Site Inspection Review

Site Name Becks Lake Address FALCON ST., LINDEN AVE., KALEY ST., WASH. AVE.

City South Bend County St. Joseph U.S. EPA ID# IND980904349

Reviewer Tim Heffernan Date 10/12/89

Longitude 086°17'30"W Latitude 41°40'05"N Quadrangle South Bend West

I. PA and file review

A. Questions you feel SI should address.

Nature of contaminants possibly present on-site
Potential threat to users of LaSalle Park due to direct contact with hazardous materials
Likelihood of groundwater (well) contamination

B. Would sampling provide useful information? Explain.

YES

II. Site Inspection

	Satisfactory	Unsatisfactory
A. Background information Part (5)	✓	

Remarks:

B. Adequacy of sampling (Part 6)

1. Number of samples	✓	
2. Sampling locations	✓	
3. Sampling method	✓	

Are the sampling locations accurately identified? Yes ✓ No

Remarks: We would have liked to see nearby residential well sampling if possible.

C. Sample analyses

	Acceptable	Unacceptable
Duplicate, spikes, blanks	✓	
QA/QC review by FIT	✓	

III. Comments

A. Did the SI address PA concerns? YES

Remarks: There was no discussion of nearby wells, a very significant concern.

B. Overall completeness

	Yes	No
Is the SI accurate?	✓	
complete?	✓	
acceptable for file?	✓	

Reviewers involvement with site.

PA

SI

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

RECEIVED
SEP 28 1989
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
SOLID & HAZARDOUS WASTE MANAGEMENT

REPLY TO THE ATTENTION OF:
5HR-11-SSI

Harry Atkinson, Chief
Site Investigation Section
Office of Solid and Hazardous Waste Management
Indiana Department of Environmental Management
105 South Meridian Street
Indianapolis, Indiana 46205-6015

Site Name: Beckis Lake
Location: S. Bend, IN
U.S. EPA ID#: IND980904379
Date: September 20, 89

Dear Mr. Atkinson:

Attached is a copy of the screening site inspection report (SSIR) which has been prepared for the site listed above. This document is considered to be final and any changes and modifications based on comments made by your agency and the U.S. Environmental Protection Agency (U.S. EPA) during the 30 calendar day comment period have already been incorporated.

Because this is considered to be the final form of this document, this version of the SSIR may be distributed outside of your agency without prior notification and approval of U.S. EPA.

Please remember that the revised estimate of the Hazard Ranking System (HRS) score, which has already been furnished to your agency by **FIT** is still considered to be predecisional. Therefore, it should not be released. If you have any questions concerning the release of this information, please contact Ms. Jeanne Griffin, of my staff, at (312) 886-3007.

As was previously agreed upon, one set of original photographs for this SSIR has already been sent to your agency enclosed in the draft version of this SSIR. It is your agencies responsibility to see that these photographs are mounted in the photo logs enclosed in the final version of this SSIR. At this point the final version of the SSIR supersedes the draft version and the draft version of this SSIR should be removed from your agency files to ensure that the confidential draft version of this SSIR is not inadvertently released by your staff.

If you have any comments or questions, please contact Bill Messenger at (312) 353-1057.

Sincerely yours,

Thomas F. Geishecker

Thomas F. Geishecker
Technical Support Section
Enclosure
cc: Bill Messenger

SCREENING SITE INSPECTION REPORT
FOR
THE BECK'S LAKE SITE
SOUTH BEND, INDIANA
U.S. EPA ID: IND980904379
SS ID: NONE
TDD: F05-8611-149
PAN: FIN0476SA

JUNE 7, 1989

ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

International Specialists in the Environment

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SIGNATURE PAGE
FOR
SCREENING SITE INSPECTION REPORT
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Prepared by: Zelma Zieman Date: 6/12/89
Zelma Zieman
FIT Report Preparer
Ecology and Environment, Inc.

Reviewed by: Date: 6/12/89
Ted Wolff
FIT Unit Manager
Ecology and Environment, Inc.

Approved by: Date: 6/12/89
Jerome D. Oskvarek
FIT Office Manager
Ecology and Environment, Inc.

TABLE OF CONTENTS

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

Table of Contents (Cont.)

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

LIST OF ILLUSTRATIONS

Figure		Page
2-1	Site Location	2-2
3-1	Site Features	3-3
3-2	Soil and Sediment Sampling Locations	3-5

LIST OF TABLES

Table		Page
4-1	Results of Chemical Analysis of FIT-Collected Soil Samples	4-3

1. INTRODUCTION

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

The site was initially discovered when the Bendix Corporation submitted a U.S. EPA Notification of Hazardous Waste Site (103[c] notification) on March 28, 1984 (Bendix Corporation 1984). The Beck's Lake site is one of 17 sites located in the South Bend, Indiana area identified by the Bendix Corporation as a potential hazardous waste site (Allied Corporation 1986). The site was evaluated in the form of a preliminary assessment (PA) that was submitted to U.S. EPA. The PA was prepared by Susanne Buthman of the Indiana State Board of Health (ISBH) on May 31, 1985 (ISBH 1985). PA preparation, as well as additional pre-remedial activities performed by ISBH in the past, is presently conducted by the Indiana Department of Environmental Management (IDEM).

