SCREENING SITE INSPECTION REPORT
FOR
EARTHCO DEMOLITION DUMP
COLUMBUS, OHIO

U.S. EPA ID: OHD986970812
SS ID: NONE
TDD: F05-8710-062
PAN: F0H0027SA

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International Specialists in the Environment

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1. INTRODUCTION

Ecology and Environment, Inc. (E & E), 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 Earthco Demolition Dump (EARTHCO)site under contract number 68-01-7347.

The site was initially discovered by the Columbus, Ohio Health Department, while performing a routine quarterly inspection. Under the Hazardous Materials Emergency Response Program (HMERP), a U.S. EPA ad hoc committee set up a hotline and investigated potential hazardous waste sites. As a result of this program, the EARTHCO site was investigated in the form of a U.S. EPA T2070-2 Preliminary Assessment (PA) completed in 1980 by Thomas Lentzen of E & E.

FIT prepared an SSI work plan for the EARTHCO site under technical directive document (TDD) F05-8702-104, issued on February 2, 1987. The SSI work plan was approved by U.S. EPA on October 9, 1987. The SSI of the EARTHCO site was conducted on April 27 and 28, 1988, under TDD F05-8710-062, issued on October 12, 1987.

The FIT SSI included an interview with a site representative, a reconnaissance inspection of the site, and the collection of eight soil samples and three 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 contains information obtained from SSI work plan preparation and the site representative interview.

2.2 SITE DESCRIPTION

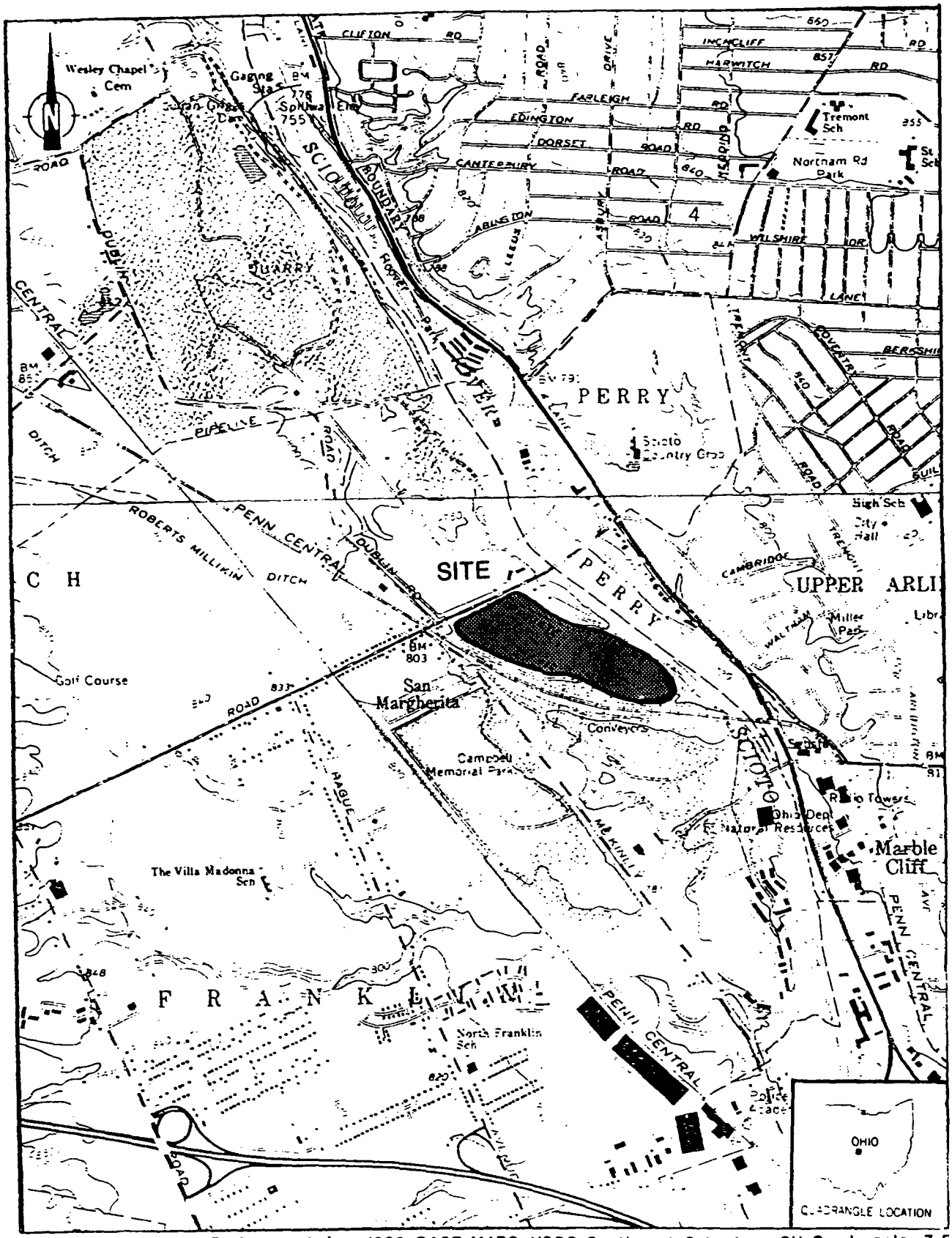
The EARTHCO site is an inactive landfill situated in an approximately 88-acre quarry. According to well logs of the area, the landfill is approximately 71 feet deep. The quarry in which the landfill is located is on the west bank of the Scioto River at 3101 Trabue Road, Columbus, Ohio, in Franklin County (see Figure 2-1). A 4-mile radius map of the EARTHCO site is provided in Appendix A.

2.3 SITE HISTORY

The EARTHCO site began as a limestone quarrying operation. The date of the start of these operations at the site is unknown. In 1973, the site began to illegally fill in the quarry with solid wastes, including demolition debris and construction wastes, as well as Liquid Industrial Waste (Sharp 1973). The owner of the property at that time was Marble Cliff Quarries, Inc.

The site was sold to EARTHCO, Inc., on an unknown date. This firm continued quarry and filling operations at the site. Both Marble Cliff Quarries, Inc., and EARTHCO, Inc., were a part of Kauffman Investments Company of Columbus, Ohio.

In 1980, the EARTHCO site was ordered by the City of Columbus Health Department to cease and desist accepting solid wastes



SOURCE: Ecology and Environment, Inc. 1989; BASE MAPS: USGS Southwest Columbus, OH Quadrangle, 7.5 Minute Series, 1965; Northwest Columbus, OH Quadrangle, 7.5 Minute Series, 1964.

0 SCALE 1 MILE

FIGURE 2-1 SITE LOCATION MAP

because the landfill was not licensed and dumping was therefore illegal (E & E 1980).

According to Chuck Nace, a former employee of the quarry, landfilling was occurring at one end of the site, while the quarry operation continued at the other. In 1982, the quarry ceased operations. In 1983 or 1984, the landfill closed. No waste was accepted at the site after its closure (Nace 1988). Prior to its closure, the landfill was accepting construction debris, most types of domestic refuse, and, allegedly, industrial wastes (Nace 1988; E & E 1980).

In 1986 or 1987, the site property was sold to Specialty Restaurants Corporation, the current site owner (Thompson 1988). Specialty Restaurants Corporation has not developed or used the site in any way since they purchased it (Thompson 1988).

Based on available information, no emergency response concerning hazardous waste has ever been conducted at the site by local, state, or federal authorities.

3. SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS

3.1 INTRODUCTION

This section outlines procedures and observations of the SSI of the EARTHCO 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.

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

3.2 SITE REPRESENTATIVE INTERVIEW

Jeryl Kolb, FIT team leader, conducted an interview with Mark Thompson, a representative of Specialty Restaurants Corporation. The interview took place at Baby Doe's, a restaurant in Columbus, Ohio, that is owned by Specialty Restaurants. The interview took place on April 28, 1988, at 9:00 a.m. The interview was conducted to gather information useful to FIT in conducting SSI activities.

3.3 RECONNAISSANCE INSPECTION

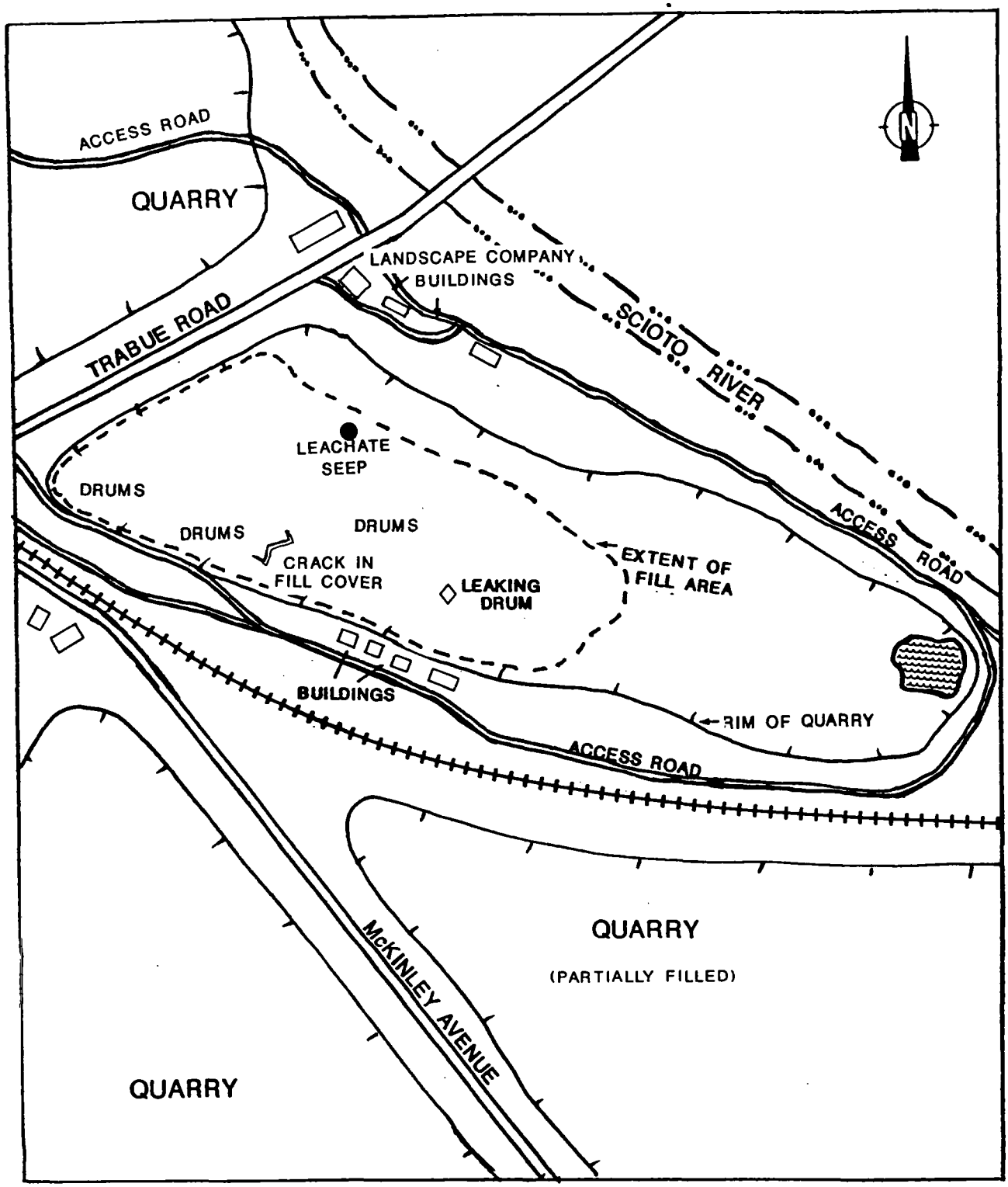
FIT conducted a reconnaissance inspection of the EARTHCO site in accordance with E & E health and safety guidelines. The inspection was conducted on April 28, 1988, at 11:15 a.m. The reconnaissance inspection included a walk-through of the site to determine appropriate health and safety requirements for conducting on-site activities and to make

observations to aid in characterizing the site. Sampling locations were also chosen during the reconnaissance inspection. No site representative accompanied FIT during the reconnaissance inspection.

Reconnaissance Inspection Observations. The EARTHCO site is located in a mixed residential and commercial area approximately 100 yards west of the Scioto River. The site is oriented in a northwest to southeast direction. The terrain surrounding the quarry is slightly rolling and heavily wooded. An access road surrounds the site on every side except the northwest, where the edge of the quarry is bordered by Trabue Road (see Figure 3-1 for locations of site features). Two access roads lead to the road surrounding the site, one from McKinley Avenue to the southwest, and the other from Trabue Road to the northwest. Pole gates are present across these access roads, but no fencing surrounds the site. Homes and commercial businesses are located opposite the site across McKinley Avenue. To the northwest of the site, across Trabue Road, lie additional inactive quarries. Railroad tracks run parallel to the southern border of the site, in a northwest-southeast direction. Inactive quarries are also situated to the south of the site, across these tracks. Portions of all these quarries also appear to have been filled.

Several abandoned buildings are located along the south rim of the quarry, along the access road. Several buildings belonging to a landscaping company are located just north of the site. The fill area encompasses the northwestern 3/4 of the quarry. The top of the fill area is even with the surrounding ground surface, but drops off sharply to the bottom of the quarry on its east and northeast edges, where sheer 40- to 60-foot cliffs are visible. A leachate seep was observed by FIT along the eastern edge of the quarry. A small pond is located on the extreme east side of the quarry.

Approximately 75 to 100 drums were observed scattered throughout the site. Most appeared to be empty. All of the drums had axe or hatchet marks on them. Labels on the drums indicated that they had contained pesticides at one time. One drum in the southeastern portion of the fill area was observed by FIT to to be leaking. Stained soil surrounded this drum. The cover material on the fill area appeared adequate; no exposed trash or protruding debris was observed. FIT did



SOURCE Ecology and Environment, Inc., 1989.

APPROXIMATE SCALE

400 800 1200 1600 FEET

FIGURE 3-1 SITE FEATURES

observe a crack in the fill cover on the southern portion of the fill area. Smoke was observed emanating from this crack. A reading of 70 parts per million (ppm) on the OVA 128 flame ionization detector was recorded in the area of this crack in the fill cover.

Photographs of the EARTHCO site are provided in Appendix D.

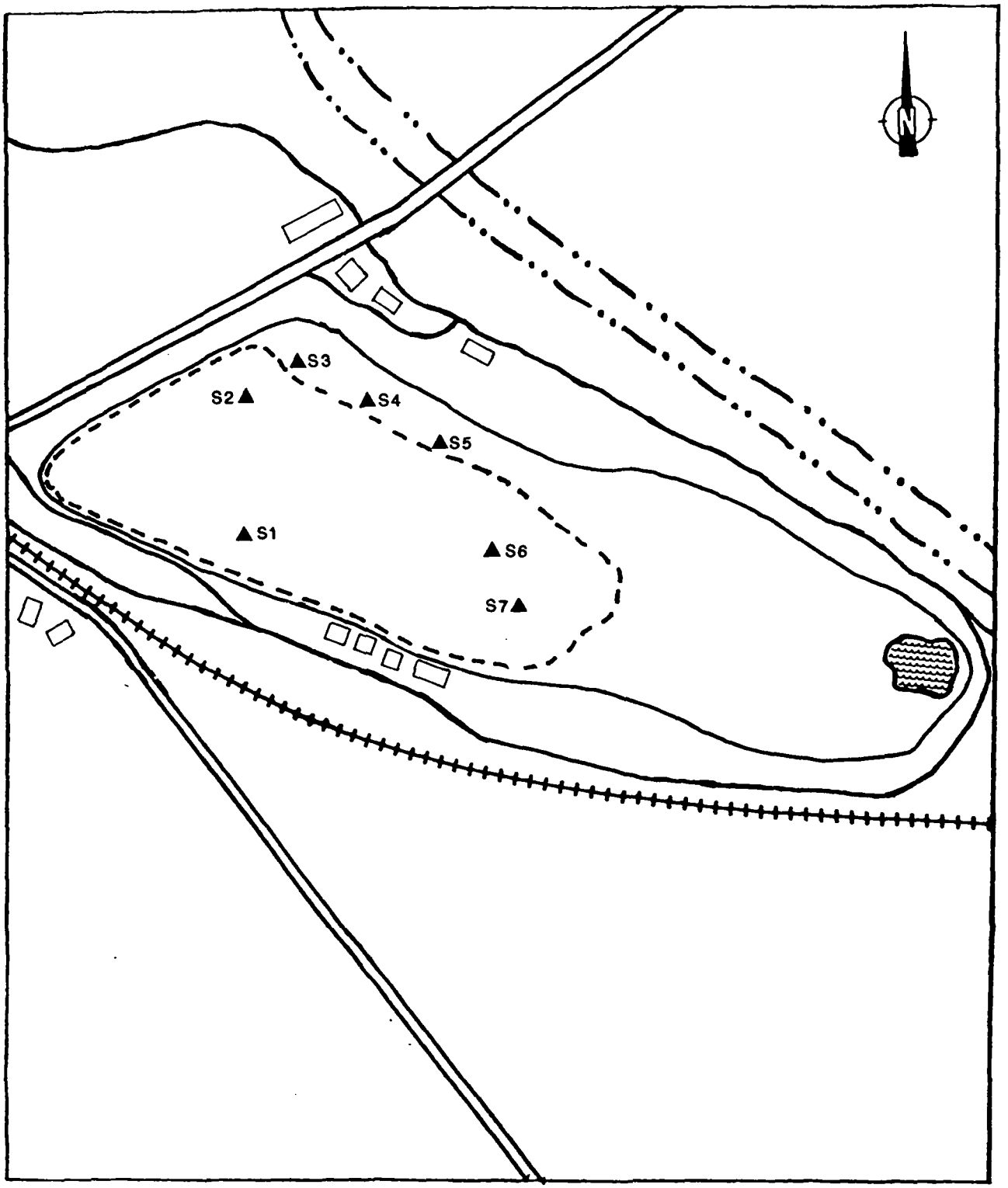
3.4 SAMPLING PROCEDURES

Samples were collected by FIT at locations selected 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 April 27, 1988, FIT collected three residential well samples and one distilled water field blank. On April 28, 1988, FIT collected four surface soil samples, three subsurface soil samples, and one potential background soil sample. A portion of each on-site soil sample was offered to site representatives, but was declined.

Soil Sampling Procedures. Subsurface soil samples S2, S3, and S5 were collected at a depth of approximately 2 feet, using a bucket auger for S2 and S5 and a shovel for S3. In each case, the bucket auger or shovel was used to collect the sample material and to place it in a stainless steel bowl. The four on-site surface soil samples (S1, S4, S6, and S7) were collected using a garden trowel. Sample material was transferred to a stainless steel bowl, and then to sample containers using stainless steel spoons (E & E 1987).

Soil sample S1 was collected from within the crack in the landfill cover near the southern edge of the disposal area through which smoke was emanating. The sample was collected at a depth of approximately 8 inches (see Figure 3-2 for on-site soil sampling locations). This location was chosen in an effort to determine characteristics of burning waste beneath the surface. Subsurface soil samples S2 and S3 were collected near the north corner of the fill area, approximately 75 yards southeast of Trabue Road. Sample S2 was collected from a low spot on the surface of the fill area to characterize the waste disposed in the landfill. Sample S3 was collected next to a drum lying on its side along the toe of the landfill, approximately 50 yards northeast of S2. Sample S3 was collected in an effort to determine whether the drum



SOURCE Ecology and Environment, Inc., 1989.

APPROXIMATE SCALE

400 800 1200 1600 FEET

FIGURE 3-2 ON-SITE SOIL SAMPLING LOCATIONS

contents had leaked onto surrounding soil, and whether wastes were migrating away from the landfill.

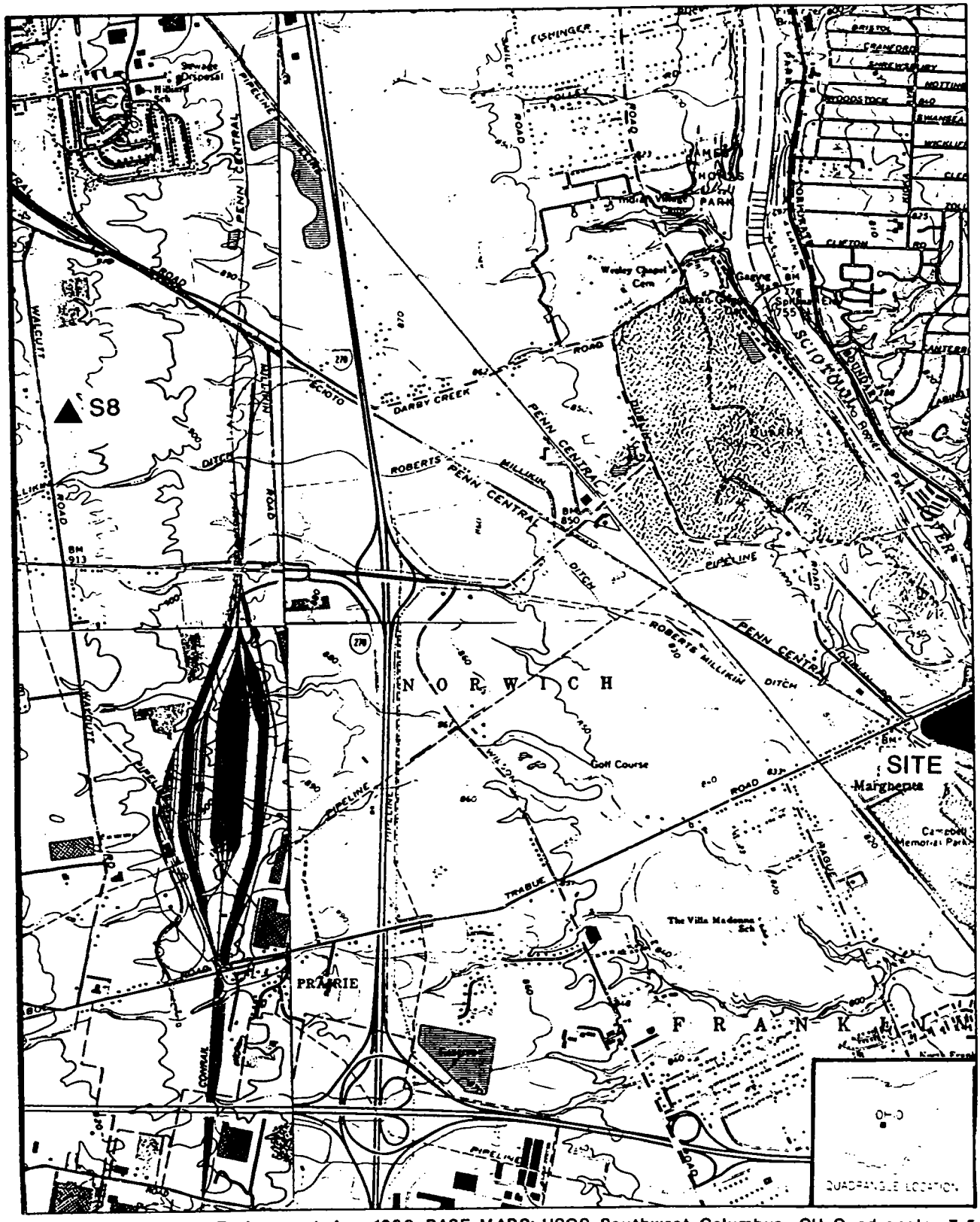
Soil samples S4 and S5 were collected along the northeastern edge of the landfill. Sample S4 was a surface soil sample collected at a location approximately 100 yards southeast of S3, just downslope from an evident leachate seep. Sample S4 was collected from a depth of approximately 8 inches. Sample S5 was a subsurface soil sample collected approximately 100 yards southeast of S4. The sample was collected at the toe of the landfill in the vicinity of an empty barrel. Samples S4 and S5 were collected in an effort to characterize TCL compounds and TAL analytes possibly present on-site and to assess containment at the site.

Surface soil samples S6 and S7 were collected from the eastern portion of the fill area, at a depth of approximately 8 inches. Sample S6 was collected downslope of an empty drum lying in a small gully between two ridges. Sample S7 was collected approximately 50 yards south of S6 at the bottom of a small ridge. Samples S6 and S7 were collected to help characterize TCL compounds and TAL analytes possibly present on-site and to assess containment at the site.

A potential background soil sample, S8, was collected from an undisturbed wooded location approximately 2 1/2 miles northwest of the site along Walcutt Road (see Figure 3-3 for the off-site soil sampling location). Sample S8 was collected from an approximate depth of 6 inches to determine the representative chemical content of the soil in the vicinity of the site.

Standard E & E decontamination procedures were followed during the collection of all soil samples. This involved the scrubbing of all bowls, trowels, spoons, and other sampling equipment with a solution of distilled water and Alconox detergent, and triple-rinsing the equipment with distilled water before the collection of each sample (E & E 1987). All soil samples were packaged and shipped according to U.S. EPA-required procedures.

As directed by U.S. EPA, all soil samples were sent to IT Analytical Services of Knoxville, Tennessee, to be analyzed for TCL compounds, and to Keystone Environmental Resources of Houston, Texas, to be analyzed for TAL analytes.



SOURCE: Ecology and Environment, Inc. 1989; BASE MAPS: USGS Southwest Columbus, OH Quadrangle, 7.5 Minute Series, 1965; Northwest Columbus, OH Quadrangle, 7.5 Minute Series, 1964.

SCALE

0 MILE

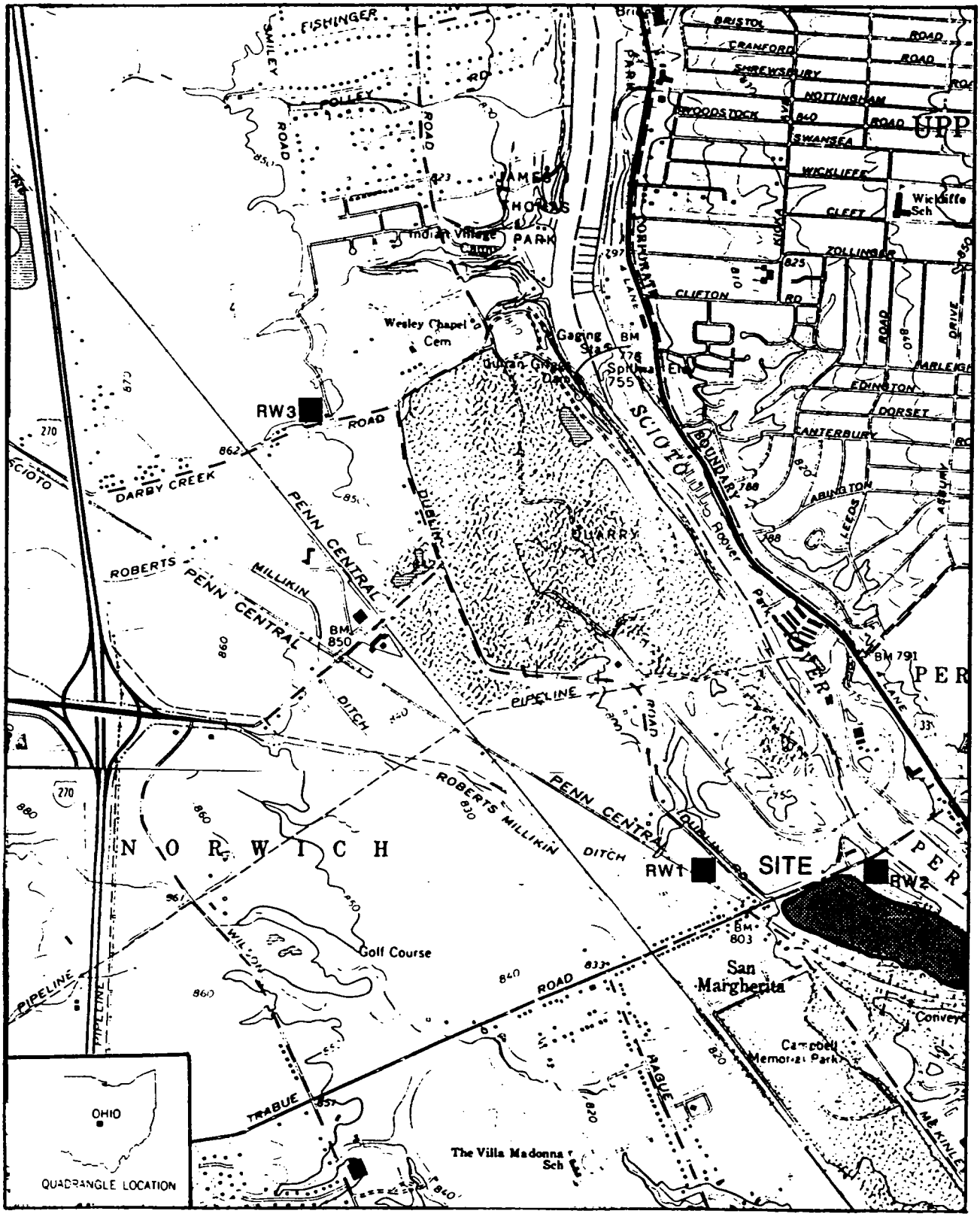
FIGURE 3-3 OFF-SITE SOIL SAMPLING LOCATION

Residential Well Sampling Procedures. Three residential well samples (designated as RW1, RW2, and RW3) were collected to determine whether TCL compounds and/or TAL analytes had migrated from the site via groundwater.

Residential well sample RW1 was collected from a business located on Dublin Road approximately 1/2 mile northwest of the site (see Figure 3-4 for residential well sampling locations). The well depth is not known. Water from the well is not used for drinking but is used for washroom facilities. Bottled water is used for drinking. Sample RW2 was collected from a business on Trabue Road just east of the site. The sample was collected from a 103-foot-deep well that is not used for drinking, but for washroom facilities. Sample RW3 was collected from a business located on Scioto-Darby Creek Road approximately 2 1/2 miles northwest of the site. The well depth was 70 feet. This well was used only for washroom and kitchen facilities. A duplicate residential well sample and a distilled water field blank were also collected in accordance with U.S. EPA quality assurance/quality control (QA/QC) requirements. The duplicate sample was collected at location RW2 (see Table 3-1 for addresses and depths of residential wells sampled).

All residential well samples were obtained from outlets that bypassed water treatment systems and/or storage tanks. The water was allowed to discharge 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, all residential well samples were analyzed for TCL compounds by Enseco/California Analytical Laboratory of West Sacramento, California, and for TAL analytes by Chemtech Consulting Group of New York, New York.



SOURCE: Ecology and Environment, Inc. 1989; BASE MAPS: USGS Southwest Columbus, OH Quadrangle, 7.5 Minute Series, 1965; Northwest Columbus, OH Quadrangle, 7.5 Minute Series, 1964.

SCALE
0 0.5 1 MILE

FIGURE 3-4 RESIDENTIAL WELL SAMPLING LOCATIONS

Table 3-1

ADDRESSES OF RESIDENTIAL WELL SAMPLING LOCATIONS

Sample	Well Depth (feet)	Address
RW1	Unknown	3161 South Dublin Road Columbus, OH 43228
RW2 and Duplicate	103	3135 Trabue Avenue Columbus, OH 43228
RW3	70	3872 Scioto-Darby Creek Road Columbus, OH 43228

Source: Ecology and Environment, Inc. 1989.

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, polyaromatic hydrocarbons (PAHs), phthalates, pesticides, metals, and heavy metals. Also present in FIT-collected soil samples were common laboratory artifacts and common soil constituents. Common laboratory contaminants detected included methylene chloride, acetone, toluene and 4-methyl-2-pentanone. Common soil constituents detected included aluminum, barium, calcium, iron, magnesium, potassium, and sodium (see Table 4-1 for complete soil sample chemical analysis results).

Residential Well Samples. The detection of TCL compounds and TAL analytes in FIT-collected residential well samples was also provided by chemical analysis. The only TCL compounds detected in residential well samples collected by FIT were methylene chloride and toluene, both considered common laboratory artifacts. TAL analytes detected included metals and heavy metals, as well as common water constituents, specifically barium, calcium, iron, magnesium, potassium, and sodium (see Table 4-2 for complete residential well sample chemical analysis results).

Laboratory analytical data of soil sample analysis and residential well sample analysis and U.S. EPA Contract Laboratory Program (CLP) quantitation/detection limits 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
Date	4/28/88	4/28/88	4/28/88	4/28/88	4/28/88	4/28/88	4/28/88	4/28/88
Time	1240	1325	1320	1340	1425	1410	1420	1515
Organic Traffic Report Number	EX014	EX015	EX016	EX017	EX018	EX019	EX020	EX021
Inorganic Traffic Report Number	MEX218	MEX219	MEX220	MEX221	MEX222	MEX223	MEX224	MEX225
Compound Detected (values in µg/kg)								
Volatile Organics								
methylene chloride	6J	4J	6J	4J	2J	4J	4J	8
acetone	26	21	15	7J	15	9J	13	21
2-butanone (MEK)	--	--	--	--	2J	--	--	--
4-methyl-2-pentanone	--	--	1J	1J	25	--	--	--
toluene	6J	3J	--	9	--	4J	3J	--
Semivolatile Organics								
naphthalene	--	--	--	--	--	130J	87J	--
acenaphthylene	--	--	--	--	--	610J	--	--
acenapthene	--	--	--	--	--	140J	290J	--
dibenzofuran	--	--	--	--	--	140J	190J	--
fluorene	--	--	--	--	--	360J	400J	--
phenanthrene	660J	1,500	--	110J	--	2,800	3,200	--
anthracene	180J	390J	--	--	--	940	1,000	--
fluoranthene	1,200	2,400	--	110J	--	5,600	4,000	--
pyrene	900	3,300	--	--	--	3,600	4,400	--
butylbenzylphthalate	--	390J	--	--	--	--	--	--
benzo[a]anthracene	590J	1,100	--	--	--	2,300	2,000	--
chrysene	870	1,700	--	140J	--	3,000	2,600	--
benzo[b]fluoranthene	500J	1,200	--	--	--	2,100	1,800	--
benzo[k]fluoranthene	730J	1,000	--	--	--	2,500	1,600	--
benzo[a]pyrene	520J	1,100	--	--	--	2,100	1,600	--
indeno[1,2,3-cd]pyrene	370J	560J	--	--	--	1,300	1,000	--
dibenzo[a,h]anthracene	--	--	--	--	--	840	--	--
benzo[g,h,i]perylene	510J	770	--	--	--	1,900	1,200	--
Pesticides/PCBs								
Heptachlor	--	--	--	--	--	--	11	--
Dieldrin	26	--	--	--	--	--	--	--
Analyte Detected (values in mg/kg)								
aluminum	4,700J*	8,040J*	1,240J*	1,160J*	859J*	9,510J*	10,100J*	13,600J*
arsenic	11.9	8.9B	2.3+B	3.8	1.5B	16.4+	8.9	16.3+
barium	116	105	630	494	233	303	103	175
beryllium	--	.77B	--	--	--	1.5	1.1	1.9

Table 4-1 (Cont.)

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8
cadmium	--	--	--	--	--	3.5J*	--	--
calcium	178,000J*	70,400J*	284,000J*	245,000J*	259,000J*	80,600J*	78,800J*	3,440J*
chromium	10.5J*	30.2J*	6.6J*	8.2J*	6.1J*	22.9J*	16.5J*	17.5J*
cobalt	7.7B	11.6	--	--	--	33.4	12.5	12.4B
copper	86.6JE*N	20.4JEN*	6.2BJEN*	14.3JEN*	--	118JEN*	21.2JEN*	5.9JBEN*
iron	14,100J*	20,400J*	2,710J*	3,720J*	2,330J*	31,700J*	29,300J*	22,800J*
lead	20.9*	198*	2.7*	3.5*	1.4*	36*	19*	26.4*
magnesium	18,300	23,600	77,700	67,300	74,400	13,700	22,500	2,650
manganese	427*	345*	91*	156*	98.2*	1,860*	478*	1,480*
mercury	--	--	--	--	--	.14	--	--
nickel	15.8J*	23.3J*	--	12.8J*	10.3J*	65.8J*	37.6J*	26.1J*
potassium	--	982B	--	--	--	1,420	1,420	1,480
sodium	115B	91.4B	113B	123B	94.1B	150B	117B	74.1B
vanadium	19.2	28.2	9B	9.4B	8.1B	36.5	33.7	38.4
zinc	82.1JN*	105JN*	55.1JN*	50.3JN*	45.1JN*	645JN*	130JN*	90.6JN*

-- Not detected.

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

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
E	Estimated or not reported due to interference. See laboratory narrative.	Analyte or element was not detected, or value may be semiquantitative.
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 semi-quantitative.
+	Correlation coefficient for standard additions is less than 0.995. See review and laboratory narrative.	Data value may be biased.
B	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.

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

Sample Collection Information and Parameters	Sample Number RW1	RW2	RW3	Blank	Duplicate of RW2
Date	4/27/88	4/27/88	4/27/88	4/27/88	4/27/88
Time	1515	1530	1610	1415	1530
Organic Traffic Report Number	EX022	EX023	EX025	EX026	EX024
Inorganic Traffic Report Number	MEX226	MEX227	MEX229	MEX230	MEX228
Temperature (°C)	16	13	13	-	13
Specific Conductivity (μmhos)	110	140	90	-	140
pH	6.85	6.71	6.97	-	6.71
Compound Detected (values in μg/L)					
Volatile Organics					
methylene chloride	--	1J	--	--	--
toluene	--	1	3	2	3
Analyte Detected (values in μg/L)					
arsenic	--	--	14	--	--
barium	[23]	[45]	215	[6.7]	[48]
calcium	118,000JN	114,000JN	106,000JN	--	120,000JN
chromium	--	[4.2]N	--	--	11N
copper	37JN	91JN	74JN	34JN	46JN
iron	548JN	506JN	2,400JN	126JN	362JN
lead	4.7J	3.0J	3.1J	4.3J	2.5J
magnesium	43,000JN	33,600JN	31,500JN	--	35,500JN
manganese	23	26	138	--	27
mercury	--	.60	--	--	.60
nickel	[14]	--	--	--	--
potassium	2,700JN	2,000JN	3,600JN	3,600JN	7,800JN
silver	--	6.4N	--	--	--
sodium	19,100	73,900	21,700	--	78,200
zinc	1,120	45	32	[11]	49

-- Not detected.

Table 4-2 (Cont.)

COMPOUND QUALIFIER	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.
[ ]	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 EARTHCO site.

The five migration pathways of concern discussed are groundwater, surface water, air, fire and explosion, and direct contact.

5.2 GROUNDWATER

TAL analytes have been detected in groundwater within a 1/4-mile radius of the EARTHCO site. The presence of these analytes may be attributable to the site.

Polyaromatic hydrocarbons (PAHs) were the most commonly detected TCL compounds in on-site soil samples. Chemical analysis of soil samples revealed 16 TCL compounds at concentrations above those detected in the background soil sample, S8. These compounds were most prevalent in soil samples S1, S2, S6, and S7. Sample S6 contained the most concentrated PAH, fluoranthene, at 5,600 µg/kg. Fluoranthene was also detected in high concentrations in soil sample S7, at 4,000 µg/kg; in S1, at 1,200 µg/kg; and in S2, at 2,400 µg/kg. Pyrene and chrysene were also detected at high concentrations. Sample S7 contained pyrene at a concentration of 4,400 µg/kg, the highest concentration detected in the soil samples. Chrysene was detected in sample S6 at 3,000 µg/kg. PAHs were not detected in FIT-collected residential well samples.

Heavy metals were detected in both on-site soils and in residential well samples. Residential well sample RW2 contained the most frequent

and the highest concentrations of heavy metals, including 4.2 µg/L chromium, .60 µg/L mercury, and 6.4 µg/L silver. Residential well samples RW1 and RW3 also contained elevated concentrations of certain heavy metals. Arsenic was detected at 14 µg/L, and iron at 2,400 µg/L in RW3; nickel was detected at 14 µg/L, and zinc at 1,120 µg/L in RW1.

Heavy metals were also detected in on-site soil samples. Soil sample S6 contained cadmium, at 3.5 mg/kg; chromium, at 22.9 mg/kg; cobalt, at 33.4 mg/kg; copper, at 118 mg/kg; mercury, at .14 mg/kg; nickel, at 65.8 mg/kg; and zinc, at 645 mg/kg. Other soil samples also contained elevated concentrations of heavy metals. Sample S2 contained 198 mg/kg lead, and sample S7 contained 478 mg/kg manganese.

The major aquifer in the vicinity of the site is limestone and dolomite of Devonian and Silurian age (Ohio Department of Natural Resources [ODNR] 1958). This is the aquifer of concern in the site area. A review of area well logs indicates that the amount and type of unconsolidated deposits above this aquifer vary from one location to another. Along the Scioto River, in the immediate vicinity of the site, the depth of these deposits varies from 1 to 68 feet. Scattered sand, and sand and gravel lenses are also located within these deposits. Logs of wells in the area of the site are provided in Appendix F and locations of these wells are shown in the 4-mile radius map provided in Appendix A.

The depth of the quarry in which the site is located is approximately 40 to 60 feet. The quarry cuts into the bedrock formation, which is the aquifer of concern in the site vicinity. Based on surface topography, groundwater flow in the site area is assumed to move in an easterly direction toward the Scioto River.

The city of Columbus maintains a city well field south of U.S. Interstate Highway 270 on U.S. Highway 23, at a distance of approximately 8 miles southeast of the site (Moore 1988). The city of Columbus also provides water to the cities of Hilliard, Upper Arlington, Clinton, and Grandview Heights (Jackson 1987). Therefore, the only groundwater targets within a 3-mile radius of the site include residents drawing water from private wells. According to Bruce Carpenter, a sanitarian with the Franklin County Board of Health, an area bordered on the north by Davidson Road, on the south by Fisher Road, on the west by I-270, and

on the east by the Scioto River is served by private wells (Carpenter 1987). This area includes portions of Norwich and Franklin townships that are unincorporated (U.S. Bureau of Census 1982). Potential groundwater targets include 2,349 persons living within a 3-mile radius of the site in the area described above who utilize private wells to obtain drinking water. This figure was calculated by counting the number of homes (900) on a USGS topographic map (USGS 1965) that lie within the prescribed area. The number of homes was then multiplied by 2.61, which represents the population per household for Franklin County (U.S. Bureau of the Census 1982). The potential targets of groundwater contamination, then, include 2,349 persons drawing from private wells within a 3-mile radius of the site.

5.3 SURFACE WATER

The city of Columbus maintains surface water intakes on the Scioto River in the Hoover Reservoir south of the city of Grandview Heights (Hughes 1987). These intakes are located approximately 3.5 miles downstream of the EARTHCO site. The fill area at the site, however, is contained within a quarry 40 to 60 feet deep. Therefore, an overland surface water migration pathway from the site to the Scioto River does not exist. If TCL compounds and TAL analytes present on-site are migrating into the aquifer below and contaminated groundwater is being drawn as influent into the Scioto River, then a pathway to surface water may exist. No hydrogeological studies have been conducted to evaluate this pathway.

The surface water intakes in the Scioto River serve approximately 308,000 persons, roughly 1/2 of the population of Columbus and the cities served by the Columbus water system (Moore 1988; Jackson 1987; U.S. Bureau of the Census 1982).

5.4 AIR

A release of potential contaminants to the air was observed during the SSI of the EARTHCO site. During the reconnaissance inspection, FIT recorded a reading of 70 ppm above background on the OVA 128 flame ionization detector. The reading was recorded near a crack in the landfill cover through which smoke was emanating. The area near the

crack in the fill cover was also tested with the methane probe on the OVA 128. No readings were recorded. In accordance with the U.S. EPA-approved work plan, no further air monitoring was conducted by FIT during the SSI.

TCL compounds and TAL analytes are present on-site and could potentially be carried off-site via windblown particulates. A total of approximately 168,500 persons live within a 4-mile radius of the site based on house counts from a USGS topographic map of the area (USGS 1965) multiplied by the 2.61 person-per-household average for Franklin County (U.S. Bureau of the Census 1982).

5.5 FIRE AND EXPLOSION

According to Chuck Nace, a former employee of Marble Cliff Quarry Company, the wastes disposed of at the quarry consisted only of concrete and building debris, which would present little potential for fire or explosion at the site. The potential for fire at the site does exist, however, based on FIT observations of smoke emanating from a crack in the cover of the landfill during the SSI.

5.6 DIRECT CONTACT

A review of federal, state, and local file information and interviews with site representatives indicate no documentation of an incident of direct contact with TCL compounds and/or TAL analytes at the EARTHCO site.

