SCREENING SITE INSPECTION REPORT
FOR
BREMEN BEARING, INC.
BREMEN, INDIANA
U.S. EPA ID: IND009457060
SS ID: NONE
TDD: F05-8711-019
PAN: FIN0464SA

EPA Region 5 Records Ctr.
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MARCH 16, 1989

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International Specialists in the Environment

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IND009457060

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1. INTRODUCTION

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

The site was initially discovered by the Indiana State Board of Health (ISBH), Division of Land Pollution Control (DLPC) in 1985. The site was discovered when it was learned that potentially hazardous materials from the Bremen Bearing facility had been dumped at the site (IDEM 1985).

The site was evaluated in the form of a preliminary assessment (PA) that was submitted to U.S. EPA. The PA was prepared by Stephanie Dean of ISBH; PA and site inspection functions are now performed by the Indiana Department of Environmental Management (IDEM). The PA is dated June 14, 1985.

FIT prepared an SSI work plan for the Bremen Bearing site under technical directive document (TDD) F05-8711-019, issued on November 16, 1987. The SSI work plan was approved by U.S. EPA on November 23, 1987. The SSI of the Bremen Bearing site was conducted on December 8, 1987, under TDD F05-8711-019, issued on November 16, 1987.

The FIT SSI included an interview with a site representative, a reconnaissance inspection of the site, and the collection of six soil samples.

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

> All sites will receive a screening SI to 1) collect additional data beyond the PA to enable a more refined preliminary HRS [Hazard Ranking System] score, 2) establish priorities among sites most likely to qualify for the NPL [National Priorities List], and 3) identify the most critical data requirements for the listing SI step. A screening SI will not have rigorous data quality objectives (DQOs). Based on the refined preliminary HRS score and other technical judgement factors, the site will then either be designated as NFRAP [no further remedial action planned], or carried forward as an NPL listing candidate. A listing SI will not automatically be done on these sites, however. First, they will go through a management evaluation to determine whether they can be addressed by another authority such as RCRA [Resource Conservation and Recovery Act].... Sites that are designated NFRAP or deferred to other statutes are not candidates for a listing SI.
>
> The listing SI will address all the data requirements of the revised HRS using field screening and NPL level DQOs. It may also provide needed data in a format to support remedial investigation work plan development. Only sites that appear to score high enough for listing and that have not been deferred to another authority will receive a listing SI. (U.S. EPA 1988)

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

2. SITE BACKGROUND

2.1 INTRODUCTION

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

2.2 SITE DESCRIPTION

Bremen Bearing, Inc., a division of SKF, Inc., is an active bearing manufacturer that has deposited waste materials on-site in unlined settling ponds from 1963 to the present (IDEM 1985). The Bremen Bearing site is located on a 20-acre parcel of land in an industrial park. The Bremen Bearing site is on the west side of Bremen, Indiana, in Marshall County (SE1/4SW1/4 sec. 27, T.35N., R.3E.) on U.S. Route 6 West, within Bremen's municipal boundaries (see Figure 2-1). A 4-mile radius map of the Bremen Bearing site is provided in Appendix A.

2.3 SITE HISTORY

The site property is currently owned by SKF, Inc., of King of Prussia, Pennsylvania, which has been sole owner of the entire property since 1980. At the time of the SSI, the on-site facility was operating as Bremen Bearing, Inc., a division of SKF, Inc. Prior to 1980, SKF, Inc., owned only the southern portion of the site property, and Miller Bearing, Inc., owned the northern portion. In 1963, a joint venture between SKF, Inc., and Nadella, Inc., a French company, purchased the

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business that was operating on-site from Miller Bearing, Inc. The joint venture leased the portion of the property that was owned by Miller Bearing. In 1980, SKF, Inc., took over Nadella's interest in the business. It is believed that SKF, Inc., also purchased the northern portion of the site property at that time (McGlocklin 1987).

From 1963 to the present, Bremen Bearing has been placing process-related wastes (including liming sludge and knobbing sludge) generated at the manufacturing facility into unlined ponds on-site. Bremen Bearing possesses the following special permits granted by the state: 1) baghouse disposal permit, 2) grinding swarf disposal permit, 3) baghouse operator permit, and 4) permit to discharge to city sewer system.

There have been no regulatory-related response activities at the site during its operation as Bremen Bearing, Inc. (McGlocklin 1987).

3. SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS

3.1 INTRODUCTION

This section outlines procedures and observations of the SSI of the Bremen Bearing 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 Bremen Bearing site is provided in Appendix B. The U.S. EPA Immediate Removal Action Checksheet for the Bremen Bearing site is provided in Appendix C.

3.2 SITE REPRESENTATIVE INTERVIEW

Craig A. Almanza, FIT team leader, and Clifford M. Florczak of FIT, conducted an interview with Carson L. Eddy, Director of Engineering for Bremen Bearing, and William C. McGlocklin, Corporate Environmental Specialist for SKF, Inc. The interview was conducted on December 8, 1987, at 9:00 a.m. in the Bremen Bearing offices at U.S. Route 6 West, Bremen, Indiana. The interview was conducted to gather information that would aid FIT in conducting SSI activities.

3.3 RECONNAISSANCE INSPECTION

Following the site representative interview, FIT conducted a reconnaissance inspection of the Bremen Bearing site and surrounding

area in accordance with Ecology and Environment (E & E) Health and Safety guidelines. 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. FIT also determined exact sampling locations during the reconnaissance inspection.

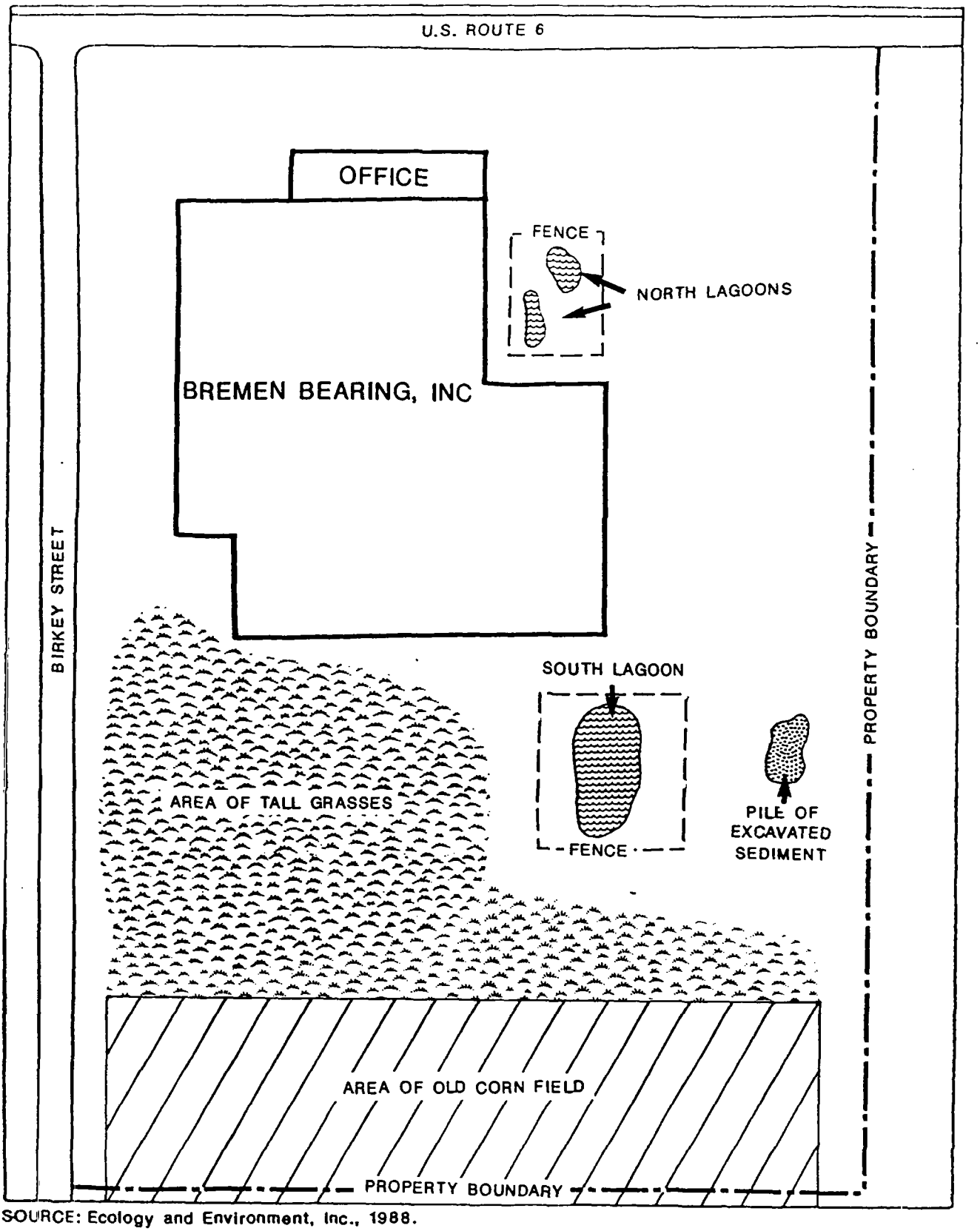
The reconnaissance inspection was begun on December 8, 1987, at 10:00 a.m. Eddy and McGlocklin accompanied FIT during the reconnaissance inspection.

Reconnaissance Inspection Observations. The Bremen Bearing, Inc., site is located in the south-central section of an industrial park. Land use immediately surrounding the Bremen Bearing site is light to heavy industrial with agricultural land less than 1 mile north and west of the industrial park. Residences are located east and south of the park. The surface topography of the area surrounding the site consists of flat lands.

The site is bordered on the north by U.S. Route 6 West. The site is bounded on the west by Birkey Street. Industrial facilities lie to the east of the site, and a residential area lies to the south. The site perimeter is not fenced. There is no security guard or other means of security utilized at the site.

The Bremen Bearing, Inc., manufacturing facility is located on the northern portion of the site. To the east of this building are two settling lagoons (north lagoons). To the southeast of the building is another settling lagoon (south lagoon). Both the north lagoons and the south lagoon are completely surrounded by fencing, which is equipped with gates and locks (see Figure 3-1 for locations of site features).

In most areas on-site, the ground was level and was covered with tall grass. There was a large pile of what appeared to be excavated lagoon sediment adjacent to the south lagoon. The pile was approximately 7 feet high, 10 feet wide, and 10 feet long. The lagoon sediment was not covered and was exposed. The principal areas of waste disposal noted by FIT were the on-site settling lagoons. No leachate



SOURCE: Ecology and Environment, Inc., 1988.

SCALE
0 80 160 FEET

FIGURE 3-1 SITE FEATURES

collection systems or surface runoff diversion structures were observed at the site. FIT also observed water from the south lagoon flowing into the field adjacent to the site.

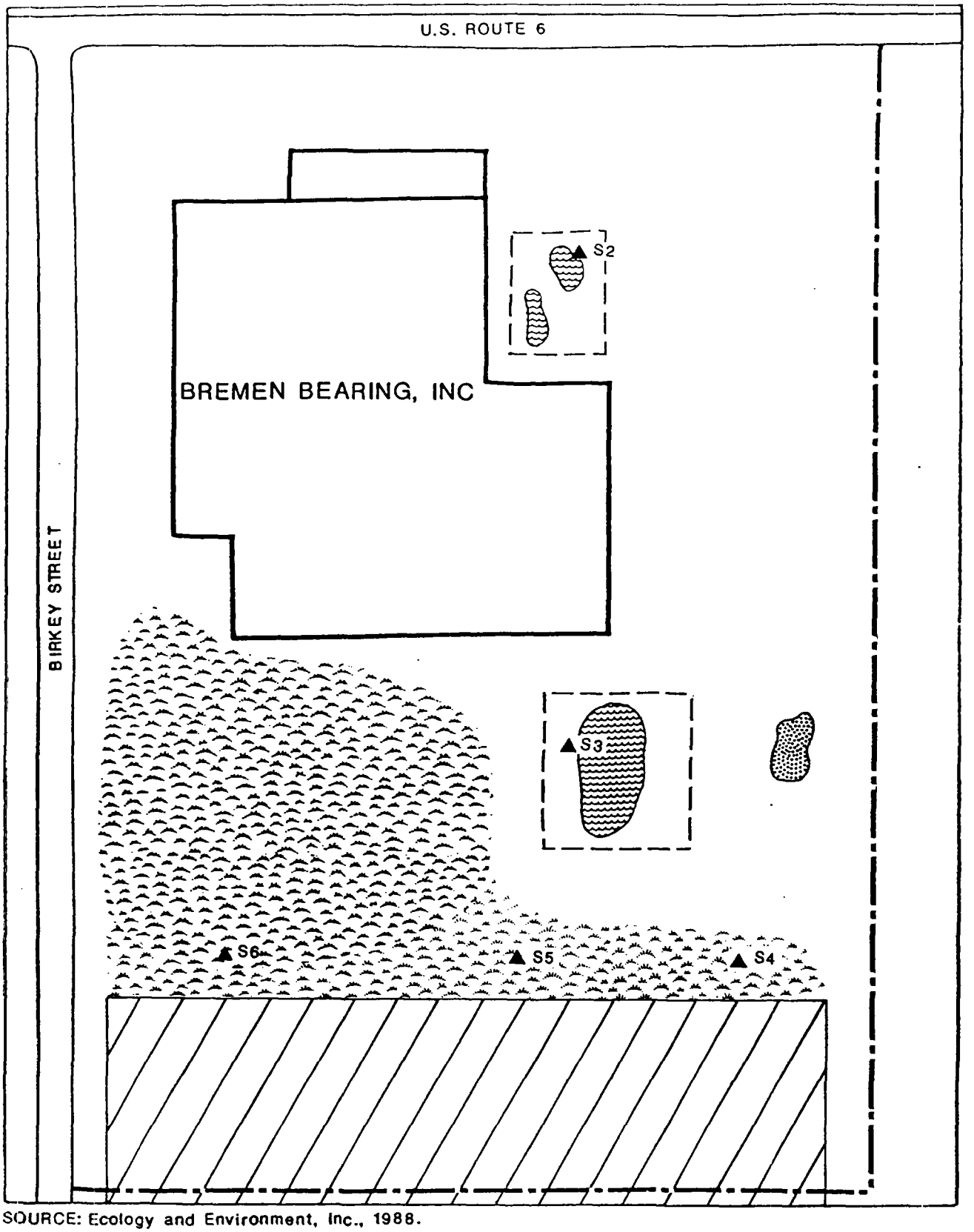
3.4 SAMPLING PROCEDURES

Samples were collected by FIT at locations determined 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 December 8, 1987, FIT collected five subsurface soil samples and one potential background subsurface soil sample. Portions of samples were shared with site representatives.

Soil Sampling Procedures. Subsurface soil sample S2 was collected on the north edge of one of the north lagoons (see Figure 3-2 for on-site soil sampling locations). Subsurface soil sample S3 was collected on the north edge of the south lagoon. Subsurface soil sample S4 was collected from the eastern edge of the field, which is behind (south of) the manufacturing building. This location was chosen to determine whether contaminant migration to the south has occurred. Subsurface soil sample S5 was collected in the center portion of the field behind the building. This location was chosen to determine whether contaminants have migrated south from the settling lagoons. Subsurface soil sample S6 was collected at the west end of the field behind the facility. This location was chosen to determine whether contaminants have migrated south from the settling lagoons. The locations of samples S2 and S3 were chosen to determine whether TCL compounds and/or TAL analytes were present in the lagoon sediment.

Subsurface soil samples S2 and S3 were collected using a garden trowel. The trowel was used to dig a hole to an approximate depth of 10 to 12 inches. After completion of the hole, a sample was obtained from the bottom of the hole using the trowel. The material was then placed



SOURCE: Ecology and Environment, Inc., 1988.

SCALE
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FIGURE 3-2 ON-SITE SOIL SAMPLING LOCATION

in a stainless steel bowl using the trowel. Sample material was then transferred from the bowl to sample bottles using stainless steel spoons (E & E 1987). Subsurface soil samples S4, S5, and S6 were collected using a bucket auger. The auger was used to bore a hole approximately 3 feet deep. Sample material was collected from the bottom of the borehole and transferred to a stainless steel bowl. Stainless steel spoons were used to transfer sample material to the sample bottles (E & E 1987).

The locations of subsurface soil samples S4, S5, and S6 were chosen to determine whether TCL compounds and/or TAL analytes had migrated from the lagoons to the field behind (south of) the manufacturing building.

A potential background subsurface soil sample (indicated as S1) was collected from a wooded area directly behind a church located south of Grant and Marshall streets, approximately 1/2 mile southeast of the site (see Figure 3-3 for off-site soil sampling location). The background soil sample was collected to determine the representative chemical content of the soil in the area surrounding the site. The location was chosen because the ground surface appeared to be in an undisturbed state.

Sample S1 was obtained by using a garden trowel to dig to an approximate depth of 10 inches. Soil from the approximate 10-inch depth was transferred to a stainless steel bowl with the trowel. After debris had been removed from the soil, the soil was transferred from the bowl to sample bottles using a stainless steel spoon (E & E 1987).

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

As directed by U.S. EPA, samples S1, S2, S3, S4, S5, and S6 were analyzed for TCL compounds by Southwest Laboratory of Oklahoma, Inc., of

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Tulsa, Oklahoma, and for TAL analytes by Enseco/Rocky Mountain Analytical of Arvada, Colorado.

Municipal well samples were collected from the Bremen Municipal Well Fields in connection with the SSI of the Universal Bearing, Inc., site. The well fields are located 1/4 mile north of the Bremen Bearing, Inc., site.

Municipal Well Sampling Procedures. Four municipal well samples (indicated as MW1, MW2, MW3, and MW4) were collected to determine whether TCL compounds and/or TAL analytes had migrated from the site via groundwater.

While known local geology suggests that a confining layer would impede the migration of potential contaminants to the deeper aquifer (the aquifer from which municipal wells draw), FIT sampled these municipal wells because of their proximity to the site and to assess groundwater quality and potential health risks.

A duplicate municipal well sample was collected in accordance with U.S. EPA quality assurance/quality control (QA/QC) requirements. The duplicate sample was collected at municipal well MW2.

All municipal well samples were obtained from outlets which 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, municipal well samples were analyzed for TCL compounds by S-Cubed of San Diego, California, and for TAL analytes by Associated Laboratories, Inc., of Orange, California.

4. ANALYTICAL RESULTS

4.1 INTRODUCTION

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

4.2 RESULTS OF CHEMICAL ANALYSIS OF FIT-COLLECTED SAMPLES

Soil Sample Analysis Results. Chemical analysis of FIT-collected soil samples revealed substances from the following groups of TCL compounds and TAL analytes: heavy metals, common laboratory artifacts, and common soil constituents (see Table 4-1 for complete soil sample chemical analysis results).

Municipal Well Sample Analysis Results. Analysis of FIT-collected municipal well samples revealed substances from the following groups of TCL compounds and TAL analytes: metals and common groundwater constituents (see Table 4-2 for complete municipal well sample chemical analysis results).

Laboratory analytical data of soil sample analysis and municipal well sample analysis are provided in Appendix E.

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

Sample Collection Information and Parameters	Sample Number S1	S2†	S3†	S4	S5	S6†
Date	12/8/87	12/8/87	12/8/87	12/8/87	12/8/87	12/8/87
Time	0920	1150	1130	1200	1140	1120
Organic Traffic Report Number	EQ383	EQ384	EQ385	EQ386	EQ387	EQ388
Inorganic Traffic Report Number	MEQ014	MEQ015	MEQ016	MEQ017	MEQ018	MEQ019
Compound Detected (values in µg/kg)						
Volatile Organics						
methylene chloride	2J	--	--	--	9	30/6
acetone	5J	860/--	280/440	34	12J	26/12
chloroform	.8BJ	--	--	.8BJ	.8BJ	3BJ/--
2-butanone (MEK)	--	--/140	17/15J	--	--	--
toluene	9	330/220	6J/5J	2J	--	--/.7J
Analyte Detected (values in mg/kg)						
aluminum	5,820	2,330	3,810	11,200	8,370	6,030
antimony	--	--	106N	--	--	--
arsenic	16.0+*NR	17.0s*NR	43.4*NR	11.5s*NR	9.7N*sR	7.4s*NR
barium	29.4	241	54	50.4	51.6	29.9
beryllium	.22	--	--	.27	--	.22
calcium	21,200JE*	84,500JE*	16,900JE*	465JE*	784JE*	642JE*
chromium	9.0*	876*	6,040*	13.4*	103*	15.4*
cobalt	3.4	10.1	44.5	5.4	5.8	4.3
copper	11.4	291	636	10.5	16.1	8.5
iron	9,780	87,600	526,000	14,000	22,200	10,300
lead	6.8s*NJ	7.2*NJ	6.3s*NJ	11.3s*NJ	6.8*NJ	5.5s*NJ
magnesium	4,680	33,200	8,100	1,780	1,960	2,000
manganese	326*J	428*J	2,200*J	342*J	471*J	290*J

Table 4-1 (Cont.)