A site inspection (SI) including the installation of monitoring wells was to be performed at the Beck's Lake site, but changes in the U.S. EPA Pre-Remedial Program strategy shifted the objective of the inspection to an SSI. The SSI was conducted to determine whether TCL compounds or TAL analytes are present at the site, and to characterize more fully the site if a listing site inspection (LSI) is eventually conducted at the site. The SSI of the Beck's Lake site was conducted on April 20, 1988, under TDD F05-8611-149, issued on November 1, 1986.

The FIT SSI included an interview with site representatives, a reconnaissance inspection of the site, and the collection of five 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 or environmental threat.

2. SITE BACKGROUND

2.1 INTRODUCTION

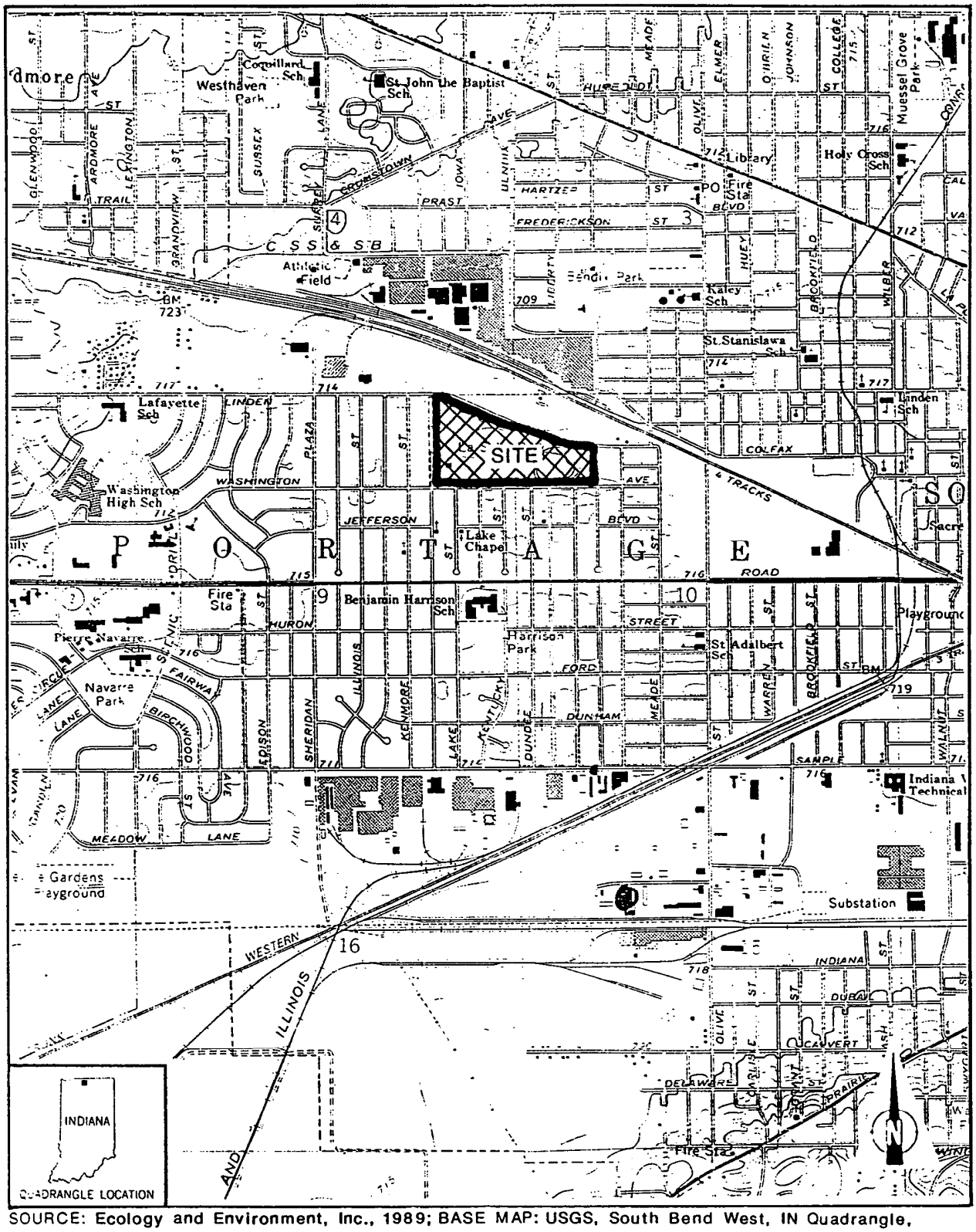
This section includes information obtained from federal, state, and local file information reviewed by FIT and the site representative interview.

