2-88 910

