SCREENING SITE INSPECTION REPORT
FOR
BURLINGTON NORTHERN-RAMSEY BOULEVARD
ANOKA, MINNESOTA
U.S. EPA ID: MND981097108
SS ID: NONE
TDD: F05-8707-017
PAN: FMN0127SA

976754

SEPTEMBER 26, 1989

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International Specialists in the Environment

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TABLE OF CONTENTS

Section		Page
1	INTRODUCTION	1-1
2	SITE BACKGROUND	2-1
	2.1 INTRODUCTION	2-1
	2.2 SITE DESCRIPTION	2-1
	2.3 SITE HISTORY	2-1
3	SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS	3-1
	3.1 INTRODUCTION	3-1
	3.2 SITE REPRESENTATIVE INTERVIEW	3-1
	3.3 RECONNAISSANCE INSPECTION	3-2
	3.4 SAMPLING PROCEDURES	3-4
4	ANALYTICAL RESULTS	4-1
	4.1 INTRODUCTION	4-1
	4.2 RESULTS OF CHEMICAL ANALYSIS OF FIT-COLLECTED SAMPLES	4-1
5	DISCUSSION OF MIGRATION PATHWAYS	5-1
	5.1 INTRODUCTION	5-1
	5.2 GROUNDWATER	5-1
	5.3 SURFACE WATER	5-3
	5.4 AIR	5-3
	5.5 FIRE AND EXPLOSION	5-4
	5.6 DIRECT CONTACT	5-4
6	BIBLIOGRAPHY	6-1

Table of Contents (Cont.)

Appendix		Page
A	SITE 4-MILE RADIUS MAP	A-1
B	U.S. EPA FORM 2070-13	B-1
C	U.S. EPA IMMEDIATE REMOVAL ACTION CHECKSHEET	C-1
D	FIT SITE PHOTOGRAPHS	D-1
E	CHEMICAL ANALYSIS DATA OF FIT-COLLECTED SAMPLES	E-1
F	WELL LOGS OF THE AREA OF THE SITE	F-1

LIST OF ILLUSTRATIONS

Figure		Page
2-1	Site Location	2-2
3-1	Site Features	3-3
3-2	On-Site Soil Sampling Locations	3-5
3-3	Off-Site Soil Sampling Location	3-6
3-4	Residential Well Sampling Locations	3-8

LIST OF TABLES

Table		Page
3-1	Addresses of Residential Well Sampling Locations.....	3-9
4-1	Results of Chemical Analysis of FIT-Collected Soil Samples.....	4-2
4-2	Results of Chemical Analysis of FIT-Collected Residential Well Samples.....	4-4

1. INTRODUCTION

Ecology and Environment, Inc., Field Investigation Team (FIT) was tasked by the United States Environmental Protection Agency (U.S. EPA) to conduct a screening site inspection (SSI) of the Burlington Northern-Ramsey Boulevard (BN-Ramsey) site under contract number 68-01-7347.

The site was initially discovered as a result of an anonymous complaint received by a Minnesota Pollution Control Agency (MPCA) hotline on February 28, 1985. The complaint alleged that a spill of lead arsenate had occurred at the site as a result of a train wreck 15 to 20 years earlier. The site was evaluated in the form of a preliminary assessment (PA) that was submitted to U.S. EPA. The PA was prepared by Susan M. Cedarleaf of MPCA. The PA is dated December 3, 1985.

FIT prepared an SSI work plan for the BN-Ramsey site under technical directive document (TDD) F05-8702-090, issued on February 2, 1987. The SSI work plan was approved by U.S. EPA on July 6, 1987. The SSI of the BN-Ramsey site was conducted on August 22 and 23, 1988, under TDD F05-8707-017, issued on July 6, 1987.

The FIT SSI included an interview with site representatives, a reconnaissance inspection of the site, and the collection of nine soil samples and four residential well samples.

The purposes of an SSI have been stated by U.S. EPA in a directive outlining Pre-Remedial Program strategies. The directive states:

> All sites will receive a screening SI to 1) collect additional data beyond the PA to enable a more refined

> preliminary HRS [Hazard Ranking System] score, 2) establish priorities among sites most likely to qualify for the NPL [National Priorities List], and 3) identify the most critical data requirements for the listing SI step. A screening SI will not have rigorous data quality objectives (DQOs). Based on the refined preliminary HRS score and other technical judgement factors, the site will then either be designated as NFRAP [no further remedial action planned], or carried forward as an NPL listing candidate. A listing SI will not automatically be done on these sites, however. First, they will go through a management evaluation to determine whether they can be addressed by another authority such as RCRA [Resource Conservation and Recovery Act].... Sites that are designated NFRAP or deferred to other statutes are not candidates for a listing SI.
>
> The listing SI will address all the data requirements of the revised HRS using field screening and NPL level DQOs. It may also provide needed data in a format to support remedial investigation work plan development. Only sites that appear to score high enough for listing and that have not been deferred to another authority will receive a listing SI. (U.S. EPA 1988)

U.S. EPA Region V has also instructed FIT to identify sites during the SSI that may require removal action to remediate an immediate human health and/or environmental threat.

2. SITE BACKGROUND

2.1 INTRODUCTION

This section includes information obtained from SSI work plan preparation and the site representative interview.

2.2 SITE DESCRIPTION

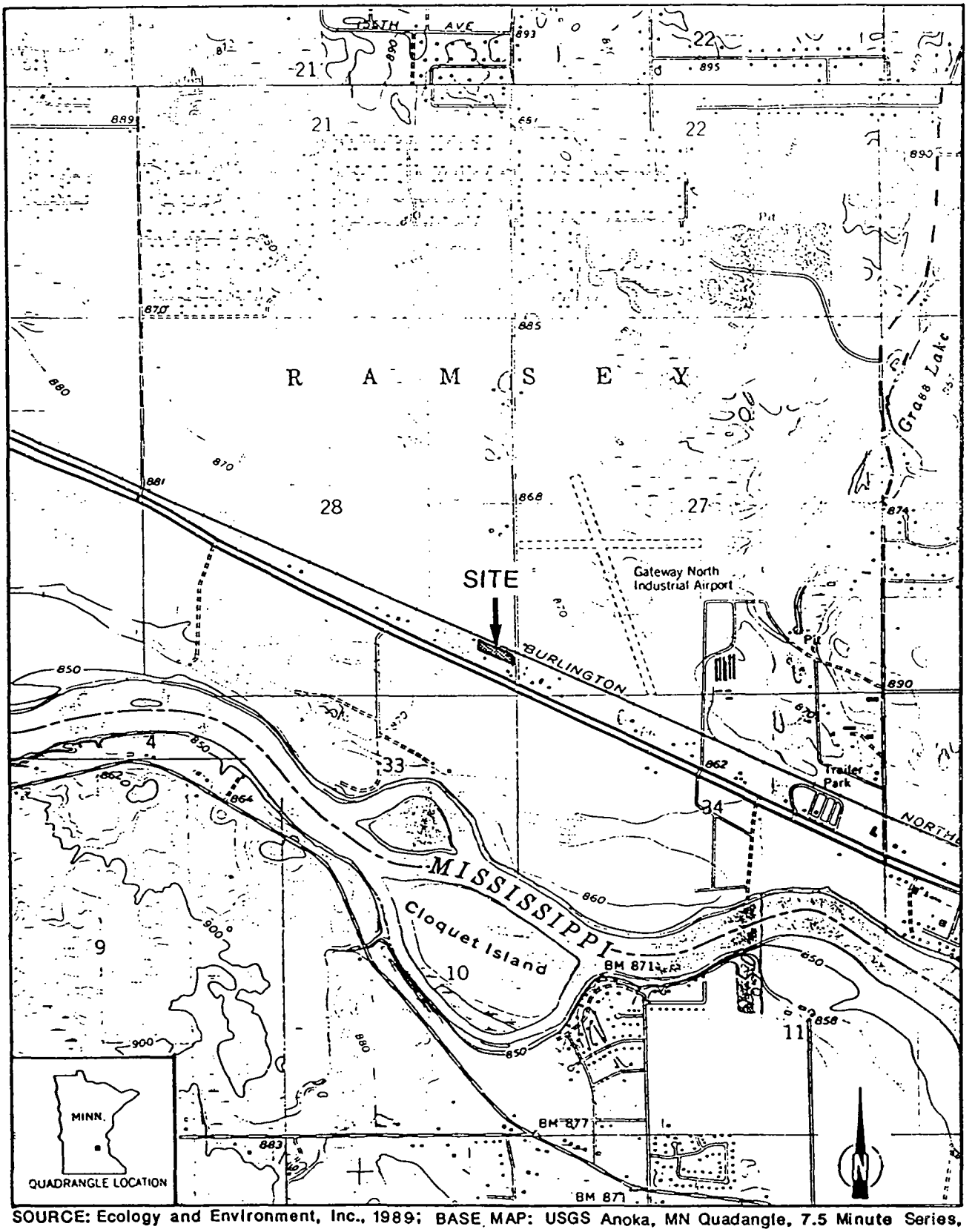
The site is located on approximately 2 acres of land in Anoka County, Minnesota (SE1/4SE1/4SE1/4 sec. 28, T.32N., R.25W.), at the intersection of Ramsey Boulevard (Anoka County Road 56) and the Burlington Northern railroad tracks (see Figure 2-1). The site area is predominantly rural, located on the outskirts of the municipalities of Ramsey and Anoka. A 4-mile radius map of the BN-Ramsey site is provided in Appendix A.

The BN-Ramsey site is the location of a one-time railway spill of lead arsenate. The spill area is approximately 350 feet long and 40 feet wide (MPCA 1986).

2.3 SITE HISTORY

The site property is currently owned by the Burlington Northern Railroad Company (Burlington Northern), which gained ownership after consolidation with the Northern Pacific Railroad in 1973 (Seep 1988).

The site is the location of a derailment of a 47-car train, which occurred in July 1963 (MPCA 1986). As a result of this derailment, lead arsenate was allegedly spilled on the soil surface. The lead arsenate was contained in metal or wood containers that were damaged during the



SOURCE: Ecology and Environment, Inc., 1989; BASE MAP: USGS Anoka, MN Quadangle, 7.5 Minute Series, 1967; Nowthen, MN Quadrangle, 7.5 Minute Series, 1974.

SCALE
0 0.5 1 MILE

FIGURE 2-1 SITE LOCATION

derailment. Burlington Northern has no records of this incident in its files.

According to a complaint received by an MPCA hotline, the containers were allegedly buried adjacent to the train derailment site at a later date. In response to a subsequent complaint from the owner of an adjacent property, the containers were allegedly later dug up by Burlington Northern and transported to other Burlington Northern-owned property (MPCA 1985). Burlington Northern has no records concerning these allegations.

On October 30, 1986, the MPCA conducted an electromagnetic (EM) investigation at the BN-Ramsey site. The survey defined three anomalous zones designated as Features "A," "B," and "C" (see Figure 3-1). The survey report indicated that these three anomalies could represent locations of trenching and burial (MPCA Site Assessment Unit 1986). No state or federal action is currently pending concerning the BN-Ramsey site.

3. SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS

3.1 INTRODUCTION

This section outlines procedures and observations of the SSI of the BN-Ramsey site. Individual subsections address the site representative interview, reconnaissance inspection, and sampling procedures. Rationales for specific FIT activities are also provided. The SSI was conducted in accordance with the U.S. EPA-approved work plan, with the exception that one less residential well sample was collected than planned.

The U.S. EPA Potential Hazardous Waste Site Inspection Report (Form 2070-13) for the BN-Ramsey site is provided in Appendix B. The U.S. EPA Immediate Removal Action Checksheet for the BN-Ramsey site is provided in Appendix C.

3.2 SITE REPRESENTATIVE INTERVIEW

Gerard Breen, FIT team leader, conducted an interview with David C. Seep, Environmental Engineer with Burlington Northern, and Ronald J. Schultz, Attorney, representing Burlington Northern. The interview was conducted on August 22, 1988, at 9:00 a.m., at the BN-Ramsey site. Melanie Nesterenko of FIT and Dale E. Markley, Senior Hydrogeologist with John Mathes and Associates, Inc., a consultant retained by Burlington Northern, were also in attendance at the interview. The interview was conducted to gather information that would aid FIT in conducting SSI activities.

3.3 RECONNAISSANCE INSPECTION

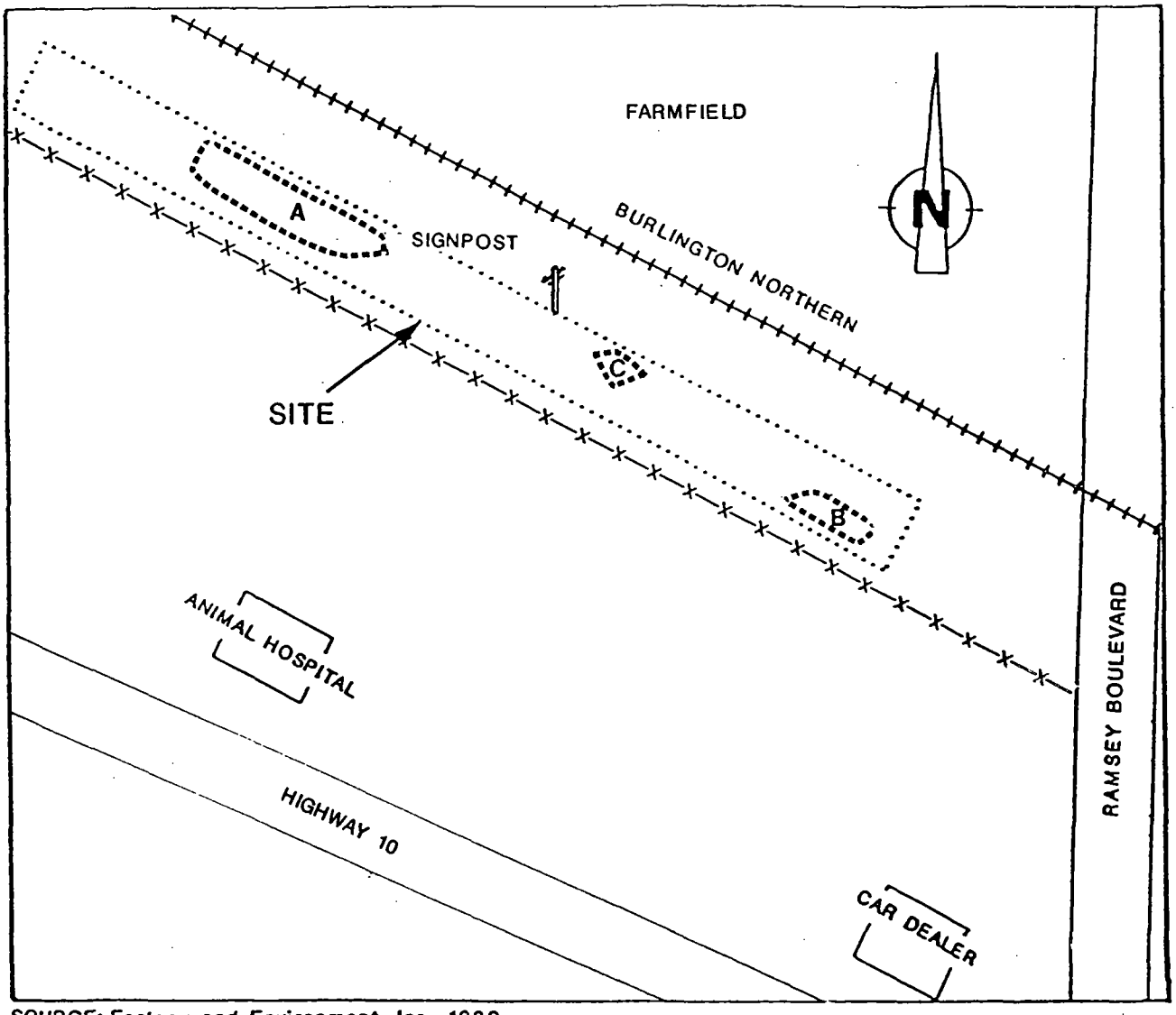
Following the site representative interview, FIT conducted a reconnaissance inspection of the BN-Ramsey site and surrounding area in accordance with Ecology and Environment, Inc. (E & E), health and safety guidelines. The reconnaissance inspection was begun on August 22, 1988, at 10:35 a.m. Markley accompanied FIT during the reconnaissance inspection. The reconnaissance inspection included a walk-through of the site to determine appropriate health and safety requirements to conduct on-site activities and to make observations to aid in characterizing the site. FIT also determined exact sampling locations during the reconnaissance inspection.

Reconnaissance Inspection Observations. The BN-Ramsey site is located 1/4 mile north of the Mississippi River in Anoka County, Minnesota (USGS 1980). The site is located at the intersection of the Burlington Northern railroad tracks and Ramsey Boulevard. The topography in the area of the site is relatively flat. A few scattered residences are located in the vicinity of the site.

The site is bordered on the north by the Burlington Northern railroad tracks (see Figure 3-1 for locations of site features). The railroad tracks are on an embankment, which is elevated approximately 3 feet above the rest of the site. Ramsey Boulevard (Anoka County Road 56) is east of the BN-Ramsey site.

A fence runs along the south side of the site, separating it from a car dealership and an animal hospital. The fence does not completely surround the site. Paved parking areas are located between Highway 10 and both businesses. A small pit containing debris was observed between the site and the animal hospital. Additional businesses and several houses lie to the west of the site.

The site itself is grassy and well vegetated between the railbeds and the fenceline. File information indicates that the spill area is approximately 350 feet long and 40 feet wide. Several areas of disturbed, non-vegetated soil were also observed. Assorted pieces of metal and junk were scattered and half-buried throughout the site. Photographs of the BN-Ramsey site are provided in Appendix D.



SOURCE: Ecology and Environment, Inc., 1989.

SCALE

0 50 100 150 200FEET

FIGURE 3-1 SITE FEATURES

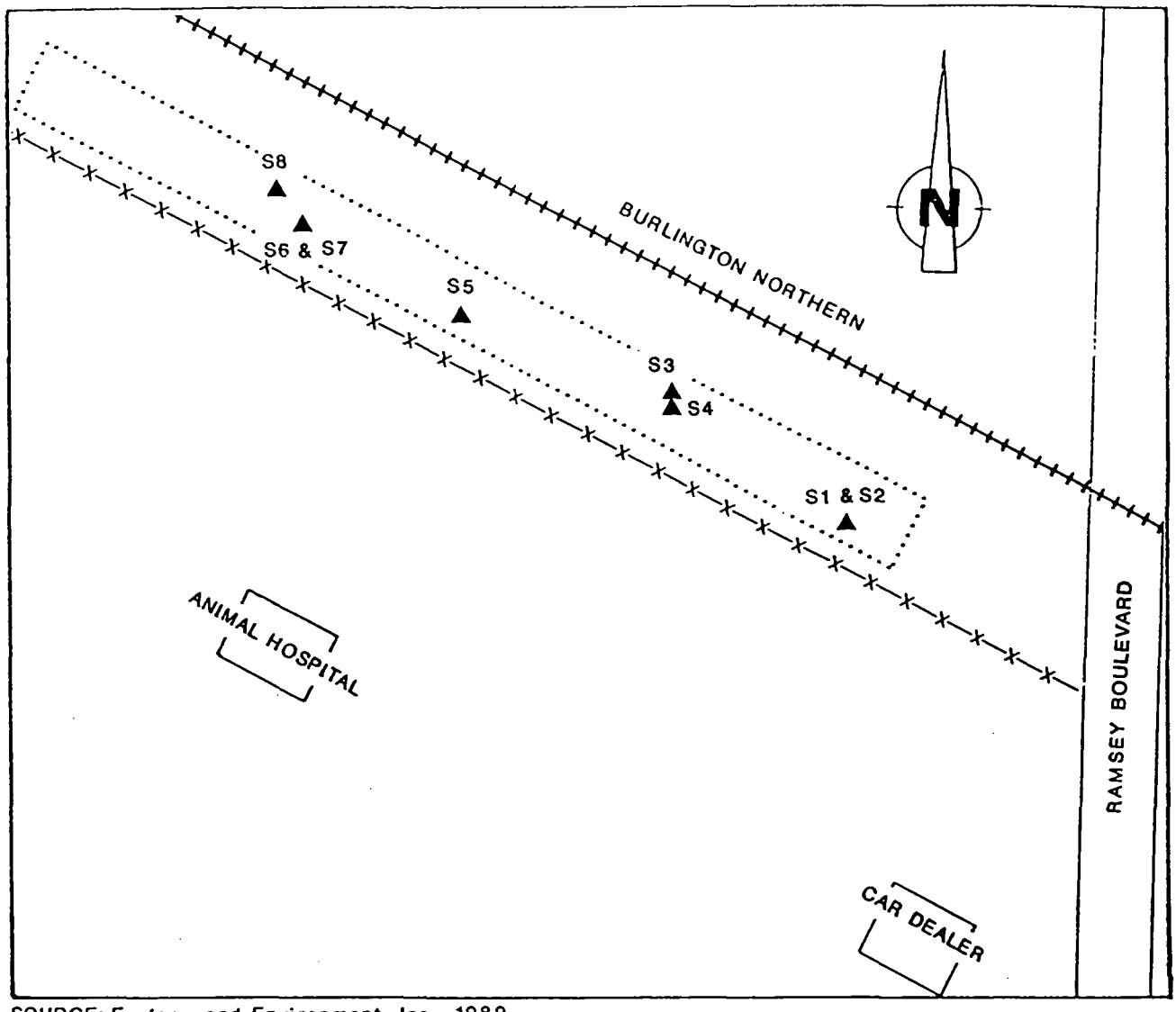
3.4 SAMPLING PROCEDURES

Samples were collected by FIT at locations chosen during the reconnaissance inspection to determine levels of U.S. EPA Target Compound List (TCL) compounds and U.S. EPA Target Analyte List (TAL) analytes present at the site. The TCL and TAL are provided in Appendix E.

On August 22, 1988, FIT collected samples from four residential wells. On August 23, 1988, FIT collected eight on-site soil samples and one potential background soil sample. Dale E. Markley, of John Mathes & Associates, Inc., accepted the offer of portions of the FIT-collected samples on behalf of Burlington Northern.

Soil Sampling Procedures. Eight soil samples were collected on-site from six different locations (see Figure 3-2 for on-site soil sampling locations). Most of the soil samples were collected from the anomalous areas identified in the 1986 MPCA EM survey. Soil samples S1 and S2 were collected from the same hole at depths of 2 and 4 1/2 feet, respectively, from the area of Feature "B" of the MPCA EM survey. Soil sample S3 was collected at a depth of 2 feet from the area of Feature "C" of the MPCA EM survey. Soil sample S4 was collected at a depth of 4 1/2 feet from a location approximately 2 feet south of S3. Soil sample S5 was collected from a depth of approximately 4 feet from a low area near the center of the site area. Soil samples S6 and S7 were collected from the same hole at depths of 2 and 4 feet, respectively, from the area of Feature "A" of the MPCA EM survey. Soil sample S8 was collected from a depth of 3 feet, also from the area of Feature "A" of the MPCA EM survey. Soil sample locations were chosen to determine waste characteristics of the site and to further evaluate results of the 1986 MPCA EM survey.

A potential background soil sample (indicated as S9) was collected approximately .6 miles north of the site from a wooded farm area (see Figure 3-3 for the off-site soil sampling location). The potential background soil sample was collected to determine the representative chemical content of the soil surrounding the site. The location was chosen because the ground surface appeared to be in an undisturbed state.

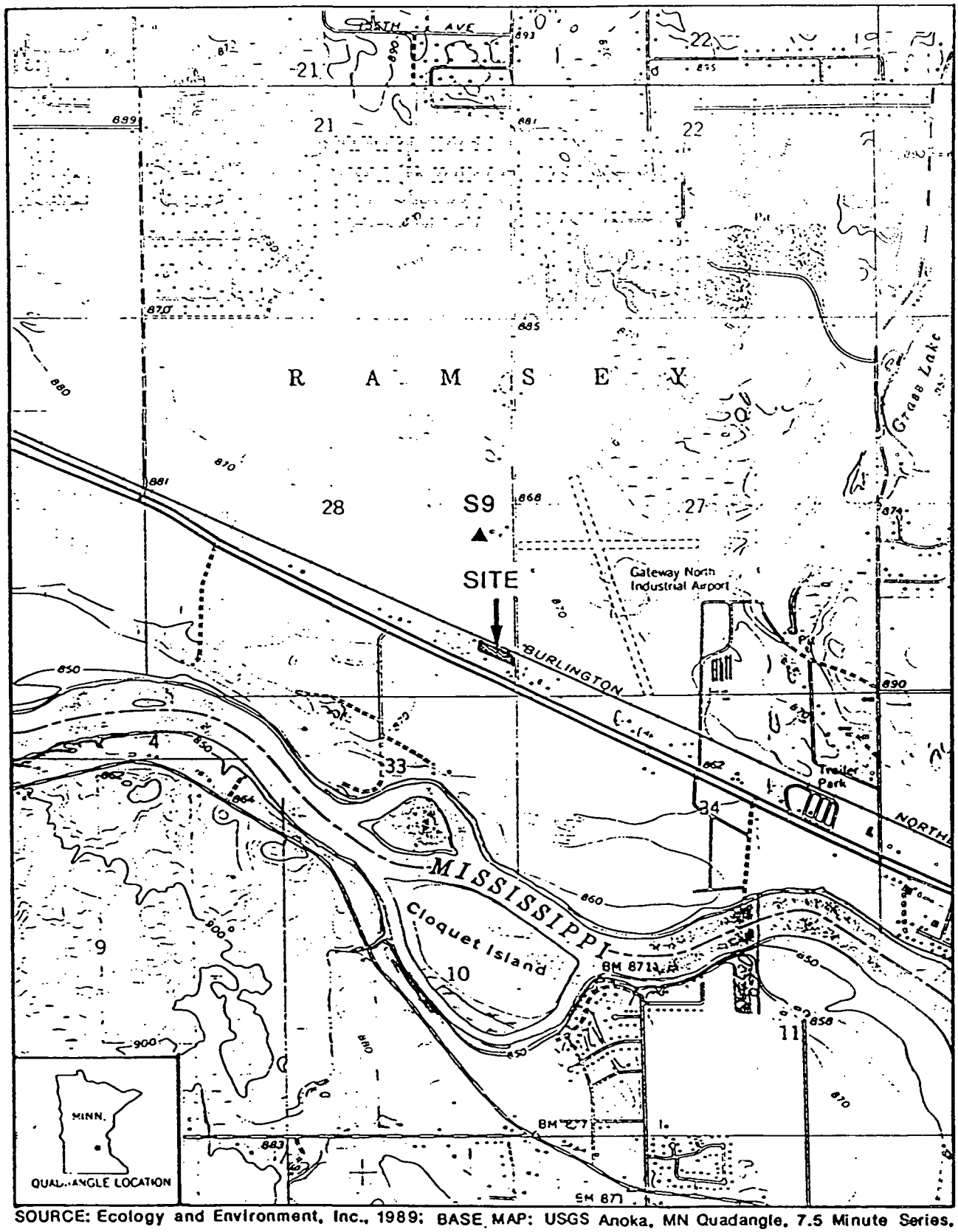


SOURCE: Ecology and Environment, Inc., 1989.

SCALE

0 50 100 150 200FEET

FIGURE 3-2 ON-SITE SOIL SAMPLING LOCATIONS



SOURCE: Ecology and Environment, Inc., 1989; BASE MAP: USGS Anoka, MN Quadangle, 7.5 Minute Series, 1967; Nowthen, MN Quadrangle, 7.5 Minute Series, 1974.

SCALE
0 0.5 1 MILE

FIGURE 3-3 OFF-SITE SOIL SAMPLING LOCATION

All soil samples were obtained using a power auger and a hand auger. Samples were transferred to a stainless steel bowl and mixed with a garden trowel. Sample material from the bowl was placed in sample bottles using stainless steel spoons (E & E 1987).

Standard E & E decontamination procedures were adhered to during the collection of all soil samples. The procedures included the scrubbing of all equipment with a solution of Alconox detergent and distilled water, and triple-rinsing the equipment with distilled water before the collection of each sample (E & E 1987). All soil samples were packaged and shipped in accordance with U.S. EPA-required procedures.

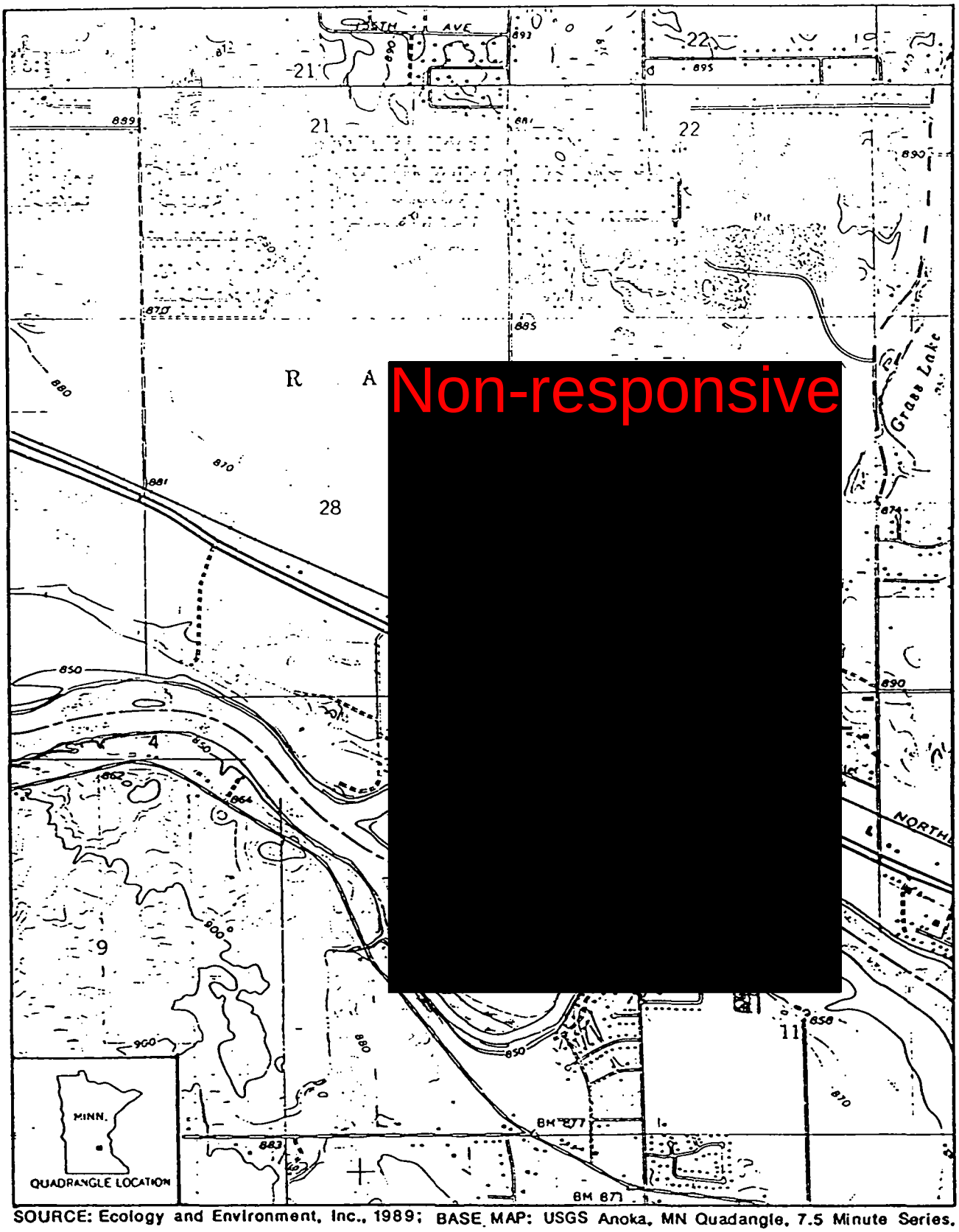
As directed by U.S. EPA, all soil samples were analyzed for TCL compounds by S-Cubed of San Diego, California, and for TAL analytes by Northern Labs and Engineering of Valparaiso, Indiana.

Residential Well Sampling Procedures. Residential well samples (RW1, RW2, RW4, and RW5) were collected to determine whether TCL compounds and/or TAL analytes had migrated from the site into the groundwater.

The residential well sampling locations were chosen because of their proximity to the site. Sample RW1 was collected at a residence Non-responsive [redacted] (see Figure 3-4 for residential well sampling locations). Sample RW2 was collected from a residence Non-responsive [redacted]. Sample RW4 was collected Non-responsive [redacted]. Sample RW5 was collected Non-responsive [redacted] (see Table 3-1 for addresses of residential well sampling locations).

A duplicate residential well sample, indicated as RW3, was collected at location RW2. A distilled water field blank was poured in accordance with U.S. EPA quality assurance/quality control (QA/QC) requirements.

All residential well samples were believed by FIT to have been obtained from outlets that bypassed water treatment systems and/or storage tanks. However, a phone call from the resident at the location of samples RW2/RW3 indicated that these samples were softened before reaching the collection point (McNeely 1988). The water was allowed to discharge



SOURCE: Ecology and Environment, Inc., 1989; BASE MAP: USGS Anoka, MN Quadangle, 7.5 Minute Series, 1967; Nowthen, MN Quadrangle, 7.5 Minute Series, 1974.

SCALE
0 0.5 1 MILE

FIGURE 3-4 RESIDENTIAL WELL SAMPLING LOCATIONS

TABLE 3-1

ADDRESSES OF RESIDENTIAL WELL
SAMPLING LOCATIONS

Sample	Address
Non-responsive	

Source: Ecology and Environment, Inc. 1989.

from the outlets for 15 minutes before samples were collected to ensure that the sample sources had been purged of standing water (E & E 1987). All residential well samples were packaged and shipped in accordance with U.S. EPA-required procedures.

As directed by U.S. EPA, residential well samples were analyzed for TCL compounds by Aquatec, Inc., of South Burlington, Vermont, and for TAL analytes by Associated Laboratories, Inc., of Orange, California.

4. ANALYTICAL RESULTS

4.1 INTRODUCTION

This section includes results of chemical analysis of FIT-collected soil samples and residential well samples for TCL compounds and TAL analytes.

4.2 RESULTS OF CHEMICAL ANALYSIS OF FIT-COLLECTED SAMPLES

Soil Samples. Chemical analysis of FIT-collected soil samples revealed substances from the following groups of TCL compounds and TAL analytes: aromatics, phenols, polyaromatic hydrocarbons (PAHs), heavy metals, common laboratory artifacts (acetone, toluene), and common soil constituents (see Table 4-1 for complete chemical analysis results of FIT-collected soil samples).

Residential Well Samples. Analysis of FIT-collected residential well samples revealed substances from the following group of TAL analytes: heavy metals (see Table 4-2 for complete chemical analysis results of FIT-collected residential well samples).

Laboratory analytical data and Contract Laboratory Program (CLP) quantitation/detection limits of soil sample analysis and residential well sample analysis are provided in Appendix E.

Table 4-1
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED SOIL SAMPLES

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8	S9
Date	8/23/88	8/23/88	8/23/88	8/23/88	8/23/88	8/23/88	8/23/88	8/23/89	8/23/88
Time	1045	1055	1140	1150	1215	1250	1250	1310	1345
Organic Traffic Report Number	EN507	EN508	EN509	EN510	EN511	EN512	EN513	EN514	EP946
Inorganic Traffic Report Number	MEQ774	MEQ775	MEP579	MEP580	MEP581	MEX370	MEX769	MEX756	MEX757
Compound Detected (values in µg/kg)									
Volatile Organics									
acetone	--	--	35	--	--	--	--	--	--
toluene	2J	2J	2J	3J	3J	5	1J	--	--
xylenes (total)	--	--	7	--	--	--	--	--	--
Semivolatile Organics									
4-methylphenol	--	--	79J	--	--	--	--	--	--
naphthalene	--	--	6,600	--	--	--	--	--	--
2-methylnaphthalene	--	--	1,600	--	--	--	--	--	--
acenaphthylene	--	--	110J	--	--	--	--	--	--
acenaphthene	--	--	1,100	--	--	--	--	--	--
dibenzofuran	--	--	1,000	--	--	--	--	--	--
fluorene	--	--	1,300	--	--	--	--	--	--
pentachlorophenol	5,900	2,700	--	--	--	--	--	--	--
phenanthrene	--	--	2,700	97J	--	--	--	--	--
anthracene	--	--	520J	--	--	--	--	--	--
fluoranthene	--	--	1,700	66J	550	--	--	--	--
pyrene	--	--	1,200	--	540	--	--	--	--
benzo[a]anthracene	--	--	400J	--	190J	--	--	--	--
chrysene	--	--	460J	--	590	--	--	--	--
benzo[b]fluoranthene	--	--	300J	--	260J	--	--	--	--
benzo[a]pyrene	--	--	230J	--	120J	--	--	--	--
indeno[1,2,3-cd]pyrene	--	--	160J	--	--	--	--	--	--
benzo[g,h,i]perylene	--	--	190J	--	--	--	--	--	--
Analyte Detected (values in mg/kg)									
aluminum	3,540	2,770	4,710	3,540	4,910	5,080	3,640	3.330	4,530
antimony	--	--	[4.7]JN	--	--	[2.2]JN	--	--	[3.1]JN
arsenic	48J*	21J*	430J*	100J*	109J*	40	6.7	3.7	--
barium	28	[22]	61	[24]	30	28	[21]	[21]	40
cadmium	1.3	1	1.8	1.3	1.1	1.5	1.1	1.0	1.5
calcium	1,330	1,110	2,320	1,300	1,600	1,320	1,130	1,010	1,350
chromium	7.6	6.5	9	6.5	7.9	8.7	6.9	6.0	5.9
cobalt	[4.2]	[4.4]	[3.5]	[5.1]	[5.4]	[4.0]	[5.2]	[4.1]	[5.1]
copper	5	3.3	14	4.4	5.7	4.2	4.1	[2.4]	[3.5]
iron	4,300	3,590	6,010	4,630	4,990	5,100	4,780	3,880	6,070

Table 4-1 (Cont.)

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8	S9
lead	9.3	6.8	28	8.1	11	8.4	5.7	5.0	8.2
magnesium	1,070	906	1,080	1,060	1,030	1,090	967	748	891
manganese	69	70	114	51	53	43	36	28	376
nickel	6.8	5.7	6.7	8.5	11	8.7	10	7.6	8.6
potassium	[271]	[205]	[453]	[249]	[358]	[253]	[199]	[162]	[493]
sodium	[76]	[72]	[85]	[72]	[80]	[73]	[67]	[66]	[75]
vanadium	7.6	7	9.5	8.5	13	11	12	9	10
zinc	17	12	32	14	19	15	13	9.6	17

-- Not detected.

COMPOUND QUALIFIERS	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
N	Spike recoveries outside QC protocols, which indicates a possible matrix problem. Data may be biased high or low. See spike results and laboratory narrative.	Value may be quantitative or semi-quantitative.
*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be quantitative or semiquantitative.
[ ]	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semiquantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.

Source: Ecology and Environment, Inc. 1989.

Table 4-2
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED RESIDENTIAL WELL SAMPLES

Sample Collection Information and Parameters	Sample Number RW1	RW2	RW3 (Duplicate)	RW4	RW5	Blank
Date	8/22/88	8/22/88	8/22/88	8/22/88	8/22/88	8/22/88
Time	1200	1235	1235	1315	1400	1235
Organic Traffic Report Number	ES287	ES288	ES175	EP495	EP496	EP498
Inorganic Traffic Report Number	MEX786	MEX787	MEX788	MEX789	MEX790	MET055
Temperature (°C)	16	15	15	16	16	--
Specific Conductivity (μmhos)	200	170	170	200	200	--
pH	7.10	7.95	7.95	6.85	10.10	--
Compound Detected (values in μg/L)						
Volatile Organics						
1,1,1-trichloroethane	--	--	--	--	--	.5J
Analyte Detected (values in μg/L)						
arsenic	[2.3]	--	--	--	--	--
barium	72	--	--	55J	[34]	--
cadmium	--	[.20]	--	--	--	--
calcium	67,800	[276]J	[339]J	64,000J	64,300	[402]
iron	937	[76]J	[70]J	579J	1,030	[55]
lead	[.80]J	[.80]J	--	--	[1.0]J	[1.2]
magnesium	21,500	[74]	[71]	18,600J	17,400	[41]
manganese	245	--	--	833J	453	--
mercury	--	--	--	--	--	.30
potassium	[1,270]	--	--	2,020J	[992]	--
silver	[4.8]	--	--	8.9J	--	--
sodium	4,160	99,800	99,300	4,170J	4,840	[631]
zinc	--	--	--	64J	33	--

-- Not detected.

Table 4-2 (Cont.)

COMPOUND QUALIFIERS	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
[ ]	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.

Source: Ecology and Environment, Inc. 1989.

5. DISCUSSION OF MIGRATION PATHWAYS

5.1 INTRODUCTION

This section discusses data and information that apply to potential migration pathways and targets of TCL compounds and/or TAL analytes that may be attributable to the BN-Ramsey site.

5.2 GROUNDWATER

The general geology of the area surrounding the BN-Ramsey site consists of Quaternary postglacial deposits of sands, gravels, and till material. The glacial deposits are approximately 75 to 100 feet thick and are underlain by Cambrian age shale and sandstone bedrock. According to area well logs (see Appendix F), the shale layer is continuous throughout a 3-mile radius of the site. However, the shale is not fully impermeable and therefore may not be a completely confining layer. Due to the presence of a thick, clay-rich till layer in the surficial deposits, two separate aquifers exist in the area of the site, both of which are utilized as sources of drinking water. No other aquifers are used as sources of drinking water in the area (Renner 1987).

The glacial deposits of sand and gravel act as the first, or shallow aquifer, which is the aquifer of concern. These deposits are 75 to 100 feet thick. A review of area well logs indicates that approximately 1/4 of the private wells located within a 3-mile radius of the site utilize the shallow aquifer as a source of drinking water. Using USGS topographic maps of the area of the site, 438 houses were counted in a 3-mile radius of the site in Anoka County, and 179 houses were counted

in Hennepin County. Using 1980 Bureau of the Census information for these two counties (U.S. Bureau of the Census 1982), averages of 3.2 and 2.51 persons per household, respectively, were used to calculate the private well populations of 1,402 and 450 in Anoka and Hennepin Counties, respectively. Since approximately 1/4 of the private well population utilizes the aquifer of concern, the potential targets for groundwater contamination total approximately 463. The nearest well utilizing the aquifer of concern is approximately 500 feet south of the site.

A separate deeper sandstone aquifer is also utilized as a source of municipal and private residential drinking water Non-responsive [redacted]. The city of Anoka, population approximately 18,000, has 6 municipal wells, all at depths of 400 to 600 feet. Wells #4 and #5 are located Non-responsive [redacted]; however, water from all six wells is blended to service the population (Orr 1987). The village of Champlin, population approximately 10,040, has 4 wells of depths ranging from 350 to 600 feet. Water from the 4 wells is blended to provide drinking water. Champlin well #1 is Non-responsive [redacted] (Herrboldt 1987). In addition, the remainder of the private residential well population, approximately 1,389 persons, also utilizes this aquifer as a source of drinking water.

The location of the Mississippi River 1/2 mile to the south of the site and general slope of the area toward the river indicates a groundwater flow direction of south to south-southwest.

Based on the available geological information, a potential does exist for TCL compounds and/or TAL analytes to migrate from the site into groundwater. The glacial deposits act as the aquifer of concern, which supplies drinking water to a population of approximately 463 persons Non-responsive [redacted].

TCL compounds and TAL analytes were detected in groundwater within a 1-mile radius of the site. Substances detected were either common groundwater constituents, such as calcium, iron, manganese, and zinc; or were not detected in on-site soil samples; or were detected in similar concentrations in both the background and on-site soil samples. Therefore, the presence of these TCL compounds and TAL analytes in the groundwater is not attributable to the BN-Ramsey site, except as noted below.

The exception is arsenic, which was detected at a concentration of [2.3] µg/L in RW1 and in all the on-site soil samples collected (430[J*] mg/kg in S3) (see Tables 4-1 and 4-2 for definitions of qualifiers). Arsenic was not detected in the background soil sample. Because the probable direction of shallow groundwater flow is south to south-southwest, toward the Mississippi River, and RW1 lies to the north of the BN-Ramsey site, attribution of the arsenic found in RW1 to the BN-Ramsey site is unlikely.

Polyaromatic hydrocarbons (PAHs) were detected in on-site soil samples. Specific PAHs detected include naphthalene at 6,600 µg/kg in S3 and pyrene at 1,200 and 540 µg/kg in S3 and S5, respectively. Pentachlorophenol (5,900 and 2,700 µg/kg in S1 and S2, respectively), 4-methylphenol (79[J] µg/kg in S3), dibenzofuran (1,000 µg/kg in S3), and xylenes (7 µg/kg in S3) were also detected in on-site soil samples. These compounds were all detected in on-site soil samples in concentrations greater than corresponding background soil sample concentrations. Therefore, these substances, along with arsenic, can be used to characterize the waste at the BN-Ramsey site.

5.3 SURFACE WATER

Surface water samples were not collected at the BN-Ramsey site because no surface water exists on-site or in the immediate vicinity of the site.

The surface water nearest the site is the Mississippi River, which lies approximately 1/2 mile south of the site. The potential for contaminants to migrate from the site to the Mississippi River via surface water is minimal because the river is separated from the site by roads and other flow impediments, and the slope of the area between the site and the river is less than 1%.

5.4 AIR

A release of potential contaminants to the air was not documented during the SSI of the BN-Ramsey site. During the reconnaissance inspection, FIT site-entry instruments (colorimetric monitoring tubes for cyanide, radiation monitor, and OVA 128 flame ionization detector) did not

detect levels above background concentrations at the site (E & E 1987). In accordance with the U.S. EPA-approved work plan, further air monitoring was not conducted by FIT.

TCL compounds and TAL analytes detected were from soil samples collected at depth. The majority of the site area is vegetated, thereby limiting the possibility for wind-blown particulates to carry TCL compounds and TAL analytes from the site.

5.5 FIRE AND EXPLOSION

Ronald Bickford, Fire Chief of the Anoka Fire Department, has stated that no apparent potential for fire or explosion exists at the BN-Ramsey site (Bickford 1989).

5.6 DIRECT CONTACT

According to federal, state, and local file information reviewed by FIT, there is no documentation of an incident of direct contact with TCL compounds and/or TAL analytes at the BN-Ramsey site.

A potential exists for the public to come into contact with TCL compounds and/or TAL analytes detected at the site. The potential for direct contact is based on the following information:

- Access to the site is not restricted, the site perimeter is not completely fenced, and no security guard or other means of security are utilized at the site; and

- TCL compounds and TAL analytes have been detected in soil samples collected at the site.

According to calculations using USGS topographic maps of the area of the site, the population within a 1-mile radius of the site is approximately 515 persons. Based on the USGS topographic maps of the area, approximately 130 houses were determined to be in Anoka County and approximately 39 houses were counted in Hennepin County. Using 1980 Bureau of the Census information, averages of 3.2 and 2.51 persons per household were utilized to determine the populations of 416 and 99 in Anoka and Hennepin counties, respectively.