There is a potential for the public to come into contact with TCL compounds and TAL analytes detected at the site. Access to the site is not controlled; no fence surrounds the property, and the gates located across the access roads leading off of Trabue and McKinley roads are pole gates that would not prevent access to persons on foot or bicycle. In addition, a dirt access road surrounds the site on three sides. This road appears to connect the quarries south and north of the site. Persons on dirt bikes were observed using this road.

Approximately 3,200 persons reside within a 1-mile radius of the EARTHCO site. This figure was calculated by counting houses on a USGS topographic map (USGS 1965) and multiplying by 2.61, the person-per-household average for Franklin County (U.S. Bureau of the Census 1982).

A planimeter was also used to determine, in square inches, the area of the cities of Marble Cliff and Upper Arlington that are located within a 1-mile radius of the site. This area was multiplied by the population density for each city (or number of persons per square inch). The population densities were calculated by finding the populations of each entire city, according to U.S. Census Bureau information, and dividing this figure by the areas of each entire city using a planimeter. The number of persons in each city was then added to the number of persons outside the cities but within 1 mile of the site, for a total direct contact target population of 3,200 persons.

6. BIBLIOGRAPHY

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2102:7

APPENDIX A

SITE 4-MILE RADIUS MAP

SDMS US EPA Region V

Imagery Insert Form

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SITE 4-MILE RADIUS MAP

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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
OH	D986970812

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
EARTHCO	3101 TRABUE ROAD

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
COLUMBUS	OH	43229	FRANKLIN	049	12

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
39 59 58.N	083 05 00.W	■ 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
04 / 28 / 88 (MONTH DAY YEAR)	☐ ACTIVE ■ INACTIVE	✓ UNKNOWN (BEGINNING YEAR / ENDING YEAR)

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ■ B. EPA CONTRACTOR ECOLOGY & ENVIRONMENT (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.
JERYL KOLB	BIOLOGIST / TEAM LEADER	ECOLOGY AND ENVIRONMENT	(312) 663-9415

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
DIRK KAISER	GEOLOGIST / SAFETY OFFICER	ECOLOGY AND ENVIRONMENT	(312) 663-9415
PHIL SMITH	GEOLOGIST / SAMPLER	ECOLOGY AND ENVIRONMENT	(312) 663-9415
CATHY SCHLESINGER	SOIL SCIENTIST / TEAM MEMBER	ECOLOGY AND ENVIRONMENT	(312) 663-9415
DAN WELSH	ENVIRONMENTAL HEALTH SPECIALIST / TEAM MEMBER	ECOLOGY AND ENVIRONMENT	(312) 663-9415
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
MARK THOMPSON	—	2099 S. STATE COLLEGE, SUITE 300 ANAHEIM, CA 92806	(614) 224-0000
CHARLES NACE	FORMER EMPLOYEE	—	(614) 276-9347
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION ☐ WARRANT	11:00 AM	CLOUDY, PARTLY RAINY; COLD 30-40°F; WINDY

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
STEVE RATH	OHIO ENVIRONMENTAL PROTECTION AGENCY	(614) 644-2055

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
JERYL KOLB	U.S. EPA	ECOLOGY AND ENVIRONMENT	312 / 633-9415	11 / 10 / 88 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	986 970 812

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 _____
CUBIC YARDS Unknown
NO. OF DRUMS ~ 75

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	Unknown	—	
OCC	OTHER ORGANIC CHEMICALS	Unknown	—	Records of volume of wastes
IOC	INORGANIC CHEMICALS			disposed of at site either
ACD	ACIDS			do not exist or are not avail-
BAS	BASES			able.
MES	HEAVY METALS	Unknown	—	

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	Naphthalene	91-20-3	Wastes were disp-	130 J	µG/KG
OCC	Acenphthylene	206-96-8	sed of in an open	610 J	µG/KG
OCC	Acenaphthene	83-32-9	dump situated on the	290 J	µG/KG
OCC	Dibenzofuran	132-64-9	floor of a limestone	190 J	µG/KG
OCC	Fluorene	86-73-7	quarry. No liner	400 J	µG/KG
OCC	Phenanthrene	85-01-8	was placed between	3,200	µG/KG
OCC	Anthracene	120-12-7	the wastes and the	1,000	µG/KG
OCC	Fluoranthene	206-44-0	floor. Cover was	5,600	µG/KG
OCC	Pyrene	129-00-0	applied over the	4,400	µG/KG
OCC	Benzo(A) anthracene	56-55-3	wastes, however.	2,300	µG/KG
OCC	Chrysene	218-01-9	All concentrations	3,000	µG/KG
OCC	Benzo(B) fluoranthene	205-99-2	listed to the right	2,100	µG/KG
OCC	Benzo(K) fluoranthene	207-08-9	except those with	2,500	µG/KG
OCC	Benzo(A) pyrene	50-32-8	measures of mg/L	2,100	µG/KG
OCC	Indeno(1,2,3-cd) pyrene	193-39-5	are from FIT-collect-	1,300	µG/KG
OCC	Dibenzo(A,H) anthracene	53-70-3	ed soil samples.	840	µG/KG

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	N/A		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

Ecology & Environment, Inc., April 28, 1988 Site Inspection

EPA FORM 2070-13 (7-81)

* Continued from Part II, Section IV.

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 (G, H, I) PERYLENE	191-24-2		1,900	µG/KG
PSD	HEPTACHLOR	76-44-8		11	µG/KG
PSD	DIELDRIN	60-57-1		26	µG/KG
MES	ARSENIC	7440-38-2		16.4 +	mG/KG
MES	CADMIUM	7440-43-9		3.5 J *	mG/KG
MES	CHROMIUM	7440-47-3		30.2 J *	mG/KG
MES	COBALT	7440-48-4		33.4	mG/KG
MES	COPPER	7440-50-8		118 JEN *	mG/KG
MES	IRON	7439-89-6		31,700 J *	mG/KG
MES	LEAD	7439-92-1		198 *	mG/KG
MES	MAGNESIUM	7439-95-4		77,700	mG/KG
MES	MANGANESE	7439-96-5		1,860 *	mG/KG
MES	NICKEL	7440-02-0		65.8 J *	mG/KG

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OHD	986970812

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ■ A. GROUNDWATER CONTAMINATION — 02 ■ OBSERVED (DATE: 4/28/88) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 2,349 — 04 NARRATIVE DESCRIPTION

POPULATION REFLECTS THOSE PERSONS WITHIN A 3-MILE RADIUS BELIEVED TO BE USING PRIVATE WELLS TO OBTAIN DRINKING WATER. IN ADDITION, WASTES DISPOSED OF IN THE QUARRY LIE WITHIN THE AQUIFER OF CONCERN. THE AOC IS IN LIMESTONE AND DOLOMITE THAT IS SHALLOW IN THE VICINITY OF THE SITE.

01 ■ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

THE SITE LIES WITHIN THE AQUIFER OF CONCERN AND GROUNDWATER IS BELIEVED TO FLOW TOWARDS THE RIVER AT THIS LOCATION.

01 ■ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: ____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 168,500 — 04 NARRATIVE DESCRIPTION

NO CONTAMINATION OF THE AIR ATTRIBUTABLE TO THIS SITE HAS BEEN DOCUMENTED. HOWEVER, FIT RECORDED A READING OF 70 PPM ON THE OVA FROM A CRACK IN THE COVER OF THE LANDFILL. SMOKE WAS EMITTING FROM THIS CRACK. IN ADDITION, WIND-CARRIED PARTICULATES CONTAINING TCL COMPOUNDS/TAL ANALYTES MAY BE BLOWN OFF-SITE.

01 ■ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: ____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 20,400 — 04 NARRATIVE DESCRIPTION

A FORMER EMPLOYEE OF THE QUARRY STATED THAT NO FLAMMABLE OR EXPLOSIVE WASTES WERE DISPOSED OF IN THE LANDFILL, AND THAT NO FIRES WERE EVER REPORTED. HOWEVER, FIT OBSERVED SMOKE BLOWING THROUGH A CRACK IN THE LANDFILL DURING THE SSI, AND A READING OF 70 PPM ON THE OVA WAS RECORDED.

01 ■ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: ____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3,400 — 04 NARRATIVE DESCRIPTION

A POTENTIAL FOR THE PUBLIC TO COME IN CONTACT WITH WASTES AT THE SITE DOES EXIST. THE SITE IS NOT FENCED, IS SURROUNDED BY ACCESS ROADS, AND DOES NOT HAVE ADEQUATE CONTAINMENT OF WASTES. MANY DRUMS, AT LEAST 1 WAS LEAKING, WERE OBSERVED BY FIT DURING THE SSI. PERSONS WERE OBSERVED USING THE ACCESS ROADS.

01 ■ F. CONTAMINATION OF SOIL — 02 ■ OBSERVED (DATE: 4/28/88) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: ~88 (Acres) — 04 NARRATIVE DESCRIPTION

TCL COMPOUNDS AND TAL ANALYTES WERE DETECTED IN ALL ON-SITE SOIL SAMPLES COLLECTED BY FIT, BOTH SURFACE AND SUBSURFACE. MOST SAMPLES WERE COLLECTED ALONG THE EDGE OF THE FILL AREA TO DETECT CONTAMINANT MIGRATION.

01 ■ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 2,349 — 04 NARRATIVE DESCRIPTION

A POTENTIAL EXISTS DUE TO GEOLOGIC CONDITIONS OF THE SITE. THE FILL APPEARS TO BE SITTING ON THE QUARRY BOTTOM, WHICH CUTS INTO THE LIMESTONE CONTAINING THE AQUIFER OF CONCERN. GROUNDWATER FLOWS TOWARDS THE RIVER. THE POPULATION ABOVE REPRESENTS THOSE RESIDENTS USING PRIVATE WATER WELLS.

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: ____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

THE SITE IS CURRENTLY INACTIVE AND AS A RESULT A POTENTIAL IVO LONGER REMAINS. NO DOCUMENTATION OF EXPOSURE OR INJURY IN THE PAST IS KNOWN OF.

01 ■ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: ____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 168,500 — 04 NARRATIVE DESCRIPTION

THE POPULATION IS THAT POTENTIALLY AFFECTED VIA ALL ROUTES OF EXPOSURE, AND REFLECTS THOSE ESTIMATED TO BE RESIDING WITHIN A 4-MILE RADIUS OF THE SITE. SEE A-H ABOVE.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	D986970812

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ■ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
No damage was observed by FIT during the inspection, however, TCL compounds and TAL analytes were detected in on-site soil samples and as a result, vegetation growing on the site could be potentially affected.

01 ■ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include names of species)
No fauna or evidence of it was observed during the SSI. The site is overgrown and vacant, making good habitat for small mammals, birds, reptiles, ect. In addition, stray dogs and cats may occassionally wander on-site.

01 ■ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
Although no such contamination was observed by FIT during the SSI, the potential for it to occur does exist. Fauna may be contaminated through consumption of affected vegetation. The site may also be affecting the aquatic systems of the Scioto River.

01 ■ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 168,500 — 04 NARRATIVE DESCRIPTION
No liner exists below the waste and as a result contaminants may be leaching into ground water below. In addition, several small leachate stains were observed on the edges of the fill and numerous damaged drums were scattered over the site.

01 ■ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
No such damage was observed by FIT during the SSI, nor has been documented in the past. Most likely to occur by contaminated soil blowing off-site or the contamination of area residential wells.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
No documentation exists in federal, state, or local file information or was observed by FIT during the SSI.

01 ■ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
A former employee of the Quarry felt that the drums scattered around the site are not from when the site was active, but have been disposed of there by somebody else since the landfill closed.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
None

III. TOTAL POPULATION POTENTIALLY AFFECTED: 168,500

IV. COMMENTS

The principle route of concern is the groundwater route due to the site's location in proximity to the aquifer of concern and the possibility of surface water contamination through groundwater routes.

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

Ecology and Environment, Inc., April 28, 1988 Site Inspection

Nace, Chuck, November 4, 1988, telephone conversation, former employee, Marble Cliff Quarry. Contacted by Jeryl Kold of E&E.

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OHD	986 970 812

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)	UNKNOWN	—	—	CITY HEALTH DEPT. LICENSE
☐ 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	UNKNOWN	
☐ I. OTHER (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 (Specify)

05 OTHER

■ A. BUILDINGS ON SITE

3-4

06 AREA OF SITE

~88 (Acres)

07 COMMENTS

SITE CONSISTS OF AN INACTIVE LANDFILL SITUATED WITHIN A QUARRY ~70 FEET DEEP. THIS QUARRY CUTS INTO LIMESTONE THAT CONSTITUTES THE AQUIFER OF CONCERN.

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.

THE COVER ON TOP OF THE FILL APPEARS ADEQUATE IN CERTIAN LOCATIONS, BUT LEACHATE SEEPS WERE IN EVIDENCE AT OTHERS. ACCORDING TO MR. NACE ~30 INCHES OF COVER WAS APPLIED EVERY NIGHT WHILE THE SITE WAS ACTIVE. NO LINER EXISTS, THE WASTES WERE DISPOSED OF IN THE QUARRY FLOOR, WHICH IS HEAVILY FRACTURED LIMESTONE CONTAINING THE MAJOR AQUIFER IN THE AREA.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ■ YES ☐ NO

02 COMMENTS NO FENCE IS PRESENT AT THE SITE & GATES ACROSS THE ACCESS ROADS ARE NOT ADEQUATE TO KEEP OUT PERSONS ON FOOT OR BICYCLE. A LARGE DIRT ROAD CONNECTING THE QUARRIES OF THE AREA IS EAST OF THE SITE.

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

ECOLOGY & ENVIRONMENT, INC., APRIL 28, 1988 SITE INSPECTION.

NACE, CHUCK, NOVEMBER 4, 1988, TELEPHONE CONVERSATION, FORMER EMPLOYEE, MARBLE CLIFF QUARRY. CONTACTED BY JERYL KOLB OF E&E.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D986970812

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)	SURFACE	WELL	02 STATUS	ENDANGERED	AFFECTED	MONITORED	03 DISTANCE TO SITE
COMMUNITY	A. ■	B. ■		A. ☐	B. ☐	C. ■	A. ~3.5 (mi)
NON-COMMUNITY	C. ☐	D. ■		D. ☐	E. ☐	F. ☐	B. ~1.5 (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 2,349

03 DISTANCE TO NEAREST DRINKING WATER WELL ~1.5 (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
0 (ft)	EAST	0 (ft)	~250,000 (gpd)	☐ YES ■ NO

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings) MAJORITY OF RESIDENTS ARE NOW ON MUNICIPAL WATER SYSTEMS, HOWEVER, THERE IS A FAIRLY LARGE AREA WEST OF SCIOTO RIVER THAT USES WELLS. CLOSER TO THE RIVER THERE APPEARS TO BE LESS OVERBURDEN AND AS A RESULT, SHALLOWER AQUIFER. CLOSER TO I-270 THE OVERBURDEN IS THICKER, UP TO 50' FEET OF CLAY, AND WELL LOGS INDICATE DEEPER WELLS.

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
SCIOTO RIVER	☐	~0.2 (mi)
	☐	(mi)
	☐	(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. 3,400 NO. OF PERSONS	B. 20,400 NO. OF PERSONS	C. 39,200 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION ~.01 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE ~2,500

04 DISTANCE TO NEAREST OFF-SITE BUILDING ~.01 (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 SITUATED IN AN URBAN RESIDENTIAL AREA WITH LARGE OPEN SPACES SO THAT, WHILE HEAVILY POPULATED, THE AREA APPEARS RURAL IN NATURE. THE CITIES OF COLUMBUS AND UPPER ARLINGTON ARE BOTH WITHIN 1-MILE RADIUS 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
OH	D986970813

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
~70 (ft)	- (ft)	UNKNOWN

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
~7.0 (in)	~2.0 (in)	≤3 %	SOUTHEAST	≤3 %

09 FLOOD POTENTIAL

SITE IS IN 100 YEAR FLOODPLAIN

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

N/A

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE: A. N/A (mi)

OTHER: B. > 2 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

N/A (mi)

ENDANGERED SPECIES: _____

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. ~0.1 (mi)	B. ~0.2 (mi)	C. UNKNOWN (mi)	D. ~1 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

SEE APPENDIX A

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

U.S.G.S. TOPOGRAPHIC MAP, NORTHWEST COLUMBUS, OHIO QUADRANGLE, 1965, 7.5 MINUTE SERIES

U.S. DEPT. OF COMMERCE, U.S. GOVERNMENT PRINTING OFFICE, RAINFALL FREQUENCY ATLAS OF THE UNITED STATES, TECHNICAL PAPER NO. 40, WASHINGTON D.C., 1963

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	D986970812

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	3	TCL COMPOUNDS: ENSECO / CALIFORNIA ANALYTICAL LABS, WEST SACRAMENTO, CALIFORNIA	DATA IS
SURFACE WATER		TAL ANALYTES: CHEMTECH CONSULTING GROUP NEW YORK, NEW YORK	AVAILABLE
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	8	TCL COMPOUNDS: IT ANALYTICAL SERVICES KNOXVILLE, TENNESSEE	DATA IS
VEGETATION		TAL ANALYTES: KEYSTONE ENVIRONMENTAL RESOURCES HOUSTON, TEXAS	AVAILABLE
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
OVA 128	ON-SITE READING OF 70 PPM ABOVE BACKGROUND
EXPLOSIMETER	NO READINGS ABOVE BACKGROUND
OXYGEN METER	NO READINGS ABOVE BACKGROUND
RADIATION ALERT	NO READINGS ABOVE BACKGROUND

IV. PHOTOGRAPHS AND MAPS

01 TYPE ■ GROUND ☐ AERIAL

02 IN CUSTODY OF ECOLOGY AND ENVIRONMENT, INC. (Name of organization or individual)

03 MAPS ■ YES ☐ NO

04 LOCATION OF MAPS ECOLOGY AND ENVIRONMENT, INC.

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

NO OTHER DATA COLLECTED

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

ECOLOGY AND ENVIRONMENT, INC. APRIL 28, 1988 SITE INSPECTION

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	D986970812

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
SPECIALTY RESTAURANTS CORP.		2099 S. STATE COLLEGE BLVD.		ANAHEIM	CA	92806

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

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
KAUFMAN INVESTMENT CO.		2151 E. DUBLIN-GRANVILLE RD.		COLUMBUS	OH	43229

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

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

ECOLOGY AND ENVIRONMENT, INC., APRIL 28, 1988 SITE INSPECTION

KAUFMAN, JOHN, FEBRUARY 5, 1986, TELEPHONE CONVERSATION, PRESIDENT, KAUFMAN INVESTMENT CO. CONTACTED BY BILL SCHNEIDER, OEPA.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	D986970812

II. CURRENT OPERATOR (Provide if different from owner)				OPERATOR'S PARENT COMPANY (If applicable)			
01 NAME		02 D+B NUMBER		10 NAME		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						

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)				PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)			
01 NAME		02 D+B NUMBER		10 NAME		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		02 D+B NUMBER		10 NAME		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		02 D+B NUMBER		10 NAME		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)

ECOLOGY AND ENVIRONMENT, INC., APRIL 28, 1988 SITE INSPECTION

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GH	D986970812

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
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
Unknown			
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
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
Unknown			
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
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)

Ecology and Environment, Inc., April 28, 1988 Site Inspection

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OHD	986970 812

II. PAST RESPONSE ACTIVITIES

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

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

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

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

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

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

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

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

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

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

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

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	D986 970 812

II. PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

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

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

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

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

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

LENTZEN, THOMAS, AUGUST 11, 1990, PRELIMINARY ASSESSMENT, FOR MARBLE CLIFF QUARRIES DUMP. U.S. EPA FORM T2070-2

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OHD	986970812

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ■ YES ☐ NO

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

WHILE IT WAS ACTIVE THE SITE REPEATEDLY ACCEPTED SOLID WASTES, WHICH WAS IN VIOLATION OF ITS LICENSE WITH THE CITY HEALTH DEPT. IN 1979 CORRECTIVE ACTIONS AGAINST THESE VIOLATIONS WAS TAKEN BY REMOVING A PORTION OF THE SOLID WASTE DISPOSED OF AT THE SITE. THIS ACTION WAS APPARENTLY OVERSEEN BY THE DEPARTMENT OF DEVELOPMENT. IT IS NOT KNOWN WHERE THE REMOVED WASTE WAS TRANSPORTED TO AND DISPOSED OF.

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

LENTZEN, THOMAS, AUGUST 11, 1980, PRELIMINARY ASSESSMENT, FOR MARBLE CLIFF QUARRIES DUMP. U.S. EPA FORM T2070-2.

APPENDIX C

U.S. EPA
IMMEDIATE REMOVAL ACTION
CHECKSHEET

Immediate Removal Action Check Sheet

	High	Moderate	Low
Fire and Explosion Hazard			
Flammable Materials #1		X	
Explosives			X
Incompatable Chemicals			X
Direct Contact with Acutely Toxic Chemicals			
Site Security #2		X	
Leaking Drums or Tanks #3		X	
Open Lagoons or Pits N/A			
Materials on Surface			X
Proximity of Population #4		X	
Evidence of Casual Site Use			X
Contaminated Water Supply			
Exceeds 10 Day Snarl N/A			
Gross Taste or Odors N/A			
Alternate Water Available N/A			
Potential Contamination #5		X	
Is the site abandoned, active, or inactive?			

Comments: #1) FIT OBSERVED SMOKE EMITTING THROUGH A CRACK IN THE LANDFILL COVER.

#2) SITE IS NOT FENCED, IS SURROUNDED BY ACCESS ROADS FROM OTHER QUARRI AND IS LOCATED NEXT TO A PLACE OF BUSINESS.

#3) 2 75-100 DRUMS WERE OBSERVED BY FIT; MOST APPEARED EMPTY, BU HAD AXE OR HATCHET MARKS ON THEM. AT LEAST ONE WAS OBSERVED LEAKING.

#4) HOMES ARE WITHIN 1/4 MILE OF THE SITE, PRIMARILY TO THE NORTH AND THE WEST.

#5) FIT-COLLECTED SOIL SAMPLES CONTAINED TCL COMPOUNDS AND TAL AN LYTES. SITE IS SITUATED ON TOP OF LIMESTONE AQUIFER.

APPENDIX D

FIT SITE PHOTOGRAPHS

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: F0H0027SA

DATE: > 4/28/88

TIME: > 1240

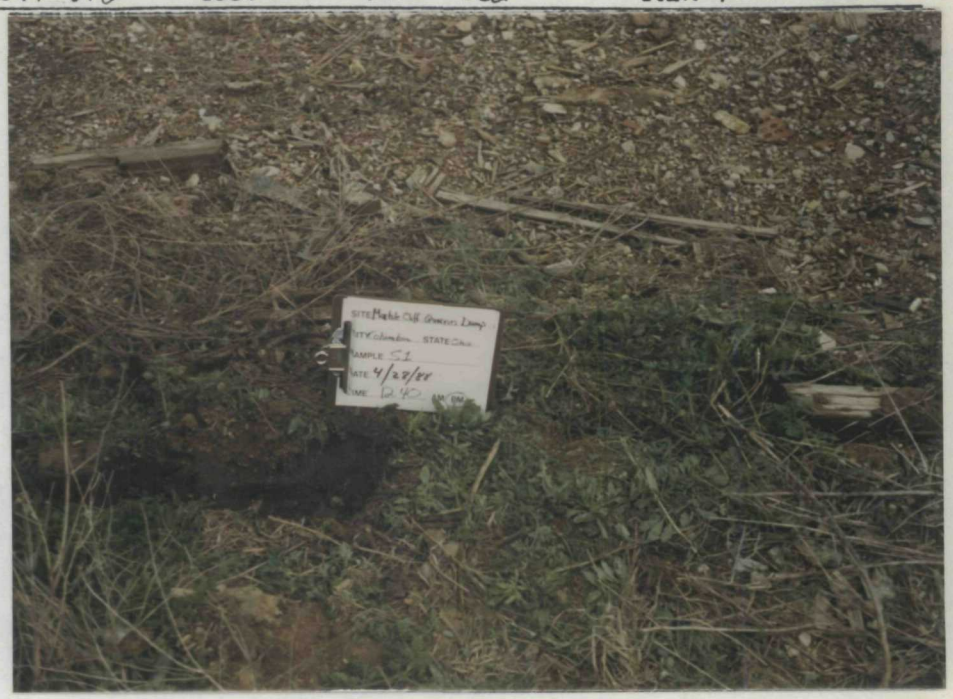
DIRECTION OF PHOTOGRAPH:
> SOUTH

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S1



DESCRIPTION: > SAMPLE S1 CLOSE-UP

>

DATE: > 4/28/88

TIME: > 1240

DIRECTION OF PHOTOGRAPH:
> SOUTHEAST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S1

DESCRIPTION: > SAMPLE S1 PERSPECTIVE

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: FOH002754

DATE: > 4/28/88

TIME: > 1325

DIRECTION OF PHOTOGRAPH:
> WEST SOUTHWEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S2

DESCRIPTION: > SAMPLE S2 CLOSE-UP

>

DATE: > 4/28/88

TIME: > 1325

DIRECTION OF PHOTOGRAPH:
> WEST SOUTHWEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S2

DESCRIPTION: > SAMPLE S2 PERSPECTIVE. NOTE LEACHATE OF LEFT.

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: F0H00275A

DATE: > 4/28/88

TIME: > 1320

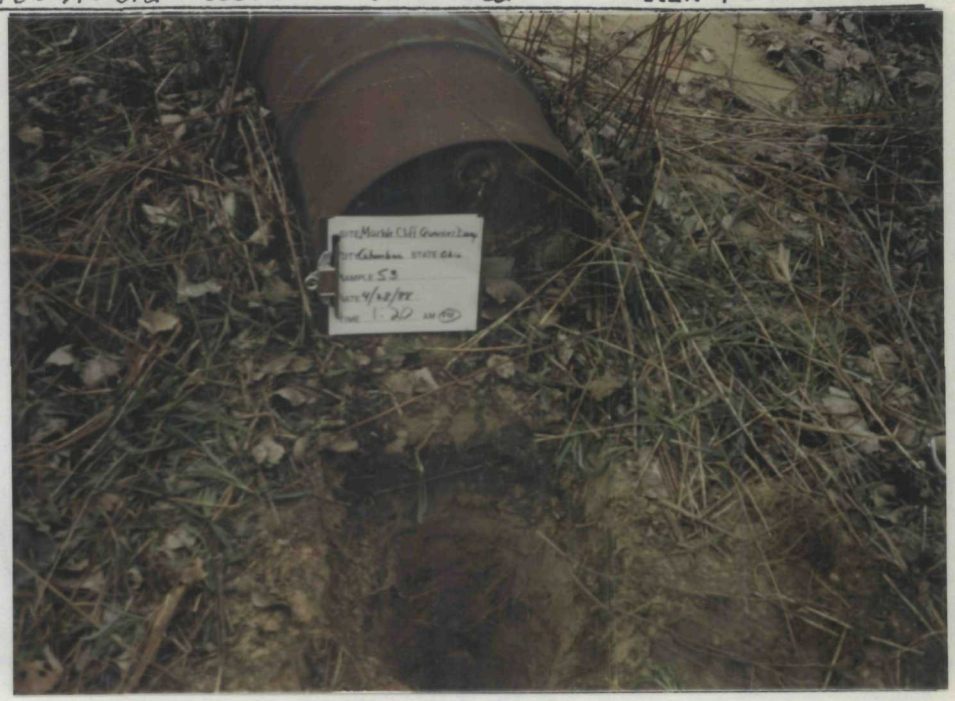
DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S3



DESCRIPTION: > SAMPLE S3 CLOSE-UP

>

DATE: > 4/28/88

TIME: > 1320

DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S3

DESCRIPTION: > SAMPLE S3 PERSPECTIVE. NOTE SLOPE OF FILL IN BACKGROUND.

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: F0H0027SA

DATE: > 4/28/88

TIME: > 1340

DIRECTION OF PHOTOGRAPH: > WEST

WEATHER CONDITIONS: > CLOUDY, 30-40°F

PHOTOGRAPHED BY: > JERYL KOLB

SAMPLE ID (if applicable): > S4

DESCRIPTION: >

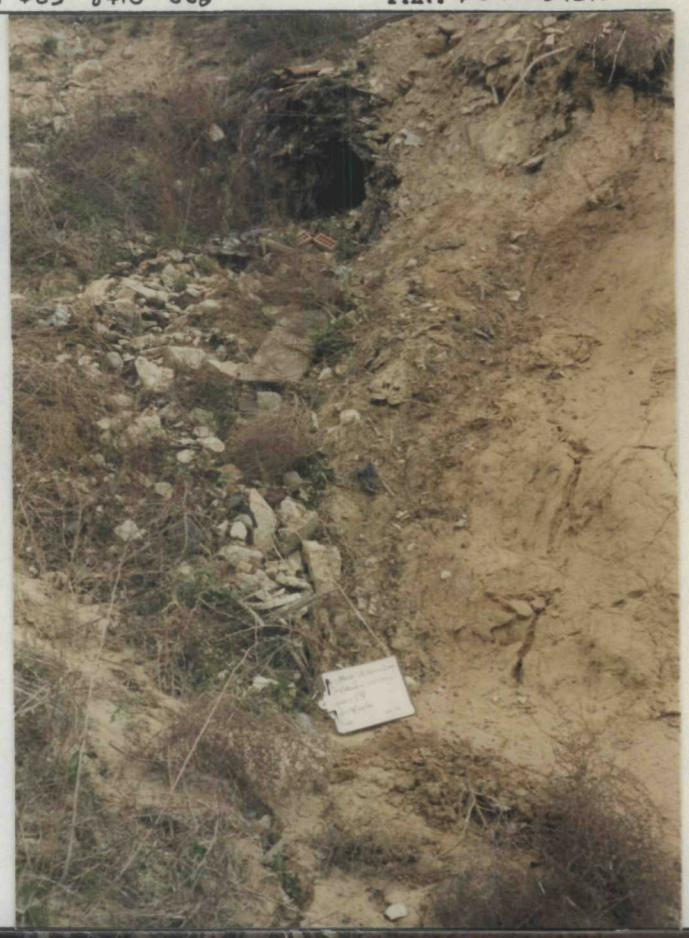
> SAMPLE S4 PERSPECTIVE

>

>

>

>



DATE: > 4/28/88

TIME: > 1340

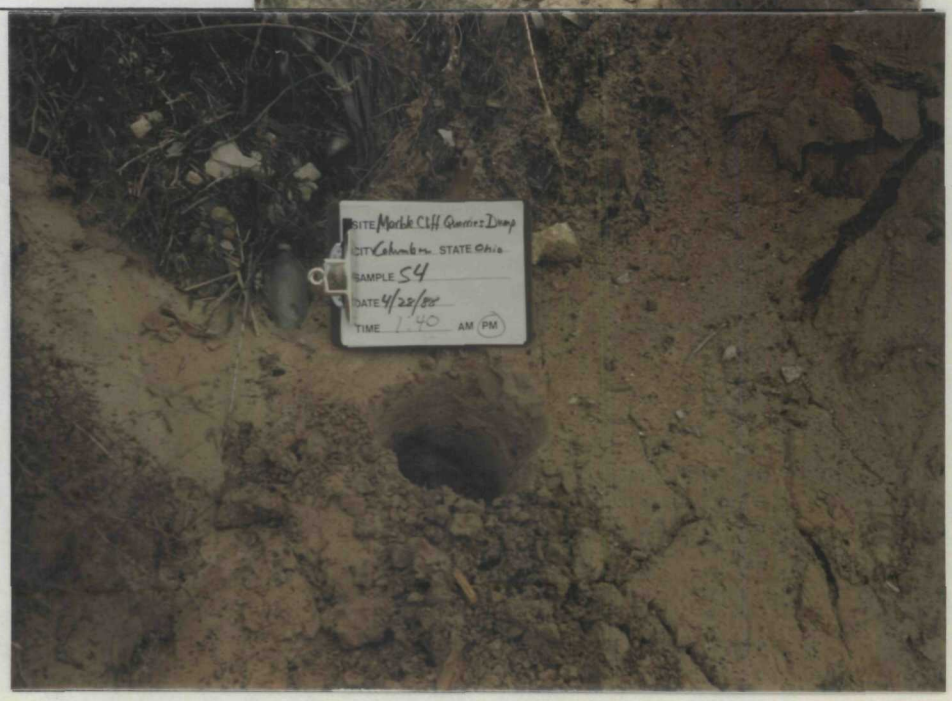
DIRECTION OF PHOTOGRAPH: > WEST

WEATHER CONDITIONS: > COLD, CLOUDY

> 30-40°F

PHOTOGRAPHED BY: > JERYL KOLB

SAMPLE ID (if applicable): > S4



DESCRIPTION: > SAMPLE S4 CLOSE-UP. NOTE LEACHATE IN UPPER RIGHT

> HAND CORNER OF PHOTO.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCo

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: F0H0027SA

DATE: > 4/28/88

TIME: > 1425

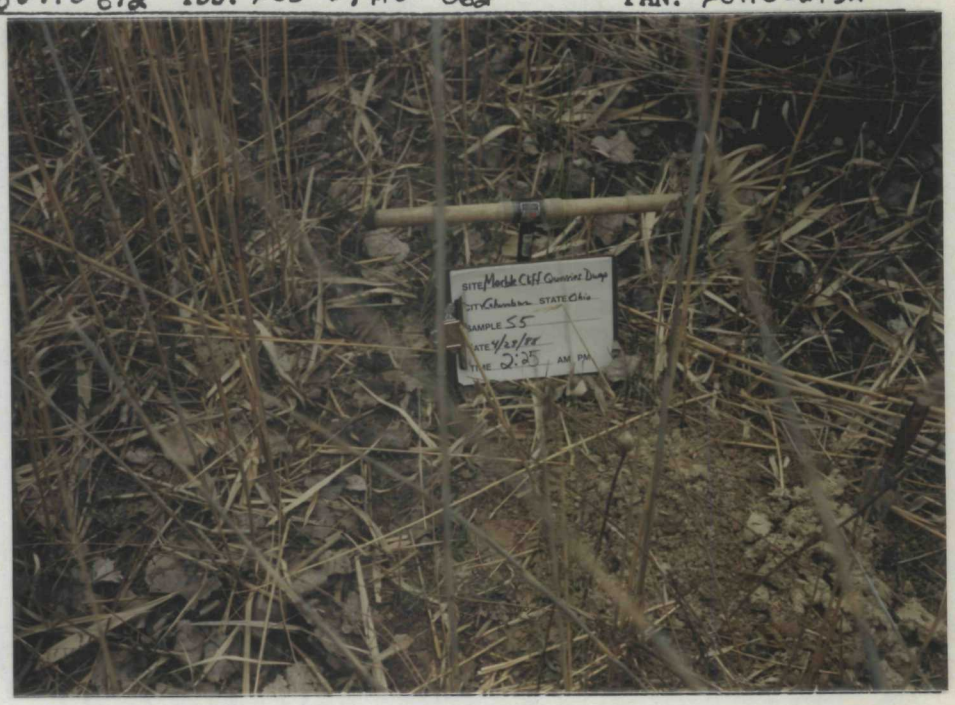
DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S5



DESCRIPTION: > SAMPLE S5 CLOSE-UP

>

DATE: > 4/28/88

TIME: > 1425

DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S5

DESCRIPTION: > SAMPLE S5 PERSPECTIVE. NOTE DRUM IN UPPER RIGHT HAND

> CORNER OF PHOTO.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: F0H0027SA

DATE: > 4/28/88

TIME: > 1410

DIRECTION OF PHOTOGRAPH:
> WEST SOUTHWEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S6

DESCRIPTION: > SAMPLE S6 CLOSE-UP.

>

DATE: > 4/28/88

TIME: > 1410

DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S6

DESCRIPTION: > SAMPLE S6 PERSPECTIVE. NOTE DRUM ON LEFT SIDE OF

> PHOTO.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: F0H0027SA

DATE: > 4/28/88

TIME: > 1420

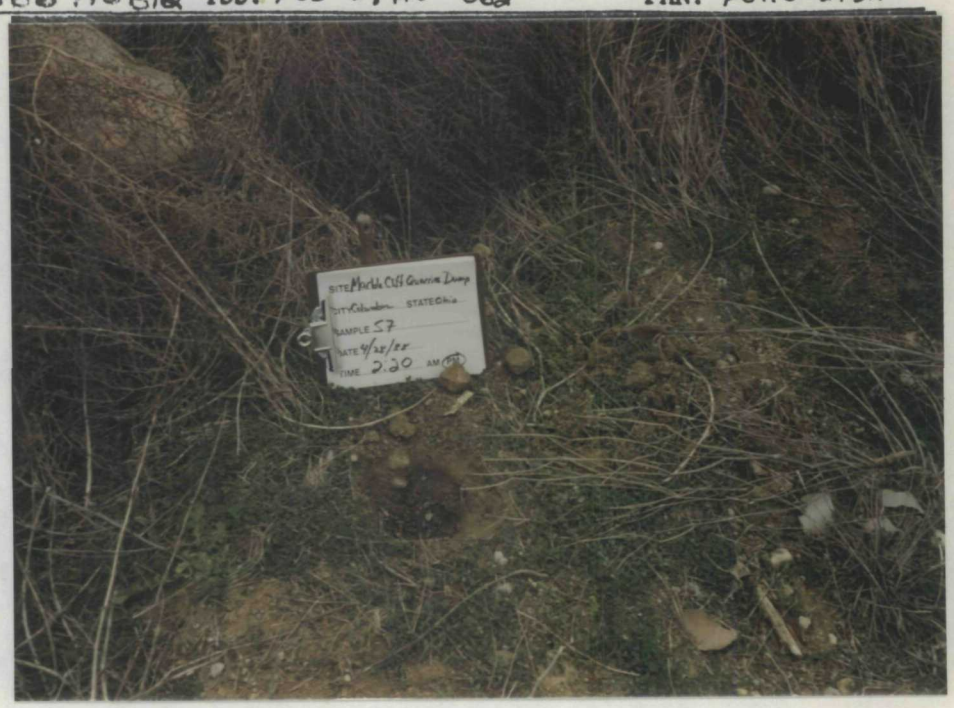
DIRECTION OF PHOTOGRAPH:
> WEST NORTHWEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S7



DESCRIPTION: > SAMPLE S7 CLOSE-UP.

>

DATE: > 4/28/88

TIME: > 1420

DIRECTION OF PHOTOGRAPH:
> NORTHWEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> S7

DESCRIPTION: > SAMPLE S7 PERSPECTIVE.

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: F0H0027SA

DATE: > 4/28/88

TIME: > 1515

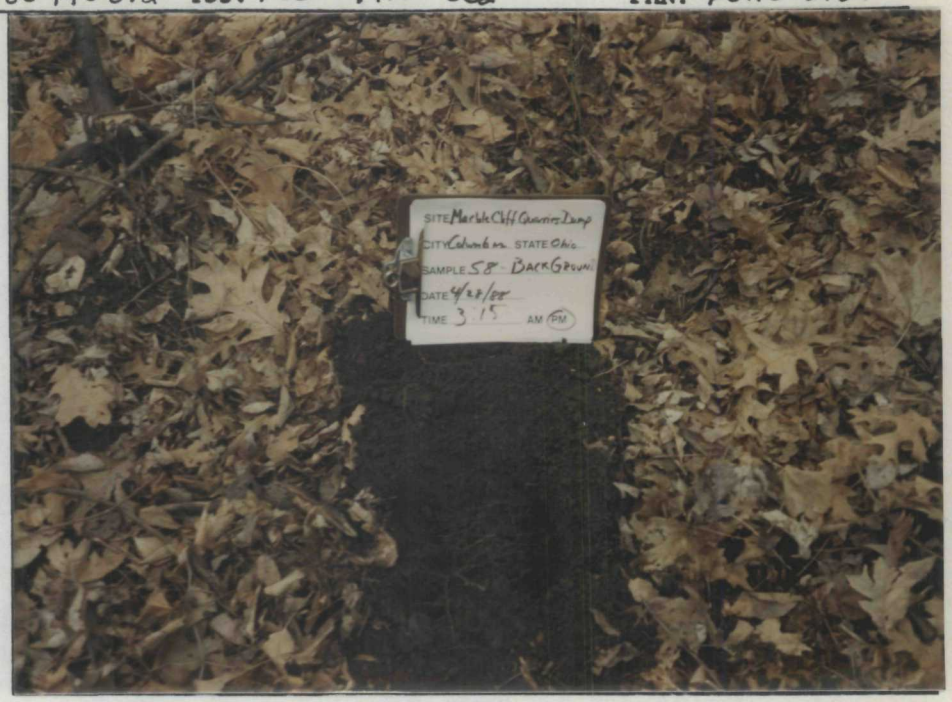
DIRECTION OF PHOTOGRAPH:
> EAST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> 58



DESCRIPTION: > SAMPLE 58 CLOSE-UP.

>

DATE: > 4/28/88

TIME: > 1515

DIRECTION OF PHOTOGRAPH:
> EAST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
> 58

DESCRIPTION: > SAMPLE 58 PERSPECTIVE.

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: FOH00275A

DATE: > 4/28/88

TIME: > 1230

DIRECTION OF PHOTOGRAPH:
> EAST NORTHEAST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40°F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
>

DESCRIPTION: > SURFACE OF FILL AREA WITH SCATTERED DRUMS VISIBLE IN
> BACKGROUND.

DATE: > 4/28/88

TIME: > 1235

DIRECTION OF PHOTOGRAPH:
> EAST SOUTHEAST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40°F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
>

DESCRIPTION: > FILL AREA EXTENDS TO TREES IN BACKGROUND. NOTE DRUMS
> ON SURFACE OF FILL AREA.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: F0H0027SA

DATE: > 4/28/88

TIME: > 1300

DIRECTION OF PHOTOGRAPH:
> NORTHWEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
>

DESCRIPTION: > ACCESS ROAD ALONG WESTERN SIDE OF LANDFILL. NOTE
> DRUMS LINING THE ROAD.

DATE: > 4/28/88

TIME: > 1315

DIRECTION OF PHOTOGRAPH:
> WEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
>

DESCRIPTION: > NORTHERN EDGE OF FILL ON LEFT, QUARRY FACE ON THE
> RIGHT.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: F0H00275A

DATE: > 4/28/88

TIME: > 1330

DIRECTION OF PHOTOGRAPH: > SOUTHWEST

WEATHER CONDITIONS: > COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY: > JERYL KOLB

SAMPLE ID (if applicable): >

DESCRIPTION: > NORTHEAST FACE OF THE FILL AREA.

>

DATE: > 4/28/88

TIME: > 1425

DIRECTION OF PHOTOGRAPH: > SOUTHEAST

WEATHER CONDITIONS: > COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY: > JERYL KOLB

SAMPLE ID (if applicable): >

DESCRIPTION: > ONE OF THE DRUMS FOUND ON THE LANDFILL. THIS ONE WAS

> DISCOVERED AFTER ON-SITE SAMPLING HAD BEEN COMPLETED.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: EARTHCO

U.S. EPA ID: OHD986970812 TDD: F05-8710-062 PAN: F0H0027SA

DATE: > 4/28/88

TIME: > 1425

DIRECTION OF PHOTOGRAPH:
> NORTHWEST

WEATHER CONDITIONS:
> COLD, CLOUDY

> 30-40° F

PHOTOGRAPHED BY:
> JERYL KOLB

SAMPLE ID (if applicable):
>

DESCRIPTION: > ABANDONED BUILDINGS LOCATED ON WEST RIM OF QUARRY.

> FILL AREA IS IN FOREGROUND.