2.2 SITE DESCRIPTION

The Beck's Lake site is an inactive open-style dump that accepted industrial waste in the 1950s. Approximately 15 acres was used for waste disposal. In the 1960s, the Beck's Lake site became part of a city park named La Salle Park (Bendix Corporation 1984; ISBH 1985; St. Joseph County Health Department 1984). La Salle Park is approximately 40 acres in size and is bordered by Falcon Street to the west, Linden Avenue to the south, Kaley Street to the east, and Washington Avenue to the north. The site is located in a residential area on the western boundary of South Bend, Indiana, in St. Joseph County (T.37N., R.2E., sections 9 and 10) (United States Geological Survey [USGS] 1969) (see Figure 2-1). A lake approximately 8 acres in area named Beck's Lake and a man-made hill built during the construction of La Salle Park are located on the eastern half of the park (USGS 1969). A 4-mile radius map of the Beck's Lake site is provided in Appendix A.

2.3 SITE HISTORY

The Beck's Lake site is currently owned by the city of South Bend. In the 1960s, the city of South Bend acquired the property and built La Salle Park (ISBH 1985; South Bend City Park Department 1988). Karl



SOURCE: Ecology and Environment, Inc., 1989; BASE MAP: USGS, South Bend West, IN Quadrangle, 7.5 Minute Series, 1969, Photorevised 1980.

SCALE
0 0.5 1 MILE

FIGURE 2-1 SITE LOCATION

Stevens, superintendent of the South Bend City Park Department, indicated that prior to the construction of La Salle Park, part of the property may have been used for housing or housing development (South Bend City Park Department 1988). The St. Joseph County Assessor Office has no records of previous owners (St. Joseph County Assessor Office 1988).

The Beck's Lake site is believed to have operated as an open dump with unrestricted access during the 1950s (ISBH 1985; St. Joseph County Health Department 1988). The St. Joseph County Health Department does not have any license or permit records of disposal activities at the Beck's Lake site (St. Joseph County Health Department 1988).

During the 1930s and 1940s, the area surrounding Beck's Lake was a wetland. Development in the area has reduced the wetland area to the present day size of Beck's Lake (St. Joseph County Health Department 1988). A United States Department of Agriculture (USDA) soil survey indicates man-made land and drained Houghton muck is present to the immediate west and north of Beck's Lake, respectively (USDA 1977).

The 103(c) notification information provided to the U.S. EPA in 1984 was gathered during a Bendix internal investigation and is based on the recollections of former employees and haulers (Bendix Corporation 1984). The 103(c) notification states that approximately 15 acres surrounding, and including, Beck's Lake were used for disposal. According to the 103(c) notification, types of waste that may have been disposed include organic substances, inorganic substances, solvents, heavy metals, acids, bases, and asbestos.

Additional correspondence from the Bendix Corporation to E & E indicates that paint wastes, hydroxide sludge, soluble oil and water mixtures, chromic acid, wastewater treatment sludge, nickel waste, stoddard solvents or naptha, foundry sand, and cyanide waste may have been disposed of at the 17 Bendix sites (Allied Corporation 1986; 1986a).

No engineered liners or leachate collection systems are known to have been installed at the site (St. Joseph County Health Department 1988). According to federal, state, and local file information reviewed by FIT, no regulatory-related response activities have occurred at the Beck's Lake site.

3. SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS

3.1 INTRODUCTION

This section outlines procedures and observations of the SSI of the Beck's Lake site. Individual subsections address the site representative interview, reconnaissance inspection, and sampling procedures. Rationales for specific FIT activities are also provided.

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

3.2 SITE REPRESENTATIVE INTERVIEW

A meeting between representatives from the Bendix Corporation and representatives from FIT was conducted at 11:00 a.m. on March 14, 1986. Representing Bendix were Michael Stepanek, Counsel--Aerospace Sector; Karl Miller, Counsel--Automotive Sector; and Gerald Budzin, Manager--Environmental Control. Representing FIT were Bridget Haugh and Richard Dagnall (E & E 1986).

Supplemental information was sent to E & E from Bendix regarding the 17 disposal areas identified in the 103(c) notification on April 7, 1986, and on April 28, 1986 (Allied Corporation 1986; 1986a).

Zelma Zieman of FIT conducted telephone interviews regarding the Beck's Lake site with Paul Trost, of the St. Joseph County Health Department, on December 15, 1988, and with Karl Stevens, superintendent of the South Bend City Parks Department, on December 15, 1988.