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1977:3

A

APPENDIX A

SITE 4-MILE RADIUS MAP

SDMS US EPA Region V

Imagery Insert Form

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APPENDIX B

U.S. EPA FORM 2070-13

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D981097108

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Burlington Northern - Ramsey Blvd.	Ramsey Blvd. & Hwy 10

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Anoka	MN	55303	Anoka	003	06

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
45 13 30.0	93° 23 20.0	■ A. PRIVATE ☐ B. FEDERAL ____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
08 22 88 (MONTH DAY YEAR)	■ ACTIVE ☐ INACTIVE	one time spill in 1963 ____ (BEGINNING YEAR) ____ (ENDING YEAR) ____ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ■ B. EPA CONTRACTOR Ecology & Environment/FIT (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ____ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR ____ (Name of firm) ☐ G. OTHER ____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO
Gerard Breen	Geographer	E&E/FIT	(312) 663-9415

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Regina Bayer	Water Chemist	E&E/FIT	(312) 663-9415
Melanie Nesterenko	Biologist	E&E/FIT	(312) 663-9415
Jeff Dickson	Geologist	E&E/FIT	(312) 663-9415
Laura Evans	Industrial Hygienist	E&E/FIT	(312) 663-9415
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
David Seep	Environmental Engineer	176 E. 5th St. St. Paul, MN 55164	(612) 298-2492
Dale E. Markley	Senior Hydrogeologist	P.O. Box 330 Columbia, IL 62236	(618) 281-7173
Ronald J. Schutz	Attorney	900 2nd Ave. South Minneapolis, MN 55402	(612) 349-8500
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION ☐ WARRANT	8-22-88 0900-1110 8-23-88 1000-1400	8-22: Cloudy, rainy, ~65°F 8-23: Breezy, sunny, ~70°F

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Ronald R. Swenson	Minnesota Pollution Control Agency Site Assessment	(612) 296-7297

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Karen M. Spangler	U.S. EPA	E&E/FIT	312-663-9415	1 4 89 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D981097108

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ■ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER _____ (Specify)
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS ~50

CUBIC YARDS _____

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- ■ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ■ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	~100,000	lbs	lead arsenate in wood or metal containers
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	xylenes (total)	1330-20-7	S3	7	µg/kg
OCC	4-methyl phenol	106-44-5	S3	79 J	µg/kg
OCC	naphthalene	91-20-3	S3	6600	µg/kg
OCC	2-methyl naphthalene	91-57-6	S3	1600	µg/kg
OCC	acenaphthene	83-32-9	S3	1100	µg/kg
OCC	dibenzofuran	132-64-9	S3	1000	µg/kg
OCC	Fluorene	86-73-7	S3	1300	µg/kg
OCC	pentachloro phenol	87-86-5	S1	5900	µg/kg
OCC	phenanthrene	85-01-8	S3	2700	µg/kg
OCC	anthracene	120-12-7	S3	520 J	µg/kg
OCC	Fluoranthene	206-44-0	S3	1700	µg/kg
OCC	pyrene	129-00-0	S3	1200	µg/kg
OCC	benzo(a)anthracene	56-55-3	S3	400 J	µg/kg
OCC	chrysene	218-01-9	S3	590	µg/kg
OCC	benzo(b)Fluoranthene	205-99-2	S3	300 J	µg/kg
OCC	acenaphthalene	208-96-8	S3	110 J	µg/kg

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	NA	NA	FDS	NA	NA
FDS	NA	NA	FDS	NA	NA
FDS	NA	NA	FDS	NA	NA
FDS	NA	NA	FDS	NA	NA

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E/FIT Site Inspection (1988).
E&E/FIT Files, Region V.

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	benzo(a) pyrene	50-32-8	S3	230 J	µg/kg
OCC	indeno(1,2,3-cd)pyrene	193-39-5	S3	160 J	µg/kg
OCC	benzo(g,h,i)perylene	191-24-2	S3	190 J	µg/kg
MES	aluminum	7429-90-5	S6	5080	mg/kg
MES	antimony	7440-36-0	S3	[4.7] JN	mg/kg
MES	arsenic	7440-38-2	S3	430 J*	mg/kg
MES	barium	7440-39-3	S3	61	mg/kg
MES	cadmium	7440-43-9	S3	1.8	mg/kg
MES	calcium	7440-70-2	S3	2320	mg/kg
MES	chromium	7440-47-3	S3	9	mg/kg
MES	cobalt	7440-48-4	S5	[5.4]	mg/kg
MES	copper	7440-50-8	S3	14	mg/kg
MES	iron	7439-89-6	S3	6010	mg/kg
MES	lead	7439-92-1	S3	28	mg/kg
MES	magnesium	7439-95-4	S6	1090	mg/kg
MES	manganese	7439-96-5	S3	114	mg/kg
MES	nickel	7440-02-0	S5	11	mg/kg
MES	potassium	7440-09-7	S3	[453]	mg/kg
MES	sodium	7440-23-5	S3	[85]	mg/kg
MES	vanadium	7440-62-2	S5	13	mg/kg
MES	zinc	7440-66-6	S3	32	mg/kg

Note: Concentrations provided indicate maximum value detected in on-site samples. Specific sample locations for these maximum values are indicated as "S3" in column 04. See Table 4-1 for qualifier descriptions.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D981097108

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ■ A. GROUNDWATER CONTAMINATION — 02 ■ OBSERVED (DATE: 8/22/88) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ~463
04 NARRATIVE DESCRIPTION
Two separate aquifers exist in the area of the site. The aquifer of concern consists of shallow deposits of glacial material (75-100 feet deep). Approximately 1/4 of the private well population utilizes the aquifer of concern. The remaining private wells and area municipal systems (Anoka, Champlin) utilize the deeper bedrock aquifer. See 6 below

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
No potential for surface water contamination exists at this site.

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
No potential for air contamination exists at this site.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
Fire and explosive conditions do not appear to exist at this site.

01 ■ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ~515
04 NARRATIVE DESCRIPTION
The potential for direct contact exists since TCL compounds and TAL analytes were detected in on-site soil samples collected. Complete fencing does not completely surround the site and no security system is present to prevent access to the site.

01 ■ F. CONTAMINATION OF SOIL — 02 ■ OBSERVED (DATE: 8/22-23/88) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: ~2 (Acres)
04 NARRATIVE DESCRIPTION
TCL compounds and TAL analytes were detected in on-site soil samples collected. Specific compounds included PAH's, phenols, aromatics, arsenic, and heavy metals.

01 ■ G. DRINKING WATER CONTAMINATION — 02 ■ OBSERVED (DATE: 8/22/88) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ~463
04 NARRATIVE DESCRIPTION
TCL compounds and TAL analytes, such as arsenic and heavy metals, were detected in residential well samples collected. Attribution of these compounds and analytes to the site is unlikely since the compounds and analytes were present in both upgradient and downgradient samples or only in upgradient samples.

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
The site is currently active only as a railroad right-of-way, therefore no potential for worker exposure or injury exists.

01 ■ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ~29,892
04 NARRATIVE DESCRIPTION
The site is not completely fenced or secured. TCL compounds and TAL analytes were detected in on-site soil samples collected. Therefore, the potential for population exposure to TCL compounds or TAL analytes exists.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D981097108

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ■ J. DAMAGE TO FLORA — 02 ■ OBSERVED (DATE: 8/22-23/88) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
Areas barren of vegetation were observed on-site.

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)
No known damage to fauna has been reported in the files reviewed.

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
No known contamination of the food chain exists.

01 ■ M. UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, Standing liquids, Leaking drums) — 02 ■ OBSERVED (DATE: 8/23/88) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ~29,892 — 04 NARRATIVE DESCRIPTION
The site is the location of a spill which occurred in 1963. TCL compounds and TAL analytes have been detected in on-site samples collected.

01 ■ N. DAMAGE TO OFFSITE PROPERTY — 02 ■ OBSERVED (DATE: 8/22/88) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
TCL compounds and TAL analytes were detected in residential well samples collected off-site. See "A" and "G" above.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
No known contamination of sewers, storm drains, or WWTP's exists due to this site.

01 ■ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ■ ALLEGED
04 NARRATIVE DESCRIPTION
An MPCA hotline complaint alleged that Burlington Northern Railroad Company buried the crates or drums damaged during the train derailment on-site.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
No other hazards were known or observed.

III. TOTAL POPULATION POTENTIALLY AFFECTED: ~29,892

IV. COMMENTS
The site is the location of a onetime spill of lead arsenate which occurred during a railroad derailment in 1963. The spill area is approximately 40 Feet wide and 350 Feet long.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)
E&E/FIT site inspection (1988).
E&E/FIT Files, Region V.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D981097108

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
■ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
■ I. OTHER NONE (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ■ H. OTHER NONE (Specify)

05 OTHER

- ☐ A. BUILDINGS ON SITE

NA

06 AREA OF SITE

~2 (Acres)

07 COMMENTS

The site is the location of a one-time spill which occurred in 1963. According to an MPCA Hotline complaint, drums and/or crates which held lead arsenate, were spilled and possibly buried on-site.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ■ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Drums and/or crates which allegedly contained lead arsenate were spilled as the result of a trainwreck in 1963. According to a MPCA Hotline complaint, these drums or crates were buried on-site by Burlington Northern.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ■ YES ☐ NO

02 COMMENTS The site is not completely fenced or secured in any way.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

E.E/FIT Files, Region V.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D981097108

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☐	B. ■
NON-COMMUNITY	C. ☐	D. ■

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ■
D. ☐	E. ■	F. ☐

03 DISTANCE TO SITE

A. ~2.75 (mi)
B. ~500 ft (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

■ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER ~463

03 DISTANCE TO NEAREST DRINKING WATER WELL ~500 ft (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
~75-100 (ft)	S-SSW	~75-100 (ft)	UNKNOWN (gpm)	☐ YES ■ NO

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings)

Two separate aquifers exist in the vicinity of the site, separated by continuous confining layers. The shallow aquifer (75-100 feet thick) services approximately ¼ of the population on private wells (~463 people). The remainder of the private wells and area municipal systems utilize the deeper sandstone aquifer (depth 100-600 feet; pop. ~29,429).

10 RECHARGE AREA		11 DISCHARGE AREA	
☐ YES ☐ NO	COMMENTS: Unknown	☐ YES ☐ NO	COMMENTS: UNKNOWN

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

■ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Mississippi River	☐	~½ (mi)
Grass Lake	☐	~1¼ (mi)
Diamond Creek	☐	~2 (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. ~519 (NO. OF PERSONS)	B. ~9328 (NO. OF PERSONS)	C. ~9028 (NO. OF PERSONS)

02 DISTANCE TO NEAREST POPULATION ~500 ft (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE ~875

04 DISTANCE TO NEAREST OFF-SITE BUILDING ~500 ft (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The site is located in a rural area, surrounded by several more populated villages, such as Anoka (18,000) ~1 mile east; Champlin (~10,000) ~2 miles southeast, and Ramsey (10,000) ~1 mile north. Scattered houses and businesses exist throughout the immediate vicinity of the site.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D981097108

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ■ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ■ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
~75-100 (ft)	Unknown (ft)	UNKNOWN

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
-1 (in)	2.3 (in)	0 %	NA	0 %

09 FLOOD POTENTIAL

SITE IS IN UNK YEAR FLOODPLAIN

10 NA ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. NA (mi)	B. NA (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

>.1 (mi)

ENDANGERED SPECIES: Bald Eagle

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. ~500ft (mi)	B. ~1/8 (mi)	C. NA (mi)	D. ~0.6 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

See 4-mile radius map in Appendix A.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E.E/FIT Files, Region V.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D981097108

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	4	TCL compounds to: Aquatec, Inc., S. Burlington, VT TAL analytes to: Assoc. Labs, Inc., Orange, CA	On File.
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	9	TCL compounds to: S-Cubed, San Diego, CA TAL analytes to: Northern Labs: Eng, Valparaiso, IN	On File.
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Radiation mini-alert	No readings above background.
Color monitoring tubes for cyanide	No color change.
OVA 128	1-3 ppm above background in augered holes (4' deep).

IV. PHOTOGRAPHS AND MAPS

01 TYPE ■ GROUND ☐ AERIAL

02 IN CUSTODY OF Ecology & Environment, Inc. (Name of organization or individual)

03 MAPS ■ YES ☐ NO

04 LOCATION OF MAPS Ecology & Environment, Inc., 111 W. Jackson Blvd, Chicago, IL, 60604

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

None Collected.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E/FIT Files, Region V.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D981097108

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Burlington Northern Railroad		176 E. 5th Street		St. Paul	MN	55164
NA						
NA						

PARENT COMPANY (if applicable)

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE
Burlington Northern Inc.				Seattle	WA	
NA						
NA						

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
unknown						
NA						
NA						

IV. REALTY OWNER(S) (if applicable; list most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
NA						
NA						
NA						

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E/FIT Files, Region V.
E&E/FIT Site Inspection (1988).

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D981097108

II. CURRENT OPERATOR (Provide if different from owner)				OPERATOR'S PARENT COMPANY (If applicable)			
01 NAME: Burlington Northern Railroad		02 D+B NUMBER		10 NAME: Burlington Northern Inc.		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.): 176 E. 5th Street.		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY: St. Paul	06 STATE: MN	07 ZIP CODE: 55164		14 CITY: SEATTLE	15 STATE: WA	16 ZIP CODE	
08 YEARS OF OPERATION: ~16	09 NAME OF OWNER: Burlington Northern Railroad						

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)				PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)			
01 NAME: NA		02 D+B NUMBER		10 NAME: NA		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD						
01 NAME: NA		02 D+B NUMBER		10 NAME: NA		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD						
01 NAME: NA		02 D+B NUMBER		10 NAME: NA		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD						

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E;E/FIT Files, Region V.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D981097108

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
NA	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
NA		NA	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
NA		NA	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
NA		NA	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
NA		NA	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E/FIT Files, Region V.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D981097108

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D981097108

II. PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
None Known.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E/E/FIT Files, Region V.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D981097108

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☑ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

No regulatory or enforcement actions have occurred at this site.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E/E/FIT Files, Region V.

C

APPENDIX C

U.S. EPA
IMMEDIATE REMOVAL ACTION
CHECKSHEET

Immediate Removal Action Check Sheet

		High	Moderate	Low
Fire and Explosion Hazard				
Flammable Materials	NA			
Explosives	NA			
Incompatable Chemicals	NA			
Direct Contact with Acutely Toxic Chemicals				
Site Security	#1		X	
Leaking Drums or Tanks	NA			
Open Lagoons or Pits	NA			
Materials on Surface	NA			
Proximity of Population	#2.		X	
Evidence of Casual Site Use	NA			
Contaminated Water Supply				
Exceeds 10 Day Snarl	NA			
Gross Taste or Odors	NA			
Alternate Water Available	NA			
Potential Contamination				X
Is the site abandoned, active, or inactive? active as a RR right-of-way only				

Comments:

1: Site is not completely Fenced or secured.

2: Site is located in a rural location, with urban areas surrounding it.

D

APPENDIX D

FIT SITE PHOTOGRAPHS

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Burlington Northern - Ramsey Blvd. PAGE 1 OF 10

U.S. EPA ID: MND981097108 TDD: F05-8707-017 PAN: FMN0127SA

DATE: >8-23-88

TIME: >10:55

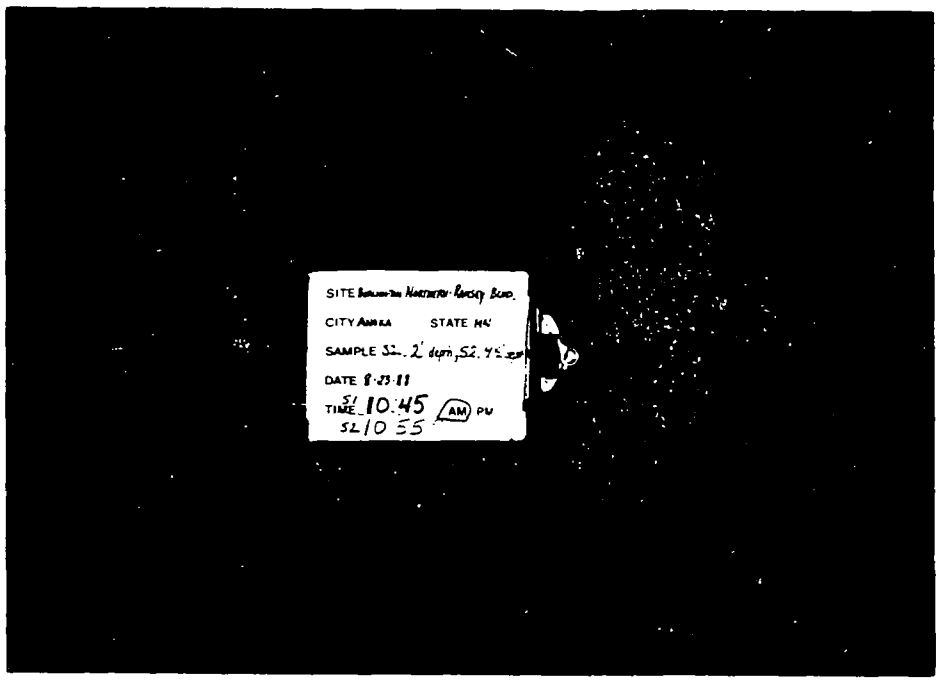
DIRECTION OF PHOTOGRAPH: >Northeast

WEATHER CONDITIONS: >Sunny, clear

>~70°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): >S1 & S2



DESCRIPTION: >Soil samples S1 and S2.

>Collected at depths of 2' and 4.5', respectively from area around Feature "B" (MPCA 1986 EM Survey).

DATE: >8-23-88

TIME: >10:55

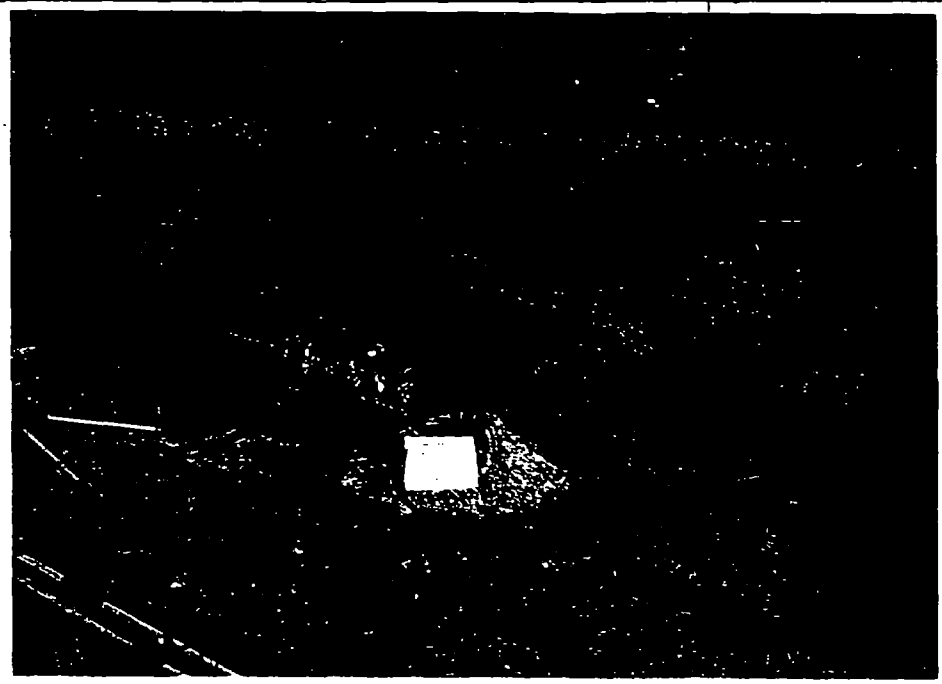
DIRECTION OF PHOTOGRAPH: >Northeast

WEATHER CONDITIONS: >Sunny, clear

>~70°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): >S1 & S2



DESCRIPTION: >Soil Samples S1 and S2.

>Perspective View. Collected at depths of 2' and 4.5', respectively, from area around Feature "B" (MPCA 1986 EM Survey).

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Burlington Northern - Ramsey Blvd. PAGE 2 OF 10

U.S. EPA ID: MND981097108 TDD: F05-8707-017 PAN: FMN0127SA

DATE: >8-23-88

TIME: >11:40

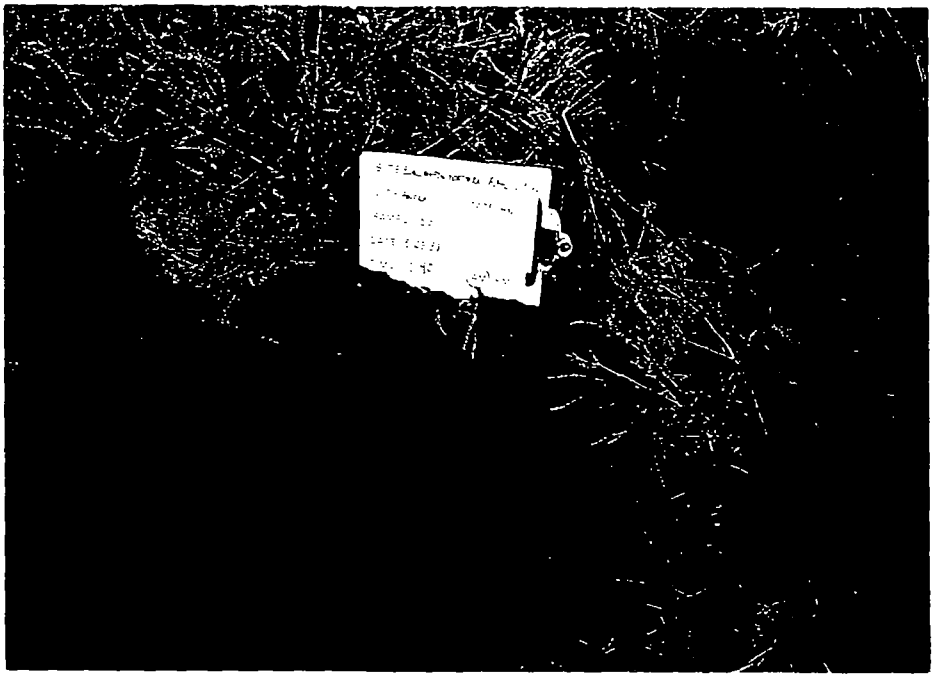
DIRECTION OF PHOTOGRAPH: > North

WEATHER CONDITIONS: >Sunny, clear

> ~ 70°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): > S3



DESCRIPTION: >Soil Sample S3.

> Collected at a depth of 2 Feet from the area of Feature "C" (MPCA 1986 EM Survey).

DATE: >8-23-88

TIME: > 11:50

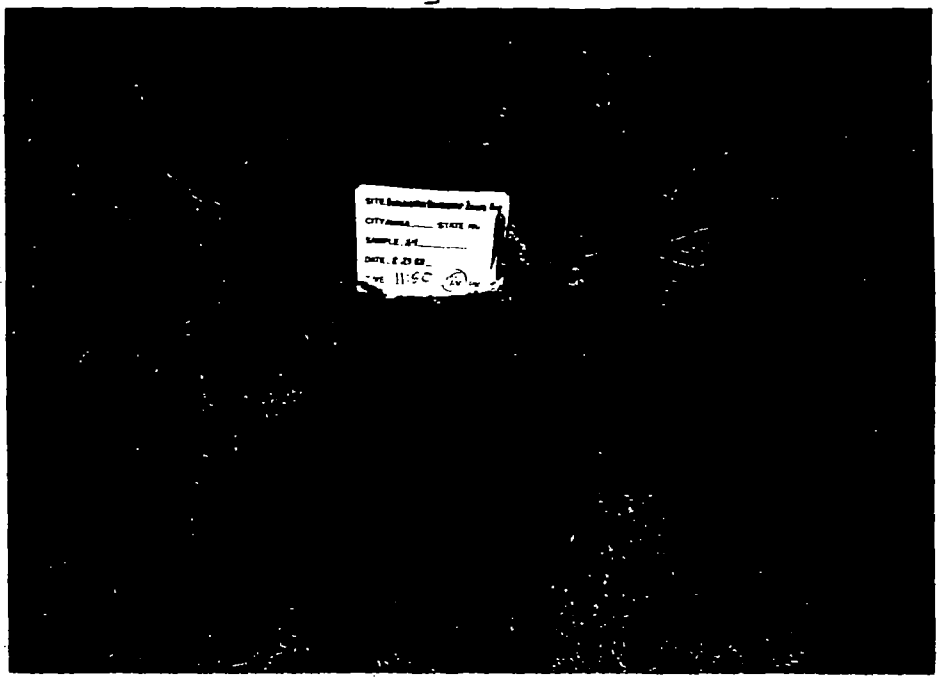
DIRECTION OF PHOTOGRAPH: > North

WEATHER CONDITIONS: >Sunny, clear

> ~ 70°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): > S4



DESCRIPTION: > Soil Sample S4.

> Collected at a depth of 1.5 Feet, 2 Feet south of soil sample S3, within the area of Feature "C" (MPCA 1986 EM Survey).

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Burlington Northern - Ramsey Blvd. PAGE 3 OF 10

U.S. EPA ID: MND981097108 TDD: F05-8707-107 PAN: FMN0127SA

DATE: > 8-23-88

TIME: > 12:15

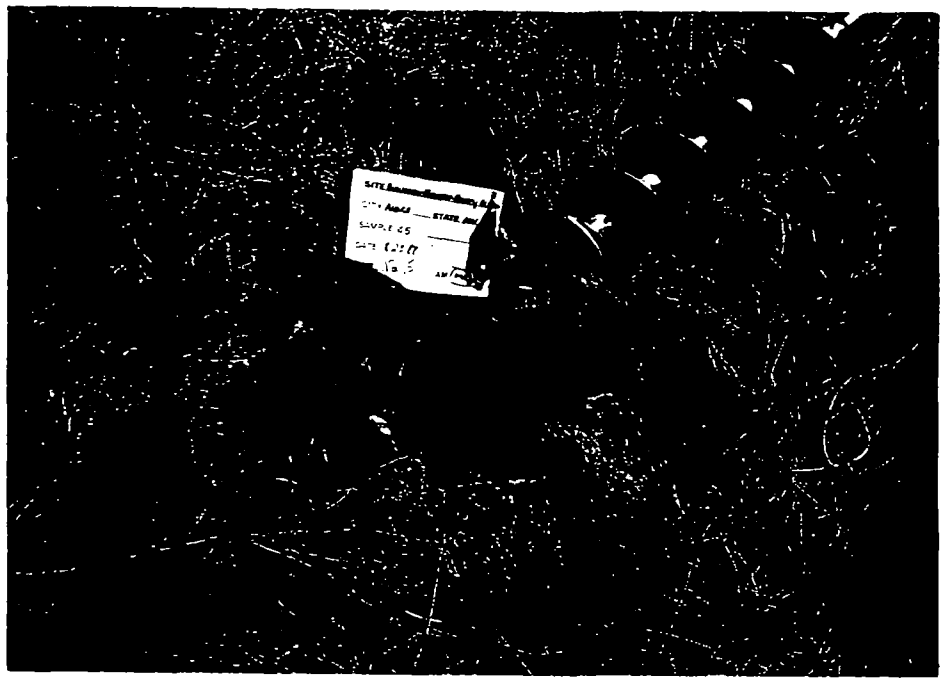
DIRECTION OF PHOTOGRAPH: > Northeast

WEATHER CONDITIONS: > Sunny, clear

> ~ 70 °F

PHOTOGRAPHED BY: > Gerard Breen

SAMPLE ID (if applicable): > S5



DESCRIPTION: > Soil Sample S5.

> Collected at a depth of 4 Feet, located between Features "A" and "C" (MPCA 1986 EM Survey).

DATE: > 8-23-88

TIME: > 12:15

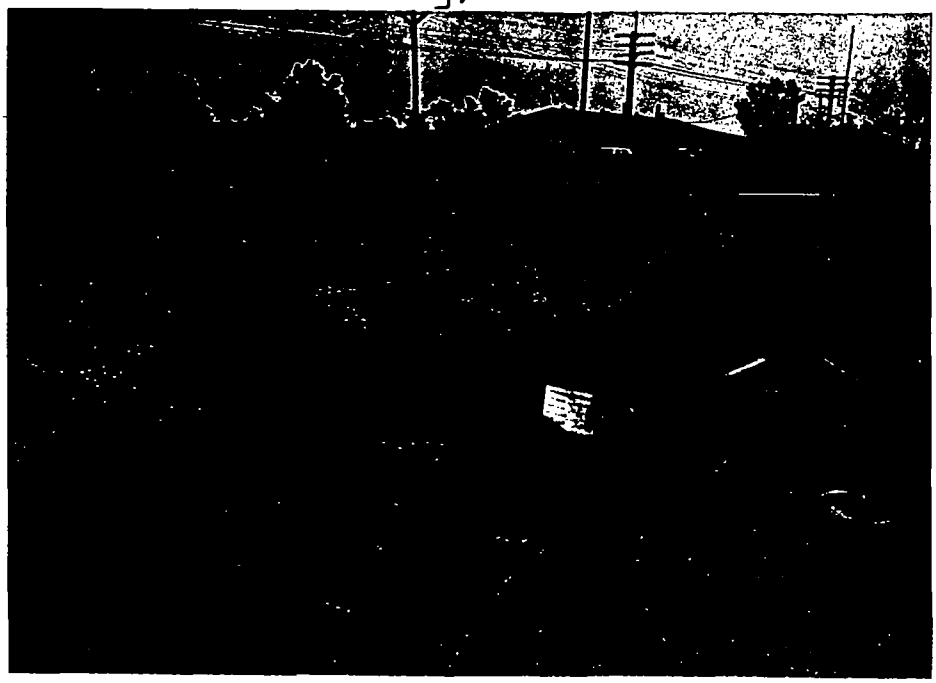
DIRECTION OF PHOTOGRAPH: > Northeast

WEATHER CONDITIONS: > Sunny, clear

> ~ 70 °F

PHOTOGRAPHED BY: > Gerard Breen

SAMPLE ID (if applicable): > S5



DESCRIPTION: > Soil Sample S5.

> Perspective view. Collected at a depth of 4 Feet, located between Features "A" and "C" (MPCA 1986 EM Survey).

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Burlington Northern - Ramsey Blvd. PAGE 4 OF 10

U.S. EPA ID: MND981097108 TDD: F05-8707-107 PAN: FMN0127SA

DATE: >8-23-88

TIME: >12:50

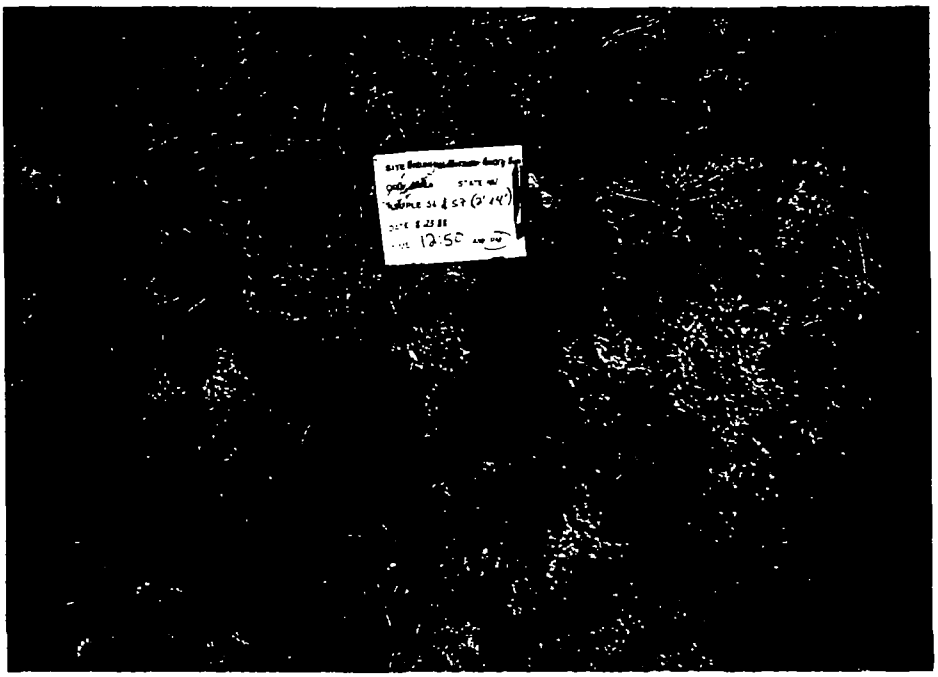
DIRECTION OF PHOTOGRAPH: >Northeast

WEATHER CONDITIONS: >Sunny, clear

>~70°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): >S6 & S7



DESCRIPTION: >Soil Samples S6 and S7.

>Collected at depths of 2 and 4 feet, respectively, from Feature "A" (MPCA 1986 EM Survey).

DATE: >8-23-88

TIME: >13:10

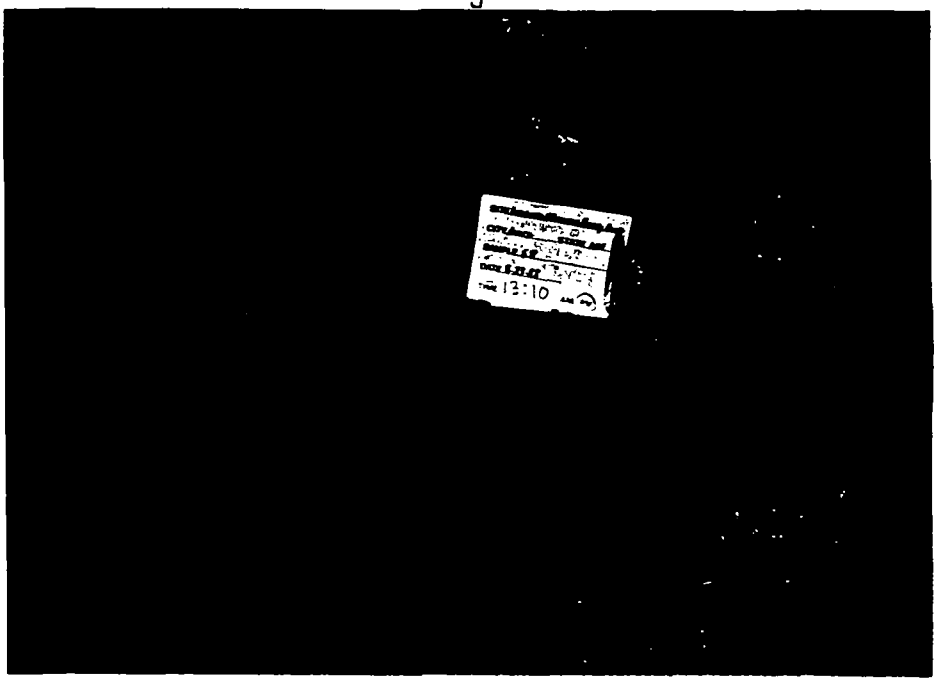
DIRECTION OF PHOTOGRAPH: >North

WEATHER CONDITIONS: >Sunny, clear

>~70°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): >S8



DESCRIPTION: >Soil Sample S8.

>Collected at a depth of 3 feet, from Feature "A" (MPCA 1986 EM Survey).

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Burlington Northern - Ramsey Blvd. PAGE 5 OF 10

U.S. EPA ID: MND981097108 TDD: F05-8707-107 PAN: FMN01275A

DATE: >8-23-88

TIME: >13:45

DIRECTION OF PHOTOGRAPH: >Northwest

WEATHER CONDITIONS: >Sunny, clear

> ~70 °F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): > S9

DESCRIPTION: >Soil Sample S9.

> Potential background soil sample collected ~0.6 miles north of site in Farmstead woodlot.

DATE: >8-23-88

TIME: >13:45

DIRECTION OF PHOTOGRAPH: >Northwest

WEATHER CONDITIONS: >Sunny, clear

> ~70 °F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): > S9

DESCRIPTION: >Soil Sample S9.

> Perspective view.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Burlington Northern - Ramsey Blvd. PAGE 6 OF 10

U.S. EPA ID: MND981097108 TDD: F05-8707-017 PAN: FMN0127SA

DATE: >8-22-88

TIME: > 12:00

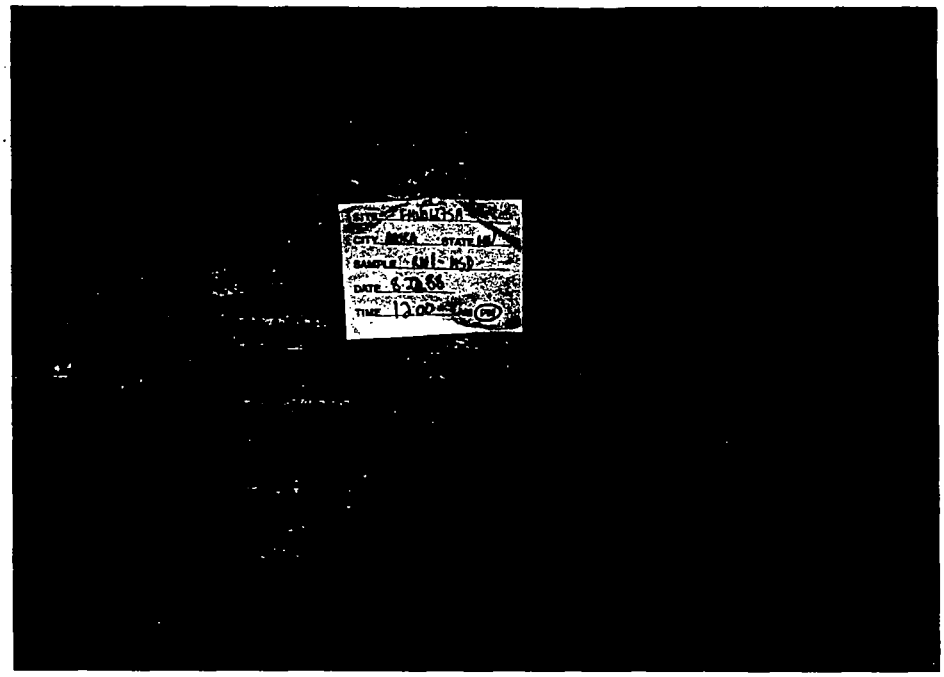
DIRECTION OF PHOTOGRAPH: > South

WEATHER CONDITIONS: > Cloudy

> 65°F

PHOTOGRAPHED BY: > Gerard Breen

SAMPLE ID (if applicable): > RW1/MSD



DESCRIPTION: > Residential Well Sample RW1 + MSD.

> Close-up view.

DATE: > 8-22-88

TIME: > 12:00

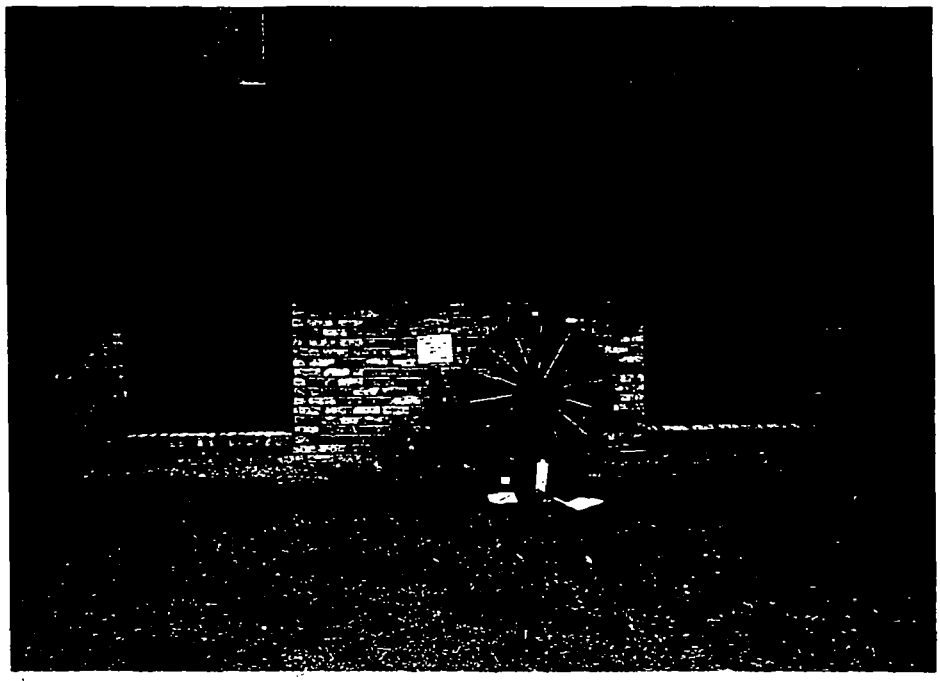
DIRECTION OF PHOTOGRAPH: > South

WEATHER CONDITIONS: > Cloudy

> 65°F

PHOTOGRAPHED BY: > Gerard Breen

SAMPLE ID (if applicable): > RW1/MSD



DESCRIPTION: > Residential Well Sample RW1 + MSD.

> Perspective view.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Burlington Northern - Ramsey Blvd. PAGE 7 OF 10

U.S. EPA ID: MND981097108 TDD: F05-8707-017 PAN: FMN01275A

DATE: >8-22-88

TIME: >12:35

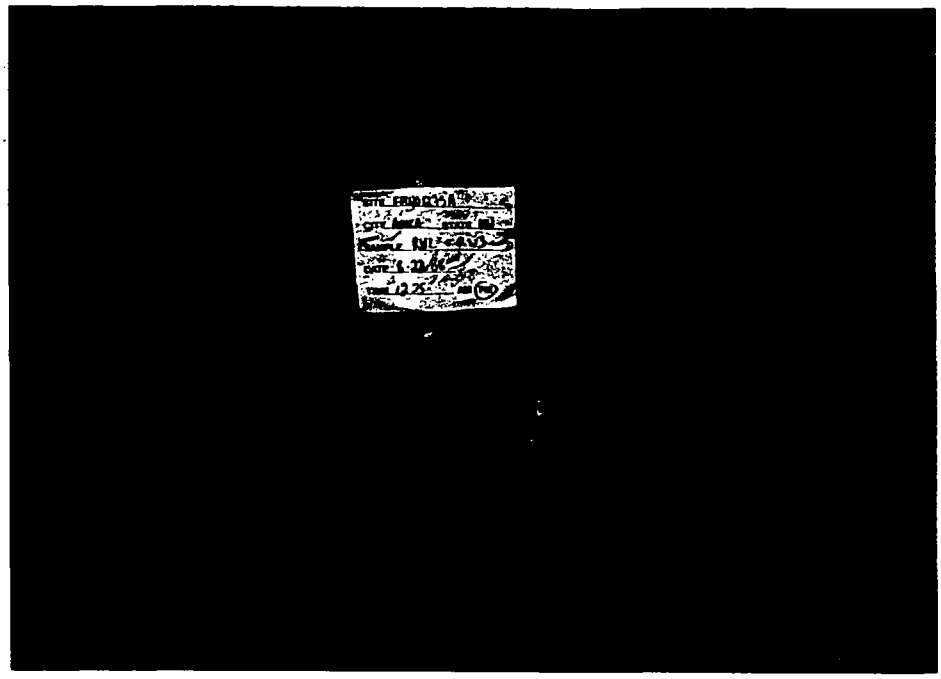
DIRECTION OF PHOTOGRAPH: > West

WEATHER CONDITIONS: > Cloudy

> 65°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): >RW2/RW3



DESCRIPTION: > Residential Well Sample RW2 + RW3.

> Close-up view.

DATE: >8-22-88

TIME: >12:35

DIRECTION OF PHOTOGRAPH: > West

WEATHER CONDITIONS: > Cloudy

> 65°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): >RW2/RW3

DESCRIPTION: > Residential Well Sample RW2 + RW3.

> Perspective view.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Burlington Northern - Ramsey Blvd. PAGE 8 OF 10

U.S. EPA ID: MND981097108 TDD: F05-8707-017 PAN: FMN0127SA

DATE: > 8-22-88

TIME: > 1315

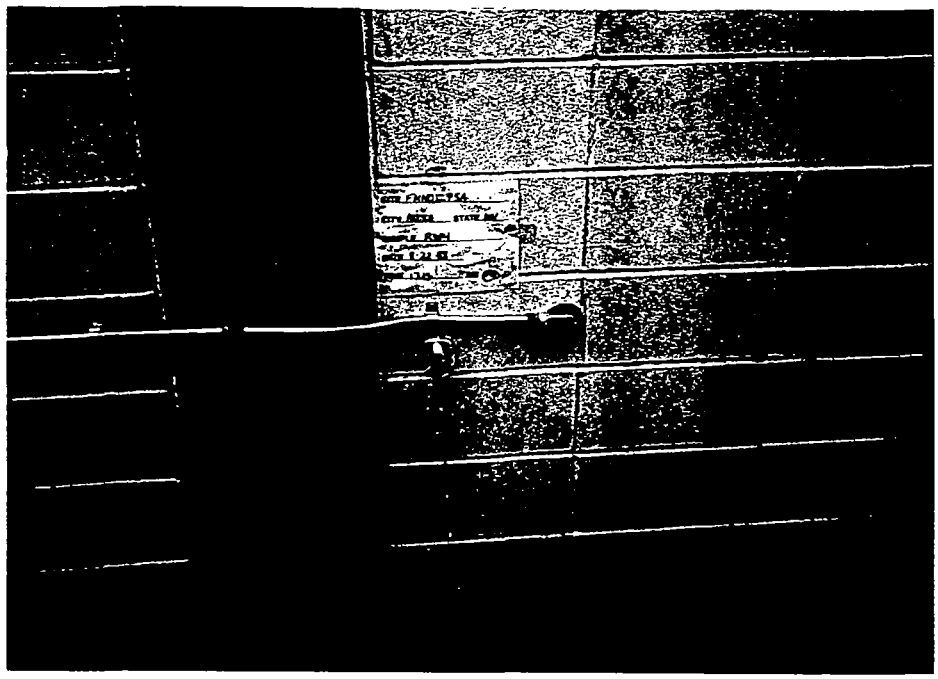
DIRECTION OF PHOTOGRAPH: > East

WEATHER CONDITIONS: > Cloudy

> 65°F

PHOTOGRAPHED BY: > Gerard Breen

SAMPLE ID (if applicable): > RW4



DESCRIPTION: > Residential Well Sample RW4.

> Close-up view.

DATE: > 8-22-88

TIME: > 1315

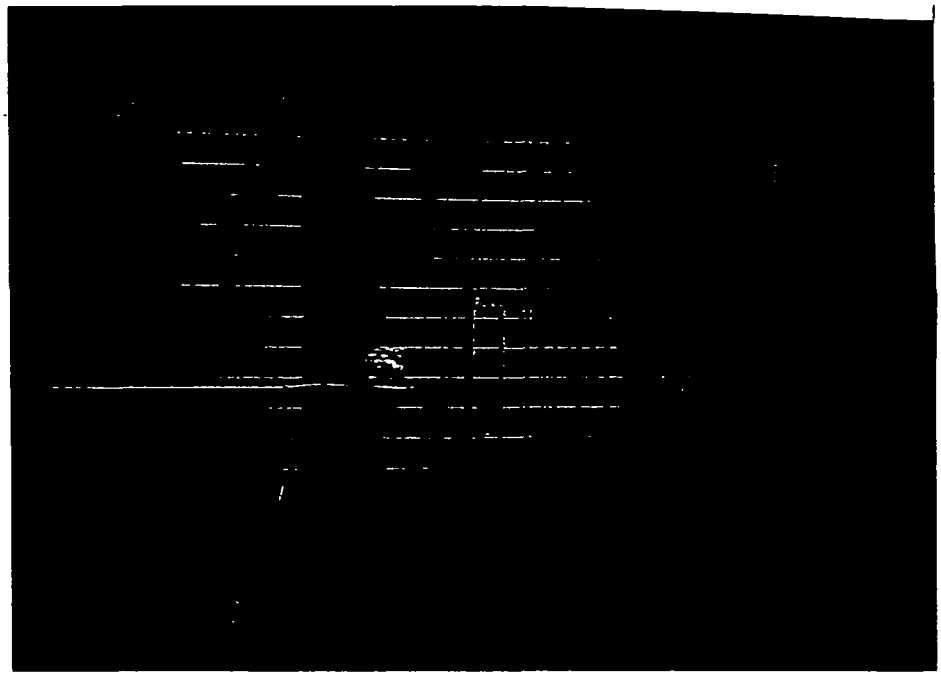
DIRECTION OF PHOTOGRAPH: > East

WEATHER CONDITIONS: > Cloudy

> 65°F

PHOTOGRAPHED BY: > Gerard Breen

SAMPLE ID (if applicable): > RW4



DESCRIPTION: > Residential Well Sample RW4.