APPENDIX E

CHEMICAL ANALYSIS DATA
OF
FIT-COLLECTED SAMPLES

ROUTINE ANALYTICAL SERVICES

CONTRACT REQUIRED DETECTION AND QUANTITATION LIMITS

Contract Laboratory Program
Target Compound List
Quantitation 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	5
Carbon disulfide	75-15-0	5	5
1,1-dichloroethene	75-35-4	5	5
1,1-dichloroethane	75-34-3	5	5
1,2-dichloroethene (total)	540-59-0	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
1,2-dichloropropane	78-87-5	5	5
cis-1,3-dichloropropene	10061-01-5	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
Trans-1,3-dichloropropene	10061-02-6	5	5
Bromoform	75-25-2	5	5
4-Methyl-2-pentanone	108-10-1	10	10
2-Hexanone	591-78-6	10	10
Tetrachloroethene	127-18-4	5	5
Tolene	108-88-3	5	5
1,1,2,2-tetrachloroethane	79-34-5	5	5
Chlorobenzene	108-90-7	5	5
Ethyl benzene	100-41-4	5	5
Styrene	100-42-5	5	5
Xylenes (total)	1330-20-7	5	5

Contract Laboratory Program
Target Compound List
Semivolatiles Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
Phenol	108-95-2	10 ug/L	330 ug/Kg
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	108-60-1	10	330
4-Methylphenol	106-44-5	10	330
N-Nitroso-di-n-dipropylamine	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
Dimethylphthalate	131-11-3	10	330
Acenaphthylene	208-96-8	10	330
2,6-Dinitrotoluene	606-20-2	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
Diethylphthalate	84-66-2	10	330
4-Chlorophenyl-phenyl ether	7005-72-3	10	330

Contract Laboratory Program
Target Compound List
Semivolatiles Quantitation 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-phenylether	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-butylphthalate	84-74-2	10	330
Fluoranthene	206-44-0	10	330
Pyrene	129-00-0	10	330
Butylbenzylphthalate	85-68-7	10	330
3,3'-Dichlorobenzidine	91-94-1	20	660
Benzo(a)anthracene	56-55-3	10	330
Chrysene	218-01-9	10	330
bis(2-Ethylhexyl)phthalate	117-81-7	10	330
Di-n-octylphthalate	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

Contract Laboratory Program
Target Compound List
Pesticide and PCB Quantitation 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
Endosulfan 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
Endosulfan II	33213-65-9	0.10	16
4,4'-DDD	72-54-8	0.10	16
Endosulfan sulfate	1031-07-8	0.10	16
4,4'-DDT	50-29-3	0.10	16
Methoxychlor (Mariate)	72-43-5	0.5	80
Endrin ketone	53494-70-5	0.10	16
alpha-Chlordane	5103-71-9	0.5	80
gamma-chlordane	5103-74-2	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

Contract Laboratory Program
Target Analyte List
Inorganic Quantitation Limits

COMPOUND	PROCEDURE	SOIL WATER	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
Vanadium	ICP	50	10
Zinc	ICP	20	4
Cyanide	Color	10	2

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

CRL Receipt Date 6/20 FIT Receipt Date 7/15/88 Review Completed 7/20/88

TO: Jerryl Kolb

FROM: Zena Gold-Kaufman

SUBJECT: MARBLE Cliff Quarries

PAN: OH0027SA (1 hour charged for review) Case # 9469

Sample Description

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

Project Data Status _____ Completed!!

_____ Incomplete, awaiting _____

FIT Data Review Findings:

Ketones, PAHs, some Pesticides and CLA
Some samples were re-analyzed due to QC Non-compliance (internal standards & surrogates). The data from both analyses are consistent, report first analysis on summary sheet.

Check Data Sheets for Transcription Errors

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

Book No. 8 Page No. 46 Date Sampled 4/28/88

0759:2

recycled paper

A. Organics

1. Water Samples - ug/L or ppb (parts per billion)
2. Soils or Sediments - ug/kg or ppb (parts per billion)

B. Metals

1. Water Samples - ug/L or ppb (parts per billion)
2. Soils or Sediments - mg/kg or ppm (parts per million)

DEFINITION OF FOOTNOTES TO ANALYTICAL DATA

A. Organics

FOOTNOTE	DEFINITION	INTERPRETATION
U	Indicates compound was analyzed for but not detected.	Compound was not detected.
J	Indicates an estimated value.	Compound value may be semi-quantitative.
UJ	Quantitation limit is estimated due to a Quality Control (QC) protocol.	Compound was not detected.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract shall be confirmed by GC/MS.	Compound was confirmed by mass spectroscopy
B	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.	Compound value may be semi-quantitative if it is <5x the blank concentration (<10x the blank concentrations for common lab artifacts: phthalates, methylene chloride acetone, toluene, 2-butanone).
E	This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. This flag will not apply to pesticides/PCBs analyzed by GC/EC methods.	Compound value may be semi-quantitative.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.	Alerts data user to a possible change in the CRQL.
A	This flag indicates that a TIC is a suspected aldol-condensation product.	Alerts data user of a lab artifact.
R	Results are unusable due to a major violation of QC protocol.	Compound value is not usable.

B. Metals

NOTE	DEFINITION	INTERPRETATION
E	Estimated or not reported due to inteference. See laboratory narrative.	Compound or element was not detected or value may be semi-quantitative.
S	Analysis by Method of Standard Additions.	Value may be quantitative.
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 semi-quantitative.
+	Correlation coefficient for standard additions is less than 0.995. See review and laboratory narrative.	Data value may be biased.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
	DL is estimated because of a QC protocol. DL is possibly above or below CRDL.	Compound or element was not detected.
	Value is above CRDL and is an estimated value because of a QC Protocol.	Value may be semi-quantitative.
U	Compound was analyzed for but not detected.	Compound was not detected.
R	Duplicate injection precision not met.	Value may be semi-quantitative.
W	Post digestion spike for furnance AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semi-quantitative.

Other Symbols Used

A Value not available due to insufficient data.
R Value not calculated since chemical is not a carcinogen.
Estimated value.

7/15/88
122 pages

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 7/13/88

SUBJECT: Review of Region V CLP Data
Received for Review on 6-20-88

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

TO: Data User: FIT

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

SITE NAME: Marble Cliff Quarries Dump, OH SMO Case No. 9469

EPA Data Set No. SF 5134 No. of Samples: 8 D.U./Activity Numbers Y905/C72122

CRL No. 88FK20S14 - S21

SMO Traffic No. EX014 - 021

CLP Laboratory: IT CORP., TN (Region 4) Hrs. Required for Review: 14

Following are our findings:

This review covers eight soil samples (EX014 through EX021) for complete low level organic analysis.

Al Venuto (Weston/ESAT)
7 July 1988

( ) 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: ITAS- KNOXVILLE

Case 9469

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

① Holding Times:

The seven day holding time from date of sampling to date of analysis for the volatile fraction was exceeded for all samples; they were, however, analyzed within fourteen days. Therefore, the results for all aromatic compounds in this fraction should be considered J, estimated.

In both the semi-volatile and PCB/pesticides fractions, the seven day holding time from date of sampling to date of extraction for samples EX014 through EX017 and EX019 was exceeded by one day. In both fractions of samples EX016, EX020 and EX021, the holding time for extraction was exceeded by four days and for EX019RE by more than a month. The positive results for all of these samples should therefore be considered J, estimated.

② GC/MS Tuning and GC Instrument Performance:

The GC tuning and mass calibration were all within the required QC limits. In the semi-volatile raw QC data package, some of the DFTPP mass spectra and data sheets are incorrectly labeled as standards.

The pesticide degradation in the column for PCB/pesticides was within the maximum 20%.

③ Calibration:

The calibration outliers for volatiles and semi-volatiles are listed on the outliers forms.

Reviewed by: Al Venuto (Weston/ESAT)

Phone: (312) 353-2959

Date: 7/1/1988

DATA QUALIFIERS

Contractor: ITAS-KNOXVILLE

Case 9469

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

④ Method Blanks:

No compounds were found in volatile blank VBLK1. VBLK2 contained a very small amount of the common contaminant acetone; this compound was also found in each of the associated samples EX015RE, EX018RE through EX021RE, EX019MS and EX019MSD. VBLK3 was found to contain the HSL compound 2-hexanone at a level much below the CRQL; this compound was not present in any of the associated samples.

Each of the three semi-volatile blanks was found to contain the two HSL compounds N-nitrosodiphenylamine and bis(2-ethylhexyl) phthalate, all at concentrations below the CRQL; both of these compounds were also found in each of the samples.

No compounds were found in any of the PCB/pesticide blanks.

⑤ Surrogate Recoveries:

All volatile surrogate recoveries were within the Q.C. limits for all samples except EX015 which had a marginally high recovery for toluene-D8. Upon reanalysis, this sample had recoveries fully within the limits.

All semi-volatile surrogate recoveries were well within the Q.C. limits

All pesticide surrogate recoveries were well within the Q.C. limits except for samples EX015

Reviewed by: Al Venuto (Weston/ESAT)

Phone: (312) 353-2959

Date: 7 Oct 1988

DATA QUALIFIERS

Contractor: ITAS-KNOXVILLE

Case 9469

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

and EX015 DL which had zero DBC recoveries and sample EX016 DL which had a DBC recovery above the Q.C. limit. The first two samples were run at dilutions of 1:200 and 1:2000 respectively, so the DBC was diluted out. Inspection of the chromatogram for EX016 DL showed a broad peak so the area reported may in fact have been too great. No action is recommended.

(6) Matrix Spikes and Matrix Spike Duplicates:

All volatile matrix spikes and matrix spike duplicate recoveries and RPDs were well within the QC limits.

All semi-volatile MS and MSD recoveries were within the QC limits except for pyrene, which had a very high recovery in both. The RPDs for acenaphthene and pyrene were above the Q.C. limits. These samples were reextracted and reanalyzed; all values for recoveries and RPDs were well within the Q.C. limits except those for pyrene, which remained widely discrepant. The results for pyrene in sample EX019 and EX019RE should therefore be considered J, estimated.

(7) Field duplicates:

No samples were identified as field duplicates.

(8) Internal Standards Performance:

All volatile internal standard areas are satisfactory except the area for 1,4-difluorobenzene

Reviewed by: Al Venuto (Weston/ESAT)

Phone: (312) 353-2959

Date: 7 Oct. 1988

DATA QUALIFIERS

Contractor: ITAS-KNOXVILLE

Case 9469

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

in sample EX018, which is insignificantly above the QC limit and the areas for both 1,4 Difluorobenzene and chlorobenzene in sample EX020 which were below the Q.C. limits. The results for compounds quantitated using these standards in sample EX020 should be considered J, estimated.

(9) Compound Identification:
The compounds as listed appear to be confirmed for the spectra.

(10) Compound Quantitation and Reported Detection Limits:
No list of detection limits is included in this case.

In my opinion, the data quality is basically good. I feel that these data are acceptable for use with the qualifications noted above.

Reviewed by: Al Venuto

Phone: (312) 353-2959

Date: 7 Oct 1988

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

CASE/SAS # 9469 CONTRACTOR ITAS-KNOXVILLE

Instrument # OWA5	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 4-7-88 10:52	4-7-88 10:52			5-9-88 20:41											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane					99.7	J									
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride															
Acetone					46.8	J									
Carbon Disulfide															
1,1-Dichloroethane					53.9	J									
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone		41.8	J		27.0	J									
1,2-Dichloroethane															
1,1,1-Trichloroethane															
Carbon Tetrachloride					30.7	J									
Vinyl Acetate					72.4	J									
Bromodichloromethane															
1,2-Dichloropropane					49.4	J									
Trans-1,3-Dichloropropene					46.1	J									
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
cis-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform					28.4	J									
4-Methyl-2-Pentanone					39.6	J									
2-Hexanone		34.3	J		45.2	J									
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
m-Xylene															
o/p-Xylene															

AFFECTED SAMPLES:

VBLK3
EX019
EX020
EX021

Reviewer's Initials/Date: AV 7-6-88

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

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

CASE/SAS # 9469 CONTRACTOR ITAS-KNOXVILLE

Instrument # OWA 3	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 5-9-88 9:28	5-9-88 9:28			5-9-88 18:47			5-10-88 5:46								
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane															
Bromomethane															
Vinyl Chloride															
Chloroethane	.851			1.13	32.7	J	.889								
Methylene Chloride															
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone															
1,2-Dichloroethane	1.34			1.74	29.1	J	1.30								
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															

AFFECTED SAMPLES:

VBLK1	VBLK2
EX014	EX015RE
EX015	EX018RE
EX016	EX019RE
EX017	EX019MS
EX018	EX019MSD
	EX020RE
	EX021RE

Reviewer's Initials/Date: AV 7-6-88

* 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 # 9469 CONTRACTOR ITAS - KNOXVILLE

Instrument # 4500	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-1-88 17:17	6-1-88 17:17			6-3-88 9:41											
	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					39.2	J									
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

SBLK 1
SBLK 2

Reviewer Initials/Date: AV 7-6-88

* 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 # 9469 CONTRACTOR ITAS - KNOXVILLE

Instrument # 4500	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-1-88 17:17	6-1-88 17:17			6-3-88 9:41											
	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: AV 7-6-88

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

CASE/SAS # 9469 CONTRACTOR ITAS-KNOXVILLE

Instrument # 4500	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-6-88 10:33	6-6-88 10:33			6-6-88 15:21			6-7-88 10:03			6-10-88 10:16					
	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											39.7	J			
4-Methylphenol															
N-Nitroso-Di-n-Propylamine											25.6	J			
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															
4-Nitrophenol											28.0	J			
Dibenzofuran															

AFFECTED SAMPLES:

EX014	EX015	SBLK3
EX016	EX019MS	EX019RE
EX019	EX019MSD	EX019MSRE
EX018	EX020	EX019MSDRE
EX017		
EX021		

Reviewer Initials/Date: AV 7-6-88

* 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 # 9469 CONTRACTOR ITAS-KNOXVILLE

Instrument # 4500	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME: 6-6-88 10:33	6-6-88 10:33			6-6-88 15:21			6-7-88 10:03			6-10-88 10:16					
	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: AV 7-6-88

Case: 9469

Contractor: ITAS-KNOXVILLE

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.

Al Venuto (Weston/ESAT)

INTERNATIONAL TECHNOLOGY CORPORATION

June 17, 1988

USEPA Region V, ESD
536 S. Clark Street
Tenth Floor, CRL
Chicago, IL 60605

ATTN: Curtis Ross

CASE NARRATIVE

Case Number:	9469
Sample Delivery Group Number (SDG#):	EX014
Laboratory Name:	ITAS-Knoxville (IT-STU)
Contract Number:	68-01-7468
ITAS Project Number:	EPAG 41196

Enclosures

Enclosed are the data for Case Number 9469. Table 1 lists EPA and ITAS sample numbers, SMO tag number (if applicable), sample matrix, sample concentration (for soil samples only), and analysis requested.

Sample Receipt

The samples were received in one (1) shipment on April 29, 1988. The shipment contained eight (8) soil samples in good condition.

GC/MS Analysis

The volatiles analyses were performed on 5/9 and 5/10/88 by purge and trap with packed SP-1000 column on 2 Finnigan OWA GC/MS/DS systems.

The semivolatiles analyses were performed on 6/3, 6/6, 6/7, and 6/10/88 by direct injection of sample extract on a J&W DB-5 capillary column on a Finnigan 4500 GC/MS/DS.

The analysis followed EPA CLP SOW 10/86 protocol. In the volatiles analyses, instrumental problems caused delay in running the samples, but every attempt was made to perform the runs within holding time: on the 10th day from receipt all samples except the matrix spike and the matrix spike duplicate were run. Unfortunately, one standard of that day (our VSTD05093) exceeded 25% RPD for CCC compound 1,2-dichloropropane. This affected samples EX021, EX020, EX019,

and blank VBLK3. It was felt that it was better to run these samples within holding time despite the standard nonconformance. Also, EX015, EX018, and EX020 showed variously discrepant results for either a surrogate or 1-2 internal standards. All samples with discrepancies, along with matrix spike and duplicate, were rerun the following day. The data from both analyses appear consistent, and are submitted for purposes of client usability.

The semivolatiles analyses proceeded with no major problems, except that sample EX019 showed wide variation in the TCL results for the original, matrix spike, and matrix spike duplicate samples. The sample had been well mixed, but apparently small heterogeneous spots remained to produce such results.

Although this discrepancy did not necessarily represent a failure to meet protocol, a call was made to Jeb Livingood of SMO to discuss the situation. He returned the call (see phone dialogs at the end of this narrative) after conferring with Region V, with the suggestion to reprep (now beyond holding time) a larger piece of the sample, and document so in this narrative. After considering the high TCL levels seen, protocol restraints and available remaining sample, IT-STU decided to meet that suggestion as closely as possible by reprepping the original and matrix spikes; in so doing, obtaining more information on matrix spike effect. The same protocol amount was weighed up, but the sample was vigorously mixed, with a consistent granular texture throughout. The original and reprep data are submitted, along with 2 Form 3D's for this sample.

Two notes concerning the data workup: One TIC peak in the samples was characterized as hydroxymethylpentanone, replacing the NBS library match name. IT-STU considers the former name to be correct. Matrix spike results were suppressed (treated as undetected) on Form 1; they were retained on Form 3.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected.
E - Compound exceeded calibration range of instrument.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below the contract required detection limit. The value given was an estimate.
B - Compound was found in the method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.

GC Analysis

Samples EX014, EX015, EX016, EX017, EX019, EX019 MS, EX019 MSD, and PBLK1 were extracted on 5/6/88. Samples EX018, EX020, EX021, and PBLK2 were extracted on 5/9/88. All samples, except EE7780 (EX018), required sulfur cleanup treatment. The sulfur cleanups were done on 6/3/88 and 6/8/88. A sulfur cleanup blank was generated on 6/8/88 to cover both treatments. (This approach was approved by Doris Ling.) The same procedure and reagents were used on both days.

The pesticide/PCB analysis was performed from 6/6/88 to 6/16/88. The 2250/2401 column was the primary column. The 3% OV-1 column was used as the secondary column.

The hard copies and diskette were generated through Finnigan-supplied software (FORMASTER).

The program, FORMASTER, does not number blanks as is required in the latest contract revision. Therefore, all pesticide blanks have a number added by hand to the hard copies of the package. However, it is not possible to change the identification of the blank(s) on diskette.

The program, FORMASTER, does not accept a slash in the space designated for column type. It also only accepts 8 characters in that space. For the 2250/2401 column, the space was filled with 22502401 and the slash was later added by hand to all forms with that column designation. The designation on the chromatograms is 2250-2401.

The hexane injections listed on FORM VIII PEST-2 are used only to prevent late eluting components from interfering with sample or standard injections. Therefore, no surrogate is added and %D for dibutylchlorendate retention time shift is not reported.

FORMASTER calculates and prints the individual and the combined degradation values for endrin and 4,4'-DDT for the 2250/2401 column. The combined value is crossed out on the FORM VIII PEST I for the 2250/2401 sequence.

V3700A, 2250/2401, 6/6-9/88

Standard INDA analyzed at 11:42 on 6/7/88 did not meet QC criteria because of interference from late eluting peaks in the previous sample(s). INDA was rerun at 13:27 on 6/7/88 and did meet QC criteria. The analytical sequence was restarted at this point and all affected samples were re-analyzed.

EVALB at 16:52 on 6/7/88 failed QC criteria because of incorrect integration. It was rerun at 17:23 on 6/7/88. A late eluting peak from a previous sample(s) interfered with endrin ketone. EVALB was run again at 18:57 on 6/7/88 and passed QC criteria. The sequence was continued at this point.

EVALB at 01:06 on 6/8/88 failed QC criteria because of column overloading from the previous sample. It was reanalyzed at 08:59 on 6/8/88 and passed QC criteria. The sequence was continued at this point and all affected samples were reanalyzed.

INDB at 12:39 on 6/8/88 did not meet QC criteria due to interference from the previous sample. Column maintenance was performed. INDB was reanalyzed at 15:03 on 6/8/88. QC criteria were met and the sequence was resumed.

Integration of endrin aldehyde was incorrect for EVALB analyzed at 18:11 on 6/8/88. EVALB was reanalyzed at 22:20 on 6/8/88 and met criteria. The sequence was resumed and affected samples were reanalyzed.

EVALB at 01:54 on 6/9/88 failed QC criteria. It was reanalyzed at 08:54 on 6/9/88 and passed QC criteria. The sequence was continued at this point and all affected samples were reanalyzed.

V3700A, 2250/2401, 6/14-15/88

INDB at 1:08 on 6/16/88 did not meet RT window criteria. When this was discovered, INDB had already run again at 08:39 and met RT window criteria. The sequence was resumed and all affected samples were reanalyzed.

The retention time windows were re-established on 6/10/88. The INDB standards meet the new windows. The windows are printed incorrectly on the FORMASTER generated FORM IX's and are manually corrected.

The following symbols were used in reporting the data:

(R) - This symbol is used in labeling chromatograms to signify an interfering peak which has a retention time close to that of a compound of interest but is not actually within the retention time window for that compound. The peak area or height information is then used to calculate a quantitation limit if the interfering peak would obscure the compound of interest.

X - Indicates that this area of the chromatogram was off scale, but that the retention time of the peak does not match a TCL component. No value is reported.

UJ - Indicates a quantitation limit that is lower than the normal CRQL for a dilution. This flag is used when the undiluted sample has an off scale peak which interferes with the quantitation of a component, but is not inside the retention time window of the component.

FORM IV was manually generated for the sulfur cleanup blank due to FORMASTER limitations.

Most of the soil samples have a large peak just outside of the retention time window of Aroclor 1221. Aroclor 1221 could not be calculated at the original dilution because of this peak. These samples were also analyzed at a 1:10 dilution. On the OV-1 column, the interfering peak was well outside of the 1221 window. When the quantitation limit was calculated for the 1:10 dilution, it was below the CRQL. The actual quantitation limit of 1221 for these samples is reported on the 1:10 dilutions. A flag of "UJ" is used to indicate that one peak was detected and that the quantitation limit is below the CRQL for a 1:10 dilution.

Approved by:

Tom Wilson
Group Supervisor, GC/MS

TW:sm

Enclosure

Release of the data contained in this hard copy 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.

Tom Wilson
Group Supervisor, GC/MS

TABLE 1
SAMPLE SUMMARY TABLE

Case Number: 9469
Sample Delivery Group Number (SDG#): EX014
Laboratory Name: ITAS-Knoxville (IT-STU)
Contract Number: 68-01-7468
ITAS Project Number: EPAG 41196

SMO #	SMO TAG #	ITAS #	Matrix	Conc.	Analysis
EX014	5-157001	EE7776	Soil	Low	BNA
	5-157001	EE7776	Soil	Low	Pest/PCB
	5-157002/03	EE7766	Soil	Low	VO
EX015	5-157005	EE7777	Soil	Low	BNA
	5-157005	EE7777	Soil	Low	Pest/PCB
	5-157006/07	EE7767	Soil	Low	VO
EX016	5-157009	EE7778	Soil	Low	BNA
	5-157009	EE7778	Soil	Low	Pest/PCB
	5-157010/11	EE7768	Soil	Low	VO
EX017	5-157013	EE7779	Soil	Low	BNA
	5-157013	EE7779	Soil	Low	Pest/PCB
	5-157014/15	EE7769	Soil	Low	VO
EX018	5-157017	EE7780	Soil	Low	BNA
	5-157017	EE7780	Soil	Low	Pest/PCB
	5-157018/19	EE7770	Soil	Low	VO
EX019	5-157021	EE7781	Soil	Low	BNA
	5-157021	EE7781	Soil	Low	Pest/PCB
	5-157022/23	EE7771	Soil	Low	VO
EX019 MS	5-157021	EE7782 MS	Soil	Low	QC-MS-BNA
	5-157021	EE7782 MS	Soil	Low	QC-MS-Pest/PCB
	5-157022/23	EE7772 MS	Soil	Low	QC-MS-VO
EX019 MSD	5-157021	EE7783 MSD	Soil	Low	QC-MSD-BNA
	5-157021	EE7783 MSD	Soil	Low	QC-MSD-Pest/PCB
	5-157022/23	EE7773 MSD	Soil	Low	QC-MSD-VO
EX020	5-157025	EE7784	Soil	Low	BNA
	5-157025	EE7784	Soil	Low	Pest/PCB
	5-157026/27	EE7774	Soil	Low	VO

TABLE 1
SAMPLE SUMMARY TABLE
(continued)

SMO #	SMO TAG #	ITAS #	Matrix	Conc.	Analysis
EX021	5-157029	EE7785	Soil	Low	BNA
	5-157029	EE7785	Soil	Low	Pest/PCB
	5-157030/31	EE7775	Soil	Low	VO

ABBREVIATIONS: BNA = Semivolatiles
Pest = Pesticides
PCB = Polychlorinated biphenyls
VO = Volatiles
MS = Matrix spike
MSD = Matrix spike duplicate

SAMPLE DATES: 4/27-28/88
LOG IN DATE: 5/18/88
DUE DATE: 7/7/88

CENTRAL REGIONAL LABORATORY SAMPLE DATA REPORT
ORGANICS/INORGANICS
THIS FORM IS TO BE USED FOR SAMPLES SENT TO CONTRACT ONLY

MAY 6 1988

SUPERFUND 5134

CASE NUMBER/SAS No. 9469 SITE NAME Marble Cliff Quarries Dump LABORATORY ITSTU/Keystone DATE SHIPPED 4/28/88

SUPERFUND DU NUMBER Y905 EPA RPM or OSC (S.M.S.)/(CES) _____ CERCLIS NUMBER OHD980510226 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				
88FK20S14	EX014 ✓	MEX218	✓	✓											✓	✓	✓	✓	✓	✓						
88FK20S15	EX015 ✓	MEX219	✓	✓											✓	✓	✓	✓	✓	✓						
88FK20S16	EX016 ✓	MEX220	✓	✓											✓	✓	✓	✓	✓	✓						
88FK20S17	EX017 ✓	MEX221	✓	✓											✓	✓	✓	✓	✓	✓						
88FK20S18	EX018 ✓	MEX222	✓	✓											✓	✓	✓	✓	✓	✓						
88FK20S19	EX019 ✓	MEX223	✓	✓											✓	✓	✓	✓	✓	✓						
88FK20S20	EX020 ✓	MEX224	✓	✓											✓	✓	✓	✓	✓	✓						
88FK20S21	EX021 ✓	MEX225	✓	✓											✓	✓	✓	✓	✓	✓						
	2047		CC	[illegible]																						

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

CASE NO: 9469

SAS NO: (IF APPLICABLE)

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
2. GROUND WATER
3. LEACHATE
4. SOIL
5. SEDIMENT
6. OIL (SAS)
7. WASTE (SAS)

REGION NO: V
SAMPLING COMPANY ②: FIT
SAMPLER: (NAME) Philip H Smith

SHIP TO: ③
IT Analytical Services
5815 Middlebrook Pike
Knoxville, TN 37921
ATTN: Pamela Rogers

SAMPLING DATE: ④
BEGIN: 4/21/88 END: 4/21/88

DATE SHIPPED: 4/23/88 CARRIER: F ⑤
AIRBILL NO: 7544394972

DATE REC'D: 4-29-88
SDG NO: ⑥ EX014
REC'D BY: Beth Monroe
LABORATORY CONTRACT NO. SPA-68-01-7468
UNIT PRICE 793

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

CLP SAMPLE NUMBER (FROM LABELS)	SAMPLE DESCRIPTION (FROM BOX 1) 1 2 3 4 5 6 7 (A)	CONCENTRATION L = LOW/MED, H = HIGH (SAS) (B)	RAS ANALYSIS (C) VOLATILE	BASE/NEUT /ACID	PESTICIDE /PCB's		SPECIAL HANDLING (D)	STATION LOCATION (E)	SAMPLE CONDITION ON RECEIPT (F)	HIGH CONC. PHASES (CHECK) (G) SOLID	WATER—MIS LIQUID	NON WATER—MIS LIQUID
EX014	4	L	✓	✓	✓			Soil 1	Cool + Intact			
EX015	4	L	✓	✓	✓			Soil 2	Cool + Intact			
EX016	4	L	✓	✓	✓			Soil 3	Cool + Intact			
EX017	4	L	✓	✓	✓			Soil 4	Cool + Intact			
EX018	4	L	✓	✓	✓			Soil 5	Cool + Intact			
EX019	4	L	✓	✓	✓			Soil 6	Cool + Intact			
EX020	4	L	✓	✓	✓			Soil 7	Cool + Intact			
EX021	4	L	✓	✓	✓			Soil 8	Cool + Intact			

EPA Form 2075-7 (8-87)

SDG # Final Sample EX021
SDAG 41196

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

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	EX014	93	91	91		0
02	EX015	118 *	84	96		1
03	EX015RE	104	90	93		0
04	EX016	107	101	93		0
05	EX017	106	87	71		0
06	EX018	104	94	74		0
07	EX018RE	100	94	93		0
08	EX019	108	92	94		0
09	EX019MS	100	84	90		0
10	EX019MSD	101	87	92		0
11	EX019RE	104	87	91		0
12	EX020	106	93	97		0
13	EX020RE	103	88	88		0
14	EX021	102	86	84		0
15	EX021RE	111	86	91		0
16	VBLK1	108	103	91		0
17	VBLK2	96	92	94		0
18	VBLK3	100	100	91		0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	OTHER	TOT OUT
01	EX014	63	62	61	55	59	60		0
02	EX015	76	78	125	70	71	85		0
03	EX016	63	67	81	64	63	61		0
04	EX017	66	69	71	63	63	65		0
05	EX018	67	70	86	66	64	61		0
06	EX019	40	52	47	44	45	50		0
07	EX019MS	57	61	83	58	53	66		0
08	EX019MSD	68	70	92	59	59	64		0
09	EX019MSDRE	94	74	67	62	82	83		0
10	EX019MSRE	74	75	64	59	71	69		0
11	EX019RE	81	73	74	56	69	69		0
12	EX020	64	72	83	59	62	59		0
13	EX021	65	64	64	58	61	64		0
14	SBLK1	81	82	95	79	76	92		0
15	SBLK2	74	76	88	72	73	82		0
16	SBLK3	66	67	78	61	65	74		0

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(23-120)
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)
S3 (TPH)	= Terphenyl	(18-137)
S4 (PHL)	= Phenol-d5	(24-113)
S5 (2FP)	= 2-Fluorophenol	(25-121)
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

[illegible] PESTICIDE SURROGATE RECOVERY

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: _____ SDG No.: [illegible]

Level: [illegible] Matrix: [illegible]

EPA SAMPLE NO.	DBC (#)		OTHER
01 EN014	79		0
02 EN014DL	54		0
03 EN015	0	D	0
04 EN015DL	0	D	0
05 EN016	70		0
06 EN016DL	220	*	0
07 EN017	66		0
08 EN017DL	71		
09 EN018	90		0
10 EN018DL	96		0
11 EN019	92		0
12 EN020	91		0
13 EN020DL	106		0
14 EN021	93		0
15 EN019MS	115		0
16 EN019MSD	122		0
17 PBLK 2	80		0
18 PBLK 1	72		0
19 PBLK 1 DL	88		
20 PBLK 2 DL	100		
21 PBLK 3	83		

ADVISORY QC LIMITS 21-110

DBC = Dibutylchlorendate

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

FORM II PEST-1

1/87 Rev.

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix Spike - EPA Sample No.: EX019RE Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	56.8	0	44.7	79	59-172
Trichloroethene	56.8	0	50.5	89	62-137
Benzene	56.8	0	49.5	87	66-142
Toluene	56.8	4.20	55.1	90	59-139
Chlorobenzene	56.8	0	53.4	94	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	56.8	45.1	79	0	22	59-172
Trichloroethene	56.8	52.4	92	-3	24	62-137
Benzene	56.8	51.7	91	-4	21	66-142
Toluene	56.8	54.5	89	1	21	59-139
Chlorobenzene	56.8	55.8	98	-4	21	60-133

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: CLP,9469,EX014,EX019,LOW,SOIL,EE7771R,VOA,EPA
OWA-3:5GR/5ML H2O PURGED W/50PPB IS+SS

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix Spike - EPA Sample No.: EX019 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	7580	0	3770	50	26- 90
2-Chlorophenol	7580	0	3920	52	25-102
1,4-Dichlorobenzene	3790	0	1720	45	28 104
N-Nitroso-di-n-prop.(1)	3790	0	1910	50	41 126
1,2,4-Trichlorobenzene	3790	0	2020	53	38 107
4-Chloro-3-methylphenol	7580	0	4520	60	26 103
Acenaphthene	3790	141	2770	69	31-137
4-Nitrophenol	7580	0	4070	54	11-114
2,4-Dinitrotoluene	3790	0	2120	56	28- 89
Pentachlorophenol	7580	0	2980	39	17-109
Pyrene	3790	3600	15800	322 *	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	7520	3930	52	-4	35	26- 90
2-Chlorophenol	7520	4220	56	-7	50	25-102
1,4-Dichlorobenzene	3760	1820	48	-6	27	28 104
N-Nitroso-di-n-prop.(1)	3760	1960	52	-4	38	41 126
1,2,4-Trichlorobenzene	3760	2230	59	-11	23	38 107
4-Chloro-3-methylphenol	7520	4530	60	0	33	26 103
Acenaphthene	3760	3930	101	-38 *	19	31-137
4-Nitrophenol	7520	4230	56	-4	50	11-114
2,4-Dinitrotoluene	3760	2360	63	-12	47	28- 89
Pentachlorophenol	7520	3200	43	-10	47	17-109
Pyrene	3760	35200	840 *	-89 *	36	35-142

(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: 2 out of 11 outside limits
Spike Recovery: 2 out of 22 outside limits

COMMENTS: CLP,9469,,EX019,LOW,SOIL,EE7781,BNA,EPA
INSTR.4500 : J&WDBS(30M*.315MM/1UM) 45-325@10D/M: 1 UL INJ

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix Spike - EPA Sample No.: EX019RE Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	7480	0	4190	56	26- 90
2-Chlorophenol	7480	0	4710	63	25-102
1,4-Dichlorobenzene	3740	0	2270	61	28 104
N-Nitroso-di-n-prop.(1)	3740	0	2330	62	41 126
1,2,4-Trichlorobenzene	3740	0	2540	68	38 107
4-Chloro-3-methylphenol	7480	0	5210	70	26 103
Acenaphthene	3740	230	2800	69	31-137
4-Nitrophenol	7480	0	6260	84	11-114
2,4-Dinitrotoluene	3740	0	2290	61	28- 89
Pentachlorophenol	7480	0	4520	60	17-109
Pyrene	3740	6300	6030	-7 *	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	7550	4630	61	-9	35	26- 90
2-Chlorophenol	7550	5270	70	-11	50	25-102
1,4-Dichlorobenzene	3770	2520	67	-9	27	28 104
N-Nitroso-di-n-prop.(1)	3770	2290	61	2	38	41 126
1,2,4-Trichlorobenzene	3770	2840	75	-10	23	38 107
4-Chloro-3-methylphenol	7550	5920	78	-11	33	26 103
Acenaphthene	3770	3090	76	-10	19	31-137
4-Nitrophenol	7550	7360	97	-14	50	11-114
2,4-Dinitrotoluene	3770	2500	66	-8	47	28- 89
Pentachlorophenol	7550	5120	68	-13	47	17-109
Pyrene	3770	10500	111	-227 *	36	35-142

(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: 1 out of 11 outside limits
Spike Recovery: 1 out of 22 outside limits

COMMENTS: CLP,9469,,EX019,LOW,SOIL,EE7781RP,BNA,EPA
INSTR.4500 : J&WDBS(30M*.315MM/1UM) 45-325@10D/M: 1 UL INJ

[illegible] MATRIX SPIKE MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: [illegible] Date Rec.: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: _____ SDG No.: [illegible]

Matrix Spike - EPA Sample No.: [illegible] Level: Low/Med [illegible]

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC #	QC LIMITS REC.
Gamma-BHC (Lindane)	30.3	0	58.6	193 *	[illegible]
Heptachlor	30.3	0	20.3	69	[illegible]
[illegible]	30.3	0	25.1	86	[illegible]
Dieldrin	75.7	0	43.7	57	31-134
Endrin	75.7	0	57.9	76	42-139
4,4'-DDT	75.7	0	48.8	64	23-134

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Gamma-BHC (Lindane)	30.1	83.5	277 *	-36	50	46-127
Heptachlor	30.1	26.9	87	-23	31	[illegible]
[illegible]	30.1	24.1	80	7	43	[illegible]
Dieldrin	75.2	35.0	47	19	38	[illegible]
Endrin	75.2	56.8	76	0	45	[illegible]
4,4'-DDT	75.2	54.1	72	-12	50	[illegible]

* 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: 2 out of 12 outside limits

COMMENTS: Lindane recovery values are outside the suggested QC Limits due to a closely eluting unknown component in the sample which coelutes with Lindane in the MS and MSD samples.

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Lab File ID: VBL05092 Lab Sample ID: VBL05092

Date Analyzed: 05/09/88 Time Analyzed: 1950

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: OWA3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	EX014	EE7766	EE7766	2044
02	EX015	EE7767	EE7767	2132
03	EX016	EE7768	EE7768	2221
04	EX017	EE7769	EE7769	2310
05	EX018	EE7770	EE7770	2358

COMMENTS: CLP,9469,EX014,VBLK1,LOW,SOIL,VBL05092,VOA,BLANK
INSTRUMENT-OWA3 EPA CLP METHOD (VOLATILES)

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Lab File ID: VBLK05092 Lab Sample ID: VBLK05092

Date Analyzed: 05/09/88 Time Analyzed: 2136

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: OWA5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	EX019	EE7771	EE7771	2349
02	EX020	EE7774	EE7774	2305
03	EX021	EE7775	EE7775	2226

COMMENTS: CLP,9469,,VBLK1,LOW,SOIL,VBLK05092,VOA,BLANK
INST OWA5: CLP VOLATILES

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Lab File ID: VBL05101 Lab Sample ID: VBL05101

Date Analyzed: 05/10/88 Time Analyzed: 0636

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: OWA3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	EX015RE	EE7767	EE7767R	1036
02	EX018RE	EE7770	EE7770R	1123
03	EX019RE	EE7771	EE7771R	0812
04	EX020RE	EE7774	EE7774R	1211
05	EX021RE	EE7775	EE7775R	1259
06	EX019MS	EE7772	EE7772MS	0900
07	EX019MSD	EE7773	EE7773SD	0948

COMMENTS: CLP,9469,EX014,VBLK2,LOW,SOIL,VBL05101,VOA,BLANK
OWA-3:5ML PURGED W/50PPB IS+SS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: VBL05092

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VBL05092

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 05/09/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes(total)	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK1

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: VBL05092

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VBL05092

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 05/09/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK2

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: VBL05101

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VBL05101

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 05/10/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	1	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes(total)	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK2

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: VBL05101

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VBL05101

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 05/10/88

Column (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK3

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: VBLK05092

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VBLK05092

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 05/09/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	1	J
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes(total)	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK3

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: VBLK05092

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VBLK05092

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 05/09/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Lab File ID: BL2808 Lab Sample ID: BL2808

Date Extracted: 05/06/88 Extraction:(SepF/Cont/Sonc) SONC

Date Analyzed: 06/03/88 Time Analyzed: 1412

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	EX014	EE7776	EE7776	06/06/88
02	EX015	EE7777	EE7777	06/07/88
03	EX016	EE7778	EE7778	06/06/88
04	EX017	EE7779	EE7779	06/06/88
05	EX019	EE7781	EE7781	06/06/88
06	EX019MS	EE7782MS	EE7782MS	06/07/88
07	EX019MSD	EE7783MSD	EE7783MSD	06/07/88

COMMENTS: CLP,9469,,SBLK1,LOW,SOIL,BL2808,BNA,BLANK
INSTR.4500 : J&WDBS(30M*.315MM/1UM) 45-325@10D/M: 1 UL INJ

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Lab File ID: BL2814 Lab Sample ID: BL2814

Date Extracted: 05/09/88 Extraction:(SepF/Cont/Sonc) SONC

Date Analyzed: 06/03/88 Time Analyzed: 1515

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	EX018	EE7780	EE7780	06/06/88
02	EX020	EE7784	EE7784	06/07/88
03	EX021	EE7785	EE7785	06/06/88

COMMENTS: CLP,9469,,SBLK2,LOW,SOIL,BL2814,BNA,BLANK
INSTR.4500 : J&WDBS(30M*.315MM/1UM) 45-325@10D/M: 1 UL INJ

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Lab File ID: BL2971 Lab Sample ID: BL2971

Date Extracted: 06/10/88 Extraction:(SepF/Cont/Sonc) SONC

Date Analyzed: 06/10/88 Time Analyzed: 1439

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: 4500

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	EX019MSDRE	EE7783RPR	EE7783RPR	06/10/88
02	EX019MSRE	EE7782RP	EE7782RP	06/10/88
03	EX019RE	EE7781RP	EE7781RP	06/10/88

COMMENTS: CLP,9469,,SBLK3,LOW,SOIL,BL2971,BNA,BLANK
INSTR.4500 : J&WDBS(30M*.315MM/1UM) 45-325@10D/M: 1 UL INJ

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1107

SBLK1

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: BL2808

Sample wt/vol: 30.0 (g/mL) G Lab File ID: BL2808

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/03/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	bis(2-Chloroisopropyl)Ether	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethyl Phthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK1

1106

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: BL2808

Sample wt/vol: 30.0 (g/mL) G Lab File ID: BL2808

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/03/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	270	J
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	200	J
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1109

S3LK1

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: BL2808

Sample wt/vol: 30.0 (g/mL) G Lab File ID: BL2808

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/03/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.000

Number TICs found: 11

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-21-4	ACETIC ACID, 1-METHYLETHYL E	3.90	190	AJ
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.40	13000	AJ
3. 110-12-3	2-HEXANONE, 5-METHYL-	4.70	860	AJ
4.	UNKNOWN	5.82	150	J
5. 57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	7.03	670	J
6.	UNKNOWN	22.42	250	J
7.	OCTADECENE	22.60	230	JY
8.	UNKNOWN	24.20	410	J
9.	UNKNOWN	24.39	140	J
10. 88-24-4	PHENOL, 2,2'-METHYLENEBIS[6-	25.76	590	J
11.	UNKNOWN	26.46	900	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK2

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: BL2814

Sample wt/vol: 30.1 (g/mL) G Lab File ID: BL2814

Level: (low/med) LOW Date Received: 05/05/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/03/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	bis(2-Chloroisopropyl)Ether	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethyl Phthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK2

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: BL2814

Sample wt/vol: 30.1 (g/mL) G Lab File ID: BL2814

Level: (low/med) LOW Date Received: 05/05/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/03/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	260	J
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	160	J
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

(1) - Cannot be separated from Diphenylamine

1141

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLK2

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: BL2814

Sample wt/vol: 30.1 (g/mL) G Lab File ID: BL2814

Level: (low/med) LOW Date Received: 05/05/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/03/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 16

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	108-21-4	ACETIC ACID, 1-METHYLETHYL E	3.92	190	AJ
2.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.42	12000	AJ
3.	110-12-3	2-HEXANONE, 5-METHYL-	4.70	700	AJ
4.		UNKNOWN	5.82	150	J
5.	57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	7.05	700	J
6.		UNKNOWN	22.42	360	J
7.		OCTADECENE	22.62	360	JY
8.		UNKNOWN	24.19	390	J
9.		UNKNOWN	24.35	200	J
10.	74685-33-9	3-EICOSENE, (E)-	24.44	170	J
11.	3891-98-3	DODECANE, 2,6,10-TRIMETHYL-	25.26	160	J
12.	88-24-4	PHENOL, 2,2'-METHYLENEBIS[6-	25.69	2100	J
13.	54833-23-7	EICOSANE, 10-METHYL-	26.14	140	J
14.		UNKNOWN	26.36	430	J
15.		UNKNOWN (SAT'D HYDROCARBON)	27.04	140	J
16.		UNKNOWN (SAT'D HYDROCARBON)	28.91	140	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1176

SBLK3

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: BL2971

Sample wt/vol: 30.1 (g/mL) G Lab File ID: BL2971

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 06/10/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/10/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	bis(2-Chloroisopropyl)Ether	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethyl Phthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1177

SBLK3

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: BL2971

Sample wt/vol: 30.1 (g/mL) G Lab File ID: BL2971

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 06/10/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/10/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	150	J
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	350	
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO. 1178

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SBLK2

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: BL2971

Sample wt/vol: 30.1 (g/mL) G Lab File ID: BL2971

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. ____ dec. ____ Date Extracted: 06/10/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/10/88

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-21-4	ACETIC ACID, 1-METHYLETHYL E	3.83	190	AJ
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.35	19000	AJ
3. 110-12-3	2-HEXANONE, 5-METHYL-	4.62	560	AJ
4. 57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	6.95	940	J
5.	UNKNOWN	28.02	240	J

PESTICIDE METHOD BLANK SUMMARY

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: [illegible] SDG No.: [illegible]

Lab Sample ID: [illegible] Lab File ID: [illegible]

Matrix: Low Water: SOIL Level: Low/Med: LOW

Date Extracted: [illegible] Extraction: Sep Cont Sep [illegible]

Date Analyzed (1): [illegible] Date Analyzed (2): [illegible]

Time Analyzed (1): [illegible] Time Analyzed (2): [illegible]

Instrument ID (1): [illegible] Instrument ID (2): [illegible]

GC Column ID (1): [illegible] GC Column ID (2): [illegible]

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	EX014	EE7778ST-1	06/07/88	06/15/88
02	EX014DL	EE7778ST-10	06/07/88	06/14/88
03	EX015	EE7777ST-200	06/08/88	06/14/88
04	EX015DL	EE7777ST-2000	06/08/88	06/14/88
05	EX016	EE7778ST-1	06/15/88	06/15/88
06	EX016DL	EE7778ST-10	06/09/88	06/14/88
07	EX017	EE7779ST-1	06/07/88	06/14/88
08	EX017DL	EE7779ST-10	06/07/88	06/15/88
09	EX019	EE7781DSST-5	06/09/88	06/15/88
10	EX019MS	EE7782MSST-5	06/09/88	06/15/88
11	EX019MSD	EE7783MSDST-5	06/09/88	06/15/88