Sample Collection Information and Parameters	Sample Number S1	S2†	S3†	S4	S5	S6†
nickel	9.7	78.8	448	12.6	16.0	10.5
potassium	578E	121E	306E	729E	561E	448E
sodium	--	--	--	--	406	--
vanadium	12.4	9.4	31.1	20.4	21.9	14.0
zinc	26.1*	77.9*	486*	36.9*	34.2*	24.9*

-- Not detected.

† These samples were reanalyzed for organics. The value preceding the slash is from original analysis; the value following the slash is from the reanalysis.

Table 4-1 (Cont.)

COMPOUND QUALIFIERS	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.
B	This flag is used when the compound is found in the associated blank as well as in the sample. It indicates possible/probable blank contmaination and warn the data user to take appropriate action.	Compound value may be semiquantitative if it is <5x the blank concentration (<10x the blank concentrations for common laboratory artifacts: phthalates, methylene chloride, acetone, toluene, 2-butanone).

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.
s	Analysis by Method of Standard Additions.	Value is 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 quantitative or semi-quantitative.
+	Correlation coefficient for standard additions is less than 0.995. See review and laboratory narrative.	Data value may be biased.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
R	Results are unusable due to a major violation of QC protocol.	Compound value is not usable.

Source: Ecology and Environment, Inc. 1988.

Table 4-2
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED MUNICIPAL SAMPLES

Sample Collection Information and Parameters	Sample Number MW1	MW2	MW3	MW4	Blank	Duplicate
Date	11/30/87	11/30/87	11/30/87	11/30/87	11/30/87	11/30/87
Time	1600	1615	1630	1700	1700	1615
Organic Traffic Report Number	ES086	ES087	ES088	ES089	ES090	ES091
Inorganic Traffic Report Number	MEQ586	MEQ587	MEQ588	MEQ589	MEQ590	MEQ591
Temperature (°C)	10	9	9	9	13	9
Specific Conductivity (μmhos)	470	480	450	470	0	480
pH	7.54	7.58	7.57	7.75	7.75	7.58
Compound Detected (values in μg/L)						
Volatile Organics						
chloroform	--	--	--	--	7.4	--
bromodichloromethane	--	--	--	--	3.9	--
dibromochloromethane	--	--	--	--	1.1J	--
toluene	--	--	--	--	1.1J	--
Pesticides/PCBs						
gamma BHC (Lindane)	--	--	--	--	.007**	--
Analyte Detected (values in μg/L)						
arsenic	15s	25s	26s	31s	--	17s
barium	140	188	167	99	--	186
calcium	63,400	60,500	59,600	56,800	[601]	60,408
copper	16	--	--	--	--	--
iron	1,020	1,150	1,160	4,110	[52]	1,160
lead	--	--	8.95J	1.8sJ	2.65J	[1.5]sJ
magnesium	24,500	25,800	25,400	24,200	[122]	25,700
manganese	13	14	14	87	--	15
sodium	21,900	25,800	22,200	22,900	[467]	25,500
zinc	[13]	[8.4]	[18]	[3.1]	--	[13]

--Not detected.
**Confirmed by dual column confirmation.

Table 4-2 (Cont.)

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

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
s	Analysis by Method of Standard Additions.	Value is 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. 1988.

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 Bremen Bearing site.

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

5.2 GROUNDWATER

TCL compounds and TAL analytes were detected in municipal well water samples collected during the Universal Bearing, Inc., SSI. The wells are located approximately 1/4 mile north of the Bremen Bearing site. The substances detected in the municipal well samples do not appear to be attributable to the Bremen Bearing site because a variety of industries operate in the vicinity of the well field, and because there is a low correlation between the substances detected in soil samples from the Bremen Bearing site and those detected in the municipal well samples.

A potential does exist for TCL compounds and/or TAL analytes from the site to migrate to groundwater in the vicinity of the site. This potential is based on the following information:

- TAL analytes have been detected at the site, including iron at

87,600 mg/kg, chromium at 6,040 mg/kg, copper at 636 mg/kg, and nickel at 448 mg/kg;

- Waste has been deposited at the site as a liquid;

- The site is not lined (Eddy 1987), and does not have an impervious cover; and

- There are no leachate collection systems present at the site (Eddy 1987).

The potential for TCL compounds and/or TAL analytes to migrate to groundwater in the vicinity of the site is also based on the following geological information.

- The general geology of the area of the site consists of unconsolidated deposits of glacial and glaciofluvial origin, which are approximately 140 to 180 feet thick and overlie the north-northeast dipping, Devonian-Mississippian Ellsworth shale (King 1978).

- Two aquifers are present in the unconsolidated deposits. A typical section consists of 20 to 40 feet of medium outwash sand and gravel (upper, shallow aquifer) underlain by a 65- to 125-foot thick confining layer of sandy, silty, or gravelly blue clay, with lenses of sand and gravel (ground moraine till). Under the confining layer is 20 to 30 feet of fine to coarse outwash sand and gravel (lower, deep aquifer), which is underlain by more blue clay (King 1978).

- Both of the outwash aquifers are utilized as sources of drinking water within a 3-mile radius of the site.

- The shallow, unconfined aquifer is the aquifer of concern because an impermeable confining layer overlies the deep outwash aquifer throughout the area within a 3-mile radius of the site (IDNR; BCWD).

- The unsaturated zone in the vicinity of the site is composed of sand and gravel (King 1978; BCWD).

- The local hydraulic gradient within the shallow aquifer appears to be northwestward toward the confluence of the Yellow River and Armey Ditch. Regional groundwater flow in the area is likely south to southwestward (King 1978).

Based on the Bremen, Indiana, USGS, 1958 Quadrangle, 300 homes are within a 3-mile radius of the site. Using Marshall County 1980 Census information, 2.83 persons/household can be used to calculate the population. A total of approximately 900 persons are served by private wells drawing from the shallow outwash aquifer, the aquifer of concern. Private, domestic wells screened in this aquifer are commonly 30 to 50 feet in depth, and are located beyond the limits of the Bremen municipal water system (IDNR).

The Bremen water system obtains water from a well field located approximately 1/4 mile north of the site (USGS 1958). Well logs indicate that three wells are finished in the lower outwash aquifer at depths of 126 to 157 feet. The Bremen municipal system serves approximately 3,600 residents living within its municipal boundaries (ISBH 1984; Weaver 1986).

5.3 SURFACE WATER

The potential for contamination of surface water via runoff from the site does not exist, based on the following information:

- There is less than a 1% slope on-site; and

- The surrounding terrain would prevent runoff from reaching surface water.

The Yellow River lies 1/2 mile west of the site. A potential does exist for substances from the site to reach the Yellow River via groundwater discharge. This potential is based on the following information:

- TCL compounds and TAL analytes have been detected at the site;
- Waste has been deposited at the site in unlined lagoons; and
- The depth of the shallow aquifer ranges between 0 and 40 feet below the surface. The soil at these depths is highly permeable (sand and gravel), with groundwater flow west toward the Yellow River.

The Yellow River is not used as a source of drinking water or for irrigation, but is used for recreational purposes (E & E 1987).

5.4 AIR

A release of potential contaminants to the air was not documented during the SSI of the Bremen Bearing site. During the reconnaissance inspection, FIT site-entry instruments (photo-ionization detector and explosimeter) did not detect levels above background concentrations at the site (E & E 1987). In accordance with the U.S. EPA-approved work plan, further air monitoring was not conducted by FIT.

A limited potential does exist for windblown particulates to carry TCL compounds and/or TAL analytes from the site.

According to a USGS (Bremen Quadrangle 1958) topographic map of the area of the site, the population within a 4-mile radius of the site is approximately 5,000 persons. This population figure was obtained by house counts within the 4-mile radius and by multiplying by an average of 2.83 persons/household (U.S. Department of Commerce 1980), and adding

6. BIBLIOGRAPHY

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E & E, 1987, Quality Assurance Project Plan Region V FIT Conducted Site Inspections, Chicago, Illinois.

Indiana Department of Environmental Management, 1985, Potential Hazardous Waste Site Preliminary Assessment, for Bremen Bearing, Inc., U.S. EPA ID: IND009457060, prepared by Stephanie Dean, Indianapolis, Indiana.

Indiana Department of Natural Resources, Division of Water, Water Well Records, Marshall and St. Joseph Counties, T.35N., R.3E., R.4E., T.34N., R.3E., R.4E.

Indiana State Board of Health, 1984, Data on Indiana Public Water Supplies, Bulletin No. PW3, Indianapolis, Indiana.

King, J., April 6, 1978, memorandum, to ISBH file.

Martin, Lowell, December 28, 1987, telephone conversation, Fire Chief, Bremen, Indiana, contacted by Craig A. Almanza of FIT.

U.S. Department of Commerce, Bureau of the Census, 1980 General Population Characteristics-Indiana.

U.S. EPA, Office of Solid Waste and Emergency Response, February 12, 1988, Pre-Remedial Strategy for Implementing SARA, Directive number 9345.2-01, Washington, D.C.

U.S. Geological Survey, 1958, Bremen Indiana, Quadrangle, 7.5 Minute Series: 1:24,000.

Weaver, D., February 19, 1986, telephone conversation, Water Superintendent, Bremen, Indiana, contacted by R. Graham of FIT.

0797:4

APPENDIX A

SITE 4-MILE RADIUS MAP

SDMS US EPA Region V

Imagery Insert Form

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APPENDIX A: 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
IN	D009457060

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Bremen Bearing, Inc.	Route 6 West

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Bremen	IN	46506	Marshall	99	3

09 COORDINATES		10 TYPE OF OWNERSHIP (Check one)
LATITUDE	LONGITUDE	X A. PRIVATE ___B. FEDERAL _____ ___C. STATE ___D. COUNTY ___E. MUNICIPAL
41°26'44.0"	086°09'50.0"	___F. OTHER _____ ___G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
12/8/87	X ACTIVE	1963 | Present ___UNKNOWN
MO/DAY/YR	___INACTIVE	BEGINNING YEAR ENDING YEAR

04 AGENCY PERFORMING INSPECTION (Check all that apply)

___A. EPA X B. EPA CONTRACTOR Ecology and Environment, Inc. (Name of firm) ___C. MUNICIPAL ___D. MUNICIPAL CONTRACTOR

___E. STATE ___F. STATE CONTRACTOR _____ (Name of firm) ___G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Craig A. Almanza	Technician	E & E, Inc.	(312)663-9415

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Mike Broll	Geographer	E & E, Inc.	(312)663-9415
Cliff Florczak	Chemist	E & E, Inc.	(312)663-9415
Rob Hingtgen	Hydrologist	E & E, Inc.	(312)663-9415

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Carson Eddy	Manufacturing Engineering	Route 6 West Bremen, IN	(219)546-2311
Bill McGlocklin	Environmental Management	1100 1st Avenue King of Prussin, PA	(215)265-1900

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
X PERMISSION ___ WARRANT	9:00 a.m.	Overcast, raining, mid-40°F

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Harry Atkinson	Indiana Department of Environmental Management	(317) 232-8927

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Craig A. Almanza	U.S. EPA FIT	E & E, Inc.	(312)663-9415	12/17/87

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
IN	D009457060

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

___A. SOLID ___E. SLURRY
X B. POWDER, FINES X F. LIQUID
X C. SLUDGE ___G. GAS
___D. OTHER _____ (Specify)

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

TONS _____
CUBIC YARDS 600(sludge)
NO. OF DRUMS 200(bag house dust)

03 WASTE CHARACTERISTICS (Check all that apply)

X A. TOXIC ___E. SOLUBLE ___I. HIGHLY VOLATILE
___B. CORROSIVE ___F. INFECTIOUS ___J. EXPLOSIVE
___C. RADIOACTIVE X G. FLAMMABLE ___K. REACTIVE
X D. PERSISTENT ___H. IGNITABLE ___L. INCOMPATIBLE
___M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	600	cu.yd/yr.	Compounds were found in on-site soil
OLW	OILY WASTE			samples.
SOL	SOLVENTS	Unknown		
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
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
MES	antimony	7440-36-0	DETECTED IN ON-SITE SOIL SAMPLES	106N	mg/kg
MES	beryllium	7440-41-7		.27	mg/kg
MES	chromium	7440-47-3		6,040*	mg/kg
MES	cobalt	7440-48-4		44.5	mg/kg
MES	copper	7440-50-8		636	mg/kg
MES	lead	7439-92-1		11.3*sNJ	mg/kg
MES	nickel	7440-02-0		448	mg/kg
MES	vanadium	7440-62-2		31.1	mg/kg
MES	iron	7439-89-6		526,000	mg/kg
MES	zinc	7440-66-6		486*	mg/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	N/A		FDS		
FDS	N/A		FDS		
FDS	N/A		FDS		

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

Ecology and Environment, Inc. FIT Site Inspection 12-8-87.
Ecology and Environment, Inc. FIT File Information.
Organic lab analysis from: Southwest Labs of Oklahoma.
Inorganic lab analysis from: Enseco/Rocky Mountain Analytical.

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS	I. IDENTIFICATION 01 STATE IN / 02 SITE NUMBER D009457060

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A. GROUNDWATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ~4,500 — 04 narrative description

Due to the high permeability of the soil, groundwater contamination potential of the upper aquifer exists. Recent sampling of nearby municipal wells did not indicate contamination by hazardous substances noted in Part 2. The municipal water system (lower aquifer) serves approximately 3,660 people. The upper aquifer (shallow) serves approximately 900 people. An intervening layer of glacial till (clay) existing between the shallow and deep aquifer minimizes the potential for contamination of the deep aquifer.

01 X B. SURFACE WATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

The Yellow River and Armey Ditch are used recreationally. No potential exists for contaminants to enter either of these bodies of water via surface water run-off, due to the terrain between the site and the rivers. However, the potential for contaminants to enter surface water via groundwater discharge does exist.

01 X C. CONTAMINATION OF AIR — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ~5,000 — 04 NARRATIVE DESCRIPTION

Because wastes were present on-site, a potential exists for windblown particulates to migrate from site.

01 ___ D. FIRE/EXPLOSIVE CONDITIONS — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

The Fire Chief of Bremen stated that Bremen Bearing, Inc. is not, and does not pose a fire or explosion threat.

01 X E. DIRECT CONTACT — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ~3,600 — 04 NARRATIVE DESCRIPTION

The knobbing lagoon (south end of plant) was observed overflowing into a field adjacent to the plant. The lagoons are fenced and locked, but the field was not. It is possible for residents to enter the field and come in contact with contaminants.

01 X F. CONTAMINATION OF SOIL — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 AREA POTENTIALLY AFFECTED: ~10 (Acres) — 04 NARRATIVE DESCRIPTION

Heavy metals and solvents were found in soil samples taken at the lagoons. Further contamination of soil could occur, due to the high permeability of the sand and gravel in the area.

01 X G. DRINKING WATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ~4,500 — 04 NARRATIVE DESCRIPTION

Hazardous substances found in soil samples were not found in recent local municipal water well testing. However, the potential exists for migration of contaminants into the municipal water system. See A above.

01 X H. WORKER EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 WORKERS POTENTIALLY AFFECTED: ~85 — 04 NARRATIVE DESCRIPTION

Uncovered lagoons and uncovered sludge drying piles make worker exposure possible. See E above.

01 X I. POPULATION EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ~5,000 — 04 NARRATIVE DESCRIPTION

The population could come in contact with the overflowing knobbing sludge that has migrated into the field adjacent to the site. Contaminants were found in this sludge during FIT's site inspection. See A, C, E, and G above.

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS	I. IDENTIFICATION 01 STATE IN 02 SITE NUMBER D009457060

II. HAZARDOUS CONDITIONS AND INCIDENTS (CONTINUED)

01 X J. DAMAGE TO FLORA — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

A potential for flora to become contaminated does exist, since run-off from the lagoons was observed migrating into an adjacent field.

01 X K. DAMAGE TO FAUNA — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

A potential for fish in the Yellow River to be affected does exist, due to potential groundwater discharge of contaminants.

01 X L. CONTAMINATION OF FOOD CHAIN — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

Corn was grown in the field adjacent to the plant in 1983, 1984, and 1985. The liquid portion of the settled knobbing sludge is now in the field and could possibly have been there during the years corn was growing. The potential for food chain contamination exists. Mr. Jeff Welborn of Bremen leased the land to grow corn.

01 ___ M. UNSTABLE CONTAINMENT OF WASTES — 02 X OBSERVED (DATE: 12/8/87) ___ POTENTIAL ___ ALLEGED

(Spills/runoff/standing liquids/leaking drums)

03 POPULATION POTENTIALLY AFFECTED: ~5,000 — 04 NARRATIVE DESCRIPTION

The liquid portion of the settled knobbing sludge was observed running off into the field adjacent to the site.

01 ___ N. DAMAGE TO OFFSITE PROPERTY — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

No damage reported, documented, or observed during FIT screening site inspection.

01 X O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

The liquid portion of the settled sludge overflows into the city sewer system. If controlled contaminant levels for the city sewer system are exceeded, contamination of the sewer could exist.

01 ___ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

No illegal or unauthorized dumping was reported, documented, or observed during FIT site inspection.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

During site inspection, a pile of dry sludge was noted on the side of plant. Site representatives stated the sludge was to be removed, but some problems had arisen. Because this dry sludge was uncovered and unfenced, direct contact was possible.

III. TOTAL POPULATION POTENTIALLY AFFECTED: ~5,000

IV. COMMENTS

Total population potentially affected represents all the residents in a 4-mile radius of site. Population could be affected by the air pathway and/or ground and surface water pathway.

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

Ecology and Environment, Inc. FIT File Information.
Ecology and Environment, Inc. FIT Site Inspection 12-8-87.
Organic lab analysis from: Southwest Lab Oklahoma.
Inorganic lab analysis from: Enseco/Rocky Mountain Analytical.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER

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				
X G. STATE (Specify)	50-11-89-0125	2/7/86	11/1/89	Baghouse operator permit.
X H. LOCAL (Specify)	4273		3/1/90	Wastewater discharge to city sewer system.
___ I. OTHER (Specify)				
___ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
X A. SURFACE IMPOUNDMENT	600	cu.yd/yr
___ B. PILES		
___ C. DRUMS, ABOVE GROUND		
___ D. TANK, ABOVE GROUND		
___ E. TANK, BELOW GROUND		
___ F. LANDFILL		
___ G. LANDFARM		
___ H. OPEN DUMP		
___ I. OTHER _____ (Specify)		

04 TREATMENT (Check all that apply)

___ A. INCINERATION
___ B. UNDERGROUND INJECTION
___ C. CHEMICAL/PHYSICAL
___ D. BIOLOGICAL
___ E. WASTE OIL PROCESSING
___ F. SOLVENT RECOVERY
___ G. OTHER RECYCLING/RECOVERY
___ H. OTHER None (Specify)

05 Other

X A. BUILDINGS ON SITE

2

06 AREA OF SITE

~20 (Acres)

07 COMMENTS

Bremen Bearing disposes approximately 200 fifty five gallon drums of bag house dust. This dust is landfilled at the Prairie View landfill in Wyatt, IN. Bremen Bearing possesses special permits granted by the state for the following 1) Bag house disposal permit, no number, expires 6/30/88, allows 200 drums/yr. To be landfilled at the Prairie View landfill. 2) Grinding Swarf Disposal Permit, no number, expires 11/30/88. Allows 600 cu. yd./yr to be landfilled at Prairie View.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

___ A. ADEQUATE, SECURE ___ B. MODERATE X C. INADEQUATE, POOR ___ D. INSECURE, UNSOUND, DANGEROUS

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

There are 3 lagoons in question, one large lagoon on the south side of the plant (approximately 100 by 100 ft) and 2 small lagoons (approximately 60 by 80 ft. total) on the north side of the building. All of these lagoons are unlined.