> Perspective view.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Burlington Northern - Ramsey Blvd. PAGE 9 OF 10

U.S. EPA ID: MND981097108 TDD: F05-8707-017 PAN: FMN0127SA

DATE: >8-22-88

TIME: >14:00

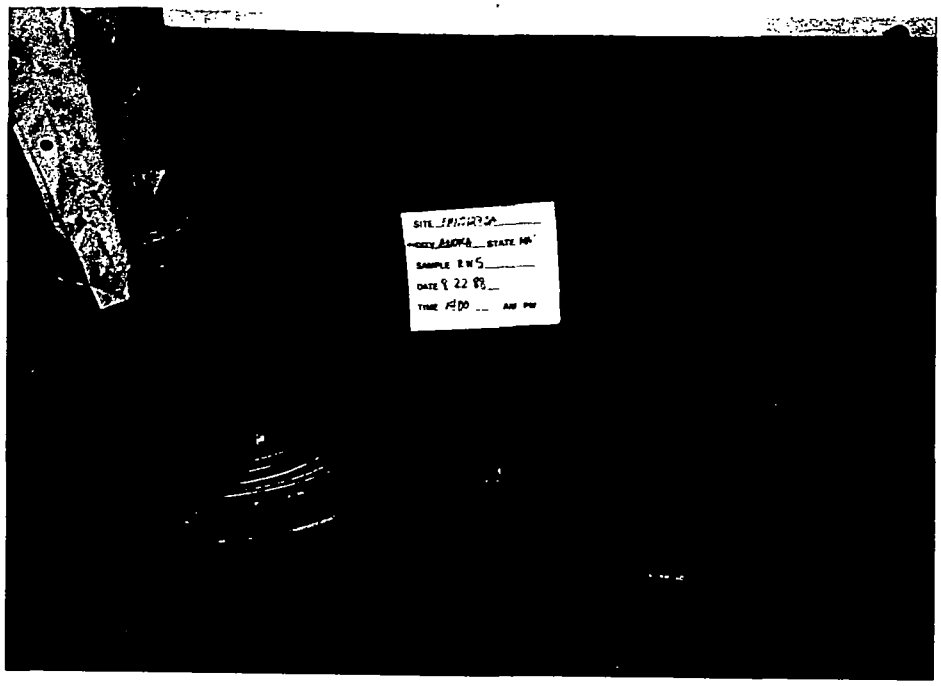
DIRECTION OF PHOTOGRAPH: >North

WEATHER CONDITIONS: >Cloudy

>65°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): >RW5



DESCRIPTION: >Residential Well Sample RW5.

>Close-up view.

DATE: >8-22-88

TIME: >14:00

DIRECTION OF PHOTOGRAPH: >North

WEATHER CONDITIONS: >Cloudy

>65°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): >RW5

DESCRIPTION: >Residential Well Sample RW5.

>Perspective view.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Burlington Northern - Ramsey Blvd. PAGE 10 OF 10

U.S. EPA ID: MND981097108 TDD: F05-8707-107 PAN: FMN01275A

DATE: >8-22-88

TIME: >11:15

DIRECTION OF PHOTOGRAPH: > West

WEATHER CONDITIONS: > Cloudy

> 65 °F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): > NA

DESCRIPTION: > View to the west looking toward the Burlington > Northern signpost and flagged sampling locations.

DATE: >8-22-88

TIME: >11:15

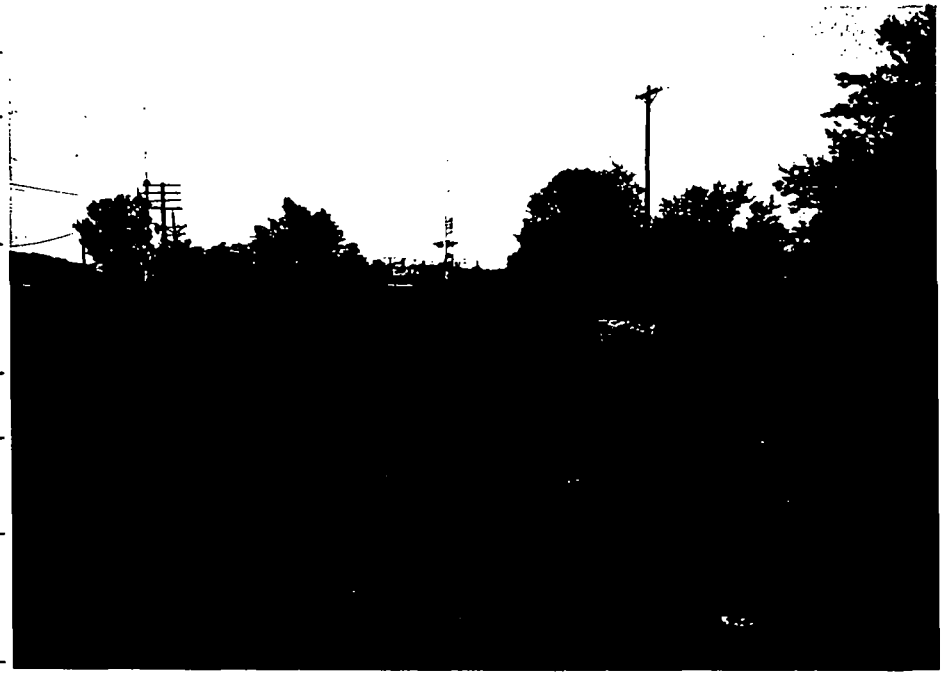
DIRECTION OF PHOTOGRAPH: > East

WEATHER CONDITIONS: > Cloudy

> 65°F

PHOTOGRAPHED BY: >Gerard Breen

SAMPLE ID (if applicable): > NA



DESCRIPTION: > View from the Burlington Northern signpost to the > east toward Ramsey Boulevard.

FRAGILE

EE-V
1112
EEE V
234
FRAGILE

FRAGILE
THIS END UP
FRAGILE
FRAGILE

SITE Burlington Northern-Ramsey Blvd.

CITY Anoka STATE MN

SAMPLE S1, 2' depth, S2, 4½' depth

DATE 8-23-88

TIME S1 10:45 AM PM

S2 10:55

SITE BURLINGTON NORTHERN - RAMSEY BLVD

CITY ANOKA STATE MN

SAMPLE S3

DATE 8-23-88

TIME 11:40 AM PM

SITE [illegible] Energy [illegible]

CITY ANOKA STATE MN

SAMPLE S4

DATE 8-25-88

TIME 11:50 AM PM

SITE [illegible]

CITY AMBRA STATE MN

SAMPLE 65

DATE 8 23 88

12:15 AM PM

SITE [illegible]

CITY [illegible] STATE NV

SAMPLE 56 & 57 (2' 19')

DATE 8 23 88

TIME 12:50 AM PM

SITE [illegible]

CITY [illegible] STATE NM

SAMPLE 58

DATE 8-23-88

TIME 13:10 AM PM

SITE [illegible]

CITY [illegible] STATE NJ

SAMPLE S9

DATE 8 23 [illegible]

TIME 13:45 AM PM

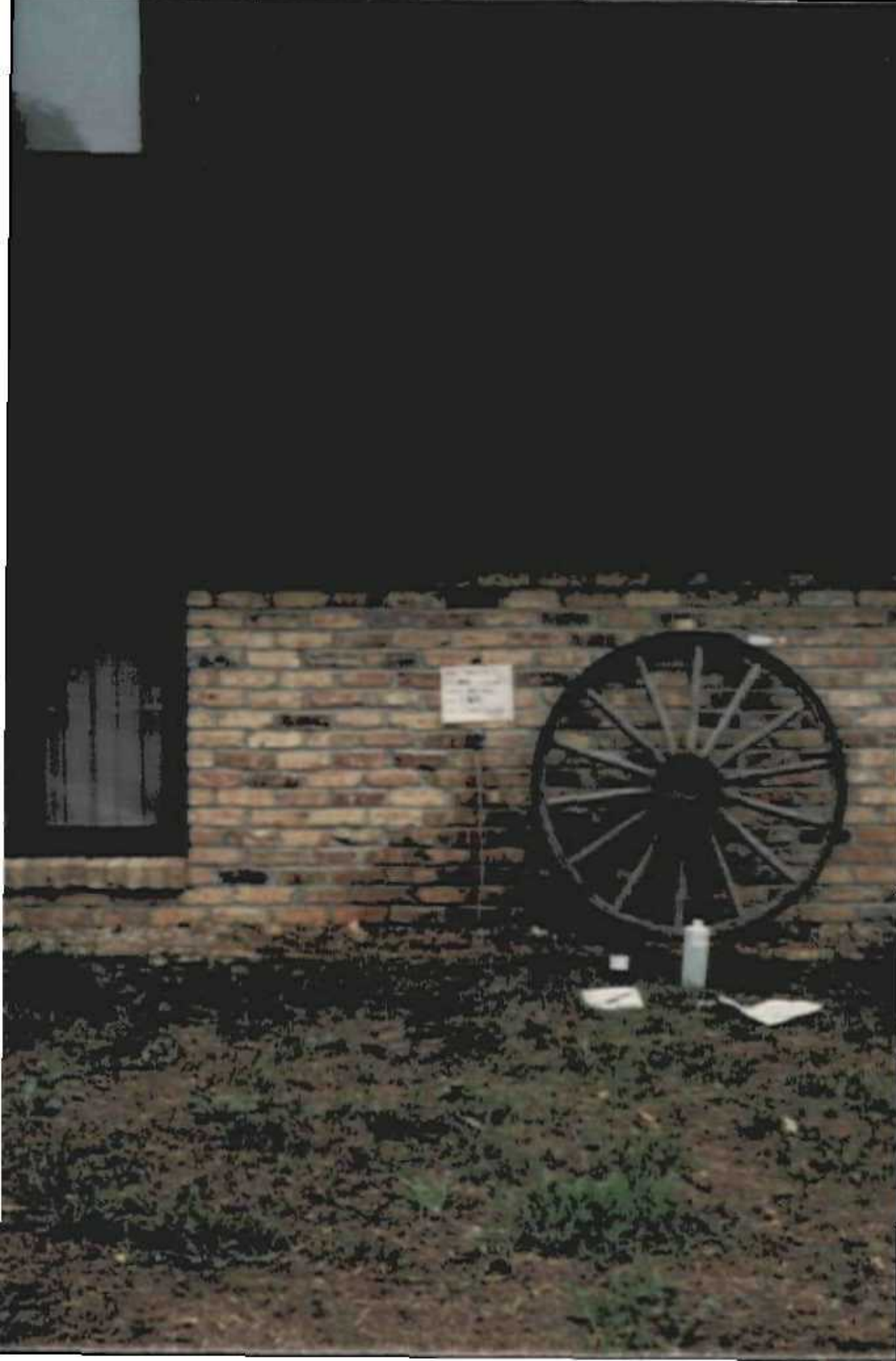
SITE FMW0275A

CITY MOKA STATE MN

SAMPLE RW1-MSD

DATE 8-22-88

TIME 12:00 AM PM



SITE FMN012.35A

CITY MOKA STATE MO

SAMPLE RW2 + RW3

DATE 8-22-86

TIME 1235 AM (PM)

PARKING
FOR
VISITORS
ONLY

SITE FMN01275A
CITY RADKA STATE MN
SAMPLE RW4
DATE 8 22 88
TIME 1315 AM PM

SITE FMN0127SA

CITY ANOKA STATE MN

SAMPLE RW5

DATE 8 22 88

TIME 1400 AM PM

APPENDIX E

CHEMICAL ANALYSIS DATA
OF
FIT-COLLECTED SAMPLES

TABLE A
CONTRACT LABORATORY PROGRAM
HAZARDOUS SUBSTANCE LIST (HSL)
VOLATILES DETECTION LIMITS

COMPOUND	CAS #	WATER		SOIL SEDIMENT SLUDGE	
Chloromethane	74-87-3	10	ug/L	10	ug/KG
Bromomethane	74-83-9	10		10	
Vinyl Chloride	75-01-4	10		10	
Chloroethane	75-00-3	10		10	
Methylene Chloride	75-09-2	5		5	
Acetone	67-64-1	10		10	
Carbon Disulfide	75-15-0	5		5	
1,1-Dichloroethene	75-35-4	5		5	
1,1-Dichloroethane	75-35-3	5		5	
trans-1,2-Dichloroethene	156-60-5	5		5	
Chloroform	67-66-3	5		5	
1-2-Dichloroethane	107-06-2	5		5	
2-Butanone (MEK)	78-93-3	10		10	
1,1,1-Trichloroethane	71-55-6	5		5	
Carbon Tetrachloride	56-23-5	5		5	
Vinyl Acetate	108-05-4	10		10	
Bromodichloromethane	75-27-4	5		5	
1,1,2,2-Tetrachloroethane	79-34-5	5		5	
1,2-Dichloropropane	78-87-5	5		5	
trans-1,3-Dichloropropene	10061-02-6	5		5	
Trichloroethene	79-01-6	5		5	
Dibromochloromethane	124-48-1	5		5	
1,1,2-Trichloroethane	79-00-5	5		5	
Benzene	71-43-2	5		5	
cis-1,3-Dichloropropene	10061-01-5	5		5	
2-Chloroethyl Vinyl Ether	110-75-8	10		10	
Bromoform	75-25-2	5		5	
2-Hexanone	591-78-6	10		10	
4-Methyl-2-pentanone	108-10-1	10		10	
Tetrachloroethene	127-18-4	5		5	
Toluene	108-88-3	5		5	
Chlorobenzene	108-90-7	5		5	
Ethyl Benzene	100-41-4	5		5	
Styrene	100-42-5	5		5	
Total Xylenes		5		5	

TABLE A (Cont.)
CONTRACT LABORATORY PROGRAM
HAZARDOUS SUBSTANCE LIST (HSL)
SEMI-VOLATILES DETECTION LIMITS

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
N-Nitrosodimethylamine	62-75-9	10 ug/L	330 ug/KG
Phenol	108-95-2	10	330
Aniline	62-53-3	10	330
bis(2-Chloroethyl) ether	111-44-4	10	330
2-Chlorophenol	95-57-8	10	330
1,3-Dichlorobenzene	541-73-1	10	330
1,4-Dichlorobenzene	106-46-7	10	330
Benzyl Alcohol	100-51-6	10	330
1,2-Dichlorobenzene	95-50-1	10	330
2-Methylphenol	95-48-7	10	330
bis(2-Chloroisopropyl) ether	39638-32-9	10	330
4-Methylphenol	106-44-5	10	330
N-Nitroso-Di-n-propylamine	621-64-7	10	330
Hexachloroethane	67-72-1	10	330
Nitrobenzene	98-95-3	10	330
Isophorone	78-59-1	10	330
2-Nitrophenol	88-75-5	10	330
2,4-Dimethylphenol	105-67-9	10	330
Benzoic Acid	65-85-0	50	1600
bis-(2-Chloroethoxy) methane	111-91-1	10	330
2,4-Dichlorophenol	120-83-2	10	330
1,2,4-Trichlorobenzene	120-82-1	10	330
Naphthalene	91-20-3	10	330
4-Chloroaniline	106-47-8	10	330
Hexachlorobutadiene	87-68-3	10	300
4-Chloro-3-methylphenol	59-50-7	10	330
2-Methylnaphthalene	91-57-6	10	330
Hexachlorocyclopentadiene	77-47-4	10	330
2,4,6-Trichlorophenol	88-06-2	10	330
2,4,5-Trichlorophenol	95-95-4	50	1600
2-Chloronaphthalene	91-58-7	10	330
2-Nitroaniline	88-74-4	50	1600
Dimethyl Phthalate	131-11-3	10	330
Acenaphtylene	208-96-8	10	330
3-Nitroaniline	99-09-2	50	1600
Acenaphthene	83-32-9	10	330
2,4-Dinitrophenol	51-28-5	50	1600
4-Nitrophenol	100-02-7	50	1600
Dibenzofuran	132-64-9	10	330
2,4-Dinitrotoluene	121-14-2	10	330
2,6-Dinitrotoluene	606-20-2	10	330
Diethylphthalate	84-66-2	10	330
4-Chlorophenyl phenylether	7005-72-3	10	330

Cont.

TABLE A (Cont.)
CONTRACT LABORATORY PROGRAM
HAZARDOUS SUBSTANCE LIST (HSL)
SEMI-VOLATILES DETECTION LIMITS

COMPOUND	CAS #	WATER	SOIL SLUDGE SEDIMENT
Fluorene	86-73-7	10 ug/L	330 ug/KG
4-Nitroaniline	100-01-6	50	1600
4,6-Dinitro-2-methylphenol	534-52-1	50	1600
N-nitrosodiphenylamine	86-30-6	10	330
4-Bromophenyl phenyl ether	101-55-3	10	330
Hexachlorobenzene	118-74-1	10	330
Pentachlorophenol	87-86-5	50	1600
Phenanthrene	85-01-8	10	330
Anthracene	120-12-7	10	330
Di-n-butyl phthalate	84-74-2	10	330
Fluoranthene	206-44-0	10	330
Benzidine	92-87-5	80	2600
Pyrene	129-00-0	10	330
Butylbenzyl phthalate	85-68-7	10	330
3,3'-Dichlorobenzidine	91-94-7	10	660
Benzo(a)anthracene	56-55-3	10	330
bis(2-ethylhexyl)phthalate	117-81-7	10	330
Chrysene	218-01-9	10	330
Di-n-octyl phthalate	117-84-0	10	330
Benzo(b)fluoranthene	205-99-2	10	330
Benzo(k)fluoranthene	207-08-9	10	330
Benzo(a)pyrene	50-32-8	10	330
Indeno(1,2,3-cd)pyrene	193-39-5	10	330
Dibenz(a,h)anthracene	53-70-3	10	330
Benzo(g,h,i)perylene	191-24-2	10	330

TABLE A (Cont.)
CONTRACT LABORATORY PROGRAM
HAZARDOUS SUBSTANCE LIST (HSL)
PESTICIDE AND PCB DETECTION LIMITS

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
alpha-BHC	319-84-6	0.05 ug/L	8 ug/KG
beta-BHC	319-85-7	0.05	8
delta-BHC	319-86-8	0.05	8
gamma-BHC (Lindane)	58-89-9	0.05	8
Heptachlor	76-44-8	0.05	8
Aldrin	309-00-2	0.05	8
Heptachlor Epoxide	1024-57-3	0.05	8
Edosulfan I	959-98-8	0.05	8
Dieldrin	60-57-1	0.10	16
4,4'-DDE	72-55-9	0.10	16
Endrin	72-20-8	0.10	16
Edosulfan II	33213-65-9	0.10	16
4,4'-DDD	72-54-8	0.10	16
Endrin Aldehyde	7421-93-4	0.10	16
Endosulfan Sulfate	1031-07-8	0.10	16
4,4'-DDT	50-29-3	0.10	16
Endrin Ketone	53494-70-5	0.10	16
Methoxychlor (Mariate)	72-43-5	0.5	80
Chlordane	57-74-9	0.5	80
Toxaphene	8001-35-2	1.0	160
AROCLOR-1016	12674-11-2	0.5	80
AROCLOR-1221	11104-28-2	0.5	80
AROCLOR-1232	11141-16-5	0.5	80
AROCLOR-1242	53469-21-9	0.5	80
AROCLOR-1248	12672-29-6	0.5	80
AROCLOR-1254	11097-69-1	1.0	160
AROCLOR-1260	11096-82-5	1.0	160

TABLE A (Cont.)
CONTRACT LABORATORY PROGRAM
HAZARDOUS SUBSTANCE LIST (HSL)
INORGANIC DETECTION LIMITS

COMPOUND	PROCEDURE	DETECTION LIMITS WATER	DETECTION LIMITS SOIL SEDIMENT SLUDGE
ALUMINUM	ICP	200 ug/L	40 mg/KG
ANTIMONY	FURNACE	60	2.4
ARSENIC	FURNACE	10	2
BARIUM	ICP	200	40
BERYLLIUM	ICP	5	1
CADMIUM	ICP	5	1
CALCIUM	ICP	5000	1000
CHROMIUM	ICP	10	2
COBALT	ICP	50	10
COPPER	ICP	25	5
IRON	ICP	100	20
LEAD	FURNACE	5	1
MAGNESIUM	ICP	5000	1000
MANGANESE	ICP	15	3
MERCURY	COLD VAPOR	0.2	0.008
NICKEL	ICP	40	8
POTASSIUM	ICP	5000	1000
SELENIUM	FURNACE	5	1
SILVER	ICP	10	2
SODIUM	ICP	5000	1000
THALLIUM	FURNACE	10	2
TIN	ICP	40	8
VANADIUM	ICP	50	10
ZINC	ICP	20	4
CYANIDE	COLOR	10	2

TABLE C
SPECIAL ANALYTICAL SERVICES DRINKING WATER
VOLATILE DETECTION LIMITS

PARAMETER	CAS #	DETECTION LIMIT IN REAGENT WATER
BENZENE	71-43-2	1.5 ug/L
BROMODICHLOROMETHANE	75-27-4	1.5
BROMOFORM	75-25-2	1.5
BROMOMETHANE	74-83-9	10
CARBON TETRACHLORIDE	56-23-5	1.5
CHLOROBENZENE	108-90-7	1.5
CHLOROETHANE	75-00-3	1.5
2-CHLOROETHYL VINYL ETHER	110-75-8	1.5
CHLOROFORM	67-66-3	1.5
CHLOROMETHANE	74-87-3	10
DIBROMOCHLOROMETHANE	124-48-1	1.5
1,1-DICHLOROETHANE	75-34-3	1.5
1,2-DICHLOROETHANE	107-06-2	1.5
1,1-DICHLOROETHENE	75-35-4	1.5
trans-1,2-DICHLOROETHENE	156-60-5	1.5
1,2-DICHLOROPROPANE	78-87-5	1.5
cis-1,3-DICHLOPROPROPENE	10061-01-5	2
trans-1,3-DICHLOROPROPENE	10061-02-6	1
ETHYL BENZENE	100-41-4	1.5
METHYLENE CHLORIDE *	75-09-2	1
1,1,2,2-TETRACHLOROETHANE	79-34-5	1.5
TETRACHLOROETHENE	127-18-4	1.5
TOLUENE *	108-88-3	1.5
1,1,1-TRICHLOROETHANE	71-55-6	1.5
1,1,2-TRICHLOROETHANE	79-00-5	1.5
TRICHLOROETHENE	79-01-6	1.5
VINYL CHLORIDE	75-01-4	10
ACROLEIN	107-02-8	100
ACETONE *	67-64-1	75
ACRYLONITRILE	107-13-1	50
CARBON DISULFIDE	75-15-0	3
2-BUTANONE	78-93-3	(50)
VINYL ACETATE	108-05-4	15
4-METHYL-2-PENTANONE	108-10-1	(3)
2-HEXANONE	519-78-6	(50)
STYRENE	100-42-5	1
m-XYLENE	108-38-3	2
o-XYLENE **	95-47-6	
p-XYLENE **	106-42-3	2.5 **

* Common Laboratory Solvents.
Blank Limit is 5x Method Detection Limit.
( ) Values in parentheses are estimates.
Actual values are being determined at this time
** The o-Xylene and p-xylene are reported as a total of the two.

TABLE C (Cont.)
SAS DRINKING WATER
SEMI-VOLATILES DETECTION LIMITS

PARAMETER	CAS #	DETECTION LIMIT	BLANK LIMIT
ANILINE	62-53-3	1.5 ug/L	3 ug/L
BIS(2-CHLOROETHYL)ETHER	111-44-4	1.5	3
PHENOL	108-95-2	2	4
2-CHLOROPHENOL	95-57-8	2	4
1,3-DICHLOROBENZENE	541-73-1	2	4
1,4-DICHLOROBENZENE	106-46-7	2	4
1,2-DICHLOROBENZENE	95-50-1	2.5	5
BENZYL ALCOHOL	100-51-6	2	4
BIS(2-CHLOROISOPROPYL) ETHER	39638-32-9	2.5	5
2-METHYLPHENOL	95-48-7	1	2
HEXACHLOROETHANE	67-72-1	2	4
N-NITROSODIPROPYLAMINE	621-64-7	1.5	3
NITROBENZENE	98-95-3	2.5	5
4-METHYLPHENOL	106-44-5	1	2
ISOPHORONE	78-59-1	2.5	5
2-NITROPHENOL	88-75-5	2	4
2,4-DIMETHYLPHENOL	105-67-9	2	4
BIS(2-CHLOROETHOXY)METHANE	111-91-1	2.5	5
2,4-DICHLOROPHENOL	120-83-2	2	4
1,2,4-TRICHLOROBENZENE	120-82-1	2	4
NAPHTHALENE	91-20-3	2	4
4-CHLOROANILINE	106-47-8	2	4
HEXACHLOROBUTADIENE	87-68-3	2.5	5
BENZOIC ACID	65-85-0	(30)	(60)
2-METHYLNAPTHALENE	91-57-6	2	4
4-CHLORO-3-METHYLPHENOL	59-50-7	1.5	3
HEXACHLOROCYCLOPENTADIENE	77-47-4	2	4
2,4,6-TRICHLOROPHENOL	88-06-2	1.5	3
2,4,5-TRICHLOROPHENOL	95-95-4	1.5	3
2-CHLORONAPTHALENE	91-58-7	1.5	3
ACENAPTHYLENE	208-96-8	1.5	3
DIMETHYL PHTHALATE	131-11-3	1.5	3
2,6-DINITROTOLUENE	606-20-2	1	2
ACENAPHTHENE	83-32-9	1.5	3
3-NITROANILINE	99-09-2	2.5	5
DIBENZOFURAN	132-64-9	1	2
2,4-DINITROPHENOL	51-28-5	(15)	(30)
2,4-DINITROTOLUENE	121-14-2	1	2

Cont.

TABLE C (Cont.)
SAS DRINKING WATER
SEMI-VOLATILE DETECTION LIMITS

PARAMETER	CAS #	DETECTION LIMIT	BLANK LIMIT
FLUORENE	86-73-7	1 ug/L	2 ug/L
4-NITROPHENOL	100-02-7	1.5	3
4-CHLOROPHENYL PHENYL ETHER	7005-72-3	1	2
DIETHYL PHTHALATE	84-66-2	1	2
4,6-DINITRO-2-METHYLPHENOL	534-52-1	(15)	(30)
1,2-DIPHENYLHYDRAZINE	122-66-7	1	2
N-NITROSODIPHENYLAMINE *	86-30-6		
DIPHENYLAMINE *	122-39-4	1.5	3
4-NITROANILINE	100-01-6	3	6
4-BROMOPHENYL PHENYL ETHER	101-55-3	1.5	3
HEXACHLOROBENZENE	118-74-1	1.5	3
PENTACHLOROPHENOL	87-86-5	2	4
PHENANTHRENE	85-01-8	1	2
ANTHRACENE	120-12-7	2.5	5
DI-n-BUTYL PHTHALATE	84-74-2	2	4
FLUORANTHENE	206-44-0	1.5	3
PYRENE	129-00-0	1.5	3
BUTYL BENZYL PHTHALATE	85-68-7	3.5	7
CHRYSENE **	218-01-9		
BENZO(a)ANTHRACENE **	56-55-3	1.5	3
BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	1	2
DI-n-OCTYL PHTHALATE	117-84-0	1.5	3
BENZO(b)FLUORANTHENE ***	205-99-2		
BENZO(k)FLUORANTHENE ***	207-08-9	1.5	3
BENZO(a)PYRENE	50-32-8	2	4
INDENO(1,2,3-cd)PYRENE	193-39-5	3.5	7
DIBENZO(a,h)ANTHRACENE	53-70-3	2.5	5
BENZO(g,h,i)PERYLENE	191-24-2	4	8
2-NITROANILINE	88-74-4	1	2

* These two parameters are reported as a total.
** These two parameters are reported as a total.
*** These two parameters are reported as a total.

( ) Values in Paranentheses are estimates.of theALUES ARE BEING
The actual values are being determined at this time.

NOTE: Limits are for reagent water.

TABLE C (Cont.)
SAS DRINKING WATER
PESTICIDE AND PCB DETECTION LIMITS

PARAMETER	CAS #	DETECTION LIMIT
ALDRIN	309-00-2	0.005 ug/L
alpha BHC	319-84-6	(0.010)
beta BHC	319-85-7	(0.005)
delta BHC	319-86-8	(0.005)
gama BHC(LINDANE)	58-89-9	0.005
CHLORDANE	57-74-9	(0.020)
4,4'-DDD	72-54-8	(0.020)
4,4'-DDE	72-55-9	(0.005)
4,4'-DDT	50-29-3	0.020
DIELDRIN	60-57-1	0.010
ENDOSULFAN I	959-98-8	0.010
ENDOSULFAN II	33213-65-9	0.010
ENDOSULFAN SULFATE	1031-07-8	(0.10)
ENDRIN	72-20-8	0.010
ENDRIN ALDEHYDE	7421-93-4	(0.030)
ENDRIN KETONE	53494-70-5	(0.030)
HEPTACHLOR	76-44-8	0.030
HEPTACHLOR EPOXIDE	1024-57-3	0.005
4,4'-METHOXYCHLOR	72-43-5	0.020
TOXAPHENE	8001-35-2	(0.25)
PCB-1242	53469-21-9	(0.10)
PCB-1248	12672-29-6	(0.10)
PCB-1254	11097-69-1	(0.10)
PCB-1260	11096-82-5	(0.10)

( ) Values in parentheses are estimates.
Actual values are being determined at this time.

NOTE: Limits are for reagent water.

TABLE C (Cont.)
SAS DRINKING WATER
INORGANIC DETECTION LIMITS

JANUARY 1986

PARAMETER	PROCEDURE	DETECTION LIMITS	RANGE	UNITS
ALUMINUM	ICP	80	80 TO 1,000,000	ug/L
ANTIMONY	FURNACE	2	2 TO 30	ug/L
ARSENIC	FURNACE	2	2 TO 30	ug/L
BARIUM	ICP	6	6 TO 20,000	ug/L
BERYLLIUM	ICP	1	1 TO 20,000	ug/L
CADMIUM	ICP	10	10 TO 20,000	ug/L
CADMIUM	FURNACE	0.2	0.2 TO 2	ug/L
CALCIUM	ICP	0.5	0.5 TO 1,000	mg/L
CHROMIUM	ICP	8	8 TO 20,000	ug/L
COBALT	ICP	6	6 TO 20,000	ug/L
COPPER	ICP	6	6 TO 20,000	ug/L
IRON	ICP	80	80 TO 1,000,000	ug/L
LEAD	FURNACE	2	2 TO 30	ug/L
LEAD	ICP	70	70 TO 20,000	ug/L
LITHIUM	ICP	10	10 TO 20,000	ug/L
MAGNESIUM	ICP	0.1	0.1 TO 200	mg/L
MANGANESE	ICP	5	5 TO 20,000	ug/L
MERCURY	COLD VAPOR	0.1	0.1 TO 2	ug/L
MOLYBDENUM	ICP	150	15 TO 20,000	ug/L
NICKEL	ICP	15	15 TO 20,000	ug/L
POTASSIUM	ICP	2	2 TO 1,000	mg/L
SELENIUM	FURNACE	2	2 TO 30	ug/L
SILVER	ICP	6	6 TO 10,000	ug/L
SODIUM	ICP	1	1 TO 30	mg/L
STRONTIUM	ICP	10	10 TO 20,000	ug/L
THALLIUM	FURNACE	2	2 TO 30	ug/L
TITANIUM	ICP	25	25 TO 20,000	ug/L
TIN	ICP	40	40 TO 20,000	ug/L
VANADIUM	ICP	5	5 TO 20,000	ug/L
YTTRIUM	ICP	5	5 TO 20,000	ug/L
ZINC	ICP	40	40 TO 1,000,000	ug/L
CYANIDE	AA	8	8 TO 200	ug/L

NOTE: THE ABOVE LIST MAY OR MAY NOT CONTAIN COMPOUNDS THAT ARE ROUTINELY ANALYZED AT CRL FOR LOW LEVEL DETECTION LIMITS FOR DRINKING WATER.

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

CRL Receipt Date 9/9/88 FIT Receipt Date 9/28/88 Review Completed 9/29/88

TO: D. Brown

FROM: Mary Gzyra

SUBJECT: Burlington Ho-Romney

PAN: MN01275A (1 hour charged for review) Case # 10274

Sample Description

Organics (VOA, ABN, Pest/PCB)		Inorganics (Metals, Cyanide)	
#	Low Soil	# 9	Low Soil
	Low Water		Low Water
	Drinking Water		Drinking Water
	Other		Other

Project Data Status _____ Completed!!

✓ Incomplete, awaiting DW. org + inorg; soil org.

FIT Data Review Findings:

As, Cd, Cr, Pb

Check Data Sheets for Transcription Errors

✓ Compounds were detected in sample(s); see enclosed sheet.

Book No. 8 Page No. 20d Date Sampled 8/23

0759:2

recycled paper

* Physical state of pure material, not necessarily the physical state of the waste.

** For Section II of 2070-13.

*** For Section III of 2070-13.

Abbreviations for waste characteristics:

A - Toxic
B - Corrosive
C - Radiative
D - Persistent
E - Soluble
F - Infectious
G - Flammable
H - Ignitable
I - Highly volatile
J - Explosive
K - Reactive
L - Incompatible
M - Not applicable

SI Memo & Category Abbreviations:

A - Aromatic
CLA - Common lab artifact
CSC - Common soil constituent
HA - Halogenated - aromatic
HH - Halogenated - hydrocarbon
HM - Heavy metal
HYD - Hydrocarbon
IOC - Other inorganic compound
K - Ketone
M - Metal (density < 5x water density)
NA - Nitrogen - aromatic
NH - Nitrogen - hydrocarbon
OCC - Other organic compound
P - Phenol
PAH - Polyaromatic hydrocarbon
PCB - Polychlorinated biphenyl
PEST - Pesticide
PH - Phthalate
SH - Sulfur - hydrocarbon
SOL - Solvent

0916:1

REGION V

DATE: 9.22.88

9/28

SUBJECT: Review of Region V CLP Data
Received for Review on 9-9-88

FROM: Curtis Ross, Director (5SCRL)
Central Regional Laboratory

TO: Data User: Sit

We have reviewed the data for the following case(s).

SITE NAME: Burlington Northern Ramsey Blvd SMO Case No. 10274

EPA Data Set No. SF 5510 No. of Samples: 9 D.U./Activity Numbers Y905/C72184

CRL No. 88FB28576 to 88FB28584

SMO Traffic No. MCX 370, 756-757, 769, MEP 579-81, MEP 774-15

CLP Laboratory: NLE Hrs. Required for Review: 10

Following are our findings:

The laboratory's portion of this case included 9 low level soil samples (QC # 118) analyzed for Total Metals and Total Cyanide.

Soil Samples (QC #118)

ICP Analysis

The matrix spike recovery for Sb (38.5 %) indicates a low bias, therefore samples MEX 370, 757 and MEP 579 are estimated (J). All other Sb results are estimated (UJ) due to elevated detection limits.

The As duplicate (40.4%) is flagged (*) by the laboratory; due to possible Al interference all ICP As data are estimated (J).

The Cr (33.9%), Fe (22.9%) and Mn (22.0%) duplicates are flagged (*) by the laboratory but these values do not exceed the ±35% duplicate limit

LJK

( ) Data are acceptable for use.
(✓) Data are acceptable for use with qualifications referenced above. See Data Qualifier sheets and Calibration Outlier forms for flags and additional comments.
( ) Data are preliminary - pending verification by Contractor Laboratory. See Case Summary above.
( ) Data are unacceptable.

cc: Carla Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEX 370

Date: 08-Sep-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Northern Labs & Eng., Inc. CASE NO.: 10274

SOW NO. 785 Lab Receipt Date: 8-24-88

LAB SAMPLE ID. NO.: MEX 370 QC. REPORT NO. 118

Concentration: Low Matrix: Soil Units: mg/kg, dry weight

1. Aluminum	5080 P	13. Magnesium	1090 P
2. Antimony	[2.2] P N	14. Manganese	43 P *
3. Arsenic	40 F S	15. Mercury	0.10 U
4. Barium	28 P	16. Nickel	8.7 P
5. Beryllium	0.1 U P	17. Potassium	[253] P
6. Cadmium	1.5 P	18. Selenium	1.0 U F
7. Calcium	1320 P	19. Silver	0.2 U P
8. Chromium	8.7 P *	20. Sodium	[73] P
9. Cobalt	[4.0] P	21. Thallium	19 U F
10. Copper	4.2 P	22. Vanadium	11 P
11. Iron	5100 P *	23. Zinc	15 P
12. Lead	8.4 P	Percent Solids (%)	95.7
Cyanide	3.3 U N		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Brown, fine texture.
Thallium diluted 10x.

Lab Manager John P. Pavenger

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEX 756

Date: 08-Sep-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Northern Labs & Eng., Inc. CASE NO.: 10274

SOW NO. 785 Lab Receipt Date: 8-24-88

LAB SAMPLE ID. NO.: MEX 756 QC. REPORT NO. 118

Concentration: Low Matrix: Soil Units: mg/kg, dry weight

1. Aluminum	3330 P	13. Magnesium	748 P
2. Antimony	2.2 U P N	14. Manganese	28 P *
3. Arsenic	3.7 F S	15. Mercury	0.1 U
4. Barium	[21] P	16. Nickel	7.6 P
5. Beryllium	0.1 U P	17. Potassium	[162] P
6. Cadmium	1.0 P	18. Selenium	0.8 U F
7. Calcium	1010 P	19. Silver	0.3 U P
8. Chromium	6.0 P *	20. Sodium	[66] P
9. Cobalt	[4.1] P	21. Thallium	17 U F
10. Copper	[2.4] P	22. Vanadium	9.0 P
11. Iron	3880 P *	23. Zinc	9.6 P
12. Lead	5.0 P	Percent Solids (%)	95.6
Cyanide	5.8 U N		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Brown, fine texture.
Thallium diluted 10x.

Lab Manager John P. Pwanger

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEX 757

Date: 08-Sep-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Northern Labs & Eng., Inc. CASE NO.: 10274

SOW NO. 785 Lab Receipt Date: 8-24-88

LAB SAMPLE ID. NO.: MEX 757 QC. REPORT NO. 118

Concentration: Low Matrix: Soil Units: mg/kg, dry weight

1. Aluminum	4530 P	13. Magnesium	891 P
2. Antimony	[3.1] P N	14. Manganese	376 P *
3. Arsenic	2.0 U F	15. Mercury	0.1 U
4. Barium	40 P	16. Nickel	8.6 P
5. Beryllium	0.2 U P	17. Potassium	[493] P
6. Cadmium	1.5 P	18. Selenium	1.0 U F
7. Calcium	1350 P	19. Silver	0.3 U P
8. Chromium	5.9 P *	20. Sodium	[75] P
9. Cobalt	[5.1] P	21. Thallium	20 U F
10. Copper	[3.5] P	22. Vanadium	10 P
11. Iron	6070 P *	23. Zinc	17 P
12. Lead	8.2 P	Percent Solids (%)	94.7
Cyanide	4.9 U N		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Black, fine texture.
Thallium diluted 10x.

Lab Manager John P. Pomeroy

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEX 769

Date: 08-Sep-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Northern Labs & Eng., Inc. CASE NO.: 10274

SOW NO. 785 Lab Receipt Date: 8-24-88

LAB SAMPLE ID. NO.: MEX 769 QC. REPORT NO. 118

Concentration: Low Matrix: Soil Units: mg/kg, dry weight

1. Aluminum	3640 P	13. Magnesium	967 P
2. Antimony	2.1 U P N	14. Manganese	36 P *
3. Arsenic	6.7 F	15. Mercury	0.1 U
4. Barium	[21] P	16. Nickel	10 P
5. Beryllium	0.1 U P	17. Potassium	[199] P
6. Cadmium	1.1 P	18. Selenium	0.8 U F
7. Calcium	1130 P	19. Silver	0.2 U P
8. Chromium	6.9 P *	20. Sodium	[67] P
9. Cobalt	[5.2] P	21. Thallium	1.6 U F
10. Copper	4.1 P	22. Vanadium	12 P
11. Iron	4780 P *	23. Zinc	13 P
12. Lead	5.7 P	Percent Solids (%)	96.2
Cyanide	7.2 U N		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Brown, fine texture.

Lab Manager John P. Dowinger

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEP 579

Date: 20-Sep-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Northern Labs & Eng., Inc. CASE NO.: 10274

SOW NO. 785 Lab Receipt Date: 8-24-88

LAB SAMPLE ID. NO.: MEP 579 QC. REPORT NO. 118

Concentration: Low Matrix: Soil Units: mg/kg, dry weight

1. Aluminum	4710 P	13. Magnesium	1080 P
2. Antimony	[4.7] P N	14. Manganese	114 P *
3. Arsenic	430 P *	15. Mercury	0.1 U
4. Barium	61 P	16. Nickel	6.7 P
5. Beryllium	0.2 U P	17. Potassium	[453] P
6. Cadmium	1.8 P	18. Selenium	1.0 U F
7. Calcium	2320 P	19. Silver	0.3 U P
8. Chromium	9.0 P *	20. Sodium	[85] P
9. Cobalt	[3.5] P	21. Thallium	1.9 U F
10. Copper	14 P	22. Vanadium	9.5 P
11. Iron	6010 P *	23. Zinc	32 P
12. Lead	28 P	Percent Solids (%)	90.3
Cyanide	8.0 U N		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Black, fine texture.

Lab Manager John P. Duenger

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEP 580

Date: 08-Sep-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Northern Labs & Eng., Inc. CASE NO.: 10274

SOW NO. 785 Lab Receipt Date: 8-24-88

LAB SAMPLE ID. NO.: MEP 580 QC. REPORT NO. 118

Concentration: Low Matrix: Soil Units: mg/kg, dry weight

1. Aluminum	3540 P	13. Magnesium	1060 P
2. Antimony	2.5 U P N	14. Manganese	51 P *
3. Arsenic	100 P *	15. Mercury	0.1 U
4. Barium	[24] P	16. Nickel	8.5 P
5. Beryllium	0.2 U P	17. Potassium	[249] P
6. Cadmium	1.3 P	18. Selenium	1.0 U F
7. Calcium	1300 P	19. Silver	0.3 U P
8. Chromium	6.5 P *	20. Sodium	[72] P
9. Cobalt	[5.1] P	21. Thallium	1.9 U F
10. Copper	4.4 P	22. Vanadium	8.5 P
11. Iron	4630 P *	23. Zinc	14 P
12. Lead	8.1 P	Percent Solids (%)	94.6
Cyanide	5.4 U N		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Brown, fine texture.

Lab Manager John P. Pavenger

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEP 581

Date: 08-Sep-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Northern Labs & Eng., Inc. CASE NO.: 10274

SOW NO. 785 Lab Receipt Date: 8-24-88

LAB SAMPLE ID. NO.: MEP 581 QC. REPORT NO. 118

Concentration: Low Matrix: Soil Units: mg/kg, dry weight

1. Aluminum	4910 P	13. Magnesium	1030 P
2. Antimony	2.4 U P N	14. Manganese	53 P *
3. Arsenic	109 P *	15. Mercury	0.1 U
4. Barium	30 P	16. Nickel	11 P
5. Beryllium	0.1 U P	17. Potassium	[358] P
6. Cadmium	1.1 P	18. Selenium	0.9 U F
7. Calcium	1600 P	19. Silver	0.3 U P
8. Chromium	7.9 P *	20. Sodium	[80] P
9. Cobalt	[5.4] P	21. Thallium	1.9 U F
10. Copper	5.7 P	22. Vanadium	13 P
11. Iron	4990 P *	23. Zinc	19 P
12. Lead	11 P	Percent Solids (%)	95.3
Cyanide	10 U N		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Black, fine texture.

Lab Manager John P. Pavenger

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEQ 774

Date: 08-Sep-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Northern Labs & Eng., Inc. CASE NO.: 10274

SOW NO. 785 Lab Receipt Date: 8-24-88

LAB SAMPLE ID. NO.: MEQ 774 QC. REPORT NO. 118

Concentration: Low Matrix: Soil Units: mg/kg, dry weight

1. Aluminum	3540 P	13. Magnesium	1070 P
2. Antimony	2.4 U P N	14. Manganese	69 P *
3. Arsenic	48 P *	15. Mercury	0.1 U
4. Barium	28 P	16. Nickel	6.8 P
5. Beryllium	0.1 U P	17. Potassium	[271] P
6. Cadmium	1.3 P	18. Selenium	0.8 U F
7. Calcium	1330 P	19. Silver	0.3 U P
8. Chromium	7.6 P *	20. Sodium	[76] P
9. Cobalt	[4.2] P	21. Thallium	1.6 U F
10. Copper	5.0 P	22. Vanadium	7.6 P
11. Iron	4300 P *	23. Zinc	17 P
12. Lead	9.3 P	Percent Solids (%)	95.1
Cyanide	4.7 U N		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Brown, fine texture.

Lab Manager John P. Pavenger

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEQ 775

Date: 08-Sep-88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: Northern Labs & Eng., Inc. CASE NO.: 10274

SOW NO. 785 Lab Receipt Date: 8-24-88

LAB SAMPLE ID. NO.: MEQ 775 QC. REPORT NO. 118

Concentration: Low Matrix: Soil Units: mg/kg, dry weight

1. Aluminum	2770 P	13. Magnesium	906 P
2. Antimony	2.2 U P N	14. Manganese	70 P *
3. Arsenic	21 P *	15. Mercury	0.1 U
4. Barium	[22] P	16. Nickel	5.7 P
5. Beryllium	0.1 U P	17. Potassium	[205] P
6. Cadmium	1.0 P	18. Selenium	0.9 U F
7. Calcium	1110 P	19. Silver	0.3 U P
8. Chromium	6.5 P *	20. Sodium	[72] P
9. Cobalt	[4.4] P	21. Thallium	1.8 U F
10. Copper	3.3 P	22. Vanadium	7.0 P
11. Iron	3590 P *	23. Zinc	12 P
12. Lead	6.8 P	Percent Solids (%)	95.7
Cyanide	5.6 U N		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Brown, fine texture.

Lab Manager John P. Pavenger

QC EXCEPTION SUMMARY REPORT

CASE # 10274
DATA SET # SF 5570
LAB Q.C.# 118
DATE: 9/20/88

SITE Burlington Northern Ramsey Blvd.
LAB NLE
REVIEWED BY Linda Korobka

MATRIX: _____
CONC. : _____
MATRIX: SOIL
CONC. : LOW

WATER SAMPLE SPK. _____
WATER SAMPLE DUP. _____
SOIL SAMPLE SPK. _____
SOIL SAMPLE DUP. _____

	OVERALL CASE QC									MATRIX SPECIFIC QC						SAMPLE SPECIFIC QC		FIELD QC			REGIONAL QC			OTHER/ COMMENTS
	Holding Time	Cal Blanks	Ind Calver	Contin Calver	Prep Blk AQ	Prep Blk SOL	ICS %R	LCS % AQ	LCS % SOL	Sol Dup RPD	Sol Spk %R	AQ Dup RPD	AQ Spk %R	Ser Dilu AQ	Ser Dilu SOL	GFAA Dup	GFAA Spike	Blank	Dup RPD	Spike %R	Blind Blank	Blind Spike %R	Split Sample RPD	
Aluminum																								
Antimony											✓													
Arsenic												✓					✓							
Barium																								
Beryllium																								
Cadmium																								
Calcium																								
Chromium												✓												
Cobalt																								
Copper																								
Iron												✓												
Lead																								
Magnesium																								
Manganese												✓												
Mercury																								
Nickel																								
Potassium																								
Selenium																								
Silver																								
Sodium																								
Thallium																								
Tin																								
Vanadium																								
Zinc																								
Cyanide											✓													

As ran part F, part ICP

Region _____

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 10274

SITE Burlington Northern Ramsey Blvd.