COMMENTS:

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PESTICIDE METHOD BLANK SUMMARY

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: _____ SDG No.: [illegible]

Lab Sample ID: [illegible] Lab File ID: [illegible]

Matrix: [illegible] Water: SOIL Level: low med. LOW

Date Extracted: [illegible] Extraction (SepF/Cont/Sonc): [illegible]

Date Analyzed (1): [illegible] Date Analyzed (2): [illegible]

Time Analyzed (1): [illegible] Time Analyzed (2): [illegible]

Instrument ID (1): [illegible] Instrument ID (2): [illegible]

GC Column ID (1): [illegible] GC Column ID (2): [illegible]

HUB METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	[illegible]	EE77[illegible]-1	06/07/88	06/14/88
2	[illegible]	EE77[illegible]-10	06/07/88	06/14/88
3	[illegible]	EE77[illegible]T-1	06/15/88	06/15/88
4	[illegible]	EE77[illegible]T-10	06/15/88	06/15/88
5	[illegible]	EE77[illegible]T-1	06/07/88	06/15/88

COMMENTS:

4C
PESTICIDE METHOD BLANK SUMMARY

Lab Name: ITAS- KNOXVILLE Contract: 6801 7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Lab Sample ID: 2962 81ST Lab File ID: _____

Matrix:(soil/water) SOIL Level:(low/med) LOW

Date Extracted: 06/08/88 Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed (1): 06/08/88 Date Analyzed (2): 06/14/88

Time Analyzed (1): 23:23 Time Analyzed (2): 1914

Instrument ID (1): V3740A Instrument ID (2): V3700E

GC Column ID (1): 2250/2401 GC Column ID (2): OV-1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	EX014	EE7776ST-1	06/07/88	06/15/88
02	EX014 DL	EE7776ST-10	06/07/88	06/14/88
03	EX015	EE7777ST-200	06/08/88	06/14/88
04	EX015 DL	EE7777ST-2000	06/08/88	06/14/88
05	EX016	EE7778ST-1	06/15/88	06/15/88
06	EX016 DL	EE7778ST-10	06/09/88	06/14/88
07	EX017	EE7779ST-1	06/07/88	06/14/88
08	EX017 DL	EE7779ST-10	06/07/88	06/15/88
09	EX019	EE7781OGST-5	06/09/88	06/15/88
10	EX019 MS	EE7782MSST-5	06/09/88	06/15/88
11	EX019 MSD	EE7783MSDST-5	06/09/88	06/15/88
12	EX020	EE7784ST-1	06/15/88	06/15/88
13	EX020 DL	EE7784ST-10	06/15/88	06/15/88
14	EX021	EE7785ST-1	06/07/88	06/15/88
15				
16				
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18				
19				
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21				
22				
23				
24				
25				
26				

COMMENTS: _____

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1I

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK 1 1503

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7[illegible]

Lab Code: I -STU Case No.: 9469 SAS No.: _____ SDG No.: EK014

Matrix: (soil/water) SOIL Lab Sample ID. 2803B1-1

Sample wt (g): 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 0 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/07/88

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.0	U
319-85-7	beta-BHC	8.0	U
319-86-8	delta-BHC	8.0	U
58-89-9	gamma-BHC (Lindane)	8.0	U
76-44-8	Heptachlor	8.0	U
309-00-2	Aldrin	8.0	U
1024-57-3	Heptachlor epoxide	8.0	U
959-98-8	Endosulfan I	8.0	U
60-57-1	Dieldrin	16	U
72-55-9	4,4'-DDE	16	U
72-20-8	Endrin	16	U
33213-65-9	Endosulfan II	16	U
72-54-8	4,4'-DDD	16	U
1031-07-8	Endosulfan sulfate	16	U
50-29-3	4,4'-DDT	16	U
72-43-5	Methoxychlor	80	U
53494-70-5	Endrin ketone	16	U
5103-71-9	alpha-Chlordane	80	U
5103-74-2	gamma-Chlordane	80	U
8001-35-2	Toxaphene	160	U
12674-11-2	Aroclor-1016	80	U
11104-28-2	Aroclor-1221	~~80~~	~~U~~ X
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	80	U
12672-29-6	Aroclor-1248	80	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

II

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Page 2

1515

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7418

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: 2E14B1

Sample wt/vol: 30.1 g/mL G Lab File ID: _____

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 0 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.0	U
319-85-7	beta-BHC	8.0	U
319-86-8	delta-BHC	8.0	U
58-89-9	gamma-BHC (Lindane)	8.0	U
76-44-8	Heptachlor	8.0	U
309-00-2	Aldrin	8.0	U
1024-57-3	Heptachlor epoxide	8.0	U
959-98-8	Endosulfan I	8.0	U
60-57-1	Dieldrin	16	U
72-55-9	4,4'-DDE	16	U
72-20-8	Endrin	16	U
33213-65-9	Endosulfan II	16	U
72-54-8	4,4'-DDD	16	U
1031-07-8	Endosulfan sulfate	16	U
50-29-3	4,4'-DDT	16	U
72-43-5	Methoxychlor	80	U
53494-70-5	Endrin ketone	16	U
5103-71-9	alpha-Chlordane	80	U
5103-74-2	gamma-Chlordane	80	U
8001-35-2	Toxaphene	160	U
12674-11-2	Aroclor-1016	80	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	80	U
12672-29-6	Aroclor-1248	80	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK 3 1527

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7460

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: E[illegible]

Matrix: (soil/water) SOIL Lab Sample ID: 2962B1ST-1

Sample wt (g): 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 04/29/86

% Moisture: Not dec. 0 dec. ____ Date Extracted: 06/03/86

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/03/86

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.0	U
319-85-7	beta-BHC	8.0	U
319-86-8	delta-BHC	8.0	U
58-89-9	gamma-BHC (Lindane)	8.0	U
76-44-8	Heptachlor	8.0	U
309-00-2	Aldrin	8.0	U
1024-57-3	Heptachlor epoxide	8.0	U
959-98-8	Endosulfan I	8.0	U
60-57-1	Dieldrin	16	U
72-55-9	4,4'-DDE	16	U
72-20-8	Endrin	16	U
33213-65-9	Endosulfan II	16	U
72-54-8	4,4'-DDD	16	U
1031-07-8	Endosulfan sulfate	16	U
50-29-3	4,4'-DDT	16	U
72-43-5	Methoxychlor	80	U
53494-70-5	Endrin ketone	16	U
5103-71-9	alpha-Chlordane	80	U
5103-74-2	gamma-Chlordane	80	U
8001-35-2	Toxaphene	160	U
12674-11-2	Aroclor-1016	80	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	80	U
12672-29-6	Aroclor-1248	80	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX014

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7766

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7766

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 17 Date Analyzed: 05/09/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	6	J
67-64-1	Acetone	26	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-35-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	2	J
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes(total)	6	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX014

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7766

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7766

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 17 Date Analyzed: 05/09/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX015

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7767

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7767

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 Date Analyzed: 05/09/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	4	J
67-64-1	Acetone	21	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-35-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes(total)	6	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX015

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7767

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7767

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 Date Analyzed: 05/09/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX015RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7767

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7767R

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 Date Analyzed: 05/10/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	4	J
67-64-1	Acetone	~~126~~ 11	~~BJ~~ U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-35-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes(total)	6	U

AV 7-6-88

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX015RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7767

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7767R

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 Date Analyzed: 05/10/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX016

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7768

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7768

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 22 Date Analyzed: 05/09/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	6	J
67-64-1	Acetone	15	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-35-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	1	J
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes(total)	6	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
EX016

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7768

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7768

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 22 Date Analyzed: 05/09/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX017

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7769

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7769

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 15 Date Analyzed: 05/09/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	4	J
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-35-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	1	J
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	9	
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes(total)	6	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX017

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7769

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7769

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 15 Date Analyzed: 05/09/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX018

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7770

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7770

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 18 Date Analyzed: 05/09/88

Column: (pack/cap) PAC Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	15	
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-35-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	2	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	2	J
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes(total)	6	U

C95

EPA SAMPLE NO.

EX018

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7770

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7770

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 18 Date Analyzed: 05/09/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX018RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7770

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7770R

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 18 Date Analyzed: 05/10/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	6	J
67-64-1	Acetone	26	B
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-35-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	2	J
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	3	J
591-78-6	2-Hexanone	2	J
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes(total)	6	U

AV
7-6-88

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX018RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7770

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7770R

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 18 Date Analyzed: 05/10/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX019

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7771

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7771

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 Date Analyzed: 05/09/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	4	J
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-35-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	4	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes(total)	6	U

OK as is
AV
7-6-88

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX019

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7771

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7771

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 Date Analyzed: 05/09/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX019RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7771

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7771R

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 Date Analyzed: 05/10/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	5	J
67-64-1	Acetone	11 ~~13~~	~~BJ~~ U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-35-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	4	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylenes(total)	6	U

AV 7-6-88

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
EX019RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7771

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7771R

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 Date Analyzed: 05/10/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX020

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7774

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7774

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 9 Date Analyzed: 05/09/88

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	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	4	J
67-64-1	Acetone	13	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes(total)	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX020

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7774

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7774

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 9 Date Analyzed: 05/09/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX020RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7774

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7774R

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 9 Date Analyzed: 05/10/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	
67-64-1	Acetone	11 X	~~BJ~~ U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-35-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	6	
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes(total)	5	U

AV 7-6-88

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX020RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7774

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7774R

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 9 Date Analyzed: 05/10/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX021

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7775

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7775

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 26 Date Analyzed: 05/09/88

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	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	8	
67-64-1	Acetone	21	
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-35-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	Trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-Pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylenes(total)	7	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
EX021

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7775

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7775

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 26 Date Analyzed: 05/09/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX021RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7775

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7775R

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 26 Date Analyzed: 05/10/88

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	10	
67-64-1	Acetone	14 ~~11~~	~~B~~U
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-35-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	14	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	Trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-Pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylenes(total)	7	U

AV 7-6-88

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX021RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7775

Sample wt/vol: 5.0 (g/mL) G Lab File ID: EE7775R

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 26 Date Analyzed: 05/10/88

Column (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX014

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7776

Sample wt/vol: 30.1 (g/mL) G Lab File ID: EE7776

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 17 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	790	U
111-44-4	bis(2-Chloroethyl)Ether	790	U
95-57-8	2-Chlorophenol	790	U
541-73-1	1,3-Dichlorobenzene	790	U
106-46-7	1,4-Dichlorobenzene	790	U
100-51-6	Benzyl Alcohol	790	U
95-50-1	1,2-Dichlorobenzene	790	U
95-48-7	2-Methylphenol	790	U
108-60-1	bis(2-Chloroisopropyl)Ether	790	U
106-44-5	4-Methylphenol	790	U
621-64-7	N-Nitroso-Di-n-Propylamine	790	U
67-72-1	Hexachloroethane	790	U
98-95-3	Nitrobenzene	790	U
78-59-1	Isophorone	790	U
88-75-5	2-Nitrophenol	790	U
105-67-9	2,4-Dimethylphenol	790	U
65-85-0	Benzoic Acid	3800	U
111-91-1	bis(2-Chloroethoxy)Methane	790	U
120-83-2	2,4-Dichlorophenol	790	U
120-82-1	1,2,4-Trichlorobenzene	790	U
91-20-3	Naphthalene	790	U
106-47-8	4-Chloroaniline	790	U
87-68-3	Hexachlorobutadiene	790	U
59-50-7	4-Chloro-3-Methylphenol	790	U
91-57-6	2-Methylnaphthalene	790	U
77-47-4	Hexachlorocyclopentadiene	790	U
88-06-2	2,4,6-Trichlorophenol	790	U
95-95-4	2,4,5-Trichlorophenol	3800	U
91-58-7	2-Chloronaphthalene	790	U
88-74-4	2-Nitroaniline	3800	U
131-11-3	Dimethyl Phthalate	790	U
208-96-8	Acenaphthylene	790	U
606-20-2	2,6-Dinitrotoluene	790	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
EX014

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7776

Sample wt/vol: 30.1 (g/mL) G Lab File ID: EE7776

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 17 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3800	U
83-32-9	Acenaphthene	790	U
51-28-5	2,4-Dinitrophenol	3800	U
100-02-7	4-Nitrophenol	3800	U
132-64-9	Dibenzofuran	790	U
121-14-2	2,4-Dinitrotoluene	790	U
84-66-2	Diethylphthalate	790	U
7005-72-3	4-Chlorophenyl-phenylether	790	U
86-73-7	Fluorene	790	U
100-01-6	4-Nitroaniline	3800	U
534-52-1	4,6-Dinitro-2-Methylphenol	3800	U
86-30-6	N-Nitrosodiphenylamine (1)	790 ~~490~~	~~BJ~~ U
101-55-3	4-Bromophenyl-phenylether	790	U
118-74-1	Hexachlorobenzene	790	U
87-86-5	Pentachlorophenol	3800	U
85-01-8	Phenanthrene	660	J
120-12-7	Anthracene	180	J
84-74-2	Di-n-Butylphthalate	790	U
206-44-0	Fluoranthene	1200	
129-00-0	Pyrene	900	
85-68-7	Butylbenzylphthalate	790	U
91-94-1	3,3'-Dichlorobenzidine	1600	U
56-55-3	Benzo(a)Anthracene	590	J
218-01-9	Chrysene	870	
117-81-7	bis(2-Ethylhexyl)Phthalate	790 ~~280~~	~~BJ~~ U
117-84-0	Di-n-Octyl Phthalate	790	U
205-99-2	Benzo(b)Fluoranthene	500	J
207-08-9	Benzo(k)Fluoranthene	730	J
50-32-8	Benzo(a)Pyrene	520	J
193-39-5	Indeno(1,2,3-cd)Pyrene	370	J
53-70-3	Dibenz(a,h)Anthracene	790	U
191-24-2	Benzo(g,h,i)Perylene	510	J

(1) - Cannot be separated from Diphenylamine

AV 7-6-88

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX014

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7776

Sample wt/vol: 30.1 (g/mL) G Lab File ID: EE7776

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 17 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 2.00

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-21-4	ACETIC ACID, 1-METHYLETHYL E	3.80	350	ABJ
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.30	24000	ABJ
3. 110-12-3	2-HEXANONE, 5-METHYL-	4.62	1200	ABJ
4. 57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	6.98	1000	BJ
5.	UNKNOWN	24.14	780	BJ
6. 88-24-4	PHENOL, 2,2'-METHYLENEBIS[6-	25.64	1200	BJ
7.	UNKNOWN	26.99	340	J
8.	UNKNOWN (SAT'D HYDROCARBON)	28.79	380	J
9. 205-82-3	BENZO[J]FLUORANTHENE	29.66	490	J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX015

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7777

Sample wt/vol: 30.3 (g/mL) G Lab File ID: EE7777

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/07/88

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	740	U
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	740	U
121-14-2	2,4-Dinitrotoluene	740	U
84-66-2	Diethylphthalate	740	U
7005-72-3	4-Chlorophenyl-phenylether	740	U
86-73-7	Fluorene	740	U
100-01-6	4-Nitroaniline	3600	U
534-52-1	4,6-Dinitro-2-Methylphenol	3600	U
86-30-6	N-Nitrosodiphenylamine (1)	740 ~~220~~	~~BJ~~ V
101-55-3	4-Bromophenyl-phenylether	740	U
118-74-1	Hexachlorobenzene	740	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	1500	
120-12-7	Anthracene	390	J
84-74-2	Di-n-Butylphthalate	740	U
206-44-0	Fluoranthene	2400	
129-00-0	Pyrene	3300	
85-68-7	Butylbenzylphthalate	390	J
91-94-1	3,3'-Dichlorobenzidine	1500	U
56-55-3	Benzo(a)Anthracene	1100	
218-01-9	Chrysene	1700	
117-81-7	bis(2-Ethylhexyl)Phthalate	740 ~~400~~	~~BJ~~ V
117-84-0	Di-n-Octyl Phthalate	740	U
205-99-2	Benzo(b)Fluoranthene	1200	
207-08-9	Benzo(k)Fluoranthene	1000	
50-32-8	Benzo(a)Pyrene	1100	
193-39-5	Indeno(1,2,3-cd)Pyrene	560	J
53-70-3	Dibenz(a,h)Anthracene	740	U
191-24-2	Benzo(g,h,i)Perylene	770	

(1) - Cannot be separated from Diphenylamine

AV
7-6-88

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX015

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7777

Sample wt/vol: 30.3 (g/mL) G Lab File ID: EE7777

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/07/88

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	740	U
111-44-4	bis(2-Chloroethyl)Ether	740	U
95-57-8	2-Chlorophenol	740	U
541-73-1	1,3-Dichlorobenzene	740	U
106-46-7	1,4-Dichlorobenzene	740	U
100-51-6	Benzyl Alcohol	740	U
95-50-1	1,2-Dichlorobenzene	740	U
95-48-7	2-Methylphenol	740	U
108-60-1	bis(2-Chloroisopropyl)Ether	740	U
106-44-5	4-Methylphenol	740	U
621-64-7	N-Nitroso-Di-n-Propylamine	740	U
67-72-1	Hexachloroethane	740	U
98-95-3	Nitrobenzene	740	U
78-59-1	Isophorone	740	U
88-75-5	2-Nitrophenol	740	U
105-67-9	2,4-Dimethylphenol	740	U
65-85-0	Benzoic Acid	3600	U
111-91-1	bis(2-Chloroethoxy)Methane	740	U
120-83-2	2,4-Dichlorophenol	740	U
120-82-1	1,2,4-Trichlorobenzene	740	U
91-20-3	Naphthalene	740	U
106-47-8	4-Chloroaniline	740	U
87-68-3	Hexachlorobutadiene	740	U
59-50-7	4-Chloro-3-Methylphenol	740	U
91-57-6	2-Methylnaphthalene	740	U
77-47-4	Hexachlorocyclopentadiene	740	U
88-06-2	2,4,6-Trichlorophenol	740	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	740	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethyl Phthalate	740	U
208-96-8	Acenaphthylene	740	U
606-20-2	2,6-Dinitrotoluene	740	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX015

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7777

Sample wt/vol: 30.3 (g/mL) G Lab File ID: EE7777

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/07/88

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 2.00

Number TICs found: 14

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.37	20000	ABJ
2. 110-12-3	2-HEXANONE, 5-METHYL-	4.67	1200	ABJ
3. 57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	7.02	860	BJ
4. 82-68-8	BENZENE, PENTACHLORONITRO-	18.74	8700	J
5.	UNKNOWN	19.69	1000	J
6. 57-10-3	HEXADECANOIC ACID	20.14	320	J
7.	METHYL PHENANTHRENE	20.25	360	JY
8. 203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	20.49	580	J
9.	UNKNOWN	20.79	480	J
10. 84-65-1	9,10-ANTHRACENEDIONE	20.99	450	J
11. 238-84-6	11H-BENZO[A]FLUORENE	23.50	400	J
12.	UNKNOWN	24.20	1000	BJ
13. 88-24-4	PHENOL, 2,2'-METHYLENEBIS[6-	25.72	1600	BJ
14. 205-82-3	BENZO[J]FLUORANTHENE	29.34	1100	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

527

EX016

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7778

Sample wt/vol: 30.5 (g/mL) G Lab File ID: EE7778

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 22 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
100-51-6	Benzyl Alcohol	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	bis(2-Chloroisopropyl)Ether	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-Di-n-Propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
65-85-0	Benzoic Acid	2000	U
111-91-1	bis(2-Chloroethoxy)Methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-Methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethyl Phthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

528

EX016

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7778

Sample wt/vol: 30.5 (g/mL) G Lab File ID: EE7778

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 22 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	420	U
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	420	U
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-Methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine (1)	420 ~~250~~	~~B~~ U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	420	U
120-12-7	Anthracene	420	U
84-74-2	Di-n-Butylphthalate	420	U
206-44-0	Fluoranthene	420	U
129-00-0	Pyrene	420	U
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	830	U
56-55-3	Benzo(a)Anthracene	420	U
218-01-9	Chrysene	420	U
117-81-7	bis(2-Ethylhexyl)Phthalate	420	~~B~~ U
117-84-0	Di-n-Octyl Phthalate	420	U
205-99-2	Benzo(b)Fluoranthene	420	U
207-08-9	Benzo(k)Fluoranthene	420	U
50-32-8	Benzo(a)Pyrene	420	U
193-39-5	Indeno(1,2,3-cd)Pyrene	420	U
53-70-3	Dibenz(a,h)Anthracene	420	U
191-24-2	Benzo(g,h,i)Perylene	420	U

(1) - Cannot be separated from Diphenylamine

AV 7-6-88

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. 529

EX016

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7778

Sample wt/vol: 30.5 (g/mL) G Lab File ID: EE7778

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 22 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.00

Number TICs found: 12

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-21-4	ACETIC ACID, 1-METHYLETHYL E	3.85	190	ABJ
2. 123-42-2	2-PENTANONE,4-HYDROXY-4-METH	4.35	15000	ABJ
3. 110-12-3	2-HEXANONE, 5-METHYL-	4.65	970	ABJ
4.	UNKNOWN	5.78	210	BJ
5. 57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	7.02	760	BJ
6. 57-10-3	HEXADECANOIC ACID	20.14	210	J
7.	UNKNOWN	22.39	290	BJ
8.	OCTADECENE	22.59	200	JYB
9.	UNKNOWN	24.14	2000	BJ
10.	UNKNOWN	24.30	340	J
11. 88-24-4	PHENOL, 2,2'-METHYLENEBIS[6-	25.61	1500	BJ
12.	UNKNOWN	26.26	710	BJ

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX017

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7779

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7779

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 15 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.2 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
100-51-6	Benzyl Alcohol	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	bis(2-Chloroisopropyl)Ether	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-Di-n-Propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
65-85-0	Benzoic Acid	1900	U
111-91-1	bis(2-Chloroethoxy)Methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-Methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	1900	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	1900	U
131-11-3	Dimethyl Phthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX017

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7779

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7779

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 15 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.2 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1900	U
83-32-9	Acenaphthene	390	U
51-28-5	2,4-Dinitrophenol	1900	U
100-02-7	4-Nitrophenol	1900	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	1900	U
534-52-1	4,6-Dinitro-2-Methylphenol	1900	U
86-30-6	N-Nitrosodiphenylamine (1)	390 ~~290~~	~~BJ~~ V
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	~~1900~~	~~U~~
85-01-8	Phenanthrene	110	J
120-12-7	Anthracene	390	U
84-74-2	Di-n-Butylphthalate	~~390~~	~~U~~
206-44-0	Fluoranthene	110	J
129-00-0	Pyrene	~~390~~	~~U~~
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	770	U
56-55-3	Benzo(a)Anthracene	~~390~~	~~U~~
218-01-9	Chrysene	140	J
117-81-7	bis(2-Ethylhexyl)Phthalate	390 ~~230~~	~~BJ~~ V
117-84-0	Di-n-Octyl Phthalate	390	U
205-99-2	Benzo(b)Fluoranthene	390	U
207-08-9	Benzo(k)Fluoranthene	390	U
50-32-8	Benzo(a)Pyrene	390	U
193-39-5	Indeno(1,2,3-cd)Pyrene	390	U
53-70-3	Dibenz(a,h)Anthracene	390	U
191-24-2	Benzo(g,h,i)Perylene	390	U

(1) - Cannot be separated from Diphenylamine

AV
7-6-88

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: EX017

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7779

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7779

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 15 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.2 Dilution Factor: 1.000

Number TICs found: 19

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-21-4	ACETIC ACID, 1-METHYLETHYL E	3.88	240	ABJ
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.40	15000	ABJ
3. 110-12-3	2-HEXANONE, 5-METHYL-	4.70	860	ABJ
4.	UNKNOWN	5.82	210	BJ
5. 57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	7.05	770	BJ
6.	UNKNOWN (SAT'D HYDROCARBON)	17.34	240	J
7.	UNKNOWN (SAT'D HYDROCARBON)	18.47	260	J
8.	UNKNOWN (SAT'D HYDROCARBON)	19.54	200	J
9.	UNKNOWN (SAT'D HYDROCARBON)	20.59	180	J
10.	UNKNOWN (SAT'D HYDROCARBON)	21.57	190	J
11.	UNKNOWN	22.40	220	BJ
12.	UNKNOWN	22.59	250	J
13.	UNKNOWN (SAT'D HYDROCARBON)	23.42	170	J
14.	UNKNOWN	24.15	1100	BJ
15.	UNKNOWN	24.32	290	BJ
16.	UNKNOWN	25.21	220	J
17. 88-24-4	PHENOL, 2,2'-METHYLENEBIS[6-	25.62	1300	BJ
18.	UNKNOWN	26.29	340	BJ
19.	UNKNOWN	29.79	220	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX018

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7780

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7780

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 18 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.4 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
100-51-6	Benzyl Alcohol	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	bis(2-Chloroisopropyl)Ether	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-Di-n-Propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
65-85-0	Benzoic Acid	1900	U
111-91-1	bis(2-Chloroethoxy)Methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1900	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1900	U
131-11-3	Dimethyl Phthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE 619

EX018

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7780

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7780

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 18 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.4 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1900	U
83-32-9	Acenaphthene	400	U
51-28-5	2,4-Dinitrophenol	1900	U
100-02-7	4-Nitrophenol	1900	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	1900	U
534-52-1	4,6-Dinitro-2-Methylphenol	1900	U
86-30-6	N-Nitrosodiphenylamine (1)	400 ~~380~~	~~BJ~~ U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1900	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
84-74-2	Di-n-Butylphthalate	400	U
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	800	U
56-55-3	Benzo(a)Anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)Phthalate	400 ~~340~~	~~BJ~~ U
117-84-0	Di-n-Octyl Phthalate	400	U
205-99-2	Benzo(b)Fluoranthene	400	U
207-08-9	Benzo(k)Fluoranthene	400	U
50-32-8	Benzo(a)Pyrene	400	U
193-39-5	Indeno(1,2,3-cd)Pyrene	400	U
53-70-3	Dibenz(a,h)Anthracene	400	U
191-24-2	Benzo(g,h,i)Perylene	400	U

(1) - Cannot be separated from Diphenylamine

AV 7-6-88

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX018

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7780

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7780

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 18 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.4 Dilution Factor: 1.000

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-21-4	ACETIC ACID, 1-METHYLETHYL E	3.90	310	ABJ
2. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.40	25000	ABJ
3. 110-12-3	2-HEXANONE, 5-METHYL-	4.68	1200	ABJ
4.	UNKNOWN	5.80	250	BJ
5. 57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	7.02	1200	BJ
6.	UNKNOWN	24.15	760	BJ
7. 88-24-4	PHENOL, 2,2'-METHYLENEBIS[6-	25.64	960	BJ
8.	UNKNOWN	26.29	180	BJ

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX019

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7781

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7781

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	750	U
111-44-4	bis(2-Chloroethyl)Ether	750	U
95-57-8	2-Chlorophenol	750	U
541-73-1	1,3-Dichlorobenzene	750	U
106-46-7	1,4-Dichlorobenzene	750	U
100-51-6	Benzyl Alcohol	750	U
95-50-1	1,2-Dichlorobenzene	750	U
95-48-7	2-Methylphenol	750	U
108-60-1	bis(2-Chloroisopropyl)Ether	750	U
106-44-5	4-Methylphenol	750	U
621-64-7	N-Nitroso-Di-n-Propylamine	750	U
67-72-1	Hexachloroethane	750	U
98-95-3	Nitrobenzene	750	U
78-59-1	Isophorone	750	U
88-75-5	2-Nitrophenol	750	U
105-67-9	2,4-Dimethylphenol	750	U
65-85-0	Benzoic Acid	3600	U
111-91-1	bis(2-Chloroethoxy)Methane	750	U
120-83-2	2,4-Dichlorophenol	750	U
120-82-1	1,2,4-Trichlorobenzene	750	U
91-20-3	Naphthalene	130	J
106-47-8	4-Chloroaniline	750	U
87-68-3	Hexachlorobutadiene	750	U
59-50-7	4-Chloro-3-Methylphenol	750	U
91-57-6	2-Methylnaphthalene	750	U
77-47-4	Hexachlorocyclopentadiene	750	U
88-06-2	2,4,6-Trichlorophenol	750	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	750	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethyl Phthalate	750	U
208-96-8	Acenaphthylene	610	J
606-20-2	2,6-Dinitrotoluene	750	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 650

EX019

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7781

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7781

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	~~3600~~	~~U~~
83-32-9	Acenaphthene	140	J
51-28-5	2,4-Dinitrophenol	~~3600~~	~~U~~
100-02-7	4-Nitrophenol	~~3600~~	~~U~~
132-64-9	Dibenzofuran	140	J
121-14-2	2,4-Dinitrotoluene	~~750~~	~~U~~
84-66-2	Diethylphthalate	750	U
7005-72-3	4-Chlorophenyl-phenylether	~~750~~	~~U~~
86-73-7	Fluorene	360	J
100-01-6	4-Nitroaniline	~~3600~~	~~U~~
534-52-1	4,6-Dinitro-2-Methylphenol	3600	U
86-30-6	N-Nitrosodiphenylamine (1)	750 ~~506~~	~~BJ~~ U
101-55-3	4-Bromophenyl-phenylether	750	U
118-74-1	Hexachlorobenzene	750	U
87-86-5	Pentachlorophenol	~~3600~~	~~U~~
85-01-8	Phenanthrene	2800	
120-12-7	Anthracene	940	
84-74-2	Di-n-Butylphthalate	750	U
206-44-0	Fluoranthene	5600	
129-00-0	Pyrene	3600	
85-68-7	Butylbenzylphthalate	750	U
91-94-1	3,3'-Dichlorobenzidine	~~1500~~	~~U~~
56-55-3	Benzo(a)Anthracene	2300	
218-01-9	Chrysene	3000	
117-81-7	bis(2-Ethylhexyl)Phthalate	750 ~~290~~	~~BJ~~ U
117-84-0	Di-n-Octyl Phthalate	750	U
205-99-2	Benzo(b)Fluoranthene	~~2100~~	
207-08-9	Benzo(k)Fluoranthene	2500	
50-32-8	Benzo(a)Pyrene	2100	
193-39-5	Indeno(1,2,3-cd)Pyrene	1300	
53-70-3	Dibenz(a,h)Anthracene	840	
191-24-2	Benzo(g,h,i)Perylene	1900	

(1) - Cannot be separated from Diphenylamine

AV 7-6-88

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX019

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7781

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7781

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 dec. ____ Date Extracted: 05/06/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 2.00

Number TICs found: 12

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.33	12000	ABJ
2. 110-12-3	2-HEXANONE, 5-METHYL-	4.65	670	ABJ
3. 57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	7.02	530	BJ
4. 203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	20.50	530	J
5. 238-84-6	11H-BENZO[A]FLUORENE	23.49	600	J
6.	UNKNOWN	24.15	550	BJ
7. 239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	25.14	380	J
8. 195-19-7	BENZO[C]PHENANTHRENE	25.31	370	J
9. 88-24-4	PHENOL, 2,2'-METHYLENEBIS[6-	25.62	400	BJ
10. 192-97-2	BENZO[E]PYRENE	29.14	530	J
11. 205-82-3	BENZO[J]FLUORANTHENE	29.64	1700	J
12.	UNKNOWN	33.92	340	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX019RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7781RP

Sample wt/vol: 30.1 (g/mL) G Lab File ID: EE7781RP

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 dec. ____ Date Extracted: 06/10/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/10/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	750	U
111-44-4	bis(2-Chloroethyl)Ether	750	U
95-57-8	2-Chlorophenol	750	U
541-73-1	1,3-Dichlorobenzene	750	U
106-46-7	1,4-Dichlorobenzene	750	U
100-51-6	Benzyl Alcohol	750	U
95-50-1	1,2-Dichlorobenzene	750	U
95-48-7	2-Methylphenol	750	U
108-60-1	bis(2-Chloroisopropyl)Ether	750	U
106-44-5	4-Methylphenol	750	U
621-64-7	N-Nitroso-Di-n-Propylamine	750	U
67-72-1	Hexachloroethane	750	U
98-95-3	Nitrobenzene	750	U
78-59-1	Isophorone	750	U
88-75-5	2-Nitrophenol	750	U
105-67-9	2,4-Dimethylphenol	750	U
65-85-0	Benzoic Acid	3600	U
111-91-1	bis(2-Chloroethoxy)Methane	750	U
120-83-2	2,4-Dichlorophenol	750	U
120-82-1	1,2,4-Trichlorobenzene	750	U
91-20-3	Naphthalene	270	J
106-47-8	4-Chloroaniline	750	U
87-68-3	Hexachlorobutadiene	750	U
59-50-7	4-Chloro-3-Methylphenol	750	U
91-57-6	2-Methylnaphthalene	130	J
77-47-4	Hexachlorocyclopentadiene	750	U
88-06-2	2,4,6-Trichlorophenol	750	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	750	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethyl Phthalate	750	U
208-96-8	Acenaphthylene	710	J
606-20-2	2,6-Dinitrotoluene	750	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX019RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7781RP

Sample wt/vol: 30.1 (g/mL) G Lab File ID: EE7781RP

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 dec. ____ Date Extracted: 06/10/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/10/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	230	J
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	410	J
121-14-2	2,4-Dinitrotoluene	750	U
84-66-2	Diethylphthalate	750	U
7005-72-3	4-Chlorophenyl-phenylether	750	U
86-73-7	Fluorene	910	
100-01-6	4-Nitroaniline	3600	U
534-52-1	4,6-Dinitro-2-Methylphenol	3600	U
86-30-6	N-Nitrosodiphenylamine (1)	750 ~~380~~	~~BJ~~ U
101-55-3	4-Bromophenyl-phenylether	750	U
118-74-1	Hexachlorobenzene	750	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	5600	
120-12-7	Anthracene	1600	
84-74-2	Di-n-Butylphthalate	750	U
206-44-0	Fluoranthene	8100	
129-00-0	Pyrene	6300	
85-68-7	Butylbenzylphthalate	750	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
56-55-3	Benzo(a)Anthracene	3400	
218-01-9	Chrysene	4300	
117-81-7	bis(2-Ethylhexyl)Phthalate	860	~~B~~ U
117-84-0	Di-n-Octyl Phthalate	750	U
205-99-2	Benzo(b)Fluoranthene	2600	
207-08-9	Benzo(k)Fluoranthene	3400	
50-32-8	Benzo(a)Pyrene	2800	
193-39-5	Indeno(1,2,3-cd)Pyrene	1900	
53-70-3	Dibenz(a,h)Anthracene	750	U
191-24-2	Benzo(g,h,i)Perylene	2500	

(1) - Cannot be separated from Diphenylamine

AV 7-6-88

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
EX019RE

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7781RP

Sample wt/vol: 30.1 (g/mL) G Lab File ID: EE7781RP

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 12 dec. ____ Date Extracted: 06/10/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/10/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 2.00

Number TICs found: 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.30	23000	ABJ
2.	110-12-3	2-HEXANONE, 5-METHYL-	4.58	710	ABJ
3.	57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	6.93	1000	BJ
4.	613-12-7	ANTHRACENE, 2-METHYL-	20.04	430	J
5.	610-48-0	ANTHRACENE, 1-METHYL-	20.10	410	J
6.	203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	20.35	1000	J
7.	3353-12-6	PYRENE, 4-METHYL-	23.34	1400	J
8.	238-84-6	11H-BENZO[A]FLUORENE	23.50	810	J
9.	2381-21-7	PYRENE, 1-METHYL-	23.62	710	J
10.	239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	25.02	660	J
11.	195-19-7	BENZO[C]PHENANTHRENE	25.11	660	J
12.	27208-37-3	CYCLOPENTA[CD]PYRENE	25.17	910	J
13.	192-97-2	BENZO[E]PYRENE	29.12	600	J
14.	205-82-3	BENZO[J]FLOURANTHENE	29.62	2300	J
15.		UNKNOWN	33.87	590	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EX020

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7784

Sample wt/vol: 30.1 (g/mL) G Lab File ID: EE7784

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 9 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/07/88

GPC Cleanup: (Y/N) N pH: 8.7 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	720	U
111-44-4	bis(2-Chloroethyl)Ether	720	U
95-57-8	2-Chlorophenol	720	U
541-73-1	1,3-Dichlorobenzene	720	U
106-46-7	1,4-Dichlorobenzene	720	U
100-51-6	Benzyl Alcohol	720	U
95-50-1	1,2-Dichlorobenzene	720	U
95-48-7	2-Methylphenol	720	U
108-60-1	bis(2-Chloroisopropyl)Ether	720	U
106-44-5	4-Methylphenol	720	U
621-64-7	N-Nitroso-Di-n-Propylamine	720	U
67-72-1	Hexachloroethane	720	U
98-95-3	Nitrobenzene	720	U
78-59-1	Isophorone	720	U
88-75-5	2-Nitrophenol	720	U
105-67-9	2,4-Dimethylphenol	720	U
65-85-0	Benzoic Acid	3500	U
111-91-1	bis(2-Chloroethoxy)Methane	720	U
120-83-2	2,4-Dichlorophenol	720	U
120-82-1	1,2,4-Trichlorobenzene	720	U
91-20-3	Naphthalene	87	J
106-47-8	4-Chloroaniline	720	U
87-68-3	Hexachlorobutadiene	720	U
59-50-7	4-Chloro-3-Methylphenol	720	U
91-57-6	2-Methylnaphthalene	720	U
77-47-4	Hexachlorocyclopentadiene	720	U
88-06-2	2,4,6-Trichlorophenol	720	U
95-95-4	2,4,5-Trichlorophenol	3500	U
91-58-7	2-Chloronaphthalene	720	U
88-74-4	2-Nitroaniline	3500	U
131-11-3	Dimethyl Phthalate	720	U
208-96-8	Acenaphthylene	170	J
606-20-2	2,6-Dinitrotoluene	720	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
EX020

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7784

Sample wt/vol: 30.1 (g/mL) G Lab File ID: EE7784

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 9 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/07/88

GPC Cleanup: (Y/N) N pH: 8.7 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3500	U
83-32-9	Acenaphthene	290	J
51-28-5	2,4-Dinitrophenol	3500	U
100-02-7	4-Nitrophenol	3500	U
132-64-9	Dibenzofuran	190	J
121-14-2	2,4-Dinitrotoluene	720	U
84-66-2	Diethylphthalate	720	U
7005-72-3	4-Chlorophenyl-phenylether	720	U
86-73-7	Fluorene	400	J
100-01-6	4-Nitroaniline	3500	U
534-52-1	4,6-Dinitro-2-Methylphenol	3500	U
86-30-6	N-Nitrosodiphenylamine (1)	820	~~B~~ U
101-55-3	4-Bromophenyl-phenylether	720	U
118-74-1	Hexachlorobenzene	720	U
87-86-5	Pentachlorophenol	3500	U
85-01-8	Phenanthrene	3200	
120-12-7	Anthracene	1000	
84-74-2	Di-n-Butylphthalate	720	U
206-44-0	Fluoranthene	4000	
129-00-0	Pyrene	4400	
85-68-7	Butylbenzylphthalate	720	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)Anthracene	2000	
218-01-9	Chrysene	2600	
117-81-7	bis(2-Ethylhexyl)Phthalate	720 ~~360~~	~~BJ~~ U
117-84-0	Di-n-Octyl Phthalate	720	U
205-99-2	Benzo(b)Fluoranthene	1800	
207-08-9	Benzo(k)Fluoranthene	1600	
50-32-8	Benzo(a)Pyrene	1600	
193-39-5	Indeno(1,2,3-cd)Pyrene	1000	
53-70-3	Dibenz(a,h)Anthracene	720	U
191-24-2	Benzo(g,h,i)Perylene	1200	

(1) - Cannot be separated from Diphenylamine

AV 7-6-88

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EX020

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7784

Sample wt/vol: 30.1 (g/mL) G Lab File ID: EE7784

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 9 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/07/88

GPC Cleanup: (Y/N) N pH: 8.7 Dilution Factor: 2.00

Number TICs found: 8

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.37	21000	ABJ
2. 110-12-3	2-HEXANONE, 5-METHYL-	4.67	1100	ABJ
3. 57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	7.03	820	BJ
4. 203-64-5	4H-CYCLOPENTA[DEF]PHENANTHRE	20.49	550	J
5. 238-84-6	11H-BENZO[A]FLUORENE	23.49	530	J
6.	UNKNOWN	24.19	460	BJ
7. 88-24-4	PHENOL, 2,2'-METHYLENEBIS[6-	25.72	1600	BJ
8. 205-82-3	BENZO[J]FLUORANTHENE	29.96	1500	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 901

EX021

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7785

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7785

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 26 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	440	U
111-44-4	bis(2-Chloroethyl)Ether	440	U
95-57-8	2-Chlorophenol	440	U
541-73-1	1,3-Dichlorobenzene	440	U
106-46-7	1,4-Dichlorobenzene	440	U
100-51-6	Benzyl Alcohol	440	U
95-50-1	1,2-Dichlorobenzene	440	U
95-48-7	2-Methylphenol	440	U
108-60-1	bis(2-Chloroisopropyl)Ether	440	U
106-44-5	4-Methylphenol	440	U
621-64-7	N-Nitroso-Di-n-Propylamine	440	U
67-72-1	Hexachloroethane	440	U
98-95-3	Nitrobenzene	440	U
78-59-1	Isophorone	440	U
88-75-5	2-Nitrophenol	440	U
105-67-9	2,4-Dimethylphenol	440	U
65-85-0	Benzoic Acid	2100	U
111-91-1	bis(2-Chloroethoxy)Methane	440	U
120-83-2	2,4-Dichlorophenol	440	U
120-82-1	1,2,4-Trichlorobenzene	440	U
91-20-3	Naphthalene	440	U
106-47-8	4-Chloroaniline	440	U
87-68-3	Hexachlorobutadiene	440	U
59-50-7	4-Chloro-3-Methylphenol	440	U
91-57-6	2-Methylnaphthalene	440	U
77-47-4	Hexachlorocyclopentadiene	440	U
88-06-2	2,4,6-Trichlorophenol	440	U
95-95-4	2,4,5-Trichlorophenol	2100	U
91-58-7	2-Chloronaphthalene	440	U
88-74-4	2-Nitroaniline	2100	U
131-11-3	Dimethyl Phthalate	440	U
208-96-8	Acenaphthylene	440	U
606-20-2	2,6-Dinitrotoluene	440	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 902

EX021

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7785

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7785

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 26 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2100	U
83-32-9	Acenaphthene	440	U
51-28-5	2,4-Dinitrophenol	2100	U
100-02-7	4-Nitrophenol	2100	U
132-64-9	Dibenzofuran	440	U
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
86-73-7	Fluorene	440	U
100-01-6	4-Nitroaniline	2100	U
534-52-1	4,6-Dinitro-2-Methylphenol	2100	U
86-30-6	N-Nitrosodiphenylamine (1)	440 ~~280~~	~~BJ~~ U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	440	U
87-86-5	Pentachlorophenol	2100	U
85-01-8	Phenanthrene	440	U
120-12-7	Anthracene	76	J
84-74-2	Di-n-Butylphthalate	440	U
206-44-0	Fluoranthene	440	U
129-00-0	Pyrene	440	U
85-68-7	Butylbenzylphthalate	440	U
91-94-1	3,3'-Dichlorobenzidine	890	U
56-55-3	Benzo(a)Anthracene	440	U
218-01-9	Chrysene	440	U
117-81-7	bis(2-Ethylhexyl)Phthalate	440 ~~310~~	~~BJ~~ U
117-84-0	Di-n-Octyl Phthalate	440	U
205-99-2	Benzo(b)Fluoranthene	440	U
207-08-9	Benzo(k)Fluoranthene	440	U
50-32-8	Benzo(a)Pyrene	440	U
193-39-5	Indeno(1,2,3-cd)Pyrene	440	U
53-70-3	Dibenz(a,h)Anthracene	440	U
191-24-2	Benzo(g,h,i)Perylene	440	U

(1) - Cannot be separated from Diphenylamine

AV 7-6-88

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: EX021

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7468

Lab Code: IT-STU Case No.: 9469 SAS No.: _____ SDG No.: EX014

Matrix: (soil/water) SOIL Lab Sample ID: EE7785

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EE7785

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 26 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/06/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 1.000