V. ACCESSIBILITY

WASTE EASILY ACCESSIBLE: X YES ___ NO

COMMENTS

Waste water and sediment were observed leaking out of the south lagoon's fenced area, into the open field on the south side of the plant.

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

Ecology and Environment, Inc. FIT File Information.
Ecology and Environment, Inc. FIT Site Inspection 12/8/87.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D009457060

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ___	B. X
NON-COMMUNITY	C. ___	D. X

02 STATUS

	ENDANGERED	AFFECTED	MONITORED
COMMUNITY	A. ___	B. ___	C. X
NON-COMMUNITY	D. ___	E. ___	F. ___

03 DISTANCE TO SITE

A. ~.5 (mi)
B. 1 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

X A. ONLY SOURCE FOR DRINKING
___ B. DRINKING (Other sources available)
___ C. COMMERCIAL, INDUSTRIAL IRRIGATION (Limited other sources available)
___ D. NOT USED, UNUSEABLE

COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)

02 POPULATION SERVED BY GROUND WATER See below
965 shallow aquifer 3565 deep aquifer

03 DISTANCE TO NEAREST DRINKING WATER WELL ~1,500 ft (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
<20' (ft)	West	<20 (ft)	500(gpm) (gpd)	___ YES X NO

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

Deep-three municipal wells draw from sand and gravel underlying a thick clay layer at depths ranging from 126' to 157' feet. Other domestic wells outside of the Bremen system draw from similar deposits and depths. Shallow-Domestic wells outside of the Bremen system draw from sand and gravel at depth from 30' - 50'.

10 RECHARGE AREA		11 DISCHARGE AREA	
X YES ___ NO	COMMENTS aquifer can recharge by water percolating through sand and gravel	___ YES X NO	COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

X 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
Armey Ditch	___	~3/4 (mi)
Yellow River	___	~3/4 (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. 3,600	B. 4,100	C. 4,500
NO. OF PERSONS	NO. OF PERSONS	NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION
<.1 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE
~624

04 DISTANCE TO NEAREST OFF-SITE BUILDING
<.1 (mi)

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

The site is located within the municipal boundaries of Bremen, Indiana. The immediately surrounding area is zoned light to heavy industrial with adjacent areas residential and rural.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D009457060

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

___ A. $10^{-6} - 10^{-8}$ cm/sec (deep) ___ B. $10^{-4} - 10^{-6}$ cm/sec ___ C. $10^{-4} - 10^{-3}$ cm/sec X D. GREATER THAN 10^{-3} cm/sec (shallow)

02 PERMEABILITY OF BEDROCK (Check one) N/A

___ 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
~200 (ft)	unknown (ft)	5.6-7.3

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
~5 (in)	~2.40 (in)	0 %	N/A	0 %

09 FLOOD POTENTIAL
SITE IS IN N/A YEAR FLOOD PLAIN

10 ~~N/A~~ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)
ESTUARINE: A. N/A (mi)
OTHER: B. ~2.75 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)
3 (mi)
ENDANGERED SPECIES: N/A

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. ~.1 (mi)	B. ~.5 (mi)	C. ~.5 (mi)	D. ~.5 (mi)

4 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)

Ecology and Environment, Inc. FIT File Information.
Ecology and Environment, Inc. FIT Site Inspection.
USGS topographic map. 7.5 min 1:24.000 Bremen Quadrangle.

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 6 - SAMPLE AND FIELD INFORMATION	I. IDENTIFICATION 01 STATE IN 02 SITE NUMBER D009457060

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	4	TCL compounds-S-Cubed of San Diego, CA. TAL analytes-Associated Laboratories, Inc. of Orange, CA.	On file
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	6	TCL compounds-Southwest Laboratory of Oklahoma, Inc. Tulsa,Oklahoma. TAL analytes-Enseco/Rocky Mountain Analytical of Arvada, CO.	On file
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Photo-ionization detector	No readings above background. No readings above background.
Explosimeter	No readings above 0% LEL.
Oxygen meter	21.5% oxygen.
Radiation monitor	No readings above background.

IV. PHOTOGRAPHS AND MAPS

01 TYPE X GROUND ___ AERIAL

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

03 MAPS
X YES
___ NO

04 LOCATION OF MAPS
Ecology and Environment, Inc. (FIT) files, Chicago, IL.

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

None

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

Organic lab: Southwest Laboratory of Oklahoma, Inc.
Inorganic lab: Enseco/Rocky Mountain Analytical.
Ecology and Environment, Inc. FIT File Information.
Ecology and Environment, Inc. FIT Site Inspection.

EPA

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

I. IDENTIFICATION	
01 STATE IN	02 SITE NUMBER D009457060

II. CURRENT OWNER(S)				PARENT COMPANY (If applicable)			
01 NAME Bremen Bearing, Inc.		02 D+B NUMBER Unknown		08 NAME SKF Industries, Inc.		09 D+B NUMBER Unknown	
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) Route 5 West			04 SIC CODE Unknown	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.) 1100 First Avenue			11 SIC CODE Unknown
05 CITY Bremen	06 STATE IN	07 ZIP CODE 46506		12 CITY Ing of Prussia	13 STATE PA	14 ZIP CODE 19406-1352	
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)			04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)			11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE		12 CITY	13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)			04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)			11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE		12 CITY	13 STATE	14 ZIP CODE	

III. PREVIOUS OWNER(S) (List most recent first)				IV. REALTY OWNER(S) (If applicable; list most recent first)			
01 NAME Miller Bearing, Inc.		02 D+B NUMBER Unknown		01 NAME Miller Bearing, Inc.		02 D+B NUMBER Unknown	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 22 S. Industrial Blvd.			04 SIC CODE Unknown	03 STREET ADDRESS (P.O. Box, RFD #, etc.) 22 S. Industrial Blvd.			04 SIC CODE Unknown
05 CITY Bremen	06 STATE IN	07 ZIP CODE 46506		05 CITY Bremen	06 STATE IN	07 ZIP CODE 46506	
01 NAME		02 D+B NUMBER		01 NAME SKF Industries, Inc.		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.) 1100 First Avenue			04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE		05 CITY King of Prussia	06 STATE PA	07 ZIP CODE 19406-1352	
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. FIT Site Inspection.
Ecology and Environment, Inc. FIT File Information.

EPA

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

I. IDENTIFICATION	
01 STATE IN	02 SITE NUMBER D009457060

II. CURRENT OPERATOR (Provide if different from owner)			OPERATOR'S PARENT COMPANY (If applicable)		
01 NAME Bremen Bearing, Inc.		02 D+B NUMBER Unknown	10 NAME SKF Industries, Inc.		11 D+B NUMBER Unknown
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) Route 6 West		04 SIC CODE Unknown	12 STREET ADDRESS (P.O. BOX, RFD #, ETC.) 1100 First Avenue		13 SIC CODE Unknown
05 CITY Bremen	06 STATE IN	07 ZIP CODE 46506	14 CITY King of Prussia	15 STATE Pa	16 ZIP CODE 19406-1352
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 Miller Bearing		02 D+B NUMBER	10 NAME Same as previous operator		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 22 S. Industrial Blvd.		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY Bremen	06 STATE IN	07 ZIP CODE 46506	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. FIT File Information.
Ecology and Environment, Inc. FIT Site Inspection.

EPA

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

I. IDENTIFICATION	
01 STATE IN	02 SITE NUMBER D009457060

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Bremen Bearing, Inc.	Unknown

03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)	04 SIC CODE
Route 6 West	Unknown

05 CITY	06 STATE	07 ZIP CODE
Bremen	IN	46506

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A			

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
Superior Waste Systems	Unknown		

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
20645 W. Ireland Road	Unknown		

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
South Bend	IN	46614			

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. FIT File Information.
Ecology and Environment, Inc. FIT Site Investigation.

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES	I. IDENTIFICATION 01 STATE IN 02 SITE NUMBER D009457060

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 IN 02 SITE NUMBER D009457060

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)

Ecology and Environment, Inc. FIT File Information.

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION	I. IDENTIFICATION 01 STATE IN / 02 SITE NUMBER D009457060

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ___YES _X_NO

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

None.

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

Ecology and Environment, Inc. File Information (FIT).
Ecology and Environment, Inc. FIT Site Inspection.

APPENDIX C

U.S. EPA
IMMEDIATE REMOVAL ACTION
CHECKSHEET

Immediate Removal Action Check Sheet

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

Comments:

1) Perimeter of site is not fenced

2) Potential for contamination of the aquifer of concern does exist due to the high permeability of the unsaturated zone.

APPENDIX D

FIT SITE PHOTOGRAPHS

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Bremen Bearing

PAGE 1 OF 10

U.S. EPA ID: IND009457060 TDD: F05-8711-019

PAN: FIN0464SA

DATE: > 12-8-87

TIME: > 0920

DIRECTION OF PHOTOGRAPH: > South

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): > Soil S1

DESCRIPTION: > Location of Potential Background

> (Close-up)

DATE: > 12-8-87

TIME: > 0920

DIRECTION OF PHOTOGRAPH: > South

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): > Soil S1

DESCRIPTION: > Location of Potential Background

> (Perspective)

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Bremen Bearing

U.S. EPA ID: IND009457060 TDD: F05-8711-019 PAN: FIN0464SA

DATE: > 12-8-87

TIME: > 1150

DIRECTION OF PHOTOGRAPH: > South

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): > Soil S2

DESCRIPTION: > location of soil S2

> (close-up)

DATE: > 12-8-87

TIME: > 1150

DIRECTION OF PHOTOGRAPH: > South

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): > Soil S2

DESCRIPTION: > location of soil S2

> (perspective)

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Bremen Bearing

U.S. EPA ID: IND009457060 TDD: F05-8711-019 PAN: FIN0464SA

DATE: > 12-8-87

TIME: > 1130

DIRECTION OF PHOTOGRAPH: > EAST

WEATHER CONDITIONS: > Overcast, Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): > Soil S3

DESCRIPTION: > Location of Soil S3 (close-up)

DATE: > 12-8-87

TIME: > 1130

DIRECTION OF PHOTOGRAPH: > EAST

WEATHER CONDITIONS: > Overcast, Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): > Soil S3

DESCRIPTION: > Location of Soil S3 (perspective

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Bremen Bearing **PAGE** 4 **OF** 10

U.S. EPA ID: IND009457060 **TDD:** F05-8711-019 **PAN:** FIN0464SA

DATE: > 12-8-87

TIME: > 1200

DIRECTION OF PHOTOGRAPH:
> North

WEATHER CONDITIONS:
> Overcast,
> Raining, Mid-40°F

PHOTOGRAPHED BY:
> C. Almanza

SAMPLE ID (if applicable):
> Soil 54

DESCRIPTION: > Location of Soil 54
> (Perspective)

DATE: > 12-8-87

TIME: > 1200

DIRECTION OF PHOTOGRAPH:
> North

WEATHER CONDITIONS:
> Overcast,
> Raining, Mid-40°F

PHOTOGRAPHED BY:
> C. Almanza

SAMPLE ID (if applicable):
> Soil 54

DESCRIPTION: > Location of Soil 54
> (close-up)

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Bremen Bearing

U.S. EPA ID: IND009457060 TDD: F05-8711-019 PAN: FIN0464SA

DATE: > 12-8-87

TIME: > 1140

DIRECTION OF PHOTOGRAPH: > North

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): > Soil S5

DESCRIPTION: > Location of Soil S5

> (Close-up)

DATE: > 12-8-87

TIME: > 1140

DIRECTION OF PHOTOGRAPH: > North

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): > Soil S5

DESCRIPTION: > Location of Soil S5

> (Perspective)

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Bremen Bearing

U.S. EPA ID: IND009457060 TDD: F05-8711-019 PAN: FIN0464SA

DATE: > 12-8-87

TIME: > 1120

DIRECTION OF PHOTOGRAPH: > North

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): > Soil S6

DESCRIPTION: > Location of Soil S6 (close-up)

DATE: > 12-8-87

TIME: > 1120

DIRECTION OF PHOTOGRAPH: > North

WEATHER CONDITIONS: > Overcast > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): > Soil S6

DESCRIPTION: > location of Soil S6 (perspective)

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Bremen Bearing

U.S. EPA ID: IND009457060 TDD: F05-8711-019 PAN: FIN0464SA

DATE: > 12-8-87

TIME: > 1220

DIRECTION OF PHOTOGRAPH: > EAST

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): >

DESCRIPTION: > Back (south) of building

>

DATE: > 12-8-87

TIME: > 1230

DIRECTION OF PHOTOGRAPH: > west

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): >

DESCRIPTION: > Container for drums of

> baghouse dust

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Bremen Bearing

U.S. EPA ID: IND009457060 TDD: F05-8711-019 PAN: FIN0464SA

DATE: > 12-8-87

TIME: > 1235

DIRECTION OF PHOTOGRAPH: > South

WEATHER CONDITIONS: > Overcast, Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): >

DESCRIPTION: > South (Knobbing) lagoon

>

DATE: > 12-8-87

TIME: > 1240

DIRECTION OF PHOTOGRAPH: > South

WEATHER CONDITIONS: > Overcast, Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): >

DESCRIPTION: > Front of building

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Bremen Bearing

U.S. EPA ID: IND009457060 TDD: F05-8711-019 PAN: FIN0464SA

DATE: > 12-8-87

TIME: > 1242

DIRECTION OF PHOTOGRAPH: > South

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): >

DESCRIPTION: > North (Liming) Lagoons

>

DATE: > 12-8-87

TIME: > 1242

DIRECTION OF PHOTOGRAPH: > South

WEATHER CONDITIONS: > Overcast, > Raining, Mid-40°F

PHOTOGRAPHED BY: > C. Almanza

SAMPLE ID (if applicable): >

DESCRIPTION: > North (Liming) Lagoon

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Bremen Bearing

U.S. EPA ID: IND009457060 TDD: F05-8711-019 PAN: FIN0464SA

DATE: > 12-8-87

TIME: > 1242

DIRECTION OF PHOTOGRAPH:
> South

WEATHER CONDITIONS:
> Overcast,

> Raining, Mid-40°F

PHOTOGRAPHED BY:
> C. Almanza

SAMPLE ID (if applicable):
>

DESCRIPTION: > Sludge drying pit

>

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

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

CRL Receipt Date 1/19/88 FIT Receipt Date 1/27/88 Review Completed 2/4/88

TO: Almanza
FROM: Loretta Guzdziol
SUBJECT: Bremen Bearing
PAN: IN0464 (1 hour charged for review) Case # 8683

Sample Description

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

Project Data Status _____ Completed!!

✓ Incomplete, awaiting organic soils

FIT Data Review Findings:

Check Data Sheets for Transcription Errors

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

Book No. 7 Page No. 154 Date Sampled 12/8/87

recycled paper

[illegible] CONCENTRATIONS ARE REPORTED. HOWEVER, IF THE COMPOUND HAS A FOOTNOTE FOLLOWING THE VALUE, CONSULT THE DEFINITION OF THE FOOTNOTE PROVIDED BELOW. ADDITIONAL QA/QC IS PROVIDED IN THE ATTACHED DATA SHEETS.

I. 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)

II. 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 spectrosc
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 : it is <5x the blank concentration (<10x the blank concentrations for common lab artifacts: phthalates, methylene chlori 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

FOOTNOTE OLD	FOOTNOTE NEW	DEFINITION	INTERPRETATION
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.
R	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.

C. Other Symbols Used

NA Value not available due to insufficient data.
NR Value not calculated since chemical is not a carcinogen.
( ) Estimated value.

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CHEMICAL EVALUATION FORM

SITE NAME: Bremen Bearing PAN# IN 0464 DATE: 2/4/88

CASE # 8683 UNITS- mg/kg (SOILS) REVIEWER: L.H.

TOX/ PERS	COMPOUND	CRDL	3-5xCRDL	MEQ 014	015	016	017	018	019	
	~~ALUMINUM~~	40								
	ANTIMONY	2.4				106 N				
	ARSENIC R	2		16.0 +*N	17.0 +*N	43.4 *N	11.5 S*N	9.7 S*N	7.4 S*N	
	~~BARIUM~~	40								
	BERYLLIUM	1		0.22 B			0.27 B		0.22 B	
	CADMIUM	1								
	CHROMIUM	2		9.0 *	876 *	6040 *	13.4 *	103 *	15.4 *	
	COBALT	10		3.4 B	10.1 B	44.5 B	5.4 B	5.8 B	4.3 B	
	COPPER	5		11.4	291	636	10.5	16.1	8.5	
	LEAD J	1		6.8 S*N	7.2 S*N	6.3 BS*N	11.3 S*N	6.8 *N	5.5 S*N	
	MERCURY	.008								
	NICKEL	8		9.7	78.8	448	12.6	16.0	10.5	
	SELENIUM UJ	1								
	SILVER	2								
	THALLIUM	2								
	~~TIN~~	8								
	VANADIUM	10		12.4	9.4 B	31.1 B	20.4	21.9	14.0	
	~~ZINC~~	4								
	CYANIDE	2								

1/27

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 11.22.88

SUBJECT: Review of Region V CLP Data
Received for Review on 1-19-88

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

TO: Data User: FIT

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

SITE NAME: Bremen Bearing SMO case No. 8683

EPA Data Set No. SF 4718 No. of Samples: 6 D.U./Activity Numbers Y905/C721ZZ

CRL No. 88FA09S26 - S31

SMO Traffic No. MEQ014 - 019

CLP Laboratory: RMAL Hrs. Required for Review: 4

Following are our findings:

This review covers six low soil samples analyzed for metals and cyanide.

The matrix spike recovery for Sb (35%) indicates a low bias and the detection limits may be elevated (UJ). The matrix spike recovery for Pb (47.7%) indicates low bias and the results are estimated(J).

Duplicates for Mn (44.9 RPD) fall out of control limits and the data are estimated(J). Duplicates for Cr (23.5 RPD), Zn (30 RPD) and Pb(26.7 RPD) are within control limits for soils (35 RPD) and the results for Cr and Zn are acceptable.

For As the matrix spike recovery (-42.5%) and duplicates (88.3 RPD) indicates that the data are unusable (R). For Ca, the duplicates (80.4 RPD) fall out of control limits and the data are estimated(J).

Serial dilution for K (59.7%) and Ca(52.5%) are within control limits(sample concentrations are less than 50x IDL) and the data for potassium are acceptable.