LABORATORY NLE

NO. OF SAMPLES/ MATRIX 9/ LOW LEVEL SOIL

SDG# MEX 370

REVIEWER (IF NOT ESD) _____

SOW# 785

REVIEWER'S NAME Linda KOROBKA

DPO: ACTION _____ FYI _____

COMPLETION DATE 9/20/88

DATA ASSESSMENT SUMMARY

		ICP	AA	Hg	CYANIDE
1.	HOLDING TIMES	O	O	O	O
2.	CALIBRATIONS	O	O	O	O
3.	BLANKS	O	O	O	O
4.	ICS	O			
5.	LCS	O	O		
6.	DUPLICATE ANALYSIS	O	O	O	O
7.	MATRIX SPIKE	O	O	O	M
8.	MSA		O		
9.	SERIAL DILUTION	O			
10.	SAMPLE VERIFICATION	O	O	O	O
11.	OTHER QC	O	O	O	O
12.	OVERALL ASSESSMENT	O	O	O	O

O = Data had no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS: _____

AREAS OF CONCERN: _____

NOTABLE PERFORMANCE: _____

Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date 9/6/88

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

Lab Name Northern Labs & Engineering Inc. Case No. 10274

SOW No. 785 Q.C. Report No. 118

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MEX 370	same	MEQ 775	same
MEX 756	same		
MEX 757	same		
MEX 769	same		
MEP 579	same		
MEP 580	same		
MEP 581	same		
MEQ 774	same		

RECEIVED
SEP 06 1988
U.S. EPA CENTRAL REGIONAL LAB

Comments:

ICP interelement and background corrections applied? Yes ✓ No ___.

If yes, corrections applied before ✓ or after ___ generation of raw data.

Footnotes:

NR - Not required by contract at this time

Form I:

Value - If the result is a value greater than or equal to the instrument detecion limit but less than the contract-required detection limit, report the value in brackets (i.e., [10]). Indicate the analytical method used with P (for ICP), A (for Flame AA) or F (for Furnace AA).

U - Indicates element was analyzed for but not detected. Report with the instrument detection limit value (e.g., 10U).

E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.

S - Indicates value determined by Method of Standard Addition.

N - Indicates spike sample recovery is not within control limits.

* - Indicates duplicate analysis is not within control limits.

\+ - Indicates the correlation coefficient for method of standard addition is less than 0.995

M - Indicates duplicate injection results exceeded control limits.

Indicate method used: P for ICP; A for Flame AA and F for Furnace.

Form III A

Q.C. Report No. 118

BLANKS

LAB NAME: Northern Labs & Eng., Inc. CASE NO. 10274

DATE: 07-Sep-88 UNITS ug/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank Matrix water 1	Matrix soil 2
Metals:							
1. Aluminum	19 U	19 U	19 U	19 U			[5.74]
2. Antimony	17 U	17 U	17 U	17 U			3.4 U
3. Arsenic	48 U	48 U	48 U	48 U			9.6 U
4. Barium	1 U	1 U	1 U	1 U			0.2 U
5. Beryllium	1 U	1 U	1 U	1 U			0.2 U
6. Cadmium	2 U	2 U	2 U	2 U			0.4 U
7. Calcium	[10.8]	[14.6]	[16.3]	[39.8]			1.6 U
8. Chromium	6 U	6 U	6 U	6 U			1.2 U
9. Cobalt	3 U	3 U	3 U	3 U			0.6 U
10. Copper	[3.2]	3 U	3 U	[3.2]			0.6 U
11. Iron	5 U	[9.6]	5 U	[6.2]			1 U
12. Lead	16 U	16 U	16 U	16 U			3.2 U
13. Magnesium	21 U	21 U	21 U	[23.5]			4.2 U
14. Manganese	1 U	1 U	1 U	1 U			0.2 U
15. Mercury							
16. Nickel	5 U	5 U	5 U	5 U			1 U
17. Potassium	93 U	93 U	93 U	93 U			[28]
17. Selenium							
19. Silver	2 U	2 U	2 U	2 U			0.4 U
20. Sodium	15 U	15 U	15 U	15 U			[3.94]
21. Thallium							
22. Vanadium	3 U	3 U	3 U	3 U			0.6 U
23. Zinc	1 U	[2.6]	1 U	[1.0]			0.2 U
Other							
Cyanide							

1 Reporting Units: aqueous, ug/L; solid mg/kg

Q. C. Report No. 118

BLANKS

LAB NAME Northern Labs

DATE 9/6/88

CASE NO. 10274

UNITS ug/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank Matrix: solid 1	Matrix: 2
Metals:							
1. Aluminum							
2. Antimony							
3. Arsenic	2.5u	2.5u	2.5u	2.5u	2.5u	0.50u	
4. Barium							
5. Beryllium							
6. Cadmium							
7. Calcium							
8. Chromium							
9. Cobalt							
10. Copper							
11. Iron							
12. Lead							
13. Magnesium							
14. Manganese							
15. Mercury	0.2u	0.2u	0.2u	0.2u		0.1u	
16. Nickel							
17. Potassium							
18. Selenium	2.9u	2.9u	2.9u	2.9u	2.9u	0.58u	
19. Silver							
20. Sodium							
21. Thallium	4.4u	4.4u	4.4u			0.88u	
22. Vanadium							
23. Zinc							
Other:							
Cyanide	10u	10u	10u			1u	

[1] Reporting Units: aqueous, ug/L; solid mg/kg

Q. C. Report No. 110

BLANKS

LAB NAME Northern Labs

DATE 9/6/88

CASE NO. 10274

UNITS ug/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank Matrix: 1	Matrix: 2
Metals:							
1. Aluminum							
2. Antimony							
3. Arsenic		2.5 u					
4. Barium							
5. Beryllium							
6. Cadmium							
7. Calcium							
8. Chromium							
9. Cobalt							
10. Copper							
11. Iron							
12. Lead							
13. Magnesium							
14. Manganese							
15. Mercury							
16. Nickel							
17. Potassium							
18. Selenium		2.9 u	2.9 u	2.9 u			
19. Silver							
20. Sodium							
21. Thallium	4.4 u	4.4 u	4.4 u				
22. Vanadium							
23. Zinc							
Other:							
Cyanide							

[1] Reporting Units: aqueous, ug/L; solid mg/kg

Q. C. Report No. 110

BLANKS

LAB NAME Northern Labs

DATE 9/6/88

CASE NO. 10274

UNITS ug/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank Matrix: 1	Matrix: 2
Metals:							
1. Aluminum							
2. Antimony							
3. Arsenic	2.5u	2.5u	2.5u				
4. Barium							
5. Beryllium							
6. Cadmium							
7. Calcium							
8. Chromium							
9. Cobalt							
10. Copper							
11. Iron							
12. Lead							
13. Magnesium							
14. Manganese							
15. Mercury							
16. Nickel							
17. Potassium							
18. Selenium							
19. Silver							
20. Sodium							
21. Thallium	4.4u	4.4u					
22. Vanadium							
23. Zinc							
Other:							
Cyanide							

[1] Reporting Units: aqueous, ug/L; solid mg/kg

Q. C. Report No. 118

SPIKE SAMPLE RECOVERY

LAB NAME Northern Labs

DATE 9/6/88

CASE NO. 10274

EPA Sample No. MEX 370

Lab Sample ID No. Same

Units mg/kg, dry weight

Matrix Soil

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]	
Metals:						
1. Aluminum	75-125	4532.62	5077.31	NR	NR	
2. Antimony	-	28.96	[2.25]	69.41	38.5	N
3. Arsenic	-	63.48 F	39.69 F	6.22	382.3	
4. Barium	-	298.20	27.55	277.65	97.5	
5. Beryllium	-	7.23	0.13 u	6.94	104.2	
6. Cadmium	-	8.55	1.50	6.94	101.6	
7. Calcium	-	1318.56	1319.8	NR	NR	
8. Chromium	-	36.77	8.70	27.76	101.1	
9. Cobalt	-	74.12	[3.96]	69.41	101.1	
10. Copper	-	44.06	4.15	34.71	115.0	
11. Iron	-	4663.12	5103.98	NR	NR	
12. Lead	-	82.18	8.40	69.41	106.3	
13. Magnesium	-	892.09	1092.06	NR	NR	
14. Manganese	-	109.01	43.24	69.41	94.7	
15. Mercury	-	0.38	0.10 u	0.37	102.7	
16. Nickel	-	77.03	8.66	69.41	98.5	
17. Potassium	-	[282.79]	[252.79]	NR	NR	
18. Selenium	-	1.57	0.97 u	1.56	101.0	
19. Silver	-	5.62	0.25 u	6.94	81.0	
20. Sodium	-	[119.22]	[72.58]	NR	NR	
21. Thallium	-	7.07	19.4 u	7.78	90.9	
22. Vanadium	-	81.06	11.04	69.41	100.9	
23. Zinc	-	86.04	14.93	69.41	102.5	
Other:						
Cyanide	-	16.71	3.26 u	23.09	72.4	N

[1] %R = [(SSR - SR)/SA] x 100

"N" - out of control

"NR" - Not required

Comments:

FORM D

Q. C. Report No. 118

SPIKE SAMPLE RECOVERY

LAB NAME Northern Labs

DATE 9/6/88

CASE NO. 10274

EPA Sample No. MEX 370

Lab Sample ID No. Same

Units mg/kg, dry weight

Matrix Soil

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	75-125				
2. Antimony	"				
3. Arsenic	"	139.52 P	68.14 P	69.41 P	102.8
4. Barium	"				
5. Beryllium	"				
6. Cadmium	"				
7. Calcium	"				
8. Chromium	"				
9. Cobalt	"				
10. Copper	"				
11. Iron	"				
12. Lead	"				
13. Magnesium	"				
14. Manganese	"				
15. Mercury	"				
16. Nickel	"				
17. Potassium	"				
18. Selenium	"				
19. Silver	"				
20. Sodium	"				
21. Thallium	"				
22. Vanadium	"				
23. Zinc	"				
Other:					
Cyanide	"				

[1] %R = [(SSR - SR)/SA] x 100

"N" - out of control

"NR" - Not required

Comments:

Form VI A

Q. C. Report No. 118

DUPLICATES

LAB NAME Northern Labs & Engineering, Inc.

DATE 9/6/88

CASE NO. 10274

EPA Sample No. MEX 370

Lab Sample ID No. Same

Units mg/kg, dry weight

Matrix soil

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]	
Metals:					
1. Aluminum		5077.31	4168.52	19.7	
2. Antimony		[2.25]	2.38 u	NC	
3. Arsenic		39.69 F	45.24 F	13.1	
4. Barium		27.55	[26.88]	NC	
5. Beryllium		0.13 u	0.14 u	NC	
6. Cadmium	0.64	1.50	1.19	22.9	
7. Calcium	635.14	1319.8	1076.7	20.3	
8. Chromium	1.27	8.70	6.18	33.9	*
9. Cobalt		[3.96]	[3.21]	NC	
10. Copper	3.18	4.15	3.87	7.1	
11. Iron		5103.98	4056.38	22.9	*
12. Lead	2.03	8.40	7.95	5.5	
13. Magnesium	635.14	1092.06	774.0	34.1	
14. Manganese		43.24	34.68	22.0	*
15. Mercury		0.10 u	0.09 u	NC	
16. Nickel	5.08	8.66	6.99	21.3	
17. Potassium		[252.79]	[223.56]	NC	
18. Selenium		0.97 u	0.88 u	NC	
19. Silver		0.25 u	0.28 u	NC	
20. Sodium		[72.58]	[71.72]	NC	
21. Thallium		19.4 u	17.6 u	NC	
22. Vanadium	6.35	11.04	8.93	21.1	
23. Zinc		14.93	13.19	12.4	
Other:					
Cyanide		3.26 u	3.97 u	NC	

* Out of Control

[1] To be added at a later date.

[2] RPD = [|S - D|/((S + D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL

Form VI B

Q. C. Report No. 118

DUPLICATES

LAB NAME Northern Labs & Engineering, Inc.

DATE 9/6/88

CASE NO. 10274

EPA Sample No. MEX 370

Lab Sample ID No. Same

Units mg/kg, dry weight

Matrix Soil

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]	
Metals:					
1. Aluminum					
2. Antimony					
3. Arsenic		68.14 P	45.25 P	40.4	*
4. Barium					
5. Beryllium					
6. Cadmium					
7. Calcium					
8. Chromium					
9. Cobalt					
10. Copper					
11. Iron					
12. Lead					
13. Magnesium					
14. Manganese					
15. Mercury					
16. Nickel					
17. Potassium					
18. Selenium					
19. Silver					
20. Sodium					
21. Thallium					
22. Vanadium					
23. Zinc					
Other:					
Cyanide					

* Out of Control

[1] To be added at a later date.

[2] RPD = [|S - D|/((S + D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL.

Form VII A

Q.C. Report No. 118

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME: Northern Labs CASE NO. 10274 DATE: 07-Sep-88

LCS NO. SP-0830-1
SF-0829-1,CN-0831
SH-0902-1

Compound	Required Detection Limits (CRDL)-ug/L	Instrum. Detection Limits (IDL)-ug/L ICP ID# J/A 9000	Instrum. Detection Limits (IDL)-ug/L Furnace AA-975 PE 5100	Lab Control Sample ug/L True	Lab Control Sample ug/L Found	Lab Control Sample ug/L %R
Metals:						
1. Aluminum	200	19		2090	2021	96.7%
2. Antimony	60	17		1010	992.4	98.3%
3. Arsenic	10	48	2.5	23.5	25.6	108.9%
4. Barium	200	1		2010	1910	95.0%
5. Beryllium	5	1		501	455	90.8%
6. Cadmium	5	2		492	481	97.8%
7. Calcium	5000	8		50200	49850	99.3%
8. Chromium	10	6		503	494.2	98.3%
9. Cobalt	50	3		498	484.9	97.4%
10. Copper	25	3		520	511.6	98.4%
11. Iron	100	5		2081	1904	91.5%
12. Lead	5	16	1.4	4960	4976	100.3%
13. Magnesium	5000	21		25700	25060	97.5%
14. Manganese	15	1		504	477.2	94.7%
15. Mercury	0.2		0.2	5.2	4.343	83.5%
16. Nickel	40	5		485	474.3	97.8%
17. Potassium	5000	93		50200	53490	106.6%
17. Selenium	5	88	2.9	52	48.7	93.7%
19. Silver	10	2		484	487.9	100.8%
20. Sodium	5000	15		51500	48240	93.7%
21. Thallium	10	260	4.4	48.65	49.76	102.3%
22. Vanadium	50	3		505	505.3	100.1%
23. Zinc	20	1		2920	2905	99.5%
Other						
Cyanide	10	NR	NR	500	502	100.4%

NR - Not required

Form VII B

Q.C. Report No. 118

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME Northern Labs CASE NO. 10274 DATE 9/7/88

LCS NO. SP-0830-1

Compound	Required Detection Limits (CRDL)-ug/l	Instrument Detection Limits (IDL)-ug/l ICP/AA ID# JTA 9000	Instrument Detection Limits (IDL)-ug/l Furnace ID#	Lab Control Sample (ug/L) mg/kg (circle one) True	Found	%R
Metals:						
1. Aluminum	200					
2. Antimony	60					
3. Arsenic	10			5.000	4.766	95.3
4. Barium	200					
5. Beryllium	5					
6. Cadmium	5					
7. Calcium	5000					
8. Chromium	10					
9. Cobalt	50					
10. Copper	25					
11. Iron	100					
12. Lead	5					
13. Magnesium	5000					
14. Manganese	15					
15. Mercury	0.2					
16. Nickel	40					
17. Potassium	5000					
18. Selenium	5					
19. Silver	10					
20. Sodium	5000					
21. Thallium	10					
22. Vanadium	50					
23. Zinc	20					
Other:						
Cyanide	10	NR	NR			

NR - Not required

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

CRL Receipt Date 9/8/88 FIT Receipt Date 9/22/88 Review Completed 9/29/88

TO: D. Breen
FROM: Mary Gzyra
SUBJECT: Burlington No - Ransey
PAN: MN0127SA (1 hour charged for review) Case # 10274/3846

Sample Description

Organics (VOA, ABN, Pest/PCB)		Inorganics (Metals, Cyanide)	
#	Low Soil	#	Low Soil
	Low Water		Low Water
	Drinking Water	6	Drinking Water
	Other		Other

Project Data Status _____ Completed!!

✓ Incomplete, awaiting D.W. + soil org.

FIT Data Review Findings:

As, Cd, + Ag were detected below CRL, except for Ag - @ MEX 789.
@ MEX 789 is estimated "J" until calib. data is rec'd from lab.
Ob detected in samples + field blank

Check Data Sheets for Transcription Errors

✓ Compounds were detected in sample(s); see enclosed sheet.

Book No. 8 Page No. 202 Date Sampled 8/22

0759:2

* Physical state of pure material, not necessarily the physical state of the waste.

** For Section II of 2070-13.

*** For Section III of 2070-13.

Abbreviations for waste characteristics:

A - Toxic
B - Corrosive
C - Radiative
D - Persistent
E - Soluble
F - Infectious
G - Flammable
H - Ignitable
I - Highly volatile
J - Explosive
K - Reactive
L - Incompatible
M - Not applicable

SI Memo & Category Abbreviations:

A - Aromatic
CLA - Common lab artifact
CSC - Common soil constituent
HA - Halogenated - aromatic
HH - Halogenated - hydrocarbon
HM - Heavy metal
HYD - Hydrocarbon
IOC - Other inorganic compound
K - Ketone
M - Metal (density < 5x water density)
NA - Nitrogen - aromatic
NH - Nitrogen - hydrocarbon
OCC - Other organic compound
P - Phenol
PAH - Polyaromatic hydrocarbon
PCB - Polychlorinated biphenyl
PEST - Pesticide
PH - Phthalate
SH - Sulfur - hydrocarbon
SOL - Solvent

0916:1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

9/23

DATE: 9.22.88

SUBJECT: Review of Region V CLP Data Received for Review on 9-8-88

FROM: Curtis Ross, Director (5SCRL) Central Regional Laboratory

TO: Data User: Dit

We have reviewed the data for the following case(s).

SITE NAME: Burlington Northern - Ramsey/Blue SMO Case No. 10274/38846E

EPA Data Set No. SF-5510 No. of Samples: 6 D.U./Activity Numbers 4905/C72184

CRL No. 88FB28572 to 88FB28R10

SMO Traffic No. MEX 786-790, METOSS.

CLP Laboratory: Associated Laboratories Hrs. Required for Review: 4.5

Following are our findings:

The laboratory's portion of case 10274/SAS 38846E (QC # 99) contained 6 low level water samples analyzed for total metals and total cyanide.

ICP Analysis: Sample MEX 789 was run separately by ICP. No calibration were included. All ICP data for MEX 789 are estimated (J) until the lab submits calibration data. Data for Ca and Fe in the preparation blank were corrected by the reviewer on form III. Ca and Fe are qualified in the section on field blanks.

GFAA Analysis: All GFAA data are acceptable.

Other Qualifiers: Samples MEX 787 and 788 are field duplicates and all results have good correlation. Sample METOSS is a field blank which was found to contain the following: Fe (55 µg/l), Ca (402 µg/l), Hg (0.3 µg/l), Na (631 µg/l) and Pb (1.2 µg/l).

(Next Page)

D Ruse

( ) Data are acceptable for use.
( ) Data are acceptable for use with qualifications referenced above. See Data Qualifier sheets and Calibration Outlier forms for flags and additional comments.
(X) Data are preliminary - pending verification by Contractor Laboratory. See Case Summary above.
( ) Data are unacceptable.

cc: Carla Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

DATA QUALIFIERS

Contractor: _____

Case 10274 SAS 3846E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

Ca and Fe results in samples MEX 787 and 788 are estimated(J) due to contamination. All Na and Hg data are acceptable. Pb in samples MEX 786, 787 and 790 are estimated(T) due to contamination.

The duplicate and matrix spikes for CN were performed on the field blank. The CN analyses were performed 15 days after sample collection which exceeds the 14 day holding time. All CN data are estimated (UJ).

Reviewed by: Duane Kuse

Phone:

Date: 9/21/88

FORM I 10274 5 6

U.S. EPA Contract Laboratory Program
Sample Management Office
P,O, Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.

MEX786

Date 09/02/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ASSOCIATED LABORATORIES

CASE NO. 10274/7846

SOW NO. 785

Lab Receipt Date 08/24/88

LAB SAMPLE ID. NO. F52681-1

QC REPORT NO. 99

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L

1.	Aluminum	40U		P	13.	Magnesium	21500		P
2.	Antimony	.60U	(S)	F	14.	Manganese	245		P
3.	Arsenic	[2.3]	(S)	F	15.	Mercury	0.20 U		CV
4.	Barium	72		P	16.	Nickel	19U		P
5.	Beryllium	2.3U		P	17.	Potassium	[1270]		P
6.	Cadmium	.10U	(S)	F	18.	Selenium	.40U	(S)	F
7.	Calcium	67800		P	19.	Silver	[4.8]		P
8.	Chromium	5.2U		P	20.	Sodium	4160		P
9.	Cobalt	8.3U		P	21.	Thallium	1.8U	(S)	F
10.	Copper	8.7U		P	22.	Vanadium	6.5U		P
11.	Iron	937		P	23.	Zinc	4.7U		P
12.	Lead	[.80]	(S)	F		Percent Solids (%)	NA		

Cyanide 10 U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

CLEAN WATER

Lab Manager Ed Behare

by TMC

FORM I

U.S. EPA Contract Laboratory Program
Sample Management Office
P,O, Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.

MEX787

10274 5 6

Date 09/02/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ASSOCIATED LABORATORIES

CASE NO. 10274 /38466

SOW NO. 785

Lab Receipt Date 08/24/88

LAB SAMPLE ID. NO. F52681-2

QC REPORT NO. 99

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L

1.	Aluminum	40U		P	13.	Magnesium	[74]		P
2.	Antimony	.60U	(S)	F	14.	Manganese	2.1U		P
3.	Arsenic	1.1U	(S)	F	15.	Mercury	0.20 U		CV
4.	Barium	.90U		P	16.	Nickel	19U		P
5.	Beryllium	2.3U		P	17.	Potassium	323U		P
6.	Cadmium	[.20]	(S)	F	18.	Selenium	.40U	(S)	F
7.	Calcium	[276]		P	19.	Silver	4.5U		P
8.	Chromium	5.2U		P	20.	Sodium	99800		P
9.	Cobalt	8.3U		P	21.	Thallium	1.8U	(S)	F
10.	Copper	8.7U		P	22.	Vanadium	6.5U		P
11.	Iron	[76]		P	23.	Zinc	4.7U		P
12.	Lead	[.80]	(S)	F		Percent Solids (%)	NA		
	Cyanide	10 u							

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

CLEAN WATER

Lab Manager Ed Behare

by HMC

FORM I

U.S. EPA Contract Laboratory Program
Sample Management Office
P,O, Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

10274 5 6

EPA Sample No.

MEX788

Date 09/02/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ASSOCIATED LABORATORIES

CASE NO. 10274/38465

SOW NO. 785

Lab Receipt Date 08/24/88

LAB SAMPLE ID. NO. F52681-3

QC REPORT NO. 99

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L

1.	Aluminum	40U		P	13.	Magnesium	[71]	P
2.	Antimony	.60U	(S)	F	14.	Manganese	2.1U	P
3.	Arsenic	1.1U	(S)	F	15.	Mercury	0.20 U	CV
4.	Barium	.90U		P	16.	Nickel	19U	P
5.	Beryllium	2.3U		P	17.	Potassium	323U	P
6.	Cadmium	.10U	(S)	F	18.	Selenium	.40U	(S) F
7.	Calcium	[339]		P	19.	Silver	4.5U	P
8.	Chromium	5.2U		P	20.	Sodium	99300	P
9.	Cobalt	8.3U		P	21.	Thallium	1.8U	(S) F
10.	Copper	8.7U		P	22.	Vanadium	6.5U	P
11.	Iron	[70]		P	23.	Zinc	4.7U	P
12.	Lead	.70U	(S)	F		Percent Solids (%)	NA	

Cyanide 10 u

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

CLEAN WATER

Lab Manager Ed Belaire

by TMC

FORM I

U.S. EPA Contract Laboratory Program
Sample Management Office
P,O, Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.

MEX789

10274 5 6

Date 09/02/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ASSOCIATED LABORATORIES

CASE NO. 10274 /38415

SOW NO. 785

Lab Receipt Date 08/24/88

LAB SAMPLE ID. NO. F52681-5

QC REPORT NO. 99

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L

1.	Aluminum	40U		P	13.	Magnesium	18600		P
2.	Antimony	.60U	(S)	F	14.	Manganese	833		P
3.	Arsenic	1.1U	(S)	F	15.	Mercury	0.20 U		CV
4.	Barium	55		P	16.	Nickel	19U		P
5.	Beryllium	2.3U		P	17.	Potassium	2020		P
6.	Cadmium	.10U	(S)	F	18.	Selenium	.40U	(S)	F
7.	Calcium	64000		P	19.	Silver	8.9		P
8.	Chromium	5.2U		P	20.	Sodium	4170		P
9.	Cobalt	8.3U		P	21.	Thallium	1.8U	(S)	F
10.	Copper	8.7U		P	22.	Vanadium	6.5U		P
11.	Iron	579		P	23.	Zinc	64		P
12.	Lead	.70U	(S)	F		Percent Solids (%)	NA		

Cyanide 10 u

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

CLEAN WATER

Lab Manager Ed Behare

by ame

FORM I

U.S. EPA Contract Laboratory Program
Sample Management Office
P,O, Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.

MEX790

10274 5 6

Date 09/02/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ASSOCIATED LABORATORIES

CASE NO. 10274 /3846E

SOW NO. 785

Lab Receipt Date 08/24/88

LAB SAMPLE ID. NO. F52681-6

QC REPORT NO. 99

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L

1.	Aluminum	40U	P	13.	Magnesium	17400	P
2.	Antimony	.60U (S)	F	14.	Manganese	453	P
3.	Arsenic	1.1U (S)	F	15.	Mercury	0.20 U	CV
4.	Barium	[34]	P	16.	Nickel	19U	P
5.	Beryllium	2.3U	P	17.	Potassium	[992]	P
6.	Cadmium	.10U (S)	F	18.	Selenium	.40U (S)	F
7.	Calcium	64300	P	19.	Silver	4.5U	P
8.	Chromium	5.2U	P	20.	Sodium	4840	P
9.	Cobalt	8.3U	P	21.	Thallium	1.8U (S)	F
10.	Copper	8.7U	P	22.	Vanadium	6.5U	P
11.	Iron	1030	P	23.	Zinc	33	P
12.	Lead	[1.0] (S)	F		Percent Solids (%)	NA	
	Cyanide	10 U					

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

CLEAN WATER

Lab Manager Ed Belaire

By [illegible]

FORM I

U.S. EPA Contract Laboratory Program
Sample Management Office
P,O, Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.

MET055

10274 5 6

Date 09/02/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME ASSOCIATED LABORATORIES

CASE NO. 10274 /3846-E

SOW NO. 785

Lab Receipt Date 08/24/88

LAB SAMPLE ID. NO. F52681-4

QC REPORT NO. 99

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

µg/L

1.	Aluminum	40U	P	13.	Magnesium	[41]	P
2.	Antimony	.60U (S)	F	14.	Manganese	2.1U	P
3.	Arsenic	1.1U (S)	F	15.	Mercury	0.30	CV
4.	Barium	.90U	P	16.	Nickel	19U	P
5.	Beryllium	2.3U	P	17.	Potassium	323U	P
6.	Cadmium	.10U (S)	F	18.	Selenium	.40U (S)	F
7.	Calcium	[402]	P	19.	Silver	4.5U	P
8.	Chromium	5.2U	P	20.	Sodium	[631]	P
9.	Cobalt	8.3U	P	21.	Thallium	1.8U (S)	F
10.	Copper	8.7U	P	22.	Vanadium	6.5U	P
11.	Iron	[55]	P	23.	Zinc	4.7U	P
12.	Lead	[1.2] (S)	F		Percent Solids (%)	NA	
	Cyanide	10 U					

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

CLEAN WATER

Lab Manager Ed Behare

by me

QC EXCEPTION SUMMARY REPORT

CASE # 10274/8A5384 6E
DATA SET # _____
LAB Q.C.# 99
DATE: 9/19/88

SITE Burlington No Recn
LAB Assigned
REVIEWED BY D Kruse

MATRIX: Water
CONC. : low
MATRIX: _____
CONC. : _____

WATER SAMPLE SPK. _____
WATER SAMPLE DUP. _____
SOIL SAMPLE SPK. _____
SOIL SAMPLE DUP. _____

	OVERALL CASE QC									MATRIX SPECIFIC QC						SAMPLE SPECIFIC QC		FIELD QC			REGIONAL QC			OTHER/ COMMENTS
	Holding Time	Cal Blanks	Init Calver	Contin Calver	Prep Blk AQ	Prep Blk SOL	ICS %R	LCS % AQ	LCS % SOL	Sol Dup RPD	Sol Spk %R	AQ Dup RPD	AQ Spk %R	Ser Dilu AQ	Ser Dilu SOL	GFAA Dup	GFAA Spike	Blank	Dup RPD	Spike %R	Blind Blank	Blind Spike %R	Split Sample RPD	
Aluminum																								
Antimony																								
Arsenic																								
Barium																								
Beryllium																								
Cadmium																								
Calcium																		402 µg/l						
Chromium																								
Cobalt																								
Copper																								
Iron																		5.5 µg/l						
Lead																		1.2 µg/l						
Magnesium																								
Manganese																								
Mercury																		0.3 µg/l						
Nickel																								
Potassium																								
Selenium																								
Silver																								
Sodium																		631 µg/l						
Thallium																								
Tin																								
Vanadium																								
Zinc																								
Cyanide	15 days																							

CN dup + spike on the Field Blank

Region _____

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 10274/SAS3846E SITE Burlington Northern

LABORATORY Associated Labs NO. OF SAMPLES/ MATRIX 6 / water

SDG# MEX786 QC # 99 REVIEWER (IF NOT ESD) Weston

SOW# 785 REVIEWER'S NAME Duane Kinsso

DPO: ACTION _____ FYI _____ COMPLETION DATE 9/21/98

DATA ASSESSMENT SUMMARY

		ICP	AA	Hg	CYANIDE
1.	HOLDING TIMES	O	O	O	M
2.	CALIBRATIONS				
3.	BLANKS				M
4.	ICS				
5.	LCS				
6.	DUPLICATE ANALYSIS				M
7.	MATRIX SPIKE				M
8.	MSA				
9.	SERIAL DILUTION				
10.	SAMPLE VERIFICATION				
11.	OTHER QC				
12.	OVERALL ASSESSMENT				

O = Data had no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS: Cyanide Duplicate and Matrix spike were performed on the field duplicate.

AREAS OF CONCERN: _____

NOTABLE PERFORMANCE: Case was well organized

10274 5 6

U.S.EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818-Alexandria,VA 22313
703/557-2490 FTS: 8-557-2490

Date: 09/06/88

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

Lab Name ASSOCIATED LABORATORIES Case No. 10274/3846E
SOW No. 785 Q.C. Report No. 99

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MEX786	F52681-1		
MEX787	F52681-2		
MEX788	F52681-3		
MET055	F52681-4		
MEX789	F52681-5		
MEX790	F52681-6		

Comments: Special requirements of SAS 3846E (Reswell SAS) as per attached copy of SAS solicitation.

ICP interelement and background corrections applied? Yes X No _.
If yes, corrections applied before X or after _ generation of raw data

footnotes:
NR - Not required by contract at this time
Form I:
Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract-required detection limit, report the value in brackets (i.e., [10]). Indicate the analytical method used with P(for ICP), A(for Flame AA) or F(for Furnace AA)
U - Indicates element was analyzed for but not detected. Report with the instrument detection limit value(e.g., 10U).
E - Indicate a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.
s - Indicates value determined by Method of Standard Addition.
N - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is less than 0.995
M - Indicates duplicate injection results exceeded control limits.

Indicate method used: P for ICP; A for Flame AA and F for Furnace.

FORM III 10274 5 6

Q. C. Report No. 99

BLANKS

LAB NAME ASSOCIATED LABORATORIES CASE NO. 10274/3846

DATE 09/02/88 UNITS µg/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank[1] Matrix: Water 1	Matrix: Soil 2
Metals:							
1. Aluminum	39.7U	39.7U	39.7U			39.7U	
2. Antimony	0.6U	0.6U	0.6U			NR	
3. Arsenic	1.1U	1.1U	1.1U			NR	
4. Barium	0.9U	0.9U	0.9U			0.9U	
5. Beryllium	2.3U	2.3U	2.3U			2.3U	
6. Cadmium	0.1U	0.1U	0.1U			NR	
7. Calcium	14.7U	14.7U	14.7U			[117.7] ~~14.7U~~ OX	
8. Chromium	5.2U	5.2U	5.2U			5.2U	
9. Cobalt	8.3U	8.3U	8.3U			8.3U	
10. Copper	8.7U	8.7U	8.7U			8.7U	
11. Iron	4.5U	4.5U	4.5U			[7.9] ~~4.5U~~ OX	
12. Lead	0.7U	0.7U	0.7U			NR	
13. Magnesium	26.4U	26.4U	26.4U			26.4U	
14. Manganese	[3.2]	2.1U	2.1U			2.1U	
15. Mercury	0.2U	0.2U	0.2U	0.2 µ		0.2U	
16. Nickel	19.4U	19.4U	19.4U			19.4U	
17. Potassium	323.0U	323.0U	323.0U			323.0U	
18. Selenium	0.4U	0.4U	0.4U			NR	
19. Silver	4.5U	4.5U	4.5U			4.5U	
20. Sodium	18.7U	18.7U	18.7U			18.7U	
21. Thallium	1.8U	1.8U	1.8U			NR	
22. Vanadium	6.5U	6.5U	6.5U			6.5U	
23. Zinc	4.7U	4.7U	4.7U			4.7U	
Other:							
Cyanide	10 U	10 U				10 U	

[1] Reporting Units: aqueous, µg/L; solid, mg/Kg

FORM III - 2

Q. C. Report No. 99 10274 5 6

BLANKS

LAB NAME ASSOCIATED LABORATORIES CASE NO. 10274/3846

DATE 09/06/88 UNITS µg/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank[1] Matrix: Water 1	Matrix: Soil 2
Metals:							
1. Aluminum	39.7U	39.7U					
2. Antimony							
3. Arsenic							
4. Barium	0.9U	0.9U					
5. Beryllium	2.3U	2.3U					
6. Cadmium							
7. Calcium	14.7U	[18.1]					
8. Chromium	5.2U	5.2U					
9. Cobalt	8.3U	8.3U					
10. Copper	8.7U	8.7U					
11. Iron	4.5U	4.5U					
12. Lead							
13. Magnesium	26.4U	26.4U					
14. Manganese	2.1U	2.1U					
15. Mercury							
16. Nickel	19.4U	19.4U					
17. Potassium	323.0U	323.0U					
18. Selenium							
19. Silver	4.5U	4.5U					
20. Sodium	[93.0]	[54.8]					
21. Thallium							
22. Vanadium	6.5U	6.5U					
23. Zinc	4.7U	4.7U					
Other:							
Cyanide							

[1] Reporting Units: aqueous, µg/L; solid, mg/Kg

FORM V

Q. C. Report No. 99 10274 5 6

SPIKE SAMPLE RECOVERY

LAB NAME ASSOCIATED LABORATORIES

CASE NO. 10274/3846

EPA Sample No. MEX786

DATE 09/02/88

Lab Sample ID No. F52681-1

Units uG/L

Matrix WATER

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	85-115	2065.0	39.7 U	2000	103
2. Antimony	"				NR
3. Arsenic	"				NR
4. Barium	"	2116.0	72.2	2000	102
5. Beryllium	"	52.5	2.3 U	50	105
6. Cadmium	"				NR
7. Calcium	"	68750	67760		NR
8. Chromium	"	195.3	5.2 U	200	98
9. Cobalt	"	493.2	8.3 U	500	99
10. Copper	"	254.1	8.7 U	250	102
11. Iron	"	1909.0	937.0	1000	97
12. Lead	"				NR
13. Magnesium	"	21700.0	21500.0		NR
14. Manganese	"	450.4	245.0	200	103
15. Mercury	80-120	1.0	0.2 U	1	100
16. Nickel	"	408.6	19.4 U	400	102
17. Potassium	"	1229.0	[1271.0]		NR
18. Selenium	"				NR
19. Silver	"	49.5	[4.8]	50	89
20. Sodium	"	4249.0	4160.0		NR
21. Thallium	"				NR
22. Vanadium	"	499.8	6.5 U	500	100
23. Zinc	"	207.8	4.7 U	200	104
Other:					
Cyanide	80-120	92.81	10 U	~~98~~ 100	93 (1)

UTT 9-6-88

UTT 9-6-88

[1] %R = [(SSR - SR)/SA] x 100

'N' = Out of control

'NR' = Not required

(1) = The spike for Cyanide was run on sample-4 (MET055)

FORM V 10274 5 6

Q. C. Report No. 99

SPIKE SAMPLE RECOVERY

LAB NAME ASSOCIATED LABORATORIES

CASE NO. 10274/3846

EPA Sample No. MEX786

DATE 09/06/88

Lab Sample ID No. F52681-1

Units uG/L

Matrix WATER

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	85-115				
2. Antimony	"				
3. Arsenic	"				
4. Barium	"				
5. Beryllium	"				
6. Cadmium	"				
7. Calcium	"	117700	67760	50000	100
8. Chromium	"				
9. Cobalt	"				
10. Copper	"				
11. Iron	"				
12. Lead	"				
9-6-88 13. Magnesium	80-120	46260.0	21500.0	25000	99
14. Manganese	"				
15. Mercury	"				
16. Nickel	"				
17. Potassium	"	21080.0	1271.0	20000	99
18. Selenium	"				
19. Silver	"				
20. Sodium	"	53970.0	4160.0	50000	100
21. Thallium	"				
22. Vanadium	"				
23. Zinc	"				
Other:					
Cyanide					

[1] %R = [(SSR - SR)/SA] x 100
'N' = Out of control
'NR' = Not required

FORM VI 10274 5 6

Q. C. Report No. 99

DUPLICATES

LAB NAME ASSOCIATED LABORATORIES

CASE NO. 10274/3846

EPA Sample No. MEX786

DATE 09/02/88

Lab Sample ID No. F52681-1

Units uG/L

Matrix WATER

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum	100	39.7 U	39.7 U	NC
2. Antimony	5	0.6 U	0.6 U	NC
3. Arsenic	5	[2.3]	[2.3]	NC
4. Barium	50	72.2	71.2	1
5. Beryllium	5	2.3 U	2.3 U	NC
6. Cadmium	± 0.5	0.1 U	0.1 U	NC
7. Calcium		67760	67330	1
8. Chromium	10	5.2 U	5.2 U	NC
9. Cobalt	10	8.3 U	8.3 U	NC
10. Copper	10	8.7 U	8.7 U	NC
11. Iron		937.0	884.4	6
12. Lead	2	[0.8]	[0.9]	NC
13. Magnesium		21500.0	21250.0	1
14. Manganese		245.0	244.0	0
15. Mercury	0.2	0.2 U	0.2 U	NC
16. Nickel	20	19.4 U	19.4 U	NC
17. Potassium	2000	[1271.0]	[1365.0]	NC
18. Selenium	2	0.4 U	0.4 U	NC
19. Silver	5	[4.8]	4.5 U	NC
20. Sodium	1000	4160.0	4144.0	0
21. Thallium	2	1.8 U	1.8 U	NC
22. Vanadium	10	6.5 U	6.5 U	NC
23. Zinc	20	4.7 U	4.7 U	NC
Other:				
Cyanide	10	10 U	10 U	NC (1)

[1] To be added at a later date.

[2] RPD = [|S - D|/((S + D)/2] x 100

'*' = Out of control

'NC' = Non calculable RPD due to value(s) less than CRDL

(1) = The duplicate for Cyanide was run on Sample-4 (METOSS)

9-11-88

FORM VII

Q. C. Report No. 99

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME ASSOCIATED LABORATORIES CASE NO. 10274/3846

DATE 09/02/88 LCS NO. ICV1-5

Compound	Required Detection Limits (CRDL)-µg/L	Instrument Detection Limits (IDL)-µg/L ICP/AA ICAP9000	Instrument Detection Limits (IDL)-µg/L Furnace VARIAN40Z	Lab Control Sample uG/L True	Lab Control Sample uG/L Found	Lab Control Sample uG/L %R
Metals:						
1. Aluminum	100	39.7		1980	1902.0	96
2. Antimony	5		0.6	1010		NR
3. Arsenic	5		1.1	47		NR
4. Barium	50	0.9		1980	1892.0	96
5. Beryllium	5	2.3		481	478.3	99
6. Cadmium	0.5		0.1	96.1		NR
7. Calcium	1000	14.7		49800	48650.0	98
8. Chromium	10	5.2		506	468.5	93
9. Cobalt	10	8.3		474	457.6	97
10. Copper	10	8.7		542	503.7	93
11. Iron	100	4.5		1990	1927.0	97
12. Lead	2		0.7	97.9		NR
13. Magnesium	1000	26.4		25000	24130.0	97
14. Manganese	10	2.1		513	478.3	93
15. Mercury	0.2		* 0.2	NR		
16. Nickel	20	19.4		496	456.2	92
17. Potassium	2000	323		50200	48060.0	96
18. Selenium	2		0.4	104		NR
19. Silver	5	4.5		509	449.0	88
20. Sodium	1000	18.7		50700	48350.0	95
21. Thallium	2		1.8	97.3		NR
22. Vanadium	10	6.5		511	484.2	95
23. Zinc	20	4.7		3100	2793.0	90
Other:						
Cyanide	10			90	91.55	102

NR = Not Required

* = CV

ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

CRL Receipt Date 9/29/88 FIT Receipt Date 10/19/88 Review Completed 10/21/88

TO: Breen
FROM: Mary Gzyra
SUBJECT: Burlington Ro.
PAN: MN01275A (1 hour charged for review) Case # 10274

Sample Description

Organics (VOA, ABN, Pest/PCB)		Inorganics (Metals, Cyanide)	
# 9	Low Soil	#	Low Soil
	Low Water		Low Water
	Drinking Water		Drinking Water
	Other		Other

Project Data Status XXX Completed!!

_____ Incomplete, awaiting _____

FIT Data Review Findings:
CLA, aromatic, phenols, PAH detected

Check Data Sheets for Transcription Errors

✓ Compounds were detected in sample(s); see enclosed sheet.

Book No. 8 Page No. 200 Date Sampled 8/23

0759:2

recycled paper

* Physical state of pure material, not necessarily the physical state of the waste.

** For Section II of 2070-13.

*** For Section III of 2070-13.

Abbreviations for waste characteristics:

A - Toxic
B - Corrosive
C - Radiative
D - Persistent
E - Soluble
F - Infectious
G - Flammable
H - Ignitable
I - Highly volatile
J - Explosive
K - Reactive
L - Incompatible
M - Not applicable

SI Memo & Category Abbreviations:

A - Aromatic
CLA - Common lab artifact
CSC - Common soil constituent
HA - Halogenated - aromatic
HH - Halogenated - hydrocarbon
HM - Heavy metal
HYD - Hydrocarbon
IOC - Other inorganic compound
K - Ketone
M - Metal (density < 5x water density)
NA - Nitrogen - aromatic
NH - Nitrogen - hydrocarbon
OCC - Other organic compound
P - Phenol
PAH - Polyaromatic hydrocarbon
PCB - Polychlorinated biphenyl
PEST - Pesticide
PH - Phthalate
SH - Sulfur - hydrocarbon
SOL - Solvent

0916:1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 10/12/88

10/19

SUBJECT: Review of Region V CLP Data Received for Review on 9-29-88

FROM: Curtis Ross, Director (5SCRL) Patrick J. Chinella for
Central Regional Laboratory

TO: Data User: Dit

We have reviewed the data for the following case(s).

SITE NAME: Burlington Northern-Ramsey SMO Case No. 10274

EPA Data Set No. SF5510 No. of Samples: 9 D.U./Activity Numbers 1903/C721~~22~~ 84

CRL No. 88FB28576-S84

SMO Traffic No. EN507-514, EP946

CLP Laboratory: S-Cubed Hrs. Required for Review: 8hrs

Following are our find :

This review covers 9 samples (All Low level Soils) for Volatile, Semi-Volatile And pesticide/PCB Analysis

Qualifiers And calibration outliers are noted on the following pages of the review narrative.

Also, the pesticide/PCB samples: (EN510, EN511) should be flagged (R) as unusable for the negative results due to surrogate recoveries of zero.

John Pasinho 10-6-88
Roy F. Weston/ESAT

( ) Data are acceptable for use.
(✓) Data are acceptable for use with qualifications referenced above. See Data Qualifier sheets and Calibration Outlier forms for flags and additional comments.
( ) Data are preliminary - pending verification by Contractor Laboratory. See Case Summary above.
( ) Data are unacceptable.

cc: Carla Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

DATA QUALIFIERS

Contractor: S-Cubed

Case 10274

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

1) Holding times

All volatile samples met the 7 day holding time, from the time of sampling to the time of analysis. All semi-volatile samples were extracted within 7 days and the analysis was performed within 40 days of the extraction date. All pesticide/PCB samples exceeded the 7 day holding time, from time of sampling to time of extraction by 3 days. Therefore, the positive results should be flagged (J) as estimated and the quantitation limits flagged (UJ).

2) GC/MS tuning and GC instrument performance

All BFB and DFTPP tuning criteria have been met and the pesticide/PCB GC performance is acceptable with respect to DDT retention time, DDT/Endrin breakdown and DBC retention time shifts were all within Q.C. limits.

3) Calibration

Volatile and semi-volatile outliers for initial and continuing calibration are noted on the calibration outliers forms which follows. For the pesticide/PCB initial calibration the % RSD for aldrin, Endrin, 4,4'-DDT, and dibutylchlorendate is less than 10% and well within Q.C. limits. Also the correct analytical sequence was followed. For the pesticide/PCB continuing calibration the percent difference between calibration factors is less than 15% for compounds being quantitated and less than 20% for compounds being confirmed.

Reviewed by: John Vasinko

Phone: (312) 353-6309

Date: 10-6-88

DATA QUALIFIERS

Contractor: J-Cubed

Case 10274

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

(4) Blanks

A) Volatile

The Volatile blank of (8-24-88) reports detectable amounts of the compounds methylene chloride and Acetone. The Samples associated with this blank: (EN 507, 508, 510, 511, 512, 513, 514, EP946) All report detectable amounts of both methylene chloride and Acetone at levels of less than 10 x that of the blank. Therefore, the compounds Acetone and Methylene chloride have been flagged (U) as undetected in the Samples listed above. The Volatile blank of (8-25-88) reports detectable amounts of the compound methylene chloride. The Sample associated with this blank: (EN509) reports detectable amounts of methylene chloride at levels of less than 10 x that of the blank. Therefore, the compound methylene chloride has been flagged (U) as undetected in Sample (EN509).