Number TICs found: 17

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	108-21-4	ACETIC ACID, 1-METHYLETHYL E	3.85	400	ABJ
2.	123-42-2	2-PENTANONE, 4-HYDROXY-4-MET	4.37	28000	ABJ
3.	110-12-3	2-HEXANONE, 5-METHYL-	4.65	1300	ABJ
4.		UNKNOWN	5.78	310	BJ
5.	57-15-8	2-PROPANOL, 1,1,1-TRICHLORO-	7.02	1200	BJ
6.	4655-34-9	2-PROPENOIC ACID, 2-METHYL-,	12.39	300	J
7.	502-69-2	2-PENTADECANONE, 6,10,14-TRI	19.00	200	J
8.	57-10-3	HEXADECANOIC ACID	20.14	300	J
9.		UNKNOWN	24.15	1000	BJ
10.	88-24-4	PHENOL, 2,2'-METHYLENEBIS[6-	25.62	580	BJ
11.		UNKNOWN	27.12	180	J
12.	36237-66-8	6,10,14-HEXADECATRIEN-1-OL,	28.26	260	J
13.		UNKNOWN (SAT'D HYDROCARBON)	28.72	930	J
14.		UNKNOWN (SAT'D HYDROCARBON)	30.57	1700	J
15.	58-95-7	VITAMIN E ACETATE (VAN)	31.49	230	J
16.		UNKNOWN (SAT'D HYDROCARBON)	32.86	780	J
17.		UNKNOWN	34.77	210	J

[illegible] SHEET

1265

Lab Name: ITAS-KNOXVILLE Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: _____ SDG No.: [illegible]

Matrix: (soil/water) SOIL Lab Sample ID: [illegible]

Sample Wt/Vol: [illegible] g/mL G Lab File ID: _____

Level: (low/med) LOW Date Received: [illegible]

% Moisture: not dec. 17 dec. ____ Date Extracted: [illegible]

Extraction: (Sep/Cont Sonc) SONC Date Analyzed: [illegible]

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) UG/KG	Q
[illegible]	alpha-BHC	[illegible]	U
[illegible]	beta-BHC	[illegible]	U
[illegible]	delta-BHC	[illegible]	U
[illegible]	gamma-BHC (Lindane)	[illegible]	U
[illegible]	Heptachlor	[illegible]	U
[illegible]	Aldrin	[illegible]	U
[illegible]	Heptachlor epoxide	[illegible]	U
[illegible]	Endosulfan I	[illegible]	U
[illegible]	Dieldrin	[illegible]	← 26Z6K
[illegible]	4,4'-DDE	[illegible]	U
[illegible]	Endrin	[illegible]	U
[illegible]	Endosulfan II	[illegible]	U
[illegible]	4,4'-DDD	[illegible]	U
[illegible]	Endosulfan sulfate	[illegible]	U
[illegible]	4,4'-DDT	[illegible]	U
[illegible]	Methoxychlor	[illegible]	U
[illegible]	Endrin ketone	[illegible]	U
[illegible]	alpha-Chlordane	[illegible]	U
[illegible]	gamma-Chlordane	[illegible]	U
[illegible]	Toxaphene	[illegible]	U
[illegible]	Aroclor-1016	[illegible]	U
[illegible]	Aroclor-1221	[illegible]	U
[illegible]	Aroclor-1232	[illegible]	U
[illegible]	Aroclor-1242	[illegible]	U
[illegible]	Aroclor-1248	[illegible]	U
[illegible]	Aroclor-1254	[illegible]	U
[illegible]	Aroclor-1260	[illegible]	U

[illegible]

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: _____ SDG No.: [illegible]

Matrix (soil/water): SOIL Lab Sample ID: [illegible]

Sample wt/vol: [illegible] g/mL g Lab File ID: _____

Level: (low/med) LOW Date Received: [illegible]

% Moisture: not dec. [illegible] dec. _____ Date Extracted: [illegible]

Extraction: (SonT/Cont/Sep/Other) SONC Date Analyzed: [illegible]

GPC Cleanup: (Y/N) N pH: [illegible] Dilution Factor: [illegible]

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
[illegible]	alpha-BHC	[illegible]	U
[illegible]	beta-BHC	[illegible]	U
[illegible]	delta-BHC	[illegible]	U
[illegible]	gamma-BHC (Lindane)	[illegible]	U
[illegible]	Heptachlor	[illegible]	U
[illegible]	Aldrin	[illegible]	U
[illegible]	Heptachlor epoxide	[illegible]	U
[illegible]	Endosulfan I	[illegible]	U
[illegible]	Dieldrin	[illegible]	U
[illegible]	4,4'-DDE	[illegible]	U
[illegible]	Endrin	[illegible]	U
[illegible]	Endosulfan II	[illegible]	U
[illegible]	4,4'-DDD	[illegible]	U
[illegible]	Endosulfan sulfate	[illegible]	U
[illegible]	4,4'-DDT	[illegible]	U
[illegible]	Methoxychlor	[illegible]	U
[illegible]	Endrin ketone	[illegible]	U
[illegible]	alpha-Chlordane	[illegible]	U
[illegible]	gamma-Chlordane	[illegible]	U
[illegible]	Toxaphene	[illegible]	U
[illegible]	Aroclor-1016	[illegible]	U
[illegible]	Aroclor-1221	[illegible]	U
[illegible]	Aroclor-1232	[illegible]	U
[illegible]	Aroclor-1242	[illegible]	U
[illegible]	Aroclor-1248	[illegible]	U
[illegible]	Aroclor-1254	[illegible]	U
[illegible]	Aroclor-1260	[illegible]	U

23DJ
ZK
7/20/88

[illegible] ORGANIC ANALYSIS DATA SHEET

Lab Name: [illegible]VILLE Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: [illegible] SDG No.: [illegible]

[illegible] (Soil/Water) SOIL Lab Sample ID: [illegible]

Sample Wt. [illegible] [illegible] Lab File ID: [illegible]

Level: [illegible] LOW Date Received: [illegible]

[illegible] Date Extracted: [illegible]

[illegible] Date Analyzed: [illegible]

GPC Cleanup: N [illegible] pH: [illegible] Dilution Factor: [illegible]

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
[illegible]	alpha-BHC	1800	U
[illegible]	beta-BHC	1800	U
[illegible]	delta-BHC	1800	U
[illegible]	gamma-BHC (Lindane)	1800	U
[illegible]	Heptachlor	1800	U
[illegible]	Aldrin	1800	U
[illegible]	Heptachlor epoxide	1800	U
[illegible]	Endosulfan I	1800	U
[illegible]	Dieldrin	3600	U
[illegible]	4,4'-DDE	3600	U
[illegible]	Endrin	3600	U
[illegible]	Endosulfan II	3600	U
[illegible]	4,4'-DDD	3600	U
[illegible]	Endosulfan sulfate	3600	U
[illegible]	4,4'-DDT	3600	U
72-43-5	Methoxychlor	18000	U
[illegible]	Endrin ketone	3600	U
[illegible]	alpha-Chlordane	18000	U
[illegible]	gamma-Chlordane	18000	U
[illegible]	Toxaphene	36000	U
12674-11-2	Aroclor-1016	18000	U
[illegible]	Aroclor-1221	18000	U
[illegible]	Aroclor-1232	18000	U
[illegible]	Aroclor-1242	18000	U
[illegible]	Aroclor-1248	18000	U
[illegible]	Aroclor-1254	36000	U
[illegible]	Aroclor-1260	36000	U

[illegible]

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: _____ SDG No.: [illegible]

Matrix (soil/water): SOIL Lab Sample ID: [illegible]

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: [illegible]

% Moisture: not dec. 12 dec. _____ Date Extracted: [illegible]

Extraction: (Sep/Cont/Sonc) SONC Date Analyzed: [illegible]

GPC Cleanup: (Y/N) Y pH: 8.2 Dilution Factor: 2000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) UG/KG	Q
319-84-6	alpha-BHC	18000	U
319-85-7	beta-BHC	18000	U
319-86-8	delta-BHC	18000	U
58-89-9	gamma-BHC (Lindane)	18000	U
76-44-8	Heptachlor	18000	U
309-00-2	Aldrin	18000	U
1024-57-3	Heptachlor epoxide	18000	U
959-98-8	Endosulfan I	18000	U
60-57-1	Dieldrin	36000	U
72-55-9	4,4'-DDE	36000	U
72-20-8	Endrin	36000	U
33213-65-9	Endosulfan II	36000	U
72-54-8	4,4'-DDD	36000	U
1031-07-8	Endosulfan sulfate	36000	U
50-29-3	4,4'-DDT	36000	U
72-43-5	Methoxychlor	180000	U
53494-70-5	Endrin ketone	36000	U
5103-71-9	alpha-Chlordane	180000	U
5103-74-2	gamma-Chlordane	180000	U
8001-35-2	Toxaphene	360000	U
12674-11-2	Aroclor-1016	180000	U
11104-28-2	Aroclor-1221	180000	U
11141-16-5	Aroclor-1232	180000	U
53469-21-9	Aroclor-1242	180000	U
12672-29-6	Aroclor-1248	180000	U
11097-69-1	Aroclor-1254	360000	U
11096-82-5	Aroclor-1260	360000	U

✓

[illegible]

[illegible] NOVILLE [illegible]

[illegible] Case No.: [illegible] [illegible]

[illegible] SOIL [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible]	COMPOUND	CONCENTRATION UNITS: [illegible]	[illegible]
[illegible]	alpha-BHC	[illegible]	U
[illegible]	beta-BHC	[illegible]	U
[illegible]	delta-BHC	[illegible]	U
[illegible]	gamma-BHC (Lindane)	[illegible]	U
[illegible]	Heptachlor	[illegible]	U
[illegible]	Aldrin	[illegible]	U
[illegible]	Heptachlor epoxide	[illegible]	U
[illegible]	Endosulfan I	[illegible]	U
[illegible]	Dieldrin	[illegible]	U
[illegible]	4,4'-DDE	[illegible]	U
[illegible]	Endrin	[illegible]	U
[illegible]	Endosulfan II	[illegible]	U
[illegible]	4,4'-DDD	[illegible]	U
[illegible]	Endosulfan sulfate	[illegible]	U
[illegible]	4,4'-DDT	[illegible]	U
[illegible]	Methoxychlor	[illegible]	U
[illegible]	Endrin ketone	[illegible]	U
[illegible]	alpha-Chlordane	[illegible]	U
[illegible]	gamma-Chlordane	[illegible]	U
[illegible]	Toxaphene	[illegible]	U
[illegible]	Aroclor-1016	[illegible]	U
[illegible]	Aroclor-1221	[illegible]	U
[illegible]	Aroclor-1232	[illegible]	U
[illegible]	Aroclor-1242	[illegible]	U
[illegible]	Aroclor-1248	[illegible]	U
[illegible]	Aroclor-1254	[illegible]	U
[illegible]	Aroclor-1260	[illegible]	U

Case No.: [illegible]

CAS NO.	COMPOUND		Q
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	beta-BHC	[illegible]	[illegible]
[illegible]	delta-BHC	[illegible]	[illegible]
[illegible]	gamma-BHC (Lindane)	[illegible]	[illegible]
[illegible]	Heptachlor	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	Heptachlor epoxide	[illegible]	[illegible]
[illegible]	Endosulfan I	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	Endosulfan II	[illegible]	[illegible]
[illegible]	4,4'-DDD	[illegible]	[illegible]
[illegible]	Endosulfan sulfate	[illegible]	[illegible]
[illegible]	4,4'-DDT	[illegible]	[illegible]
[illegible]	Methoxychlor	[illegible]	[illegible]
[illegible]	Endrin ketone	100	[illegible]
[illegible]	alpha-Chlordane	[illegible]	[illegible]
[illegible]	gamma-Chlordane	[illegible]	[illegible]
[illegible]	Toxaphene	[illegible]	[illegible]
[illegible]	Aroclor-1016	[illegible]	[illegible]
[illegible]	Aroclor-1221	[illegible]	[illegible]
[illegible]	Aroclor-1232	1000	[illegible]
[illegible]	Aroclor-1242	[illegible]	[illegible]
[illegible]	Aroclor-1248	[illegible]	[illegible]
[illegible]	Aroclor-1254	[illegible]	[illegible]
[illegible]	Aroclor-1260	2000	[illegible]

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: _____ SDG No.: [illegible]

Matrix: (Soil/Water) SOIL Lab Sample ID: [illegible]

Sample wt/vol: [illegible] g/ml g Lab File ID: _____

Level: (Low/Med) LOW Date Received: [illegible]

% Moisture: Decanted: (Y/N) N Date Extracted: [illegible]

Extraction: (Sep.F/Cont/Sonc) SONC Date Analyzed: [illegible]

GPC Cleanup: (Y/N) N pH: 6.1 Dilution Factor: [illegible]

CAS No.	Compound	CONCENTRATION UNITS (ug/L or ug/kg) UG/KG	Q
319-84-6	alpha-BHC	[illegible]	U
319-85-7	beta-BHC	[illegible]	U
319-86-8	delta-BHC	[illegible]	U
58-89-9	gamma-BHC (Lindane)	[illegible]	U
76-44-8	Heptachlor	[illegible]	U
309-00-2	Aldrin	[illegible]	U
1024-57-3	Heptachlor epoxide	[illegible]	U
959-98-8	Endosulfan I	[illegible]	U
60-57-1	Dieldrin	[illegible]	U
72-55-9	4,4'-DDE	[illegible]	U
72-20-8	Endrin	[illegible]	U
33213-65-9	Endosulfan II	[illegible]	U
72-54-8	4,4'-DDD	[illegible]	U
1031-07-8	Endosulfan sulfate	[illegible]	U
50-29-3	4,4'-DDT	[illegible]	U
72-43-5	Methoxychlor	[illegible]	U
53494-70-5	Endrin ketone	[illegible]	U
5103-71-9	alpha-Chlordane	[illegible]	U
5103-74-2	gamma-Chlordane	[illegible]	U
8001-35-2	Toxaphene	[illegible]	U
12674-11-2	Aroclor-1016	[illegible]	U
11104-28-2	Aroclor-1221	[illegible]	U
11141-16-5	Aroclor-1232	[illegible]	U
53469-21-9	Aroclor-1242	[illegible]	U
12672-29-6	Aroclor-1248	[illegible]	U
11097-69-1	Aroclor-1254	[illegible]	U
11096-82-5	Aroclor-1260	[illegible]	U

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EX01TDL

Lab Name: [illegible]-KNOXVILLE Contract: [illegible]

Lab Code: [illegible] Case No.: 9469 SAS No.: _____ SDG No.: [illegible]

Matrix: (soil/water) SOIL Lab Sample ID: [illegible]

Sample Wt/Vol: 20.2 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 04/29/[illegible]

% Moisture: not dec. 15 dec. ____ Date Extracted: 05/06/[illegible]

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/07/[illegible]

GPC Cleanup: (Y/N) N pH: 8.2 Dilution Factor: 10.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	93	U
319-85-7	beta-BHC	93	U
319-86-8	delta-BHC	9.3	~~U~~ JU
58-89-9	gamma-BHC (Lindane)	93	U
76-44-8	Heptachlor	93	U
309-00-2	Aldrin	93	U
1024-57-3	Heptachlor epoxide	93	U
959-98-8	Endosulfan I	93	U
60-57-1	Dieldrin	190	U
72-55-9	4,4'-DDE	190	U
72-20-8	Endrin	190	U
33213-65-9	Endosulfan II	190	U
72-54-8	4,4'-DDD	190	U
1031-07-8	Endosulfan sulfate	190	U
50-29-3	4,4'-DDT	190	U
72-43-5	Methoxychlor	930	U
53494-70-5	Endrin ketone	190	U
5103-71-9	alpha-Chlordane	930	U
5103-74-2	gamma-Chlordane	930	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	930	U
11104-28-2	Aroclor-1221	93	~~U~~ JU
11141-16-5	Aroclor-1232	930	U
53469-21-9	Aroclor-1242	930	U
12672-29-6	Aroclor-1248	930	U
11097-69-1	Aroclor-1254	1900	U
11096-82-5	Aroclor-1260	1900	U

1313

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EN011

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7463

Lab Code: 17-STU Case No.: 9463 SAS No.: _____ SDG No.: EN014

Matrix: (soil/water) SOIL Lab Sample ID: EE7780-1

Sample wt./vol: 30.2 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 04/29/88

% Moisture: not dec. 13 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/07/88

GPC Cleanup: (Y/N) N pH: 8.4 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	9.7	U
319-85-7	beta-BHC	39	U
319-86-8	delta-BHC	9.7	U
58-89-9	gamma-BHC (Lindane)	9.7	U
76-44-8	heptachlor	9.7	U
309-00-2	Aldrin	9.7	U
1024-57-3	Heptachlor epoxide	9.7	U
959-98-8	Endosulfan I	9.7	U
60-57-1	Dieldrin	19	U
72-55-9	4,4'-DDE	19	U
72-20-8	Endrin	19	U
33213-65-9	Endosulfan II	19	U
72-54-8	4,4'-DDD	19	U
1031-07-8	Endosulfan sulfate	19	U
50-29-3	4,4'-DDT	19	U
72-43-5	Methoxychlor	97	U
53494-70-5	Endrin ketone	19	U
5103-71-9	alpha-Chlordane	97	U
5103-74-2	gamma-Chlordane	97	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	97	U
11104-28-2	Aroclor-1221	~~97~~	~~U~~
11141-16-5	Aroclor-1232	97	U
53469-21-9	Aroclor-1242	97	U
12672-29-6	Aroclor-1248	97	U
11097-69-1	Aroclor-1254	190	U
11096-82-5	Aroclor-1260	190	U

II
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E[illegible]

Lab Name: [illegible]-KNOXVILLE Contract: [illegible]

Lab Code: [illegible] Case No.: 94[illegible] SAS No.: _____ SDG No.: [illegible]

Matrix: (soil/water) SOIL Lab Sample ID: [illegible]

Sample wt/vol: [illegible] (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 04/29/88

Moisture: not dec. 18 dec. ____ Date Extracted: 05/[illegible]/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/07/88

GPC Clean-up: (Y/N) N pH: 8.4 Dilution Factor: 10.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-[illegible]-6	alpha-BHC	97	U
319-[illegible]-7	beta-BHC	42	JU
319-[illegible]-8	delta-BHC	97	U
58-[illegible]-9	gamma-BHC (Lindane)	97	U
[illegible]-44-8	Heptachlor	97	U
[illegible]-[illegible]-2	Aldrin	97	U
[illegible]-[illegible]-[illegible]	Heptachlor epoxide	97	U
[illegible]-[illegible]-[illegible]	Endosulfan I	97	U
[illegible]-[illegible]-1	Dieldrin	190	U
[illegible]-[illegible]-9	4,4'-DDE	190	U
[illegible]-[illegible]-[illegible]	Endrin	190	U
[illegible]-[illegible]-9	Endosulfan II	190	U
[illegible]-[illegible]-8	4,4'-DDD	190	U
[illegible]-[illegible]-8	Endosulfan sulfate	190	U
[illegible]-[illegible]-[illegible]	4,4'-DDT	190	U
[illegible]-[illegible]-[illegible]	Methoxychlor	970	U
[illegible]-70-5	Endrin ketone	190	U
5103-71-9	alpha-Chlordane	970	U
5103-74-2	gamma-Chlordane	970	U
8001-[illegible]-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	970	U
11104-28-2	Aroclor-1221	97	JU
11141-16-5	Aroclor-1232	970	U
[illegible]-11-9	Aroclor-1242	970	U
12672-29-6	Aroclor-1248	970	U
11097-69-1	Aroclor-1254	1900	U
11096-[illegible]-[illegible]	Aroclor-1260	1900	U

II

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE 1325

E 019

Lab Name: [illegible]-KNOXVILLE Contract: 68-01-[illegible]

Lab Code: [illegible]-STU Case No.: 9469 SAS No.: _____ SDG No.: [illegible]

Matrix: (soil/water) SOIL Lab Sample ID: [illegible]

Sample Wt/Vol: [illegible].2 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 04/29/88

Moisture: not dec. 12 dec. ____ Date Extracted: [illegible]/06/88

Extraction: (Sep-F/Cont/Sonc) SONC Date Analyzed: 06/09/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 5.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) UG/KG	Q
319-[illegible]-6	alpha-BHC	45	U
319-[illegible]-7	beta-BHC	45	U
319-[illegible]-8	delta-BHC	45	U
58-[illegible]-9	gamma-BHC (Lindane)	45	U
76-44-3	Heptachlor	45	U
309-[illegible]-2	Aldrin	45	U
1024-[illegible]-3	Heptachlor epoxide	45	U
[illegible]-8	Endosulfan I	45	U
[illegible]	Dieldrin	90	U
72-[illegible]-9	4,4'-DDE	90	U
72-[illegible]-8	Endrin	90	U
33213-65-9	Endosulfan II	90	U
72-[illegible]-8	4,4'-DDD	90	U
1031-07-8	Endosulfan sulfate	90	U
50-[illegible]-3	4,4'-DDT	90	U
72-43-3	Methoxychlor	450	U
53494-70-5	Endrin ketone	90	U
5103-71-9	alpha-Chlordane	450	U
5103-74-2	gamma-Chlordane	450	U
8001-35-2	Toxaphene	900	U
12674-11-2	Aroclor-1016	450	U
11104-28-2	Aroclor-1221	450	U
11141-16-5	Aroclor-1232	450	U
53469-21-9	Aroclor-1242	450	U
12672-29-6	Aroclor-1248	450	U
11097-69-1	Aroclor-1254	900	U
11096-82-5	Aroclor-1260	900	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1331

Lab Name: ITAS-KNOXVILLE Contract: 68-01-7463

Lab Code: IT-STU Case No.: 9463 SAS No.: _____ SDG No.: Z 014

Matrix: (soil/water) SOIL Lab Sample ID: EE77548T-1

Sample Wt/Vol: 30.1 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 04/29/88

Moisture: not dec. 9 dec. ____ Date Extracted: 05/09/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/17/88

GPC Cleanup: (Y/N) N pH: 8.7 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.8	U
319-85-7	beta-BHC	45	U
319-86-8	delta-BHC	8.8	U
58-89-9	gamma-BHC (Lindane)	8.8	U
76-44-8	Heptachlor	11	
309-00-2	Aldrin	8.8	U
1024-57-3	Heptachlor epoxide	8.8	U
959-98-8	Endosulfan I	8.8	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
1031-07-8	Endosulfan sulfate	18	U
50-29-3	4,4'-DDT	18	U
72-43-5	Methoxychlor	88	U
53494-70-5	Endrin ketone	18	U
5103-71-9	alpha-Chlordane	88	U
5103-74-2	gamma-Chlordane	88	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	88	U
11104-28-2	Aroclor-1221	88	U
11141-16-5	Aroclor-1232	88	U
53469-21-9	Aroclor-1242	88	U
12672-29-6	Aroclor-1248	88	U
11097-69-1	Aroclor-1254	180	U
11096-82-5	Aroclor-1260	180	U

"EGK 7/20/8

[illegible]

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: [illegible] SDG No.: [illegible]

Matrix: (soil/water) SOIL Lab Sample ID: [illegible]

Sample wt/vol: [illegible] g/ml (g/ml) G Lab File ID: [illegible]

Level: (low/med) LOW Date Received: [illegible]

% Moisture: not dec. [illegible] dec. [illegible] Date Extracted: [illegible]

Extraction: (Sep/Cont/Sonc) SONC Date Analyzed: [illegible]

GPC Cleanup: (Y/N) N pH: [illegible] Dilution Factor: [illegible]

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
[illegible]	[illegible]-BHC	[illegible]	[illegible]
[illegible]	beta-BHC	[illegible]	JU
[illegible]	delta-BHC	[illegible]	U
[illegible]	gamma-BHC (Lindane)	[illegible]	U
[illegible]	Heptachlor	[illegible]	DJ
[illegible]	Aldrin	[illegible]	[illegible]
[illegible]	Heptachlor epoxide	[illegible]	U
[illegible]	Endosulfan I	[illegible]	U
[illegible]	Dieldrin	130	U
[illegible]	4,4'-DDE	100	U
[illegible]	Endrin	180	U
[illegible]	Endosulfan II	180	U
[illegible]	4,4'-DDD	180	U
[illegible]	Endosulfan sulfate	180	U
[illegible]	4,4'-DDT	180	U
[illegible]	Methoxychlor	880	U
[illegible]	Endrin ketone	180	U
5103-71-9	alpha-Chlordane	880	U
5103-74-2	gamma-Chlordane	880	U
8001-35-2	Toxaphene	1800	U
12674-11-2	Aroclor-1016	880	U
11104-28-2	Aroclor-1221	880	U
11141-16-5	Aroclor-1232	880	U
53469-21-9	Aroclor-1242	880	U
12672-29-6	Aroclor-1248	880	U
11097-69-1	Aroclor-1254	1800	U
11096-82-5	Aroclor-1260	1800	U

Lab Name: [illegible] Contract: [illegible]

Lab Code: [illegible] Case No.: [illegible] SAS No.: ____ SDG No.: ____

Matrix (soil/water): SOIL Lab Sample ID: [illegible]

Sample wt/vol: [illegible] g/mL g Lab File ID: ____

% Moisture: [illegible] Date Received: [illegible]

Extraction: [illegible] Date Extracted: [illegible]

Concentration: [illegible] Date Analyzed: [illegible]

GPC Cleanup: [illegible] pH: 7.6 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/g dry weight)	Q
319-84-6	alpha-BHC	[illegible]	[illegible]
319-85-7	beta-BHC	[illegible]	[illegible]
319-86-8	delta-BHC	[illegible]	[illegible]
58-89-9	gamma-BHC (Lindane)	[illegible]	[illegible]
76-44-8	Heptachlor	[illegible]	[illegible]
309-00-2	Aldrin	[illegible]	[illegible]
1024-57-3	Heptachlor epoxide	[illegible]	[illegible]
959-98-8	Endosulfan I	[illegible]	[illegible]
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
1031-07-8	Endosulfan sulfate	18	U
50-29-3	4,4'-DDT	18	U
72-43-5	Methoxychlor	93	U
53494-70-5	Endrin ketone	18	U
5103-71-9	alpha-Chlordane	18	U
5103-74-2	gamma-Chlordane	93	U
8001-35-2	Toxaphene	1800	U
12674-11-2	Aroclor-1016	93	U
11104-28-2	Aroclor-1221	93	U
11141-16-5	Aroclor-1232	93	U
53469-21-9	Aroclor-1242	93	U
12672-29-6	Aroclor-1248	93	U
11097-69-1	Aroclor-1254	190	U
11096-82-5	Aroclor-1260	190	U

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

CRL Receipt Date 6/6/88 FIT Receipt Date 6/15/88 Review Completed 6/21/88

TO: D. Kolb
FROM: Mary Gzyra
SUBJECT: MARBLE CLIFF QUARRIES
PAN: 040027SA (1 hour charged for review) Case # 9469

Sample Description

Organics (VOA, ABN, Pest/PCB)		Inorganics (Metals, Cyanide)	
# _____	Low Soil	# 8	Low Soil
_____	Low Water	_____	Low Water
_____	Drinking Water	_____	Drinking Water
_____	Other	_____	Other

Project Data Status _____ Completed!!

✓ Incomplete, awaiting low soil organics

FIT Data Review Findings:

Check Data Sheets for Transcription Errors

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

Book No. 8 Page No. 48/50 Date Sampled 4/28/88

0759:2

recycled paper

Table 4- Cont.

Sample Collection Information and Parameters	Sample Number											
	>_1	>_2	>_3	>_4	>_5	>_6	>_7	>_8	>_9	>_10	>_11	>_12
Pesticides/PCBs Cont.												
Aroclor 1232												
Aroclor 1242												
Aroclor 1248												
Aroclor 1254												
Aroclor 1260												
Analyte Detected (values in ug/ (ppb))	UEX 218	219	220	221	222	223	224	225				
aluzinum	4700 J*	8040 J*	1240 J*	1160 J*	859 J*	9510 J*	10100 J*	13600 J*				
antimony												
arsenic	11.9	8.9 B	23 +B	3.8	1.5 B	16.4 +	8.9	16.3 +				
barium	116	105	630	494	233	303	163	175				
beryllium		.77 B				1.5	1.1	1.9				
cadmium						3.5 J*						
calcium	198000 J*	70400 J*	234000 J*	245000 J*	259000 J*	20600 J*	78800 J*	3440 J*				
chromium	10.5 J*	30.2 J*	6.6 J*	8.2 J*	6.1 J*	22.9 J*	16.5 J*	17.5 J*				
cobalt	7.7 B	11.6				33.4	12.5	12.4 B				
copper	86.6 JEN*	20.4 JEN*	6.2 JEN*	14.3 JEN*		119 JEN*	21.2 JEN*	5.9 JBEN*				
iron	14100 J*	20400 J*	2710 J*	3720 J*	2330 J*	31700 J*	29300 J*	22800 J*				
lead	20.9 *	198 *	27 *	3.5 *	1.4 *	36 *	19 *	26.4 *				
magnesium	13300	23600	77700	67200	74400	13700	22500	2650				
manganese	427 *	345 *	91 *	156 *	98.2 *	1860 *	978 *	1480 *				
mercury						6.14						
nickel	15.8 J*	23.3 J*		12.8 J*	10.3 J*	65.8 J*	37.6 J*	26.1 J*				
potassium		982 B				1420	1420	1480				
selenium												
silver												
sodium	115 B	91.4 B	113 B	123 B	94.1 B	150 B	117 B	74.1 B				
thallium												
vanadium	19.2	28.2	9 B	9.4 B	8.1 B	36.5	33.7	38.4				
zinc	82.1 JN*	105 JN*	55.1 JN*	50.3 JN*	45.1 JN*	645 JN*	130 JN*	90.6 JN*				
cyanide												

-- Not detected.

The qualifier "*" does not affect the data for lead + zinc.
M Fitz

COMPOUND FOOTNOTES	DEFINITION	INTERPRETATION
U	Indicates compound was analyzed for but not detected.	Compound was not detected.
J	Indicates an estimated value.	Compound value may be semi-quantitative.
UJ	Quantitation limit is estimated due to a Quality Control (QC) protocol.	Compound was not detected.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides >10 ng/ul in the final extract shall be confirmed by GC/MS.	Compound was confirmed by mass spectroscopy
B	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.	Compound value may be semi-quantitative if it is <5x the blank concentration (<10x the blank concentrations for common lab artifacts: phthalates, methylene chloride, acetone, toluene, 2-butanone).
E	This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. This flag will not apply to pesticides/PCBs analyzed by GC/EC methods.	Compound value may be semi-quantitative.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.	Alerts data user to a possible change in the CRQL.
A	This flag indicates that a TIC is a suspected aldol-condensation product.	Alerts data user of a lab artifact.
R	Results are unusable due to a major violation of QC protocol.	Compound value is not usable.

ANALYTE FOOTNOTES		DEFINITION	INTERPRETATION
OLD	NEW		
E	E	Estimated or not reported due to inteference. See laboratory narrative.	Compound or element was not detected or value may be semi-quantitative.
S	S	Analysis by Method of Standard Additions.	Value may be quantitative.
N	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 semi-quantitative.
+	+	Correlation coefficient for standard additions in less than 0.995. See review and laboratory narrative.	Data value may be biased.
[ ]	B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
UJ		DL is estimated because of a QC protocol. DL is possibly above or below CRDL.	Compound or element was not detected.
J		Value is above CRDL and is an estimated value because of a QC Protocol.	Value may be semi-quantitative.
U	U	Compound was analyzed for but not detected.	Compound was not detected.
	M	Duplicate injection precision not met.	Value may be semi-quantitative.
	W	Post digestion spike for furnance AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semi-quantitative.
NA		Value not available due to insufficient data.	
NR		Value not recommended to be calculated, since chemical has proven to be a human carcinogen.	
( )		Estimated value.	

Source: Ecology and Environment, Inc. 1988.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

Recd 6/15/88

DATE: 6/13/88

SUBJECT: Review of Region V CLP Data
Received for Review on 6-6-88

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

TO: Data User: FIT

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

SITE NAME: Marble Cliff Quarries Dump (OH) SMO Case No. 9469

EPA Data Set No. SF 5134 No. of Samples: 8 D.U./Activity Numbers Y905/C72122

CRL No. 88FK20514 - 521

SMO Traffic No. MEX218 - 225

CLP Laboratory: KEYSTONE Hrs. Required for Review: 10

Following are our findings:

This review covers analysis of eight low soils for total metals and CN. Hg data is questionable for exceeding the twenty-six day holding time from receipt until samples were prepared for analysis. Data is flagged as estimated for exceeding spike recovery range for Sb (50%), Cu (40%), Se (70%), Ag (68%), Tl (60%) and Zn (129%). All of these poorly spiked analytes, except Cu and Zn, had no detection in the spiked sample, indicating low biased spiking reagent. Also flagged as estimated for exceeding RPD in duplication are Al, Ca, Cu, Fe, and Ni. Cr is also flagged for duplication, since the samples are less than 5xs the CRDL, they should agree with the duplicate by less than CRDL, but that difference was exceeded. The RPD for Mn and Zn is less than the allowable ± 35% for soils, so they are acceptable. Pb is also acceptable when correct duplicate value by MSA is entered. CLP listed a value requiring MSA on the duplicate. As couldn't obtain correlation factors of ≥ 0.995 for MEX220, 223 + 225. CN was run one sample per ICV to avoid error of a creeping sample MEX221. Data is satisfac

( ) Data are acceptable for use.
(X) Data are acceptable for use with qualifications referenced above. 6-13-88
See Data Qualifier sheets and Calibration Outlier forms for flags and additional comments. DMM
( ) Data are preliminary - pending verification by Contractor Laboratory.
See Case Summary above.
( ) Data are unacceptable.

NOTE: The qualifier "*" does not affect the data for lead analysis.
M. Byer

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

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEX218

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Lab Sample ID: 880417302

Level (low/med): LOW Date Received: 04/29/88

% Solids: 80.6 Keystone D.C.# 9469-05-05

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4700.00		*	P	J
7440-36-0	Antimony	8.80	U	N	P	UJ
7440-38-2	Arsenic	11.90			F	
7440-39-3	Barium	116.00			P	
7440-41-7	Beryllium	0.45	U		P	
7440-43-9	Cadmium	0.77	U	*	P	J
7440-70-2	Calcium	178000.00		*	P	J
7440-47-3	Chromium	10.50		*	P	J
7440-48-4	Cobalt	7.70	B		P	
7440-50-8	Copper	86.60		N*E	P	J
7439-89-6	Iron	14100.00		*	P	J
7439-92-1	Lead	20.90		S*	F	
7439-95-4	Magnesium	18300.00			P	
7439-96-5	Manganese	427.00		*	P	
7439-97-6	Mercury	0.12	U		CV	
7439-02-0	Nickel	15.80		*	P	J
7440-09-7	Potassium	370.00	U		P	
7782-49-2	Selenium	0.99	U	WN	F	UJ
7440-22-4	Silver	1.40	U	N	P	UJ
7440-23-5	Sodium	115.00	B		P	
7440-28-0	Thallium	0.74	U	WN	F	UJ
7440-62-2	Vanadium	19.20			P	
7440-66-6	Zinc	82.10		N*	P	J
	Cyanide	0.62	U		AS	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: YELLOW Clarity After: Artifacts:

Comments:

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Keystone D.C.# 9469-05-05

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEX219

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Lab Sample ID: 880417305

Level (low/med): LOW Date Received: 04/29/88

% Solids: 88.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	8040.00		*	P	J
7440-36-0	Antimony	8.10	U	N	P	UJ
7440-38-2	Arsenic	8.90	B	S	F	
7440-39-3	Barium	105.00			P	
7440-41-7	Beryllium	0.77	B		P	
7440-43-9	Cadmium	0.70	U	*	P	J
7440-70-2	Calcium	70400.00		*	P	J
7440-47-3	Chromium	30.20		*	P	J
7440-48-4	Cobalt	11.60			P	
7440-50-8	Copper	20.40		N*E	P	J
7439-89-6	Iron	20400.00		*	P	J
7439-92-1	Lead	198.00		*	F	
7439-95-4	Magnesium	23600.00			P	
7439-96-5	Manganese	345.00		*	P	
7439-97-6	Mercury	0.11	U		CV	
7439-02-0	Nickel	23.30		*	P	J
7440-09-7	Potassium	982.00	B		P	
7782-49-2	Selenium	0.91	U	N	F	UJ
7440-22-4	Silver	1.30	U	N	P	UJ
7440-23-5	Sodium	91.40	B		P	
7440-28-0	Thallium	0.68	U	WN	F	UJ
7440-62-2	Vanadium	28.20			P	
7440-66-6	Zinc	105.00		N*	P	J
	Cyanide	0.57	U		AS	

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT.YELLOW Clarity After: Artifacts: YES

Comments:
ROCKS IN SAMPLE.

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEX220

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Lab Sample ID: 880417306

Level (low/med): LOW Date Received: 04/29/88

% Solids: 78.2 Keystone D.C.# 9469-05-05

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	1240.00		*	P	J
7440-36-0	Antimony	9.10	U	N	P	UJ
7440-38-2	Arsenic	2.30	B	+	F	
7440-39-3	Barium	630.00			P	
7440-41-7	Beryllium	0.46	U		P	
7440-43-9	Cadmium	0.79	U	*	P	J
7440-70-2	Calcium	284000.00		*	P	J
7440-47-3	Chromium	6.60		*	P	J
7440-48-4	Cobalt	3.40	U		P	
7440-50-8	Copper	6.20	B	N*E	P	J
7439-89-6	Iron	2710.00		*	P	J
7439-92-1	Lead	2.70		S*	F	
7439-95-4	Magnesium	77700.00			P	
7439-96-5	Manganese	91.00		*	P	
7439-97-6	Mercury	0.13	U		CV	
7439-02-0	Nickel	8.80	U	*	P	J
7440-09-7	Potassium	381.00	U		P	
7782-49-2	Selenium	1.00	U	WN	F	UJ
7440-22-4	Silver	1.40	U	N	P	UJ
7440-23-5	Sodium	113.00	B		P	
7440-28-0	Thallium	3.80	U	WN	F	UJ
7440-62-2	Vanadium	9.00	B		P	
7440-66-6	Zinc	55.10		N*	P	J
	Cyanide	0.64	U		AS	

Color Before: DK. BROWN Clarity Before: Texture: SAND

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:
ROOTS IN SAMPLE.

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEX221

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Lab Sample ID: 880417307

Level (low/med): LOW Date Received: 04/29/88

% Solids: 86.4 Keystone D.C.# 9469-05-05

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	1160.00		*	P	J
7440-36-0	Antimony	8.20	U	N	P	UJ
7440-38-2	Arsenic	3.80			F	
7440-39-3	Barium	494.00			P	
7440-41-7	Beryllium	0.42	U		P	
7440-43-9	Cadmium	0.72	U	*	P	J
7440-70-2	Calcium	245000.00		*	P	J
7440-47-3	Chromium	8.20		*	P	J
7440-48-4	Cobalt	3.10	U		P	
7440-50-8	Copper	14.30		N*E	P	J
7439-89-6	Iron	3720.00		*	P	J
7439-92-1	Lead	3.50		S*	F	
7439-95-4	Magnesium	67300.00			P	
7439-96-5	Manganese	156.00		*	P	
7439-97-6	Mercury	0.12	U		CV	
7439-02-0	Nickel	12.80		*	P	J
7440-09-7	Potassium	345.00	U		P	
7782-49-2	Selenium	0.93	U	WN	F	UJ
7440-22-4	Silver	1.30	U	N	P	UJ
7440-23-5	Sodium	123.00	B		P	
7440-28-0	Thallium	3.50	U	WN	F	UJ
7440-62-2	Vanadium	9.40	B		P	
7440-66-6	Zinc	50.30		N*	P	J
	Cyanide	0.58	U		AS	

Color Before: LT.BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEX222

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Lab Sample ID: 880417308

Level (low/med): LOW Date Received: 04/29/88

% Solids: 80.5 Keystone D.C.# 9469-05-05

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	859.00		*	P	J
7440-36-0	Antimony	8.80	U	N	P	UJ
7440-38-2	Arsenic	1.50	B		F	
7440-39-3	Barium	233.00			P	
7440-41-7	Beryllium	0.45	U		P	
7440-43-9	Cadmium	0.77	U	*	P	J
7440-70-2	Calcium	259000.00		*	P	J
7440-47-3	Chromium	6.10		*	P	J
7440-48-4	Cobalt	3.30	U		P	
7440-50-8	Copper	1.20	U	N*E	P	J
7439-89-6	Iron	2330.00		*	P	J
7439-92-1	Lead	1.40		S*	F	
7439-95-4	Magnesium	74400.00			P	
7439-96-5	Manganese	98.20		*	P	
7439-97-6	Mercury	0.12	U		CV	
7439-02-0	Nickel	10.30		*	P	J
7440-09-7	Potassium	370.00	U		P	
7782-49-2	Selenium	0.99	U	WN	F	UJ
7440-22-4	Silver	1.40	U	N	P	UJ
7440-23-5	Sodium	94.10	B		P	
7440-28-0	Thallium	0.75	U	WN	F	UJ
7440-62-2	Vanadium	8.10	B		P	
7440-66-6	Zinc	45.10		N*	P	J
	Cyanide	0.62	U		AS	

Color Before: LT.BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEX223

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Lab Sample ID: 880417309

Level (low/med): LOW Date Received: 04/29/88

% Solids: 88.6 Keystone D.C.# 9469-05-05

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9510.00		*	P	J
7440-36-0	Antimony	8.00	U	N	P	UJ
7440-38-2	Arsenic	16.40		+	F	
7440-39-3	Barium	303.00			P	
7440-41-7	Beryllium	1.50			P	
7440-43-9	Cadmium	3.50		*	P	J
7440-70-2	Calcium	80600.00		*	P	J
7440-47-3	Chromium	22.90		*	P	J
7440-48-4	Cobalt	33.40			P	
7440-50-8	Copper	118.00		N*E	P	J
7439-89-6	Iron	31700.00		*	P	J
7439-92-1	Lead	36.00		*	F	
7439-95-4	Magnesium	13700.00			P	
7439-96-5	Manganese	1860.00		*	P	
7439-97-6	Mercury	0.14			CV	
7439-02-0	Nickel	65.80		*	P	J
7440-09-7	Potassium	1420.00			P	
7782-49-2	Selenium	0.90	U	N	F	UJ
7440-22-4	Silver	1.20	U	N	P	UJ
7440-23-5	Sodium	150.00	B		P	
7440-28-0	Thallium	0.68	U	N	F	UJ
7440-62-2	Vanadium	36.50			P	
7440-66-6	Zinc	645.00		N*	P	J
	Cyanide	0.56	U		AS	

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEX224

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Lab Sample ID: 880417310

Level (low/med): LOW Date Received: 04/29/88

% Solids: 89.1 Keystone D.C.# 9469-05-05

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	10100.00		*	P	J
7440-36-0	Antimony	8.00	U	N	P	UJ
7440-38-2	Arsenic	8.90		S	F	
7440-39-3	Barium	103.00			P	
7440-41-7	Beryllium	1.10			P	
7440-43-9	Cadmium	0.70	U	*	P	J
7440-70-2	Calcium	78800.00		*	P	J
7440-47-3	Chromium	16.50		*	P	J
7440-48-4	Cobalt	12.50			P	
7440-50-8	Copper	21.20		N*E	P	J
7439-89-6	Iron	29300.00		*	P	J
7439-92-1	Lead	19.00		S*	F	
7439-95-4	Magnesium	22500.00			P	
7439-96-5	Manganese	478.00		*	P	
7439-97-6	Mercury	0.11	U		CV	
7439-02-0	Nickel	37.60		*	P	J
7440-09-7	Potassium	1420.00			P	
7782-49-2	Selenium	0.90	U	WN	F	UJ
7440-22-4	Silver	1.20	U	N	P	UJ
7440-23-5	Sodium	117.00	B		P	
7440-28-0	Thallium	0.67	U	WN	F	UJ
7440-62-2	Vanadium	33.70			P	
7440-66-6	Zinc	130.00		N*	P	J
	Cyanide	0.55	U		AS	

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: LT. YELLOW Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEX225

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Lab Sample ID: 880417311

Level (low/med): LOW Date Received: 04/29/88

% Solids: 72.3 Keystone D.C.# 9469-05-05

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	13600.00		*	P	J
7440-36-0	Antimony	9.80	U	N	P	UJ
7440-38-2	Arsenic	16.30		+	F	
7440-39-3	Barium	175.00			P	
7440-41-7	Beryllium	1.90			P	
7440-43-9	Cadmium	0.86	U	*	P	J
7440-70-2	Calcium	3440.00		*	P	J
7440-47-3	Chromium	17.50		*	P	J
7440-48-4	Cobalt	12.40	B		P	
7440-50-8	Copper	5.90	B	N*E	P	J
7439-89-6	Iron	22800.00		*	P	J
7439-92-1	Lead	26.40		S*	F	
7439-95-4	Magnesium	2650.00			P	
7439-96-5	Manganese	1480.00		*	P	
7439-97-6	Mercury	0.14	U		CV	
7439-02-0	Nickel	26.10		*	P	J
7440-09-7	Potassium	1480.00			P	
7782-49-2	Selenium	1.10	U	N	F	UJ
7440-22-4	Silver	1.50	U	N	P	UJ
7440-23-5	Sodium	74.10	B		P	
7440-28-0	Thallium	0.83	U	N	F	UJ
7440-62-2	Vanadium	38.40			P	
7440-66-6	Zinc	90.60		N*	P	J
	Cyanide	0.69	U		AS	

Color Before: DK. BROWN Clarity Before: Texture: COARSE

Color After: YELLOW Clarity After: Artifacts: YES

Comments:
ROOTS IN SAMPLE.