All QC data for Hg and CN are acceptable. Winston Hyperausample 1/21/88

( ) Data are acceptable for use.
(X) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary - pending verification by Contractor Laboratory.
( ) Data are unacceptable.

cc: Duane Geuder, Quality Assurance Officer, EPA Support Services
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

EPA FORM 1320-6 (Rev. 5/87)

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

SOW No.: 7/87

EPA Sample No.	Lab Sample ID.
MEQ014	
MEQ014D	
MEQ014S	
MEQ015	
MEQ016	
MEQ017	
MEQ018	
MEQ019	

RECEIVED
JAN 13 1988
U.S. EPA, CENTRAL REGIONAL LAB
536 S. CLARK STREET
CHICAGO, ILLINOIS 60605

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:
6 LOW SOILS FOR TOTAL METALS AND CYANIDE ANALYSIS
INTERFERENCE NOTED FOR CALCIUM AND POTASSIUM ON SERIAL DILUTION

RMA QC# 87504 AS, PB, SE, AND TL LCS RESULTS ARE DETERMINED BY MSA

Release of the data contained in this hardcopy data package and in the computer readable data submitted on floppy diskette have been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Lab Manager: [illegible]

Date: 01/12/88

3
BLANKS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

Preparation Blank Matrix (soil/water): SOIL

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	20.0	U	20.0	U	20.0	U	20.0	U	6.0	B	P
Antimony	31.0	U	31.0	U	31.0	U	31.0	U	6.2	U	P
Arsenic											
Barium	3.0	U	3.0	U	3.0	U	3.0	U	0.60	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	P
Calcium	92.0	U	92.0	U	92.0	U	92.0	U	18.4	U	P
Chromium	5.0	U	5.0	U	5.0	U	5.0	U	1.1	B	P
Cobalt	6.0	U	6.0	U	6.0	U	6.0	U	1.2	U	P
Copper	9.0	U	9.0	U	9.0	U	9.0	U	2.1	B	P
Iron	31.0	U	31.0	U	31.0	U	31.0	U	6.2	U	P
Lead	28.0	U	28.0	U	28.0	U	28.0	U	5.6	U	P
Magnesium	90.0	U	90.0	U	90.0	U	90.0	U	18.0	U	P
Manganese	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	P
Mercury											
Nickel	7.0	U	7.0	U	7.0	U	7.0	U	1.4	U	P
Potassium	111	U	111	U	111	U	111	U	22.2	U	P
Selenium											
Silver	5.0	U	5.0	U	5.0	U	5.0	U	1.0	U	P
Sodium	1500	U	1500	U	1500	U	1500	U	300	U	P
Thallium											
Vanadium	2.0	U	2.0	U	2.0	U	2.0	U	0.40	U	P
Zinc	13.0	U	13.0	U	13.0	U	13.0	U	2.7	B	P
Cyanide											

3
BLANKS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

Preparation Blank Matrix (soil/water): SOIL

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	4.0	U	4.0	U	4.0	U	4.0	U	0.80	U	F
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	F
Magnesium											
Manganese											
Mercury	0.2	U	0.2	U	0.2	U			0.1	U	CV
Nickel											
Potassium											
Selenium	1.0	U	1.0	U	1.0	U	1.0	U	0.20	U	F
Silver											
Sodium											
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	0.40	U	F
Vanadium											
Zinc											
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	0.50	U	AS

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3
BLANKS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

Preparation Blank Matrix (soil/water): SOIL

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			4.0	U	4.0	U					F
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead			1.0	U							F
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium			1.0	U							F
Silver											
Sodium											
Thallium			2.0	U	2.0	U					F
Vanadium											
Zinc											
Cyanide											

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3
BLANKS

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

Preparation Blank Matrix (soil/water): SOIL

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	4.0	U	4.0	U	4.0	U					F
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead	1.0	U	1.0	U	1.0	U					F
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MEQ014

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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		5990		5820					NR
Antimony	75-125	38.1		6.8	U	109	35.0	N	P
Arsenic	75-125	12.3		16.0		8.7	-42.5	N	F
Barium	75-125	451		29.4	B	436	96.7		P
Beryllium	75-125	10.8		0.22	B	10.9	97.1		P
Cadmium	75-125	12.2		1.1	U	10.9	111.9		P
Calcium		7540		21200					NR
Chromium	75-125	50.5		9.0		43.6	95.2		P
Cobalt	75-125	113		3.4	B	109	100.6		P
Copper	75-125	64.5		11.4		54.5	97.4		P
Iron		9530		9780					NR
Lead	75-125	109		6.8		109	93.3		P
Magnesium		3180		4680					NR
Manganese	75-125	447		326		109	111.0		P
Mercury	75-125	0.6		0.1	U	0.5	110.0		CV
Nickel	75-125	118		9.7		109	99.4		P
Potassium		610	B	578	B				NR
Selenium	75-125	2.1		0.22	U	2.2	95.5		F
Silver	75-125	9.9		1.1	U	10.9	90.8		P
Sodium		371	B	327	U				NR
Thallium	75-125	9.5		0.44	U	10.9	87.2		F
Vanadium	75-125	115		12.4		109	94.1		P
Zinc	75-125	128		26.1		109	93.5		P
Cyanide	75-125	5.3		0.55	U	5.5	96.4		AS

Comments:
ARSENIC AND LEAD SAMPLE RESULTS ARE DETERMINED BY MSA
SELENIUM MATRIX SPIKE RESULT IS DETERMINED BY MSA

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MEQ014

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	75-125	8.9		6.8		4.4	47.7	N	F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

Comments:
ARSENIC AND LEAD SAMPLE RESULTS ARE DETERMINED BY MSA
SELENIUM MATRIX SPIKE RESULT IS DETERMINED BY MSA

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5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MEQ014

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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

Concentration 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		117		31 ~~18.4~~ LO	U	120	97.5 ~~82.2~~ LO		P
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
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									NR
Cyanide									NR

Comments:

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6
DUPLICATES

EPA SAMPLE NO.

MEQ014

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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

% Solids for Sample: 91.7 % Solids for Duplicate: 91.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		5820		7000		18.4		P
Antimony		6.8	U	6.8	U			P
Arsenic	2.2	16.0		6.2		88.3	*	F
Barium		29.4	B	37.1	B	23.2		P
Beryllium		0.22	B	0.26	B	16.7		P
Cadmium		1.1	U	1.1	U			P
Calcium		21200		9040		80.4	*	P
Chromium	2.2	9.0		11.4		23.5	*	P
Cobalt		3.4	B	4.3	B	23.4		P
Copper	5.5	11.4		13.4		16.1		P
Iron		9780		11300		14.4		P
Lead		6.8		6.2		9.2		P
Magnesium	1091	4680		4080		13.7		P
Manganese		326		515		44.9	*	P
Mercury		0.1	U	0.1	U			CV
Nickel	8.7	9.7		14.8		41.6		P
Potassium		578	B	751	B	26.0		P
Selenium		0.22	U	0.22	U			F
Silver		1.1	U	1.1	U			P
Sodium		327	U	327	U			P
Thallium		0.44	U	0.44	U			F
Vanadium	10.9	12.4		14.3		14.2		P
Zinc		26.1		35.3		30.0	*	P
Cyanide		0.55	U	0.55	U			AS

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6
DUPLICATES

EPA SAMPLE NO.

MEQ014

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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

% Solids for Sample: 91.7 % Solids for Duplicate: 91.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	1.1	6.8		5.2		26.7	*	F
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

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LABORATORY CONTROL SAMPLE

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

Solid LCS Source: EMSL-LV

Aqueous LCS Source: EMSL-LV

Analyte	Aqueous (ug/L) True	Found	%R(1)	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				325	300		225	424	92.3
Antimony				211	218		127	294	103
Arsenic									
Barium				4.8	5.1	B	0.0	40.0	106
Beryllium				19.4	19.1		16.5	22.3	98.5
Cadmium				45.4	43.0		35.7	55.1	94.7
Calcium				196200	185000		166800	225600	94.3
Chromium				99.6	94.2		79.2	120	94.6
Cobalt				144	134		125	162	93.1
Copper				6910	6900		6006	7820	99.9
Iron				22430	19300		17770	27080	86.0
Lead				236	208		188	285	88.1
Magnesium				118100	118000		100400	129900	99.9
Manganese				208	211		177	239	101
Mercury									
Nickel				60.9	55.0		49.2	72.6	90.3
Potassium				50.0	37.3	B	0.0	1000	74.6
Selenium									
Silver				22.2	21.9		15.5	29.0	98.6
Sodium				50.0	300	U	0.0	1000	
Thallium									
Vanadium				65.8	66.1		51.7	79.9	100
Zinc				187	145		138	236	77.5
Cyanide									

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LABORATORY CONTROL SAMPLE

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

Solid LCS Source: EMSL-LV

Aqueous LCS Source: EMSL-LV

Analyte	Aqueous (ug/L) True	Found	%R(1)	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic				917	916		635	1199	99.9
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead				236	251		188	285	106
Magnesium									
Manganese									
Mercury				12.7	14.0		8.5	17.0	110
Nickel									
Potassium									
Selenium				39.2	38.3		19.1	59.4	97.7
Silver									
Sodium									91.5
Thallium				39.0	31.9 ~~38.5~~ LCO		24.6	53.5	~~98.7~~ LCO
Vanadium									
Zinc									
Cyanide									

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1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEQ014

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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

Level (low/med): LOW Date Recieved: 12/09/87

% Solids: 91.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5820			P
7440-36-0	Antimony	6.8	U	N	P
7440-38-2	Arsenic	16.0		+*N	F
7440-39-3	Barium	29.4	B		P
7440-41-7	Beryllium	0.22	B		P
7440-43-9	Cadmium	1.1	U		P
7440-70-2	Calcium	21200		E*	P
7440-47-3	Chromium	9.0		*	P
7440-48-4	Cobalt	3.4	B		P
7440-50-8	Copper	11.4			P
7439-89-6	Iron	9780			P
7439-92-1	Lead	6.8		S*N	F
7439-95-4	Magnesium	4680			P
7439-96-5	Manganese	326		*	P
7439-97-6	Mercury	0.1	U		CV
7440-02-0	Nickel	9.7			P
7440-09-7	Potassium	578	B	E	P
7482-49-2	Selenium	0.22	U	W	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	327	U		P
7440-28-0	Thallium	0.44	U	W	F
7440-62-2	Vanadium	12.4			P
7440-66-6	Zinc	26.1		*	P
	Cyanide	0.55	U		AS

Color Before: BROWN Clarity Before: _____ Texture: COARSE
Color After: BROWN Clarity After: _____ Artifacts: _____

Comments:
ARSENIC AND LEAD VALUES ARE DETERMINED BY MSA

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEQ015

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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

Level (low/med): LOW Date Recieved: 12/09/87

% Solids: 41.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2330			P
7440-36-0	Antimony	14.9	U	N	P
7440-38-2	Arsenic	17.0		S*N	F
7440-39-3	Barium	241			P
7440-41-7	Beryllium	0.48	U		P
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	84500		E*	P
7440-47-3	Chromium	876		*	P
7440-48-4	Cobalt	10.1	B		P
7440-50-8	Copper	291			P
7439-89-6	Iron	87600			P
7439-92-1	Lead	7.2		*N	F
7439-95-4	Magnesium	33200			P
7439-96-5	Manganese	428		*	P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	78.8			P
7440-09-7	Potassium	121	B	E	P
7482-49-2	Selenium	0.48	U	W	F
7440-22-4	Silver	2.4	U		P
7440-23-5	Sodium	719	U		P
7440-28-0	Thallium	0.96	U	W	F
7440-62-2	Vanadium	9.4	B		P
7440-66-6	Zinc	77.9		*	P
	Cyanide	1.2	U		AS

Color Before: BLACK Clarity Before: _____ Texture: MEDIUM

Color After: GREEN Clarity After: _____ Artifacts: _____

Comments:

ARSENIC VALUE IS DETERMINED BY MSA

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEQ016

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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

Level (low/med): LOW Date Recieved: 12/09/87

% Solids: 61.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3810			P
7440-36-0	Antimony	106		N	P
7440-38-2	Arsenic	43.4		*N	F
7440-39-3	Barium	54.0	B		P
7440-41-7	Beryllium	1.6	U		P
7440-43-9	Cadmium	8.1	U		P
7440-70-2	Calcium	16900		E*	P
7440-47-3	Chromium	6040		*	P
7440-48-4	Cobalt	44.5	B		P
7440-50-8	Copper	636			P
7439-89-6	Iron	526000			P
7439-92-1	Lead	6.3	B	S*N	F
7439-95-4	Magnesium	8100	B		P
7439-96-5	Manganese	2200		*	P
7439-97-6	Mercury	0.2	U		CV
7440-02-0	Nickel	448			P
7440-09-7	Potassium	306	B	E	P
7482-49-2	Selenium	0.33	U	W	F
7440-22-4	Silver	8.1	U		P
7440-23-5	Sodium	2440	U		P
7440-28-0	Thallium	0.65	U	W	F
7440-62-2	Vanadium	31.1	B		P
7440-66-6	Zinc	486		*	P
	Cyanide	0.81	U		AS

Color Before: BLACK Clarity Before: _____ Texture: COARSE
Color After: GREEN Clarity After: _____ Artifacts: _____

Comments:
ICP REPORTED AT AN ADDITIONAL 5X DILUTION DUE TO HIGH IRON VALUE
ARSENIC VALUE IS REPORTED AT AN ADDITIONAL 2X DILUTION
LEAD VALUE IS DETERMINED BY MSA

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1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEQ017

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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

Level (low/med): LOW Date Recieved: 12/09/87

% Solids: 85.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11200			P
7440-36-0	Antimony	7.3	U	N	P
7440-38-2	Arsenic	11.5		S*N	F
7440-39-3	Barium	50.4			P
7440-41-7	Beryllium	0.27	B		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	465	B	E*	P
7440-47-3	Chromium	13.4		*	P
7440-48-4	Cobalt	5.4	B		P
7440-50-8	Copper	10.5			P
7439-89-6	Iron	14000			P
7439-92-1	Lead	11.3		S*N	F
7439-95-4	Magnesium	1780			P
7439-96-5	Manganese	342		*	P
7439-97-6	Mercury	0.1	U		CV
7440-02-0	Nickel	12.6			P
7440-09-7	Potassium	729	B	E	P
7482-49-2	Selenium	0.24	U	W	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	353	U		P
7440-28-0	Thallium	0.47	U		F
7440-62-2	Vanadium	20.4			P
7440-66-6	Zinc	36.9		*	P
	Cyanide	0.59	U		AS

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM
Color After: BROWN Clarity After: _____ Artifacts: _____

Comments:
ARSENIC AND LEAD VALUES ARE DETERMINED BY MSA

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1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEQ018

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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

Level (low/med): LOW Date Recieved: 12/09/87

% Solids: 86.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8370			P
7440-36-0	Antimony	7.2	U	N	P
7440-38-2	Arsenic	9.7		S*N	F
7440-39-3	Barium	51.6			P
7440-41-7	Beryllium	0.23	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	784	B	E*	P
7440-47-3	Chromium	103		*	P
7440-48-4	Cobalt	5.8	B		P
7440-50-8	Copper	16.1			P
7439-89-6	Iron	22200			P
7439-92-1	Lead	6.8		*N	F
7439-95-4	Magnesium	1960			P
7439-96-5	Manganese	471		*	P
7439-97-6	Mercury	0.1	U		CV
7440-02-0	Nickel	16.0			P
7440-09-7	Potassium	561	B	E	P
7482-49-2	Selenium	0.23	U	W	F
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	406	B		P
7440-28-0	Thallium	0.46	U		F
7440-62-2	Vanadium	21.9			P
7440-66-6	Zinc	34.2		*	P
	Cyanide	0.58	U		AS

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM
Color After: BROWN Clarity After: _____ Artifacts: _____

Comments:
ARSENIC VALUE IS DETERMINED BY MSA

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1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MEQ019

Lab Name: ROCKY MOUNTAIN ANALYTICAL Contract: 68-01-7476

Lab Code: ENSECO Case No.: 8683 SAS No.: _____ SDG No.: MEQ014

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

Level (low/med): LOW Date Recieved: 12/09/87

% Solids: 92.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6030			P
7440-36-0	Antimony	6.7	U	N	P
7440-38-2	Arsenic	7.4		S*N	F
7440-39-3	Barium	29.9	B		P
7440-41-7	Beryllium	0.22	B		P
7440-43-9	Cadmium	1.1	U		P
7440-70-2	Calcium	642	B	E*	P
7440-47-3	Chromium	15.4		*	P
7440-48-4	Cobalt	4.3	B		P
7440-50-8	Copper	8.5			P
7439-89-6	Iron	10300			P
7439-92-1	Lead	5.5		S*N	F
7439-95-4	Magnesium	2000			P
7439-96-5	Manganese	290		*	P
7439-97-6	Mercury	0.1	U		CV
7440-02-0	Nickel	10.5			P
7440-09-7	Potassium	448	B	E	P
7482-49-2	Selenium	0.22	U	W	F
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	326	U		P
7440-28-0	Thallium	0.43	U		F
7440-62-2	Vanadium	14.0			P
7440-66-6	Zinc	24.9		*	P
	Cyanide	0.54	U		AS

Color Before: BROWN Clarity Before: _____ Texture: COARSE
Color After: BROWN Clarity After: _____ Artifacts: _____

Comments:
ARSENIC AND LEAD VALUES ARE DETERMINED BY MSA

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

CRL Receipt Date 1-21-88 FIT Receipt Date 2-29-88 Review Completed 3-1-88

TO: C. Almawza
FROM: James Mertes
SUBJECT: BREMEN BEARING
PAN: IN6464 (1 hour charged for review) Case # 8683

Sample Description

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

Project Data Status ✓ Completed!!

Incomplete, awaiting

FIT Data Review Findings:
- high concentrations of acetone
- Common lab artifacts detected
- detection limits should be read directly off OADS forms
- TIC's

Check Data Sheets for Transcription Errors
- Note lab & reviewers summary.

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

Book No. 7 Page No. 154 Date Sampled 12-8-87

recycled paper

2/29
74 pages

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 2/25/88

SUBJECT: Review of Region V CLP Data
Received for Review on 1-21-88

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

TO: Data User: FIT

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

SITE NAME: Bremen Bearing SMO Case No. 8683

EPA Data Set No. SF4718 No. of Samples: 6 D.U./Activity Numbers Y905/C721ZZ

CRL No. 88fFA09S26-S31

SMO Traffic No. EQ383-388

CLP Laboratory: SWOK Hrs. Required for Review: 8

PAN # FIN0464SB

Following are our findings: See attached review.

( ) Data are acceptable for use.
(x) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary - pending verification by Contractor Laboratory.
( ) Data are unacceptable.

cc: Duane Geuder, Quality Assurance Officer, EPA Support Services
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

EPA FORM 1320-6 (Ref. 5/87)

Site name Bremen Bearing Lab-SWOK Date-February8, 1988

PAN # FIN0464SB Case #8683

This review covers 6 soil samples that was scheduled for full RAS HSL, all of which were extracted or prepared for low level soil protocol.

A. Holding Times-Acceptable

B. Surrogates-Acceptable

% Recoveries:	VOAs	2 out of 27	Outside QC limits
	SV	0 out of 54	Outside QC limits
	Pest.	0 out of 9	Outside QC limits

C. MS/MSD-Acceptable

% Recoveries:	VOAs	0 out of 10	Outside QC limits
	SVs	0 out of 22	Outside QC limits
	Pest.	0 out of 12	Outside QC limits
RPDs:	VOAs	0 out of 5	Outside QC limits
	SVs	0 out of 11	Outside QC limits
	Pests	0 out of 6	Outside QC limits

D. Method Blank-Acceptable

E. Calibration-Acceptable

Compounds that are outside specifications are listed on the calibrations outlier form.

F. Tuning-Acceptable

G. Pesticides-Acceptable

Linearity-Acceptable
Breakdown-Acceptable
DBC Shift-Acceptable
DDT retention time > 12 minutes

2/9/88

User Information Sheet

Bremen Bearing SWOK February 8,1988

Case#8683 Reviewed by Larry K. Landry

Common lab artifacts were present. Methylene chloride, acetone, chloroform, 2-butanone and toluene were detected. The only compound that the lab documented with a B was chloroform. The concentrations were all in small amounts except for the concentrations of acetone and toluene. For sample EQ384, the concentration for acetone was 860 ppb and sample EQ385, the concentration was 280 ppb. The concentration for toluene for sample EQ384 was 330 ppb.
There were no semivolatiles or pesticides/PCBs target compounds that were detected.
There were numerous TIC compounds detected in the samples.