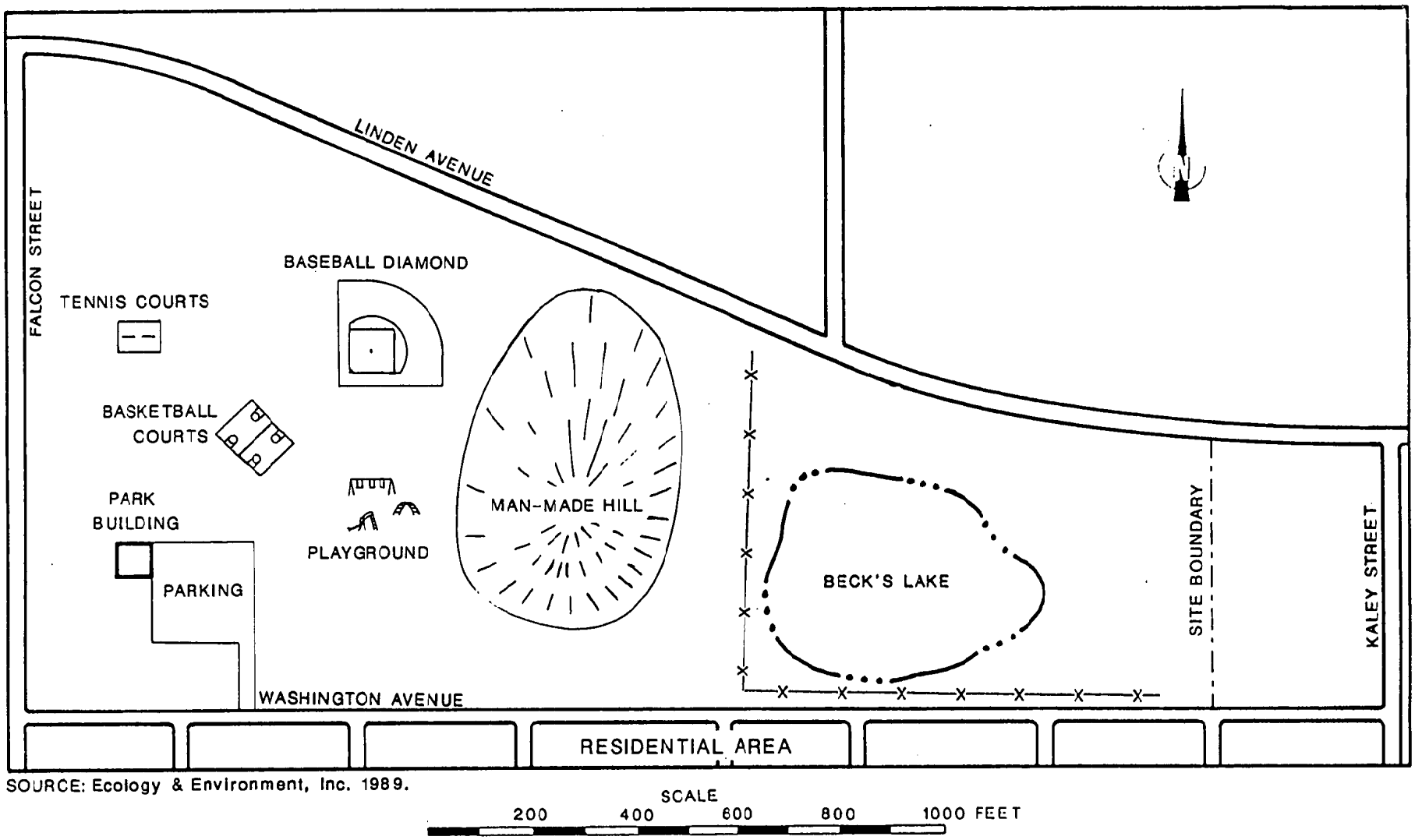
3.3 RECONNAISSANCE INSPECTION

FIT conducted a reconnaissance inspection of the Beck's Lake site and surrounding area in accordance with E & E health and safety guidelines. The reconnaissance inspection began at 6:45 a.m. on April 20, 1988. FIT representatives present were: Steve Anderson, Gordon Ferguson, Tim Mayers, Joe Corns, and Zelma Zieman. Stevens accompanied FIT during the reconnaissance inspection and sampling activities. The reconnaissance inspection included a walk-through of the site to determine appropriate health and safety requirements for conducting on-site activities, to select sampling locations, and to make observations to aid in characterizing the site.

Reconnaissance Inspection Observations. The Beck's Lake site is located on the western boundary of South Bend. Land use immediately west, south, and east of the site is residential (see Figure 3-1). Benjamin Harrison High School is located 1/2 mile south of the site. Located 1/8 mile north of the site are Conrail railroad tracks; an industrial complex is located 1/4 mile north; and residential areas are located 1/2 mile north. Land use approximately 2 miles north, west, and south of the site is agricultural. The St. Joseph River flows north through South Bend approximately 2 miles east of the site. The surface topography of the surrounding 3-mile radius of the site consists of flat terrain with an average elevation of approximately 720 feet above mean sea level (USGS 1969).