QC EXCEPTION SUMMARY REPORT

CASE # 9469
DATA SET # SF5134
LAB SDG # MEX 218
DATE: 6-13-88

SITE Marble Cliff Quarries
LAB Keystone
REVIEWED BY Dorothy M. May

MATRIX: soil
CONC. : low

WATER SAMPLE SPK.
WATER SAMPLE DUP.
SOIL SAMPLE SPK. MEX 218
SOIL SAMPLE DUP. MEX 218

	OVERALL CASE QC									MATRIX SPECIFIC QC						SAMPLE SPECIFIC QC		FIELD QC			REGIONAL QC			OTHER/ COMMENTS
	Holding Time	Cal Blanks	Mid Calver	Contin Calver	Prep Blk AQ	Prep Blk SOL	ICS %R	LES % AQ	LES % 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										49%														
Antimony											50%													
Arsenic																								
Barium																								
Beryllium																								
Cadmium																								
Calcium										103%														
Chromium										>CRDL														
Cobalt																								
Copper										49%	40.5%				100%									
Iron										49%														
Lead																								
Magnesium																								
Manganese																								
Mercury																								
Nickel										56%														
Potassium																								
Selenium																								
Silver											68%													
Sodium											70%													
Strontium											60%													
Tin																								
Vanadium																								
Zinc											129%													
Cyanide																								

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

SOW No.: 7/87

EPA Sample No.	Lab Sample ID.
MEX218	880417302
MEX218D	880417303
MEX218S	880417304
MEX219	880417305
MEX220	880417306
MEX221	880417307
MEX222	880417308
MEX223	880417309
MEX224	880417310
MEX225	880417311

Were ICP interelement corrections applied? Yes/No Yes

Were ICP background corrections applied? Yes/No Yes
If Yes-were data generated before application of background corrections? Yes/No No

Comments: An ICV for cyanide was non compliant. Please see explanation in raw data.

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 the Manager's designee, as verified by the following signature.

Lab Manager: Ken H. Grundy

Date: 6/2/88

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3
BLANKS

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Preparation Blank Matrix (soil/water): SOIL Keystone D.C.# 9469-05-06

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	54.1	U	54.1	U	54.1	U	54.1	U	10.820	U	P
Antimony	35.5	U	35.5	U	35.5	U	35.5	U	7.100	U	P
Arsenic	3.0	U	3.0	U	3.0	U	3.0	U	0.600	U	F
Barium	13.1	U	13.1	U	13.1	U	13.1	U	2.620	U	P
Beryllium	1.8	U	1.8	U	1.8	U	1.8	U	0.520	B	P
Cadmium	3.1	U	3.1	U	3.1	U	3.1	U	0.620	U	P
Calcium	129.0	U	129.0	U	129.0	U	129.0	U	33.380	B	P
Chromium	8.7	U	8.7	U	8.7	U	8.7	U	1.960	B	P
Cobalt	13.4	U	13.4	U	13.4	U	13.4	U	2.680	U	P
Copper	4.7	U	-8.7	B	-22.5	B	-17.5	B	3.520	B	P
Iron	27.0	U	27.0	U	27.0	U	27.0	U	5.600	B	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	F
Magnesium	160.0	U	160.0	U	160.0	U	160.0	U	32.000	U	P
Manganese	3.4	U	3.4	U	3.4	U	3.4	U	0.680	U	P
Mercury	0.2	U	0.2	U	0.2	U			0.100	U	CV
Nickel	34.5	U	34.5	U	34.5	U	34.5	U	6.900	U	P
Potassium	1490.0	U	1490.0	U	1527.4	B	1490.0	U	-354.620	B	P
Selenium	4.0	U	4.0	U	4.0	U	4.0	U	0.800	U	F
Silver	9.1	B	5.5	U	5.5	U	5.5	U	1.100	U	P
Sodium	102.0	U	102.0	U	102.0	U	102.0	U	20.400	U	P
Thallium	6.3	B	3.0	U	3.0	U	3.0	U	0.600	U	F
Vanadium	7.4	U	7.4	U	7.4	U	7.4	U	1.480	U	P
Zinc	10.5	U	10.5	U	10.5	U	10.5	U	2.100	U	P
Cyanide	10.0	U	10.0	U					0.500	U	AS

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BLANKS

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Preparation Blank Matrix (soil/water): SOIL Keystone D.C.# 9469-05-06

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic			3.0	U	3.0	U	3.0	U			F
Barium											
Beryllium											
Cadmium											
Calcium	230.0	U	230.0	U	230.0	U			46.000	U	P
Chromium											
Cobalt											
Copper											
Iron											
Lead			2.0	U	2.0	U	2.0	U			F
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium			4.0	U							F
Silver											
Sodium											
Thallium			3.0	U							F
Vanadium											
Zinc											
Cyanide	10.0	U	10.0	U					0.500	U	AS

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BLANKS

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Preparation Blank Matrix (soil/water): SOIL Keystone D.C.# 9469-05-06

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide	10.0	U	10.0	U					0.500	U	AS

000025

U.S. EPA - CLP

3
BLANKS

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MFX21R

Preparation Blank Matrix (soil/water): SOIL Keystone D.C.# 9469-05-06

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide	10.0	U	10.0	U					0.500	U	AS

000026

U.S. EPA - CLP

3
BLANKS

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Preparation Blank Matrix (soil/water): SOIL Keystone D.C.# 9469-05-06

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide	10.0	U	10.0	U					0.500	U	AS

000027

U.S. EPA - CLP

3
BLANKS

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Preparation Blank Matrix (soil/water): SOIL Keystone D.C.# 9469-05-06

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide	10.0	U	10.0	U					0.500	U	AS

000028

U.S. EPA - CLP

3
BLANKS

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Preparation Blank Matrix (soil/water): SOIL Keystone D.C.# 9469-05-06

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide	10.0	U	10.0	U					0.500	U	AS

000029

U.S. EPA - CLP

3
BLANKS

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Preparation Blank Matrix (soil/water): SOIL Keystone D.C.# 9469-05-06

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide	10.0	U	10.0	U					0.500	U	AS

000030

Keystone D.C.# 9469-05-06

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MEX218S

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	61.7866		8.8089	U	124.1	49.8	N	P
Arsenic	75-125	21.3151		11.9355		9.9	94.5		F
Barium	75-125	671.9355		116.0794		496.3	112.0		P
Beryllium	75-125	14.7146		0.4467	U	12.4	118.6		P
Cadmium	75-125	12.8040		0.7692	U	12.4	103.2		P
Calcium									NR
Chromium	75-125	60.4963		10.4963		49.6	100.8		P
Cobalt	75-125	139.7767		7.7171	B	124.1	106.4		P
Copper	75-125	111.7618		86.6253		62.0	40.5	N	P
Iron									NR
Lead		36.8486		20.9345		5.0	320.7		F
Magnesium									NR
Manganese	75-125	536.5509		427.3698		124.1	88.0		P
Mercury	75-125	0.7134		0.1241	U	0.6	115.0		CV
Nickel	75-125	151.5881		15.7568		124.1	109.5		P
Potassium									NR
Selenium	75-125	1.7370		0.9926	U	2.5	70.0	N	F
Silver	75-125	8.4615		1.3648	U	12.4	68.2	N	P
Sodium									NR
Thallium	75-125	7.4690		0.7444	U	12.4	60.2	N	F
Vanadium	75-125	152.6055		19.2308		124.1	107.5		P
Zinc	75-125	242.2581		82.1092		124.1	129.1	N	P
Cyanide	75-125	5.0980		0.6203	U	6.2	82.2		AS

Comments:

Keystone D.C.# 9469-05-06

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MEX218A

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Level (low/med): LOW

Concentrations Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony		110.40		35.50	U	100.0	110.4		P
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper		1343.30		349.10		1000.0	99.4		P
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc		1568.90		330.90		1000.0	123.8		P
Cyanide									NR

Comments:

Keystone D.C.# 9469-05-06

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.
MEX218D

Lab Name: KEYSTONE ENV.RES./HOUSTON Contract: 68-W8-0005

Lab Code: KEYTX Case No.: 9469 SAS No.: SDG No.: MEX218

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 80.6 % Solids for Duplicate: 80.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		4703.4492		7735.4097		48.7	*	P
Antimony		8.8089	U	8.8089	U			P
Arsenic	2.5	11.9355		13.0273		8.7		F
Barium	49.6	116.0794		153.6228		27.8		P
Beryllium		0.4467	U	0.8437	B	200.0		P
Cadmium	1.2	0.7692	U	1.4144		200.0	*	P
Calcium		177694.5781		57176.9023		102.6	*	P
Chromium	2.5	10.4963		13.7717		27.0	*	P
Cobalt		7.7171	B	12.3821	B	46.4		P
Copper		86.6253		52.3821		49.3	*	P
Iron		14149.4053		23414.7402		49.3	*	P
Lead		20.9045		20.27 ~~16.6258~~		~~22.9~~ 3.1%	*	F
Magnesium		18258.5605		15655.1621		15.4		P
Manganese		427.3698		540.1737		23.3	*	P
Mercury		0.1241	U	0.1241	U			CV
Nickel	9.9	15.7568		28.0397		56.1	*	P
Potassium		369.7271	U	538.2383	B	200.0		P
Selenium		0.9926	U	0.9926	U			F
Silver		1.3648	U	1.3648	U			P
Sodium		114.7395	B	77.8660	B	38.3		P
Thallium		0.7444	U	0.7444	U			F
Vanadium	12.4	19.2308		27.7419		36.2		P
Zinc		82.1092		108.0397		27.3	*	P
Cyanide		0.6203	U	0.6203	U			AS

SAMPLE DATES: 4/21-28/88
LOG IN DATE: 5/18/88
DUE DATE: 7/7/88

CENTRAL REGIONAL LABORATORY SAMPLE DATA REPORT
ORGANICS/INORGANICS
THIS FORM IS TO BE USED FOR SAMPLES SENT TO CONTRACT ONLY

MAY 6 1988

SUPERFUND 5134

CASE NUMBER/SAS No. 9469 SITE NAME Marble Cliff Quarries Dump LABORATORY ITSTU/Keystone DATE SHIPPED 4/28/88

SUPERFUND DU NUMBER Y905 EPA RPM or OSC (S.M.S.)/(CES) CERCLIS NUMBER OHD980510226 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				
88FK20S14	EX014	MEX218	✓	✓	•										✓	✓	✓	✓	✓	✓						
88FK20S15	EX015	MEX219	✓	✓	•										✓	✓	✓	✓	✓	✓						
88FK20S16	EX016	MEX220	✓	✓	•										✓	✓	✓	✓	✓	✓						
88FK20S17	EX017	MEX221	✓	✓	•										✓	✓	✓	✓	✓	✓						
88FK20S18	EX018	MEX222	✓	✓	•										✓	✓	✓	✓	✓	✓						
88FK20S19	EX019	MEX223	✓	✓	•										✓	✓	✓	✓	✓	✓						
88FK20S20	EX020	MEX224	✓	✓	•										✓	✓	✓	✓	✓	✓						
88FK20S21	EX021	MEX225	✓	✓	•										✓	✓	✓	✓	✓	✓						
			CC	[illegible]	data																					

ecology and environment, inc.

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

CRL Receipt Date 5/23 FIT Receipt Date 6/13 Review Completed 6/13/88

TO: Jeryl Kolb
FROM: Zena Gold-Kaufman
SUBJECT: Marble Cliff Quarries
PAN: OH0027-SA (1 hour charged for review) Case # 9469/3758E

Sample Description

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

Project Data Status Completed!!

Incomplete, awaiting low soil organics, inorganics

FIT Data Review Findings:
$MeCl_2$, Toluene detected in samples.

Check Data Sheets for Transcription Errors

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

Book No. 8 Page No. 48 Date Sampled 4/28

0759:2

recycled paper

... PROVIDED IN THE ATTACHED DATA SHEETS.

REPORTING UNITS

A. Organics

1. Water Samples - ug/L or ppb (parts per billion)
2. Soils or Sediments - ug/kg or ppb (parts per billion)

B. Metals

1. Water Samples - ug/L or ppb (parts per billion)
2. Soils or Sediments - mg/kg or ppm (parts per million)

. DEFINITION OF FOOTNOTES TO ANALYTICAL DATA

A. Organics

OOTNOTE	DEFINITION	INTERPRETATION
U	Indicates compound was analyzed for but not detected.	Compound was not detected.
J	Indicates an estimated value.	Compound value may be semi-quantitative.
UJ	Quantitation limit is estimated due to a Quality Control (QC) protocol.	Compound was not detected.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides >10 ng/ul in the final extract shall be confirmed by GC/MS.	Compound was confirmed by mass spectroscop
B	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.	Compound value may be semi-quantitative if it is <5x the blank concentration (<10x the blank concentrations for common lab artifacts: phthalates, methylene chloride acetone, toluene, 2-butanone).
E	This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. This flag will not apply to pesticides/PCBs analyzed by GC/EC methods.	Compound value may be semi-quantitative.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.	Alerts data user to a possible change in the CRQL.
A	This flag indicates that a TIC is a suspected aldol-condensation product.	Alerts data user of a lab artifact.
R	Results are unusable due to a major violation of QC protocol.	Compound value is not usable.

B. Metals

OTNOTE	DEFINITION	INTERPRETATION
? NEW		
E	Estimated or not reported due to inteference. See laboratory narrative.	Compound or element was not detected or value may be semi-quantitative.
S	Analysis by Method of Standard Additions.	Value may be quantitative.
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 semi-quantitative.
+	Correlation coefficient for standard additions is less than 0.995. See review and laboratory narrative.	Data value may be biased.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
	DL is estimated because of a QC protocol. DL is possibly above or below CRDL.	Compound or element was not detected.
	Value is above CRDL and is an estimated value because of a QC Protocol.	Value may be semi-quantitative.
U	Compound was analyzed for but not detected.	Compound was not detected.
N	Duplicate injection precision not met.	Value may be semi-quantitative.
W	Post digestion spike for furnance AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semi-quantitative.

C. Other Symbols Used

NA Value not available due to insufficient data.
NR Value not calculated since chemical is not a carcinogen.
( ) Estimated value.

6/13/88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 6/9/88

SUBJECT: Review of Region V CLP Data
Received for Review on 5-23-88

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

TO: Data User: Fit

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

SITE NAME: Marble Cliff Quarries Dump (OH) SMO Case No. 9469SA53758

EPA Data Set No. SF6134 No. of Samples: 5 D.U./Activity Numbers 1905/C7212

CRL No. 88FK20 S22-S24, D23, B01

SMO Traffic No. EX022-026

CLP Laboratory: CAL Hrs. Required for Review: 4

Following are our findings:

This review covers 5 low water sample analyzed for full organics. Qualifiers are included on the following pages of the review narrative

Nidia Feliciano
6/9/88

(✓) 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

PAGE ___ OF ___

DATA QUALIFIERS

Contractor: Cal

Case 94695AS3758E

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

Sample holding time:
All sample met sample holding criteria.

GC/MS Tuning and GC Instrument performance:
All ions meet ions abundance criteria. All samples run within 12 hours.
All linearity check and calibration for the GC is acceptable.

Calibration:
2-Butanone shows a RF below .05 for the volatile fraction. Benzyl alcohol % RSD greater than 25% for semi-volatile calibration. In both cases volatile and semi-volatile consider any positive as estimated (J). This situation does not affect the data. See calibration outlier forms. Calibration for Acrolein and Acrylonitrile is acceptable.
Blank.
Slightly contamination of acetone were noted, below the CRDL. Any positive time times less the blank level have been flagged as undetected (U). Bis(2-Ethylhexyl) phthalate was noted for ABN, positive have been flagged undetected (U) if concentration were ten time less blank level. No pesticides found

Reviewed by: Nidia Feliciano
Phone: 353-0651
Date: 6/9/88

PAGE ___ OF ___

DATA QUALIFIERS

Contractor: Cal

Case 9469SA53758E

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

Surrogates recoveries:
Acceptable, within Q.C. limits for VOA and BEN. For sample EX026-pesticide had no surrogate recovery, appears that surrogate was not added and because all the sample was used during the analysis, it was not possible to re-analyze. Surrogate recovery was acceptable for rest of sample and Q.C.

Matrix Spike/MSD:
Acceptable for all samples.

Reviewed by: Nilia Feliciano

Phone: 353-0651

Date: 6/9/88

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

CASE/SAS # 9469SR5373LE CONTRACTOR Cal

Instrument # F-9	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	4/22/88 13:37			4/29/88 9:06											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane															
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride															
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone	.015		*												
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															

AFFECTED SAMPLES:

EY022
EY022MS
EY022MSD
EY023
EY024
EY025
EY026

Reviewer's Initials/Date: M.T. 6/8/88

* 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 # 94695A53758E CONTRACTOR Cal

Instrument # F-10	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	5/9/88 9:50			5/10/88 8:02											
	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															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

MB
EX022
EX022 MS
EX022 MSD
EX023
EX024
EX025
EX026

Reviewer Initials/Date: M.T. 6/8/88

* 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 # 24693A3758E CONTRACTOR Cal

Instrument # F-10	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	5/9/88 9:50														
:	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: M.F. 6/9/88

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

CASE/SAS # 94695A53758E CONTRACTOR Cal

Instrument # F-10	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	5/10/88 7:07														
	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		36.13													
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															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES: EY025

Reviewer Initials/Date: M.F. 6/9/88

* 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 # 94695A5375XE CONTRACTOR Cal

Instrument # F-10	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	5/10/88 8:02														
	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: M.F 6/8/88

Enseco

May 18, 1988

RECEIVED
MAY 20 1988
U.S. EPA CENTRAL
REGIONAL LAB

Joan Fisk
U.S. EPA
Hazardous Waste Investigation
401 M Street, SW
Washington, DC 20460

Dear Joan Fisk:

Enclosed are data summary sheets and documentation for samples and QA/QC comprising case 9469/3758E (SDG EX022) of Contract 68-W8-0069. These samples were received 4/28/88 and logged in under the following ENSECO CAL Lab numbers:

ENSECO CAL LAB Number	Sample I.D.
41260-1	EX022
-2	EX023
-3	EX024
-4	EX025
-5	EX026

The samples were analyzed as low concentration water samples for low detection limits on a twenty one day turnaround. The pesticide fraction of sample EX026 had no surrogate recovery. Because all the sample was used during the original work, it was not possible to re-extract this sample.

This report was checked for contractual compliance, assembled, paginated then printed and assembled by a Kodak copier/assembler. Each copy has been checked for completeness. This check may miss some individual pages. Please request by page number if any page is missing. If you have any questions, please give us a call.

Sincerely,

Michael W. Orbanosky
Director of GC/MS Services

Karin S. Yee
Data Control Coordinator

Enseco Incorporated
2544 Industrial Boulevard
West Sacramento, California 95691
916/372-1393 Fax: 916/372-1059

WATER SURROGATE PERCENT RECOVERY SUMMARY

CASE NO.: 9469/3758E CONTRACT LABORATORY: ENSECO CAL LAB CONTRACT NO.: 68-W8-0069 DATA PREP/RELEASE BY: Ky, BM

SMO TRAFFIC NO.	VOLATILE: TOLUENE D8 (88-110)	VOLATILE: BFB (86-115)	VOLATILE: 1,2 DICHLORO ETHANE D4 (76-114)	SEMI-VOLATILE: NITRO-BENZENE D5 (35-114)	SEMI-VOLATILE: 2-FLUORO BIPHENYL (43-116)	SEMI-VOLATILE: TERPHENYL D14 (33-141)	SEMI-VOLATILE: PHENOL-D5 (10-94)	SEMI-VOLATILE: 2-FLUORO-PHENOL (21-100)	SEMI-VOLATILE: 2,4,6 TRIBROMO-PHENOL (10-123)	PESTICIDE: DIBUTYL-CHLORENDATE (24-154)**
VBK9880429	100	101	95	NR	NR	NR	NR	NR	NR	NR
EX 022	101	100	94	36	61	63	30	42	38	71
EX 022MS	101	99	96	38	60	59	34	44	50	80
EX 022MSD	101	98	98	41	63	72	28	44	46	70
EX 024	104	98	94	37	53	56	28	38	36	72
EX 023	104	97	95	35	54	58	28	37	36	72
EX 025	102	100	96	39	62	87	21	28	34	68
EX 026	103	108	92	45	69	76	31	46	47	9 ~~NR~~ * #
41260MB	NR	NR	NR	36	58	63	25	40	39	74

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

** ADVISORY LIMITS ONLY

VOLATILES: 0 OUT OF 24 : OUTSIDE OF QC LIMITS
SEMI-VOLATILES: 0 OUT OF 48 : OUTSIDE OF QC LIMITS
PESTICIDES: 1 OUT OF 8 : OUTSIDE OF QC LIMITS

COMMENTS: # appears surrogate not added

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

CASE NO.: 9469/3758E CONTRACTOR: Enseco - Cal Lab CONTRACT NO.68-W8-0069

FRACTION	COMPOUND	CONC.SPIKE ADDED(ug/L) SPIKE	DUPLICATE	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	%RPD	QC LIMITS* RPD	RECOVERY
VOA	1,1-Dichloroethene	10	10	0	9.3	93	9.5	95	2	14	61-145
SMO	Trichloroethene	10	10	0	9.8	98	9.4	94	4	14	71-120
SAMPLE NO.	Chlorobenzene	10	10	0	9.8	98	9.8	98	0	13	75-130
	Toluene	10	10	0	10	100	9.9	99	1	13	76-125
EX 022	Benzene	10	10	0	9.8	98	9.5	95	3	11	76-127
B/N	1,2,4-Trichlorobenzene	20	20	0	11.2	56	12.5	63	12	28	39-98
SMO	Acenaphthene	20	20	0	12.8	64	13.9	70	9	31	46-118
SAMPLE NO.	2,4-Dinitrotoluene	20	20	0	7.1	36	7.9	40	11	38	24-96
	Pyrene	20	20	0	12.2	61	13.6	68	11	31	26-127
	N-Nitrosodi-n-Propylamine	20	20	0	10.9	55	12.3	62	12	38	41-116
EX 022	1,4-Dichlorobenzene	20	20	0	11.3	57	13.4	67	16	28	36-97
ACID	Pentachlorophenol	40	40	0	10	25	7.7	19	27	50	9-103
SMO	Phenol	40	40	0	15.9	40	17.6	44	10	42	12-89
SAMPLE NO.	2-Chlorophenol	40	40	0	39.6	99	42.6	107	8	40	27-123
	4-Chloro-3-Methylphenol	40	40	0	30.8	77	31.2	78	1	42	23-97
EX 022	4-Nitrophenol	40	40	0	6.8	17	6.1	15	12	50	10-80
PEST	Lindane	0.0209	0.0206	0	0.0211	101	0.0192	93	8	15	56-123
SMO	Heptachlor	0.0209	0.0206	0	0.017	81	0.0203	99	19	20	40-131
SAMPLE NO.	Aldrin	0.0209	0.0206	0	0.0178	85	0.0165	80	6	22	40-120
	Dieldrin	0.0523	0.0514	0	0.0448	86	0.0392	76	12	18	52-126
	Endrin	0.0523	0.0514	0	0.0517	99	0.0446	87	13	21	56-121
EX 022	4,4-DDT	0.0523	0.0514	0	0.0478	91	0.0399	78	16	27	38-127

* ASTERISKED VALUES ARE OUTSIDE QC LIMITS

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

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

Comments:

FORM III 7/85

Kg

METHOD BLANK SUMMARY

CASE NO. 9469/3758E REGION: 5 CONTRACTOR: Enseco - Cal Lab CONTRACT NO. 68-W8-0069

FILE ID	DATE OF ANALYSIS	FRACTION	MATRIX	CONC. LEVEL	INST. ID	CAS NUMBER	COMPOUND (HSL.TIC OR UNKNOWN)	CONC.	UNITS	CRDL
V8K9880429	04/29/88	VOA	WATER	LOW	F9	67-64-1	ACETONE	1	UG/L	10
41260MB	05/09/88	ABN	WATER	LOW	F10	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	3	UG/L	1
41260MB	05/06/88	PEST	WATER	LOW	G10	-	NO PESTICIDES FOUND	-	-	-

COMMENTS:

FORM IV 7/85

SPECIAL COMPOUNDS

Method 624/CLP

Case:	9469/3758E				
EPA ID:	VOA BLANK				
Lab ID:	VBK9880429	Enseco ID:	NA		
Matrix:	Water	Sampled:	NA	Received:	NA
Authorized:	NA	Prepared:	NA	Analyzed:	29-APR-88

Parameter	Result	Units	Reporting Limit
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	50

ND=Not Detected
NA=Not Applicable

Reported by: SDB AK Approved by: DNB

The cover letter is an integral part of this report.
Rev 041588

SPECIAL COMPOUNDS

Method 624/CLP

Case:	9469/3758E				
EPA ID:	EX 022				
Lab ID:	41260-1	Enseco ID:	NA		
Matrix:	Water	Sampled:	27-APR-88	Received:	28-APR-88
Authorized:	28-APR-88	Prepared:	NA	Analyzed:	29-APR-88

Parameter	Result	Units	Reporting Limit
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	50

ND=Not Detected
NA=Not Applicable

Reported by: DNB Approved by: PH

The AR cover letter is an integral part of this report.
Rev 041588

Enseco

SPECIAL COMPOUNDS

Method 624/CLP

Case:	9469/3758E				
EPA ID:	EX 022MS				
Lab ID:	41260-1MS	Enseco ID:	NA		
Matrix:	Water	Sampled:	27-APR-88	Received:	28-APR-88
Authorized:	28-APR-88	Prepared:	NA	Analyzed:	29-APR-88

Parameter	Result	Units	Reporting Limit
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	50

ND=Not Detected
NA=Not Applicable

Reported by: DNB

Approved by: PH

The cover letter is an integral part of this report.
Rev 041588

SPECIAL COMPOUNDS

Method 624/CLP

Case: 9469/3758E
EPA ID: EX 022MSD
Lab ID: 41260-1MSD
Enseco ID: NA
Matrix: Water
Sampled: 27-APR-88
Received: 28-APR-88
Authorized: 28-APR-88
Prepared: NA
Analyzed: 29-APR-88

Parameter	Result	Units	Reporting Limit
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	50

ND=Not Detected
NA=Not Applicable

Reported by: DNB
Approved by: PH

The cover letter is an integral part of this report.
Rev 041588

SPECIAL COMPOUNDS

Method 624/CLP

Case: 9469/3758E
EPA ID: EX 023
Lab ID: 41260-2 Enseco ID: NA
Matrix: Water Sampled: 27-APR-88 Received: 28-APR-88
Authorized: 28-APR-88 Prepared: NA Analyzed: 29-APR-88

Parameter	Result	Units	Reporting Limit
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	50

ND=Not Detected
NA=Not Applicable

Reported by: DNB Approved by: PH

The cover letter is an integral part of this report.
Rev 041588

SPECIAL COMPOUNDS

Method 624/CLP

Case:	9469/3758E				
EPA ID:	EX 024				
Lab ID:	41260-3	Enseco ID:	NA		
Matrix:	Water	Sampled:	27-APR-88	Received:	28-APR-88
Authorized:	28-APR-88	Prepared:	NA	Analyzed:	29-APR-88

Parameter	Result	Units	Reporting Limit
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	50

ND=Not Detected
NA=Not Applicable

Reported by: DNB Approved by: PH

The cover letter is an integral part of this report.
Rev 041588

SPECIAL COMPOUNDS

Method 624/CLP

Case:	9469/3758E				
EPA ID:	EX 025				
Lab ID:	41260-4	Enseco ID:	NA		
Matrix:	Water	Sampled:	27-APR-88	Received:	28-APR-88
Authorized:	28-APR-88	Prepared:	NA	Analyzed:	29-APR-88

Parameter	Result	Units	Reporting Limit
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	50

ND=Not Detected
NA=Not Applicable

Reported by: DNB Approved by: PH

The cover letter is an integral part of this report.
Rev 041588

SPECIAL COMPOUNDS

Method 624/CLP

Case:	9469/3758E				
EPA ID:	EX 026				
Lab ID:	41260-5	Enseco ID:	NA		
Matrix:	Water	Sampled:	27-APR-88	Received:	28-APR-88
Authorized:	28-APR-88	Prepared:	NA	Analyzed:	29-APR-88

Parameter	Result	Units	Reporting Limit
Acrolein	ND	ug/L	100
Acrylonitrile	ND	ug/L	50

ND=Not Detected
NA=Not Applicable

Reported by: DNB DK Approved by: PH

The cover letter is an integral part of this report.
Rev 041588

Sample Number
EX 022

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ENSECO CAL LAB

Case No: 9469/3758E

Lab Sample ID No: 41260-1

QC Report No: 3758E

Sample Matrix: WATER

Contract No: 68-W8-0069

Data Release Authorized By: [illegible]

Date Sample Received: 4/28/88

Volatile Compounds

Concentration: Low

Date Extracted/Prepared: 04/29/88

Date Analyzed: 04/29/88

Conc/Dil Factor: 1 pH: NR

Percent Moisture: NR

Percent Moisture (Decanted): NR

CAS Number		ug/L
74-87-3	Chloromethane	5 U
74-83-9	Bromomethane	5 U
75-01-4	Vinyl Chloride	5 U
75-00-3	Chloroethane	1 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	10 U
75-15-0	Carbon Disulfide	1 U
75-35-4	1,1-Dichloroethene	1 U
75-34-3	1,1-Dichloroethane	1 U
156-60-5	Trans-1,2-Dichloroethene	1 U
67-66-3	Chloroform	1 U
107-06-2	1,2-Dichloroethane	1 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	1 U
56-23-5	Carbon Tetrachloride	1 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	1 U

CAS Number		ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1 U
78-87-5	1,2-Dichloropropane	1 U
10061-02-6	Trans-1,3-Dichloropropene	1 U
79-01-6	Trichloroethene	1 U
124-48-1	Dibromochloromethane	1 U
79-00-5	1,1,2-Trichloroethane	1 U
71-43-2	Benzene	1 U
10061-01-5	cis-1,3-Dichloropropene	1 U
110-75-8	2-Chloroethylvinylether	10 U
75-25-2	Bromoform	1 U
591-78-6	2-Hexanone	10 U
108-10-1	4-Methyl-2-Pentanone	10 U
127-18-4	Tetrachloroethene	1 U
108-88-3	Toluene	1 U
108-90-7	Chlorobenzene	1 U
100-41-4	Ethylbenzene	1 U
100-42-5	Styrene	1 U
	Total Xylenes	1 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g. 10U) based on necessary concentration/ dilution actions. (This is not necessarily the instrument detection limit.) The footnote 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. (e.g. 10J). If limit of detection is 10ug/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 >= 10ng/ul in the final extract should be confirmed by GC/MS

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

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

NA Not Analyzed.
See cover letter.
NR Not Required.
S Spiked Compound.

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No:9469/3758E

Sample Number
EX 022

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low

Date Extracted/Prepared: 04/29/88

Date Analyzed: 05/09/88

Conc/DiL Factor: 1

GPC Cleanup: NO

Separatory Funnel Extraction: YES

Continuous Liquid - Liquid Extraction: NO

CAS Number		ug/L
108-95-2	Phenol	1.0 U
111-44-4	bis(-2-Chloroethyl)Ether	1.0 U
95-57-8	2-Chlorophenol	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
100-51-6	Benzyl Alcohol	1.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	1.0 U
106-44-5	4-Methylphenol	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.0 U
67-72-1	Hexachloroethane	1.0 U
98-95-3	Nitrobenzene	1.0 U
78-59-1	Isophorone	1.0 U
88-75-5	2-Nitrophenol	1.0 U
105-67-9	2,4-Dimethylphenol	1.0 U
65-85-0	Benzoic Acid	20 U
111-91-1	bis(-2-Chloroethoxy)Methane	1.0 U
120-83-2	2,4-Dichlorophenol	1.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0 U
91-20-3	Naphthalene	1.0 U
106-47-8	4-Chloroaniline	1.0 U
87-68-3	Hexachlorobutadiene	1.0 U
59-50-7	4-Chloro-3-Methylphenol	1.0 U
91-57-6	2-Methylnaphthalene	1.0 U
77-47-4	Hexachlorocyclopentadiene	1.0 U
88-06-2	2,4,6-Trichlorophenol	1.0 U
95-95-4	2,4,5-Trichlorophenol	1.0 U
91-58-7	2-Chloronaphthalene	1.0 U
88-74-4	2-Nitroaniline	5.0 U
131-11-3	Dimethyl Phthalate	1.0 U
208-96-8	Acenaphthylene	1.0 U
99-09-2	3-Nitroaniline	5.0 U

CAS Number		ug/L
83-32-9	Acenaphthene	1.0 U
51-28-5	2,4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	15 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2,4-Dinitrotoluene	1.0 U
606-20-2	2,6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	5.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine(1)	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	3.5 U
91-94-1	3,3'-Dichlorobenzidine	20 U
56-55-3	Benzo(a)Anthracene	1.5 U
117-81-7	bis(2-Ethylhexyl)Phthalate	3.9 1 U
218-01-9	Chrysene	1.5 U
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene	1.5 U
207-08-9	Benzo(k)Fluoranthene	1.5 U
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1,2,3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a,h)Anthracene	2.5 U
191-24-2	Benzo(g,h,i)Perylene	4.0 U

(1) - Cannot be separated from diphenylamine

6/8/88

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No:9469/3758E

Sample Number
EX 022

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: LOW

Date Extracted/Prepared: 04/29/88

Date Analyzed: 05/06/88

Conc/Dil Factor: 1

GPC Cleanup: NO

Separatory Funnel Extraction: YES

Continuous Liquid - Liquid Extraction: NO

CAS Number		ug/L
319-84-6	Alpha-BHC	0.010 U
319-85-7	Beta-BHC	0.0050 U
319-86-8	Delta-BHC	0.0050 U
58-89-9	Gamma-BHC (Lindane)	0.0050 U
76-44-8	Heptachlor	0.030 U
309-00-2	Aldrin	0.0050 U
1024-57-3	Heptachlor Epoxide	0.0050 U
959-98-8	Endosulfan I	0.010 U
60-57-1	Dieldrin	0.010 U
72-55-9	4,4'-DDE	0.0050 U
72-20-8	Endrin	0.010 U
33213-65-9	Endosulfan II	0.010 U
72-54-8	4,4'-DDD	0.020 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.020 U
72-43-5	Methoxychlor	0.020 U
53494-70-5	Endrin Ketone	0.030 U
57-74-9	Chlordane	0.020 U
8001-35-2	Toxaphene	0.25 U
12674-11-2	Aroclor-1016	0.10 U
11104-28-2	Aroclor-1221	0.10 U
11141-16-5	Aroclor-1232	0.10 U
53469-21-9	Aroclor-1242	0.10 U
12672-29-6	Aroclor-1248	0.10 U
11097-69-1	Aroclor-1254	0.10 U
11096-82-5	Aroclor-1260	0.10 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s =980 or W_s =NR V_t = 5000 V_i = 5

ORGANICS ANALYSIS DATA SHEET
Page 4
ORGANICS ANALYSIS DATA SHEET
Page 4
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: CAL Case No. 9469/3758E Sample No. EX022(

QC Report No. 31586 Lab Sample No. 4126001AB

Probability that Identification is Correct:
A= HIGH B= MODERATE C= UNKNOWN D= SOLVENT IMPURITY, see VOA

CAS#	COMPOUND NAME	FRACTION	SCAN NUMBER	PURITY	Estimated CONC. J VALUE
	No A/BN				

No volatile compounds

FORM 1, PART B

Sample Number
EX 023

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ENSECO CAL LAB

Case No: 9469/3758E

Lab Sample ID No: 41260-2

QC Report No: 3758E

Sample Matrix: WATER

Contract No: 68-W8-0069

Data Release Authorized By: BM

Date Sample Received: 04/28/88

Volatile Compounds

Concentration: Low

Date Extracted/Prepared: 04/29/88

Date Analyzed: 04/29/88

Conc/Dil Factor: 1 pH: NR

Percent Moisture: NR

Percent Moisture (Decanted): NR

CAS Number		ug/L
74-87-3	Chloromethane	5 U
74-83-9	Bromomethane	5 U
75-01-4	Vinyl Chloride	5 U
75-00-3	Chloroethane	1 U
75-09-2	Methylene Chloride	1 J
67-64-1	Acetone	10 U
75-15-0	Carbon Disulfide	1 U
75-35-4	1,1-Dichloroethene	1 U
75-34-3	1,1-Dichloroethane	1 U
156-60-5	Trans-1,2-Dichloroethene	1 U
67-66-3	Chloroform	1 U
107-06-2	1,2-Dichloroethane	1 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	1 U
56-23-5	Carbon Tetrachloride	1 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	1 U

CAS Number		ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1 U
78-87-5	1,2-Dichloropropane	1 U
10061-02-6	Trans-1,3-Dichloropropene	1 U
79-01-6	Trichloroethene	1 U
124-48-1	Dibromochloromethane	1 U
79-00-5	1,1,2-Trichloroethane	1 U
71-43-2	Benzene	1 U
10061-01-5	cis-1,3-Dichloropropene	1 U
110-75-8	2-Chloroethylvinylether	10 U
75-25-2	Bromoform	1 U
591-78-6	2-Hexanone	10 U
108-10-1	4-Methyl-2-Pentanone	10 U
127-18-4	Tetrachloroethene	1 U
108-88-3	Toluene	1
108-90-7	Chlorobenzene	1 U
100-41-4	Ethylbenzene	1 U
100-42-5	Styrene	1 U
	Total Xylenes	1 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote 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. (e.g. 10J). If limit of detection is 10ug/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 >= 10ng/ul in the final extract should be confirmed by GC/MS

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

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

NA Not Analyzed.
See cover letter.
NR Not Required.
S Spiked Compound.

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No:9469/3758E

Sample Number
EX 023

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low

Date Extracted/Prepared: 04/29/88

Date Analyzed: 05/09/88

Conc/Dil. Factor: 1

GPC Cleanup: NO

Separatory Funnel Extraction: YES

Continuous Liquid - Liquid Extraction: NO

CAS Number		ug/L
108-95-2	Phenol	1.0 U
111-44-4	bis(-2-Chloroethyl)Ether	1.0 U
95-57-8	2-Chlorophenol	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
100-51-6	Benzyl Alcohol	1.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	1.0 U
106-44-5	4-Methylphenol	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.0 U
67-72-1	Hexachloroethane	1.0 U
98-95-3	Nitrobenzene	1.0 U
78-59-1	Isophorone	1.0 U
88-75-5	2-Nitrophenol	1.0 U
105-67-9	2,4-Dimethylphenol	1.0 U
65-85-0	Benzoic Acid	20 U
111-91-1	bis(-2-Chloroethoxy)Methane	1.0 U
120-83-2	2,4-Dichlorophenol	1.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0 U
91-20-3	Naphthalene	1.0 U
106-47-8	4-Chloroaniline	1.0 U
87-68-3	Hexachlorobutadiene	1.0 U
59-50-7	4-Chloro-3-Methylphenol	1.0 U
91-57-6	2-Methylnaphthalene	1.0 U
77-47-4	Hexachlorocyclopentadiene	1.0 U
88-06-2	2,4,6-Trichlorophenol	1.0 U
95-95-4	2,4,5-Trichlorophenol	1.0 U
91-58-7	2-Chloronaphthalene	1.0 U
88-74-4	2-Nitroaniline	5.0 U
131-11-3	Dimethyl Phthalate	1.0 U
208-96-8	Acenaphthylene	1.0 U
99-09-2	3-Nitroaniline	5.0 U

CAS Number		ug/L
83-32-9	Acenaphthene	1.0 U
51-28-5	2,4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	15 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2,4-Dinitrotoluene	1.0 U
606-20-2	2,6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	5.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine(1)	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	3.5 U
91-94-1	3,3'-Dichlorobenzidine	20 U
56-55-3	Benzo(a)Anthracene	1.5 U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~4.8~~ 1.0
218-01-9	Chrysene	1.5 U
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene	1.5 U
207-08-9	Benzo(k)Fluoranthene	1.5 U
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1,2,3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a,h)Anthracene	2.5 U
191-24-2	Benzo(g,h,i)Perylene	4.0 U

6/91.
11.7

(1) - Cannot be separated from diphenylamine

CLF: 10/11/85

Form I

Prepared by: AR

7/85

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No:9469/3758E

Sample Number
EX 023

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: LOW

Date Extracted/Prepared: 04/29/88

Date Analyzed: 05/06/88

Conc/Dil Factor: 1

GPC Cleanup: NO

Separatory Funnel Extraction: YES

Continuous Liquid - Liquid Extraction: NO

CAS Number		ug/L
319-84-6	Alpha-BHC	0.010 U
319-85-7	Beta-BHC	0.0050 U
319-86-8	Delta-BHC	0.0050 U
58-89-9	Gamma-BHC (Lindane)	0.0050 U
76-44-8	Heptachlor	0.030 U
309-00-2	Aldrin	0.0050 U
1024-57-3	Heptachlor Epoxide	0.0050 U
959-98-8	Endosulfan I	0.010 U
60-57-1	Dieldrin	0.010 U
72-55-9	4,4'-DDE	0.0050 U
72-20-8	Endrin	0.010 U
33213-65-9	Endosulfan II	0.010 U
72-54-8	4,4'-DDD	0.020 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.020 U
72-43-5	Methoxychlor	0.020 U
53494-70-5	Endrin Ketone	0.030 U
57-74-9	Chlordane	0.020 U
8001-35-2	Toxaphene	0.25 U
12674-11-2	Aroclor-1016	0.10 U
11104-28-2	Aroclor-1221	0.10 U
11141-16-5	Aroclor-1232	0.10 U
53469-21-9	Aroclor-1242	0.10 U
12672-29-6	Aroclor-1248	0.10 U
11097-69-1	Aroclor-1254	0.10 U
11096-82-5	Aroclor-1260	0.10 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s =850 or W_s =NR V_t = 5000 V_i = 5

ORGANICS ANALYSIS DATA SHEET
Page 4
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: CAL Case No. 9469/3758E Sample No. EX023

QC Report No. 3158E Lab Sample No. 4126002AB

Probability that Identification is Correct:
A= HIGH B= MODERATE C= UNKNOWN D= SOLVENT IMPURITY, see VOA

CAS#	COMPOUND NAME	FRACTION	SCAN NUMBER	PURITY	Estimated CONC. J VALUE
	No A/BN				

No volatile compounds

FORM 1, PART B

Sample Number
EX 024

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ENSECO CAL LAB
Case No: 9469/3758E
Lab Sample ID No: 41260-3
QC Report No: 3758E
Sample Matrix: WATER
Contract No: 68-W8-0069
Data Release Authorized By: 65M
Date Sample Received: 04/28/88

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 04/29/88
Date Analyzed: 04/29/88
Conc/Dil Factor: 1 pH: NR
Percent Moisture: NR
Percent Moisture (Decanted): NR

CAS Number		ug/L
74-87-3	Chloromethane	5 U
74-83-9	Bromomethane	5 U
75-01-4	Vinyl Chloride	5 U
75-00-3	Chloroethane	1 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	10 U
75-15-0	Carbon Disulfide	1 U
75-35-4	1,1-Dichloroethene	1 U
75-34-3	1,1-Dichloroethane	1 U
156-60-5	Trans-1,2-Dichloroethene	1 U
67-66-3	Chloroform	1 U
107-06-2	1,2-Dichloroethane	1 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	1 U
56-23-5	Carbon Tetrachloride	1 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	1 U

CAS Number		ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1 U
78-87-5	1,2-Dichloropropane	1 U
10061-02-6	Trans-1,3-Dichloropropene	1 U
79-01-6	Trichloroethene	1 U
124-48-1	Dibromochloromethane	1 U
79-00-5	1,1,2-Trichloroethane	1 U
71-43-2	Benzene	1 U
10061-01-5	cis-1,3-Dichloropropene	1 U
110-75-8	2-Chloroethylvinylether	10 U
75-25-2	Bromoform	1 U
591-78-6	2-Hexanone	10 U
108-10-1	4-Methyl-2-Pentanone	10 U
127-18-4	Tetrachloroethene	1 U
108-88-3	Toluene	3
108-90-7	Chlorobenzene	1 U
100-41-4	Ethylbenzene	1 U
100-42-5	Styrene	1 U
	Total Xylenes	1 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g. 10U) based on necessary concentration/ dilution actions. (This is not necessarily the instrument detection limit.) The footnote 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. (e.g. 10J). If limit of detection is 10ug/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 >= 10ng/ul in the final extract should be confirmed by GC/MS

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

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

NA Not Analyzed.
See cover letter.
NR Not Required.
S Spiked Compound.