2/9/88

Site: Bremen Bearing

COMPOUND	SAMPLE	DET. LIMIT	ug/kg EQ383	EQ384	EQ385	EQ386	EQ387	EQ388
chloromethane								
bromomethane								
vinyl chloride								
chloroethane								
methylene chloride			2J				9	30
acetone			5J	860	280	34	12J	26
carbon disulfide								
1,1-dichloroethene								
1,1-dichloroethane								
trans-1,2,-dichloroethene								
chloroform			.8BJ			.8BJ	.8BJ	3BJ
1,2-dichloroethane								
2-butanone					17			
1,1,1-trichloroethane								
carbon tetrachloride								
vinyl acetate								
bromodichloromethane								
1,1,2,2-tetrachloroethane								
1,2-dichloropropane								
trans-1,3-dichloropropene								
trichloroethene								
dibromochloromethane								
1,1,2-trichloroethane								
benzene								
cis-1,3-dichloropropene								
2-chloroethylvinylether								
bromoform								
2-hexanone								
4-methyl-2-pentanone								
tetrachloroethene								
toluene			9	330	6J	2J		
chlorobenzene								
ethylbenzene								
styrene								
total xylenes								
N-nitrosodimethylamine								
phenol								
aniline								
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								
isophrone								
2-nitrophenol								
2,4-dimethylphenol								
benzoic acid								
bis(2-chloroethoxy)methane								
2,4-dichlorophenol								
1,2,4-trichlorobenzene								
napthalene								
4-chloroaniline								
hexachlorobutadiene								
4-chloro-3-methylphenol								
2-methylnapthalene								
hexachlorocyclopentadiene								
2,4,6-trichlorophenol								
2,4,5-trichlorophenol								
2-chloronaphthalene								

Case # 8683

SITE: Bremen Bearing

	COMPOUND	SAMPLE	DET. LIMIT	UNITS ug/kg EQ383	EQ384	EQ385	EQ386	EQ387	EQ388		
V	diethyl phthalate										
	acenaphthylene										
	3-nitroaniline										
	acenaphthene										
	2,4-dinitrophenol										
	4-nitrophenol										
	dibenzofuran										
	2,4-dinitrotoluene										
S	2,6-dinitrotoluene										
	diethylphthalate										
	4-chlorophenyl-phenylether										
	fluorene										
V	4-nitroaniline										
	4,6-dinitro-2-methylphenol										
	N-nitrosodiphenylamine										
	4-bromophenyl-phenylether										
	hexachlorobenzene										
	pentachlorophenol										
	phenanthrene										
	anthracene										
	di-n-butylphthalate										
	fluoranthene										
	benzidine										
	pyrene										
	butylbenzylphthalate										
	3,3'-dichlorobenzidine										
	benzo(a)anthracene										
	bis(2-ethylhexyl)phthalate										
	chrysene										
	di-n-octylphthalate										
	benzo(b&k)fluoranthene										
	benzo(a)pyrene										
	indeno(1,2,3-cd)pyrene										
	dibenzo(a,h)anthracene										
T	benzo(g,h,i)perylene										
↓	alpha-BHC										
	beta-BHC										
	delta-BHC										
	gamma-BHC(lindane)										
P	heptachlor										
E	aldrin										
	heptachlor epoxide										
	endosulfan I										
S	dieldrin										
T	4,4'-DDE										
	endrin										
	endosulfan II										
	4,4'-DDD										
	endrin aldehyde										
	endosulfan sulfate										
	4,4'-DDT										
	methoxychlor										
	endrin ketone										
	chlordane										
	toxaphene										
	Aroclor-1016										
	Aroclor-1221										
	Aroclor-1232										
	Aroclor-1242										
	Aroclor-1248										
	Aroclor-1254										
	Aroclor-1260										

LKR
2/8/88

ORGANIC ANALYSIS SUMMARY

SITE NAME: BREMEN BEARING
CASE NUMBER 8583 PAGE 1 OF 1
CONCENTRATIONS IN PARTS PER BILLION

ORGANIC TRAFFIC NUMBERS
AND SAMPLE STATION LOCATION DESCRIPTIONS

			E0383	E0384	E0385	E0386	E0387	E0388		
		MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
COMPOUND	CAS#/SCPN	CLASS								
CHLOROFORM	67-66-3	VOA/1	0.80BJ			0.80BJ	0.86BJ	3BJ		
METHYLENE CHLORIDE	75-09-2	VOA/1	2J				9	20		
TOLUENE	108-88-3	VOA/1	9	330	6J	2J				
ACETONE	67-64-1	VOA/2	5J	660	280	34	12J	3B		
2-BUTANONE	78-93-3	VOA/2			17					

1. PRIORITY POLLUTANT
2. SPECIFIED HAZARDOUS SUBSTANCE
3. TENTATIVELY IDENTIFIED

VOA - VOLATILE
BPN - ACID/BASE/NEUTRAL
PES - PESTICIDE

B - THE ANALYTE IS FOUND IN THE LAB BLANK
J - INDICATES AN ESTIMATED VALUE FOR TENTATIVELY IDENTIFIED COMPOUNDS OR COMPOUNDS FOUND BELOW CONTRACT DETECTION LIMIT
P - PRESENT IN SAMPLE, BUT NOT REPORTED BY LAB

C - CONFIRMED BY MASS SPECTRAL DATA

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

CASE/SAS # 8683 CONTRACTOR SWOK

Instrument # 7002D	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	11-30-87			12-9-87/13:47											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane					38.2	J									
Bromomethane															
Vinyl Chloride															
Chloroethane		33.3	J												
Methylene Chloride															
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone															
1,2-Dichloroethane															
1,1,1-Trichloroethane															
Carbon Tetrachloride															
Vinyl Acetate		30.9	J		27.7	J									
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		36.0	J												
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
m-Xylene															
o/p-Xylene															

AFFECTED SAMPLES:

~~[illegible]~~	~~[illegible]~~
EQ383-EQ388	EQ383-EQ388
EQ384RE	EQ384RE
EQ385RE	EQ385RE

Reviewer's Initials/Date: PJC/2/26/88

* 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 # 8683 CONTRACTOR SWOK

Instrument # 7002D	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	12-16-87			12-19-88/2197											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane					25.5	J									
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride															
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone															
1,2-Dichloroethane															
1,1,1-Trichloroethane															
Carbon Tetrachloride															
Vinyl Acetate															
Bromodichloromethane															
1,2-Dichloropropane															
Trans-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
cis-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
m-Xylene															
o/p-Xylene															

AFFECTED SAMPLES:

EQ3E8RE	EQ3E8RE			

Reviewer's Initials/Date: RJC/2-15-88

* 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 # 8683 CONTRACTOR SWOK

Instrument # A	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	1/8/88			1/12/88											
	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					34.1	J									
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		45.5	J												
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline					66.6	J									
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene					32.2	J									
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline		54.7	J		91.0	J									
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															
	ALL SAMPLES			ALL SAMPLES											

AFFECTED SAMPLES:

Reviewer Initials/Date: ~~LKL 2-8-88~~

JJC
2/25/88

* 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 # 8683 CONTRACTOR SWOK

Instrument # A	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	1/8/88			1/12/88											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline		51.4	J												
4,6-Dinitro-2-Methylphenol					52.7	J									
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					42.5	J									
Benzo(k)Fluoranthene		36.6	J												
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene					33.3	J									
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene					48.1	J									

SEE PAGE 1 FOR AFFECTED SAMPLES.

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

Reviewer's Initials/Date: ~~RKK/2-8-88~~
PJC
2-25-88

Case: 8683

Contractor: SWOK

TENTATIVELY IDENTIFIED COMPOUNDS
WATCH 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.

Reviewer's Initials/Date: LKL / 2-8-88

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
1	VBLK	102	99	103		0
2	EQ383	105	101	105		0
3	EQ384	110	95	180 *		1
4	EQ386	107	96	108		0
5	EQ388MS	110	103	111		0
6	EQ384 RE	116	106	241 *		1
7	EQ385	107	96	429 *		1
8	EQ387	103	100	103		0
9	EQ388	106	101	459 *		1
10	EQ388MSD	106	106	108		0
11	EQ385 RE	110	95	592 *		1
12						
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		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

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
1	VBLK1	101	96	92		0
2	EQ388 RE	109	95	92		0
3						
4						
5						
6						
7						
8						
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	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: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

Level: (low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	OTHER	TOT OUT
1	SBLK	80	93	96	71	74	86		0
2	EQ388	77	96	100	77	83	93		0
3	EQ388MS	77	94	94	96	77	91		0
4	EQ388MSD	80	95	96	99	74	93		0
5	EQ387	72	89	98	75	71	84		0
6	EQ386	72	89	100	72	73	91		0
7	EQ383	73	93	99	76	77	88		0
8	EQ384	47	60	58	41	27	94		0
9	EQ385	65	67	68	41	60	58		0
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

			QC LIMITS
S1 (NBZ)	= CS20	NITROBENZENE-D5	(23-120)
S2 (FBP)	= CS25	2-FLUOROBIPHENYL	(30-115)
S3 (TPH)	= CS30	TERPHENYL-D14	(18-137)
S4 (PHL)	= CS45	PHENOL-D5	(24-113)
S5 (2FP)	= CS50	2-FLUOROPHENOL	(25-121)
S6 (TBP)	= CS55	2,4,6-TRIBROMOPH	(19-122)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2F

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: ~~AATS~~ Southwest Laboratory of OKla. PC SWOK PC Contract: 68-01-7392

Lab Code: ~~AATS~~ Case No.: 8683 SAS No.: SDG No.: EQ383

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (DBC)#	OTHER
1	PBLK	106	
2	EQ383	98	
3	EQ384	148	
4	EQ385	89	
5	EQ386	92	
6	EQ387	91	
7	EQ388	92	
8	EQ388MS	91	
9	EQ388MSD	93	
10			
11			
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30			

S1 (DBC) = DIBUTYL CHLORENDATE ADVISORY QC LIMITS (20-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

117

FORM II PEST-2 1/87 Rev.

3B
SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

Matrix Spike - EPA Sample No.: EQ388 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	55.	0.	57.	105.	59-172
TRICHLOROETHENE	55.	0.	38.	69.	62-137
BENZENE	55.	0.	66.	120.	66-142
TOLUENE	55.	0.	65.	118.	59-139
CHLOROBENZENE	55.	0.	62.	113.	60-133

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-DICHLOROETHENE	55.	55.	100.	5.	22	59-172
TRICHLOROETHENE	55.	37.	67.	4.	24	62-137
BENZENE	55.	62.	113.	6.	21	66-142
TOLUENE	55.	60.	110.	7.	21	59-139
CHLOROBENZENE	55.	59.	107.	6.	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:

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWLO Contract: 68-01-7393

Lab Code: SWLO SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

Matrix Spike - EPA Sample No.: EQ388 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC LIMITS REC.
C315 PHENOL*	3655.	0.	2088.	57.	26- 90
C330 2-CHLOROPHENOL	3655.	0.	2112.	58.	25-102
C340 1,4-DICHLOROBENZE	1827.	0.	940.	51.	28-104
C370 N-NITROSO-DI-N-PR	1827.	0.	883.	48.	41-126
C445 1,2,4-TRICHLOROBE	1827.	0.	1322.	72.	38-107
C465 4-CHLORO-3-METHYL	3655.	0.	2041.	56.	26-103
C550 ACENAPTHENE*	1827.	0.	1145.	63.	31-137
C560 4-NITROPHENOL**	3655.	0.	2270.	62.	11-114
C570 2,4-DINITROTOLUEN	1827.	0.	1128.	62.	28- 89
C635 PENTACHLOROPHENOL	3655.	0.	1784.	49.	17-109
C715 PYRENE	1827.	0.	1272.	70.	35-142

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	GC LIMITS RPD	GC LIMITS REC.
C315 PHENOL*	3655.	2095.	57.	0.	35	26- 90
C330 2-CHLOROPHENOL	3655.	2174.	59.	3.	50	25-102
C340 1,4-DICHLOROBENZE	1827.	932.	51.	1.	27	28-104
C370 N-NITROSO-DI-N-PR	1827.	955.	52.	8.	38	41-126
C445 1,2,4-TRICHLOROBE	1827.	1226.	67.	8.	25	38-107
C465 4-CHLORO-3-METHYL	3655.	2200.	60.	7.	33	26-103
C550 ACENAPTHENE*	1827.	1170.	64.	2.	19	31-137
C560 4-NITROPHENOL**	3655.	2420.	66.	6.	50	11-114
C570 2,4-DINITROTOLUEN	1827.	1178.	64.	4.	47	28- 89
C635 PENTACHLOROPHENOL	3655.	1901.	52.	6.	47	17-109
C715 PYRENE	1827.	1279.	70.	1.	25	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: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

COMMENTS:

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Name: ~~AATS~~ Southwest Laboratory of Okla PC Contract: 68-01-7392

Lab Code: ~~AATS~~ SWOK PC Case No.: 8683 SAS No.: SDG No.: EQ383

Matrix Spike - EPA Sample No.: EQ388 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC LIMITS REC.
GAMMA-BHC	29.23	.00	27.27	93.	46-127
HEPTACHLOR	29.23	.00	26.45	90.	35-130
ALDRIN	29.23	.00	28.79	98.	34-132
DIELDRIN	73.08	.00	69.76	95.	31-134
ENDRIN	73.08	.00	81.55	112.	42-139
4,4'-DDT	73.08	.00	95.12	130.	23-134

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
GAMMA-BHC	29.23	26.21	90.	4.	50	46-127
HEPTACHLOR	29.23	25.01	86.	6.	31	35-130
ALDRIN	29.23	29.04	99.	1.	43	34-132
DIELDRIN	73.08	69.16	95.	1.	38	31-134
ENDRIN	73.08	82.02	112.	1.	45	42-139
4,4'-DDT	73.08	95.41	131.	0.	50	23-134

Column to be used to flag recovery and RPD values with an asterisk

+ Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

Lab File ID: 5574 Lab Sample ID:_____

Date Analyzed: 12/ 9/87 Time Analyzed: 14:26

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

Instrument ID: 7002D

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1	EQ383		5575	15:01
2	EQ384		5576	15:41
3	EQ386		5578	17:34
4	EQ388MS		5581	19:33
5	EQ384 RE		5583	20:53
6	EQ385		5584	21:30
7	EQ387		5585	22:15
8	EQ388		5586	22:54
9	EQ388MSD		5587	23:33
10	EQ385 RE		5588	0:13
11				
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OMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

Lab File ID: 5829 Lab Sample ID:_____

Date Analyzed: 12/19/87 Time Analyzed: 22:26

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

Instrument ID: 7002D

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1	EQ388 RE		5832	0:23
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
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19				
20				
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22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: SWLO Contract: 68-01-7393

Lab Code: SWLO SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

Lab File ID: BLK0110 Lab Sample ID: _____

Date Extracted: 12/18/87 Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 1/12/88 Time Analyzed: 11:01

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

Instrument ID: A

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	EQ388		16393	1/12/88
2	EQ388MS		16393MS	1/12/88
3	EQ388MSD		16393MSD	1/12/88
4	EQ387		16392	1/12/88
5	EQ386		16391	1/12/88
6	EQ383		16388	1/12/88
7	EQ384		16389	1/12/88
8	EQ385		16390R	1/12/88
9				
10				
11				
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COMMENTS:

4C

PESTICIDE METHOD BLANK SUMMARY

Lab Name: ~~AATS~~ Southwest Laboratory of Okla PC SWOK Contract: 68-01-7392

Code: ~~AATS~~ Case No.: 8683 SAS No.: SDG No.: EQ383

Lab Sample ID: _____ Lab File ID: 1218PSB

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

Date Extracted: 12/18/87 Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed (1): 1/13/88 Date Analyzed (2): 1/13/88

Time Analyzed (1): 3:09 Time Analyzed (2):

Instrument ID (1): 5890A Instrument ID (2):

GC Column ID (1): MULTIPHA GC Column ID (2):

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

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	EQ383		1/13/88	
2	EQ384		1/13/88	
3	EQ385		1/13/88	
4	EQ386		1/13/88	
5	EQ387		1/13/88	
6	EQ388		1/13/88	
7	EQ388MS		1/13/88	
8	EQ388MSD		1/13/88	
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Comments:

FORM IV PEST 1/87 Rev.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5829

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 0. Date Analyzed: 12/19/87

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
75-34-3	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
10061-02-6	TRANS-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
10061-01-5	CIS-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: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: E0383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5829

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 0. Date Analyzed: 12/19/87

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

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-91-1	1,4-Dioxane (9CI)	13.51	9.	J
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK

ab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5574

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 0. Date Analyzed: 12/ 9/87

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
75-34-3	1,1-DICHLOROETHANE	5.	U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	5.	U
67-66-3	CHLOROFORM	1.	J
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
10061-02-6	TRANS-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
10061-01-5	CIS-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.

VBLK

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5574

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 0. Date Analyzed: 12/ 9/87

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

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-91-1	1,4-Dioxane (9CI)	13.69	8.	J
2.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: BLK0110

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 0. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

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
108-95-2-------C315	PHENOL*	330.	U
111-44-4-------C325	BIS(2 CHLOROETHYL)ETHE	330.	U
95-57-8-------C330	2-CHLOROPHENOL	330.	U
541-73-1-------C335	1,3-DICHLOROBENZENE	330.	U
106-46-7-------C340	1,4-DICHLOROBENZENE*	330.	U
100-51-6-------C345	BENZYL ALCOHOL	330.	U
95-50-1-------C350	1,2-DICHLOROBENZENE	330.	U
95-48-7-------C355	2-METHYLPHENOL	330.	U
108-60-1-------C360	BIS(2-CHLOROISOPROPYL)	330.	U
106-44-5-------C365	4-METHYLPHENOL	330.	U
621-64-7-------C370	N-NITROSO-DI-N-PROPYLA	330.	U
67-72-1-------C375	HEXACHLOROETHANE	330.	U
98-95-3-------C410	NITROBENZENE	330.	U
78-59-1-------C415	ISOPHORONE	330.	U
88-75-5-------C420	2-NITROPHENOL*	330.	U
105-67-9-------C425	2,4-DIMETHYLPHENOL	330.	U
65-85-0-------C430	BENZOIC ACID	1700.	U
111-91-1-------C435	BIS(2-CHLOROETHOXY)MET	330.	U
120-83-2-------C440	2,4-DICHLOROPHENOL*	330.	U
120-82-1-------C445	1,2,4-TRICHLOROBENZENE	330.	U
91-20-3-------C450	NAPHTHALENE	330.	U
106-47-8-------C455	4-CHLOROANILINE	330.	U
87-68-3-------C460	HEXACHLOROBUTADIENE*	330.	U
59-50-7-------C465	4-CHLORO-3-METHYLPHENO	330.	U
91-57-6-------C470	2-METHYLNAPTHALENE	330.	U
77-47-4-------C510	HEXACHLOROCYCLOPENTADI	330.	U
88-06-2-------C515	2,4,6-TRICHLOROPHENOL*	330.	U
95-95-4-------C520	2,4,5-TRICHLOROPHENOL	1700.	U
91-58-7-------C525	2-CHLORONAPHTHALENE	330.	U
88-74-4-------C530	2-NITROANILINE	1700.	U
131-11-3-------C535	DIMETHYL PHTHALATE	330.	U
208-96-8-------C540	ACENAPHTHYLENE	330.	U
606-20-2-------C543	2,6-DINITROTOLUENE	330.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: BLK0110

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 0. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

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
99-09-2-------C545	3-NITROANILINE	330.	U
83-32-9-------C550	ACENAPTHENE*	330.	U
51-28-5-------C555	2,4-DINITROPHENOL**	1700.	U
100-02-7-------C560	4-NITROPHENOL**	1700.	U
132-64-9-------C565	DIBENZOFURAN	330.	U
121-14-2-------C570	2,4-DINITROTOLUENE	330.	U
84-66-2-------C580	DIETHYL PHTHALATE	330.	U
7005-72-3-------C585	4-CHLOROPHENYL PHENYL	330.	U
86-73-7-------C590	FLUORENE	330.	U
100-01-6-------C595	4-NITROANILINE	1700.	U
534-52-1-------C610	4,6-DINITRO-2-METHYLPH	1700.	U
86-30-6-------C615	N-NITROSODIPHENYLAMINE	330.	U
101-55-3-------C625	4-BROMOPHENYL PHENYL E	330.	U
118-74-1-------C630	HEXACHLOROBENZENE	330.	U
87-86-5-------C635	PENTACHLOROPHENOL*	1700.	U
85-01-8-------C640	PHENANTHRENE	330.	U
120-12-7-------C645	ANTHRACENE	330.	U
84-74-2-------C650	DI-N-BUTYL PHTHALATE	330.	U
206-44-0-------C655	FLUORANTHENE*	330.	U
129-00-0-------C715	PYRENE	330.	U
85-68-7-------C720	BUTYL BENZYL PHTHALATE	330.	U
91-94-1-------C725	3,3'-DICHLOROBENZIDINE	670.	U
56-55-3-------C730	BENZO(A)ANTHRACENE	330.	U
218-01-9-------C740	CHRYSENE	330.	U
117-81-7-------C745	BIS(2-ETHYLHEXYL)PHTHA	330.	U
117-84-0-------C760	DI-N-OCTYLPHTHALATE*	330.	U
205-99-2-------C765	BENZO(B)FLUORANTHENE	330.	U
207-08-9-------C770	BENZO(K)FLUORANTHENE	330.	U
50-32-8-------C775	BENZO(A)PYRENE*	330.	U
193-39-5-------C780	INDENO(1,2,3-CD)PYRENE	330.	U
53-70-3-------C785	DIBENZ(A,H)ANTHRACENE	330.	U
191-24-2-------C790	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.