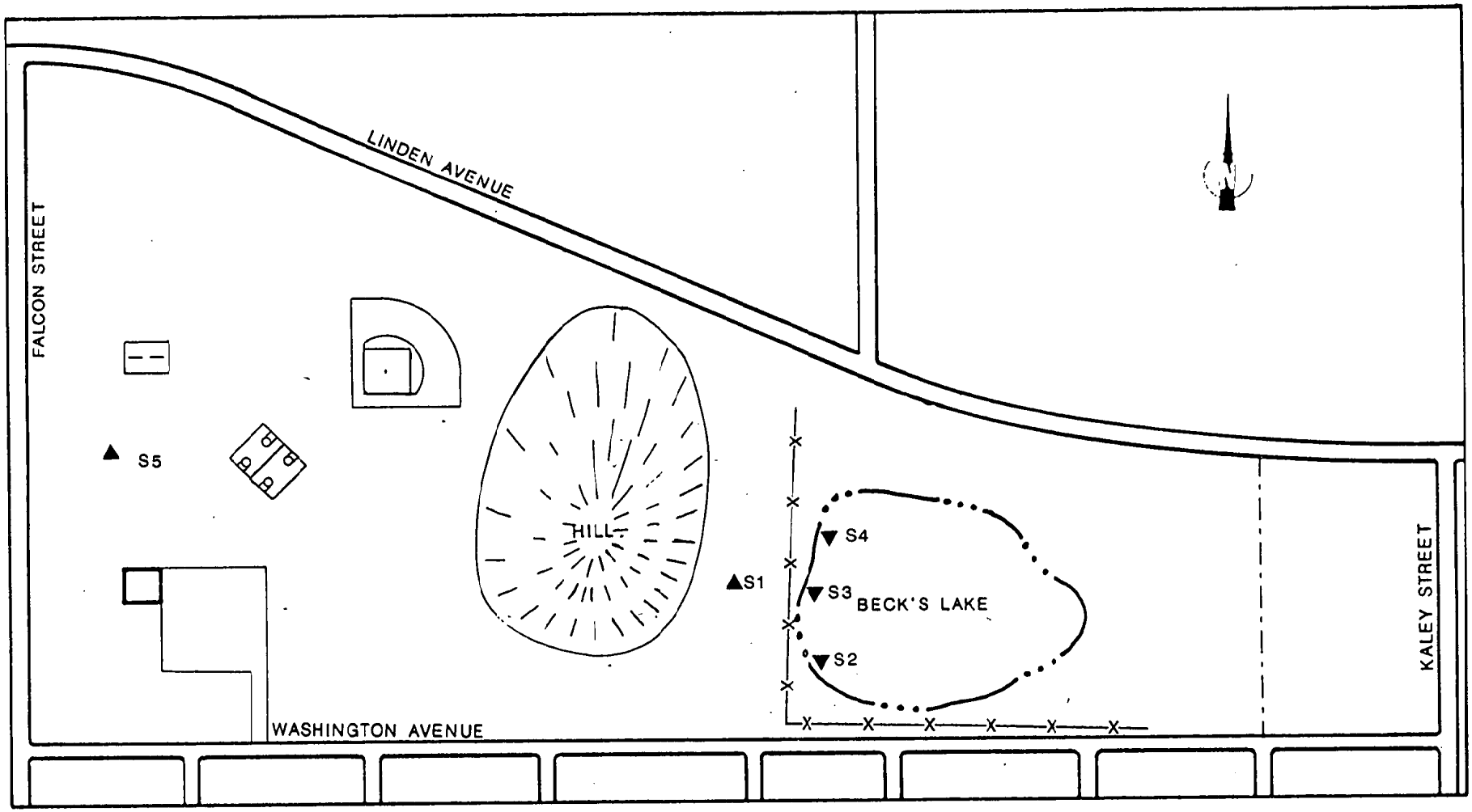
La Salle Park was vegetated with trees and grasses and appeared to be well maintained by the Park Department. No stained soil or leachate seeps were observed, nor did FIT observe any engineered liners or leachate collection systems at the site. Because the site is a city park, no fence or barriers were present to prevent site access.

The western half of La Salle Park contains a park district building, picnic areas, jungle gyms, tennis courts, a baseball diamond, and basketball courts. The large man-made hill and Beck's Lake were observed on the eastern half of La Salle Park. The hill slopes at an approximate 25% gradient from a height of approximately 25 feet above the terrain of the park. The hill was formed as the result of disposal of concrete debris found on-site during the park construction and is used for sledding (South Bend City Park Department 1988).



SOURCE: Ecology & Environment, Inc. 1989.

FIGURE 3-1 SITE FEATURES



SOURCE: Ecology & Environment, Inc. 1989.

SCALE

0 200 400 600 800 1000 FEET

LEGEND

▲ SOIL SAMPLE

▼ SEDIMENT SAMPLE

FIGURE 3-2 SOIL AND SEDIMENT SAMPLING LOCATIONS

Beck's Lake is fenced on its western and southern borders and signs stating "NO SWIMMING OR ICE SKATING" are posted around the lake. Beck's Lake has been fished from in the past, but Stevens indicated that severe winters and heavy summer vegetation growth throughout the past several years has eliminated most of the fish population, and fishing activity has decreased (South Bend City Park Department 1988). Photographs of the Beck's Lake site are provided in Appendix D.