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No:9469/3758E

Sample Number
EX 024

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low

Date Extracted/Prepared: 04/29/88

Date Analyzed: 05/09/88

Conc/DiL Factor: 1

GPC Cleanup: NO

Separatory Funnel Extraction: YES

Continuous Liquid - Liquid Extraction: NO

CAS Number		ug/L
108-95-2	Phenol	1.0 U
111-44-4	bis(-2-Chloroethyl)Ether	1.0 U
95-57-8	2-Chlorophenol	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
100-51-6	Benzyl Alcohol	1.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	1.0 U
106-44-5	4-Methylphenol	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.0 U
67-72-1	Hexachloroethane	1.0 U
98-95-3	Nitrobenzene	1.0 U
78-59-1	Isophorone	1.0 U
88-75-5	2-Nitrophenol	1.0 U
105-67-9	2,4-Dimethylphenol	1.0 U
65-85-0	Benzoic Acid	20 U
111-91-1	bis(-2-Chloroethoxy)Methane	1.0 U
120-83-2	2,4-Dichlorophenol	1.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0 U
91-20-3	Naphthalene	1.0 U
106-47-8	4-Chloroaniline	1.0 U
87-68-3	Hexachlorobutadiene	1.0 U
59-50-7	4-Chloro-3-Methylphenol	1.0 U
91-57-6	2-Methylnaphthalene	1.0 U
77-47-4	Hexachlorocyclopentadiene	1.0 U
88-06-2	2,4,6-Trichlorophenol	1.0 U
95-95-4	2,4,5-Trichlorophenol	1.0 U
91-58-7	2-Chloronaphthalene	1.0 U
88-74-4	2-Nitroaniline	5.0 U
131-11-3	Dimethyl Phthalate	1.0 U
208-96-8	Acenaphthylene	1.0 U
99-09-2	3-Nitroaniline	5.0 U

CAS Number		ug/L
83-32-9	Acenaphthene	1.0 U
51-28-5	2,4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	15 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2,4-Dinitrotoluene	1.0 U
606-20-2	2,6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	5.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine(1)	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	3.5 U
91-94-1	3,3'-Dichlorobenzidine	20 U
56-55-3	Benzo(a)Anthracene	1.5 U
117-81-7	bis(2-Ethylhexyl)Phthalate	18 U
218-01-9	Chrysene	1.5 U
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene	1.5 U
207-08-9	Benzo(k)Fluoranthene	1.5 U
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1,2,3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a,h)Anthracene	2.5 U
191-24-2	Benzo(g,h,i)Perylene	4.0 U

(1) - Cannot be separated from diphenylamine

CLF: 10/11/85 Form I Prepared by: AR 7/85

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No:9469/3758E

Sample Number
EX 024

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: LOW

Date Extracted/Prepared: 04/29/88

Date Analyzed: 05/06/88

Conc/Dil Factor: 1

GPC Cleanup: NO

Separatory Funnel Extraction: YES

Continuous Liquid - Liquid Extraction: NO

CAS Number		ug/L
319-84-6	Alpha-BHC	0.010 U
319-85-7	Beta-BHC	0.0050 U
319-86-8	Delta-BHC	0.0050 U
58-89-9	Gamma-BHC (Lindane)	0.0050 U
76-44-8	Heptachlor	0.030 U
309-00-2	Aldrin	0.0050 U
1024-57-3	Heptachlor Epoxide	0.0050 U
959-98-8	Endosulfan I	0.010 U
60-57-1	Dieldrin	0.010 U
72-55-9	4,4'-DDE	0.0050 U
72-20-8	Endrin	0.010 U
33213-65-9	Endosulfan II	0.010 U
72-54-8	4,4'-DDD	0.020 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.020 U
72-43-5	Methoxychlor	0.020 U
53494-70-5	Endrin Ketone	0.030 U
57-74-9	Chlordane	0.020 U
8001-35-2	Toxaphene	0.25 U
12674-11-2	Aroclor-1016	0.10 U
11104-28-2	Aroclor-1221	0.10 U
11141-16-5	Aroclor-1232	0.10 U
53469-21-9	Aroclor-1242	0.10 U
12672-29-6	Aroclor-1248	0.10 U
11097-69-1	Aroclor-1254	0.10 U
11096-82-5	Aroclor-1260	0.10 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s =950 or W_s =NR V_t = 5000 V_i = 5

ORGANICS ANALYSIS DATA SHEET
Page 4
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: CAL Case No. 9469/3758E Sample No. EX024

GC Report No. 3758E Lab Sample No. 4126003AB

Probability that Identification is Correct:
A= HIGH B= MODERATE C= UNKNOWN D= SOLVENT IMPURITY, see VOA

	CAS#	COMPOUND NAME	FRACTION	SCAN NUMBER	PURITY	Estimated CONC. J VALUE
1.	4602-84-0	2,6,10-DODECATRIEN-1-OL, 3,7,1	A/BN	1796	586	4.7 UG/L

COMPOUND NAME	PROBABILITY	COMMENTS
1. 2,6,10-DODECATRIEN-1-OL, 3,7,1	1. C	1.

No volatile compounds

FORM 1, PART B

Sample Number
EX 025

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ENSECO CAL LAB

Case No: 9469/3758E

Lab Sample ID No: 41260-4

QC Report No: 3758E

Sample Matrix: WATER

Contract No: 68-W8-0069

Data Release Authorized By: [illegible]

Date Sample Received: 04/28/88

Volatile Compounds

Concentration: Low

Date Extracted/Prepared: 04/29/88

Date Analyzed: 04/29/88

Conc/Dil Factor: 1 pH: NR

Percent Moisture: NR

Percent Moisture (Decanted): NR

CAS Number		ug/L
74-87-3	Chloromethane	5 U
74-83-9	Bromomethane	5 U
75-01-4	Vinyl Chloride	5 U
75-00-3	Chloroethane	1 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	10 U
75-15-0	Carbon Disulfide	1 U
75-35-4	1,1-Dichloroethene	1 U
75-34-3	1,1-Dichloroethane	1 U
156-60-5	Trans-1,2-Dichloroethene	1 U
67-66-3	Chloroform	1 U
107-06-2	1,2-Dichloroethane	1 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	1 U
56-23-5	Carbon Tetrachloride	1 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	1 U

CAS Number		ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1 U
78-87-5	1,2-Dichloropropane	1 U
10061-02-6	Trans-1,3-Dichloropropene	1 U
79-01-6	Trichloroethene	1 U
124-48-1	Dibromochloromethane	1 U
79-00-5	1,1,2-Trichloroethane	1 U
71-43-2	Benzene	1 U
10061-01-5	cis-1,3-Dichloropropene	1 U
110-75-8	2-Chloroethylvinylether	10 U
75-25-2	Bromoform	1 U
591-78-6	2-Hexanone	10 U
108-10-1	4-Methyl-2-Pentanone	10 U
127-18-4	Tetrachloroethene	1 U
108-88-3	Toluene	3
108-90-7	Chlorobenzene	1 U
100-41-4	Ethylbenzene	1 U
100-42-5	Styrene	1 U
	Total Xylenes	1 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote 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. (e.g. 10J). If limit of detection is 10ug/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 >= 10ng/ul in the final extract should be confirmed by GC/MS

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

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

NA Not Analyzed.
See cover letter.
NR Not Required.
S Spiked Compound.

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No:9469/3758E

Sample Number
EX 025

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low

Date Extracted/Prepared: 04/29/88

Date Analyzed: 05/10/88

Conc/Dil. Factor: 1

GPC Cleanup: NO

Separatory Funnel Extraction: YES

Continuous Liquid - Liquid Extraction: NO

CAS Number		ug/L
108-95-2	Phenol	1.0 U
111-44-4	bis(-2-Chloroethyl)Ether	1.0 U
95-57-8	2-Chlorophenol	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
100-51-6	Benzyl Alcohol	1.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	1.0 U
106-44-5	4-Methylphenol	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.0 U
67-72-1	Hexachloroethane	1.0 U
98-95-3	Nitrobenzene	1.0 U
78-59-1	Isophorone	1.0 U
88-75-5	2-Nitrophenol	1.0 U
105-67-9	2,4-Dimethylphenol	1.0 U
65-85-0	Benzoic Acid	20 U
111-91-1	bis(-2-Chloroethoxy)Methane	1.0 U
120-83-2	2,4-Dichlorophenol	1.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0 U
91-20-3	Naphthalene	1.0 U
106-47-8	4-Chloroaniline	1.0 U
87-68-3	Hexachlorobutadiene	1.0 U
59-50-7	4-Chloro-3-Methylphenol	1.0 U
91-57-6	2-Methylnaphthalene	1.0 U
77-47-4	Hexachlorocyclopentadiene	1.0 U
88-06-2	2,4,6-Trichlorophenol	1.0 U
95-95-4	2,4,5-Trichlorophenol	1.0 U
91-58-7	2-Chloronaphthalene	1.0 U
88-74-4	2-Nitroaniline	5.0 U
131-11-3	Dimethyl Phthalate	1.0 U
208-96-8	Acenaphthylene	1.0 U
99-09-2	3-Nitroaniline	5.0 U

CAS Number		ug/L
83-32-9	Acenaphthene	1.0 U
51-28-5	2,4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	15 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2,4-Dinitrotoluene	1.0 U
606-20-2	2,6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	5.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine(1)	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	3.5 U
91-94-1	3,3'-Dichlorobenzidine	20 U
56-55-3	Benzo(a)Anthracene	1.5 U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~5.0~~ 2 U
218-01-9	Chrysene	1.5 U
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene	1.5 U
207-08-9	Benzo(k)Fluoranthene	1.5 U
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1,2,3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a,h)Anthracene	2.5 U
191-24-2	Benzo(g,h,i)Perylene	4.0 U

6/2/8
M.T.

(1) - Cannot be separated from diphenylamine

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No:9469/3758E

Sample Number
EX 025

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: LOW

GPC Cleanup: NO

Date Extracted/Prepared: 04/29/88

Separatory Funnel Extraction: YES

Date Analyzed: 05/06/88

Continuous Liquid - Liquid Extraction: NO

Conc/Dil Factor: 1

CAS Number		ug/L
319-84-6	Alpha-BHC	0.010 U
319-85-7	Beta-BHC	0.0050 U
319-86-8	Delta-BHC	0.0050 U
58-89-9	Gamma-BHC (Lindane)	0.0050 U
76-44-8	Heptachlor	0.030 U
309-00-2	Aldrin	0.0050 U
1024-57-3	Heptachlor Epoxide	0.0050 U
959-98-8	Endosulfan I	0.010 U
60-57-1	Dieldrin	0.010 U
72-55-9	4,4'-DDE	0.0050 U
72-20-8	Endrin	0.010 U
33213-65-9	Endosulfan II	0.010 U
72-54-8	4,4'-DDD	0.020 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.020 U
72-43-5	Methoxychlor	0.020 U
53494-70-5	Endrin Ketone	0.030 U
57-74-9	Chlordane	0.020 U
8001-35-2	Toxaphene	0.25 U
12674-11-2	Aroclor-1016	0.10 U
11104-28-2	Aroclor-1221	0.10 U
11141-16-5	Aroclor-1232	0.10 U
53469-21-9	Aroclor-1242	0.10 U
12672-29-6	Aroclor-1248	0.10 U
11097-69-1	Aroclor-1254	0.10 U
11096-82-5	Aroclor-1260	0.10 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s =960 or W_s =NR V_t = 5000 V_i = 5

ORGANICS ANALYSIS DATA SHEET
Page 4
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: CAL Case No. 9469/3758E Sample No. EX025

GC Report No 3158E Lab Sample No. 4136004ABRI

Probability that Identification is Correct:
A= HIGH B= MODERATE C= UNKNOWN D= SOLVENT IMPURITY, see VOA

CAS#	COMPOUND NAME	FRACTION	SCAN NUMBER	PURITY	Estimated CONC J VALUE
	No A/BN				

No volatile compounds

FORM 1, PART B

Sample Number
EX 026

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ENSECO CAL LAB

Case No: 9469/3758E

Lab Sample ID No: 41260-5

QC Report No: 3758E

Sample Matrix: WATER

Contract No: 68-W8-0069

Data Release Authorized By: [illegible]

Date Sample Received: 04/28/88

Volatile Compounds

Concentration: Low

Date Extracted/Prepared: 04/29/88

Date Analyzed: 04/29/88

Conc/Dil Factor: 1 pH: NR

Percent Moisture: NR

Percent Moisture (Decanted): NR

CAS Number		ug/L
74-87-3	Chloromethane	5 U
74-83-9	Bromomethane	5 U
75-01-4	Vinyl Chloride	5 U
75-00-3	Chloroethane	1 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	~~139~~ 10U
75-15-0	Carbon Disulfide	1 U
75-35-4	1,1-Dichloroethene	1 U
75-34-3	1,1-Dichloroethane	1 U
156-60-5	Trans-1,2-Dichloroethene	1 U
67-66-3	Chloroform	1 U
107-06-2	1,2-Dichloroethane	1 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	1 U
56-23-5	Carbon Tetrachloride	1 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	1 U

CAS Number		ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1 U
78-87-5	1,2-Dichloropropane	1 U
10061-02-6	Trans-1,3-Dichloropropene	1 U
79-01-6	Trichloroethene	1 U
124-48-1	Dibromochloromethane	1 U
79-00-5	1,1,2-Trichloroethane	1 U
71-43-2	Benzene	1 U
10061-01-5	cis-1,3-Dichloropropene	1 U
110-75-8	2-Chloroethylvinylether	10 U
75-25-2	Bromoform	1 U
591-78-6	2-Hexanone	10 U
108-10-1	4-Methyl-2-Pentanone	10 U
127-18-4	Tetrachloroethene	1 U
108-88-3	Toluene	2
108-90-7	Chlorobenzene	1 U
100-41-4	Ethylbenzene	1 U
100-42-5	Styrene	1 U
	Total Xylenes	1 U

6/9/8 N.F.

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining 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 (e.g. 10U) based on necessary concentration/ dilution actions. (This is not necessarily the instrument detection limit.) The footnote 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. (e.g. 10J). If limit of detection is 10ug/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 >= 10ng/ul in the final extract should be confirmed by GC/MS

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

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

NA Not Analyzed.

See cover letter.

NR Not Required.

S Spiked Compound.

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No:9469/3758E

Sample Number
EX 026

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low

Date Extracted/Prepared: 04/29/88

Date Analyzed: 05/09/88

Conc/Dil. Factor: 1

GPC Cleanup: NO

Separatory Funnel Extraction: YES

Continuous Liquid - Liquid Extraction: NO

CAS Number		ug/L
108-95-2	Phenol	1.0 U
111-44-4	bis(-2-Chloroethyl)Ether	1.0 U
95-57-8	2-Chlorophenol	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
100-51-6	Benzyl Alcohol	1.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
95-48-7	2-Methylphenol	1.0 U
39638-32-9	bis(2-chloroisopropyl)Ether	1.0 U
106-44-5	4-Methylphenol	1.0 U
621-64-7	N-Nitroso-Di-n-Propylamine	1.0 U
67-72-1	Hexachloroethane	1.0 U
98-95-3	Nitrobenzene	1.0 U
78-59-1	Isophorone	1.0 U
88-75-5	2-Nitrophenol	1.0 U
105-67-9	2,4-Dimethylphenol	1.0 U
65-85-0	Benzoic Acid	20 U
111-91-1	bis(-2-Chloroethoxy)Methane	1.0 U
120-83-2	2,4-Dichlorophenol	1.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0 U
91-20-3	Naphthalene	1.0 U
106-47-8	4-Chloroaniline	1.0 U
87-68-3	Hexachlorobutadiene	1.0 U
59-50-7	4-Chloro-3-Methylphenol	1.0 U
91-57-6	2-Methylnaphthalene	1.0 U
77-47-4	Hexachlorocyclopentadiene	1.0 U
88-06-2	2,4,6-Trichlorophenol	1.0 U
95-95-4	2,4,5-Trichlorophenol	1.0 U
91-58-7	2-Chloronaphthalene	1.0 U
88-74-4	2-Nitroaniline	5.0 U
131-11-3	Dimethyl Phthalate	1.0 U
208-96-8	Acenaphthylene	1.0 U
99-09-2	3-Nitroaniline	5.0 U

CAS Number		ug/L
83-32-9	Acenaphthene	1.0 U
51-28-5	2,4-Dinitrophenol	15 U
100-02-7	4-Nitrophenol	15 U
132-64-9	Dibenzofuran	1.0 U
121-14-2	2,4-Dinitrotoluene	1.0 U
606-20-2	2,6-Dinitrotoluene	1.0 U
84-66-2	Diethylphthalate	1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0 U
86-73-7	Fluorene	1.0 U
100-01-6	4-Nitroaniline	5.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	15 U
86-30-6	N-Nitrosodiphenylamine(1)	1.5 U
101-55-3	4-Bromophenyl-phenylether	1.5 U
118-74-1	Hexachlorobenzene	1.5 U
87-86-5	Pentachlorophenol	2.0 U
85-01-8	Phenanthrene	1.0 U
120-12-7	Anthracene	2.5 U
84-74-2	Di-n-Butylphthalate	2.0 U
206-44-0	Fluoranthene	1.5 U
129-00-0	Pyrene	1.5 U
85-68-7	Butylbenzylphthalate	3.5 U
91-94-1	3,3'-Dichlorobenzidine	20 U
56-55-3	Benzo(a)Anthracene	1.5 U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~0.8~~ 1U
218-01-9	Chrysene	1.5 U
117-84-0	Di-n-Octyl Phthalate	1.5 U
205-99-2	Benzo(b)Fluoranthene	1.5 U
207-08-9	Benzo(k)Fluoranthene	1.5 U
50-32-8	Benzo(a)Pyrene	2.0 U
193-39-5	Indeno(1,2,3-cd)Pyrene	3.5 U
53-70-3	Dibenz(a,h)Anthracene	2.5 U
191-24-2	Benzo(g,h,i)Perylene	4.0 U

(1) - Cannot be separated from diphenylamine

CLF: 10/11/85 Form I Prepared by: AR

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No:9469/3758E

Sample Number
EX 026

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: LOW

Date Extracted/Prepared: 04/29/88

Date Analyzed: 5/13/88

Conc/Dil Factor: 1

GPC Cleanup: NO

Separatory Funnel Extraction: YES

Continuous Liquid - Liquid Extraction: NO

CAS Number		ug/L
319-84-6	Alpha-BHC	0.010 U
319-85-7	Beta-BHC	0.0050 U
319-86-8	Delta-BHC	0.0050 U
58-89-9	Gamma-BHC (Lindane)	0.0050 U
76-44-8	Heptachlor	0.030 U
309-00-2	Aldrin	0.0050 U
1024-57-3	Heptachlor Epoxide	0.0050 U
959-98-8	Endosulfan I	0.010 U
60-57-1	Dieldrin	0.010 U
72-55-9	4,4'-DDE	0.0050 U
72-20-8	Endrin	0.010 U
33213-65-9	Endosulfan II	0.010 U
72-54-8	4,4'-DDD	0.020 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.020 U
72-43-5	Methoxychlor	0.020 U
53494-70-5	Endrin Ketone	0.030 U
57-74-9	Chlordane	0.020 U
8001-35-2	Toxaphene	0.25 U
12674-11-2	Aroclor-1016	0.10 U
11104-28-2	Aroclor-1221	0.10 U
11141-16-5	Aroclor-1232	0.10 U
53469-21-9	Aroclor-1242	0.10 U
12672-29-6	Aroclor-1248	0.10 U
11097-69-1	Aroclor-1254	0.10 U
11096-82-5	Aroclor-1260	0.10 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s =900 or W_s =NR V_t = 5000 V_i = 5

ORGANICS ANALYSIS DATA SHEET
Page 4
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: CAL Case No. 9469/3758E Sample No. EX026

SDG Report No. 3758E Lab Sample No. 4126005AB

Probability that Identification is Correct:
A= HIGH B= MODERATE C= UNKNOWN D= SOLVENT IMPURITY, see VOA

	CAS#	COMPOUND NAME	FRACTION	SCAN NUMBER	PURITY	Estimated CONC. J VALUE
1	128-37-0	PHENOL, 2,6-BIS(1,1-DIMETHYLET	A/BN	1011	766	4.3 UG/L

COMPOUND NAME	PROBABILITY	COMMENTS
1. PHENOL, 2,6-BIS(1,1-DIMETHYLET	1. A	1. or dimer

No volatile compounds

FORM 1, PART B

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

CRL Receipt Date 5/19/88 FIT Receipt Date 4/9/88 Review Completed 6/10/88

TO: J. Kolb
FROM: Mary Gzyra
SUBJECT: MARBLE CLIFF QUARRIES DUMP
PAN: OH 0027 (1 hour charged for review) Case # 9469/3554

Sample Description

Organics (VOA, ABN, Pest/PCB)		Inorganics (Metals, Cyanide)	
#	Low Soil	#	Low Soil
	Low Water	10	Low Water
	Drinking Water	5	Drinking Water
	Other		Other

Project Data Status _____ Completed!!

✓ Incomplete, awaiting organic & inorganic soil, organic water.

FIT Data Review Findings:
As detected in MBX 229
Ag detected in MBX 227
Hg detected in MBX 227, 228
- other heavy metals detected

Check Data Sheets for Transcription Errors

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

Book No. 8 Page No. 50 Date Sampled 4/27/88

0759:2

recycled paper

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

MEMORANDUM

DATE: 6/10/88
TO: File
FROM: Mary Gzyra
SUBJECT: MARBLECLIFF QUARRIES DUMP
PAN

Below is a list of elements whose spike recoveries were biased low:

Element	Spike Recovery
Chromium	83%
Silver	73%

The low recoveries rates biases the data low, thereby raising the detection limits and estimating any reported values. This means that in the worst case the true concentration is greater than the reported values and the data is an underestimation.

It is the opinion of this reviewer that the data is acceptable for HRS scoring.

0759:2

recycled paper

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 6.3.88

SUBJECT: Review of Region V CLP Data
Received for Review on 5-19-88

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

TO: Data User: Fit

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

SITE NAME: Marble Cliff Quarries Dump (OH) SMO Case No. 9469SAS3554E

EPA Data Set No. SF5134 No. of Samples: 5 D.U./Activity Numbers Y905/C72122

CRL No. 88FK20522 - S24, D23, R01

SMO Traffic No. MEX226 - 230

CLP Laboratory: Chemtech Hrs. Required for Review: 5 hrs + 2 hrs

Following are our findings:

The laboratory's portion of this case contained 5 low level water samples analyzed for total metals and total cyanide.

The matrix spike recoveries for the following elements were outside of the SAS requirements: Al(84%), Be(76%), Ca(126%), Cr(83%), Cu(66%), Fe(49%), Mg(119%), K(128%), Ag(73%), and V(83%). The recoveries for Al, Be, and V indicates that the detection limits may be elevated and all data are estimated(UJ). The Ca recovery indicates that the data are biased high and all data are estimated(J) except MEX230 which is acceptable. The Cr data for samples MEX227-8 are biased low and are estimated(J). The detection limits may be elevated for Cr on samples MEX226, 229, and 230 and the data are estimated(UJ). The spike data for Mg indicates a high bias and all data are estimated(J) except for MEX230 which is acceptable. The spike recovery for Ag indicates a low bias and data for samples MEX227, 229 and 230 are estimated(J). The detection limits for samples MEX226 and 228 may be elevated and the Ag data are estimated(UJ).

(Next Page)

DK

( ) Data are acceptable for use.
(X) 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 Demsey CLP Quality Assurance Officer, Analytical Operations Branch

DATA QUALIFIERS

Laboratory: Chemtech **Case: 9469**

Sample MEX230 is a field blank and was found to contain the following elements in amounts >CRDL: Cu(34 ug/l), Fe(126 ug/l), Pb(4.3 ug/l) and K(3600 ug/l). All Fe and Pb data are estimated(J). The Cu(66%) spike indicates low bias and the blank indicates contamination, therefore all Cu data are estimated(J). Both the spike(128%) and blank indicates a high bias for K and all data are estimated(J).

Samples MEX227 and 228 are field duplicates. The following RPDs greater than 20% were found: K(118%), Cu(71.8%) and Fe(33.2%). All Hg and CN data are acceptable.

Reviewed by: Duane Kruse
Date: 5/31/88

D Kruse

COMPOUND FOOTNOTES	DEFINITION
U	Indicates compound was analyzed for but not detect
J	Indicates an estimated value.
UJ	Quantitation limit is estimated due to a Quality C protocol.
C	This flag applies to pesticide results where the i tion has been confirmed by GC/MS. Single componen ≥10 ng/ul in the final extract shall be confirmed
B	This flag is used when the analyte is found in the blank as well as in the sample. It indicates poss probable blank contamination and warns the data us appropriate action.
E	This flag identifies compounds whose concentratio calibration range of the GC/MS instrument for that analysis. This flag will not apply to pesticides/ by GC/EC methods.
D	This flag identifies all compounds identified in a at a secondary dilution factor.
A	This flag indicates that a TIC is a suspected aldo condensation product.
R	Results are unusable due to a major violation of Q

ANALYTE FOOTNOTES		DEFINITION
OLD	NEW	
E	E	Estimated or not reported due to inteference. See narrative.
S	S	Analysis by Method of Standard Additions.
R	N	Spike recoveries outside QC protocols which indica possible matrix problem. Data may be biased high See spike results and laboratory narrative.
*	*	Duplicate value outside QC protocols which indicat possible matrix problem.
+	+	Correlation coefficient for standard additions in 0.995. See review and laboratory narrative.
[ ]	B	Value is real, but is above instrument DL and belo
UJ		DL is estimated because of a QC protocol. DL is p above or below CRDL.
J		Value is above CRDL and is an estimated value beca Protocol.
U	U	Compound was analyzed for but not detected.
	M	Duplicate injection precision not met.
	W	Post digestion spike for furnance AA analysis is o control limits (35-115%), while sample absorbance spike absorbance.
NA		Value not available due to insufficient data.
NR		Value not recommended to be calculated, since chem
( )		Estimated value.

Source: Ecology and Environment, Inc. 1988.

Table 4- Cont.

Sample Collection Information and Parameters	> 1	> 2	> 3	> 4	> 5	>
Pesticides/PCBs Cont.						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Analyte Detected (values in mg/ [ppm])	UEX 226	227	228	229	BLANK 230	
aluminum						
antimony						
arsenic				14		
barium	[23]	[45]	[48]	215	[67]	
beryllium						
cadmium						
calcium	118000 J,N	114000 J,N	120000 J,N	106000 J,N		
chromium		[4.2] N	11 N			
cobalt						
copper	37 J,N	91 J,N	46 J,N	74 J,N	34 J,N	
iron	548 J,N	506 J,N	362 J,N	2400 J,N	126 J,N	
lead	4.7 J	3.0 J	2.5 J	3.1 J	4.3 J	
magnesium	43000 J,N	33600 J,N	35500 J,N	31500 J,N		
manganese	23	26	27	138		
mercury		0.60	0.60			
nickel	[14]					
potassium	2700 J,N	2000 J,N	7800 J,N	3600 J,N	3600 J,N	
selenium						
silver		6.4 N				
sodium	19100	73900	78200	21700		
thallium						
vanadium						
zinc	1120	45	49	32	[11]	
cyanide						

-- Not detected.

Disregard qualifier "N" for chromium & silver — data is acceptable

[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. MEX 226

Date 5/17/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Chemtech Consulting Group

CASE NO. 9469/3554E

SOW NO. 785

Lab Receipt Date 4/28/88

LAB SAMPLE ID. NO. GI-1242-01

QC REPORT NO. GI- 1242

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

(ug/L) or mg/kg dry weight (Circle One)

1.	Aluminum	100U P N	13.	Magnesium	43000 P N
2.	Antimony	5U ~~P~~ F S	14.	Manganese	23 P ~~AA~~
3.	Arsenic	5U F S	15.	Mercury	0.20U
4.	Barium	23 P	16.	Nickel	14 P
5.	Beryllium	2U P N	17.	Potassium	2700 A N
6.	Cadmium	0.5U ~~P~~ F S	18.	Selenium	2U F S
7.	Calcium	118000 P N	19.	Silver	5U P N
8.	Chromium	4U P N	20.	Sodium	19100 P
9.	Cobalt	6U P	21.	Thallium	2U F S
10.	Copper	37 P N	22.	Vanadium	4U P N
11.	Iron	548 P N	23.	Zinc	1120 P
12.	Lead	4.7 F S		Percent Solids (%)	
	Cyanide	10U			

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: Color: Before- Colorless After- Colorless. Clarity: Clear

Lab Manager [signature]

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 227

Date 5/17/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Chemtech Consulting Group

CASE NO. 9469/3554E

SOW NO. 785

Lab Receipt Date 4/28/88

LAB SAMPLE ID. NO. GI-1242-02

QC REPORT NO. GI-1242

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

(ug/L) or mg/kg dry weight (Circle One)

1.	Aluminum	100U P N	13.	Magnesium	33600 P N
2.	Antimony	5U P F S	14.	Manganese	26 P
3.	Arsenic	5U F S	15.	Mercury	0.60
4.	Barium	(45) P	16.	Nickel	11U P
5.	Beryllium	2U P N	17.	Potassium	2000 A N
6.	Cadmium	0.5U P F S	18.	Selenium	2U F S
7.	Calcium	114000 P N	19.	Silver	6.4 P N
8.	Chromium	(4.2) P N	20.	Sodium	73900 P
9.	Cobalt	6U P	21.	Thallium	2U F S
10.	Copper	91 P N	22.	Vanadium	4U P N
11.	Iron	506 P N	23.	Zinc	45 P N
12.	Lead	3.0 F S		Percent Solids (%)	
	Cyanide	10U			

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: Color: Before- Colorless After- Colorless. Clarity: Clear

Lab Manager [signature]

Discrepant qualifier "N" for chromium & silver - data is acceptable. M. [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.
MEX 228

Date 5/17/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Chemtech Consulting Group
CASE NO. 9469/355UE
SOW NO. 785
Lab Receipt Date 4/28/88
LAB SAMPLE ID. NO. GD-1242-03
QC REPORT NO. GD- 1242

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

(ug/L) or mg/kg dry weight (Circle One)

1.	Aluminum	100U P N	13.	Magnesium	35500 P N
2.	Antimony	5U P F S	14.	Manganese	27 P
3.	Arsenic	5U F S	15.	Mercury	0.60
4.	Barium	48 P	16.	Nickel	11U P
5.	Beryllium	2U P N	17.	Potassium	7800 A N
6.	Cadmium	0.5U P F S	18.	Selenium	2U F S
7.	Calcium	120000 P N	19.	Silver	5U P N
8.	Chromium	11 P N	20.	Sodium	78200 P
9.	Cobalt	6U P	21.	Thallium	2U F S
10.	Copper	40 P N	22.	Vanadium	4U P N
11.	Iron	362 P N	23.	Zinc	49 P
12.	Lead	2.5 F S		Percent Solids (%)	
	Cyanide	10U			

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: Color: Before- Colorless After- Colorless. Clarity: Clear

Lab Manager [signature]

Disregard qualifier "N" for chromium, data is acceptable. M. Boffa

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2-90

EPA Sample No. MEX 229

Date 5/17/89

INORGANIC ANALYSIS DATA SHEET

LAB NAME Chemtech Consulting Group

CASE NO. 9469/3554E

SOW NO. 785

Lab Receipt Date 4/28/89

LAB SAMPLE ID. NO. 01-1242-04

QC REPORT NO. 01- 1242

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

(ug/L) or mg/kg dry weight (Circle One)

1.	Aluminum	100U P N	13.	Magnesium	31500 P N
2.	Antimony	5U P F S	14.	Manganese	138 P
3.	Arsenic	14 F S	15.	Mercury	0.20U
4.	Barium	215 P	16.	Nickel	11U P
5.	Beryllium	2U P N	17.	Potassium	3600 A N
6.	Cadmium	0.5U P F S	18.	Selenium	2U F S
7.	Calcium	106000 P N	19.	Silver	5U P N
8.	Chromium	4U P N	20.	Sodium	21700 P
9.	Cobalt	6U P	21.	Thallium	2U F S
10.	Copper	74 P N	22.	Vanadium	4U P N
11.	Iron	2400 P N	23.	Zinc	32 P
12.	Lead	3.1 F S		Percent Solids (%)	
	Cyanide	10U			

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: Color: Before- Colorless After- Colorless Clarity: Clear

Lab Manager [signature]

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 230

Date 5/17/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME Chemtech Consulting Group

CASE NO. 9469/3554E

SOW NO. 785

Lab Receipt Date 4/28/88

LAB SAMPLE ID. NO. GI-1242-05

QC REPORT NO. GI- 1242

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water X Soil ____ Sludge ____ Other ____

(ug/L) or mg/kg dry weight (Circle One)

1.	Aluminum	100U P N	13.	Magnesium	500U P N
2.	Antimony	5U ~~P~~ F S	14.	Manganese	7U P
3.	Arsenic	5U F S	15.	Mercury	0.20U
4.	Barium	[6.7] P	16.	Nickel	11U P
5.	Beryllium	2U P N	17.	Potassium	[3600 A N]
6.	Cadmium	0.5U ~~P~~ F S	18.	Selenium	2U F S
7.	Calcium	500U P N	19.	Silver	5U P N
8.	Chromium	4U P N	20.	Sodium	597U P
9.	Cobalt	6U P	21.	Thallium	2U F S
10.	Copper	[34 P N]	22.	Vanadium	4U P N
11.	Iron	[126 P N]	23.	Zinc	[(11) P]
12.	Lead	(4.3) F S		Percent Solids (%)	
	Cyanide	10U			

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: Color: Before- Colorless After- Colorless. Clarity: Clear

Lab Manager [signature]

QC EXCEPTION SUMMARY REPORT

CASE # 94169 SAS 35 SITE Marble Cliff Quarries MATRIX: Water WATER SAMPLE SPK. _____
DATA SET # SF5134 LAB Chemtech CONC. : Low WATER SAMPLE DUP. _____
LAB Q.C.# _____ REVIEWED BY D Kinsel MATRIX: _____ SOIL SAMPLE SPK. _____
DATE: 5/25/88 CONC. : _____ 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													84											
Antimony																								
Arsenic																								
Barium																								
Beryllium													76											
Cadmium																								
Calcium													126											
Chromium													83											
Cobalt																								
Copper													66											
Iron													49											
Lead																								
Magnesium													119.											
Manganese																								
Mercury																								
Nickel																								
Potassium													128											
Selenium																								
Silver													73.											
Sodium																								
Thallium																								
Tin																								
Vanadium													83											
Zinc																								
Cyanide																								

Field Blk MEX230 Cu (34 µg/l) Fe (126) Pb (4.3)
K (3600)

Field Dups MEX227 & 228
K (118%) Cu (71.8%) Fe (33.2%)

Pb ICP (8.2%) spike

WA85-0939 - AMENDMENT THREE (3)
U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date 5/17/88

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

Lab Name Chemtech Consulting Group

Case No. 9469/3554E

SOW No. ILM

Q.C. Report No. GB-1242

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MEX 226	921242-01		
227	-02		
228	-03		
229	-04		
230	-05		

RECEIVED
MAY 19 1988
U.S. EPA CENTRAL REGIONAL LAB

Comments:

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 - 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.

ILM Amend.

Form III A

Q. C. Report No. 1242

BLANKS

LAB NAME Chemtech Consulting Group

DATE 5/17/88

CASE NO. 9469/3554E

UNITS ug/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank[1] Matrix: L. WATER ug/L	Matrix: 2
Metals:							
1. Aluminum	100 U	100U	100U	100U	100U	100U	
2. Antimony	U						
3. Arsenic	U						
4. Barium	5 U	5U	5U	5U	5U	5U	
5. Beryllium	2 U	2U	2U	2U	2U	2U	
6. Cadmium	U						
7. Calcium	500 U	500U	500U	500U	500U	500U	
8. Chromium	4 U	4U	4U	4U	4U	4U	
9. Cobalt	6 U	6U	6U	6U	6U	6U	
10. Copper	9 U	9U	9U	9U	9U	9U	
11. Iron	100 U	100U	100U	100U	100U	100U	
12. Lead	2 U	2U	2U	2U			
13. Magnesium	500 U	500U	500U	500U	500U	500U	
14. Manganese	7 U	7U	7U	7U	7U	7U	
15. Mercury	0.20 U	~~2.0~~ 0.20U				0.20U	
16. Nickel	11 U	11U	11U	(11)	11U	11U	
17. Potassium	U						
18. Selenium	2 U	2U	2U				
19. Silver	5 U	5U	5U	5U	5U	5U	
20. Sodium	U	597U	597U	597U	597U	597U	
21. Thallium	U						
22. Vanadium	4 U	4U	4U	4U	4U	4U	
23. Zinc	7 U	7U	7U	7U	7U	7U	
Other: Iron(P)	21 U	21U	21U	21U	21U	21U	
Cyanide	10U	10U				10U	

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

Form III B

Q. C. Report No. G2-1242

BLANKS

LAB NAME Chemtech Consulting Group

CASE NO. 9469/3554E

DATE 5/17/84

UNITS ug/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank[1] Matrix: 1	Matrix: 2
Metals:							
1. Aluminum	U	100U	100U				
2. Antimony	U						
3. Arsenic	U						
4. Barium	U	5U	5U				
5. Beryllium	U	2U	2U				
6. Cadmium	U						
7. Calcium	U	500U	500U				
8. Chromium	U	4U	4U				
9. Cobalt	U	6U	6U				
10. Copper	U	9U	9U				
11. Iron	U	100U	100U				
12. Lead	U						
13. Magnesium	U	500U	500U				
14. Manganese	U	7U	7U				
15. Mercury	U						
16. Nickel	U	11U	11U				
17. Potassium	U						
18. Selenium	U						
19. Silver	U	5U	5U				
20. Sodium	U	597U	597U				
21. Thallium	U						
22. Vanadium	U	4U	4U				
23. Zinc	U	7U	7U				
Other: LEAD(P)	U	21U	21U				
Cyanide							

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

Form III (c)

C. C. Report No. 242

BLANKS

LAB NAME Chemical Analytical Group

CASE NO. 9469/3554E

DATE 9/17/88

UNITS ug/L

Compound	Initial Calibration Blank Value		Continuing Calibration Blank Value 1	2	3	4	Preparation Blank[1] Matrix: L-WATER ug/L 1	Matrix: 2
Metals:								
1. Aluminum		U						
2. Antimony	5	U	5U	5U	5U	5U		
3. Arsenic	5	U	5U	5U	5U	5U		
4. Barium		U						
5. Beryllium		U						
6. Cadmium	0.5	U	0.5U	0.5U	0.5U	0.5U		
7. Calcium		U						
8. Chromium		U						
9. Cobalt		U						
10. Copper		U						
11. Iron		U						
12. Lead		U						
13. Magnesium		U						
14. Manganese		U						
15. Mercury		U						
16. Nickel		U						
17. Potassium	500	U	500U	500U	500U	500U	500U	
18. Selenium	~~2~~	U	~~2U~~	~~2U~~	~~2U~~	~~2U~~		
19. Silver		U						
20. Sodium		U						
21. Thallium	2	U	2U	2U	2U	2U		
22. Vanadium		U						
23. Zinc		U						
Other: TPHD(P)		U						
Cyanide								

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

Form III (D)

C. C. Report No. 62-1242

BLANKS

LAB NAME Chemical Consultants Group

DATE 5/17/88 [illegible]

CASE NO. 9469/3554E

UNITS ug/l

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank[1] Matrix: 1	Matrix: 2
Metals:							
1. Aluminum	"						
2. Antimony	"	5U	5U	5U	5U		
3. Arsenic	U	5U	5U	5U	5U		
4. Barium	"						
5. Beryllium	U						
6. Cadmium	U	0.5U	0.5U	0.5U	0.5U		
7. Calcium	U						
8. Chromium	U						
9. Cobalt	U						
10. Copper	U						
11. Iron	U						
12. Lead	U						
13. Magnesium	U						
14. Manganese	U						
15. Mercury	U						
16. Nickel	U						
17. Potassium	U	500U	500U	500U			
18. Selenium	U	~~2U~~	~~2U~~	~~2U~~	~~2U~~		
19. Silver	U						
20. Sodium	U						
21. Thallium	U	2U	2U	2U			
22. Vanadium	U						
23. Zinc	U						
Other: LEAD(P)	U						
Cyanide							

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

Form III (E)

C. C. Report No. [illegible]-1242

BLANKS

LAB NAME [illegible] CASE NO. 9469/3554E

DATE 5/17/[illegible] UNITS [illegible]

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank* Matrix 1	Matrix 2
Metals:							
1. Aluminum	U						
2. Antimony	U	5U					
3. Arsenic	U	5U	5U	5U	5U		
4. Barium	U						
5. Beryllium	U						
6. Cadmium	U	0.5U					
7. Calcium	U						
8. Chromium	U						
9. Cobalt	U						
10. Copper	U						
11. Iron	U						
12. Lead	U						
13. Magnesium	U						
14. Manganese	U						
15. Mercury	U						
16. Nickel	U						
17. Potassium	U						
18. Selenium	U	~~2U~~					
19. Silver	U						
20. Sodium	U						
21. Thallium	U						
22. Vanadium	U						
23. Zinc	U						
Other: LEAD(P)	U						
Cyanide							

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

Form V A

C. C. Report No. 2-2

SPIKE SAMPLE RECOVERY

LAB NAME Chemtech Consulting Group

DATE [illegible]

CASE NO. 4469/3554E

EPA Sample No. MEX227

Lab Sample ID No. G-1242-02

Units ug/L

Matrix LOW WATER

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
metals: 1. Aluminum	85-115 ~~75-125~~	1670	100U	2000	84N
2. Antimony	-			500	NR
3. Arsenic	-			20	NR
4. Barium	-	1770	[45]	2000	86
5. Beryllium	-	38	2U	50	76N
6. Cadmium	-			50	NR
7. Calcium	-			---	NR
8. Chromium	-	170	[4.2]	200	83N
9. Cobalt	-	430	6U	500	86
10. Copper	-	257	91	250	66N
11. Iron	-	995	506	1000	49N
12. Lead	-			20	NR
13. Magnesium	-			---	NR
14. Manganese	-	208	26	200	91
15. Mercury	(80-120)	1.8	0.60	1.0	85
16. Nickel	(85-115)	341	11U	400	85
17. Potassium	-			---	NR
18. Selenium	-			10	NR
19. Silver	-	43	6.4	50	73N
20. Sodium	-			---	NR
21. Thallium	-			50	NR
22. Vanadium	-	417	4U	500	83N
23. Zinc	-	223	45	200	89
Other: LEAD(P)		440	28	500	82N
Cyanide	(80-120)	98	10U	100	98

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

"N" - out of control

"NR" - Not required

Comments:

Form V B

C. C. Report No. 1242

SPIKE SAMPLE RECOVERY

LAB NAME Chemtech Consultant Group

DATE 4/17/92

CASE NO. 9469/3554E

EPA Sample No. MEX227

Lab Sample ID No. G-1242-02 (PDS#2)

Units ug/L

Matrix LOW WATER

Compound	Control Limits % R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	% R[1]
Metals:					
1. Aluminum	85-115 ~~75-125~~			2000	
2. Antimony	-			500	
3. Arsenic	-			20	
4. Barium	-			2000	
5. Beryllium	-			50	
6. Cadmium	-			50	
7. Calcium	-	177000	114000	50,000	126N
8. Chromium	-			200	
9. Cobalt	-			500	
10. Copper	-			250	
11. Iron	-			1000	
12. Lead	-			20	
13. Magnesium	-	63300	33600	25,000	119N
14. Manganese	-			200	
15. Mercury	-			1.0	
16. Nickel	-			400	
17. Potassium	-	27600	2000	20,000	128N
18. Selenium	-			10	
19. Silver	-			50	
20. Sodium	-	129000	73900	50,000	110
21. Thallium	-			50	
22. Vanadium	-			500	
23. Zinc	-			200	
Other: LEAD(P)				500	
Cyanide	-				

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

"N" - out of control

"NR" - Not required

Comments:

Form VI

W. O. Report No. 1242

DUPLICATES

LAB NAME Chemtech Consulting Group

DATE [illegible]

CASE NO. 9469/3554E

EPA Sample No. MEX 226

Lab Sample ID No. 6-1242-01

Units ug/L

Matrix LOW WATER

Compound	Control Limit*	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum		100 U	100 U	NC
2. Antimony		5 U	5 U	NC
3. Arsenic		5 U	5 U	NC
4. Barium		(23)	(23)	NC
5. Beryllium		2 U	2 U	NC
6. Cadmium		0.5 U	0.5 U	NC
7. Calcium	±20%	118000	121000	2.5
8. Chromium		4 U	4 U	NC
9. Cobalt		6 U	6 U	NC
10. Copper	±10	37	42	13
11. Iron	±20%	548	559	2.0
12. Lead	±2.0	4.7	4.0	16
13. Magnesium	±20%	43000	43900	2.1
14. Manganese	±10	23	24	4.2
15. Mercury		0.20 U	0.20 U	NC
16. Nickel		(14)	11 U	NC
17. Potassium	±2000	2700	2300	16
18. Selenium		2 U	2 U	NC
19. Silver		5 U	5 U	NC
20. Sodium	±20%	19100	20000	4.6
21. Thallium		2 U	2 U	NC
22. Vanadium		4 U	4 U	NC
23. Zinc	±20%	1120	1150	2.6
Other: LEAD(P)		21 U	21 U	NC
Cyanide		10 U	10 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 VII

Q. C. Report No. 62-1242

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE.