SBLK

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: BLK0110

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 0. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

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

Number TICs found: 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN KETONE	5.43	4000.	J
2.	74630-08-3	1-OCTENE, 3-ETHYL	5.62	500.	J
3.	- -	UNKNOWN HYDROCARBON	6.03	600.	J
4.	- -	UNKNOWN HYDROCARBON	6.20	200.	J
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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK

Name: ~~AATS~~ Southwest Laboratory of Okla PC SWOK

Contract: 68-01-7392

Lab Code: ~~AATS~~ Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 1218PSB

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 0. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/13/88

PC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: .0125

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	ALPHA-BHC	16.	U
319-85-7	BETA-BHC	16.	U
319-86-8	DELTA-BHC	16.	U
58-89-9	GAMMA-BHC	16.	U
76-44-8	HEPTACHLOR	16.	U
309-00-2	ALDRIN	16.	U
1024-57-3	HEPTACHLOR EPOXIDE	16.	U
959-98-8	ENDOSULFAN I	16.	U
60-57-1	DIELDRIN	32.	U
72-55-9	4,4'-DDE	32.	U
72-20-8	ENDRIN	32.	U
33213-65-9	ENDOSULFAN II	32.	U
72-54-8	4,4'-DDD	32.	U
1031-07-8	ENDOSULFAN SULFATE	32.	U
50-29-3	4,4'-DDT	32.	U
72-43-5	METHOXYCHLOR	160.	U
53494-70-5	ENDRIN KETONE	32.	U
5103-71-9	ALPHA CHLORDANE	160.	U
5103-74-2	GAMMA CHLORDANE	160.	U
8001-35-2	TOXAPHENE	320.	U
12674-11-2	AROCLOR-1016	160.	U
11104-28-2	AROCLOR-1221	160.	U
11141-16-5	AROCLOR-1232	160.	U
53469-21-9	AROCLOR-1242	160.	U
12672-29-6	AROCLOR-1248	160.	U
11097-69-1	AROCLOR-1254	320.	U
11096-82-5	AROCLOR-1260	320.	U

5b4PC

FORM I PEST 1/87 Rev.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ383

ab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5575

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 10. Date Analyzed: 12/ 9/87

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	2.	J
67-64-1	ACETONE	5.	J
75-15-0	CARBON DISULFIDE	6.	U
75-35-4	1,1-DICHLOROETHENE	6.	U
75-34-3	1,1-DICHLOROETHANE	6.	U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	6.	U
67-66-3	CHLOROFORM	~~.8~~	~~BJ~~
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
10061-02-6	TRANS-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
10061-01-5	CIS-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	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.

EQ383

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5575

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 10. Date Analyzed: 12/ 9/87

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

Number TICs found: -1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EG383

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EG388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16388

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 10. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

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
108-95-2-------C315	PHENOL*	370.	U
111-44-4-------C325	BIS(2 CHLOROETHYL)ETHE	370.	U
95-57-8-------C330	2-CHLOROPHENOL	370.	U
541-73-1-------C335	1,3-DICHLOROBENZENE	370.	U
106-46-7-------C340	1,4-DICHLOROBENZENE*	370.	U
100-51-6-------C345	BENZYL ALCOHOL	370.	U
95-50-1-------C350	1,2-DICHLOROBENZENE	370.	U
95-48-7-------C355	2-METHYLPHENOL	370.	U
108-60-1-------C360	BIS(2-CHLOROISOPROPYL)	370.	U
106-44-5-------C365	4-METHYLPHENOL	370.	U
621-64-7-------C370	N-NITROSO-DI-N-PROPYLA	370.	U
67-72-1-------C375	HEXACHLOROETHANE	370.	U
98-95-3-------C410	NITROBENZENE	370.	U
78-59-1-------C415	ISOPHORONE	370.	U
88-75-5-------C420	2-NITROPHENOL*	370.	U
105-67-9-------C425	2,4-DIMETHYLPHENOL	370.	U
65-85-0-------C430	BENZOIC ACID	1800.	U
111-91-1-------C435	BIS(2-CHLOROETHOXY)MET	370.	U
120-83-2-------C440	2,4-DICHLOROPHENOL*	370.	U
120-82-1-------C445	1,2,4-TRICHLOROBENZENE	370.	U
91-20-3-------C450	NAPHTHALENE	370.	U
106-47-8-------C455	4-CHLOROANILINE	370.	U
87-68-3-------C460	HEXACHLOROBUTADIENE*	370.	U
59-50-7-------C465	4-CHLORO-3-METHYLPHENO	370.	U
91-57-6-------C470	2-METHYLNAPTHALENE	370.	U
77-47-4-------C510	HEXACHLOROCYCLOPENTADI	370.	U
88-06-2-------C515	2,4,6-TRICHLOROPHENOL*	370.	U
95-95-4-------C520	2,4,5-TRICHLOROPHENOL	1800.	U
91-58-7-------C525	2-CHLORONAPHTHALENE	370.	U
88-74-4-------C530	2-NITROANILINE	1800.	U
131-11-3-------C535	DIMETHYL PHTHALATE	370.	U
208-96-8-------C540	ACENAPHTHYLENE	370.	U
606-20-2-------C543	2,6-DINITROTOLUENE	370.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ383

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16388

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 10. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

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
99-09-2-------C545	3-NITROANILINE	370.	U
83-32-9-------C550	ACENAPTHENE*	370.	U
51-28-5-------C555	2,4-DINITROPHENOL**	1800.	U
100-02-7-------C560	4-NITROPHENOL**	1800.	U
132-64-9-------C565	DIBENZOFURAN	370.	U
121-14-2-------C570	2,4-DINITROTOLUENE	370.	U
84-66-2-------C580	DIETHYL PHTHALATE	370.	U
7005-72-3-------C585	4-CHLOROPHENYL PHENYL	370.	U
86-73-7-------C590	FLUORENE	370.	U
100-01-6-------C595	4-NITROANILINE	1800.	U
534-52-1-------C610	4,6-DINITRO-2-METHYLPH	1800.	U
86-30-6-------C615	N-NITROSODIPHENYLAMINE	370.	U
101-55-3-------C625	4-BROMOPHENYL PHENYL E	370.	U
118-74-1-------C630	HEXACHLOROBENZENE	370.	U
87-86-5-------C635	PENTACHLOROPHENOL*	1800.	U
85-01-8-------C640	PHENANTHRENE	370.	U
120-12-7-------C645	ANTHRACENE	370.	U
84-74-2-------C650	DI-N-BUTYL PHTHALATE	370.	U
206-44-0-------C655	FLUORANTHENE*	370.	U
129-00-0-------C715	PYRENE	370.	U
85-68-7-------C720	BUTYL BENZYL PHTHALATE	370.	U
91-94-1-------C725	3,3'-DICHLOROBENZIDINE	740.	U
56-55-3-------C730	BENZO(A)ANTHRACENE	370.	U
218-01-9-------C740	CHRYSENE	370.	U
117-81-7-------C745	BIS(2-ETHYLHEXYL)PHTHA	370.	U
117-84-0-------C760	DI-N-OCTYLPHTHALATE*	370.	U
205-99-2-------C765	BENZO(B)FLUORANTHENE	370.	U
207-08-9-------C770	BENZO(K)FLUORANTHENE	370.	U
50-32-8-------C775	BENZO(A)PYRENE*	370.	U
193-39-5-------C780	INDENO(1,2,3-CD)PYRENE	370.	U
53-70-3-------C785	DIBENZ(A,H)ANTHRACENE	370.	U
191-24-2-------C790	BENZO(G,H,I)PERYLENE	370.	U

(1) - Cannot be separated from diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EQ383

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16388

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 10. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 1.00

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN KETONE	5.43	5000.	J
2. 74630-08-3	1-OCTENE, 3-ETHYL-	5.60	500.	BJ
3. - -	UNKNOWN HYDROCARBON	6.07	600.	J
4. - -	UNKNOWN HYDROCARBON	27.20	300.	J
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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ383

Name: ~~AATS~~ Southwest Laboratory of Okla PC SWOK

Contract: 68-01-7392

Lab Code: ~~AATS~~ Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16388

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 10. dec. 10. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/13/88

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: .0125

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	ALPHA-BHC	18.	U
319-85-7	BETA-BHC	18.	U
319-86-8	DELTA-BHC	18.	U
58-89-9	GAMMA-BHC	18.	U
76-44-8	HEPTACHLOR	18.	U
309-00-2	ALDRIN	18.	U
1024-57-3	HEPTACHLOR EPOXIDE	18.	U
959-98-8	ENDOSULFAN I	18.	U
60-57-1	DIELDRIN	35.	U
72-55-9	4,4'-DDE	35.	U
72-20-8	ENDRIN	35.	U
33213-65-9	ENDOSULFAN II	35.	U
72-54-8	4,4'-DDD	35.	U
1031-07-8	ENDOSULFAN SULFATE	35.	U
50-29-3	4,4'-DDT	35.	U
72-43-5	METHOXYCHLOR	180.	U
53494-70-5	ENDRIN KETONE	35.	U
5103-71-9	ALPHA CHLORDANE	180.	U
5103-74-2	GAMMA CHLORDANE	180.	U
8001-35-2	TOXAPHENE	350.	U
12674-11-2	AROCLOR-1016	180.	U
11104-28-2	AROCLOR-1221	180.	U
11141-16-5	AROCLOR-1232	180.	U
53469-21-9	AROCLOR-1242	180.	U
12672-29-6	AROCLOR-1248	180.	U
11097-69-1	AROCLOR-1254	350.	U
11096-82-5	AROCLOR-1260	350.	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ384

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 1. (g/mL) G Lab File ID: 5576

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 58. Date Analyzed: 12/ 9/87

Column: (pack/cap) PACK Dilution Factor: 5.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	CHLOROMETHANE	120.	U
74-83-9	BROMOMETHANE	120.	U
75-01-4	VINYL CHLORIDE	120.	U
75-00-3	CHLOROETHANE	120.	U
75-09-2	METHYLENE CHLORIDE	~~60.~~	U
67-64-1	ACETONE	860.	
75-15-0	CARBON DISULFIDE	~~60.~~	U
75-35-4	1,1-DICHLOROETHENE	60.	U
75-34-3	1,1-DICHLOROETHANE	60.	U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	60.	U
67-66-3	CHLOROFORM	60.	U
107-06-2	1,2-DICHLOROETHANE	60.	U
78-93-3	2-BUTANONE	120.	U
71-55-6	1,1,1-TRICHLOROETHANE	60.	U
56-23-5	CARBON TETRACHLORIDE	60.	U
108-05-4	VINYL ACETATE	120.	U
75-27-4	BROMODICHLOROMETHANE	60.	U
78-87-5	1,2-DICHLOROPROPANE	60.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	60.	U
79-01-6	TRICHLOROETHENE	60.	U
124-48-1	DIBROMOCHLOROMETHANE	60.	U
79-00-5	1,1,2-TRICHLOROETHANE	60.	U
71-43-2	BENZENE	60.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	60.	U
75-25-2	BROMOFORM	60.	U
108-10-1	4-METHYL-2-PENTANONE	120.	U
591-78-6	2-HEXANONE	120.	U
127-18-4	TETRACHLOROETHENE	60.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	~~60.~~	U
108-88-3	TOLUENE	330.	
108-90-7	CHLOROBENZENE	~~60.~~	U
100-41-4	ETHYLBENZENE	60.	U
100-42-5	STYRENE	60.	U
1330-20-7	XYLENES (TOTAL)	60.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EQ384 RE

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 2. (g/mL) G Lab File ID: 5583

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 58. Date Analyzed: 12/ 9/87

Column: (pack/cap) PACK Dilution Factor: 2.50

Number TICs found: 10

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	5.52	300.	J
2.	115-11-7	1-Propene, 2-methyl- (9CI)	6.33	400.	J
3.	- -	UNKNOWN	7.07	900.	J
4.	109-66-0	Pentane (8CI9CI)	13.27	300.	J
5.	123-91-1	1,4-Dioxane (9CI)	13.70	300.	BJ
6.	691-37-2	1-Pentene, 4-methyl- (8CI9CI	17.23	100.	J
7.	- -	UNKNOWN HYDROCARBON	17.77	300.	J
8.	- -	UNKNOWN HYDROCARBON	23.08	800.	J
9.	540-84-1	Pentane, 2,2,4-trimethyl- (8	23.39	700.	J
10.	1678-92-8	Cyclohexane, propyl- (8CI9CI	32.12	200.	J
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ384

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16389

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 58. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 8.6 Dilution Factor: 0.20

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2-------C315	PHENOL*	3900.	U
111-44-4-------C325	BIS(2 CHLOROETHYL)ETHE	3900.	U
95-57-8-------C330	2-CHLOROPHENOL	3900.	U
541-73-1-------C335	1,3-DICHLOROBENZENE	3900.	U
106-46-7-------C340	1,4-DICHLOROBENZENE*	3900.	U
100-51-6-------C345	BENZYL ALCOHOL	3900.	U
95-50-1-------C350	1,2-DICHLOROBENZENE	3900.	U
95-48-7-------C355	2-METHYLPHENOL	3900.	U
108-60-1-------C360	BIS(2-CHLOROISOPROPYL)	3900.	U
106-44-5-------C365	4-METHYLPHENOL	3900.	U
621-64-7-------C370	N-NITROSO-DI-N-PROPYLA	3900.	U
67-72-1-------C375	HEXACHLOROETHANE	3900.	U
98-95-3-------C410	NITROBENZENE	3900.	U
78-59-1-------C415	ISOPHORONE	3900.	U
88-75-5-------C420	2-NITROPHENOL*	3900.	U
105-67-9-------C425	2,4-DIMETHYLPHENOL	3900.	U
65-85-0-------C430	BENZOIC ACID	20000.	U
111-91-1-------C435	BIS(2-CHLOROETHOXY)MET	3900.	U
120-83-2-------C440	2,4-DICHLOROPHENOL*	3900.	U
120-82-1-------C445	1,2,4-TRICHLOROBENZENE	3900.	U
91-20-3-------C450	NAPHTHALENE	3900.	U
106-47-8-------C455	4-CHLOROANILINE	3900.	U
87-68-3-------C460	HEXACHLOROBUTADIENE*	3900.	U
59-50-7-------C465	4-CHLORO-3-METHYLPHENO	3900.	U
91-57-6-------C470	2-METHYLNAPTHALENE	3900.	U
77-47-4-------C510	HEXACHLOROCYCLOPENTADI	3900.	U
88-06-2-------C515	2,4,6-TRICHLOROPHENOL*	3900.	U
95-95-4-------C520	2,4,5-TRICHLOROPHENOL	20000.	U
91-58-7-------C525	2-CHLORONAPHTHALENE	3900.	U
88-74-4-------C530	2-NITROANILINE	20000.	U
131-11-3-------C535	DIMETHYL PHTHALATE	3900.	U
208-96-8-------C540	ACENAPHTHYLENE	3900.	U
606-20-2-------C543	2,6-DINITROTOLUENE	3900.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ384

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16389

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 58. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 8.6 Dilution Factor: 0.20

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2-------C545	3-NITROANILINE	3900.	U
83-32-9-------C550	ACENAPTHENE*	3900.	U
51-28-5-------C555	2,4-DINITROPHENOL**	20000.	U
100-02-7-------C560	4-NITROPHENOL**	20000.	U
132-64-9-------C565	DIBENZOFURAN	3900.	U
121-14-2-------C570	2,4-DINITROTOLUENE	3900.	U
84-66-2-------C580	DIETHYL PHTHALATE	3900.	U
7005-72-3-------C585	4-CHLOROPHENYL PHENYL	3900.	U
86-73-7-------C590	FLUORENE	3900.	U
100-01-6-------C595	4-NITROANILINE	20000.	U
534-52-1-------C610	4,6-DINITRO-2-METHYLPH	20000.	U
86-30-6-------C615	N-NITROSODIPHENYLAMINE	3900.	U
101-55-3-------C625	4-BROMOPHENYL PHENYL E	3900.	U
118-74-1-------C630	HEXACHLOROBENZENE	3900.	U
87-86-5-------C635	PENTACHLOROPHENOL*	20000.	U
85-01-8-------C640	PHENANTHRENE	3900.	U
120-12-7-------C645	ANTHRACENE	3900.	U
84-74-2-------C650	DI-N-BUTYL PHTHALATE	3900.	U
206-44-0-------C655	FLUORANTHENE*	3900.	U
129-00-0-------C715	PYRENE	3900.	U
85-68-7-------C720	BUTYL BENZYL PHTHALATE	3900.	U
91-94-1-------C725	3,3'-DICHLOROBENZIDINE	7900.	U
56-55-3-------C730	BENZO(A)ANTHRACENE	3900.	U
218-01-9-------C740	CHRYSENE	3900.	U
117-81-7-------C745	BIS(2-ETHYLHEXYL)PHTHA	3900.	U
117-84-0-------C760	DI-N-OCTYLPHTHALATE*	3900.	U
205-99-2-------C765	BENZO(B)FLUORANTHENE	3900.	U
207-08-9-------C770	BENZO(K)FLUORANTHENE	3900.	U
50-32-8-------C775	BENZO(A)PYRENE*	3900.	U
193-39-5-------C780	INDENO(1,2,3-CD)PYRENE	3900.	U
53-70-3-------C785	DIBENZ(A,H)ANTHRACENE	3900.	U
191-24-2-------C790	BENZO(G,H,I)PERYLENE	3900.	U

(1) - Cannot be separated from diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EQ384

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16389

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 58. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 8.6 Dilution Factor: 0.20

Number TICs found: 20

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN HYDROCARBON	14.33	80000.	J
2. - -	UNKNOWN HYDROCARBON	14.93	20000.	J
3. - -	UNKNOWN HYDROCARBON	15.03	20000.	J
4. - -	UNKNOWN HYDROCARBON	15.52	100000.	J
5. - -	UNKNOWN HYDROCARBON	16.12	70000.	J
6. - -	UNKNOWN HYDROCARBON	16.62	200000.	J
7. - -	UNKNOWN HYDROCARBON	17.07	40000.	J
8. - -	UNKNOWN HYDROCARBON	17.62	200000.	J
9. - -	UNKNOWN	18.50	90000.	J
10. - -	UNKNOWN HYDROCARBON	19.40	50000.	J
11. - -	UNKNOWN HYDROCARBON	20.52	10000.	J
12. - -	UNKNOWN HYDROCARBON	20.88	20000.	J
13. - -	UNKNOWN HYDROCARBON	21.30	20000.	J
14. - -	UNKNOWN HYDROCARBON	21.47	9000.	J
15. - -	UNKNOWN HYDROCARBON	21.88	10000.	J
16. - -	UNKNOWN HYDROCARBON	22.00	10000.	J
17. - -	UNKNOWN HYDROCARBON	22.65	8000.	J
18. - -	UNKNOWN HYDROCARBON	23.73	8000.	J
19. - -	UNKNOWN HYDROCARBON	23.93	9000.	J
20. - -	UNKNOWN HYDROCARBON	24.10	9000.	J
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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ384

Name: ~~AATS~~ Southwest Laboratory of Okla PC SWOK

Contract: 68-01-7392

Lab Code: ~~AATS~~ Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16389

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 58. dec. 58. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/13/88

GPC Cleanup: (Y/N) N pH: 8.6 Dilution Factor: .0025

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	ALPHA-BHC	190.	U
319-85-7	BETA-BHC	190.	U
319-86-8	DELTA-BHC	190.	U
58-89-9	GAMMA-BHC	190.	U
76-44-8	HEPTACHLOR	190.	U
309-00-2	ALDRIN	190.	U
1024-57-3	HEPTACHLOR EPOXIDE	190.	U
959-98-8	ENDOSULFAN I	190.	U
60-57-1	DIELDRIN	380.	U
72-55-9	4,4'-DDE	380.	U
72-20-8	ENDRIN	380.	U
33213-65-9	ENDOSULFAN II	380.	U
72-54-8	4,4'-DDD	380.	U
1031-07-8	ENDOSULFAN SULFATE	380.	U
50-29-3	4,4'-DDT	380.	U
72-43-5	METHOXYCHLOR	1900.	U
53494-70-5	ENDRIN KETONE	380.	U
5103-71-9	ALPHA CHLORDANE	1900.	U
5103-74-2	GAMMA CHLORDANE	1900.	U
8001-35-2	TOXAPHENE	3800.	U
12674-11-2	AROCLOR-1016	1900.	U
11104-28-2	AROCLOR-1221	1900.	U
11141-16-5	AROCLOR-1232	1900.	U
53469-21-9	AROCLOR-1242	1900.	U
12672-29-6	AROCLOR-1248	1900.	U
11097-69-1	AROCLOR-1254	3800.	U
11096-82-5	AROCLOR-1260	3800.	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ385