3.4 SAMPLING PROCEDURES

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

On April 20, 1988, FIT collected two soil samples, two sediment samples, and one potential background soil sample.

Soil and Sediment Sampling Procedures. Subsurface soil sample S1 was of a black, clayey, silty sand collected at a 1 1/2-foot depth from the eastern base of the man-made hill (see Figure 3-2). Subsurface soil sample S1 was collected to determine whether TCL compounds or TAL analytes had migrated vertically downward from the hill.

Sediment sample S2 was of a wet, black, silty sand collected from an 8-inch depth at the southwestern edge of Beck's Lake. Sediment samples S3 and S4 were of a black, silty, loam soil type, collected approximately 10 feet from the western edge of Beck's Lake. Sediment samples from Beck's Lake were collected because the 103(c) notification indicated that potentially hazardous waste had been disposed of in and around the lake (Bendix Corporation 1984). In addition, surface water runoff may have carried TCL compounds and TAL analytes to Beck's Lake.

Surface soil sample S5 was of a black, silty loam collected from the western half of La Salle Park between the tennis courts and the park building. Sample S5 was collected outside of the disposal area described in the 103(c) notification (Bendix Corporation 1984). Sample S5 was collected as a potential background sample to determine concentrations of indigenous soil constituents.

All five soil and sediment samples were grab samples. The sampling depth for sample S1 was achieved using a power auger. A posthole digger

was then used to collect sample material from the hole. Samples S2, S3, and S4 were collected with a posthole digger. A row boat was used to collect samples S3 and S4 from offshore Beck's Lake. Sample S5 was collected with a hand trowel.

Sample material collected using the posthole digger (S1, S2, S3, and S4) and the hand trowel (S5) was placed in a stainless steel bowl. A spoon or hand trowel was then used to transfer sample material to sample bottles.

Standard E & E decontamination procedures were followed during the collection of all soil samples. Decontamination procedures included the scrubbing of all equipment (i.e., auger blades, posthole digger, trowels, bowls, and spoons) with a detergent (Alconox) and distilled water solution 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. All soil samples were analyzed for TCL compounds by Cenref Labs, Brighton, Colorado, and for TAL analytes by Post Buckley Schuh & Jernigan of Orlando, Florida.

4. ANALYTICAL RESULTS

4.1 INTRODUCTION

This section presents results of the chemical analysis of FIT-collected soil samples for TCL compounds and TAL analytes.

4.2 RESULTS OF CHEMICAL ANALYSIS OF FIT-COLLECTED SAMPLES

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

Laboratory analytical data and U.S. EPA Contract Laboratory Program quantitation/detection limits of soil sample analysis are provided in Appendix E.

After an evaluation of the CLP analytical data, FIT determined that sample S5, the potential background sample, contained concentrations of TCL compounds and TAL analytes in excess of what would be expected to be indigenous to the site area. Therefore, sample S2 was determined to be a more representative background sample and has been chosen as the background sample for comparison purposes in this report.

The presence of TCL compounds and TAL analytes detected in sample S5 may be due to contaminant migration, an error in the disposal boundary description, or the spread of the contaminated zone during the La Salle Park construction. In addition, the ability of a loam-textured

soil, such as the material of sample S5, to retain TCL compounds and TAL analytes is greater than that of a sand-textured soil, such as the material of sample S2.

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

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5
Date	4/20/88	4/20/88	4/20/88	4/20/88	4/20/88
Time	0820	0900	0950	1000	1022
Organic Traffic Report Number	EW942	EW943	EW944	EW945	EW946
Inorganic Traffic Report Number	MEX162	MEX163	MEX164	MEX165	MEX166
Compound Detected (values in μg/kg)					
Volatile Organics					
acetone	--	310B	630JB	500JB	--
2-butanone (MEK)	38	23	180JB	210JB	10J
toluene	8	--	--	--	29
Semivolatile Organics					
naphthalene	100J	--	260J	610J	--
2-methylnaphthalene	64J	--	390J	--	--
acenaphthene	98J	--	600J	1,700J	--
dibenzofuran	61J	--	290J	760J	--
fluorene	99J	--	590J	1,700J	--
phenanthrene	1,200	150J	5,400	18,000	1,100
anthracene	310J	--	1,400	4,700	240J
di-n-butylphthalate	200J	--	--	--	--
fluoranthene	2,100	220J	10,000	26,000	1,600
pyrene	1,600	220J	7,200	21,000	1,300
benzo[a]anthracene	880	120J	3,100	9,500	710
chrysene	1,100	220J	4,900	14,000	930
benzo[b]fluoranthene	540	--	3,100	7,000	500
benzo[k]fluoranthene	900	--	3,600	11,000	720
benzo[a]pyrene	800	--	3,100	8,200	760
indeno[1,2,3-cd]pyrene	440	--	2,100	5,700	530
benzo[g,h,i]perylene	360J	--	1,900	4,600	600

Table 4-1 (Cont.)