LAB NAME Chemtech Consulting Group CASE NO. 9449/35545 DATE 5/17/88

Compound	Required Detection Limits (CRDL)-ug/L	Instrument Detection Limits (IDL) - ug/L ICP/AA ID #: 9000	Furnace ID #: 1	2	3	4	Lab Control Sample ug/L True	Found	%R
Metals:									
1. Aluminum.	100	100					990	1020	103
2. Antimony	5		5	5	5	5	505		NR
3. Arsenic	5		5	~~3~~5	~~3~~5	~~4~~5	49		NR
4. Barium	50	5					990	975	98
5. Beryllium	5	2					240	240	100
6. Cadmium	0.5	5	0.5	0.5	0.5	0.5	244		NR
7. Calcium	1000	500					24900	24400	98
8. Chromium	10	4					253	251	99
9. Cobalt	10	6					237	247	104
10. Copper	10	9					271	262	97
11. Iron	100	100					995	1040	104
12. Lead	2		~~3~~2	~~3~~2	~~3~~2	~~3~~2	49		NR
13. Magnesium	1000	500					12500	12400	99
14. Manganese	10	7					256	268	105
15. Mercury	0.2	0.15					5.2		NR
16. Nickel	20	11					248	247	100
17. Potassium	2000	500*					10000	11500	115
18. Selenium	2			2	2	4	104		NR
19. Silver	5	5	~~4~~5	~~5~~	~~5~~	~~5~~	254	~~2~~243	96
20. Sodium	1000	597					25350	24100	95
21. Thallium	2		~~4~~2	2	2	2	49		NR
22. Vanadium	10	4					256	250	98
23. Zinc	20	7					1550	1520	98
OtherLead(P)	5	21					2255	2200	98
Cyanide	10	NR	NR					105	105

NR- Not required

AA ID # 1. Hitachi
2. P.E. 30/30
3. P.E. 5000
4. P.E. 30/30Z

* Hitachi Flame

APPENDIX F

WELL LOGS OF THE AREA OF THE SITE

WELL LOG AND DRILLING REPORT

ORIGINAL

1

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

Nº 153936

County Franklin Township Franklin Section of Township or Lot Number

Owner Anderson Haulage Address 3040 McKinley Ave. Cols. O.

rilled For:Service Products Building,Inc. 3494 East Seventh Ave. Cols.19,O BE.12719

Location of property Same - Marble Cliff Quarry That Has Been Filled Up To McKinley Ave. Level

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 73'

Type of screen None Length of screen None

Type of pump 7½ H.P. Reda Subermigble

Capacity of pump 150 G.P.M. 140' Head

Depth of pump setting 200'

PUMPING TEST

Pumping rate 150 G.P.M. Duration of test 24 hrs.

Drawdown 20' ft. Date 4 June 1957

Developed capacity Unknown

Static level—depth to water 70 ft.

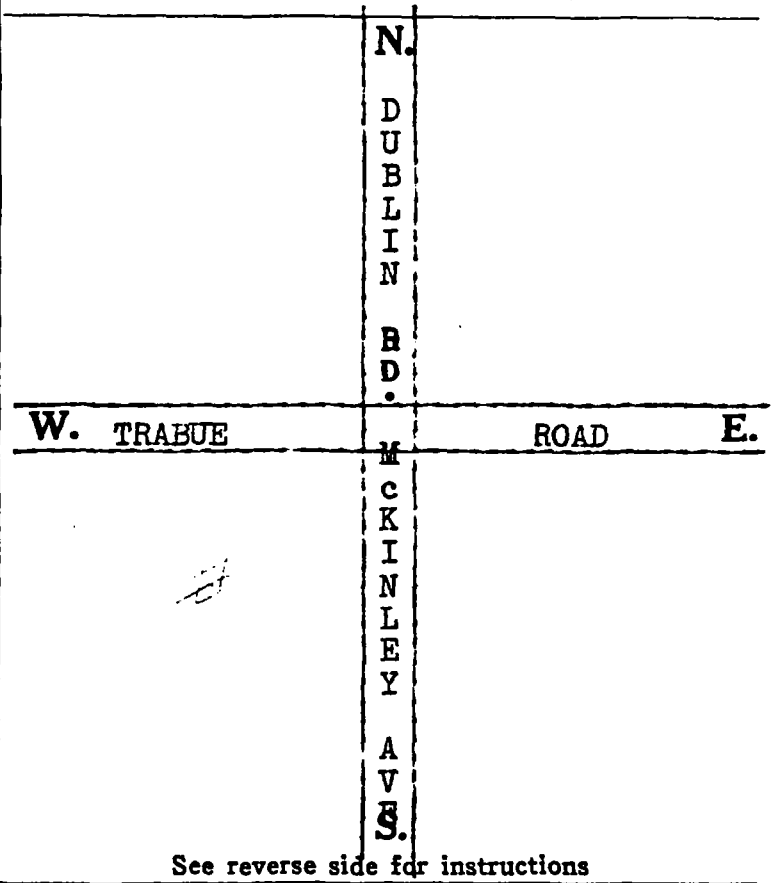
Pump installed by Sells-Suburban Well & Water Supply Dublin, Ohio

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Fill Dirt & Rocks	0 Feet	71 Ft.
Limestone	71	217

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Sells-Suburban Well & Water Sup Date 10 June 1957

Address Dublin,O. TU 98312 Signed Robert L. Sells

WELL LOG AND DRILLING REPORT

ORIGINAL

2

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 398312

County Franklin Township Franklin Section of Township

Owner Galli Bros. Address 586 Lothar ct

Location of property 2880 McKinley ave

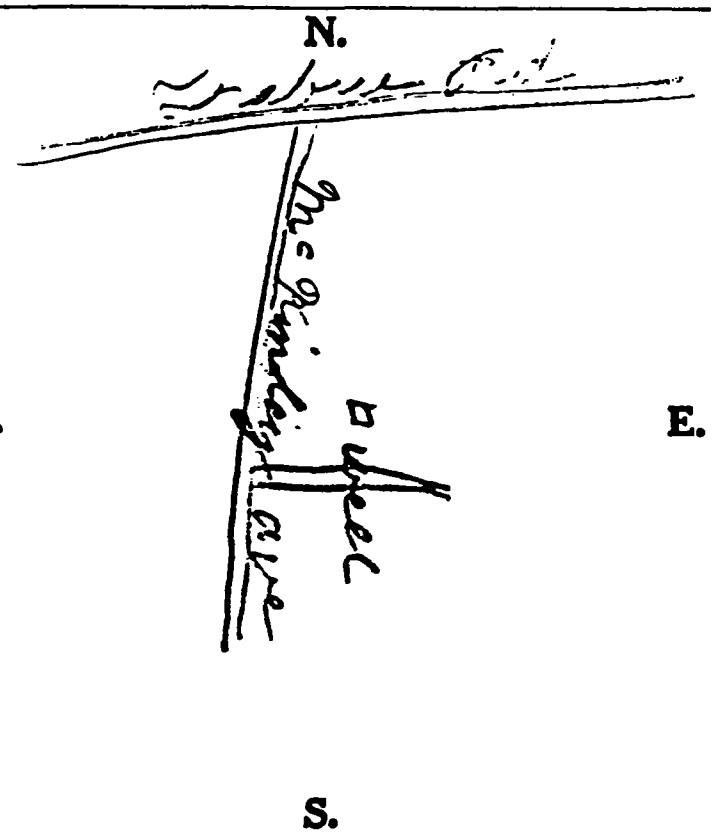
CONSTRUCTION DETAILS	BAILING OR PUMPING TEST (Specify one by circling)
Casing diameter 4¼" Length of casing 72'	Test Rate 8 G.P.M. Duration of test hrs.
Type of screen Length of screen	Drawdown none ft. Date
Type of pump	Static level-depth to water 83 ft.
Capacity of pump	Quality (clear, cloudy, taste, odor)
Depth of pump setting	
Date of completion	Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
clay	0 Feet	2 Ft.
Broken stone	2	8
clay	8	20
Broken stone	20	22
clay	22	45
Broken stone	45	48
clay	48	65
Broken stone	65	71
solid Limestone	71	101

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Sam Plummer & Sons Date Feb 7 1970

Address Route 1 Dublin Ohio Signed Bill Plummer

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 384282

3

County FRANKLIN Township NORWICH Section of Township

Owner JULIA F. TYNAN Address 549 E. BROAD ST. COL. O.

Location of property DUBLIN RD.

CONSTRUCTION DETAILS

Casing diameter 5½" O.D. Length of casing 17 # PIPE

Type of screen NONE Length of screen

Type of pump 1 H.P. WESTROL SUB.

Capacity of pump 12 G.P.M.

Depth of pump setting 150 FT

Date of completion 4/1/69

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 10 G.P.M. Duration of test 6 hrs.

Drawdown 10 ft. Date 4/1/69

Static level-depth to water 83 ft.

Quality (clear, cloudy, taste, odor)

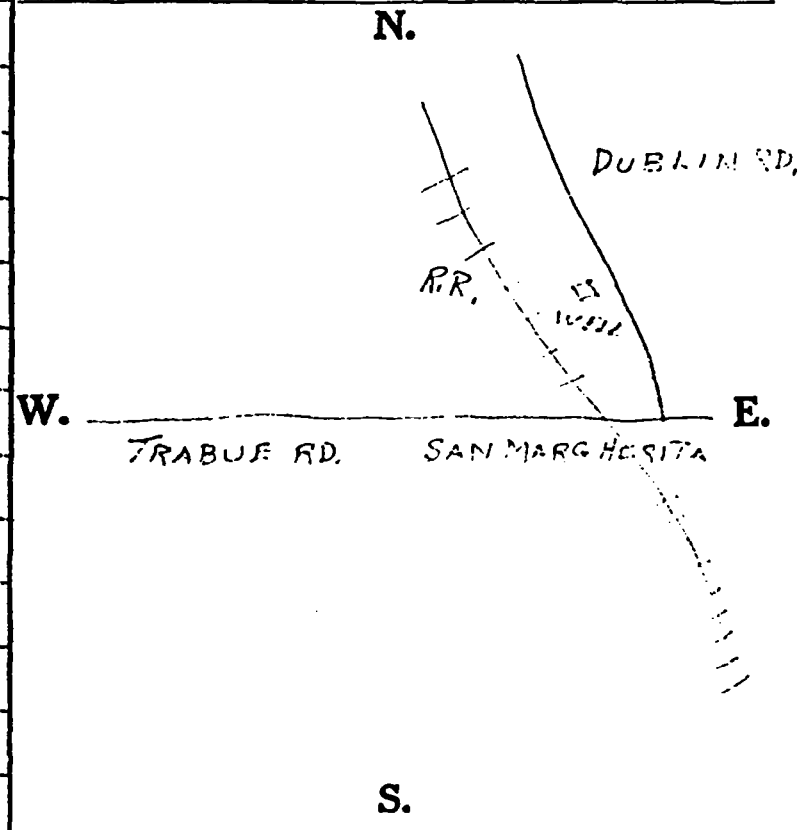
Pump installed by RAY VOLLMUTH CO.

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
CLAY	0 Feet	2 Ft.
LIMESTONE	2	240
WATER		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm RAY VOLLMUTH CO. Date 4/7/69

Address R#3 PATASKALA, O. Signed

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

4

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

Nº 314338

County Franklin Township Franklin Section of Township

Owner Robert T Farley Address 1991 W Granville Rd Worthington O

Location of property 9840 Fisher Rd

CONSTRUCTION DETAILS

Casing diameter 4 1/4" Length of casing 37'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate G.P.M. Duration of test hrs.

Drawdown none ft. Date (25 hrs)

Static level-depth to water 67 ft of water ft.

Quality (clear, cloudy, taste, odor)

Bailing test 12 gal per min

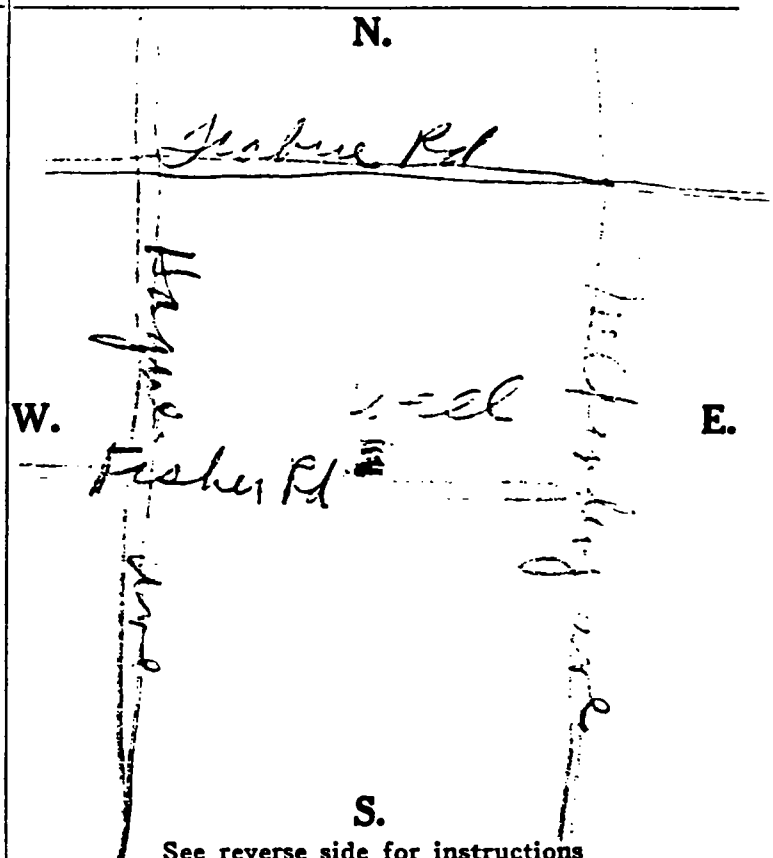
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Clay	0	24
Stone	24	92

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Sam Plummer & Sons Date Nov 5-65

Address Dublin Ohio Rt 1 Signed Sam Plummer

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

5

No. 194881

County Franklin Township Franklin Section of Township

Owner George Jennings Construction Co. Address 780 West Lane Columbus

Location of property Patton Warehouse Harrison Ave. Col. O.

CONSTRUCTION DETAILS

Casing diameter 4 1/4" Length of casing 35'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown None ft. Date

Developed capacity

Static level—depth to water 48 ft of water ft.

Pump installed by

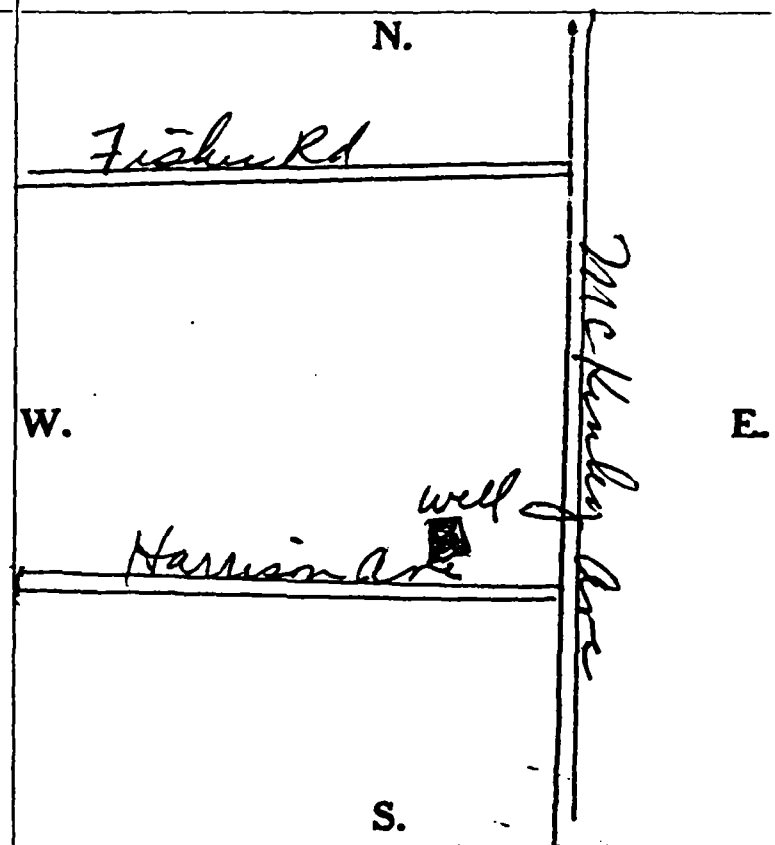
Bailing test 12 gal per min.

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Clay	0	5'
Yellow Stone	5	33
Gray Limestone	33	65'
Red Limestone	65	104

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Sam Plummer & Sons Date Feb 26th 1958

Address Dublin O. R 1 Signed Sam Plummer

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

472637

6

COUNTY Franklin TOWNSHIP Cols. SECTION OF TOWNSHIP OR LOT NUMBER

OWNER Andy Miller ADDRESS 2200 McKinley Ave

LOCATION OF PROPERTY McKinley – Harrison Ave.

CONSTRUCTION DETAILS

Casing diameter 4 1/4 Length of casing 67

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 10 gpm Duration of test 1 1/2 hrs

Drawdown 8 ft Date Oct 21-1974

Static level (depth to water) 38 ft

Quality (clear, cloudy, taste, odor) Cloudy

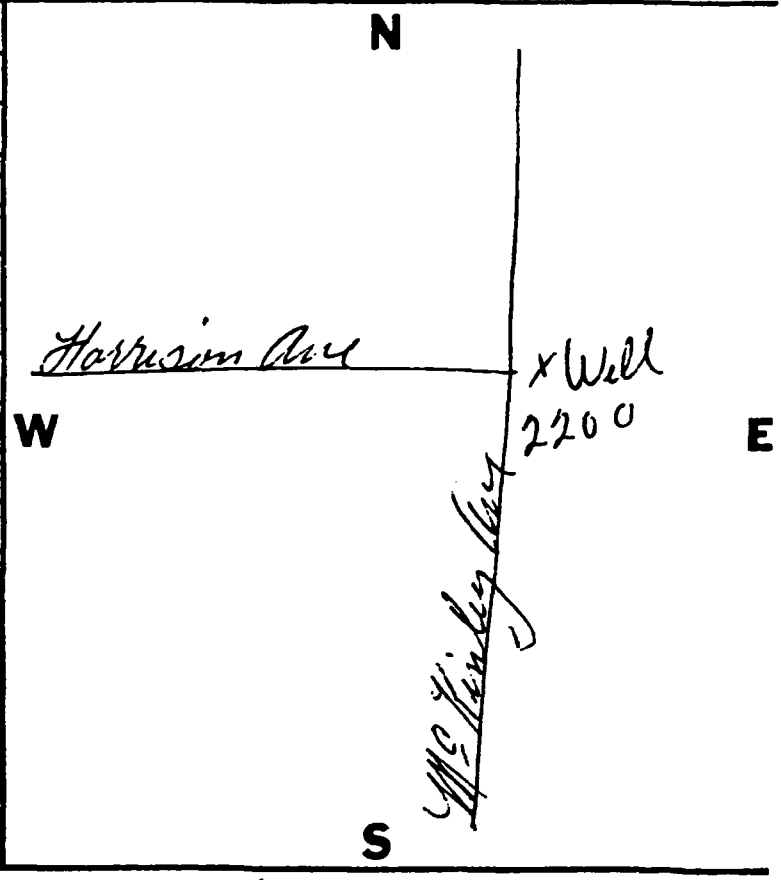
Pump installed by

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Dry Gravel	0 ft	17 ft
Sand	17	20
Rock	20	58
Red Clay	58	61
Solid Rock	61	157

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Merle Wright DATE Oct 21-1974

ADDRESS Smith Rd Orient Ohio SIGNED Joseph Eckler

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

639348

7

COUNTY Franklin TOWNSHIP Columbus SECTION OF TOWNSHIP

OWNER Alaskan Insulation, Inc ADDRESS 2179 McKinley Ave

LOCATION OF PROPERTY 2179 McKinley Ave., Cols., Ohio

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing 90'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 210 gpm Duration of test one hrs

Drawdown ft Date 8-23-83

Static level (depth to water) 43' ft

Quality (clear, cloudy, taste, odor)

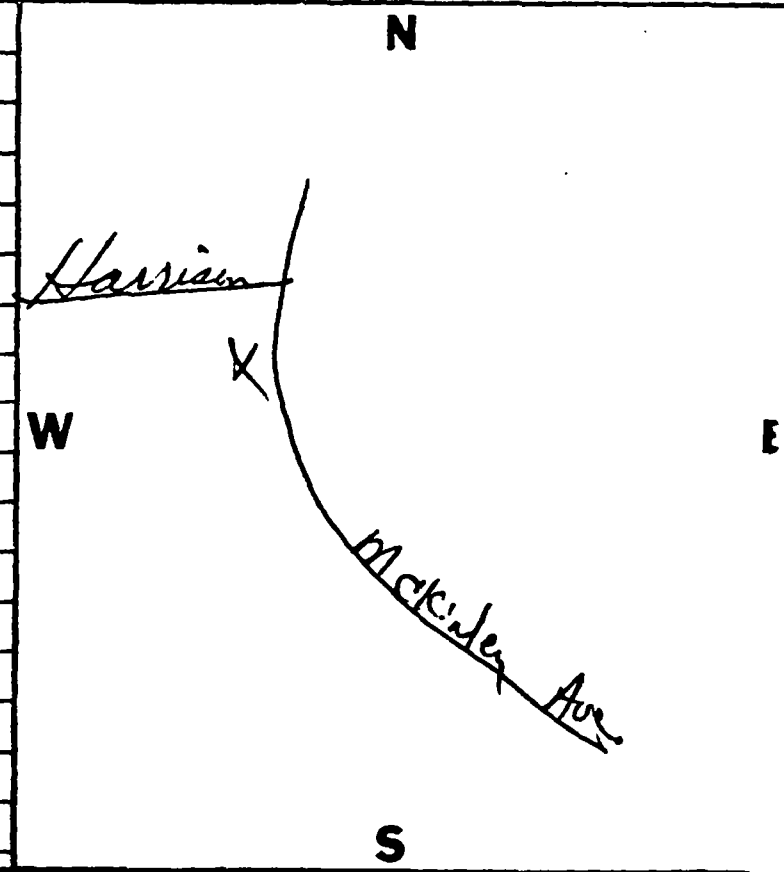
Pump installed by

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay	0 ft	13 ft
Limestone w/clay	13	120
Cavern	120	128
Limestone	128	140

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM R. C. Barry Co. DATE August 23, 1983

ADDRESS Galloway, Ohio SIGNED Everett Meenach

*If additional space is needed to complete well log, use next consecutive numbered form.

ORIGINAL COPY - ODNR, DIVISION OF WATER, FOUNTAIN SQ., COLS., OHIO 43224

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

NO CARBON PAPER NECESSARY - SELF-TRANSCRIBING

637934 8

COUNTY Franklin TOWNSHIP Franklin SECTION OF TOWNSHIP

OWNER John Baljak ADDRESS 3459 Trabue Rd

LOCATION OF PROPERTY Trabue Rd

CONSTRUCTION DETAILS

Casing diameter 4 1/4" Length of casing 106'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 8 gpm Duration of test hr

Drawdown none ft Date

Static level (depth to water) 42 f

Quality (clear, cloudy, taste, odor)

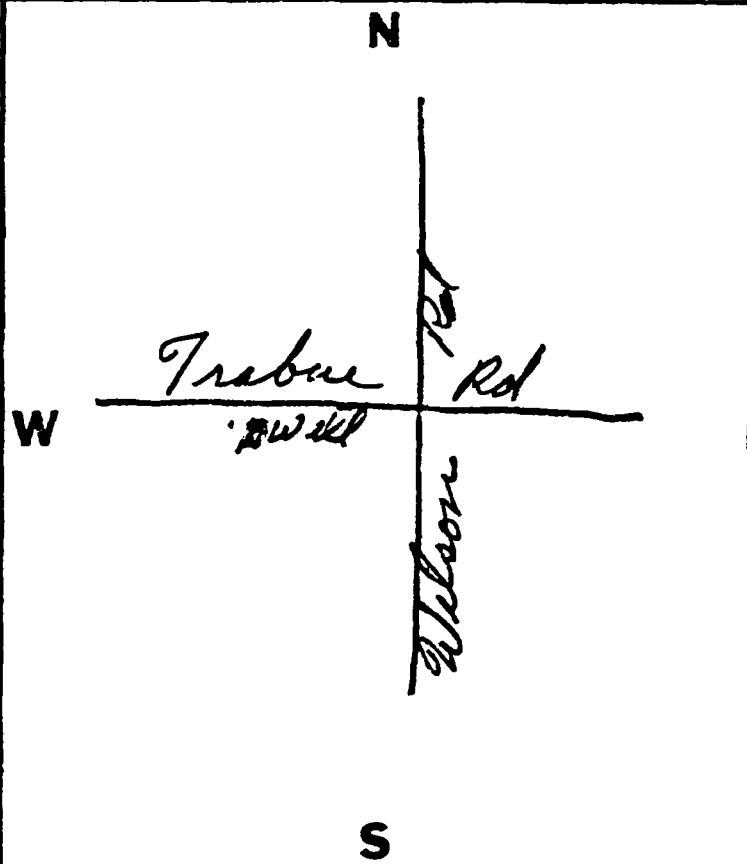
Pump installed by

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay	0 ft	10 ft
Bankrun Gravel	10	28
Clay	28	102
Limestone	102	107

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Sam Plummer + Sons DATE 15 Sept 83

ADDRESS Route 4 Dublin Ohio SIGNED Eddie Plummer

*If additional space is needed to complete well log, use next consecutive numbered form.

ORIGINAL COPY - ODNR, DIVISION OF WATER, FOUNTAIN SQ., COLS., OHIO 43224

WELL LOG AND DRILLING REPORT

ORIGINAL

9

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

No 141710

County Franklin Township Franklin Section of Township or Lot Number

Owner C. J. Detamore Address 1515 Ashland Ave. Columbus, Ohio

Location of property 4699 Trabue Rd.

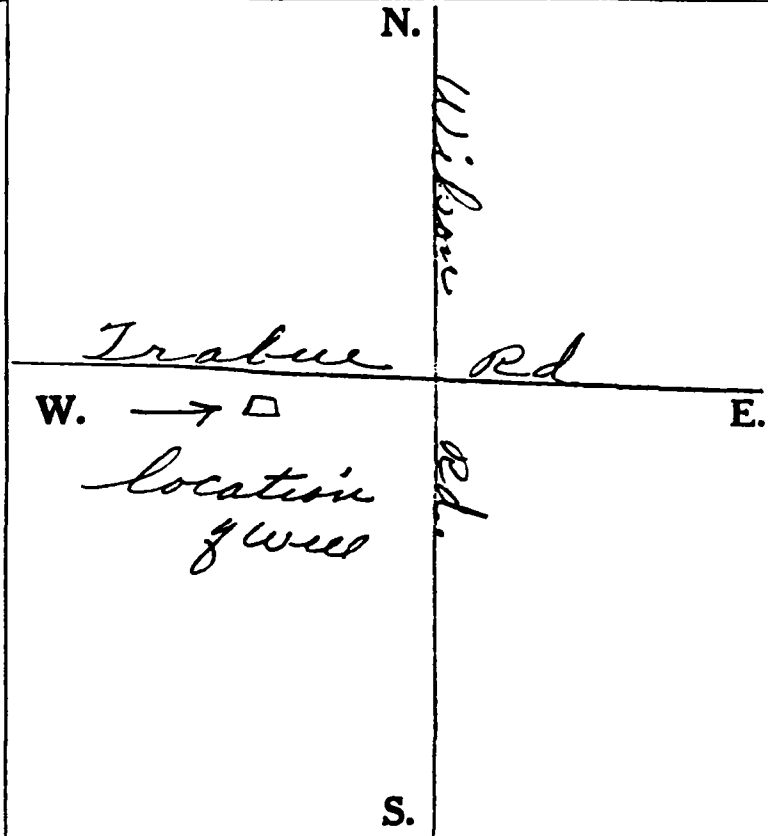
CONSTRUCTION DETAILS	PUMPING TEST
Casing diameter 4 1/4" Length of casing 79 ft.	Pumping rate ____ G.P.M. Duration of test ____ hrs.
Type of screen None Length of screen ____	Drawdown None ft. Date ____
Type of pump ____	Developed capacity ____
Capacity of pump ____	Static level—depth to water 40 ft.
Depth of pump setting ____	Pump installed by Tested By Bailing

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	27 Ft.
Gravel	27	35
Clay	35	40
Gravel	40	60
Clay	60	78
limestone	78	86

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Plummer Bros Date Oct. 26/54

Address Dublin Ohio Signed H. L. Plummer

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

429035

10

County Franklin Township Norwich Section of Township

Owner Russell Seely Address 3265 Walcutt Rd

Location of property 7 Northeast of RT40 on Walcutt Rd.

CONSTRUCTION DETAILS

Casing diameter 4½ Length of casing 56 ft

Type of screen Length of screen

Type of pump

Capacity of pump 100 ft

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 10 G.P.M. Duration of test 2 hrs

Drawdown None ft. Date 4-26-72

Static level-depth to water 75 ft.

Quality (clear, cloudy, taste, odor) Clear

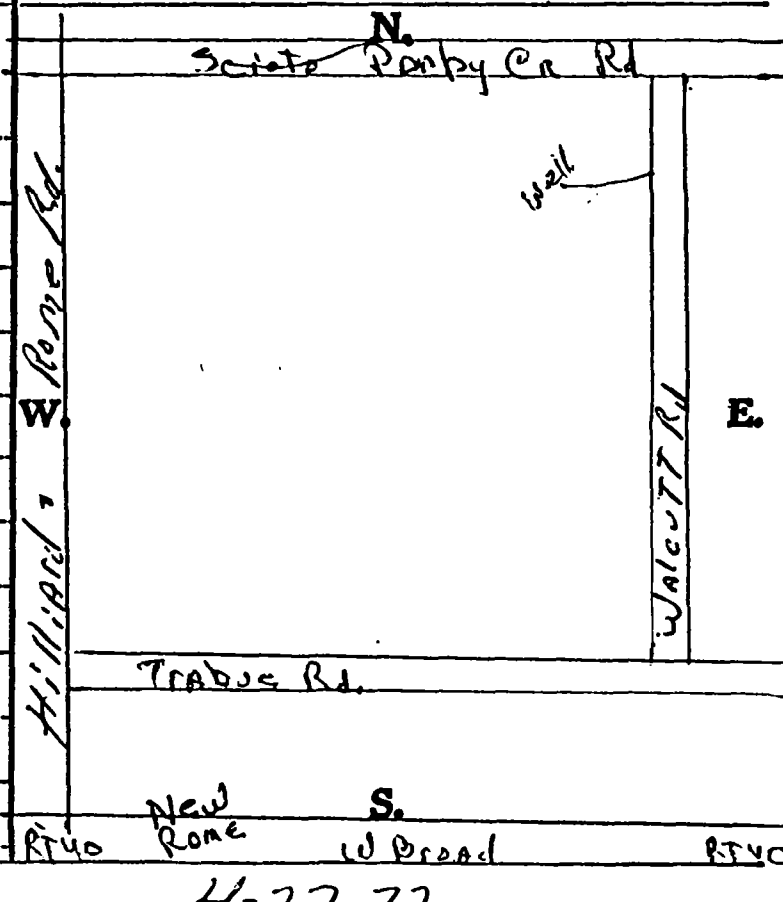
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Blue Clay	0 Feet	45 Ft.
Sand	45	49
Yellow Clay	49	55
Pounced Rock	55	56
Limestone	56	138
Well AT 138		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm C. A. Underhill Date 4-27-72

Address 1182 Hubbard Road Signed Charles A Underhill Sr.

Galloway Ohio 43119

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

654211

11

NO CARBON PAPER NECESSARY- SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

Permit Number 63

COUNTY Franklin TOWNSHIP Hilliard Norwich SECTION OF TOWNSHIP

OWNER Keepsakes Landscape ADDRESS 3872 Scioto Darby Cr. Rd.

LOCATION OF PROPERTY Same

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 77'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion
Rotary ☐ or Cable ☐

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 60+ gpm Duration of test 1 hrs

Drawdown ft Date 4-25-86

Static level (depth to water) 25 ft

Quality (clear, cloudy, taste, odor)

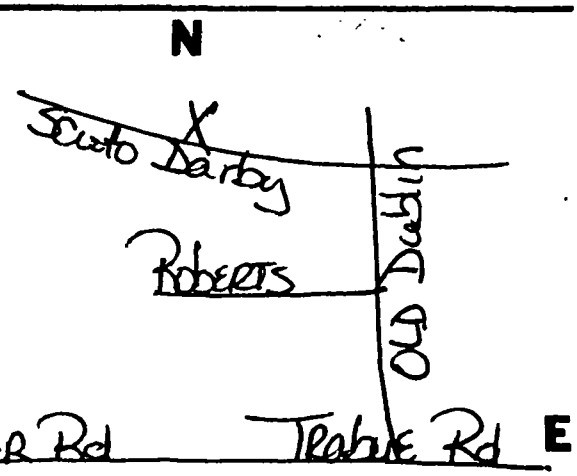
Pump installed by

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay	0 ft	8 ft
Sand & Gravel	8	12
Clay	12	30
Sand & Gravel	30	33
Clay	33	45
Clay & Gravel Mixed	45	48
Gravel	48	63
Broken Limestone	63	67
Limestone	67	132

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



* If additional space is needed to complete well log, use next consecutively numbered form.

DNR 7802

DRILLING FIRM R.C. Barry Inc. REGISTRATION NUMBER 218 DATE April 25, 1986

ADDRESS Galloway, Ohio 43119 SIGNED Everett Meerach

Completion of this form is required by 1521.05, Ohio Revised Code - file within 30 days after completion.

WHITE ORIGINAL COPY - ODNR, DIVISION OF WATER, FOUNTAIN SQ., COLS., OHIO 43224 / Blue - Customer's Copy / Pink - Driller's Copy / Green - Local Health Dept. Copy

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

No. 111250

12

County Franklin Township Norwich Section of Township or Lot Number

Owner Delmer Sparks Address Hilliard Ohio - R.F.D.

Location of property 4420 Scioto Darby Rd.

CONSTRUCTION DETAILS	PUMPING TEST
Casing diameter 4 1/4 Length of casing 72'	Pumping rate ..... G.P.M. Duration of test ..... hrs.
Type of screen None Length of screen	Drawdown None ft. Date
Type of pump	Developed capacity
Capacity of pump	Static level—depth to water 20 ft.
Depth of pump setting	Pump installed by Tested By Bailing

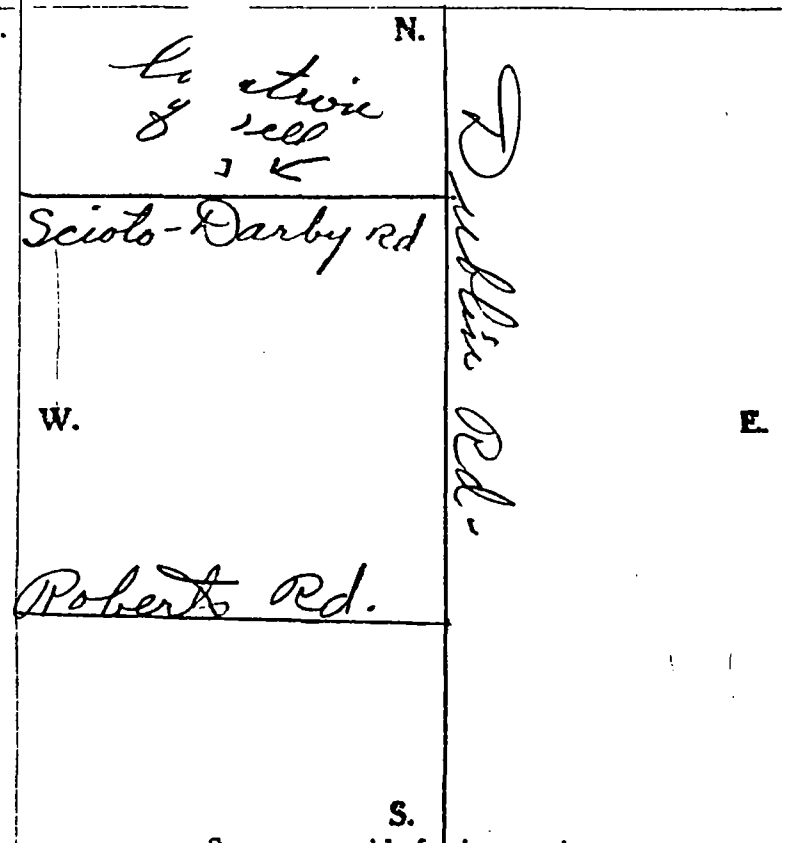
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	65 Ft.
sand	65	68
limestone	68	81

X=1,828,100
Y= 126,400-N

SKETCH SHOWING LOCATION

State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Plummer Bros Date Sept. 28/53

Address Dublin Ohio Signed H. L. Plummer

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

№ 324621

13

County Franklin Township Norwich Section of Township

Owner Andover Construction Co Address 2572 Andover Rd. Columbus 21 - Ohio

Location of property 3359 Sunnybrook Dr.

CONSTRUCTION DETAILS

Casing diameter 4" Length of casing 59'

Type of screen None Length of screen

Type of pump Submersible

Capacity of pump 600 gal. per hr.

Depth of pump setting 84 ft.

Date of completion June 14/65

BAILING OR PUMPING TEST

Pumping Rate 15 G.P.M. Duration of test 2 hrs.

Drawdown None ft. Date

Static level-depth to water 44 ft.

Quality (clear, cloudy, taste, odor)

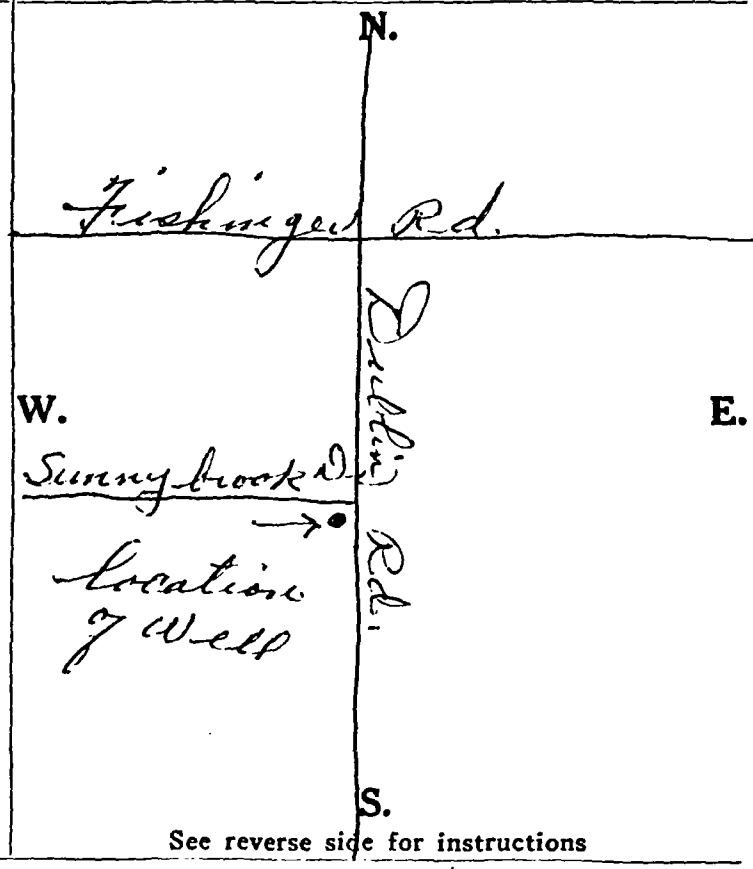
Pump installed by Geo. Plummer

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	8 Ft.
Limestone	8	120

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Plummer Bros Date June 14/65

Address 53 N. Riverview St. Dublin Ohio Signed Harold L. Plummer

ORIGINA

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

№ 111218

14

County Franklin Township Norwich Section of Township or Lot Number 4200 Dublin Rd.

Owner Mark Stewart Address Colu - Ohio

Location of property 3091 - Fishinger Rd.

CONSTRUCTION DETAILS

Casing diameter 4 1/4" Length of casing 30'

Type of screen None Length of screen

Type of pump

Capacity of pump

Depth of pump setting 95 ft.

PUMPING TEST

Pumping rate G.P.M. Duration of test hrs

Drawdown None ft. Date

Developed capacity

Static level—depth to water 80 ft.

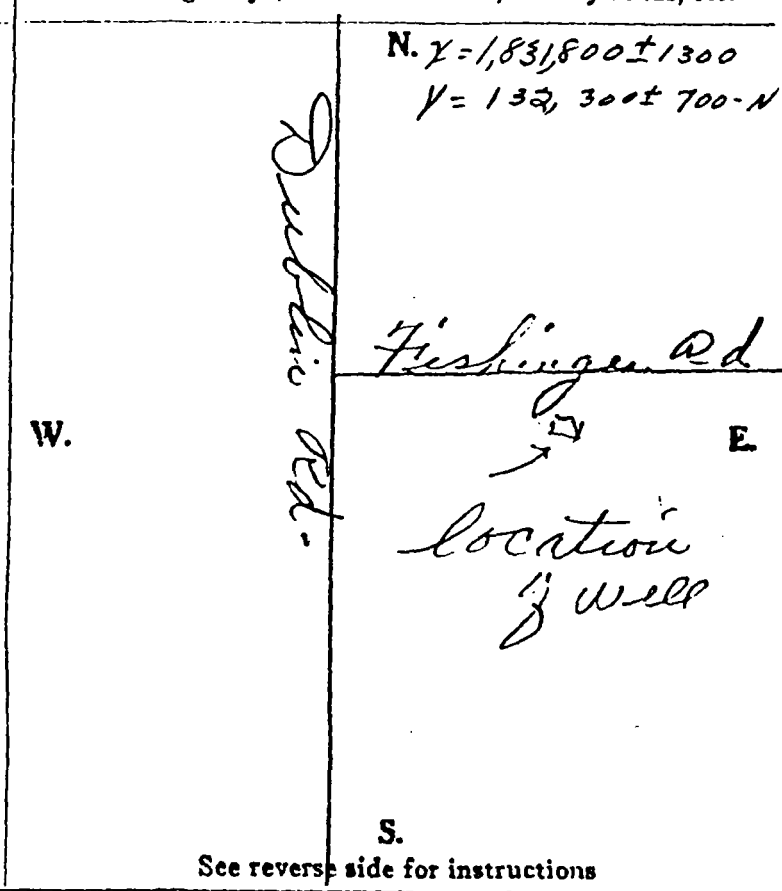
Pump installed by Tested By Bailing

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	15 Ft.
limestone	15	117

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Plummer Bros Date July 3/53

Address Dublin Ohio Signed H. L. Plummer

Lot No. 6