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5584

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 37. Date Analyzed: 12/ 9/87

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	16.	U
74-83-9	BROMOMETHANE	16.	U
75-01-4	VINYL CHLORIDE	16.	U
75-00-3	CHLOROETHANE	16.	U
75-09-2	METHYLENE CHLORIDE	8.	U
67-64-1	ACETONE	280.	
75-15-0	CARBON DISULFIDE	8.	U
75-35-4	1,1-DICHLOROETHENE	8.	U
75-34-3	1,1-DICHLOROETHANE	8.	U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	8.	U
67-66-3	CHLOROFORM	8.	U
107-06-2	1,2-DICHLOROETHANE	8.	U
78-93-3	2-BUTANONE	17.	
71-55-6	1,1,1-TRICHLOROETHANE	8.	U
56-23-5	CARBON TETRACHLORIDE	8.	U
108-05-4	VINYL ACETATE	16.	U
75-27-4	BROMODICHLOROMETHANE	8.	U
78-87-5	1,2-DICHLOROPROPANE	8.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	8.	U
79-01-6	TRICHLOROETHENE	8.	U
124-48-1	DIBROMOCHLOROMETHANE	8.	U
79-00-5	1,1,2-TRICHLOROETHANE	8.	U
71-43-2	BENZENE	8.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	8.	U
75-25-2	BROMOFORM	8.	U
108-10-1	4-METHYL-2-PENTANONE	16.	U
591-78-6	2-HEXANONE	16.	U
127-18-4	TETRACHLOROETHENE	8.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	8.	U
108-88-3	TOLUENE	6.	J
108-90-7	CHLOROBENZENE	8.	U
100-41-4	ETHYLBENZENE	8.	U
100-42-5	STYRENE	8.	U
1330-20-7	XYLENES (TOTAL)	8.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EQ385

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5584

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 37. Date Analyzed: 12/ 9/87

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

Number TICs found: 10 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN	6.32	90.	J
2. - -	UNKNOWN HYDROCARBON	10.55	40.	J
3. 2004-69-5	3-Penten-1-yne, (E)- (8CI9CI	10.89	60.	J
4. - -	UNKNOWN	11.63	30.	J
5. 109-66-0	Pentane (8CI9CI)	13.30	50.	J
6. - -	UNKNOWN HYDROCARBON	16.83	10.	J
7. - -	UNKNOWN	17.25	20.	J
8. - -	UNKNOWN HYDROCARBON	17.76	30.	J
9. - -	UNKNOWN	18.92	10.	J
10. - -	UNKNOWN	22.18	10.	J
11.				
12.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ385 RE

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5588

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 37. Date Analyzed: 12/10/87

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	16.	U
74-83-9	BROMOMETHANE	16.	U
75-01-4	VINYL CHLORIDE	16.	U
75-00-3	CHLOROETHANE	16.	U
75-09-2	METHYLENE CHLORIDE	8.	U
67-64-1	ACETONE	440.	
75-15-0	CARBON DISULFIDE	8.	U
75-35-4	1,1-DICHLOROETHENE	8.	U
75-34-3	1,1-DICHLOROETHANE	8.	U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	8.	U
67-66-3	CHLOROFORM	8.	U
107-06-2	1,2-DICHLOROETHANE	8.	U
78-93-3	2-BUTANONE	15.	J
71-55-6	1,1,1-TRICHLOROETHANE	8.	U
56-23-5	CARBON TETRACHLORIDE	8.	U
108-05-4	VINYL ACETATE	16.	U
75-27-4	BROMODICHLOROMETHANE	8.	U
78-87-5	1,2-DICHLOROPROPANE	8.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	8.	U
79-01-6	TRICHLOROETHENE	8.	U
124-48-1	DIBROMOCHLOROMETHANE	8.	U
79-00-5	1,1,2-TRICHLOROETHANE	8.	U
71-43-2	BENZENE	8.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	8.	U
75-25-2	BROMOFORM	8.	U
108-10-1	4-METHYL-2-PENTANONE	16.	U
591-78-6	2-HEXANONE	16.	U
127-18-4	TETRACHLOROETHENE	8.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	8.	U
108-88-3	TOLUENE	5.	J
108-90-7	CHLOROBENZENE	8.	U
100-41-4	ETHYLBENZENE	8.	U
100-42-5	STYRENE	8.	U
1330-20-7	XYLENES (TOTAL)	8.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EQ385 RE

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5588

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 37. Date Analyzed: 12/10/87

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

Number TICs found: 10

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	115-11-7	1-Propene, 2-methyl- (9CI)	6.48	100.	J
2.	- -	UNKNOWN HYDROCARBON	10.67	60.	J
3.	78-80-8	1-Buten-3-yne, 2-methyl- (8C	11.06	50.	J
4.	- -	UNKNOWN	11.75	50.	J
5.	109-66-0	Pentane (8CI9CI)	13.42	80.	J
6.	- -	UNKNOWN HYDROCARBON	16.99	10.	J
7.	- -	UNKNOWN HYDROCARBON	17.34	20.	J
8.	- -	UNKNOWN HYDROCARBON	17.88	30.	J
9.	96-14-0	Pentane, 3-methyl- (8CI9CI)	19.08	10.	J
10.	- -	UNKNOWN HYDROCARBON	22.30	10.	J
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ385

Lab Name: SWLO Contract: 68-01-7393

Lab Code: SWLO Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16390R

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 37. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 0.20

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2-------C315	PHENOL*	2600.	U
111-44-4-------C325	BIS(2 CHLOROETHYL)ETHE	2600.	U
95-57-8-------C330	2-CHLOROPHENOL	2600.	U
541-73-1-------C335	1,3-DICHLOROBENZENE	2600.	U
106-46-7-------C340	1,4-DICHLOROBENZENE*	2600.	U
100-51-6-------C345	BENZYL ALCOHOL	2600.	U
95-50-1-------C350	1,2-DICHLOROBENZENE	2600.	U
95-48-7-------C355	2-METHYLPHENOL	2600.	U
108-60-1-------C360	BIS(2-CHLOROISOPROPYL)	2600.	U
106-44-5-------C365	4-METHYLPHENOL	2600.	U
621-64-7-------C370	N-NITROSO-DI-N-PROPYLA	2600.	U
67-72-1-------C375	HEXACHLOROETHANE	2600.	U
98-95-3-------C410	NITROBENZENE	2600.	U
78-59-1-------C415	ISOPHORONE	2600.	U
88-75-5-------C420	2-NITROPHENOL*	2600.	U
105-67-9-------C425	2,4-DIMETHYLPHENOL	2600.	U
65-85-0-------C430	BENZOIC ACID	13000.	U
111-91-1-------C435	BIS(2-CHLOROETHOXY)MET	2600.	U
120-83-2-------C440	2,4-DICHLOROPHENOL*	2600.	U
120-82-1-------C445	1,2,4-TRICHLOROBENZENE	2600.	U
91-20-3-------C450	NAPHTHALENE	2600.	U
106-47-8-------C455	4-CHLOROANILINE	2600.	U
87-68-3-------C460	HEXACHLOROBUTADIENE*	2600.	U
59-50-7-------C465	4-CHLORO-3-METHYLPHENO	2600.	U
91-57-6-------C470	2-METHYLNAPTHALENE	2600.	U
77-47-4-------C510	HEXACHLOROCYCLOPENTADI	2600.	U
88-06-2-------C515	2,4,6-TRICHLOROPHENOL*	2600.	U
95-95-4-------C520	2,4,5-TRICHLOROPHENOL	13000.	U
91-58-7-------C525	2-CHLORONAPHTHALENE	2600.	U
88-74-4-------C530	2-NITROANILINE	13000.	U
131-11-3-------C535	DIMETHYL PHTHALATE	2600.	U
208-96-8-------C540	ACENAPHTHYLENE	2600.	U
606-20-2-------C543	2,6-DINITROTOLUENE	2600.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ385

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16390R

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 37. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 0.20

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2-------C545	3-NITROANILINE	2600.	U
83-32-9-------C550	ACENAPTHENE*	2600.	U
51-28-5-------C555	2,4-DINITROPHENOL**	13000.	U
100-02-7-------C560	4-NITROPHENOL**	13000.	U
132-64-9-------C565	DIBENZOFURAN	2600.	U
121-14-2-------C570	2,4-DINITROTOLUENE	2600.	U
84-66-2-------C580	DIETHYL PHTHALATE	2600.	U
7005-72-3-------C585	4-CHLOROPHENYL PHENYL	2600.	U
86-73-7-------C590	FLUORENE	2600.	U
100-01-6-------C595	4-NITROANILINE	13000.	U
534-52-1-------C610	4,6-DINITRO-2-METHYLPH	13000.	U
86-30-6-------C615	N-NITROSODIPHENYLAMINE	2600.	U
101-55-3-------C625	4-BROMOPHENYL PHENYL E	2600.	U
118-74-1-------C630	HEXACHLOROBENZENE	2600.	U
87-86-5-------C635	PENTACHLOROPHENOL*	13000.	U
85-01-8-------C640	PHENANTHRENE	2600.	U
120-12-7-------C645	ANTHRACENE	2600.	U
84-74-2-------C650	DI-N-BUTYL PHTHALATE	2600.	U
206-44-0-------C655	FLUORANTHENE*	2600.	U
129-00-0-------C715	PYRENE	2600.	U
85-68-7-------C720	BUTYL BENZYL PHTHALATE	2600.	U
91-94-1-------C725	3,3'-DICHLOROBENZIDINE	5300.	U
56-55-3-------C730	BENZO(A)ANTHRACENE	2600.	U
218-01-9-------C740	CHRYSENE	2600.	U
117-81-7-------C745	BIS(2-ETHYLHEXYL)PHTHA	2600.	U
117-84-0-------C760	DI-N-OCTYLPHTHALATE*	2600.	U
205-99-2-------C765	BENZO(B)FLUORANTHENE	2600.	U
207-08-9-------C770	BENZO(K)FLUORANTHENE	2600.	U
50-32-8-------C775	BENZO(A)PYRENE*	2600.	U
193-39-5-------C780	INDENO(1,2,3-CD)PYRENE	2600.	U
53-70-3-------C785	DIBENZ(A,H)ANTHRACENE	2600.	U
191-24-2-------C790	BENZO(G,H,I)PERYLENE	2600.	U

(1) - Cannot be separated from diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EG385

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EG388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16390R

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 37. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 0.20

Number TICs found: 20

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	544-76-3	HEXADECANE	15.37	8000.	J
2.	629-78-7	HEPTADECANE	16.37	5000.	J
3.	54105-67-8	HEPTADECANE, 2,6-DIMETHYL-	16.43	6000.	J
4.	- -	UNKNOWN	17.42	6000.	J
5.	- -	UNKNOWN HYDROCARBON	18.17	3000.	J
6.	- -	UNKNOWN	18.23	5000.	J
7.	- -	UNKNOWN HYDROCARBON	18.58	2000.	J
8.	- -	UNKNOWN	19.10	6000.	J
9.	- -	UNKNOWN HYDROCARBON	19.25	3000.	J
10.	- -	UNKNOWN HYDROCARBON	19.43	4000.	J
11.	- -	UNKNOWN HYDROCARBON	19.63	3000.	J
12.	- -	UNKNOWN	19.75	6000.	J
13.	- -	UNKNOWN HYDROCARBON	19.93	3000.	J
14.	- -	UNKNOWN HYDROCARBON	20.20	10000.	J
15.	- -	UNKNOWN HYDROCARBON	21.03	10000.	J
16.	- -	UNKNOWN HYDROCARBON	21.22	7000.	J
17.	- -	UNKNOWN HYDROCARBON	21.65	6000.	J
18.	- -	UNKNOWN HYDROCARBON	21.77	7000.	J
19.	- -	UNKNOWN HYDROCARBON	23.33	6000.	J
20.	- -	UNKNOWN HYDROCARBON	24.03	6000.	J
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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ385

Southwest Laboratory of Okla PC

Name: ~~AATS~~ SWOK PC Contract: 68-01-7392

Lab Code: ~~AATS~~ Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16390

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 37. dec. 37. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/13/88

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: .0125

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	ALPHA-BHC	25.	U
319-85-7	BETA-BHC	25.	U
319-86-8	DELTA-BHC	25.	U
58-89-9	GAMMA-BHC	25.	U
76-44-8	HEPTACHLOR	25.	U
309-00-2	ALDRIN	25.	U
1024-57-3	HEPTACHLOR EPOXIDE	25.	U
959-98-8	ENDOSULFAN I	25.	U
60-57-1	DIELDRIN	51.	U
72-55-9	4,4'-DDE	51.	U
72-20-8	ENDRIN	51.	U
33213-65-9	ENDOSULFAN II	51.	U
72-54-8	4,4'-DDD	51.	U
1031-07-8	ENDOSULFAN SULFATE	51.	U
50-29-3	4,4'-DDT	51.	U
72-43-5	METHOXYCHLOR	250.	U
53494-70-5	ENDRIN KETONE	51.	U
5103-71-9	ALPHA CHLORDANE	250.	U
5103-74-2	GAMMA CHLORDANE	250.	U
8001-35-2	TOXAPHENE	510.	U
12674-11-2	AROCLOR-1016	250.	U
11104-28-2	AROCLOR-1221	250.	U
11141-16-5	AROCLOR-1232	250.	U
53469-21-9	AROCLOR-1242	250.	U
12672-29-6	AROCLOR-1248	250.	U
11097-69-1	AROCLOR-1254	510.	U
11096-82-5	AROCLOR-1260	510.	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ386

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5578

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. Date Analyzed: 12/ 9/87

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.	U
67-64-1	ACETONE	34.	
75-15-0	CARBON DISULFIDE	6.	U
75-35-4	1,1-DICHLOROETHENE	6.	U
75-34-3	1,1-DICHLOROETHANE	6.	U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	6.	U
67-66-3	CHLOROFORM	.8	BJ
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
10061-02-6	TRANS-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
10061-01-5	CIS-1,3-DICHLOROPROPENE	6.	U
75-25-2	BROMOFORM	6.	U
108-10-1	4-METHYL-2-PENTANONE	12.	U
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	2.	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.

EQ386

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5578

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. Date Analyzed: 12/ 9/87

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
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ386

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16391

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 4.3 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2-------C315	PHENOL*	390.	U
111-44-4-------C325	BIS(2 CHLOROETHYL)ETHE	390.	U
95-57-8-------C330	2-CHLOROPHENOL	390.	U
541-73-1-------C335	1,3-DICHLOROBENZENE	390.	U
106-46-7-------C340	1,4-DICHLOROBENZENE*	390.	U
100-51-6-------C345	BENZYL ALCOHOL	390.	U
95-50-1-------C350	1,2-DICHLOROBENZENE	390.	U
95-48-7-------C355	2-METHYLPHENOL	390.	U
108-60-1-------C360	BIS(2-CHLOROISOPROPYL)	390.	U
106-44-5-------C365	4-METHYLPHENOL	390.	U
621-64-7-------C370	N-NITROSO-DI-N-PROPYLA	390.	U
67-72-1-------C375	HEXACHLOROETHANE	390.	U
98-95-3-------C410	NITROBENZENE	390.	U
78-59-1-------C415	ISOPHORONE	390.	U
88-75-5-------C420	2-NITROPHENOL*	390.	U
105-67-9-------C425	2,4-DIMETHYLPHENOL	390.	U
65-85-0-------C430	BENZOIC ACID	2000.	U
111-91-1-------C435	BIS(2-CHLOROETHOXY)MET	390.	U
120-83-2-------C440	2,4-DICHLOROPHENOL*	390.	U
120-82-1-------C445	1,2,4-TRICHLOROBENZENE	390.	U
91-20-3-------C450	NAPHTHALENE	390.	U
106-47-8-------C455	4-CHLOROANILINE	390.	U
87-68-3-------C460	HEXACHLOROBUTADIENE*	390.	U
59-50-7-------C465	4-CHLORO-3-METHYLPHENO	390.	U
91-57-6-------C470	2-METHYLNAPTHALENE	390.	U
77-47-4-------C510	HEXACHLOROCYCLOPENTADI	390.	U
88-06-2-------C515	2,4,6-TRICHLOROPHENOL*	390.	U
95-95-4-------C520	2,4,5-TRICHLOROPHENOL	2000.	U
91-58-7-------C525	2-CHLORONAPHTHALENE	390.	U
88-74-4-------C530	2-NITROANILINE	2000.	U
131-11-3-------C535	DIMETHYL PHTHALATE	390.	U
208-96-8-------C540	ACENAPHTHYLENE	390.	U
606-20-2-------C543	2,6-DINITROTOLUENE	390.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EG386

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EG388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16391

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 4.3 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2-------C545	3-NITROANILINE	390.	U
83-32-9-------C550	ACENAPTHENE*	390.	U
51-28-5-------C555	2,4-DINITROPHENOL**	2000.	U
100-02-7-------C560	4-NITROPHENOL**	2000.	U
132-64-9-------C565	DIBENZOFURAN	390.	U
121-14-2-------C570	2,4-DINITROTOLUENE	390.	U
84-66-2-------C580	DIETHYL PHTHALATE	390.	U
7005-72-3-------C585	4-CHLOROPHENYL PHENYL	390.	U
86-73-7-------C590	FLUORENE	390.	U
100-01-6-------C595	4-NITROANILINE	2000.	U
534-52-1-------C610	4,6-DINITRO-2-METHYLPH	2000.	U
86-30-6-------C615	N-NITROSODIPHENYLAMINE	390.	U
101-55-3-------C625	4-BROMOPHENYL PHENYL E	390.	U
118-74-1-------C630	HEXACHLOROBENZENE	390.	U
87-86-5-------C635	PENTACHLOROPHENOL*	2000.	U
85-01-8-------C640	PHENANTHRENE	390.	U
120-12-7-------C645	ANTHRACENE	390.	U
84-74-2-------C650	DI-N-BUTYL PHTHALATE	390.	U
206-44-0-------C655	FLUORANTHENE*	390.	U
129-00-0-------C715	PYRENE	390.	U
85-68-7-------C720	BUTYL BENZYL PHTHALATE	390.	U
91-94-1-------C725	3,3'-DICHLOROBENZIDINE	790.	U
56-55-3-------C730	BENZO(A)ANTHRACENE	390.	U
218-01-9-------C740	CHRYSENE	390.	U
117-81-7-------C745	BIS(2-ETHYLHEXYL)PHTHA	390.	U
117-84-0-------C760	DI-N-OCTYLPHTHALATE*	390.	U
205-99-2-------C765	BENZO(B)FLUORANTHENE	390.	U
207-08-9-------C770	BENZO(K)FLUORANTHENE	390.	U
50-32-8-------C775	BENZO(A)PYRENE*	390.	U
193-39-5-------C780	INDENO(1,2,3-CD)PYRENE	390.	U
53-70-3-------C785	DIBENZ(A,H)ANTHRACENE	390.	U
191-24-2-------C790	BENZO(G,H,I)PERYLENE	390.	U

(1) - Cannot be separated from diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EQ386

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16391

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 4.3 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.	- -	UNKNOWN ALCOHOL	5.13	300.	J
2.	- -	UNKNOWN KETONE	6.00	5000.	J
3.	74630-08-3	1-OCTENE, 3-ETHYL-	6.13	300.	BJ
4.	- -	UNKNOWN HYDROCARBON	6.53	600.	J
5.	- -	UNKNOWN HYDROCARBON	6.63	200.	J
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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ386

Southwest Laboratory of Oklahoma INC.