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5
Pesticides/PCBs					
4,4'-DDE	--	--	--	--	44
4,4'-DDD	--	--	--	230J	--
4,4'-DDT	--	--	--	--	78
Analyte Detected (values in mg/kg)					
aluminum	3,560	1,010	8,780	7,010	4,410
arsenic	8.5	3.7	17	20	9
barium	185	[18]	225	213	96
cadmium	4.4	[1]	6	6.6	2.2
calcium	29,600	27,100	126,000	59,500	11,000
chromium	12*	4*	22*	34*	14*
cobalt	[6.1]	--	--	[6.7]	[4.3]
copper	79	19	55	80	37
iron	19,300	4,920	36,300	29,700	10,400
lead	267*	36*	321*	634*	82*
magnesium	4,460	13,700	9,580	9,120	1,300
manganese	466	120	957	714	360
mercury	0.12	--	0.40	0.90	0.12
nickel	12	--	[18]	[22]	12
potassium	[340]	[162]	[567]	[719]	[449]
selenium	2.7s+	--	3.9s+	--	1.9
vanadium	13	--	[26]	[26]	13
zinc	324*	79*	290*	523*	101*

-- Not detected.

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 contamination and warns 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
s	Analysis by Method of Standard Additions.	Value may be quantitative.
*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be semiquantitative.
+	Correlation coefficient for standard additions is less than 0.995. See review and laboratory narrative.	Data value may be biased.
[ ]	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.

Source: Ecology and Environment, Inc. 1989.

5. DISCUSSION OF MIGRATION PATHWAYS

5.1 INTRODUCTION

This section discusses data and information that apply to potential migration pathways and targets of TCL compounds and TAL analytes that are possibly attributable to the Beck's Lake site.

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

5.2 GROUNDWATER

The oldest known consolidated materials underlying St. Joseph County are dolomite, dolomitic limestone, and shale of the Ordovician and Silurian ages. These Ordovician and Silurian units underlie dolomite, dolomitic limestone, and blue-black bituminous shale of the Devonian and Mississippian ages. The bedrock is not used as a source of water because of its depth and high mineral content (Indiana Department of Conservation 1962).

The bedrock is overlain by unconsolidated material of the Quaternary age, which is the principal source of groundwater in St. Joseph County. The unconsolidated material forms a single but complex hydrological system named the St. Joseph Aquifer system and is designated as a sole source aquifer in the South Bend area by the U.S. EPA (53 FR 23682, June 23, 1988). This aquifer system forms the aquifer of concern (AOC) in the area of the site. The aquifer system has been described by dividing the system into lower, middle, and upper units (Indiana Department of Natural Resources [IDNR] 1969).

The lower unit consists of clay till containing discontinuous zones of sand and gravel that are small in areal extent and are never exposed at the ground surface. The lower unit is a source of water for industrial, municipal, and occasionally domestic and farming uses. The sand and gravel within the lower unit form the principal aquifer in the South Bend/Mishawaka area (41% of county groundwater use), even though larger groundwater yields are possible in the middle unit. The thickness of the lower unit ranges from 0 to 300 feet, but averages 80 feet. The depth to the lower unit in the vicinity of the site is approximately 90 feet. However, the middle unit is hydraulically connected to the lower unit near the site and the depth to water was recorded in 1956 to be 10 to 20 feet (IDNR 1969).

The middle unit consists of sand and gravel that locally contains thick zones of clay and is the principal aquifer for St. Joseph County. The thickness of the middle unit ranges from 10 to 250 feet, but averages 120 feet and crops out in the South Bend area. Recharge of the middle unit is chiefly derived from precipitation. Some infiltration of groundwater to the middle unit is induced from the St. Joseph River during periods of heavy pumping of wells screened in the middle unit (IDNR 1969).

The upper unit consists of silty, sandy, somewhat clayey till, containing lenses of sand and gravel of limited areal extent. The upper unit forms dissected ground and terminal moraines and creates artesian conditions in the middle unit. The thickness of the upper unit ranges from 0 to 140 feet and averages 50 feet. Although the upper unit is not present in the South Bend area, it is present within a 4-mile radius of the site (IDNR 1969).

Overlying the unconsolidated material are thin layers of alluvium, eolian sand, and organically rich sand, silt, and clay of the Holocene age (Indiana Department of Conservation 1962).

A piezometric study of St. Joseph County indicated that the direction of groundwater flow in the site vicinity is toward the northeast (IDNR 1969).

A review of well logs within a 4-mile radius of the site indicates a layer of topsoil ranging from 2 to 20 feet in thickness, a depth to groundwater ranging from 4 to 20 feet, and a depth to bedrock ranging

from 130 to 210 feet. Well logs of the area of the site are provided in Appendix F.

In accordance with the U.S. EPA-approved work plan, no monitoring well samples or residential well samples were collected.

A potential does exist for TCL compounds and TAL analytes to migrate from the site to groundwater. This potential is based on the following information.