B) Semi-Volatile

The Semi-Volatile blank reports detectable amounts of the compound Diethylphthalate, di-n-butylphthalate and bis(2-Ethylhexyl) phthalate. No Samples associated with this blank report detectable amounts of the above listed compounds.

C) Pesticide/PCB

The Pesticide/PCB blank reports No detectable amount of contamination.

Reviewed by: John Vasinko

Phone: (312) 353-8309

Date: 10-6-88

DATA QUALIFIERS

Contractor: S-cubed

Case 10274

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

(5) Surrogate recoveries

The Volatile and Semi-Volatile Surrogates were All within Q.C. limits.

The following pesticide/PCB Samples report low Surrogate recoveries, EN 508: 9%, EN 510: 0%, EN 511: 0%, EN 512: int (interfering peak). Therefore, the positive results for Samples: (EN508, 512) should be flaged (J) as estimated. The negative results for Samples: (EN 510, 511) Should be flagged (R) as unusable.

(6) Matrix Spike/Matrix Spike duplicate

A) Volatile

The Volatile sample EN510 MS/MSD reports high RPD for the compounds Chlorobenzene & Toluene with values of 22% and 23% respectively. In my professional judgement this problem is restricted to the spiked samples only, Therefore, No Action is to be taken with this Sample fraction.

B) Semi-volatile

All Semi-volatile MS/MSD parameters were within QC. limits.

C) Pesticide/PCB's

The pesticide/PCB Sample EN510 MSD reports Low percent recoveries (37%) for the compound Lindane And high RPD values (60%) for the compound (4,4-DDT). In my professional judgement this problem is restricted to the spiked samples only, Therefore, No Action is to be taken.

Reviewed by: John Vasko

Phone: (312) 353-8309

Date: 10-6-88

DATA QUALIFIERS

Contractor: S-cubed

Case 10274

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

(7) Field duplicates

No Field duplicates or field blanks were supplied with this case.

(8) Internal Standard performance.

Both the Volatile And Semi-Volatile internal Standard performance WAS well within the Q.C. limits with respect to internal Standard AREA And Standard retention time Stability.

(9) TCL compound Identification

For both the Volatile And Semi-Volatile fractions the TCL compound identification WAS correct with respect to Standard retention time And Standard MASS Spectral comparison. Also the pesticide/PCB TCL compound identification was correct based on Standard retention times on dissimilar columns. Therefore, the TCL Compound identification for All Sample fractions is correct.

(10) Compound Quantitation And Reported detection limits

The Analytical results for this case have been calculated correctly based on the Appropriate internal Standard, quantitation ion And relative responce factor. Also the CRQL have been Adjusted to reflect the dilution And percent moisture of the sample.

Reviewed by: John Vasinko

Phone: (312) 353-8307

Date: 10-6-88

DATA QUALIFIERS

Contractor: S-Cubed

Case 10274

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

(11) System Performance

The chromatographic system performance should be considered Acceptable with respect to baseline stability.

(12) Overall Assessment of Data for the Case

The analytical results for this case should be considered acceptable for use with the above mentioned qualifiers

Reviewed by: John Vasinko

Phone: (312) 353-9309

Date: 10-6-88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
VOLATILE HSL COMPOUNDS

CASE/SAS # 10294 CONTRACTOR S-Cubed

Instrument # VG2	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	8-22-88 1457			8-24-88 1216			8-25-88 903								
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane															
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride	1.86			2.35	26.0	J									
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone	.66			.076	26.0	J	.099	31.0	J						
1,2-Dichloroethane															
1,1,1-Trichloroethane															
Carbon Tetrachloride															
Vinyl Acetate															
Bromodichloromethane															
1,2-Dichloropropane															
Trans-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
cis-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone	.540						.334	38.1	J						
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
m-Xylene															
o/p-Xylene															

AFFECTED SAMPLES:

Blank	EN 509
EN 507	Blank
EN 511	
EN 508	
EN 510	
EN 512	
EN 513	
EN 514	
EP 946	

Reviewer's Initials/Date: JV. 10/6

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
(Page 1)

CASE/SAS # 10274 CONTRACTOR S-Cubed

Instrument # I.H.P.	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	9-9-88 11:09			9-15-88 1134			9-16-88 240								
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol	.2029			.1301	35.8	S									
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

BLANK	EN 510
EN 507	EN 510 MS
EN 508	EN 512
EN 509	EN 514
	EP 946
	EN 513
	EN 511
	EN 510 MSD

Reviewer Initials/Date: S.V./10/6

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
Page 2

CASE/SAS # 10274 CONTRACTOR S-cubed

Instrument #	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	9-7-88 11:09			9-05-88 1134			9-16-88 240								
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene	.5184	40.51	J	.6912	33.28	J	.6602	25.4	J						
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene	.5880	31.98	J	.9108	30.19	J	.757	28.7	J						

SEE PAGE 1 FOR AFFECTED SAMPLES.

* These flags should be applied to the analytes on the sample data sheets.

Reviewer's Initials/Date: I. VASINKO 10/6/88

8/87

Case: 10274

Contractor: S-Cubed

TENTATIVELY IDENTIFIED COMPOUNDS
MATCH ASSESSMENT

NOTE: Reviewer should note directly on Organic Analysis Data Sheet (OADS) those matches that in his opinion (based on contract criteria) are unreasonable.

CRITERIA

(1) Relative intensities of major ions (>10%) reference spectrum should be present in the sample spectrum.

(2) Relative intensities of major ions in sample spectrum should agree to within ± 20% of reference spectrum intensities.

(3) Molecular ions present in reference spectrum should be present in sample spectrum.

(4) Ions present in sample spectrum, but not in reference spectrum should be reviewed for possible background contamination or presence of coeluting interferences.

(5) Ions present in reference spectrum, but not in the sample spectrum should be reviewed for possible subtraction from the sample spectrum because of background contamination or coeluting interferences.

(6) If, in the reviewer's opinion, no valid identification can be made the compound should be labelled as "unknown" and the initials and date of the reviewer placed on the OADS.

J. Vashko 10-6-88

Sample Number: EN507

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Laboratory Name: S-CUBED
Lab Sample ID No: B24V2031 (Vpa)
Sample Matrix: SOIL
Data Release Authorized By: _____

Case No: 10274
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 08-24-88

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 08-24-88
Date Analyzed: 08-24-88
Conc/Dil Factor: 0.98 pH: 5.1
Percent Moisture (Not Decanted): 4.6

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	17 5u	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	39 8u	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
75-34-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	591-78-6	2-HEXANONE	10 U
67-66-3	CHLOROFORM	5 U	108-10-1	4-METHYL-2-PENTANONE	~~10~~ 10ug/w
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	5 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	2 J
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

Value: If the result is a value greater than or equal to the detection limit,report the value.

U Indicates compound was analyzed for but not detected.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

U: IV 10-6-88

Sample Number:
EM508

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Laboratory Name: S-CUBED
Lab Sample ID No: 824V2051 (Voa)
Sample Matrix: SOIL
Data Release Authorized By: ___

Case No: 10274
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 08-24-88

VOLATILE COMPOUNDS

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 08-24-88
Date Analyzed: 08-24-88
Conc/Dil Factor: 0.99 pH: 5.4
Percent Moisture (Not Decanted): 5.1

CAS Number		ug/l or (ug/kg) (Circle One)	CAS Number		ug/l or (ug/kg) (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	20 BU	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	31 BU	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
75-34-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	591-78-6	2-HEXANONE	10 U
67-66-3	CHLOROFORM	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	5 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	2 J
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

Value: If the result is a value greater than or equal to the detection limit,report the value.

U Indicates compound was analyzed for but not detected.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

4: J.V. 10-6-89

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number:
EN509

Laboratory Name: S-CUBED
Lab Sample ID No: 825V2071 (Voa)
Sample Matrix: SOIL
Data Release Authorized By: N

Case No: 10274
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 08-24-88

VOLATILE COMPOUNDS

Concentration: Low / Medium (Circle One)
Date Extracted/Prepared: 08-25-88
Date Analyzed: 08-25-88
Conc/Dil Factor: 0.99 pH: 5.3
Percent Moisture (Not Decanted): 11.1

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	11 U	78-87-5	1,2-DICHLOROPROPANE	6 U
74-83-9	BROMOMETHANE	11 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	6 U
75-01-4	VINYL CHLORIDE	11 U	79-01-6	TRICHLOROETHENE	6 U
75-00-3	CHLOROETHANE	11 U	124-48-1	DIBROMOCHLOROMETHANE	6 U
75-09-2	METHYLENE CHLORIDE	16 B	79-00-5	1,1,2-TRICHLOROETHANE	6 U
67-64-1	ACETONE	35	71-43-2	BENZENE	6 U
75-15-0	CARBON DISULFIDE	6 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	6 U
75-35-4	1,1-DICHLOROETHENE	6 U	110-75-8	2-CHLOROETHYLVINYLETHER	11 U
75-34-3	1,1-DICHLOROETHANE	6 U	75-25-2	BROMOFORM	6 U
156-60-5	TRANS-1,2-DICHLOROETHENE	6 U	591-78-6	2-HEXANONE	11 U
67-66-3	CHLOROFORM	6 U	108-10-1	4-METHYL-2-PENTANONE	11 U
107-06-2	1,2-DICHLOROETHANE	6 U	127-18-4	TETRACHLOROETHENE	6 U
78-93-3	2-BUTANONE	11 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	6 U
71-55-6	1,1,1-TRICHLOROETHANE	6 U	108-88-3	TOLUENE	~~2 J~~
56-23-5	CARBON TETRACHLORIDE	6 U	108-90-7	CHLOROBENZENE	6 U
108-05-4	VINYL ACETATE	11 U	100-41-4	ETHYLBENZENE	6 U
75-27-4	BROMODICHLOROMETHANE	6 U	100-42-5	STYRENE	6 U
				TOTAL XYLENES	7

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged. However, the definition of each flag must be explicit.

Value: If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (eg. 10U) based on necessary concentration/dilution action. (this is not necessarily the instrument detection limit.) The footnotes should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value: This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J). If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

U. J.V. 10-6-89

Sample Number:
EN510

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Laboratory Name: S-CUEED
Lab Sample ID No: B24V2061 (Voa)
Sample Matrix: SOIL
Data Release Authorized By: [signature]

Case No: 10274
GC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 08-24-88

VOLATILE COMPOUNDS
Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 08-24-88
Date Analyzed: 08-24-88
Conc/Dil Factor: 0.99 pH: 5.4
Percent Moisture (Not Decanted): 4.8

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	20 BU	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	23 BU	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
75-34-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	591-78-6	2-HEXANONE	10 U
67-66-3	CHLOROFORM	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	5 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	3 J
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged. However, the definition of each flag must be explicit.

Value: If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (eg. 10U) based on necessary concentration/dilution action. (this is not necessarily the instrument detection limit.) The footnotes should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value: This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J). If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

U. J. U. 10-6-88

Sample Number: EN511

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Laboratory Name: S-CUBED
Lab Sample ID No: 824V2041 (Voa)
Sample Matrix: SOIL
Data Release Authorized By: N

Case No: 10274
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 09-24-88

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 08-24-88
Date Analyzed: 08-24-88
Conc/Dil Factor: 0.99 pH: 5.1
Percent Moisture (Not Decanted): 5.4

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	20 ~~B~~ U	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	24 ~~B~~ U	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
75-34-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	591-78-6	2-HEXANONE	10 U
67-66-3	CHLOROFORM	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	5 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	3 J
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

Value: If the result is a value greater than or equal to the detection limit,report the value.

U Indicates compound was analyzed for but not detected.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides) or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

U.J.U. 10-6-89

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number: EN512

Laboratory Name: S-CUBED
Lab Sample ID No: B24V2071 (Voa)
Sample Matrix: SOIL
Data Release Authorized By: _____

Case No: 10274
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 08-24-88

VOLATILE COMPOUNDS

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 08-24-88
Date Analyzed: 08-24-88
Conc/Dil Factor: 1.0 pH: 4.7
Percent Moisture (Not Decanted): 4.7

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	20 BU	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	20 BU	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
75-34-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	591-78-6	2-HEXANONE	10 U
67-66-3	CHLOROFORM	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	5 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

Value: If the result is a value greater than or equal to the detection limit,report the value.

U Indicates compound was analyzed for but not detected.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

u.J.U. 10-6-89

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Sample Number:
EM513

Laboratory Name: S-CUEED
Lab Sample ID No: 824V2081 (Voa)
Sample Matrix: SOIL
Data Release Authorized By: _____

Case No: 10274
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 08-24-88

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 08-24-88
Date Analyzed: 08-24-88
Conc/Dil Factor: 0.99 pH: 4.9
Percent Moisture (Not Decanted): 3.9

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	20 BU	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	26 BU	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
75-34-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	591-78-6	2-HEXANONE	10 U
67-66-3	CHLOROFORM	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	5 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	1 J
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

Value: If the result is a value greater than or equal to the detection limit,report the value.

U Indicates compound was analyzed for but not detected.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

U: JLV. 10-6-88

Sample Number: EM514

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Laboratory Name: S-CURED
Lab Sample ID No: 924V2091 (Voa)
Sample Matrix: SOIL
Data Release Authorized By: N

Case No: 10274
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 08-24-88

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 08-24-88
Date Analyzed: 08-24-88
Conc/Dil Factor: 0.99 pH: 4.8
Percent Moisture (Not Decanted): 4.9

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	20 BU	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	23 BU	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
75-34-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	591-78-6	2-HEXANONE	10 U
67-66-3	CHLOROFORM	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	5 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5 U
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

Value: If the result is a value greater than or equal to the detection limit,report the value.

U Indicates compound was analyzed for but not detected.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

u; J.V. 10-6-88

Sample Number: EP946

ORGANICS ANALYSIS DATA SHEET
(Page 1)

Laboratory Name: S-CUBED
Lab Sample ID No: B24V2101 (Voa)
Sample Matrix: SOIL
Data Release Authorized By: N

Case No: 10274
QC Report No: N.R
Contract No: 68-01-7261
Date Sample Received: 08-24-88

VOLATILE COMPOUNDS

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 08-24-88
Date Analyzed: 08-24-88
Conc/Dil Factor: 0.78 pH: 4.9
Percent Moisture (Not Decanted): 4.3

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	10 U	78-87-5	1,2-DICHLOROPROPANE	5 U
74-83-9	BROMOMETHANE	10 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	5 U
75-01-4	VINYL CHLORIDE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-00-3	CHLOROETHANE	10 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
75-09-2	METHYLENE CHLORIDE	21 BU	79-00-5	1,1,2-TRICHLOROETHANE	5 U
67-64-1	ACETONE	29 BU	71-43-2	BENZENE	5 U
75-15-0	CARBON DISULFIDE	5 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	5 U
75-35-4	1,1-DICHLOROETHENE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
75-34-3	1,1-DICHLOROETHANE	5 U	75-25-2	BROMOFORM	5 U
156-60-5	TRANS-1,2-DICHLOROETHENE	5 U	591-78-6	2-HEXANONE	10 U
67-66-3	CHLOROFORM	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
107-06-2	1,2-DICHLOROETHANE	5 U	127-18-4	TETRACHLOROETHENE	5 U
78-93-3	2-BUTANONE	10 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	5 U
71-55-6	1,1,1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5 U
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifier are used. Additional flags or footnotes explaning results are encouraged.However,the definition of each flag must be explicit.

Value: If the result is a value greater than or equal to the detection limit,report the value.

U Indicates compound was analyzed for but not detected.Report the minimum detection limit for the sample with the U (eg.10U) based on necessary concentration/dilution action.(this is not necessarily the instrument detection limit.)The footnotes should read:U-Compound was analyzed for but not detected.The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value:This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (eg 10J) .If limit of detection is 10 ug/L and a concentration of 3ug/L is calculated,report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.Single component pesticides > or = 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when analyte is found in the blank as well as sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

S Matrix spiked compound.

U: J.U. 10-6-89

Lab Name : S - CUPED
Case No : CASE 10274

Sample Number
EN 507

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 8-29-88
Date Analyzed: 9/15/88 15:10
Conc/Dil Factor: 1.50
Percent Moisture (Decanted) N.A.

GPC Cleanup ✓ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)	
108-95-2	Phenol	520.	U
111-44-4	bis(-2-Chloroethyl)Ether	520.	U
95-57-8	2-Chlorophenol	520.	U
541-73-1	1,3-Dichlorobenzene	520.	U
106-46-7	1,4-Dichlorobenzene	520.	U
100-51-6	Benzyl Alcohol	520.	U
95-50-1	1,2-Dichlorobenzene	520.	U
95-48-7	2-Methylphenol	520.	U
39638-32-9	bis(2-chloroisopropyl)Ether	520.	U
106-44-5	4-Methylphenol	520.	U
621-64-7	N-Nitroso-Di-n-Propylamine	520.	U
67-72-1	Hexachloroethane	520.	U
98-95-3	Nitrobenzene	520.	U
78-59-1	Isophorone	520.	U
88-75-5	2-Nitrophenol	520.	U
105-67-9	2,4-Dimethylphenol	520.	U
65-85-0	Benzoic Acid	2600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	520.	U
120-83-2	2,4-Dichlorophenol	520.	U
120-82-1	1,2,4-Trichlorobenzene	520.	U
91-20-3	Naphthalene	520.	U
106-47-8	4-Chloroaniline	520.	U
87-68-3	Hexachlorobutadiene	520.	U
59-50-7	4-Chloro-3-Methylphenol	520.	U
91-57-6	2-Methylnaphthalene	520.	U
77-47-4	Hexachlorocyclopentadiene	520.	U
88-06-2	2,4,6-Trichlorophenol	520.	U
95-95-4	2,4,5-Trichlorophenol	2600.	U
91-58-7	2-Chloronaphthalene	520.	U
88-74-4	2-Nitroaniline	2600.	U
131-11-3	Dimethyl Phthalate	520.	U
208-96-8	Acenaphthylene	520.	U
99-09-2	3-Nitroaniline	2600.	U

C.A.S. Number		ug/L or ug/Kg (Circle One)	
83-32-9	Acenaphthene	520.	U
51-28-5	2,4-Dinitrophenol	2600.	U
100-02-7	4-Nitrophenol	2600.	U
132-64-9	Dibenzofuran	520.	U
121-14-2	2,4-Dinitrotoluene	520.	U
606-20-2	2,6-Dinitrotoluene	520.	U
84-66-2	Diethylphthalate	520.	U
7005-72-3	4-Chlorophenyl-phenylether	520.	U
86-73-7	Fluorene	520.	U
100-01-6	4-Nitroaniline	520.	U
534-52-1	4,6-Dinitro-2-Methylphenol	2600.	U
86-30-6	N-Nitrosodiphenylamine (1)	520.	U
101-55-3	4-Bromophenyl-phenylether	520.	U
118-74-1	Hexachlorobenzene	520.	U
87-86-5	Pentachlorophenol	5900.	
85-01-8	Phenanthrene	520.	U
120-12-7	Anthracene	520.	U
84-74-2	Di-n-Butylphthalate	520.	U
206-44-0	Fluoranthene	520.	U
129-00-0	Pyrene	520.	U
85-68-7	Butylbenzylphthalate	520.	U
91-94-1	3,3'-Dichlorobenzidine	1000.	U
56-55-3	Benzo(a)Anthracene	520.	U
117-81-7	bis(2-Ethylhexyl)Phthalate	520.	U
218-01-9	Chrysene	520.	U
117-84-0	Di-n-Octyl Phthalate	520.	U
205-99-2	Benzo(b)Fluoranthene	520.	U
207-08-9	Benzo(k)Fluoranthene	520.	U
50-32-8	Benzo(a)Pyrene	520.	U
193-39-5	Indeno(1,2,3-cd)Pyrene	520.	U
53-70-3	Dibenzo(a,h)Anthracene	520.	U
191-24-2	Benzo(g,h,i)Perylene	520.	U

(1)-Cannot be separated from diphenylamine

Lab Name : S - CURED
Case No : CASE 10274

Sample Number
EN 508

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted: 9-29-88
Date Analyzed: 9/15/88 16:16
Conc/Dil Factor: 1.50
Percent Moisture (Decanted) N.A.

GPC Cleanup ✓ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or (ug/Kg) (Circle One)	
108-95-2	Phenol	530.	U
111-44-4	bis(-2-Chloroethyl)Ether	530.	U
95-57-8	2-Chlorophenol	530.	U
541-73-1	1,3-Dichlorobenzene	530.	U
106-46-7	1,4-Dichlorobenzene	530.	U
100-51-6	Benzyl Alcohol	530.	U
95-50-1	1,2-Dichlorobenzene	530.	U
95-48-7	2-Methylphenol	530.	U
39638-32-9	bis(2-chloroisopropyl)Ether	530.	U
106-44-5	4-Methylphenol	530.	U
621-64-7	N-Nitroso-Di-n-Propylamine	530.	U
67-72-1	Hexachloroethane	530.	U
98-95-3	Nitrobenzene	530.	U
78-59-1	Isophorone	530.	U
88-75-5	2-Nitrophenol	530.	U
105-67-9	2,4-Dimethylphenol	530.	U
65-85-0	Benzoic Acid	2600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	530.	U
120-83-2	2,4-Dichlorophenol	530.	U
120-82-1	1,2,4-Trichlorobenzene	530.	U
91-20-3	Naphthalene	530.	U
106-47-8	4-Chloroaniline	530.	U
87-68-3	Hexachlorobutadiene	530.	U
59-50-7	4-Chloro-3-Methylphenol	530.	U
91-57-6	2-Methylnaphthalene	530.	U
77-47-4	Hexachlorocyclopentadiene	530.	U
88-06-2	2,4,6-Trichlorophenol	530.	U
95-95-4	2,4,5-Trichlorophenol	2600.	U
91-58-7	2-Chloronaphthalene	530.	U
88-74-4	2-Nitroaniline	2600.	U
131-11-3	Dimethyl Phthalate	530.	U
208-96-8	Acenaphthylene	530.	U
99-09-2	3-Nitroaniline	2600.	U

C.A.S. Number		ug/L or (ug/Kg) (Circle One)	
83-32-9	Acenaphthene	530.	U
51-28-5	2,4-Dinitrophenol	2600.	U
100-02-7	4-Nitrophenol	2600.	U
132-64-9	Dibenzofuran	530.	U
121-14-2	2,4-Dinitrotoluene	530.	U
606-20-2	2,6-Dinitrotoluene	530.	U
84-66-2	Diethylphthalate	530.	U
7005-72-3	4-Chlorophenyl-phenylether	530.	U
86-73-7	Fluorene	530.	U
100-01-6	4-Nitroaniline	530.	U
534-52-1	4,6-Dinitro-2-Methylphenol	2600.	U
86-30-6	N-Nitrosodiphenylamine (1)	530.	U
101-55-3	4-Bromophenyl-phenylether	530.	U
118-74-1	Hexachlorobenzene	530.	U
87-86-5	Pentachlorophenol	2700.	
85-01-8	Phenanthrene	530.	U
120-12-7	Anthracene	530.	U
84-74-2	Di-n-Butylphthalate	530.	U
206-44-0	Fluoranthene	530.	U
129-00-0	Pyrene	530.	U
85-68-7	Butylbenzylphthalate	530.	U
91-94-1	3,3'-Dichlorobenzidine	1100.	U
56-55-3	Benzo(a)Anthracene	530.	U
117-81-7	bis(2-Ethylhexyl)Phthalate	530.	U
218-01-9	Chrysene	530.	U
117-84-0	Di-n-Octyl Phthalate	530.	U
205-99-2	Benzo(b)Fluoranthene	530.	U
207-08-9	Benzo(k)Fluoranthene	530.	U
50-32-8	Benzo(a)Pyrene	530.	U
193-39-5	Indeno(1,2,3-cd)Pyrene	530.	U
53-70-3	Dibenzo(a,h)Anthracene	530.	U
191-24-2	Benzo(g,h,i)Perylene	530.	U

(1)-Cannot be separated from diphenylamine

Lab Name : S - [illegible]
Case No : CASE 10274

Sample Number
FN 509

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 8-29-88
Date Analyzed: 9/15/88 17:20
Conc/Dil Factor: 1.50
Percent Moisture (Decanted) N.A.

GPC Cleanup ✓ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)	
108-95-2	Phenol	560.	U
111-44-4	bis(-2-Chloroethyl)Ether	560.	U
95-57-8	2-Chlorophenol	560.	U
541-73-1	1,3-Dichlorobenzene	560.	U
106-46-7	1,4-Dichlorobenzene	560.	U
100-51-6	Benzyl Alcohol	560.	U
95-50-1	1,2-Dichlorobenzene	560.	U
95-48-7	2-Methylphenol	560.	U
39638-32-9	bis(2-chloroisopropyl)Ether	560.	U
106-44-5	4-Methylphenol	79.	J
621-64-7	N-Nitroso-Di-n-Propylamine	560.	U
67-72-1	Hexachloroethane	560.	U
98-95-3	Nitrobenzene	560.	U
78-59-1	Isophorone	560.	U
88-75-5	2-Nitrophenol	560.	U
105-67-9	2,4-Dimethylphenol	560.	U
65-85-0	Benzoic Acid	2800.	U
111-91-1	bis(-2-Chloroethoxy)Methane	560.	U
120-83-2	2,4-Dichlorophenol	560.	U
120-82-1	1,2,4-Trichlorobenzene	560.	U
91-20-3	Naphthalene	6600.	
106-47-8	4-Chloroaniline	560.	U
87-68-3	Hexachlorobutadiene	560.	U
59-50-7	4-Chloro-3-Methylphenol	560.	U
91-57-6	2-Methylnaphthalene	1600.	
77-47-4	Hexachlorocyclopentadiene	560.	U
88-06-2	2,4,6-Trichlorophenol	560.	U
95-95-4	2,4,5-Trichlorophenol	2800.	U
91-58-7	2-Chloronaphthalene	560.	U
88-74-4	2-Nitroaniline	2800.	U
131-11-3	Dimethyl Phthalate	560.	U
208-96-8	Acenaphthylene	110.	J
99-09-2	3-Nitroaniline	2800.	U

C.A.S. Number		ug/L or ug/Kg (Circle One)	
83-32-9	Acenaphthene	1100.	
51-28-5	2,4-Dinitrophenol	2800.	U
100-02-7	4-Nitrophenol	2800.	U
132-64-9	Dibenzofuran	1000.	
121-14-2	2,4-Dinitrotoluene	560.	U
606-20-2	2,6-Dinitrotoluene	560.	U
84-66-2	Diethylphthalate	560.	U
7005-72-3	4-Chlorophenyl-phenylether	560.	U
86-73-7	Fluorene	1300.	
100-01-6	4-Nitroaniline	560.	U
534-52-1	4,6-Dinitro-2-Methylphenol	2800.	U
86-30-6	N-Nitrosodiphenylamine (1)	560.	U
101-55-3	4-Bromophenyl-phenylether	560.	U
118-74-1	Hexachlorobenzene	560.	U
87-86-5	Pentachlorophenol	2800.	U
85-01-8	Phenanthrene	2700.	
120-12-7	Anthracene	520.	J
84-74-2	Di-n-Butylphthalate	560.	U
206-44-0	Fluoranthene	1700.	
129-00-0	Pyrene	1200.	
85-68-7	Butylbenzylphthalate	560.	U
91-94-1	3,3'-Dichlorobenzidine	1100.	U
56-55-3	Benzo(a)Anthracene	400.	J
117-81-7	bis(2-Ethylhexyl)Phthalate	560.	U
218-01-9	Chrysene	440.	J
117-84-0	Di-n-Octyl Phthalate	560.	U
205-99-2	Benzo(b)Fluoranthene	300.	J
207-08-9	Benzo(k)Fluoranthene	560.	U
50-32-8	Benzo(a)Pyrene	230.	J
193-39-5	Indeno(1,2,3-cd)Pyrene	160.	J
53-70-3	Dibenzo(a,h)Anthracene	560.	U
191-24-2	Benzo(g,h,i)Perylene	190.	J

(1)-Cannot be separated from diphenylamine

Lab Name : S - CIRED
Case No : CASE 10274

Sample Number
EN 510

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 8-29-88
Date Analyzed: 9/16/88 3:44
Conc/Dil Factor: 1.50
Percent Moisture (Decanted) N.A.

GPC Cleanup ✓ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)	
108-95-2	Phenol	530.	U
111-44-4	bis(-2-Chloroethyl)Ether	530.	U
95-57-8	2-Chlorophenol	530.	U
541-73-1	1,3-Dichlorobenzene	530.	U
106-46-7	1,4-Dichlorobenzene	530.	U
100-51-6	Benzyl Alcohol	530.	U
95-50-1	1,2-Dichlorobenzene	530.	U
95-48-7	2-Methylphenol	530.	U
39638-32-9	bis(2-chloroisopropyl)Ether	530.	U
106-44-5	4-Methylphenol	530.	U
621-64-7	N-Nitroso-Di-n-Propylamine	530.	U
67-72-1	Hexachloroethane	530.	U
98-95-3	Nitrobenzene	530.	U
78-59-1	Isophorone	530.	U
88-75-5	2-Nitrophenol	530.	U
105-67-9	2,4-Dimethylphenol	530.	U
65-85-0	Benzoic Acid	2600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	530.	U
120-83-2	2,4-Dichlorophenol	530.	U
120-82-1	1,2,4-Trichlorobenzene	530.	U
91-20-3	Naphthalene	530.	U
106-47-8	4-Chloroaniline	530.	U
87-68-3	Hexachlorobutadiene	530.	U
59-50-7	4-Chloro-3-Methylphenol	530.	U
91-57-6	2-Methylnaphthalene	530.	U
77-47-4	Hexachlorocyclopentadiene	530.	U
88-06-2	2,4,6-Trichlorophenol	530.	U
95-95-4	2,4,5-Trichlorophenol	2600.	U
91-58-7	2-Chloronaphthalene	530.	U
88-74-4	2-Nitroaniline	2600.	U
131-11-3	Dimethyl Phthalate	530.	U
208-96-8	Acenaphthylene	530.	U
99-09-2	3-Nitroaniline	2600.	U

C.A.S. Number		ug/L or ug/Kg (Circle One)	
83-32-9	Acenaphthene	530.	U
51-28-5	2,4-Dinitrophenol	2600.	U
100-02-7	4-Nitrophenol	2600.	U
132-64-9	Dibenzofuran	530.	U
121-14-2	2,4-Dinitrotoluene	530.	U
606-20-2	2,6-Dinitrotoluene	530.	U
84-66-2	Diethylphthalate	530.	U
7005-72-3	4-Chlorophenyl-phenylether	530.	U
86-73-7	Fluorene	530.	U
100-01-6	4-Nitroaniline	530.	U
534-52-1	4,6-Dinitro-2-Methylphenol	2600.	U
86-30-6	N-Nitrosodiphenylamine (1)	530.	U
101-55-3	4-Bromophenyl-phenylether	530.	U
118-74-1	Hexachlorobenzene	530.	U
87-86-5	Pentachlorophenol	2600.	U
85-01-8	Phenanthrene	97.	J
120-12-7	Anthracene	530.	U
84-74-2	Di-n-Butylphthalate	530.	U
206-44-0	Fluoranthene	66.	J
129-00-0	Pyrene	530.	U
85-68-7	Butylbenzylphthalate	530.	U
91-94-1	3,3'-Dichlorobenzidine	1100.	U
56-55-3	Benzo(a)Anthracene	530.	U
117-81-7	bis(2-Ethylhexyl)Phthalate	530.	U
218-01-9	Chrysene	530.	U
117-84-0	Di-n-Octyl Phthalate	530.	U
205-99-2	Benzo(b)Fluoranthene	530.	U
207-08-9	Benzo(k)Fluoranthene	530.	U
50-32-8	Benzo(a)Pyrene	530.	U
193-39-5	Indeno(1,2,3-cd)Pyrene	530.	U
53-70-3	Dibenzo(a,h)Anthracene	530.	U
191-24-2	Benzo(g,h,i)Perylene	530.	U

(1)-Cannot be separated from diphenylamine

Lab Name : S - CURED
Case No : CASE 10274

Sample Number
FN 511

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 8-29-88
Date Analyzed: 9/16/88 10:57
Conc/Dil Factor: 1.50
Percent Moisture (Decanted) N.A.

GPC Cleanup ✓ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)	
108-95-2	Phenol	530.	U
111-44-4	bis(-2-Chloroethyl)Ether	530.	U
95-57-8	2-Chlorophenol	530.	U
541-73-1	1,3-Dichlorobenzene	530.	U
106-46-7	1,4-Dichlorobenzene	530.	U
100-51-6	Benzyl Alcohol	530.	U
95-50-1	1,2-Dichlorobenzene	530.	U
95-48-7	2-Methylphenol	530.	U
39638-32-9	bis(2-chloroisopropyl)Ether	530.	U
106-44-5	4-Methylphenol	530.	U
621-64-7	N-Nitroso-Di-n-Propylamine	530.	U
67-72-1	Hexachloroethane	530.	U
98-95-3	Nitrobenzene	530.	U
78-59-1	Isophorone	530.	U
88-75-5	2-Nitrophenol	530.	U
105-67-9	2,4-Dimethylphenol	530.	U
65-85-0	Benzoic Acid	2600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	530.	U
120-83-2	2,4-Dichlorophenol	530.	U
120-82-1	1,2,4-Trichlorobenzene	530.	U
91-20-3	Naphthalene	530.	U
106-47-8	4-Chloroaniline	530.	U
87-68-3	Hexachlorobutadiene	530.	U
59-50-7	4-Chloro-3-Methylphenol	530.	U
91-57-6	2-Methylnaphthalene	530.	U
77-47-4	Hexachlorocyclopentadiene	530.	U
88-06-2	2,4,6-Trichlorophenol	530.	U
95-95-4	2,4,5-Trichlorophenol	2600.	U
91-58-7	2-Chloronaphthalene	530.	U
88-74-4	2-Nitroaniline	2600.	U
131-11-3	Dimethyl Phthalate	530.	U
208-96-8	Acenaphthylene	530.	U
99-09-2	3-Nitroaniline	2600.	U

C.A.S. Number		ug/L or ug/Kg (Circle One)	
83-32-9	Acenaphthene	530.	U
51-28-5	2,4-Dinitrophenol	2600.	U
100-02-7	4-Nitrophenol	2600.	U
132-64-9	Dibenzofuran	530.	U
121-14-2	2,4-Dinitrotoluene	530.	U
606-20-2	2,6-Dinitrotoluene	530.	U
84-66-2	Diethylphthalate	530.	U
7005-72-3	4-Chlorophenyl-phenylether	530.	U
86-73-7	Fluorene	530.	U
100-01-6	4-Nitroaniline	530.	U
534-52-1	4,6-Dinitro-2-Methylphenol	2600.	U
86-30-6	N-Nitrosodiphenylamine (1)	530.	U
101-55-3	4-Bromophenyl-phenylether	530.	U
118-74-1	Hexachlorobenzene	530.	U
87-86-5	Pentachlorophenol	2600.	U
85-01-8	Phenanthrene	530.	U
120-12-7	Anthracene	530.	U
84-74-2	Di-n-Butylphthalate	530.	U
206-44-0	Fluoranthene	550.	
129-00-0	Pyrene	540.	
85-68-7	Butylbenzylphthalate	530.	U
91-94-1	3,3'-Dichlorobenzidine	1100.	U
56-55-3	Benzo(a)Anthracene	190.	J
117-81-7	bis(2-Ethylhexyl)Phthalate	530.	U
218-01-9	Chrysene	590.	
117-84-0	Di-n-Octyl Phthalate	530.	U
205-99-2	Benzo(b)Fluoranthene	260.	J
207-08-9	Benzo(k)Fluoranthene	530.	U
50-32-8	Benzo(a)Pyrene	120.	J
193-39-5	Indeno(1,2,3-cd)Pyrene	530.	U
53-70-3	Dibenzo(a,h)Anthracene	530.	U
191-24-2	Benzo(g,h,i)Perylene	530.	U

(1)-Cannot be separated from diphenylamine

Lab Name : S - DSFD
Case No : CASE 10274

Sample Number
EN 512

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 8-29-88
Date Analyzed: 9/16/88 6:57
Conc/Dil Factor: 1.50
Percent Moisture (Decanted) N.A.

GPC Cleanup ✓ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)	
108-95-2	Phenol	530.	U
111-44-4	bis(-2-Chloroethyl)Ether	530.	U
95-57-8	2-Chlorophenol	530.	U
541-73-1	1,3-Dichlorobenzene	530.	U
106-46-7	1,4-Dichlorobenzene	530.	U
100-51-6	Benzyl Alcohol	530.	U
95-50-1	1,2-Dichlorobenzene	530.	U
95-48-7	2-Methylphenol	530.	U
39638-32-9	bis(2-chloroisopropyl)Ether	530.	U
106-44-5	4-Methylphenol	530.	U
621-64-7	N-Nitroso-Di-n-Propylamine	530.	U
67-72-1	Hexachloroethane	530.	U
98-95-3	Nitrobenzene	530.	U
78-59-1	Isophorone	530.	U
88-75-5	2-Nitrophenol	530.	U
105-67-9	2,4-Dimethylphenol	530.	U
65-85-0	Benzoic Acid	2600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	530.	U
120-83-2	2,4-Dichlorophenol	530.	U
120-82-1	1,2,4-Trichlorobenzene	530.	U
91-20-3	Naphthalene	530.	U
106-47-8	4-Chloroaniline	530.	U
87-68-3	Hexachlorobutadiene	530.	U
59-50-7	4-Chloro-3-Methylphenol	530.	U
91-57-6	2-Methylnaphthalene	530.	U
77-47-4	Hexachlorocyclopentadiene	530.	U
88-06-2	2,4,6-Trichlorophenol	530.	U
95-95-4	2,4,5-Trichlorophenol	2600.	U
91-58-7	2-Chloronaphthalene	530.	U
88-74-4	2-Nitroaniline	2600.	U
131-11-3	Dimethyl Phthalate	530.	U
208-96-8	Acenaphthylene	530.	U
99-09-2	3-Nitroaniline	2600.	U

C.A.S. Number		ug/L or ug/Kg (Circle One)	
83-32-9	Acenaphthene	530.	U
51-28-5	2,4-Dinitrophenol	2600.	U
100-02-7	4-Nitrophenol	2600.	U
132-64-9	Dibenzofuran	530.	U
121-14-2	2,4-Dinitrotoluene	530.	U
606-20-2	2,6-Dinitrotoluene	530.	U
84-66-2	Diethylphthalate	530.	U
7005-72-3	4-Chlorophenyl-phenylether	530.	U
86-73-7	Fluorene	530.	U
100-01-6	4-Nitroaniline	530.	U
534-52-1	4,6-Dinitro-2-Methylphenol	2600.	U
86-30-6	N-Nitrosodiphenylamine (1)	530.	U
101-55-3	4-Bromophenyl-phenylether	530.	U
118-74-1	Hexachlorobenzene	530.	U
87-86-5	Pentachlorophenol	2600.	U
85-01-8	Phenanthrene	530.	U
120-12-7	Anthracene	530.	U
84-74-2	Di-n-Butylphthalate	530.	U
206-44-0	Fluoranthene	530.	U
129-00-0	Pyrene	530.	U
85-68-7	Butylbenzylphthalate	530.	U
91-94-1	3,3'-Dichlorobenzidine	1100.	U
56-55-3	Benzo(a)Anthracene	530.	U
117-81-7	bis(2-Ethylhexyl)Phthalate	530.	U
218-01-9	Chrysene	530.	U
117-84-0	Di-n-Octyl Phthalate	530.	U
205-99-2	Benzo(b)Fluoranthene	530.	U
207-08-9	Benzo(k)Fluoranthene	530.	U
50-32-8	Benzo(a)Pyrene	530.	U
193-39-5	Indeno(1,2,3-cd)Pyrene	530.	U
53-70-3	Dibenzo(a,h)Anthracene	530.	U
191-24-2	Benzo(g,h,i)Perylene	530.	U

(1)-Cannot be separated from diphenylamine

Lab Name : S - CORED
Case No : CASE 10774

Sample Number
EN 513

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 8-29-88
Date Analyzed: 9/16/88 10:00
Conc/Dil Factor: 1.50
Percent Moisture (Decanted) N.A.

GPC Cleanup ✓ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)	
108-95-2	Phenol	520.	U
111-44-4	bis(-2-Chloroethyl)Ether	520.	U
95-57-8	2-Chlorophenol	520.	U
541-73-1	1,3-Dichlorobenzene	520.	U
106-46-7	1,4-Dichlorobenzene	520.	U
100-51-6	Benzyl Alcohol	520.	U
95-50-1	1,2-Dichlorobenzene	520.	U
95-48-7	2-Methylphenol	520.	U
39638-32-9	bis(2-chloroisopropyl)Ether	520.	U
106-44-5	4-Methylphenol	520.	U
621-64-7	N-Nitroso-Di-n-Propylamine	520.	U
67-72-1	Hexachloroethane	520.	U
98-95-3	Nitrobenzene	520.	U
78-59-1	Isophorone	520.	U
88-75-5	2-Nitrophenol	520.	U
105-67-9	2,4-Dimethylphenol	520.	U
65-85-0	Benzoic Acid	2600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	520.	U
120-83-2	2,4-Dichlorophenol	520.	U
120-82-1	1,2,4-Trichlorobenzene	520.	U
91-20-3	Naphthalene	520.	U
106-47-8	4-Chloroaniline	520.	U
87-68-3	Hexachlorobutadiene	520.	U
59-50-7	4-Chloro-3-Methylphenol	520.	U
91-57-6	2-Methylnaphthalene	520.	U
77-47-4	Hexachlorocyclopentadiene	520.	U
88-06-2	2,4,6-Trichlorophenol	520.	U
95-95-4	2,4,5-Trichlorophenol	2600.	U
91-58-7	2-Chloronaphthalene	520.	U
88-74-4	2-Nitroaniline	2600.	U
131-11-3	Dimethyl Phthalate	520.	U
208-96-8	Acenaphthylene	520.	U
99-09-2	3-Nitroaniline	2600.	U

C.A.S. Number		ug/L or ug/Kg (Circle One)	
83-32-9	Acenaphthene	520.	U
51-28-5	2,4-Dinitrophenol	2600.	U
100-02-7	4-Nitrophenol	2600.	U
132-64-9	Dibenzofuran	520.	U
121-14-2	2,4-Dinitrotoluene	520.	U
606-20-2	2,6-Dinitrotoluene	520.	U
84-66-2	Diethylphthalate	520.	U
7005-72-3	4-Chlorophenyl-phenylether	520.	U
86-73-7	Fluorene	520.	U
100-01-6	4-Nitroaniline	520.	U
534-52-1	4,6-Dinitro-2-Methylphenol	2600.	U
86-30-6	N-Nitrosodiphenylamine (1)	520.	U
101-55-3	4-Bromophenyl-phenylether	520.	U
118-74-1	Hexachlorobenzene	520.	U
87-86-5	Pentachlorophenol	2600.	U
85-01-8	Phenanthrene	520.	U
120-12-7	Anthracene	520.	U
84-74-2	Di-n-Butylphthalate	520.	U
206-44-0	Fluoranthene	520.	U
129-00-0	Pyrene	520.	U
85-68-7	Butylbenzylphthalate	520.	U
91-94-1	3,3'-Dichlorobenzidine	1000.	U
56-55-3	Benzo(a)Anthracene	520.	U
117-81-7	bis(2-Ethylhexyl)Phthalate	520.	U
218-01-9	Chrysene	520.	U
117-84-0	Di-n-Octyl Phthalate	520.	U
205-99-2	Benzo(b)Fluoranthene	520.	U
207-08-9	Benzo(k)Fluoranthene	520.	U
50-32-8	Benzo(a)Pyrene	520.	U
193-39-5	Indeno(1,2,3-cd)Pyrene	520.	U
53-70-3	Dibenzo(a,h)Anthracene	520.	U
191-24-2	Benzo(g,h,i)Perylene	520.	U

(1)-Cannot be separated from diphenylamine

Lab Name : S - CUGED
Case No : CASE 18274

Sample Number
EN 514

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 8-29-88
Date Analyzed: 9/16/88 7:59
Conc/Dil Factor: 1.50
Percent Moisture (Decanted) N.A.

GPC Cleanup ✓ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)	
108-95-2	Phenol	530.	U
111-44-4	bis(-2-Chloroethyl)Ether	530.	U
95-57-8	2-Chlorophenol	530.	U
541-73-1	1,3-Dichlorobenzene	530.	U
106-46-7	1,4-Dichlorobenzene	530.	U
100-51-6	Benzyl Alcohol	530.	U
95-50-1	1,2-Dichlorobenzene	530.	U
95-48-7	2-Methylphenol	530.	U
39638-32-9	bis(2-chloroisopropyl)Ether	530.	U
106-44-5	4-Methylphenol	530.	U
621-64-7	N-Nitroso-Di-n-Propylamine	530.	U
67-72-1	Hexachloroethane	530.	U
98-95-3	Nitrobenzene	530.	U
78-59-1	Isophorone	530.	U
88-75-5	2-Nitrophenol	530.	U
105-67-9	2,4-Dimethylphenol	530.	U
65-85-0	Benzoic Acid	2600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	530.	U
120-83-2	2,4-Dichlorophenol	530.	U
120-82-1	1,2,4-Trichlorobenzene	530.	U
91-20-3	Naphthalene	530.	U
106-47-8	4-Chloroaniline	530.	U
87-68-3	Hexachlorobutadiene	530.	U
59-50-7	4-Chloro-3-Methylphenol	530.	U
91-57-6	2-Methylnaphthalene	530.	U
77-47-4	Hexachlorocyclopentadiene	530.	U
88-06-2	2,4,6-Trichlorophenol	530.	U
95-95-4	2,4,5-Trichlorophenol	2600.	U
91-58-7	2-Chloronaphthalene	530.	U
88-74-4	2-Nitroaniline	2600.	U
131-11-3	Dimethyl Phthalate	530.	U
208-96-8	Acenaphthylene	530.	U
99-09-2	3-Nitroaniline	2600.	U

C.A.S. Number		ug/L or ug/Kg (Circle One)	
83-32-9	Acenaphthene	530.	U
51-28-5	2,4-Dinitrophenol	2600.	U
100-02-7	4-Nitrophenol	2600.	U
132-64-9	Dibenzofuran	530.	U
121-14-2	2,4-Dinitrotoluene	530.	U
606-20-2	2,6-Dinitrotoluene	530.	U
84-66-2	Diethylphthalate	530.	U
7005-72-3	4-Chlorophenyl-phenylether	530.	U
86-73-7	Fluorene	530.	U
100-01-6	4-Nitroaniline	530.	U
534-52-1	4,6-Dinitro-2-Methylphenol	2600.	U
86-30-6	N-Nitrososdiphenylamine (1)	530.	U
101-55-3	4-Bromophenyl-phenylether	530.	U
118-74-1	Hexachlorobenzene	530.	U
87-86-5	Pentachlorophenol	2600.	U
85-01-8	Phenanthrene	530.	U
120-12-7	Anthracene	530.	U
84-74-2	Di-n-Butylnhthalate	530.	U
206-44-0	Fluoranthene	530.	U
129-00-0	Pyrene	530.	U
85-68-7	Butylbenzylphthalate	530.	U
91-94-1	3,3'-Dichlorobenzidine	1100.	U
56-55-3	Benzo(a)Anthracene	530.	U
117-81-7	bis(2-Ethylhexyl)Phthalate	530.	U
218-01-9	Chrysene	530.	U
117-84-0	Di-n-Octyl Phthalate	530.	U
205-99-2	Benzo(b)Fluoranthene	530.	U
207-08-9	Benzo(k)Fluoranthene	530.	U
50-32-8	Benzo(a)Pyrene	530.	U
193-39-5	Indeno(1,2,3-cd)Pyrene	530.	U
53-70-3	Dibenzo(a,h)Anthracene	530.	U
191-24-2	Benzo(g,h,i)Perylene	530.	U

(1)-Cannot be separated from diphenylamine

Lab Name : S - CIRED
Case No : CASE 10274

Sample Number
EP 946

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted: 8-29-88
Date Analyzed: 9/16/88 9:01
Conc/Dil Factor: 1.50
Percent Moisture (Decanted) N.A.