Lab Name: ~~AATS~~ SWOIC P.C. Contract: 68-01-7392

Lab Code: ~~AATS~~ Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16391

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. dec. 15. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/13/88

GPC Cleanup: (Y/N) N pH: 4.3 Dilution Factor: .0125

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	ALPHA-BHC	19.	U
319-85-7	BETA-BHC	19.	U
319-86-8	DELTA-BHC	19.	U
58-89-9	GAMMA-BHC	19.	U
76-44-8	HEPTACHLOR	19.	U
309-00-2	ALDRIN	19.	U
1024-57-3	HEPTACHLOR EPOXIDE	19.	U
959-98-8	ENDOSULFAN I	19.	U
60-57-1	DIELDRIN	38.	U
72-55-9	4,4'-DDE	38.	U
72-20-8	ENDRIN	38.	U
33213-65-9	ENDOSULFAN II	38.	U
72-54-8	4,4'-DDD	38.	U
1031-07-8	ENDOSULFAN SULFATE	38.	U
50-29-3	4,4'-DDT	38.	U
72-43-5	METHOXYCHLOR	190.	U
53494-70-5	ENDRIN KETONE	38.	U
5103-71-9	ALPHA CHLORDANE	190.	U
5103-74-2	GAMMA CHLORDANE	190.	U
8001-35-2	TOXAPHENE	380.	U
12674-11-2	AROCLOR-1016	190.	U
11104-28-2	AROCLOR-1221	190.	U
11141-16-5	AROCLOR-1232	190.	U
53469-21-9	AROCLOR-1242	190.	U
12672-29-6	AROCLOR-1248	190.	U
11097-69-1	AROCLOR-1254	380.	U
11096-82-5	AROCLOR-1260	380.	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ387

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5585

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. Date Analyzed: 12/ 9/87

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	9	
67-64-1	ACETONE	12.	J
75-15-0	CARBON DISULFIDE	6.	U
75-35-4	1,1-DICHLOROETHENE	6.	U
75-34-3	1,1-DICHLOROETHANE	6.	U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	6.	U
67-66-3	CHLOROFORM	.8	BJ
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
10061-02-6	TRANS-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
10061-01-5	CIS-1,3-DICHLOROPROPENE	6.	U
75-25-2	BROMOFORM	6.	U
108-10-1	4-METHYL-2-PENTANONE	12.	U
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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EQ387

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5585

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. Date Analyzed: 12/ 9/87

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
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ387

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16392

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2-------C315	PHENOL*	390.	U
111-44-4-------C325	BIS(2 CHLOROETHYL)ETHE	390.	U
95-57-8-------C330	2-CHLOROPHENOL	390.	U
541-73-1-------C335	1,3-DICHLOROBENZENE	390.	U
106-46-7-------C340	1,4-DICHLOROBENZENE*	390.	U
100-51-6-------C345	BENZYL ALCOHOL	390.	U
95-50-1-------C350	1,2-DICHLOROBENZENE	390.	U
95-48-7-------C355	2-METHYLPHENOL	390.	U
108-60-1-------C360	BIS(2-CHLOROISOPROPYL)	390.	U
106-44-5-------C365	4-METHYLPHENOL	390.	U
621-64-7-------C370	N-NITROSO-DI-N-PROPYLA	390.	U
67-72-1-------C375	HEXACHLOROETHANE	390.	U
98-95-3-------C410	NITROBENZENE	390.	U
78-59-1-------C415	ISOPHORONE	390.	U
88-75-5-------C420	2-NITROPHENOL*	390.	U
105-67-9-------C425	2,4-DIMETHYLPHENOL	390.	U
65-85-0-------C430	BENZOIC ACID	2000.	U
111-91-1-------C435	BIS(2-CHLOROETHOXY)MET	390.	U
120-83-2-------C440	2,4-DICHLOROPHENOL*	390.	U
120-82-1-------C445	1,2,4-TRICHLOROBENZENE	390.	U
91-20-3-------C450	NAPHTHALENE	390.	U
106-47-8-------C455	4-CHLOROANILINE	390.	U
87-68-3-------C460	HEXACHLOROBUTADIENE*	390.	U
59-50-7-------C465	4-CHLORO-3-METHYLPHENO	390.	U
91-57-6-------C470	2-METHYLNAPTHALENE	390.	U
77-47-4-------C510	HEXACHLOROCYCLOPENTADI	390.	U
88-06-2-------C515	2,4,6-TRICHLOROPHENOL*	390.	U
95-95-4-------C520	2,4,5-TRICHLOROPHENOL	2000.	U
91-58-7-------C525	2-CHLORONAPHTHALENE	390.	U
88-74-4-------C530	2-NITROANILINE	2000.	U
131-11-3-------C535	DIMETHYL PHTHALATE	390.	U
208-96-8-------C540	ACENAPHTHYLENE	390.	U
606-20-2-------C543	2,6-DINITROTOLUENE	390.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ387

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16392

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2-------C545	3-NITROANILINE	390.	U
83-32-9-------C550	ACENAPTHENE*	390.	U
51-28-5-------C555	2,4-DINITROPHENOL**	2000.	U
100-02-7-------C560	4-NITROPHENOL**	2000.	U
132-64-9-------C565	DIBENZOFURAN	390.	U
121-14-2-------C570	2,4-DINITROTOLUENE	390.	U
84-66-2-------C580	DIETHYL PHTHALATE	390.	U
7005-72-3-------C585	4-CHLOROPHENYL PHENYL	390.	U
86-73-7-------C590	FLUORENE	390.	U
100-01-6-------C595	4-NITROANILINE	2000.	U
534-52-1-------C610	4,6-DINITRO-2-METHYLPH	2000.	U
86-30-6-------C615	N-NITROSODIPHENYLAMINE	390.	U
101-55-3-------C625	4-BROMOPHENYL PHENYL E	390.	U
118-74-1-------C630	HEXACHLOROBENZENE	390.	U
87-86-5-------C635	PENTACHLOROPHENOL*	2000.	U
85-01-8-------C640	PHENANTHRENE	390.	U
120-12-7-------C645	ANTHRACENE	390.	U
84-74-2-------C650	DI-N-BUTYL PHTHALATE	390.	U
206-44-0-------C655	FLUORANTHENE*	390.	U
129-00-0-------C715	PYRENE	390.	U
85-68-7-------C720	BUTYL BENZYL PHTHALATE	390.	U
91-94-1-------C725	3,3'-DICHLOROBENZIDINE	780.	U
56-55-3-------C730	BENZO(A)ANTHRACENE	390.	U
218-01-9-------C740	CHRYSENE	390.	U
117-81-7-------C745	BIS(2-ETHYLHEXYL)PHTHA	390.	U
117-84-0-------C760	DI-N-OCTYLPHTHALATE*	390.	U
205-99-2-------C765	BENZO(B)FLUORANTHENE	390.	U
207-08-9-------C770	BENZO(K)FLUORANTHENE	390.	U
50-32-8-------C775	BENZO(A)PYRENE*	390.	U
193-39-5-------C780	INDENO(1,2,3-CD)PYRENE	390.	U
53-70-3-------C785	DIBENZ(A,H)ANTHRACENE	390.	U
191-24-2-------C790	BENZO(G,H,I)PERYLENE	390.	U

(1) - Cannot be separated from diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EQ387

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16392

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 1.00

Number TICs found: 6

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN ALCOHOL	4.70	200.	J
2.	- -	UNKNOWN KETONE	5.67	5000.	J
3.	- -	UNKNOWN HYDROCARBON	5.83	400.	J
4.	- -	UNKNOWN HYDROCARBON	6.22	300.	J
5.	4291-79-6	CYCLOHEXANE, 1-METHYL-2-PROP	6.28	300.	J
6.	- -	UNKNOWN	25.28	400.	J
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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ387

Lab Name: ~~AATS~~ Southwest Laboratory of Oklahoma PC SWOK PC Contract: 68-01-7392

Lab Code: ~~AATS~~ Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16392

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 15. dec. 15. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/13/88

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: .0125

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	ALPHA-BHC	19.	U
319-85-7	BETA-BHC	19.	U
319-86-8	DELTA-BHC	19.	U
58-89-9	GAMMA-BHC	19.	U
76-44-8	HEPTACHLOR	19.	U
309-00-2	ALDRIN	19.	U
1024-57-3	HEPTACHLOR EPOXIDE	19.	U
959-98-8	ENDOSULFAN I	19.	U
60-57-1	DIELDRIN	38.	U
72-55-9	4,4'-DDE	38.	U
72-20-8	ENDRIN	38.	U
33213-65-9	ENDOSULFAN II	38.	U
72-54-8	4,4'-DDD	38.	U
1031-07-8	ENDOSULFAN SULFATE	38.	U
50-29-3	4,4'-DDT	38.	U
72-43-5	METHOXYCHLOR	190.	U
53494-70-5	ENDRIN KETONE	38.	U
5103-71-9	ALPHA CHLORDANE	190.	U
5103-74-2	GAMMA CHLORDANE	190.	U
8001-35-2	TOXAPHENE	380.	U
12674-11-2	AROCLOR-1016	190.	U
11104-28-2	AROCLOR-1221	190.	U
11141-16-5	AROCLOR-1232	190.	U
53469-21-9	AROCLOR-1242	190.	U
12672-29-6	AROCLOR-1248	190.	U
11097-69-1	AROCLOR-1254	380.	U
11096-82-5	AROCLOR-1260	380.	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ388

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5586

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 9. Date Analyzed: 12/ 9/87

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	30.	
67-64-1	ACETONE	26.	
75-15-0	CARBON DISULFIDE	5.	U
75-35-4	1,1-DICHLOROETHENE	5.	U
75-34-3	1,1-DICHLOROETHANE	5.	U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	5.	U
67-66-3	CHLOROFORM	3.	BJ
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
10061-02-6	TRANS-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
10061-01-5	CIS-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	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.

EQ388

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5586

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 9. Date Analyzed: 12/ 9/87

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
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ388 RE

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5832

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 9. Date Analyzed: 12/20/87

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	6.	
67-64-1	ACETONE	12.	
75-15-0	CARBON DISULFIDE	5.	U
75-35-4	1,1-DICHLOROETHENE	5.	U
75-34-3	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
10061-02-6	TRANS-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
10061-01-5	CIS-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	.7	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.

EQ388 RE

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 5. (g/mL) G Lab File ID: 5832

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 9. Date Analyzed: 12/20/87

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
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ388

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16393

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 9. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 6.6 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2-------C315	PHENOL*	370.	U
111-44-4-------C325	BIS(2 CHLOROETHYL)ETHE	370.	U
95-57-8-------C330	2-CHLOROPHENOL	370.	U
541-73-1-------C335	1,3-DICHLOROBENZENE	370.	U
106-46-7-------C340	1,4-DICHLOROBENZENE*	370.	U
100-51-6-------C345	BENZYL ALCOHOL	370.	U
95-50-1-------C350	1,2-DICHLOROBENZENE	370.	U
95-48-7-------C355	2-METHYLPHENOL	370.	U
108-60-1-------C360	BIS(2-CHLOROISOPROPYL)	370.	U
106-44-5-------C365	4-METHYLPHENOL	370.	U
621-64-7-------C370	N-NITROSO-DI-N-PROPYLA	370.	U
67-72-1-------C375	HEXACHLOROETHANE	370.	U
98-95-3-------C410	NITROBENZENE	370.	U
78-59-1-------C415	ISOPHORONE	370.	U
88-75-5-------C420	2-NITROPHENOL*	370.	U
105-67-9-------C425	2,4-DIMETHYLPHENOL	370.	U
65-85-0-------C430	BENZOIC ACID	1800.	U
111-91-1-------C435	BIS(2-CHLOROETHOXY)MET	370.	U
120-83-2-------C440	2,4-DICHLOROPHENOL*	370.	U
120-82-1-------C445	1,2,4-TRICHLOROBENZENE	370.	U
91-20-3-------C450	NAPHTHALENE	370.	U
106-47-8-------C455	4-CHLOROANILINE	370.	U
87-68-3-------C460	HEXACHLOROBUTADIENE*	370.	U
59-50-7-------C465	4-CHLORO-3-METHYLPHENO	370.	U
91-57-6-------C470	2-METHYLNAPTHALENE	370.	U
77-47-4-------C510	HEXACHLOROCYCLOPENTADI	370.	U
88-06-2-------C515	2,4,6-TRICHLOROPHENOL*	370.	U
95-95-4-------C520	2,4,5-TRICHLOROPHENOL	1800.	U
91-58-7-------C525	2-CHLORONAPHTHALENE	370.	U
88-74-4-------C530	2-NITROANILINE	1800.	U
131-11-3-------C535	DIMETHYL PHTHALATE	370.	U
208-96-8-------C540	ACENAPHTHYLENE	370.	U
606-20-2-------C543	2,6-DINITROTOLUENE	370.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EG388

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EG388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16393

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 9. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 6.6 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2-------C545	3-NITROANILINE	370.	U
83-32-9-------C550	ACENAPTHENE*	370.	U
51-28-5-------C555	2,4-DINITROPHENOL**	1800.	U
100-02-7-------C560	4-NITROPHENOL**	1800.	U
132-64-9-------C565	DIBENZOFURAN	370.	U
121-14-2-------C570	2,4-DINITROTOLUENE	370.	U
84-66-2-------C580	DIETHYL PHTHALATE	370.	U
7005-72-3-------C585	4-CHLOROPHENYL PHENYL	370.	U
86-73-7-------C590	FLUORENE	370.	U
100-01-6-------C595	4-NITROANILINE	1800.	U
534-52-1-------C610	4,6-DINITRO-2-METHYLPH	1800.	U
86-30-6-------C615	N-NITROSODIPHENYLAMINE	370.	U
101-55-3-------C625	4-BROMOPHENYL PHENYL E	370.	U
118-74-1-------C630	HEXACHLOROBENZENE	370.	U
87-86-5-------C635	PENTACHLOROPHENOL*	1800.	U
85-01-8-------C640	PHENANTHRENE	370.	U
120-12-7-------C645	ANTHRACENE	370.	U
84-74-2-------C650	DI-N-BUTYL PHTHALATE	370.	U
206-44-0-------C655	FLUORANTHENE*	370.	U
129-00-0-------C715	PYRENE	370.	U
85-68-7-------C720	BUTYL BENZYL PHTHALATE	370.	U
91-94-1-------C725	3,3'-DICHLOROBENZIDINE	730.	U
56-55-3-------C730	BENZO(A)ANTHRACENE	370.	U
218-01-9-------C740	CHRYSENE	370.	U
117-81-7-------C745	BIS(2-ETHYLHEXYL)PHTHA	370.	U
117-84-0-------C760	DI-N-OCTYLPHTHALATE*	370.	U
205-99-2-------C765	BENZO(B)FLUORANTHENE	370.	U
207-08-9-------C770	BENZO(K)FLUORANTHENE	370.	U
50-32-8-------C775	BENZO(A)PYRENE*	370.	U
193-39-5-------C780	INDENO(1,2,3-CD)PYRENE	370.	U
53-70-3-------C785	DIBENZ(A,H)ANTHRACENE	370.	U
191-24-2-------C790	BENZO(G,H,I)PERYLENE	370.	U

(1) - Cannot be separated from diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EQ388

Lab Name: SWLO Contract: 68-01-7393

Lab Code: ~~SWLO~~ SWOK Case No.: 8683 SAS No.: SDG No.: EQ388

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16393

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 9. dec. 0. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/12/88

GPC Cleanup: (Y/N) N pH: 6.6 Dilution Factor: 1.00

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN KETONE	5.82	5000.	J
2. - -	UNKNOWN HYDROCARBON	5.97	300.	J
3. - -	UNKNOWN HYDROCARBON	6.40	700.	J
4. - -	UNKNOWN HYDROCARBON	6.50	200.	J
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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ388

Lab Name: ~~AATS~~ Southwest Laboratory of Okla PC SWOK PC Contract: 68-01-7392

Lab Code: ~~AATS~~ Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 16393

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 9. dec. 9. Date Extracted: 12/18/87

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 1/13/88

GPC Cleanup: (Y/N) N pH: 6.6 Dilution Factor: .0125

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	ALPHA-BHC	18.	U
319-85-7	BETA-BHC	18.	U
319-86-8	DELTA-BHC	18.	U
58-89-9	GAMMA-BHC	18.	U
76-44-8	HEPTACHLOR	18.	U
309-00-2	ALDRIN	18.	U
1024-57-3	HEPTACHLOR EPOXIDE	18.	U
959-98-8	ENDOSULFAN I	18.	U
60-57-1	DIELDRIN	35.	U
72-55-9	4,4'-DDE	35.	U
72-20-8	ENDRIN	35.	U
33213-65-9	ENDOSULFAN II	35.	U
72-54-8	4,4'-DDD	35.	U
1031-07-8	ENDOSULFAN SULFATE	35.	U
50-29-3	4,4'-DDT	35.	U
72-43-5	METHOXYCHLOR	180.	U
53494-70-5	ENDRIN KETONE	35.	U
5103-71-9	ALPHA CHLORDANE	180.	U
5103-74-2	GAMMA CHLORDANE	180.	U
8001-35-2	TOXAPHENE	350.	U
12674-11-2	AROCLOR-1016	180.	U
11104-28-2	AROCLOR-1221	180.	U
11141-16-5	AROCLOR-1232	180.	U
53469-21-9	AROCLOR-1242	180.	U
12672-29-6	AROCLOR-1248	180.	U
11097-69-1	AROCLOR-1254	350.	U
11096-82-5	AROCLOR-1260	350.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EQ384

Lab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 1. (g/mL) G Lab File ID: 5576

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 58. Date Analyzed: 12/ 9/87

Column: (pack/cap) PACK Dilution Factor: 5.00

Number TICs found: 10

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	115-11-7	1-Propene, 2-methyl- (9CI)	6.34	700.	J
2.	115-11-7	1-Propene, 2-methyl- (9CI)	7.04	700.	J
3.	- -	UNKNOWN HYDROCARBON	11.62	200.	J
4.	- -	UNKNOWN HYDROCARBON	12.12	2000.	J
5.	109-66-0	Pentane (8CI9CI)	13.28	300.	J
6.	592-41-6	1-Hexene (8CI9CI)	17.20	200.	J
7.	- -	UNKNOWN HYDROCARBON	17.74	300.	J
8.	- -	UNKNOWN HYDROCARBON	23.05	1000.	J
9.	540-84-1	Pentane, 2,2,4-trimethyl- (8	23.36	1000.	J
10.	- -	UNKNOWN HYDROCARBON	32.09	200.	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EQ384 RE

ab Name: SWOK Contract: 68-01-7393

Lab Code: SWOK Case No.: 8683 SAS No.: SDG No.: EQ383

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

Sample wt/vol: 2. (g/mL) G Lab File ID: 5583

Level: (low/med) LOW Date Received: 12/ 9/87

% Moisture: not dec. 58. Date Analyzed: 12/ 9/87

Column: (pack/cap) PACK Dilution Factor: 2.50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	CHLOROMETHANE	60.	U
74-83-9	BROMOMETHANE	60.	U
75-01-4	VINYL CHLORIDE	60.	U
75-00-3	CHLOROETHANE	60.	U
75-09-2	METHYLENE CHLORIDE	30.	U
67-64-1	ACETONE	60.	U
75-15-0	CARBON DISULFIDE	30.	U
75-35-4	1,1-DICHLOROETHENE	30.	U
75-34-3	1,1-DICHLOROETHANE	30.	U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	30.	U
67-66-3	CHLOROFORM	30.	U
107-06-2	1,2-DICHLOROETHANE	30.	U
78-93-3	2-BUTANONE	140.	
71-55-6	1,1,1-TRICHLOROETHANE	30.	U
56-23-5	CARBON TETRACHLORIDE	30.	U
108-05-4	VINYL ACETATE	60.	U
75-27-4	BROMODICHLOROMETHANE	30.	U
78-87-5	1,2-DICHLOROPROPANE	30.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	30.	U
79-01-6	TRICHLOROETHENE	30.	U
124-48-1	DIBROMOCHLOROMETHANE	30.	U
79-00-5	1,1,2-TRICHLOROETHANE	30.	U
71-43-2	BENZENE	30.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	30.	U
75-25-2	BROMOFORM	30.	U
108-10-1	4-METHYL-2-PENTANONE	60.	U
591-78-6	2-HEXANONE	60.	U
127-18-4	TETRACHLOROETHENE	30.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	30.	U
108-88-3	TOLUENE	220.	
108-90-7	CHLOROBENZENE	30.	U
100-41-4	ETHYLBENZENE	30.	U
100-42-5	STYRENE	30.	U
1330-20-7	XYLENES (TOTAL)	30.	U

ATTACHMENT F
REDACTED DUE TO PII