GPC Cleanup ✓ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or ug/Kg (Circle One)	
108-95-2	Phenol	520.	U
111-44-4	bis(-2-Chloroethyl)Ether	520.	U
95-57-8	2-Chlorophenol	520.	U
541-73-1	1,3-Dichlorobenzene	520.	U
106-46-7	1,4-Dichlorobenzene	520.	U
100-51-6	Benzyl Alcohol	520.	U
95-50-1	1,2-Dichlorobenzene	520.	U
95-48-7	2-Methylphenol	520.	U
39638-32-9	bis(2-chloroisopropyl)Ether	520.	U
106-44-5	4-Methylphenol	520.	U
621-64-7	N-Nitroso-Di-n-Propylamine	520.	U
67-72-1	Hexachloroethane	520.	U
98-95-3	Nitrobenzene	520.	U
78-59-1	Isophorone	520.	U
88-75-5	2-Nitrophenol	520.	U
105-67-9	2,4-Dimethylphenol	520.	U
65-85-0	Benzoic Acid	2600.	U
111-91-1	bis(-2-Chloroethoxy)Methane	520.	U
120-83-2	2,4-Dichlorophenol	520.	U
120-82-1	1,2,4-Trichlorobenzene	520.	U
91-20-3	Naphthalene	520.	U
106-47-8	4-Chloroaniline	520.	U
87-68-3	Hexachlorobutadiene	520.	U
59-50-7	4-Chloro-3-Methylphenol	520.	U
91-57-6	2-Methylnaphthalene	520.	U
77-47-4	Hexachlorocyclopentadiene	520.	U
88-06-2	2,4,6-Trichlorophenol	520.	U
95-95-4	2,4,5-Trichlorophenol	2600.	U
91-58-7	2-Chloronaphthalene	520.	U
88-74-4	2-Nitroaniline	2600.	U
131-11-3	Dimethyl Phthalate	520.	U
208-96-8	Acenaphthylene	520.	U
99-09-2	3-Nitroaniline	2600.	U

C.A.S. Number		ug/L or ug/Kg (Circle One)	
83-32-9	Acenaphthene	520.	U
51-28-5	2,4-Dinitrophenol	2600.	U
100-02-7	4-Nitrophenol	2600.	U
132-64-9	Dibenzofuran	520.	U
121-14-2	2,4-Dinitrotoluene	520.	U
606-20-2	2,6-Dinitrotoluene	520.	U
84-66-2	Diethylphthalate	520.	U
7005-72-3	4-Chlorophenyl-phenylether	520.	U
86-73-7	Fluorene	520.	U
100-01-6	4-Nitroaniline	520.	U
534-52-1	4,6-Dinitro-2-Methylphenol	2600.	U
86-30-6	N-Nitrosodiphenylamine (1)	520.	U
101-55-3	4-Bromophenyl-phenylether	520.	U
118-74-1	Hexachlorobenzene	520.	U
87-86-5	Pentachlorophenol	2600.	U
85-01-8	Phenanthrene	520.	U
120-12-7	Anthracene	520.	U
84-74-2	Di-n-Butylphthalate	520.	U
206-44-0	Fluoranthene	520.	U
129-00-0	Pyrene	520.	U
85-68-7	Butylbenzylphthalate	520.	U
91-94-1	3,3'-Dichlorobenzidine	1000.	U
56-55-3	Benzo(a)Anthracene	520.	U
117-81-7	bis(2-Ethylhexyl)Phthalate	520.	U
218-01-9	Chrysene	520.	U
117-84-0	Di-n-Octyl Phthalate	520.	U
205-99-2	Benzo(b)Fluoranthene	520.	U
207-08-9	Benzo(k)Fluoranthene	520.	U
50-32-8	Benzo(a)Pyrene	520.	U
193-39-5	Indeno(1,2,3-cd)Pyrene	520.	U
53-70-3	Dibenzo(a,h)Anthracene	520.	U
191-24-2	Benzo(g,h,i)Perylene	520.	U

(1)-Cannot be separated from diphenylamine

DATA QUALIFIERS

Contractor: _____

Case 10274

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

for soils, therefore these results are acceptable.

GFAA:

All GFAA results are acceptable.

Other Qualifiers:

The matrix spike recovery for CN (72.4%) indicates that the detection limits may be elevated; all CN data were flagged N by the laboratory and all CN data are estimated (UJ). All Hg data are acceptable.

Reviewed by: Linda Korobka

Phone:

Date: 9/20/88

Laboratory Name: S-Cubed
Case No.: 10274

Sample Number
EN 507

ORGANICS ANALYSIS DATA
(Page 3)

Pesticide/PCBs

Concentration: LOW
Date Extracted/Prepared: 09-02-88
Date Analyzed: 09-15-88
Conc/Dil Factor: 1.00

EPC Cleanup __Yes X NO
Separatory Funnel Extraction __Yes
Continuous Liquid-Liquid Extraction __Yes

CAS # Number		ug/l or ug/Kg (Circle One)
319-84-6	ALPHA-BHC	8.4 u
319-85-7	BETA-BHC	8.4 u
319-86-8	DELTA-BHC	8.4 u
58-89-9	GAMMA-BHC (LINDANE)	8.4 u
76-44-8	HEPTACHLOR	8.4 u
309-00-2	ALDRIN	8.4 u
1024-57-3	HEPTACHLOR EPOXIDE	8.4 u
959-98-8	ENDOSULFAN I	8.4 u
60-57-1	DIELDRIN	17 u
72-55-9	4,4'-DDE	17 u
72-20-8	ENDRIN	17 u
33213-65-9	ENDOSULFAN II	17 u
72-54-8	4,4'-DDD	17 u
7421-93-4	ENDRIN ALDEHYDE	17 u
1031-07-8	ENDOSULFAN SULFATE	17 u
50-29-3	4,4'-DDT	17 u
72-43-5	METHOXYCHLOR	84 u
53494-70-5	ENDRIN KETONE	17 u
57-74-9	CHLORDANE	84 u
8001-35-2	TOXAPHENE	170 u
12674-11-2	AROCLOR-1016	84 u
11104-28-2	AROCLOR-1221	84 u
11141-16-5	AROCLOR-1232	84 u
53469-21-9	AROCLOR-1242	84 u
12672-29-6	AROCLOR-1248	84 u
11097-69-1	AROCLOR-1254	170 u
11096-82-5	AROCLOR-1260	170 u

Volume of water extracted (ml): N.A.
Weight of sample extracted (g): 30.0
Volume of total extract (ml): 10.00
Volume of extract injected (ul): 1.00

** CONFIRMED BY GC DUAL COLUMN CONFIRMATION

Laboratory Name: S-Cubed
Case No.: 10274

Sample Number
EN 508

ORGANICS ANALYSIS DATA
(Page 3)

Pesticide/PCBs

Concentration: LOW
Date Extracted/Prepared: 09-02-88
Date Analyzed: 09-15-88
Conc/Dil Factor: 1.00

GPC Cleanup __Yes X NO
Separatory Funnel Extraction __Yes
Continuous Liquid-Liquid Extraction __Yes

CAS # Number		ug/l or ug/Kg (Circle One)
319-84-6	ALPHA-BHC	8.4 u
319-85-7	BETA-BHC	8.4 u
319-86-8	DELTA-BHC	8.4 u
58-89-9	GAMMA-BHC (LINDANE)	8.4 u
76-44-8	HEPTACHLOR	8.4 u
309-00-2	ALDRIN	8.4 u
1024-57-3	HEPTACHLOR EPOXIDE	8.4 u
959-98-8	ENDOSULFAN I	8.4 u
60-57-1	DIELDRIN	17 u
72-55-9	4,4'-DDE	17 u
72-20-8	ENDRIN	17 u
33213-65-9	ENDOSULFAN II	17 u
72-54-8	4,4'-DDD	17 u
7421-93-4	ENDRIN ALDEHYDE	17 u
1031-07-8	ENDOSULFAN SULFATE	17 u
50-29-3	4,4'-DDT	17 u
72-43-5	METHOXYCHLOR	84 u
53494-70-5	ENDRIN KETONE	17 u
57-74-9	CHLORDANE	84 u
8001-35-2	TOXAPHENE	170 u
12674-11-2	AROCLOR-1016	84 u
11104-28-2	AROCLOR-1221	84 u
11141-16-5	AROCLOR-1232	84 u
53469-21-9	AROCLOR-1242	84 u
12672-29-6	AROCLOR-1248	84 u
11097-69-1	AROCLOR-1254	170 u
11096-82-5	AROCLOR-1260	170 u

Volume of water extracted (ml): N.A.
Weight of sample extracted (g): 30.0
Volume of total extract (ml): 10.00
Volume of extract injected (ul): 1.00

** CONFIRMED BY GC DUAL COLUMN CONFIRMATION

Laboratory Name: S-Cubed
Case No.: 10274

Sample Number
EN 509

ORGANICS ANALYSIS DATA
(Page 3)

Pesticide/PCBs

Concentration: LOW
Date Extracted/Prepared: 09-02-88
Date Analyzed: 09-21-88
Conc/Dil Factor: 1.00

GPC Cleanup __Yes X NO
Separatory Funnel Extraction __Yes
Continuous Liquid-Liquid Extraction __Yes

CAS # Number		ug/l or ug/Kg (Circle One)
319-84-6	ALPHA-BHC	9.0 u
319-85-7	BETA-BHC	9.0 u
319-86-8	DELTA-BHC	9.0 u
58-89-9	GAMMA-BHC (LINDANE)	9.0 u
76-44-8	HEPTACHLOR	9.0 u
309-00-2	ALDRIN	9.0 u
1024-57-3	HEPTACHLOR EPOXIDE	9.0 u
959-98-8	ENDOSULFAN I	9.0 u
60-57-1	DIELDRIN	18 u
72-55-9	4,4'-DDE	18 u
72-20-8	ENDRIN	18 u
33213-65-9	ENDOSULFAN II	18 u
72-54-8	4,4'-DDD	18 u
7421-93-4	ENDRIN ALDEHYDE	18 u
1031-07-8	ENDOSULFAN SULFATE	18 u
50-29-3	4,4'-DDT	18 u
72-43-5	METHOXYCHLOR	90 u
53494-70-5	ENDRIN KETONE	18 u
57-74-9	CHLORDANE	90 u
8001-35-2	TOXAPHENE	180 u
12674-11-2	AROCLOR-1016	90 u
11104-28-2	AROCLOR-1221	90 u
11141-16-5	AROCLOR-1232	90 u
53469-21-9	AROCLOR-1242	90 u
12672-29-6	AROCLOR-1248	90 u
11097-69-1	AROCLOR-1254	180 u
11096-82-5	AROCLOR-1260	180 u

Volume of water extracted (ml): N.A.
Weight of sample extracted (g): 30.0
Volume of total extract (ml): 10.00
Volume of extract injected (ul): 1.00

** CONFIRMED BY GC DUAL COLUMN CONFIRMATION

Laboratory Name: S-Cubed
Case No.: 10274

Sample Number
EN 510

ORGANICS ANALYSIS DATA
(Page 3)

Pesticide/PCBs

Concentration: LOW
Date Extracted/Prepared: 09-02-88
Date Analyzed: 09-15-89
Conc/Dil Factor: 1.00

GPC Cleanup __Yes X NO
Separatory Funnel Extraction __Yes
Continuous Liquid-Liquid Extraction __Yes

CAS # Number		ug/l or ug/Kg (Circle One)
319-84-6	ALPHA-BHC	8.4 u
319-85-7	BETA-BHC	8.4 u
319-86-8	DELTA-BHC	8.4 u
58-89-9	GAMMA-BHC (LINDANE)	8.4 u
76-44-8	HEPTACHLOR	8.4 u
309-00-2	ALDRIN	8.4 u
1024-57-3	HEPTACHLOR EPOXIDE	8.4 u
959-98-8	ENDOSULFAN I	8.4 u
60-57-1	DIELDRIN	17 u
72-55-9	4,4'-DDE	17 u
72-20-8	ENDRIN	17 u
33213-65-9	ENDOSULFAN II	17 u
72-54-8	4,4'-DDD	17 u
7421-93-4	ENDRIN ALDEHYDE	17 u
1031-07-8	ENDOSULFAN SULFATE	17 u
50-29-3	4,4'-DDT	17 u
72-43-5	METHOXYCHLOR	84 u
53494-70-5	ENDRIN KETONE	17 u
57-74-9	CHLORDANE	84 u
8001-35-2	TOXAPHENE	170 u
12674-11-2	AROCLOR-1016	84 u
11104-28-2	AROCLOR-1221	84 u
11141-16-5	AROCLOR-1232	84 u
53469-21-9	AROCLOR-1242	84 u
12672-29-6	AROCLOR-1248	84 u
11097-69-1	AROCLOR-1254	170 u
11096-82-5	AROCLOR-1260	170 u

Volume of water extracted (ml): N.A.
Weight of sample extracted (g): 30.0
Volume of total extract (ml): 10.00
Volume of extract injected (ul): 1.00

++ CONFIRMED BY GC DUAL COLUMN CONFIRMATION

Laboratory Name: G-Cubed
Case No.: 10274

Sample Number
EN 511

ORGANICS ANALYSIS DATA
(Page 3)

Pesticide/PCBs

Concentration: LOW
Date Extracted/Prepared: 09-02-88
Date Analyzed: 09-15-88
Conc/Dil Factor: 1.00

GPC Cleanup __Yes X NO
Separatory Funnel Extraction __Yes
Continuous Liquid-Liquid Extraction __Yes

CAS # Number		ug/l or ug/Kg (Circle One)
319-84-6	ALPHA-BHC	8.5 u
319-85-7	BETA-BHC	8.5 u
319-86-8	DELTA-BHC	8.5 u
58-89-9	GAMMA-BHC (LINDANE)	8.5 u
76-44-8	HEPTACHLOR	8.5 u
309-00-2	ALDRIN	8.5 u
1024-57-3	HEPTACHLOR EPOXIDE	8.5 u
959-98-8	ENDOSULFAN I	8.5 u
60-57-1	DIELDRIN	17 u
72-55-9	4,4'-DDE	17 u
72-20-8	ENDRIN	17 u
33213-65-9	ENDOSULFAN II	17 u
72-54-8	4,4'-DDD	17 u
7421-93-4	ENDRIN ALDEHYDE	17 u
1031-07-8	ENDOSULFAN SULFATE	17 u
50-29-3	4,4'-DDT	17 u
72-43-5	METHOXYCHLOR	85 u
53494-70-5	ENDRIN KETONE	17 u
57-74-9	CHLORDANE	85 u
8001-35-2	TOXAPHENE	170 u
12674-11-2	AROCLOR-1016	85 u
11104-28-2	AROCLOR-1221	85 u
11141-16-5	AROCLOR-1232	85 u
53469-21-9	AROCLOR-1242	85 u
12672-29-6	AROCLOR-1248	85 u
11097-69-1	AROCLOR-1254	170 u
11096-82-5	AROCLOR-1260	170 u

Volume of water extracted (ml): N.A.
Weight of sample extracted (g): 30.0
Volume of total extract (ml): 10.00
Volume of extract injected (ul): 1.00

** CONFIRMED BY GC DUAL COLUMN CONFIRMATION

Laboratory Name: S-Cubed
Case No.: 10274

Sample Number
EN 512

ORGANICS ANALYSIS DATA
(Page 3)

Pesticide/PCBs

Concentration: LOW
Date Extracted/Prepared: 09-02-88
Date Analyzed: 09-15-88
Conc/Dil Factor: 1.00

GPC Cleanup __Yes X NO
Separatory Funnel Extraction __Yes
Continuous Liquid-Liquid Extraction __Yes

CAS # Number		ug/l or ug/Kg (Circle One)
319-84-6	ALPHA-BHC	8.4 u
319-85-7	BETA-BHC	8.4 u
319-86-8	DELTA-BHC	8.4 u
58-89-9	GAMMA-BHC (LINDANE)	8.4 u
76-44-8	HEPTACHLOR	8.4 u
309-00-2	ALDRIN	8.4 u
1024-57-3	HEPTACHLOR EPOXIDE	8.4 u
959-98-8	ENDOSULFAN I	8.4 u
60-57-1	DIELDRIN	17 u
72-55-9	4,4'-DDE	17 u
72-20-8	ENDRIN	17 u
33213-65-9	ENDOSULFAN II	17 u
72-54-8	4,4'-DDD	17 u
7421-93-4	ENDRIN ALDEHYDE	17 u
1031-07-8	ENDOSULFAN SULFATE	17 u
50-29-3	4,4'-DDT	17 u
72-43-5	METHOXYCHLOR	84 u
53494-70-5	ENDRIN KETONE	17 u
57-74-9	CHLORDANE	84 u
8001-35-2	TOXAPHENE	170 u
12674-11-2	AROCLOR-1016	84 u
11104-28-2	AROCLOR-1221	84 u
11141-16-5	AROCLOR-1232	84 u
53469-21-9	AROCLOR-1242	84 u
12672-29-6	AROCLOR-1248	84 u
11097-69-1	AROCLOR-1254	170 u
11096-82-5	AROCLOR-1260	170 u

Volume of water extracted (ml): N.A.
Weight of sample extracted (g): 30.0
Volume of total extract (ml): 10.00
Volume of extract injected (ul): 1.00

Form I 7/85 REV.

** CONFIRMED BY GC DUAL COLUMN CONFIRMATION

Laboratory Name: S-Cubed
Case No.: 10274

Sample Number
EM 313

ORGANICS ANALYSIS DATA
(Page 3)

Pesticide/PCBs

Concentration: LOW
Date Extracted/Prepared: 09-02-88
Date Analyzed: 09-15-88
Conc/Dil Factor: 1.00

GPC Cleanup __Yes X NO
Separatory Funnel Extraction __Yes
Continuous Liquid-Liquid Extraction __Yes

CAS # Number		ug/l or ug/Kg (Circle One)
319-84-6	ALPHA-BHC	8.3 u
319-85-7	BETA-BHC	8.3 u
319-86-8	DELTA-BHC	8.3 u
58-89-9	GAMMA-BHC (LINDANE)	8.3 u
76-44-8	HEPTACHLOR	8.3 u
309-00-2	ALDRIN	8.3 u
1024-57-3	HEPTACHLOR EPOXIDE	8.3 u
959-98-8	ENDOSULFAN I	8.3 u
60-57-1	DIELDRIN	17 u
72-55-9	4,4'-DDE	17 u
72-20-8	ENDRIN	17 u
33213-65-9	ENDOSULFAN II	17 u
72-54-8	4,4'-DDD	17 u
7421-93-4	ENDRIN ALDEHYDE	17 u
1031-07-8	ENDOSULFAN SULFATE	17 u
50-29-3	4,4'-DDT	17 u
72-43-5	METHOXYCHLOR	83 u
53494-70-5	ENDRIN KETONE	17 u
57-74-9	CHLORDANE	83 u
8001-35-2	TOXAPHENE	170 u
12674-11-2	AROCLOR-1016	83 u
11104-28-2	AROCLOR-1221	83 u
11141-16-5	AROCLOR-1232	83 u
53469-21-9	AROCLOR-1242	83 u
12672-29-6	AROCLOR-1248	83 u
11097-69-1	AROCLOR-1254	170 u
11096-82-5	AROCLOR-1260	170 u

Volume of water extracted (ml): N.A.
Weight of sample extracted (g): 30.0
Volume of total extract (ml): 10.00
Volume of extract injected (ul): 1.00

Form I 7/85 REV.

** CONFIRMED BY GC DUAL COLUMN CONFIRMATION

Laboratory Name: S-Cubed
Case No.: 10274

Sample Number
EM 514

ORGANICS ANALYSIS DATA
(Page 3)

Pesticide/PCBs

Concentration: LOW
Date Extracted/Prepared: 09-02-88
Date Analyzed: 09-21-88
Conc/Dil Factor: 1.00

GPC Cleanup __Yes X NO
Separatory Funnel Extraction __Yes
Continuous Liquid-Liquid Extraction __Yes

CAS # Number		ug/l or ug/Kg (Circle One)
319-84-6	ALPHA-BHC	8.4 u
319-85-7	BETA-BHC	8.4 u
319-86-8	DELTA-BHC	8.4 u
58-89-9	GAMMA-BHC (LINDANE)	8.4 u
76-44-8	HEPTACHLOR	8.4 u
309-00-2	ALDRIN	8.4 u
1024-57-3	HEPTACHLOR EPOXIDE	8.4 u
959-98-8	ENDOSULFAN I	8.4 u
60-57-1	DIELDRIN	17 u
72-55-9	4,4'-DDE	17 u
72-20-8	ENDRIN	17 u
33213-65-9	ENDOSULFAN II	17 u
72-54-8	4,4'-DDD	17 u
7421-93-4	ENDRIN ALDEHYDE	17 u
1031-07-8	ENDOSULFAN SULFATE	17 u
50-29-3	4,4'-DDT	17 u
72-43-5	METHOXYCHLOR	84 u
53494-70-5	ENDRIN KETONE	17 u
57-74-9	CHLORDANE	84 u
8001-35-2	TOXAPHENE	170 u
12674-11-2	AROCLOR-1016	84 u
11104-28-2	AROCLOR-1221	84 u
11141-16-5	AROCLOR-1232	84 u
53469-21-9	AROCLOR-1242	84 u
12672-29-6	AROCLOR-1248	84 u
11097-69-1	AROCLOR-1254	170 u
11096-82-5	AROCLOR-1260	170 u

Volume of water extracted (ml): N.A.
Weight of sample extracted (g): 30.0
Volume of total extract (ml): 10.00
Volume of extract injected (ul): 1.00

Form I 7/85 REV.

++ CONFIRMED BY GC DUAL COLUMN CONFIRMATION

Laboratory Name: S-Cubed
Case No.: 10274

Sample Number
EP 946

ORGANICS ANALYSIS DATA
(Page 3)

Pesticide/PCBs

Concentration: LOW
Date Extracted/Prepared: 09-02-88
Date Analyzed: 09-21-88
Conc/Dil Factor: 1.00

GPC Cleanup __Yes X NO
Separatory Funnel Extraction __Yes
Continuous Liquid-Liquid Extraction __Yes

CAS # Number		ug/l or ug/Kg (Circle One)
319-84-6	ALPHA-BHC	8.4 u
319-85-7	BETA-BHC	8.4 u
319-86-8	DELTA-BHC	8.4 u
58-89-9	GAMMA-BHC (LINDANE)	8.4 u
76-44-8	HEPTACHLOR	8.4 u
309-00-2	ALDRIN	8.4 u
1024-57-3	HEPTACHLOR EPOXIDE	8.4 u
959-98-8	ENDOSULFAN I	8.4 u
60-57-1	DIELDRIN	17 u
72-55-9	4,4'-DDE	17 u
72-20-8	ENDRIN	17 u
33213-65-9	ENDOSULFAN II	17 u
72-54-8	4,4'-DDD	17 u
7421-93-4	ENDRIN ALDEHYDE	17 u
1031-07-8	ENDOSULFAN SULFATE	17 u
50-29-3	4,4'-DDT	17 u
72-43-5	METHOXYCHLOR	84 u
53494-70-5	ENDRIN KETONE	17 u
57-74-9	CHLORDANE	84 u
8001-35-2	TOXAPHENE	170 u
12674-11-2	AROCLOR-1016	84 u
11104-28-2	AROCLOR-1221	84 u
11141-16-5	AROCLOR-1232	84 u
53469-21-9	AROCLOR-1242	84 u
12672-29-6	AROCLOR-1248	84 u
11097-69-1	AROCLOR-1254	170 u
11096-82-5	AROCLOR-1260	170 u

Volume of water extracted (ml): N.A.
Weight of sample extracted (g): 30.0
Volume of total extract (ml): 10.00
Volume of extract injected (ul): 1.00

** CONFIRMED BY GC DUAL COLUMN CONFIRMATION

Laboratory Name S-CUBED

Case No 10274

Sample Number EN507

824V2031 (VOA)
EN507 (ABN)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. NA	UNKNOWN	VOA	419	9J
2.	UNKNOWN	ABN	92	390J
3.	UNKNOWN		102	330JB
4.	UNKNOWN		155	1700JB
5.	UNKNOWN trimethyl naphthalene		924	240J
6. NA	UNKNOWN trimethyl naphthalene		938	250J
7. 2489863	Naphthalene, 1-(2-propenyl)-		982	270J
8. NA	UNKNOWN HYDROCARBON		1009	480J
9.	UNKNOWN HYDROCARBON		1054	760J
10.	UNKNOWN dimethyl biphenyl		1071	180J
11.	UNKNOWN HYDROCARBON		1089	170J
12.	UNKNOWN HYDROCARBON		1132	1100J
13.	UNKNOWN		1163	160J
14.	UNKNOWN HYDROCARBON		1191	370J
15.	UNKNOWN HYDROCARBON		1206	170J
16. NA	UNKNOWN		1264	220J
17. 16587341	Naphtho[2,3-b]thiophene, 4,9 dimethyl		1270	170J
18 3674757	9 ethyl phenanthrene		1289	190J
19 NA	UNKNOWN dimethyl phenanthrene		1309	170J
20	UNKNOWN		1314	200J
21. NA	UNKNOWN hexanedioic acid ester	ABN	1510	1300JB
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Laboratory Name S-CUBED

Case No 10274

Sample Number EN508

824V2051 (VOA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. NA	UNKNOWN	VOA	419	5J
2	UNKNOWN	BNA	100	300J B
3	UNKNOWN		119	330J
4	UNKNOWN		154	2000JB
5	UNKNOWN		1008	290J
6	UNKNOWN HYDROCARBON		1053	420J
7	UNKNOWN HYDROCARBON		1131	650J
8	UNKNOWN HYDROCARBON		1190	230J
9	UNKNOWN HYDROCARBON		1195	180J
10	UNKNOWN HYDROCARBON		1263	230J
11. NA	UNKNOWN hexanedioic acid ester		1510	1100JB
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Laboratory Name S-CUBED

Case No 10274

Sample Number EN509

825V2071 (VOA)

EN509 (ABN)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.		NO TIC'S FOUND	VOA	–	–
2.	NA	UNKNOWN	ABN	154	2800JB
3.	90120	1methyl naphthalene		722	280J
4.	NA	UNKNOWN dimethyl naphthalene		811	320J
5.		UNKNOWN dimethyl naphthalene		825	360J
6.		UNKNOWN $C_{12}H_9N$		1167	360J
7.		UNKNOWN		1230	460J
8.		UNKNOWN HYDROCARBON		1263	430J
9.		UNKNOWN HYDROCARBON		1390	320J
10.		UNKNOWN HYDROCARBON		1450	380J
11.		UNKNOWN hexanedioic acid ester		1510	1500JB
12.		UNKNOWN HYDROCARBON		1563	490J
13.		UNKNOWN HYDROCARBON		1616	380J
14.		UNKNOWN HYDROCARBON		1667	530J
15.		UNKNOWN HYDROCARBON		1717	370J
16.		UNKNOWN $C_{20}H_{12}$ PNA		1742	330J
17.		UNKNOWN HYDROCARBON		1766	820J
18		UNKNOWN HYDROCARBON		1881	770J
19		UNKNOWN HYDROCARBON		2031	370J
20		UNKNOWN		2043	260J
21.	NA	UNKNOWN		2065	1300J
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Laboratory Name S-CUBED

Case No 10374

Sample Number EN20

S24V2C61 (VOA)
EN510 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC'S FOUND	VOA	–	–
2. NA	UNKNOWN	BNA	100	2100B
3. ↓	UNKNOWN	↓	119	220
4. ↓	UNKNOWN	↓	154	2900B
5. NA	UNKNOWN hexanedioic acid ester	↓	1511	1511B
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Laboratory Name S-CUBED

Case No 10374

Sample Number EN511

824V2041 (VOA)
EN511 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC'S FOUND	VOA	–	–
2. NA	UNKNOWN	BNA	98	300 J B
3.	UNKNOWN		155	5600 J B
4.	UNKNOWN hexanedioic acid ester		1508	2000 J B
5.	UNKNOWN phthalate		1593	200 J
6.	UNKNOWN $C_{20}H_{12}$ PNA		1739	240 J
7.	UNKNOWN		2036	800 J
8. NA	UNKNOWN		2059	250 J
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Laboratory Name S-CUBED

Case No 10274

Sample Number EN512

824V2071 (VOA)
EN512 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NA	UNKNOWN	VOA	418	6 J
2		UNKNOWN	BNA	101	270 J B
3		~~UNKNOWN~~		157	3700 J B
4		~~UNKNOWN~~ hexanedioic acid ester		1510	1500 J B
5	NA	UNKNOWN		2039	540 J
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Laboratory Name S-CUBED

Case No 10274

Sample Number EN513

824V2081 (VOA)
EN513 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC'S FOUND	VOA	–	–
2. NA	UNKNOWN	BNA	98	230 J B
3. ↓	UNKNOWN	↓	157	16800 J B
4. NA	UNKNOWN hexanedioic acid ester	↓	1508	1800 J B
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Laboratory Name S-CUBED

Case No 10274

Sample Number
EN514

824V2091 (VOA)
EN514 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC'S FOUND	VOA	–	–
2. NA	UNKNOWN	BNA	156	5400 J
3. NA	UNKNOWN hexanedioic acid ester	↓	1510	1400 J
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Laboratory Name S-CUBED

Case No 10274

Sample Number EP946

8244V2101 (VOA)
EP946 (BNA)

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC'S FOUND	VOA	–	–
2. NA	UNKNOWN	BNA	100	260 J B
3.	UNKNOWN		156	4800 J B
4.	UNKNOWN hexanedioic acid ester		1510	1400 J B
5. NA	UNKNOWN		2038	220 J
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[redacted] CE[redacted]RAL [redacted]EGI[redacted]AL [redacted]ABO[redacted]ATO[redacted] SA[redacted]PLE [redacted]ATA [redacted]EP[redacted] [redacted] DAT[redacted]9/1[redacted]

DUE DATE: 11/1/88

SEP 00 1988

PERFUND 5510

ORGANICS/INORGANICS

THIS FORM IS TO BE USED FOR SAMPLES SENT TO CONTRACT ONLY

CASE NUMBER/SAS No. 10274 SITE NAME Burlington Northern - Ramsey Blvd LABORATORY SS/NLE DATE SHIPPED 8/23/88

SUPERFUND DU NUMBER U905 EPA RPM or OSC (S.M.S.)/(CES) _____ CERCLIS NUMBER MND981097108 PAGE 2 OF 2

ACTIVITY NUMBER C72100

CRL LOG NUMBER	ORGANIC TRAFFIC REPORT NUMBER or SAS Packing List No.	INORGANIC TRAFFIC REPORT NUMBER	WATER OR LIQUIDS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN UG/L TOX17574	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN UG/L TOX17564	WATER POLYCHLORINATED BIPHENYLS UG/L PES 17144	WATER CHLORINATED PESTICIDES UG/L PES17134	TOTAL METALS IN WATER UG/L MET111	WATER CYANIDE UG/L MIN74919	NITRATE/NITRITE MG/L MIN7284	AMMONIA MG/L MIN7294	RESIDUE, FILTERABLE TDS MG/L MIN7362	RESIDUE, NON-FILT TSS MG/L MIN7372			SEDIMENTS or SOILS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN MG/KG TOX215722	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN MG/KG TOX215622	SEDIMENTS POLYCHLORINATED BIPHENYLS MG/KG PES211422	SEDIMENT CHLORINATED PESTICIDES MG/KG 211322	TOTAL METALS MG/KG MET413	CYANIDE MG/KG MIN44930	EP TOXICITY METALS MG/KG	AMMONIA MG/KG MIN42925				
88FB28576	EN507	MEQ774													✓	✓	✓	✓	✓	✓	✓					
88FB28577	EN508	MEQ775													✓	✓	✓	✓	✓	✓	✓					
88FB28578	EN509	MEP579													✓	✓	✓	✓	✓	✓	✓					
88FB28579	EN510	MEP580													✓	✓	✓	✓	✓	✓						
88FB28580	EN511	MEP581													✓	✓	✓	✓	✓	✓						
88FB28581	EN512	MEX370													✓	✓	✓	✓	✓	✓	✓					
88FB28582	EN513	MEX769													✓	✓	✓	✓	✓	✓						
88FB28583	EN514	MEX756													✓	✓	✓	✓	✓	✓						
88FB28584	EP946	MEX757													✓	✓	✓	✓	✓	✓	✓					

USEPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 ALEXANDRIA, VA 22313
703-557-2490 FTS 557-2490

CASE NO: 10274

SAS NO: ——— (IF APPLICABLE)

ORGANIC TRAFFIC REPORT

FOR SMO USE ONLY

TYPE OF ACTIVITY (CIRCLE ONE) ①
SUPERFUND—PA SI ESI RIFS RD RA ER NPLD O&M OTHER ____
NON-SUPERFUND—____ PROGRAM

SAMPLE DESCRIPTION
(ENTER IN BOX A)
1. SURFACE WATER
2. GROUND WATER
3. LEACHATE
4. SOIL
5. SEDIMENT
6. OIL (SAS)
7. WASTE (SAS)

REGION NO: 7
SAMPLING COMPANY ② ETI
SAMPLER: (NAME) Melanie Nishenko

SHIP TO: ③ S. Cubed 3395 Camino Del Rio S San Diego, CA 92121
ATTN: Elaine Walters

SAMPLING DATE: ④
BEGIN: 8-23-88 END: 8-23-88

DATE SHIPPED: 8-23-88 CARRIER: F ⑤
AIRBILL NO: 4224136206

DATE REC'D: 8-24-88
SDG NO: ⑥ EN307
REC'D BY: Elaine Walters
LABORATORY CONTRACT NO. 7261
UNIT PRICE

TRANSFER TO:
DATE REC'D: ⑦
REC'D BY:
CONTRACT NO./PRICE:

Shipment is complete

CLP SAMPLE NUMBER (FROM LABELS)	SAMPLE DESCRIPTION (FROM BOX 1) 1 2 3 4 5 6 7	CONCENTRATION L = LOW/MED. H = HIGH (SAS)	RAS ANALYSIS: VOLATILE	BASE/NEUT /ACID	PESTICIDE /PCBs		SPECIAL HANDLING	STATION LOCATION	SAMPLE CONDITION ON RECEIPT	HIGH CONC. PHASES (CHECK): SOLID	WATER—MIS LIQUID	NON WATER—MIS LIQUID
EN507	4	L	✓	✓	✓			S1	OK			
EN508	4	L	✓	✓	✓			S2				
EN509	4	L	✓	✓	✓			S3				
EN510	4	L	✓	✓	✓			S4				
EN511	4	L	✓	✓	✓			S5				
EN512	4	L	✓	✓	✓			S6				
EN513	4	L	✓	✓	✓			S7				
EN514	4	L	✓	✓	✓			S8				
EP946	4	L	✓	✓	✓			S9				

EPA Form 2075-7 (8-87).

WHITE — SMO COPY PINK — CLIENT COPY WHITE — LAB COPY FOR RETURN TO SMO YELLOW — LAB COPY

S-CUBED
A Division of Maxwell Laboratories, Inc.

September 27, 1988 *Volume 1 of 2*

NARRATIVE CASE 10274
S-CUBED CONTRACT NO. 68-01-7261

This case consists of nine soil samples for full analysis. No problems were encountered with the volatile analyses. Samples contained few volatile compounds.

ABN samples were characterized by the presence of pentachlorophenol, polynuclear aromatic hydrocarbons, and aliphatic hydrocarbons in numerous samples. The only problem encountered was that sample EN510MSD was spiked twice with internal standards. All data have been corrected for this error.

The complex nature of the samples yielded several low and nonexistent dibutyl chlorendate recoveries. EN507 and EN508 appear to contain weathered chlordane. Since this was not confirmed the data are not reported.

JoAnn Wilkinson
Project Manager

P.O. Box 1620, La Jolla, California 92038-1620 3398 Carmel Mountain Road, San Diego, California 92121-1095
Tel: (619) 453-0060 TWX: 910-337-1253 Telecopier: (619) 755-0474

SOIL SURROGATE PERCENT RECOVERY SUMMARY

Case No. 10274 Contract Laboratory S-CUBED Contract No. 68-01-7261

Low X Medium

	VOLATILE			SEMI-VOLATILE								PESTICIDE
SMO TRAFFIC NO.	TOLUENE-D8 (81-117)	BFB (74-121)	1,2 DICHLORO-ETHANE-D4 (70-121)	NITRO-BENZENE-D5 (23-120)	2-FLUORO-BIPHENYL (30-115)	TERPHENYL-D14 (18-137)			PHENOL-D6 (24-113)	2-FLUORO-PHENOL (25-121)	2,4,6 TRIBROMO-PHENOL (19-122)	DIBUTYL-CHLORENDATE ** (20-150)
EN507	103	99	100	64	64	73			65	65	46	73
EN508	98	92	97	67	65	73			65	55	34	9 *
EN509	109	95	97	70	68	73			77	81	62	87
EN510	102	101	100	77	78	82			79	65	34	0 *
EN510MS	82	78	97	70	71	77			79	74	42	75
EN510MSD	97	97	96	70	74	74			79	73	47	41
EN511	108	101	102	69	67	72			76	73	31	0 *
EN512	99	82	93	80	74	81			80	72	37	INT *
EN513	98	99	100	78	74	75			85	88	44	66
EN514	96	90	92	68	66	74			77	74	43	92
EP946	101	86	94	81	78	79			87	86	48	70
(1) LABBLANK	98	101	101	88	83	93			93	89	50	95
(2) LABBLANK	101	103	95	NA	NA	NA			NA	NA	NA	NA

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

**ADVISORY LIMITS ONLY

Volatiles: 0 out of 39 ; outside of QC limits

Semi-Volatiles: 0 out of 41 ; outside of QC limits

Pesticides: 4 out of 12 ; outside of QC limits

7/85

Comments: (1) 824V0021 (VEA) ; LB829 (BNA), LB 9-2 (P. [illegible])
(2) 825V2026 (VEA)

FORM II

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 10274 Contractor S-CUBED Contract No. 68-01-7261

Low Level ✓ Medium Level

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/Kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO. EN510	1,1-Dicholorethene	49	0	48	98	47	96	2	22	59-172
	Trichloroethene	43	0	40	93	38	88	5	24	62-137
	Chlorobenzene	32	0	40	77	50	96	22*	21	60-133
	Toluene	48	3	39	75	49	96	23*	21	59-139
	Benzene	50	0	50	100	48	96	4	21	66-142
B/N SMO SAMPLE NO. EN510	1,2,4-Trichlorobenzene	2600	0	1200	46	1300	50	8	23	38-107
	Acenaphthene	2600	0	1300	50	1300	50	0	19	31-137
	2,4 Dinitrotoluene	2600	0	1300	50	1300	50	0	47	28-89
	Pyrene	2600	0	1600	61	1500	58	6	36	35-142
	N-Nitrosodi-n-Propylamine	2600	0	1300	50	1400	54	7	38	41-126
	1,4-Dichlorobenzene	2600	0	1200	46	1300	50	8	27	28-104
ACID SMO SAMPLE NO. EN510	Pentachlorophenol	5300	0	1600	30	1900	36	17	47	17-109
	Phenol	5300	0	2600	49	2600	49	0	35	26-90
	2-Chlorophenol	5300	0	2300	43	2300	43	0	50	25-102
	4-Chloro-3-Methylphenol	5300	0	2500	47	2500	47	0	33	26-103
	4-Nitrophenol	5300	0	2300	43	2300	43	0	50	11-114
PEST SMO SAMPLE NO. EN510	Lindane	7.0	0	3.5	50	2.7	39*	25*	50	46-127
	Heptachlor	7.0	0	5.1	116	6.7	96	17	31	35-130
	Aldrin	7.0	0	4.3	61	5.8	83	31	43	34-132
	Dieldrin	18	0	13	72	13	72	0	38	31-134
	Endrin	18	0	14	78	15	83	6	45	42-139
	4,4'-DDT	18	0	11	61	6.0	33	66*	50	23-134

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs 2 out of 5; outside QC limits
B/N 0 out of 6; outside QC limits
ACID 0 out of 5; outside QC limits
PEST 1 out of 6; outside QC limits

RECOVERY: VOAs 0 out of 10; outside QC limits
B/N 0 out of 12; outside QC limits
ACID 0 out of 10; outside QC limits
PEST 1 out of 12; outside QC limits

Comments:

FORM III

8/85

pg 1 of 2

METHOD BLANK SUMMARY

Case No. 10274 Region 5 Contractor S-CUBED Contract No. 68-01-~~6868~~ 7261

FILE ID	DATE OF ANALYSIS	FRACTION	MATRIX	CONC. LEVEL	INST. ID	CAS NUMBER	COMPOUND (HSL, TIC OR UNKNOWN)	CONC.	UNITS	CRDL
LB 9-2	9-15-88	PEST	SOIL	L	HP5890#2	NA	NONE			
824V2021	8-24-88	VOA	Soil*		VG2	75-09-2	methylene chloride	19	ug/l	5
824V2021	8-24-88	↓	↓		↓	67-64-1	acetone	17	↓	10
825V2061 ②	8-25-88	VOA	Soil*		VG2	75-09-2	methylene chloride	10	ug/l	5
LB829 ①	9-15-88	ABN	Soil		HP1	84-66-2	di ethyl phthalate	370	ug/kg	330
						84-74-2	di n butyl phthalate	140		↓
						117-81-7	bis 2ethyl hexyl phthalate	720		330
						NA	UNKNOWN (S101)	320		NR
						↓	UNKNOWN (S153)	1800		
						NA	UNKNOWN HYDROCARBON (S308)	850		
						100527	benzaldehyde	620		
						NA	UNKNOWN (S535)	1700		
							UNKNOWN (S647)	260		
							UNKNOWN (S677)	310		
							UNKNOWN (S743)	550		
							UNKNOWN (S848)	330		
							UNKNOWN (S868)	450		
							UNKNOWN (S912)	320		
							UNKNOWN (S953)	2500		
LB829	9-15-88	ABN	Soil	L	HP1	NA	UNKNOWN (S1097)	780	ug/kg	NR

Comments: * 5 ml H_2O used since no clean soil matrix available

① ext. 8/29/88

② holding blank

METHOD BLANK SUMMARY

Case No. 10274 Region 5 Contractor S-CUBED Contract No. 68-01-7261

FILE ID	DATE OF ANALYSIS	FRACTION	MATRIX	CONC. LEVEL	INST. ID	CAS NUMBER	COMPOUND (HSL, TIC OR UNKNOWN)	CONC.	UNITS	CRQL
LB829	9-15-88	ABN	Soil	L	HPI	NA	UNKNOWN (S1169)	420	ug/kg	NR
							UNKNOWN (S1228)	630		
							UNKNOWN (S1394)	430		
							UNKNOWN hexanedioic acid ester (S1510)	2800		
							UNKNOWN (S1787)	7500		
							UNKNOWN (S1913)	830		
LB829	9-15-88	ABN	Soil	L	HPI	NA	UNKNOWN (S2075)	470	ug/kg	NR

Comments:

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

CRL Receipt Date 9/30/88 FIT Receipt Date 10/9/88 Review Completed 10/20/88

TO: Brenig

FROM: Mary Gzyra

SUBJECT: Burlington No-Ramsey

PAN: MN0127SA (1 hour charged for review) Case # 10274/3919

Sample Description

Organics (VOA, ABN, Pest/PCB)		Inorganics (Metals, Cyanide)	
# _____	Low Soil	# _____	Low Soil
_____	Low Water	_____	Low Water
6	Drinking Water	_____	Drinking Water
_____	Other	_____	Other

Project Data Status _____ Completed!!

✓ Incomplete, awaiting pest org.

FIT Data Review Findings:

VOA - 1,1,1-trichloroethane detected in ES175 ↓ CRQ

SV & PEST/PCB - none detected.

Check Data Sheets for Transcription Errors

_____ Compounds were detected in sample(s); see enclosed sheet.

Book No. 8 Page No. 200 Date Sampled 9/22

0759:2

* Physical state of pure material, not necessarily the physical state of the waste.

** For Section II of 2070-13.

*** For Section III of 2070-13.

Abbreviations for waste characteristics:

A - Toxic
B - Corrosive
C - Radiative
D - Persistent
E - Soluble
F - Infectious
G - Flammable
H - Ignitable
I - Highly volatile
J - Explosive
K - Reactive
L - Incompatible
M - Not applicable

SI Memo & Category Abbreviations:

A - Aromatic
CLA - Common lab artifact
CSC - Common soil constituent
HA - Halogenated - aromatic
HH - Halogenated - hydrocarbon
HM - Heavy metal
HYD - Hydrocarbon
IOC - Other inorganic compound
K - Ketone
M - Metal (density < 5x water density)
NA - Nitrogen - aromatic
NH - Nitrogen - hydrocarbon
OCC - Other organic compound
P - Phenol
PAH - Polyaromatic hydrocarbon
PCB - Polychlorinated biphenyl
PEST - Pesticide
PH - Phthalate
SH - Sulfur - hydrocarbon
SOL - Solvent

0916:1

REGION V

DATE: 10/11/88 10/19

SUBJECT: Review of Region V CLP Data
Received for Review on 9-30-88

FROM: Curtis Ross, Director (5SCRL) Patrick J. Chinilla for
Central Regional Laboratory

TO: Data User: FIT

We have reviewed the data for the following case(s).

SITE NAME: Burlington Northern - Ramsey Blvd, MN SMO Case No. 10274SAS3919E

EPA Data Set No. SF5510 No. of Samples: 6 D.U./Activity Numbers Y905/C721~~22~~84

CRL No. 88FB28S72-S75, D73, R10

SMO Traffic No. ES175, 287, 288; EP495, 496, 498

CLP Laboratory: AQUATEC Hrs. Required for Review: 5

Following are our findings: Dataset No. 10274 SAS 3919E is comprised of six (6) water (residential wells) samples for full analysis. Samples were collected 8/22/88 and received at the testing laboratory 8/23/88.

No. CCS summary report was included with the dataset. Sample ES287 was used for Matrix spike/MSD analysis. Samples ES287 and ES288 are duplicates and EP498 is a field blank. Phenol-d6 in EP496 <10%. No Re-Analysis. Results unusable "R".

The reviewer's narrative and data qualifications follows,

Wilma Wilson
ESAT/WESTON
10/11/88

( ) Data are acceptable for use.
(✓) Data are acceptable for use with qualifications referenced above. See Data Qualifier sheets and Calibration Outlier forms for flags and additional comments.
( ) Data are preliminary - pending verification by Contractor Laboratory. See Case Summary above.
( ) Data are unacceptable.

cc: Carla Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

DATA QUALIFIERS

Contractor: AQUATEC, INC

Case 10274SAS3919E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

1. HOLDING TIME:
The holding time for all sample fractions was found to be within the required Q.C. limits.

2. GC/MS TUNING and INSTRUMENT PERFORMANCE:
All tuning requirements for both BFB and DFTPP for the samples analyzed in this case were within the Contract Criteria. Instrument performance criteria for pesticide/PCB fractions were met and was satisfactory.

3. CALIBRATIONS:
Calibration outliers for the volatile and semivolatile fractions are noted on the calibration outlier sheets included in this case review.
For the pesticide fraction, the Linearity Check for 4,4-DDT had a % RSD high outside the QC limits (15.1%) on GC Column RTX-35 8/30 to 8/31/88. Therefore, the Quant. results for DDT in all of the pesticide fractions are estimated "J".

4. METHOD BLANKS:
The Volatile blank, identified as VBLKB2, contained Methylene Chloride and Acetone. The Conc. of each was less than 5X the

Reviewed by: W. Ira Wilson
Phone: 312 353 2947
Date: 10/11/88

DATA QUALIFIERS

Contractor: AQUATEC, INC

Case 10274SAS3919E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

#4 Continues"
detection limits.
The Semivolatile blanks SBLKW1 and SBLKW2 both contained bis(2-Ethylhexyl) phthalate. SBLKW1 also contained Benzo(a) pyrene. The Conc. of both compounds was 5 times less than the detection limits.

5. SURROGATE RECOVERIES:
All sample fractions for the volatile surrogate recovery met the required Q.C. limits.
In the semivolatile recovery, sample fraction EP495 and EP496 had phenol-d6 and 2-Fluorophenol low outside the Q.C. limits. The recoveries for both compounds in EP495 were less than 10%. Upon re-analysis of EP495RE the results remained less than 10%. Sample fraction ES287 also had 2-Fluorophenol slightly less than the Q.C. limits. Therefore, the results for the noted compounds in EP495 and ES287 should be considered estimated and flagged "J". Sample fraction EP496 with phenol-d6 less than 10% Rec. was not re-analyzed. Therefore, for the results for the noted compound in EP496 should be considered unusable and flagged "R".
All sample fractions for the pesticide surrogate Rec. met the required Q.C. limits.

Reviewed by: W. Ara Wilson
Phone: 312 353-2947
Date: 10/11/88

DATA QUALIFIERS

Contractor: AQUATEC, INC. | Case 10274SAS3919E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

6. MATRIX SPIKE/MSD
The MS, MSD and the RPD values for volatile, semivolatile and pesticide fractions met the required Q.C limits.

7. FIELD DUPLICATES:
The sample ES 287 and it's duplicate ES 288 had similar results. The field blank, EP498, results were satisfactory.

8. INTERNAL STANDARD PERFORMANCE:
The internal standard areas are acceptable for all fractions.

9. COMPOUND IDENTIFICATION:
Compound identification was carried out properly; the results were substantiated by the GC/MS system print-out.

10. COMPOUND QUANT. & DETECTION LIMITS:
The CRQL's were adjusted to reflect all sample dilutions.

11. SYSTEM PERFORMANCE:
The GC/MS results for both VOL and semivol. fractions met the required Q.C. limits. The GC performance for pesticide fractions were satisfactory.

Reviewed by: Willa Wilson
Phone: 312 353 2941
Date: 10/11/88

DATA QUALIFIERS

Contractor: AQUATEC, INC

Case 10274SAS3919E

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

12. There were no major problems which would cause the data in this case to be unusable.

Reviewed by: [signature]

Phone: 312 353-2947

Date: 10/11/88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
VOLATILE HSL COMPOUNDS

CASE/SAS # 10274 SAS 3919E CONTRACTOR AQUATEC

Instrument # OWAC	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	8/25/88			8/25/88-1500											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane															
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride	2.7	38.2	J												
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone															
1,2-Dichloroethane															
1,1,1-Trichloroethane															
Carbon Tetrachloride															
Vinyl Acetate															
Bromodichloromethane															
1,2-Dichloropropane															
Trans-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
cis-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
m-Xylene															
o/p-Xylene															

	VBLKB2			
	EP495			
	ES287			
	ES287 MS/MSD			
	EP496			
	EP498			
	ES175			
	ES288			

AFFECTED SAMPLES: [signature]

Reviewer's Initials/Date: 10/11/88

* These flags should be applied to the analytes on the sample data sheets.

SEMIVOLATILE HSL COMPOUNDS
(Page 1)

CASE/SAS # 10274 SAS3919E CONTRACTOR AQUATEC, INC.

Instrument # 5/DOA	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	9/2/88			9/2/88-1440											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline	.19	59.9	J												
Acenaphthene															
2,4-Dinitrophenol	.14	36.2	J												
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

EBLKWF
EP498
ES175
ES288
EP495
EP496

Reviewer Initials/Date: 10/11/88

* These flags should be applied to the analytes on the sample data sheets.

CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS

CASE/SAS # 10274-SAS 3919E CONTRACTOR AQUATEC, INC.

Instrument # 5100A	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	4/12/88			9/12/88-1440											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene															
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene															

SEE PAGE 1 FOR AFFECTED SAMPLES.

* These flags should be applied to the analytes on the sample data sheets.

Reviewer's Initials/Date: WLW 10/11/88

SEMIVOLATILE ASE COMPOUNDS
(Page 1)

CASE/SAS # 10274/SAS 3919E CONTRACTOR AQUATEC, INC.

Instrument # 5100A	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	9/6/88			9/6/88-1245											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline	.021	42.1	J	.021	44.5	J									
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

ES287
SBLKW2
FP495RE
ES287MS
ES287MSD

Reviewer Initials/Date: 10/11/88

* These flags should be applied to the analytes on the sample data sheets.

CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
Page 2

CASE/SAS # 10274 SAS 3914E CONTRACTOR AQUATEC, INC

Instrument # 5100A	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	9/6/88			9/6/88-1215											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene															
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene															

SEE PAGE 1 FOR AFFECTED SAMPLES.

* These flags should be applied to the analytes on the sample data sheets.

Reviewer's Initials/Date: 10/14/88

8/87

Case: 10274SAS3919E

Contractor: AQUATEC

TENTATIVELY IDENTIFIED COMPOUNDS
MATCH ASSESSMENT

NOTE: Reviewer should note directly on Organic Analysis Data Sheet (OADS) those matches that in his opinion (based on contract criteria) are unreasonable.

CRITERIA

(1) Relative intensities of major ions (>10%) reference spectrum should be present in the sample spectrum.

(2) Relative intensities of major ions in sample spectrum should agree to within ± 20% of reference spectrum intensities.

(3) Molecular ions present in reference spectrum should be present in sample spectrum.

(4) Ions present in sample spectrum, but not in reference spectrum should be reviewed for possible background contamination or presence of coeluting interferences.

(5) Ions present in reference spectrum, but not in the sample spectrum should be reviewed for possible subtraction from the sample spectrum because of background contamination or coeluting interferences.

(6) If, in the reviewer's opinion, no valid identification can be made the compound should be labelled as "unknown" and the initials and date of the reviewer placed on the OADS.

1M
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES175

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87806

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87806V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	2	U
75-09-2	Methylene Chloride	1 ~~6~~ ~~BJ~~ 4	
67-64-1	Acetone	5 ~~2~~ ~~BJ~~ U	
75-15-0	Carbon Disulfide	3	U
75-35-4	1,1-Dichloroethene	2	U
75-34-3	1,1-Dichloroethane	2	U
540-59-0	1,2-Dichloroethene (total)	2	U
67-66-3	Chloroform	2	U
107-06-2	1,2-Dichloroethane	2	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
108-05-4	Vinyl Acetate	15	U
75-27-4	Bromodichloromethane	2	U
78-87-5	1,2-Dichloropropane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
79-01-6	Trichloroethene	2	U
124-48-1	Dibromochloromethane	2	U
79-00-5	1,1,2-Trichloroethane	2	U
71-43-2	Benzene	2	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	2	U
108-10-1	4-Methyl-2-Pentanone	3	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
108-88-3	Toluene	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethylbenzene	2	U
100-42-5	Styrene	1	U

WEW 10/11/88

1N

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES175

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87806

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87806V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	50	U
110-75-8	2-Chloroethylvinylether		
108-38-3	M-Xylene	2	U
1330-20-7	O- & P-Xylene	3	U

FORM I

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ES175

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87806

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87806V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC 1/87 Rev.

1M
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES287

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87807

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87807V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	2	U
75-09-2	Methylene Chloride	1 ~~3~~ ~~BJ~~	U
67-64-1	Acetone	5 ~~6~~ ~~BJ~~	U
75-15-0	Carbon Disulfide	3	U
75-35-4	1,1-Dichloroethene	2	U
75-34-3	1,1-Dichloroethane	2	U
540-59-0	1,2-Dichloroethene (total)	2	U
67-66-3	Chloroform	2	U
107-06-2	1,2-Dichloroethane	2	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
108-05-4	Vinyl Acetate	15	U
75-27-4	Bromodichloromethane	2	U
78-87-5	1,2-Dichloropropane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
79-01-6	Trichloroethene	2	U
124-48-1	Dibromochloromethane	2	U
79-00-5	1,1,2-Trichloroethane	2	U
71-43-2	Benzene	2	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	2	U
108-10-1	4-Methyl-2-Pentanone	3	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
108-88-3	Toluene	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethylbenzene	2	U
100-42-5	Styrene	1	U

usw 10/11/88

1N

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES287

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87807

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87807V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	50	U
110-75-8	2-Chloroethylvinylether		
108-38-3	M-Xylene	2	U
1330-20-7	O- & P-Xylene	3	U

FORM I

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ES287

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87807

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87807V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1M
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES288

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87808

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87808V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	2	U
75-09-2	Methylene Chloride	~~6~~ 1	~~BJ~~ U
67-64-1	Acetone	~~9~~ 5	~~BJ~~ U
75-15-0	Carbon Disulfide	3	U
75-35-4	1,1-Dichloroethene	2	U
75-34-3	1,1-Dichloroethane	2	U
540-59-0	1,2-Dichloroethene (total)	2	U
67-66-3	Chloroform	2	U
107-06-2	1,2-Dichloroethane	2	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
108-05-4	Vinyl Acetate	15	U
75-27-4	Bromodichloromethane	2	U
78-87-5	1,2-Dichloropropane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
79-01-6	Trichloroethene	2	U
124-48-1	Dibromochloromethane	2	U
79-00-5	1,1,2-Trichloroethane	2	U
71-43-2	Benzene	2	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	2	U
108-10-1	4-Methyl-2-Pentanone	3	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
108-88-3	Toluene	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethylbenzene	2	U
100-42-5	Styrene	1	U

WL/W 10/11/88

FORM I

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP496

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87804

Sample wt/vol: 897 (g/mL) ML Lab File ID: V083177

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/31/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	.011	U
319-85-7	beta-BHC	.0056	U
319-86-8	delta-BHC	.0056	U
58-89-9	gamma-BHC (Lindane)	.0056	U
76-44-8	Heptachlor	.033	U
309-00-2	Aldrin	.0056	U
1024-57-3	Heptachlor epoxide	.0056	U
959-98-8	Endosulfan I	.011	U
60-57-1	Dieldrin	.011	U
72-55-9	4,4'-DDE	.0056	U
72-20-8	Endrin	.011	U
33213-65-9	Endosulfan II	.011	U
72-54-8	4,4'-DDD	.022	U
1031-07-8	Endosulfan sulfate	.11	U
50-29-3	4,4'-DDT	.022	U
72-43-5	Methoxychlor	.022	U
53494-70-5	Endrin ketone	.033	U
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	.28	U
12674-11-2	Aroclor-1016		
11104-28-2	Aroclor-1221		
11141-16-5	Aroclor-1232		
53469-21-9	Aroclor-1242	.11	U
12672-29-6	Aroclor-1248	.11	U
11097-69-1	Aroclor-1254	.11	U
11096-82-5	Aroclor-1260	.11	U

000550

1D (cont)
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP496

Lab Name: Aquatec, Inc. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10247 Sas No.: -3919E SDG No.: EP495

Matrix: (Soil/Water) Water Lab Sample ID: 87804

Sample Wt/Vol: 897 (g/mL) ML Lab File ID: V083177

Level: (Low/Med) Low Date Received: 08/23/88

% Moisture: Not Dec. Dec. Date Extracted: 08/25/88

Extracton: (SepF/Cont/Sonc) SepF Date Analyzed: 08/31/88

GPC Cleanup: Y/N N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
7421-93-4	Endrin Aldehyde	0.033	U
57-74-9	Chlordane	0.022	U

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP498

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87805

Sample wt/vol: 841 (g/mL) ML Lab File ID: V083179

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/31/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	.012	U
319-85-7	beta-BHC	.0059	U
319-86-8	delta-BHC	.0059	U
58-89-9	gamma-BHC (Lindane)	.0059	U
76-44-8	Heptachlor	.036	U
309-00-2	Aldrin	.0059	U
1024-57-3	Heptachlor epoxide	.0059	U
959-98-8	Endosulfan I	.012	U
60-57-1	Dieldrin	.012	U
72-55-9	4,4'-DDE	.0059	U
72-20-8	Endrin	.012	U
33213-65-9	Endosulfan II	.012	U
72-54-8	4,4'-DDD	.024	U
1031-07-8	Endosulfan sulfate	.12	U
50-29-3	4,4'-DDT	.024	U
72-43-5	Methoxychlor	.024	U
53494-70-5	Endrin ketone	.036	U
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	.30	U
12674-11-2	Aroclor-1016		
11104-28-2	Aroclor-1221		
11141-16-5	Aroclor-1232		
53469-21-9	Aroclor-1242	.12	U
12672-29-6	Aroclor-1248	.12	U
11097-69-1	Aroclor-1254	.12	U
11096-82-5	Aroclor-1260	.12	U

1N
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES288

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87808

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87808V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	50	U
110-75-8	2-Chloroethylvinylether		
108-38-3	M-Xylene	2	U
1330-20-7	O- & P-Xylene	3	U

FORM I

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ES288

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87808

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87808V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1M
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP495

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87803

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87803V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	2	U
75-09-2	Methylene Chloride	1 ~~4~~	~~BJ~~ 4
67-64-1	Acetone	5 ~~1~~	~~BJ~~ 4
75-15-0	Carbon Disulfide	3	U
75-35-4	1,1-Dichloroethene	2	U
75-34-3	1,1-Dichloroethane	2	U
540-59-0	1,2-Dichloroethene (total)	2	U
67-66-3	Chloroform	2	U
107-06-2	1,2-Dichloroethane	2	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
108-05-4	Vinyl Acetate	15	U
75-27-4	Bromodichloromethane	2	U
78-87-5	1,2-Dichloropropane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
79-01-6	Trichloroethene	2	U
124-48-1	Dibromochloromethane	2	U
79-00-5	1,1,2-Trichloroethane	2	U
71-43-2	Benzene	2	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	2	U
108-10-1	4-Methyl-2-Pentanone	3	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
108-88-3	Toluene	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethylbenzene	2	U
100-42-5	Styrene	1	U

WHW 10/11/88

1N

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP495

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87803

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87803V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	50	U
110-75-8	2-Chloroethylvinylether		
108-38-3	M-Xylene	2	U
1330-20-7	O- & P-Xylene	3	U

FORM I

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EP495

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87803

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87803V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1M
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP496

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87804

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87804V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	2	U
75-09-2	Methylene Chloride	1 ~~8~~ ~~BJ~~ 4	
67-64-1	Acetone	75	U
75-15-0	Carbon Disulfide	3	U
75-35-4	1,1-Dichloroethene	2	U
75-34-3	1,1-Dichloroethane	2	U
540-59-0	1,2-Dichloroethene (total)	2	U
67-66-3	Chloroform	2	U
107-06-2	1,2-Dichloroethane	2	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
108-05-4	Vinyl Acetate	15	U
75-27-4	Bromodichloromethane	2	U
78-87-5	1,2-Dichloropropane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
79-01-6	Trichloroethene	2	U
124-48-1	Dibromochloromethane	2	U
79-00-5	1,1,2-Trichloroethane	2	U
71-43-2	Benzene	2	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	2	U
108-10-1	4-Methyl-2-Pentanone	3	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
108-88-3	Toluene	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethylbenzene	2	U
100-42-5	Styrene	1	U

wfw 10/11/88

FORM I

1N
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP496

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87804

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87804V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	50	U
110-75-8	2-Chloroethylvinylether		
108-38-3	M-Xylene	2	U
1330-20-7	O- & P-Xylene	3	U

FORM I

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EP496

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87804

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87804V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1M
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP498

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87805

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87805V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	2	U
75-09-2	Methylene Chloride	1 ~~1~~ ~~BJ~~	U
67-64-1	Acetone	5 ~~2~~ ~~BJ~~	U
75-15-0	Carbon Disulfide	3	U
75-35-4	1,1-Dichloroethene	2	U
75-34-3	1,1-Dichloroethane	2	U
540-59-0	1,2-Dichloroethene (total)	2	U
67-66-3	Chloroform	2	U
107-06-2	1,2-Dichloroethane	2	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	.5	J
56-23-5	Carbon Tetrachloride	2	U
108-05-4	Vinyl Acetate	15	U
75-27-4	Bromodichloromethane	2	U
78-87-5	1,2-Dichloropropane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
79-01-6	Trichloroethene	2	U
124-48-1	Dibromochloromethane	2	U
79-00-5	1,1,2-Trichloroethane	2	U
71-43-2	Benzene	2	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	2	U
108-10-1	4-Methyl-2-Pentanone	3	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
108-88-3	Toluene	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethylbenzene	2	U
100-42-5	Styrene	1	U

wkw 10/11/88

1N
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP498

Lab Name:AQUATEC, INC. Contract:68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water)WATER Lab Sample ID: 87805

Sample wt/vol: 25 (g/mL)ML Lab File ID: C87805V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)UG/L	Q
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	50	U
110-75-8	2-Chloroethylvinylether		
108-38-3	M-Xylene	2	U
1330-20-7	O- & P-Xylene	3	U

FORM I

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EP498

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87805

Sample wt/vol: 25 (g/mL) ML Lab File ID: C87805V

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES175

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87806

Sample wt/vol: 988 (g/mL) ML Lab File ID: A87806S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	2	U
111-44-4	bis(2-Chloroethyl)ether	2	U
95-57-8	2-Chlorophenol	2	U
541-73-1	1,3-Dichlorobenzene	2	U
106-46-7	1,4-Dichlorobenzene	2	U
100-51-6	Benzyl alcohol	6	U
95-50-1	1,2-Dichlorobenzene	3	U
95-48-7	2-Methylphenol	1	U
108-60-1	bis(2-Chloroisopropyl)ether	3	U
106-44-5	4-Methylphenol	1	U
621-64-7	N-Nitroso-di-n-propylamine	2	U
67-72-1	Hexachloroethane	2	U
98-95-3	Nitrobenzene	3	U
78-59-1	Isophorone	3	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
65-85-0	Benzoic acid	30	U
111-91-1	bis(2-Chloroethoxy)methane	3	U
120-83-2	2,4-Dichlorophenol	2	U
120-82-1	1,2,4-Trichlorobenzene	2	U
91-20-3	Naphthalene	2	U
106-47-8	4-Chloroaniline	2	U
87-68-3	Hexachlorobutadiene	3	U
59-50-7	4-Chloro-3-methylphenol	2	U
91-57-6	2-Methylnaphthalene	2	U
77-47-4	Hexachlorocyclopentadiene	6	U
88-06-2	2,4,6-Trichlorophenol	2	U
95-95-4	2,4,5-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	2	U
88-74-4	2-Nitroaniline	6	U
131-11-3	Dimethylphthalate	2	U
208-96-8	Acenaphthylene	2	U
606-20-2	2,6-Dinitrotoluene	1	U

1L

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES175

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87806

Sample wt/vol: 988 (g/mL) ML Lab File ID: A87806S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	6	U
83-32-9	Acenaphthene	2	U
51-28-5	2,4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	6	U
132-64-9	Dibenzofuran	1	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
7005-72-3	4-Chlorophenyl-phenylether	1	U
86-73-7	Fluorene	1	U
100-01-6	4-Nitroaniline	6	U
534-52-1	4,6-Dinitro-2-methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	2	U
101-55-3	4-Bromophenyl-phenylether	2	U
118-74-1	Hexachlorobenzene	2	U
87-86-5	Pentachlorophenol	6	U
85-01-8	Phenanthrene	1	U
120-12-7	Anthracene	3	U
84-74-2	Di-n-butylphthalate	2	U
206-44-0	Fluoranthene	2	U
129-00-0	Pyrene	2	U
85-68-7	Butylbenzylphthalate	4	U
56-55-3	Benzo(a)anthracene	2	U
218-01-9	Chrysene	2	U
117-81-7	bis(2-Ethylhexyl)phthalate	1 ~~6~~ ~~BJ~~	U
117-84-0	Di-n-octylphthalate	2	U
205-99-2	Benzo(b)fluoranthene	2	U
207-08-9	Benzo(k)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	4	U
53-70-3	Dibenz(a,h)anthracene	6	U
191-24-2	Benzo(g,h,i)perylene	4	U

(1) - Cannot be separated from Diphenylamine

AW/W 10/11/88

FORM I

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ES175

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87806

Sample wt/vol: 988 (g/mL) ML Lab File ID: A87806S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.48	10	JAB
2.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES287

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87807

Sample wt/vol: 967 (g/mL) ML Lab File ID: A87807S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/06/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	2	U
111-44-4	bis(2-Chloroethyl)ether	2	U
95-57-8	2-Chlorophenol	2	U
541-73-1	1,3-Dichlorobenzene	2	U
106-46-7	1,4-Dichlorobenzene	2	U
100-51-6	Benzyl alcohol	6	U
95-50-1	1,2-Dichlorobenzene	3	U
95-48-7	2-Methylphenol	1	U
108-60-1	bis(2-Chloroisopropyl)ether	3	U
106-44-5	4-Methylphenol	1	U
621-64-7	N-Nitroso-di-n-propylamine	2	U
67-72-1	Hexachloroethane	2	U
98-95-3	Nitrobenzene	3	U
78-59-1	Isophorone	3	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
65-85-0	Benzoic acid	31	U
111-91-1	bis(2-Chloroethoxy)methane	3	U
120-83-2	2,4-Dichlorophenol	2	U
120-82-1	1,2,4-Trichlorobenzene	2	U
91-20-3	Naphthalene	2	U
106-47-8	4-Chloroaniline	2	U
87-68-3	Hexachlorobutadiene	3	U
59-50-7	4-Chloro-3-methylphenol	2	U
91-57-6	2-Methylnaphthalene	2	U
77-47-4	Hexachlorocyclopentadiene	6	U
88-06-2	2,4,6-Trichlorophenol	2	U
95-95-4	2,4,5-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	2	U
88-74-4	2-Nitroaniline	6	U
131-11-3	Dimethylphthalate	2	U
208-96-8	Acenaphthylene	2	U
606-20-2	2,6-Dinitrotoluene	1	U

1L

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES287

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87807

Sample wt/vol: 967 (g/mL) ML Lab File ID: A87807S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/06/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	6	U
83-32-9	Acenaphthene	2	U
51-28-5	2,4-Dinitrophenol	16	U
100-02-7	4-Nitrophenol	6	U
132-64-9	Dibenzofuran	1	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
7005-72-3	4-Chlorophenyl-phenylether	1	U
86-73-7	Fluorene	1	U
100-01-6	4-Nitroaniline	6	U
534-52-1	4,6-Dinitro-2-methylphenol	16	U
86-30-6	N-Nitrosodiphenylamine (1)	2	U
101-55-3	4-Bromophenyl-phenylether	2	U
118-74-1	Hexachlorobenzene	2	U
87-86-5	Pentachlorophenol	6	U
85-01-8	Phenanthrene	1	U
120-12-7	Anthracene	3	U
84-74-2	Di-n-butylphthalate	2	U
206-44-0	Fluoranthene	2	U
129-00-0	Pyrene	2	U
85-68-7	Butylbenzylphthalate	4	U
56-55-3	Benzo(a)anthracene	2	U
218-01-9	Chrysene	2	U
117-81-7	bis(2-Ethylhexyl)phthalate	1 ~~7~~ ~~JB~~	U
117-84-0	Di-n-octylphthalate	2	U
205-99-2	Benzo(b)fluoranthene	2	U
207-08-9	Benzo(k)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	4	U
53-70-3	Dibenz(a,h)anthracene	6	U
191-24-2	Benzo(g,h,i)perylene	4	U

(1) - Cannot be separated from Diphenylamine

wlw 10/14/88

FORM I

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ES287

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87807

Sample wt/vol: 967 (g/mL) ML Lab File ID: A87807S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/06/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.53	20	JAB
2.					
3.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES288

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87808

Sample wt/vol: 960 (g/mL) ML Lab File ID: A87808S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	2	U
111-44-4	bis(2-Chloroethyl)ether	2	U
95-57-8	2-Chlorophenol	2	U
541-73-1	1,3-Dichlorobenzene	2	U
106-46-7	1,4-Dichlorobenzene	2	U
100-51-6	Benzyl alcohol	6	U
95-50-1	1,2-Dichlorobenzene	3	U
95-48-7	2-Methylphenol	1	U
108-60-1	bis(2-Chloroisopropyl)ether	3	U
106-44-5	4-Methylphenol	1	U
621-64-7	N-Nitroso-di-n-propylamine	2	U
67-72-1	Hexachloroethane	2	U
98-95-3	Nitrobenzene	3	U
78-59-1	Isophorone	3	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
65-85-0	Benzoic acid	31	U
111-91-1	bis(2-Chloroethoxy)methane	3	U
120-83-2	2,4-Dichlorophenol	2	U
120-82-1	1,2,4-Trichlorobenzene	2	U
91-20-3	Naphthalene	2	U
106-47-8	4-Chloroaniline	2	U
87-68-3	Hexachlorobutadiene	3	U
59-50-7	4-Chloro-3-methylphenol	2	U
91-57-6	2-Methylnaphthalene	2	U
77-47-4	Hexachlorocyclopentadiene	6	U
88-06-2	2,4,6-Trichlorophenol	2	U
95-95-4	2,4,5-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	2	U
88-74-4	2-Nitroaniline	6	U
131-11-3	Dimethylphthalate	2	U
208-96-8	Acenaphthylene	2	U
606-20-2	2,6-Dinitrotoluene	1	U

1L

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES288

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87808

Sample wt/vol: 960 (g/mL) ML Lab File ID: A87808S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	6	U
83-32-9	Acenaphthene	2	U
51-28-5	2,4-Dinitrophenol	16	U
100-02-7	4-Nitrophenol	6	U
132-64-9	Dibenzofuran	1	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
7005-72-3	4-Chlorophenyl-phenylether	1	U
86-73-7	Fluorene	1	U
100-01-6	4-Nitroaniline	6	U
534-52-1	4,6-Dinitro-2-methylphenol	16	U
86-30-6	N-Nitrosodiphenylamine (1)	2	U
101-55-3	4-Bromophenyl-phenylether	2	U
118-74-1	Hexachlorobenzene	2	U
87-86-5	Pentachlorophenol	6	U
85-01-8	Phenanthrene	1	U
120-12-7	Anthracene	3	U
84-74-2	Di-n-butylphthalate	2	U
206-44-0	Fluoranthene	2	U
129-00-0	Pyrene	2	U
85-68-7	Butylbenzylphthalate	4	U
56-55-3	Benzo(a)anthracene	2	U
218-01-9	Chrysene	2	U
117-81-7	bis(2-Ethylhexyl)phthalate	1 ~~6~~ ~~BJ~~ 4	
117-84-0	Di-n-octylphthalate	2	U
205-99-2	Benzo(b)fluoranthene	2	U
207-08-9	Benzo(k)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	4	U
53-70-3	Dibenz(a,h)anthracene	6	U
191-24-2	Benzo(g,h,i)perylene	4	U

(1) - Cannot be separated from Diphenylamine

ALW 10/11/88

FORM I

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ES288

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87808

Sample wt/vol: 960 (g/mL) ML Lab File ID: A87808S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.52	15	JAB
2.					
3.					
4.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP495

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87803

Sample wt/vol: 950 (g/mL) ML Lab File ID: A87803S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	2	U
111-44-4	bis(2-Chloroethyl)ether	2	U
95-57-8	2-Chlorophenol	2	U
541-73-1	1,3-Dichlorobenzene	2	U
106-46-7	1,4-Dichlorobenzene	2	U
100-51-6	Benzyl alcohol	6	U
95-50-1	1,2-Dichlorobenzene	3	U
95-48-7	2-Methylphenol	1	U
108-60-1	bis(2-Chloroisopropyl)ether	3	U
106-44-5	4-Methylphenol	1	U
621-64-7	N-Nitroso-di-n-propylamine	2	U
67-72-1	Hexachloroethane	2	U
98-95-3	Nitrobenzene	3	U
78-59-1	Isophorone	3	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
65-85-0	Benzoic acid	32	U
111-91-1	bis(2-Chloroethoxy)methane	3	U
120-83-2	2,4-Dichlorophenol	2	U
120-82-1	1,2,4-Trichlorobenzene	2	U
91-20-3	Naphthalene	2	U
106-47-8	4-Chloroaniline	2	U
87-68-3	Hexachlorobutadiene	3	U
59-50-7	4-Chloro-3-methylphenol	2	U
91-57-6	2-Methylnaphthalene	2	U
77-47-4	Hexachlorocyclopentadiene	6	U
88-06-2	2,4,6-Trichlorophenol	2	U
95-95-4	2,4,5-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	2	U
88-74-4	2-Nitroaniline	6	U
131-11-3	Dimethylphthalate	2	U
208-96-8	Acenaphthylene	2	U
606-20-2	2,6-Dinitrotoluene	1	U

1L

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP495

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87803

Sample wt/vol: 950 (g/mL) ML Lab File ID: A87803S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	6	U
83-32-9	Acenaphthene	2	U
51-28-5	2,4-Dinitrophenol	16	U
100-02-7	4-Nitrophenol	6	U
132-64-9	Dibenzofuran	1	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
7005-72-3	4-Chlorophenyl-phenylether	1	U
86-73-7	Fluorene	1	U
100-01-6	4-Nitroaniline	6	U
534-52-1	4,6-Dinitro-2-methylphenol	16	U
86-30-6	N-Nitrosodiphenylamine (1)	2	U
101-55-3	4-Bromophenyl-phenylether	2	U
118-74-1	Hexachlorobenzene	2	U
87-86-5	Pentachlorophenol	6	U
85-01-8	Phenanthrene	1	U
120-12-7	Anthracene	3	U
84-74-2	Di-n-butylphthalate	2	U
206-44-0	Fluoranthene	2	U
129-00-0	Pyrene	2	U
85-68-7	Butylbenzylphthalate	4	U
56-55-3	Benzo(a)anthracene	2	U
218-01-9	Chrysene	2	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	~~B~~U
117-84-0	Di-n-octylphthalate	2	U
205-99-2	Benzo(b)fluoranthene	2	U
207-08-9	Benzo(k)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	4	U
53-70-3	Dibenz(a,h)anthracene	6	U
191-24-2	Benzo(g,h,i)perylene	4	U

(1) - Cannot be separated from Diphenylamine

WKW 10/11/88

FORM I

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EP495

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87803

Sample wt/vol: 950 (g/mL) ML Lab File ID: A87803S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.52	13	JAB
2.					
3.					
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP496

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87804

Sample wt/vol: 888 (g/mL) ML Lab File ID: A87804S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	2	U
111-44-4	bis(2-Chloroethyl)ether	2	U
95-57-8	2-Chlorophenol	2	U
541-73-1	1,3-Dichlorobenzene	2	U
106-46-7	1,4-Dichlorobenzene	2	U
100-51-6	Benzyl alcohol	7	U
95-50-1	1,2-Dichlorobenzene	3	U
95-48-7	2-Methylphenol	1	U
108-60-1	bis(2-Chloroisopropyl)ether	3	U
106-44-5	4-Methylphenol	1	U
621-64-7	N-Nitroso-di-n-propylamine	2	U
67-72-1	Hexachloroethane	2	U
98-95-3	Nitrobenzene	3	U
78-59-1	Isophorone	3	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
65-85-0	Benzoic acid	34	U
111-91-1	bis(2-Chloroethoxy)methane	3	U
120-83-2	2,4-Dichlorophenol	2	U
120-82-1	1,2,4-Trichlorobenzene	2	U
91-20-3	Naphthalene	2	U
106-47-8	4-Chloroaniline	2	U
87-68-3	Hexachlorobutadiene	3	U
59-50-7	4-Chloro-3-methylphenol	2	U
91-57-6	2-Methylnaphthalene	2	U
77-47-4	Hexachlorocyclopentadiene	7	U
88-06-2	2,4,6-Trichlorophenol	2	U
95-95-4	2,4,5-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	2	U
88-74-4	2-Nitroaniline	7	U
131-11-3	Dimethylphthalate	2	U
208-96-8	Acenaphthylene	2	U
606-20-2	2,6-Dinitrotoluene	1	U

1L

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP496

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87804

Sample wt/vol: 888 (g/mL) ML Lab File ID: A87804S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	7	U
83-32-9	Acenaphthene	2	U
51-28-5	2,4-Dinitrophenol	17	U
100-02-7	4-Nitrophenol	7	U
132-64-9	Dibenzofuran	1	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
7005-72-3	4-Chlorophenyl-phenylether	1	U
86-73-7	Fluorene	1	U
100-01-6	4-Nitroaniline	7	U
534-52-1	4,6-Dinitro-2-methylphenol	17	U
86-30-6	N-Nitrosodiphenylamine (1)	2	U
101-55-3	4-Bromophenyl-phenylether	2	U
118-74-1	Hexachlorobenzene	2	U
87-86-5	Pentachlorophenol	7	U
85-01-8	Phenanthrene	1	U
120-12-7	Anthracene	3	U
84-74-2	Di-n-butylphthalate	2	U
206-44-0	Fluoranthene	2	U
129-00-0	Pyrene	2	U
85-68-7	Butylbenzylphthalate	4	U
56-55-3	Benzo(a)anthracene	2	U
218-01-9	Chrysene	2	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	~~BJ~~ U
117-84-0	Di-n-octylphthalate	2	U
205-99-2	Benzo(b)fluoranthene	2	U
207-08-9	Benzo(k)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	4	U
53-70-3	Dibenz(a,h)anthracene	7	U
191-24-2	Benzo(g,h,i)perylene	5	U

(1) - Cannot be separated from Diphenylamine

WHW 10/11/88

FORM I

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EP496

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87804

Sample wt/vol: 888 (g/mL) ML Lab File ID: A87804S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.52	17	JAB
2.				
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP498

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87805

Sample wt/vol: 786 (g/mL) ML Lab File ID: A87805S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	3	U
111-44-4	bis(2-Chloroethyl)ether	2	U
95-57-8	2-Chlorophenol	3	U
541-73-1	1,3-Dichlorobenzene	3	U
106-46-7	1,4-Dichlorobenzene	3	U
100-51-6	Benzyl alcohol	8	U
95-50-1	1,2-Dichlorobenzene	3	U
95-48-7	2-Methylphenol	1	U
108-60-1	bis(2-Chloroisopropyl)ether	3	U
106-44-5	4-Methylphenol	1	U
621-64-7	N-Nitroso-di-n-propylamine	2	U
67-72-1	Hexachloroethane	3	U
98-95-3	Nitrobenzene	3	U
78-59-1	Isophorone	3	U
88-75-5	2-Nitrophenol	3	U
105-67-9	2,4-Dimethylphenol	3	U
65-85-0	Benzoic acid	38	U
111-91-1	bis(2-Chloroethoxy)methane	3	U
120-83-2	2,4-Dichlorophenol	3	U
120-82-1	1,2,4-Trichlorobenzene	3	U
91-20-3	Naphthalene	3	U
106-47-8	4-Chloroaniline	3	U
87-68-3	Hexachlorobutadiene	3	U
59-50-7	4-Chloro-3-methylphenol	2	U
91-57-6	2-Methylnaphthalene	3	U
77-47-4	Hexachlorocyclopentadiene	8	U
88-06-2	2,4,6-Trichlorophenol	2	U
95-95-4	2,4,5-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	2	U
88-74-4	2-Nitroaniline	8	U
131-11-3	Dimethylphthalate	2	U
208-96-8	Acenaphthylene	2	U
606-20-2	2,6-Dinitrotoluene	1	U

1L
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP498

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87805

Sample wt/vol: 786 (g/mL) ML Lab File ID: A87805S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	8	U
83-32-9	Acenaphthene	2	U
51-28-5	2,4-Dinitrophenol	19	U
100-02-7	4-Nitrophenol	8	U
132-64-9	Dibenzofuran	1	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
7005-72-3	4-Chlorophenyl-phenylether	1	U
86-73-7	Fluorene	1	U
100-01-6	4-Nitroaniline	8	U
534-52-1	4,6-Dinitro-2-methylphenol	19	U
86-30-6	N-Nitrosodiphenylamine (1)	2	U
101-55-3	4-Bromophenyl-phenylether	2	U
118-74-1	Hexachlorobenzene	2	U
87-86-5	Pentachlorophenol	8	U
85-01-8	Phenanthrene	1	U
120-12-7	Anthracene	3	U
84-74-2	Di-n-butylphthalate	3	U
206-44-0	Fluoranthene	2	U
129-00-0	Pyrene	2	U
85-68-7	Butylbenzylphthalate	4	U
56-55-3	Benzo(a)anthracene	2	U
218-01-9	Chrysene	2	U
117-81-7	bis(2-Ethylhexyl)phthalate	1 ~~71~~ ~~BJ~~	U
117-84-0	Di-n-octylphthalate	2	U
205-99-2	Benzo(b)fluoranthene	2	U
207-08-9	Benzo(k)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	3	U
193-39-5	Indeno(1,2,3-cd)pyrene	4	U
53-70-3	Dibenz(a,h)anthracene	8	U
191-24-2	Benzo(g,h,i)perylene	5	U

(1) - Cannot be separated from Diphenylamine

ASW 10/11/88

FORM I

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EP498

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87805

Sample wt/vol: 786 (g/mL) ML Lab File ID: A87805S

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.52	27	JAB
2.				
3.				
4.				
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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES175

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87806

Sample wt/vol: 960 (g/mL) ML Lab File ID: V083181

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/31/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	.010	U
319-85-7	beta-BHC	.0052	U
319-86-8	delta-BHC	.0052	U
58-89-9	gamma-BHC (Lindane)	.0052	U
76-44-8	Heptachlor	.031	U
309-00-2	Aldrin	.0052	U
1024-57-3	Heptachlor epoxide	.0052	U
959-98-8	Endosulfan I	.010	U
60-57-1	Dieldrin	.010	U
72-55-9	4,4'-DDE	.0052	U
72-20-8	Endrin	.010	U
33213-65-9	Endosulfan II	.010	U
72-54-8	4,4'-DDD	.021	U
1031-07-8	Endosulfan sulfate	.10	U
50-29-3	4,4'-DDT	.021	U
72-43-5	Methoxychlor	.021	U
53494-70-5	Endrin ketone	.031	U
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	.26	U
12674-11-2	Aroclor-1016		
11104-28-2	Aroclor-1221		
11141-16-5	Aroclor-1232		
53469-21-9	Aroclor-1242	.10	U
12672-29-6	Aroclor-1248	.10	U
11097-69-1	Aroclor-1254	.10	U
11096-82-5	Aroclor-1260	.10	U

1D (cont)
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES175

Lab Name: Aquatec, Inc. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 Sas No.: -3919E SDG No.: EP495

Matrix: (Soil/Water) Water Lab Sample ID: 87806

Sample Wt/Vol: 960 (g/mL) ML Lab File ID: V083181

Level: (Low/Med) Low Date Received: 08/23/88

% Moisture: Not Dec. Dec. Date Extracted: 08/25/88

Extracton: (SepF/Cont/Sonc) SepF Date Analyzed: 08/31/88

GPC Cleanup: Y/N N pH: Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
7421-93-4	Endrin Aldehyde	0.031	U
57-74-9	Chlordane	0.021	U

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES287

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87807

Sample wt/vol: 759 (g/mL) ML Lab File ID: V083183

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/31/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	.013	U
319-85-7	beta-BHC	.0066	U
319-86-8	delta-BHC	.0066	U
58-89-9	gamma-BHC (Lindane)	.0066	U
76-44-8	Heptachlor	.040	U
309-00-2	Aldrin	.0066	U
1024-57-3	Heptachlor epoxide	.0066	U
959-98-8	Endosulfan I	.013	U
60-57-1	Dieldrin	.013	U
72-55-9	4,4'-DDE	.0066	U
72-20-8	Endrin	.013	U
33213-65-9	Endosulfan II	.013	U
72-54-8	4,4'-DDD	.026	U
1031-07-8	Endosulfan sulfate	.13	U
50-29-3	4,4'-DDT	.026	U
72-43-5	Methoxychlor	.026	U
53494-70-5	Endrin ketone	.040	U
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	.33	U
12674-11-2	Aroclor-1016		
11104-28-2	Aroclor-1221		
11141-16-5	Aroclor-1232		
53469-21-9	Aroclor-1242	.13	U
12672-29-6	Aroclor-1248	.13	U
11097-69-1	Aroclor-1254	.13	U
11096-82-5	Aroclor-1260	.13	U

1D (cont)
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES287

Lab Name: Aquatec, Inc. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 Sas No.: -3919E SDG No.: EP495

Matrix: (Soil/Water) Water Lab Sample ID: 87807

Sample Wt/Vol: 759 (g/mL) ML Lab File ID: V083183

Level: (Low/Med) Low Date Received: 08/23/88

% Moisture: Not Dec. Dec. Date Extracted: 08/25/88

Extracton: (SepF/Cont/Sonc) SepF Date Analyzed: 08/31/88

GPC Cleanup: Y/N N pH: Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
7421-93-4	Endrin Aldehyde	0.040	U
57-74-9	Chlordane	0.026	U

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES288

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87808

Sample wt/vol: 873 (g/mL) ML Lab File ID: V083189

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/31/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	.011	U
319-85-7	beta-BHC	.0057	U
319-86-8	delta-BHC	.0057	U
58-89-9	gamma-BHC (Lindane)	.0057	U
76-44-8	Heptachlor	.034	U
309-00-2	Aldrin	.0057	U
1024-57-3	Heptachlor epoxide	.0057	U
959-98-8	Endosulfan I	.011	U
60-57-1	Dieldrin	.011	U
72-55-9	4,4'-DDE	.0057	U
72-20-8	Endrin	.011	U
33213-65-9	Endosulfan II	.011	U
72-54-8	4,4'-DDD	.023	U
1031-07-8	Endosulfan sulfate	.11	U
50-29-3	4,4'-DDT	.023	U
72-43-5	Methoxychlor	.023	U
53494-70-5	Endrin ketone	.034	U
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	.29	U
12674-11-2	Aroclor-1016		
11104-28-2	Aroclor-1221		
11141-16-5	Aroclor-1232		
53469-21-9	Aroclor-1242	.11	U
12672-29-6	Aroclor-1248	.11	U
11097-69-1	Aroclor-1254	.11	U
11096-82-5	Aroclor-1260	.11	U

000566

1D (cont)
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ES288

Lab Name: Aquatec, Inc. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 Sas No.: -3919E SDG No.: EP495

Matrix: (Soil/Water) Water Lab Sample ID: 87808

Sample Wt/Vol: 873 (g/mL) ML Lab File ID: V083189

Level: (Low/Med) Low Date Received: 08/23/88

% Moisture: Not Dec. Dec. Date Extracted: 08/25/88

Extracton: (SepF/Cont/Sonc) SepF Date Analyzed: 08/31/88

GPC Cleanup: Y/N N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
7421-93-4	Endrin Aldehyde	0.034	U
57-74-9	Chlordane	0.023	U

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP495

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: 87803

Sample wt/vol: 901 (g/mL) ML Lab File ID: V083175

Level: (low/med) LOW Date Received: 08/23/88

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/31/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	.011	U
319-85-7	beta-BHC	.0055	U
319-86-8	delta-BHC	.0055	U
58-89-9	gamma-BHC (Lindane)	.0055	U
76-44-8	Heptachlor	.033	U
309-00-2	Aldrin	.0055	U
1024-57-3	Heptachlor epoxide	.0055	U
959-98-8	Endosulfan I	.011	U
60-57-1	Dieldrin	.011	U
72-55-9	4,4'-DDE	.0055	U
72-20-8	Endrin	.011	U
33213-65-9	Endosulfan II	.011	U
72-54-8	4,4'-DDD	.022	U
1031-07-8	Endosulfan sulfate	.11	U
50-29-3	4,4'-DDT	.022	U
72-43-5	Methoxychlor	.022	U
53494-70-5	Endrin ketone	.033	U
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	.28	U
12674-11-2	Aroclor-1016		
11104-28-2	Aroclor-1221		
11141-16-5	Aroclor-1232		
53469-21-9	Aroclor-1242	.11	U
12672-29-6	Aroclor-1248	.11	U
11097-69-1	Aroclor-1254	.11	U
11096-82-5	Aroclor-1260	.11	U

1D (cont)

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP495

Lab Name: Aquatec, Inc. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 Sas No.: -3919E SDG No.: EP495

Matrix: (Soil/Water) Water Lab Sample ID: 87803

Sample Wt/Vol: 901 (g/mL) ML Lab File ID: V083175

Level: (Low/Med) Low Date Received: 08/23/88

% Moisture: Not Dec. Dec. Date Extracted: 08/25/88

Extracton: (SepF/Cont/Sonc) SepF Date Analyzed: 08/31/88

GPC Cleanup: Y/N N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
7421-93-4	Endrin Aldehyde	0.033	U
57-74-9	Chlordane	0.022	U

FORM I PEST

1D (cont)
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EP498

Lab Name: Aquatec, Inc. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 Sas No.: 3919E SDG No.: EP495

Matrix: (Soil/Water) Water Lab Sample ID: 87805

Sample Wt/Vol: 841 (g/mL) ML Lab File ID: V083179

Level: (Low/Med) Low Date Received: 08/23/88

% Moisture: Not Dec. Dec. Date Extracted: 08/25/88

Extracton: (SepF/Cont/Sonc) SepF Date Analyzed: 08/31/88

GPC Cleanup: Y/N N pH: Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
7421-93-4	Endrin Aldehyde	0.036	U
57-74-9	Chlordane	0.024	U

FORM I PEST

SEP 06 1988

CENTRAL REGIONAL LABORATORY SAMPLE DATA REPORT
ORGANICS/INORGANICS

THIS FORM IS TO BE USED FOR SAMPLES SENT TO CONTRACT ONLY

LOG IN DATE: 9/12/88
DUE DATE: 11/1/88

ERFUND 5510

SE NUMBER/SAS No. 10274/39196/39466 SITE NAME Burlington Northern-Ramsey Blvd LABORATORY Aquatech/ALI DATE SHIPPED 8/22/88

PERFUND DU NUMBER U905 EPA RPM or OSC (S.M.S.)/(CES) CERCLIS NUMBER MND981097108 PAGE 1 OF 2

TIVITY NUMBER C72100

CRL LOG NUMBER	ORGANIC TRAFFIC REPORT NUMBER	INORGANIC TRAFFIC REPORT NUMBER or SAS Packing List No.	WATER OR LIQUIDS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN UG/L TOX17874	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN UG/L TOX17564	WATER POLYCHLORINATED BIPHENYLS UG/L PES 17144	WATER CHLORINATED PESTICIDES UG/L PES17134	TOTAL METALS IN WATER UG/L MET111	WATER CYANIDE UG/L MIN74919	NITRATE/NITRITE MG/L MIN7284	AMMONIA MG/L MIN7294	RESIDUE, FILTERABLE TDS MG/L MIN7362	RESIDUE, NON-FILT TSS MG/L MIN7372			SEDIMENTS or SOILS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN MG/KG TOXC15722	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN MG/KG TOXC15622	SEDIMENTS POLYCHLORINATED BIPHENYLS MG/KG PES211422	SEDIMENT CHLORINATED PESTICIDES MG/KG 211322	TOTAL METALS MG/KG MET413	CYANIDE MG/KG MIN44930	EP TOXICITY METALS MG/KG	AMMONIA MG/KG MIN42925				
8FB28572	ES287	MEX786	L	L	L	L	L	L																		
8FB28573	ES288	MEX787	L	L	L	L	L	L																		
8FB28D73	ES175	MEX788	L	L	L	L	L	L																		
8FB28574	EP495	MEX789	L	L	L	L	L	L																		
8FB28575	EP496	MEX790	L	L	L	L	L	L																		
8FB28RID	EP498	METOSS	L	L	L	L	L	L																		

Lost conc'n

SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 ALEXANDRIA, VA 22313
703/557-2490 FTS-557-2490

CASE NO: 10271 | SAS NO. (IF APPLICABLE) 3419E

ORGANIC TRAFFIC REPORT

(FOR CLP USE ONLY)

TYPE OF ACTIVITY (CIRCLE ONE) ①
SUPERFUND—PA SI ESI RIFS RD RA ER
NPLD O&M OTHER
NON-SUPERFUND— PROGRAM

SAMPLE DESCRIPTION
(ENTER IN BOX A)
1. SURFACE WATER 4. SOIL
2. GROUND WATER 5. SEDIMENT
3. LEACHATE 6. OIL (SAS)
7. WASTE (SAS)

REGION NO: SAMPLING COMPANY ②
F FIT

SAMPLER: (NAME) Melanie Nisterenko

SHIP TO: ③
Aquatec, Inc.
75 Green Mountain Drive
S. Burlington, ~~Drive~~ VT 05403
ATTN: Janine BANUS

SAMPLING DATE: ④
BEGIN: 8-27-88 END: 8-22-88
DATE SHIPPED: 8-22-88 CARRIER: F ⑤
AIRBILL NO: 2921520674

DATE REC'D: SDG NO: ⑥
8/23/88 @ 1015 - EP495
REC'D BY: Frederick Cata
LABORATORY CONTRACT NO. UNIT PRICE
68-01-7410

TRANSFER TO: DATE REC'D: ⑦
REC'D BY: CONTRACT NO./PRICE:

Shipment is complete

SAMPLE NUMBER (FROM LABELS)	Ⓐ SAMPLE DESCRIPTION (FROM BOX 1)	Ⓑ CONCENTRATION L = LOWMED, H = HIGH (SAS)	Ⓒ RAS ANALYSIS: VOLATILE	BASE/NEUT/ACID	PESTICIDE/PCB's	Ⓓ SPECIAL HANDLING	Ⓔ STATION LOCATION	Ⓕ SAMPLE CONDITION ON RECEIPT	Ⓖ HIGH CONC. PHASES (CHECK): SOLID	WATER—MIS LIQUID	NON WATER—MIS LIQUID
ES287	2	L	✓	✓	✓	MSD	RW1	All samples were			
ES288	2	L	✓	✓	✓		RW2	received intact inside			
ES175	2	L	✓	✓	✓		RW3	cooler with ice. Cooler			
EP495	2	L	✓	✓	✓		RW4	was intact as were			
EP496	2	L	✓	✓	✓		RW5	custody seals on out-			
~~EP497~~	~~2~~	~~L~~	✓	✓	✓		~~RW6~~	side of cooler. Chain			
EP498	3	L	✓	✓	✓	BLANK	BLK	of custody was present			
								Sample tags were present			
								on all samples. Caps			
								are sealed with clear			
								re-inforced tape.			
								Final sample of			
								SDG #EP495			
								is ES288 ✓			

EPA Form 2075-7 (8-87)

000007

WHITE — SMO COPY PINK — CLIENT COPY WHITE — LAB COPY FOR RETURN TO SMO YELLOW — LAB COPY

aquatec INC. ENVIRONMENTAL SERVICES

75 GREEN MOUNTAIN DRIVE, SOUTH BURLINGTON, VERMONT 05403, TELEPHONE (802) 658-1074

29 September 1988

U.S. Environmental Protection Agency
Contract Laboratory Program
Sample Management Office
209 Madison Street
Alexandria, VA 22314

Re: Contract No. 68-01-7410
Case No. 10274, SDG No. EP495 (SAS 3919E)
Aquatec Project No. 87110

Gentlemen:

Enclosed are the analytical results for Case 10274, SDG No. EP495.

This case consists of six (6) aqueous samples for full organics analysis, as specified in the scope of services for SAS 3919E.

The samples were received intact by Aquatec on 23 August 1988.

Laboratory numbers were assigned and are designated as follows:

EPA	Aquatec	Sample Matrix
EP495	87803	aqueous
EP496	87804	aqueous
EP498	87805	aqueous
ES175	87806	aqueous
ES287	87807	aqueous
ES288	87808	aqueous

Samples EP495 and EP496 were analyzed for semivolatile organics and the results yielded low acid surrogate recoveries. Due to limited sample volume it was not possible to re-extract and reanalyze sample EP496. However, sample EP495 was re-extracted and reanalyzed and the low recoveries replicated. The results of both analyses are included in this submittal. The low recovery of acid surrogates was also observed in sample ES287. In this instance, the recoveries meet the acceptance criteria.

Hydrographic Studies and Analyses • Water Quality Studies • Analytical Laboratories
Ecological Studies • Computer Simulations • Industrial Waste Surveys

It should be noted that the analysis of these samples for pesticide/PCB's included sulfur cleanup of the extracts. The associated method blank also went through the cleanup process.

Enhanced total ion peak heights were used for the purpose of evaluating and quantitating "Tentatively Identified Compounds" associated with these samples.

Because of the common occurrence of mass 43 with low molecular weight hydrocarbons, the laboratory has used mass 58 as the quantitation ion for acetone in the volatile organics analysis of the samples.

The laboratory has used the contract specification for reporting significant figures for volatile and semivolatile organic results, "Report analytical results to one significant figure if the value is less than 10, and two significant figures above 10". This extends to the reporting limits as they appear on Form I, however, it should be noted that the application of the "J" qualifier is based on the reporting limits as specified in the scope of services.

Additional qualifiers are currently being used by the laboratory in reporting the pesticide results. These are listed and defined as follows: -

M - The compound was added by the laboratory as an analyte spike.

The data summary forms submitted in this data package represent a translation of the forms produced by EPA Cincinnati software. Details that reflect the constraints of that software have not been corrected. These include, the reporting of percent difference on Form VII as an absolute percent difference and the reporting of the both spiked and nonspiked analytes on Form I for the matrix spike and matrix spike duplicate analyses.

For the benefit of interested parties, documentation of sample handling and preparation is included at the end of the "Sample Data Package". A colored sheet of paper entitled "Sample Preparation Package" has been used to explicitly mark the location of these documents.

Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Sincerely,

Joseph K. Comeau, Ph.D.
Laboratory Director

9/29/88
Date

Enclosure

cc: EMSL
EPA Region V

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name:AQUATEC, INC. Contract:68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	VBLKB2	100	100	97		0
02	EP495	97	97	94		0
03	ES287	100	98	97		0
04	ES287MS	98	97	99		0
05	ES287MSD	93	95	100		0
06	EP496	96	96	101		0
07	EP498	92	94	100		0
08	ES175	97	98	103		0
09	ES288	94	97	104		0
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		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	SBLKW1	56	61	68	25	41	46		0
02	EP498	51	59	65	24	37	38		0
03	ES175	52	63	63	22	37	41		0
04	ES288	54	60	66	24	39	44		0
05	EP495	55	64	76	0 *	2 *	26		2
06	EP496	52	62	69	9 *	16 *	35		2
07									
08									
09									
10									
11									
12									
13									
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		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(35-114)
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)
S3 (TPH)	= Terphenyl-d14	(33-141)
S4 (PHL)	= Phenol-d6	(10-94)
S5 (2FP)	= 2-Fluorophenol	(21-100)
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name:AQUATEC, INC. Contract:68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	OTHER	TOT OUT
01	ES287	51	61	67	10	18 *	37		1
02	SBLKW2	60	64	69	18	31	45		0
03	EP495RE	59	65	69	2 *	0 *	21		2
04	ES287MS	63	63	74	16	25	38		0
05	ES287MSD	61	59	70	17	27	38		0
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		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(35-114)
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)
S3 (TPH)	= Terphenyl-d14	(33-141)
S4 (PHL)	= Phenol-d6	(10-94)
S5 (2FP)	= 2-Fluorophenol	(21-100)
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

	EPA SAMPLE NO.	S1 (DBC) #	OTHER
01	PBLKW1	89	
02	EP495	102	
03	EP496	103	
04	EP498	91	
05	ES175	98	
06	ES287	95	
07	ES288	93	
08	ES287MS	87	
09	ES287MSD	90	
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ADVISORY QC LIMITS (24-154)

S1 (DBC) = Dibutylchlorendate

Column used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix Spike - EPA Sample No.: ES287

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	10	0	6	63	61-145
Trichloroethene	10	0	8	78	71-120
Benzene	10	0	9	90	76-127
Toluene	10	0	9	93	76-125
Chlorobenzene	10	0	9	94	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	10	7	67	5	14	61-145
Trichloroethene	10	8	78	0	14	71-120
Benzene	10	9	92	3	11	76-127
Toluene	10	9	91	2	13	76-125
Chlorobenzene	10	9	92	2	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix Spike - EPA Sample No.: ES287

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	#	QC LIMITS REC.
Phenol	43	0	9	22		12- 89
2-Chlorophenol	43	0	25	58		27-123
1,4-Dichlorobenzene	21	0	12	57		36- 97
N-Nitroso-di-n-prop.(1)	21	0	13	62		41-116
1,2,4-Trichlorobenzene	21	0	13	63		39- 98
4-Chloro-3-methylphenol	43	0	20	46		23- 97
Acenaphthene	21	0	16	75		46-118
4-Nitrophenol	43	0	7	16		10- 80
2,4-Dinitrotoluene	21	0	11	54		24- 96
Pentachlorophenol	43	0	21	50		9-103
Pyrene	21	0	15	70		26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
Phenol	45	11	23		5		42	12- 89
2-Chlorophenol	45	27	59		0		40	27-123
1,4-Dichlorobenzene	23	12	54		5		28	36- 97
N-Nitroso-di-n-prop.(1)	23	14	63		2		38	41-116
1,2,4-Trichlorobenzene	23	13	59		6		28	39- 98
4-Chloro-3-methylphenol	45	22	48		5		42	23- 97
Acenaphthene	23	17	74		2		31	46-118
4-Nitrophenol	45	11	25		47		50	10- 80
2,4-Dinitrotoluene	23	13	55		3		38	24- 96
Pentachlorophenol	45	21	47		7		50	9-103
Pyrene	23	15	66		5		31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

COMMENTS: _____

3E

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix Spike - EPA Sample No.: ES287

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	.04	.00	.05	106	56-123
Heptachlor	.04	.00	.05	115	40-131
Aldrin	.04	.00	.04	96	40-120
Dieldrin	.11	.00	.12	109	52-126
Endrin	.11	.00	.11	103	56-121
4,4'-DDT	.11	.00	.11	98	38-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	.04	.05	109	2	15	56-123
Heptachlor	.04	.05	114	1	20	40-131
Aldrin	.04	.04	98	1	22	40-120
Dieldrin	.11	.12	113	3	18	52-126
Endrin	.11	.11	106	3	21	56-121
4,4'-DDT	.11	.11	102	4	27	38-127

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS: 4,4'-DDT VALUES CALCULATED FROM CURVE.

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Lab File ID: CZB002BV Lab Sample ID: CZB002BV

Date Analyzed: 08/25/88 Time Analyzed: 1701

Matrix: (soil/water) WATER Level: (low/med) LOW

Instrument ID: OWAC

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	EP495	87803	C87803V	1750
02	ES287	87807	C87807V	1841
03	ES287MS	M87807	C87807MV	1933
04	ES287MSD	MD87807	C87807MDV	2023
05	EP496	87804	C87804V	2115
06	EP498	87805	C87805V	2202
07	ES175	87806	C87806V	2248
08	ES288	87808	C87808V	2333
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COMMENTS:

1M
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKB2

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: CZB002BV

Sample wt/vol: 25 (g/mL) ML Lab File ID: CZB002BV

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	2	U
75-09-2	Methylene Chloride	2	
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	3	U
75-35-4	1,1-Dichloroethene	2	U
75-34-3	1,1-Dichloroethane	2	U
540-59-0	1,2-Dichloroethene (total)	2	U
67-66-3	Chloroform	2	U
107-06-2	1,2-Dichloroethane	2	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
108-05-4	Vinyl Acetate	15	U
75-27-4	Bromodichloromethane	2	U
78-87-5	1,2-Dichloropropane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
79-01-6	Trichloroethene	2	U
124-48-1	Dibromochloromethane	2	U
79-00-5	1,1,2-Trichloroethane	2	U
71-43-2	Benzene	2	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	2	U
108-10-1	4-Methyl-2-Pentanone	3	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
108-88-3	Toluene	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethylbenzene	2	U
100-42-5	Styrene	1	U

1N
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKB2

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: CZB002BV

Sample wt/vol: 25 (g/mL) ML Lab File ID: CZB002BV

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	50	U
110-75-8	2-Chloroethylvinylether		
108-38-3	M-Xylene	2	U
1330-20-7	O- & P-Xylene	3	U

FORM I

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKB2

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: CZB002BV

Sample wt/vol: 25 (g/mL) ML Lab File ID: CZB002BV

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec._____ Date Analyzed: 08/25/88

Column: (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75-28-5	2-METHYLPROPANE	3.75	8	J
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4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Lab File ID: AB0825W1S Lab Sample ID: AB0825W1S

Date Extracted: 08/25/88 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/02/88 Time Analyzed: 1619

Matrix: (soil/water) WATER Level: (low/med) LOW

Instrument ID: 5100A

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	EP498	87805	A87805S	09/02/88
02	ES175	87806	A87806S	09/02/88
03	ES288	87808	A87808S	09/02/88
04	EP495	87803	A87803S	09/02/88
05	EP496	87804	A87804S	09/02/88
06	ES287	87807	A87807S	09/06/88
07	ES287MS	M87807	A87807MS	09/06/88
08	ES287MSD	MD87807	A87807MDS	09/06/88
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COMMENTS:

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKW1

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: AB0825W1S

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AB0825W1S

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	2	U
111-44-4	bis(2-Chloroethyl)ether	2	U
95-57-8	2-Chlorophenol	2	U
541-73-1	1,3-Dichlorobenzene	2	U
106-46-7	1,4-Dichlorobenzene	2	U
100-51-6	Benzyl alcohol	6	U
95-50-1	1,2-Dichlorobenzene	3	U
95-48-7	2-Methylphenol	1	U
108-60-1	bis(2-Chloroisopropyl)ether	3	U
106-44-5	4-Methylphenol	1	U
621-64-7	N-Nitroso-di-n-propylamine	2	U
67-72-1	Hexachloroethane	2	U
98-95-3	Nitrobenzene	3	U
78-59-1	Isophorone	3	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
65-85-0	Benzoic acid	30	U
111-91-1	bis(2-Chloroethoxy)methane	3	U
120-83-2	2,4-Dichlorophenol	2	U
120-82-1	1,2,4-Trichlorobenzene	2	U
91-20-3	Naphthalene	2	U
106-47-8	4-Chloroaniline	2	U
87-68-3	Hexachlorobutadiene	3	U
59-50-7	4-Chloro-3-methylphenol	2	U
91-57-6	2-Methylnaphthalene	2	U
77-47-4	Hexachlorocyclopentadiene	6	U
88-06-2	2,4,6-Trichlorophenol	2	U
95-95-4	2,4,5-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	2	U
88-74-4	2-Nitroaniline	6	U
131-11-3	Dimethylphthalate	2	U
208-96-8	Acenaphthylene	2	U
606-20-2	2,6-Dinitrotoluene	1	U

1L

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKW1

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: AB0825W1S

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AB0825W1S

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	6	U
83-32-9	Acenaphthene	2	U
51-28-5	2,4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	6	U
132-64-9	Dibenzofuran	1	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
7005-72-3	4-Chlorophenyl-phenylether	1	U
86-73-7	Fluorene	1	U
100-01-6	4-Nitroaniline	6	U
534-52-1	4,6-Dinitro-2-methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	2	U
101-55-3	4-Bromophenyl-phenylether	2	U
118-74-1	Hexachlorobenzene	2	U
87-86-5	Pentachlorophenol	6	U
85-01-8	Phenanthrene	1	U
120-12-7	Anthracene	3	U
84-74-2	Di-n-butylphthalate	2	U
206-44-0	Fluoranthene	2	U
129-00-0	Pyrene	2	U
85-68-7	Butylbenzylphthalate	4	U
56-55-3	Benzo(a)anthracene	2	U
218-01-9	Chrysene	2	U
117-81-7	bis(2-Ethylhexyl)phthalate	.5	J
117-84-0	Di-n-octylphthalate	2	U
205-99-2	Benzo(b)fluoranthene	2	U
207-08-9	Benzo(k)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	.6	J
193-39-5	Indeno(1,2,3-cd)pyrene	4	U
53-70-3	Dibenz(a,h)anthracene	6	U
191-24-2	Benzo(g,h,i)perylene	4	U

(1) - Cannot be separated from Diphenylamine

FORM I

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKW1

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: AB0825W1S

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AB0825W1S

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/02/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.53	19	JA
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4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Lab File ID: AB0906W1S Lab Sample ID: AB0906W1S

Date Extracted: 09/06/88 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/06/88 Time Analyzed: 1535

Matrix: (soil/water) WATER Level: (low/med) LOW

Instrument ID: 5100A

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	EP495RE	87803	A87803E2S	09/06/88
02				
03				
04				
05				
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COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKW2

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: AB0906W1S

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AB0906W1S

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec._____ dec._____ Date Extracted: 09/06/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/06/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	2	U
111-44-4	bis(2-Chloroethyl)ether	2	U
95-57-8	2-Chlorophenol	2	U
541-73-1	1,3-Dichlorobenzene	2	U
106-46-7	1,4-Dichlorobenzene	2	U
100-51-6	Benzyl alcohol	6	U
95-50-1	1,2-Dichlorobenzene	3	U
95-48-7	2-Methylphenol	1	U
108-60-1	bis(2-Chloroisopropyl)ether	3	U
106-44-5	4-Methylphenol	1	U
621-64-7	N-Nitroso-di-n-propylamine	2	U
67-72-1	Hexachloroethane	2	U
98-95-3	Nitrobenzene	3	U
78-59-1	Isophorone	3	U
88-75-5	2-Nitrophenol	2	U
105-67-9	2,4-Dimethylphenol	2	U
65-85-0	Benzoic acid	30	U
111-91-1	bis(2-Chloroethoxy)methane	3	U
120-83-2	2,4-Dichlorophenol	2	U
120-82-1	1,2,4-Trichlorobenzene	2	U
91-20-3	Naphthalene	2	U
106-47-8	4-Chloroaniline	2	U
87-68-3	Hexachlorobutadiene	3	U
59-50-7	4-Chloro-3-methylphenol	2	U
91-57-6	2-Methylnaphthalene	2	U
77-47-4	Hexachlorocyclopentadiene	6	U
88-06-2	2,4,6-Trichlorophenol	2	U
95-95-4	2,4,5-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	2	U
88-74-4	2-Nitroaniline	6	U
131-11-3	Dimethylphthalate	2	U
208-96-8	Acenaphthylene	2	U
606-20-2	2,6-Dinitrotoluene	1	U

1L
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKW2

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: AB0906W1S

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AB0906W1S

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec._____ dec._____ Date Extracted: 09/06/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/06/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	6	U
83-32-9	Acenaphthene	2	U
51-28-5	2,4-Dinitrophenol	15	U
100-02-7	4-Nitrophenol	6	U
132-64-9	Dibenzofuran	1	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
7005-72-3	4-Chlorophenyl-phenylether	1	U
86-73-7	Fluorene	1	U
100-01-6	4-Nitroaniline	6	U
534-52-1	4,6-Dinitro-2-methylphenol	15	U
86-30-6	N-Nitrosodiphenylamine (1)	2	U
101-55-3	4-Bromophenyl-phenylether	2	U
118-74-1	Hexachlorobenzene	2	U
87-86-5	Pentachlorophenol	6	U
85-01-8	Phenanthrene	1	U
120-12-7	Anthracene	3	U
84-74-2	Di-n-butylphthalate	2	U
206-44-0	Fluoranthene	2	U
129-00-0	Pyrene	2	U
85-68-7	Butylbenzylphthalate	4	U
56-55-3	Benzo(a)anthracene	2	U
218-01-9	Chrysene	2	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	J
117-84-0	Di-n-octylphthalate	2	U
205-99-2	Benzo(b)fluoranthene	2	U
207-08-9	Benzo(k)fluoranthene	2	U
50-32-8	Benzo(a)pyrene	2	U
193-39-5	Indeno(1,2,3-cd)pyrene	4	U
53-70-3	Dibenz(a,h)anthracene	6	U
191-24-2	Benzo(g,h,i)perylene	4	U

(1) - Cannot be separated from Diphenylamine

FORM I

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKW2

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: AB0906W1S

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AB0906W1S

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec._____ dec._____ Date Extracted: 09/06/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 09/06/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.55	9	JA
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
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23.				
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25.				
26.				
27.				
28.				
29.				
30.				

4C

PESTICIDE METHOD BLANK SUMMARY

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Lab Sample ID: B082588W2P Lab File ID: V083063

Matrix: (soil/water) WATER Level: (low/med) LOW

Date Extracted: 08/25/88 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed (1): 08/30/88 Date Analyzed (2): 08/29/88

Time Analyzed (1): 2101 Time Analyzed (2): 2046

Instrument ID (1): 764 HP Instrument ID (2): 850 HP

GC Column ID (1): RTX-35 GC Column ID (2): RTX-5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	EP495	87803	08/31/88	08/29/88
02	EP496	87804	08/31/88	08/30/88
03	EP498	87805	08/31/88	08/30/88
04	ES175	87806	08/31/88	08/30/88
05	ES287	87807	08/31/88	08/30/88
06	ES288	87808	08/31/88	08/30/88
07	ES287MS	M87807	08/31/88	08/30/88
08	ES287MSD	MD87807	08/31/88	08/30/88
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

COMMENTS:

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKW1

Lab Name: AQUATEC, INC. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 SAS No.: 3919E SDG No.: EP495

Matrix: (soil/water) WATER Lab Sample ID: B082588W2P

Sample wt/vol: 1000 (g/mL) ML Lab File ID: V083063

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec._____ dec._____ Date Extracted: 08/25/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/30/88

GPC Cleanup: (Y/N) N pH:____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	.010	U
319-85-7	beta-BHC	.0050	U
319-86-8	delta-BHC	.0050	U
58-89-9	gamma-BHC (Lindane)	.0050	U
76-44-8	Heptachlor	.030	U
309-00-2	Aldrin	.0050	U
1024-57-3	Heptachlor epoxide	.0050	U
959-98-8	Endosulfan I	.010	U
60-57-1	Dieldrin	.010	U
72-55-9	4,4'-DDE	.0050	U
72-20-8	Endrin	.010	U
33213-65-9	Endosulfan II	.010	U
72-54-8	4,4'-DDD	.020	U
1031-07-8	Endosulfan sulfate	.10	U
50-29-3	4,4'-DDT	.020	U
72-43-5	Methoxychlor	.020	U
53494-70-5	Endrin ketone	.030	U
5103-71-9	alpha-Chlordane		
5103-74-2	gamma-Chlordane		
8001-35-2	Toxaphene	.25	U
12674-11-2	Aroclor-1016		
11104-28-2	Aroclor-1221		
11141-16-5	Aroclor-1232		
53469-21-9	Aroclor-1242	.10	U
12672-29-6	Aroclor-1248	.10	U
11097-69-1	Aroclor-1254	.10	U
11096-82-5	Aroclor-1260	.10	U

1D (cont)
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKW1

Lab Name: Aquatec, Inc. Contract: 68-01-7410

Lab Code: AQUAI Case No.: 10274 Sas No.: 3919E SDG No.: EP495

Matrix: (Soil/Water) Water Lab Sample ID: B082588W2P

Sample Wt/Vol: 1000 (g/mL) ML Lab File ID: V083063

Level: (Low/Med) Low Date Received: 00/00/00

% Moisture: Not Dec. Dec. Date Extracted: 08/25/88

Extracton: (SepF/Cont/Sonc) SepF Date Analyzed: 08/30/88

GPC Cleanup: Y/N N pH: Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
7421-93-4	Endrin Aldehyde	0.030	U
57-74-9	Chlordane	0.020	U

FORM I PEST

APPENDIX F

WELL LOGS OF THE AREA OF THE SITE

166864 32-25-22AACCBB

****

MINNESOTA GEOLOGICAL SURVEY
WATER WELL DATA BASE. SELECTED ANOKA CO. 87/03/02.

UNIQUE NO.: 166864
WELL NAME : Non-responsive

COUNTY : [redacted] DATE ENTERED: 81/10/27.
ADDRESS : [redacted] RAMSEY
QUADRANGLE: [redacted]

TOWNSHIP : 32 NORTH UTM-EASTING : 0
RANGE : 25 WEST UTM-NORTHING: 0
SECTION : 22/AACCBB UTM-ZONE : 0
LATITUDE : LONGITUDE :
LOCATED BY: ADDRESS VERIFICATION

ELEVATION : 881 FT. WATER LEVEL : UNKNOWN
DEPTH : 212 FT. DATE : / /
COMPLETED : 79/10/16 AQUIFER(S) : FRANCONIA

WELL USE : DOMESTIC
DRILLER : (AND/OR DATA SOURCE) MORK WELL CO.
CASING : STEP DOWN
SCREEN
MAKE/TYPE: NONE

PUMP
MAKE/NO. : MCDONALD 18050K38
SIZE : 000.5 HP. 00230 VOLTS CAPACITY : 00010 G.P.M.
TYPE : SUBMERSIBLE DROP PIPE : 00063 FT.

REMARKS : PUMPAGE TEST DATA NOT AVAILABLE
PUMPING LEVEL 75FT.

GEOLOGIC LOG

DEPTH INTERVAL (IN FEET)	LITHOLOGY	STRATIGRAPHIC UNIT SYSTEM/GROUP/FORMATION	AGE	HARDNESS	COLOR	DRILLER'S DESCRIPTION
0 45	SAND	BROWN FLUVIAL DEPOSIT	QUA	SOFT	BROWN	SAND
45 155	CLAY	GRAY TILL	QUA	HARD	BLUE	CLAY
155 170	SHALE	FRANCONIA	CAM	HARD	GREEN	SHALE
170 212	SANDSTONE,SHALE	FRANCONIA	CAM	HARD	BROWN	SANDROCK & SHALE

****

WATER WELL RECORD

Minnesota Statutes 156A.01 et seq.

MINNESOTA UNIQUE WELL NO. for Years 5 WL2 — 178257

County Number: ANOKA

Township Number: Ramsey

Township Number: N/S | Range Number: E/W | Section No. | Fraction

Address of Well: 7481 149th Ave NW

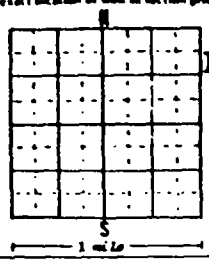
Non-responsive [redacted]

3. PROPERTY OWNER'S NAME: Bldr: Chet Aaczaszek

Address

Show exact location of well on section grid with "X"

Sketch map of well location



Pineview Estates

Block Number

Lot Number: 10

Driveway | house

X 54

X well 43-2A

149th NW

2. FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
sand & Gravel QFUU-SAND GRVL			0	79
gravel & clay QTUU-GRVL CLAY			79	120
clay QTUU-CLAY			120	140
clay & gravel QTUU-CLAY GRVL			140	151
watersand QFUU-SAND			151	172
Az = QTBAA				
32-25-21 DCDCCD				
elev. 881±5'				
120-B				

CODED

X address veri.

Use a second sheet if needed

15. REMARKS, ELEVATION, SOURCE OF DATA, etc.

4. WELL DEPTH (completed): 172' ft. — Date of Completion: 12-23-80

5. ☐ Cable tool ☐ Reverse ☐ Driven ☐ Dug ☐ Hollow rod ☐ Air ☐ Bored ☐ ☐ Rotary ☐ Jetted ☐ Power Auger

6. USE: ☐ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Municipal ☐ Commercial ☐ Test Well ☐ Air Conditioning ☐

7. CASING: ☐ Black ☐ Threaded ☐ Galv. ☐ Welded ☐ Plastic ☐ — HEIGHT Above/Below Surface 1 ft. — Drive Shoe? Yes X No — 4 in. to 168 ft. Weight 11 lbs./ft. — HOLE DIAM

8. SCREEN: Make Johnson — Type 236 — Dia. 2½" — Slot/Gauge 18 — Length 6' — Set between 166 and 172 ft. — OR open hole from ft. to ft. — FITTINGS:

9. STATIC WATER LEVEL: 30 ft. below land surface — Date Measured 12-23-80

10. PUMPING LEVEL (below land surface): 60 ft. after 3 hrs. pumping 20 g.p.m.

11. WELL HEAD COMPLETION: ☐ Pitless adapter ☐ Basement offset ☐ At least 12" above grade

12. Well grouted? ☐ Yes ☐ No — Cu. Yds. — ☐ Neat Cement ☐ Bentonite ☐ — Depth: from ft. to ft.

13. Nearest sources of possible contamination: 70 feet NE direction septic type

Well disinfected upon completion? Yes ☐ No ☐

14. PUMP: Date Installed 1-6-81 ☐ Not Installed

Manufacturer's Name: Goulds — Model Number: 10EX07 — HP 3/4 — Volts 220

Length of drop pipe: 60 ft. — capacity 15 g.p.m.

Material of drop pipe: steel

Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ Centrifugal ☐

16. WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

McCullough & Sons, Inc. 82054

Licensee Business Name — License No.

Address: ~~20535 Forest Blvd Forest Lake~~ MN

~~Date 1-21-81~~

Authorized Representative

~~David McCullough~~ Date ~~1-21-81~~

WATER WELL RECO

Minnesota Statutes 156A.01-.6 WL3

154161

Non-responsive

County Name: Anoka

Township Name: Ramsey | Township Number: | Range Number: | Section No.: 34 | Fraction:

Distance and Direction from Road Intersections or Street Address and City of Well Location: Lot 6 Block 4 Riverside West Ramsey NW SW NE

Show exact location of well on section grid with "X." Sketch map of well location.

Addition Name: Riverside West

Block Number: 4

Lot Number: 6 & 7

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Sand & Gravel QFUB-SAND GRVL	Brown		1	20
Boulders QUUU-COBL			20	26
Sand QFUG-SAND	Gray		26	60
Shale & Slop CFRN-SHLE	Blue		60	85
Shale CFRN-SHLE	Green		85	110
Sandrock CFRN-SNDS	White	Soft	110	140
Sandrock CFRN-SNDS	White		140	195
			B/	662

Ag = CFRN

Bowling alley on highway 10 west of Anoka

32-25-34 ACC BAD

elev. 857±5'

120-B

CODED

LOCATED BY

1 - ☐ Address Verification
2 - ☒ Name on Mailbox
3 - ☐ Lot-Block
4 - ☐ Plat Book
5 - ☒ Info. From Owner
6 - ☐ Info. From Neighbor
7 - ☐ Other
☐ Can't Locate State Why

3. PR

4. WELL DEPTH (completed): 195 ft. Date of Completion:

5. 1☐ Cable tool 4☐ Reverse 7☐ Driven 10☐ Dug 2☐ Hollow rod 5☐ Air 8☐ Bored 11☐ ☒ Rotary 6☐ Jetted 9☐ Power Auger

6. USE: 1☐ Domestic 4☐ Public Supply 7☐ Industry 2☐ Irrigation 5☐ Municipal ☒ Commercial 3☐ Test Well 6☐ Air Conditioning 9☐

7. CASING: ☒ Black ☒ Threaded 2☐ Galv. 5☐ Welded 3☐ 6☐ HEIGHT: Above/Below Surface ft. Drive Shoe? Yes ✓ No

HOLE DIAM: 6 195 ft.

797

8. SCREEN: Make none Or open hole from 138 ft. to 195 ft.

772

Type Dia.

Slot/Gauze Length FITTINGS

747 Set between ft. and ft.

717 ft. and ft.

ft. and ft.

9. STATIC WATER LEVEL: 10 ft. below land surface ☐ above Date Measured

10. PUMPING LEVEL (below land surface): 100 3 85

ft. after hrs. pumping g.p.m.

ft. after hrs. pumping g.p.m.

11. WELL HEAD COMPLETION: 1☒ Pitless adapter 2☐ Basement offset 3☐ At least 12" above grade

12. Well grouted? ☒ Yes ☐ No Cu. Yds.

1☐ Neat Cement 2☒ Bentonite 3☐

Depth: from ft. to ft.

from ft. to ft.

13. Nearest sources of possible contamination: feet direction type

Well disinfected upon completion? Yes ☒ No ☐

14. PUMP: Date Installed 9-28-78 ☐ Not installed

Manufacturer's Name: Franklin

Model Number: 2343152013 HP 2 Volts 230

Length of drop pipe: 105' ft. capacity g.p.m.

Material of drop pipe: steel

Type: ☒ Submersible 3☐ L. S. Turbine 6☐ Reciprocating 2☐ Jet 4☐ Centrifugal 6☐

16. WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

BOOK WELL COMPANY 02133

Licensee Business Name License No.

Address: 7303 - 185th Ave. Nw

Signed: Authorized Representative

Steve Bierklein Date

Name of Driller

REMARKS, EXPLANATIONS, DATA, etc.

RECEIVED OCT 30 1978

MINN. GEOLOGICAL SURVEY COPY

5/74 30M

166897 32-25-34AABDAC

****

MINNESOTA GEOLOGICAL SURVEY
WATER WELL DATA BASE. SELECTED ANOKA CO. 87/03/02.

UNIQUE NO.: 166897
WELL NAME : Non-responsive

COUNTY : [redacted] 81/11/02.
ADDRESS : [redacted]
QUADRANGLE: [redacted]

TOWNSHIP : 32 NORTH UTM-EASTING : 466083
RANGE : 25 WEST UTM-NORTHING: 5007857
SECTION : 34/AABDAC UTM-ZONE : 15
LATITUDE : 45:13:31 N LONGITUDE : 93:25:55 W
LOCATED BY: ADDRESS VERIFICATION

ELEVATION : 869 FT. WATER LEVEL : 12 FT. (EL. 857 FT.)
DEPTH : 130 FT. DATE : 80/09/26
COMPLETED : 80/09/23 AQUIFER(S) : FRANCONIA

WELL USE : DOMESTIC
DRILLER : (AND/OR DATA SOURCE) MORK WELL CO.
CASING : STEP DOWN

SOURCE OF POSSIBLE CONTAMINATION
FEET: 00070 DIRECTION: N.W. TYPE: SEPTIC TANK

SCREEN
MAKE/TYPE: NONE

PUMP
MAKE/NO. : GOULDS
SIZE : 00.75 HP. 00230 VOLTS CAPACITY : 00010 G.P.M.
TYPE : SUBMERSIBLE DROP PIPE : 00042 FT.

PUMPAGE TEST

DATE: 80/09	TEST 1	TEST 2	TEST 3	TEST 4	TEST 5	TEST 6
HOURS	003					
RATE(GPM)	37.5					
DRAWDOWN(FT)	053					

GEOLOGIC LOG

DEPTH INTERVAL (IN FEET)	LITHOLOGY	STRATIGRAPHIC UNIT SYSTEM/GROUP/FORMATION	AGE	HARDNESS	COLOR	DRILLER'S DESCRIPTION
0 31	SAND,GRAVEL	BROWN FLUVIAL DEPOSIT	QUA	SOFT	BROWN	SAND & GRAVEL
31 77	GRAVEL,CLAY	GRAY TILL	QUA	HARD	GRAY	GRAVEL & CLAY
77 84	SHALE	ST.LAWRENCE	CAM	HARD	GRAY	SHALE
84 90	SANDSTONE	ST.LAWRENCE-FRANCONIA	CAM	SOFT	WHITE	SANDROCK

(CONTINUED)

166897 (CONTINUED)

M.G.S. WATER WELL DATA BASE
UNIQUE NO. 166897 - GEOLOGIC LOG (CONTINUED)

DEPTH INTERVAL (IN FEET)		LITHOLOGY	STRATIGRAPHIC UNIT SYSTEM/GROUP/FORMATION	AGE	HARDNESS	COLOR	DRILLER'S DESCRIPTION
84	90	SANDSTONE	ST.LAWRENCE-FRANCONIA	CAM	SOFT	WHITE	SANDROCK
90	115	SANDSTONE	FRANCONIA	CAM	SOFT	BROWN	SANDROCK
115	130	SHALE	FRANCONIA	CAM	HARD	GREEN	SHALE

****

171040 32-25-34ACDDDB

****

MINNESOTA GEOLOGICAL SURVEY
WATER WELL DATA BASE. SELECTED ANOKA CO. 87/03/02.

UNIQUE NO.: 171040
WELL NAME : Non-responsive

COUNTY : [redacted] DATE ENTERED: 81/11/02.
ADDRESS : [redacted] RAMSEY
QUADRANGLE: [redacted]

TOWNSHIP : 32 NORTH UTM-EASTING : 465855
RANGE : 25 WEST UTM-NORTHING: 5007234
SECTION : 34/ACDDDB UTM-ZONE : 15
LATITUDE : 45:13:11 N LONGITUDE : 93:26:05 W
LOCATED BY: NAME ON MAILBOX

ELEVATION : 853 FT. WATER LEVEL : 9 FT. (EL. 844 FT.)
DEPTH : 184 FT. DATE : 80/07/08
COMPLETED : 80/07/08 AQUIFER(S) : FRANCONIA

WELL USE : DOMESTIC
DRILLER : (AND/OR DATA SOURCE) RENNER E. H. WELL CO
CASING : STEP DOWN
: 004 INCH TO 0132 FEET
SCREEN
MAKE/TYPE: NONE

PUMP
MAKE/NO. : RED JACKET BVC 751
SIZE : 00.75 HP. 00230 VOLTS CAPACITY : 00012 G.P.M.
TYPE : SUBMERSIBLE DROP PIPE : 00021 FT.

REMARKS : PUMPAGE TEST DATA NOT AVAILABLE

GEOLOGIC LOG

DEPTH INTERVAL (IN FEET)		LITHOLOGY	STRATIGRAPHIC UNIT SYSTEM/GROUP/FORMATION	AGE	HARDNESS	COLOR	DRILLER'S DESCRIPTION
0	36	SAND	BROWN FLUVIAL DEPOSIT	QUA		BROWN	SAND
36	41	CLAY,SAND	RED QUATERNARY DEPOSIT	QUA		RED	CLAY & SAND
41	42	GRAVEL	TILL	QUA		MIXED	GRAVEL
42	81	CLAY,GRAVEL	BROWN TILL	QUA		BROWN	CLAY & GRAVEL
81	91	CLAY,GRAVEL	GRAY TILL	QUA		GRAY	CLAY
91	95	CLAY,GRAVEL	GRAY TILL	QUA		GRAY	CLAY
95	99	GRAVEL	QUATERNARY UNDIFF.	QUA		MIXED	GRAVEL
99	125	CLAY	BROWN TILL	QUA		BROWN	CLAY
125	184	SANDSTONE	FRANCONIA	CAM		MIXED	FRANCONIA SANDSTONE

****

156551 32-25-22ACCDAB

****

MINNESOTA GEOLOGICAL SURVEY
WATER WELL DATA BASE. SELECTED ANOKA CO. 87/03/02.

UNIQUE NO.: 156551
WELL NAME : Non-responsive

COUNTY : [redacted] DATE ENTERED: 81/11/02.
ADDRESS : [redacted] ANOKA
QUADRANGLE: [redacted]

TOWNSHIP : 32 NORTH UTM-EASTING : 465680
RANGE : 25 WEST UTM-NORTHING: 5010487
SECTION : 22/ACCDAB UTM-ZONE : 15
LATITUDE : 45:14:56 N LONGITUDE : 93:26:14 W
LOCATED BY: ADDRESS VERIFICATION

ELEVATION : 881 FT. WATER LEVEL : 16 FT. (EL. 865 FT.)
DEPTH : 198 FT. DATE : 79/03/07
COMPLETED : 79/03/07 AQUIFER(S) : FRANCONIA

WELL USE : DOMESTIC
DRILLER : (AND/OR DATA SOURCE) LUDWIG WELL CO.
CASING : STEP DOWN
: 004 INCH TO 0173 FEET

SOURCE OF POSSIBLE CONTAMINATION
FEET: 00050 DIRECTION: SOUTH TYPE: SEPTIC

SCREEN
MAKE/TYPE: NONE

PUMP
MAKE/NO. : MCDONALD 1605003B
SIZE : 000.5 HP. 00230 VOLTS CAPACITY : 00012 G.P.M.
TYPE : SUBMERSIBLE DROP PIPE : 00063 FT.

PUMPAGE TEST

DATE: 79/03	TEST 1	TEST 2	TEST 3	TEST 4	TEST 5	TEST 6
HOURS	002					
RATE(GPM)	0030					
DRAWDOWN(FT)	024					

GEOLOGIC LOG

DEPTH INTERVAL (IN FEET)	LITHOLOGY	STRATIGRAPHIC UNIT SYSTEM/GROUP/FORMATION	AGE HARDNESS COLOR	DRILLER'S DESCRIPTION
0 44	SAND	FLUVIAL DEPOSIT	QUA	SAND
44 63	GRAVEL	FLUVIAL DEPOSIT	QUA	GRAVEL
63 82	CLAY	TILL	QUA	CLAY

(CONTINUED)

156551 (CONTINUED)

M.G.S. WATER WELL DATA BASE
UNIQUE NO. 156551 - GEOLOGIC LOG (CONTINUED)

DEPTH INTERVAL (IN FEET)		LITHOLOGY	STRATIGRAPHIC UNIT SYSTEM/GROUP/FORMATION	AGE	HARDNESS	COLOR	DRILLER'S DESCRIPTION
63	82	CLAY	TILL	QUA			CLAY
82	93	GRAVEL	QUATERNARY UNDIFF.	QUA			GRAVEL & ROCKS
93	97	CLAY	QUATERNARY UNDIFF.	QUA			CLAY
97	138	GRAVEL	QUATERNARY UNDIFF.	QUA			GRAVEL & ROCKS
138	156	SHALE	FRANCONIA	CAM			SHALE
156	173	SANDSTONE	FRANCONIA	CAM	SOFT		SANDROCK
173	198	SANDSTONE	FRANCONIA	CAM	HARD		SANDROCK

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171045 32-25-22ADCDAC

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MINNESOTA GEOLOGICAL SURVEY
WATER WELL DATA BASE. SELECTED ANOKA CO. 87/03/02.

UNIQUE NO.: 171045
WELL NAME : [redacted]
Non-responsive

COUNTY : [redacted] DATE ENTERED: 81/11/02.
ADDRESS : [redacted] ANOKA
QUADRANGLE: [redacted]

TOWNSHIP : 32 NORTH UTM-EASTING : 466087
RANGE : 25 WEST UTM-NORTHING: 5010469
SECTION : 22/ADCDAC UTM-ZONE : 15
LATITUDE : 45:14:55 N LONGITUDE : 93:25:55 W
LOCATED BY: ADDRESS VERIFICATION

ELEVATION : 891 FT. WATER LEVEL : 28 FT. (EL. 863 FT.)
DEPTH : 169 FT. DATE : 80/08/26
COMPLETED : 80/08/26 AQUIFER(S) : FRANCONIA

WELL USE : DOMESTIC
DRILLER : (AND/OR DATA SOURCE) RENNER E. H. WELL CO
CASING : STEP DOWN
: 004 INCH TO 0139 FEET
SCREEN
MAKE/TYPE: NONE

PUMP
MAKE/NO. : RED JACKET BVC 751
SIZE : 00.75 HP. 00230 VOLTS CAPACITY : 00012 G.P.M.
TYPE : SUBMERSIBLE DROP PIPE : 00063 FT.

REMARKS : PUMPAGE TEST DATA NOT AVAILABLE

GEOLOGIC LOG

DEPTH INTERVAL (IN FEET)		LITHOLOGY	STRATIGRAPHIC UNIT SYSTEM/GROUP/FORMATION	AGE	HARDNESS	COLOR	DRILLER'S DESCRIPTION
0	13	SAND	BROWN FLUVIAL DEPOSIT	QUA		BROWN	SAND
13	20	GRAVEL	QUATERNARY UNDIFF.	QUA		MIXED	GRAVEL
20	24	CLAY,GRAVEL	BROWN TILL	QUA		BROWN	CLAY & GRAVEL
24	36	CLAY,GRAVEL	BROWN TILL	QUA		BROWN	CLAY & STONE
36	45	GRAVEL	QUATERNARY UNDIFF.	QUA		MIXED	GRAVEL
45	49	CLAY,GRAVEL	BROWN TILL	QUA		BROWN	CLAY & STONE
49	52	GRAVEL	QUATERNARY UNDIFF.	QUA		MIXED	GRAVEL
52	55	CLAY,GRAVEL	BROWN TILL	QUA		BROWN	CLAY & STONE
55	60	GRAVEL	QUATERNARY UNDIFF.	QUA		MIXED	GRAVEL
60	72	CLAY	BROWN TILL	QUA		BROWN	CLAY
72	73	SAND,GRAVEL	RED FLUVIAL DEPOSIT	QUA		RED	SAND & GRAVEL
73	80	CLAY,GRAVEL	BROWN TILL	QUA		BROWN	CLAY & GRAVEL
80	122	CLAY,GRAVEL	GRAY TILL	QUA		GRAY	CLAY
122	129	CLAY,GRAVEL	GRAY TILL	QUA		GRAY	CLAY & GRAVEL

(CONTINUED)

171045 (CONTINUED)

M.G.S. WATER WELL DATA BASE
UNIQUE NO. 171045 - GEOLOGIC LOG (CONTINUED)

DEPTH INTERVAL (IN FEET)		LITHOLOGY	STRATIGRAPHIC UNIT SYSTEM/GROUP/FORMATION	AGE	HARDNESS	COLOR	DRILLER'S DESCRIPTION	
122	129	CLAY,GRAVEL	GRAY TILL	QUA		GRAY	CLAY & GRAVEL	
129	132	SHALE,SANDSTONE	ST.LAWRENCE-FRANCONIA	CAM		BROWN	SHALE & SANDSTONE	BROKEN<
132	134	SHALE,SANDSTONE	ST.LAWRENCE-FRANCONIA	CAM		GRN-TAN	SHALE & SANDSTONE	BROKEN<
134	135	SHALE,SANDSTONE	ST.LAWRENCE-FRANCONIA	CAM		TAN	SHALE & SANDSTONE	BROKEN<
135	143	SANDSTONE	FRANCONIA	CAM		BURNT	SANDSTONE	
143	150	SHALE	FRANCONIA	CAM		OFFWHT	SHALE	
150	151	SHALE	FRANCONIA	CAM		BROWN	SHALE	
151	154	SANDSTONE	FRANCONIA	CAM		BLK-WHT	SANDSTONE	
154	169	SANDSTONE	FRANCONIA	CAM		BROWN	SANDSTONE	

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