- TCL compounds and TAL analytes have been detected in on-site soil samples above background levels, including: 26,000 µg/kg of fluoranthene, 21,000 µg/kg of pyrene, 14,000 µg/kg of chrysene, 34 mg/kg of chromium, 634 mg/kg of lead, and 957 mg/kg of manganese.

- The site does not have a liner or leachate collection system (St. Joseph County Health Department 1988).

- The unsaturated zone in the vicinity of the site is primarily composed of sand and gravel deposits. The AOC is 4 to 20 feet below the ground surface (IDNR 1969).

The South Bend Water Works provides municipal water for 127,000 South Bend-area residents from 35 wells, 25 of which are located within a 4-mile radius of the site. The water from the wells is blended before distribution. The municipal wells are finished at depths ranging from 90 to 240 feet (ISBH 1984; South Bend Water Works 1987).

The University of Notre Dame operates a private water system that serves 6,500 persons. The wells of the system are located on the university campus, approximately 3 to 4 miles northwest of the site. The wells are finished at depths ranging from 108 to 200 feet (ISBH 1984; University of Notre Dame 1987).

St. Joseph County 1980 Census information indicates that 2.68 persons-per-household reside in the area of the site. A house count within a 3-mile radius of the site indicates approximately 400 houses outside of the municipal water system, or 1,072 persons who obtain water from private wells (USGS 1969; U.S. Bureau of the Census 1982).

The total potential target population of groundwater contamination within a 3-mile radius of the site is 128,072 persons, which includes private well users and individuals receiving municipal service.

5.3 SURFACE WATER

Two surface water bodies are located within a 3-mile radius of the site: Beck's Lake and the St. Joseph River. Beck's Lake is affected by TCL compounds and TAL analytes detected at the site, but the St. Joseph River does not appear to be affected.

Beck's Lake is located on-site. Sediment samples collected near the western edge of the lake revealed the presence of TCL compounds and TAL analytes (see Table 4-1). The lake is not used as a drinking water source, or for swimming or boating. The lake is fished from, but this activity has decreased during the past several years because of heavy vegetation growth and a reduced fish population (South Bend City Park Department 1988).

The St. Joseph River is located approximately 2 miles northeast of the site (USGS 1969). The site does not lie within the floodplain (U.S. Department of Housing and Urban Development 1978) of the river and no surface water migration pathways are present from the site to the St. Joseph River (USGS 1969).

5.4 AIR

A release of potential contaminants to the air was not documented during the SSI of the Beck's Lake site. During the reconnaissance inspection, FIT site-entry instruments (OVA 128, radiation monitor, and colorimetric monitoring tubes for cyanide) did not detect levels above background concentrations at the site. In accordance with the U.S. EPA-approved work plan, further air monitoring was not conducted by FIT.

A potential does exist for eolian forces to carry particulates from the site. Potential targets of air contamination include all persons residing within a 4-mile radius of the site. St. Joseph County 1980 Census information indicates 2.68 persons-per-household reside in the site area. A house count within a 4-mile radius of the site indicates approximately 1,250 houses outside of the South Bend City limits, or 3,350 persons (USGS 1969, U.S. Bureau of the Census 1982). Planimeter

calculations indicate approximately 88.37% of South Bend residents, or 96,967 persons, live within a 4-mile radius of the site. The total target population potentially affected by a release of TCL compounds or TAL analytes is 100,317 persons.

5.5 FIRE AND EXPLOSION

According to site representatives and local, state, and federal file information reviewed by FIT, no documentation exists of an incident of fire or explosion at the Beck's Lake site. FIT observations indicated that no apparent potential for fire or explosion existed at the site at the time of the SSI.

5.6 DIRECT CONTACT

According to federal, state, and local file information reviewed by FIT, no documentation exists of an incident of direct contact with TCL compounds or TAL analytes at the Beck's Lake site.

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

- TCL compounds and TAL analytes were detected in on-site surface soil samples.

- The site is a city park; access to the site is not restricted.

Based on planimeter calculations of South Bend, approximately 14.30% of South Bend residents (15,689 persons) live within a 1-mile radius of the site and are potential targets of direct contact with TCL compounds and TAL analytes detected at the site.

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2091:1

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	0980904379

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Beck's Lake Site	Falcon Street, Linden Ave., Kaley St., Washington Ave.

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
South Bend	IN	46619	St. Joseph	141	03

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
41° 40' 05" N	086° 17' 30" W	☐ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ■ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
4 20 88 (MONTH DAY YEAR)	☐ ACTIVE ■ INACTIVE	BEGINNING YEAR / ENDING YEAR — X UNKNOWN believed 1950's

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ☒ B. EPA CONTRACTOR Ecology & Environment, Inc. (E & E) (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR _____ (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Steve Anderson	Geologist	E & E	(312) 663-9415

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Tim Mayers	Geographer	E & E	(312) 663-9415
Gordon Ferguson	Bacteriologist	E & E	(312) 663-9415
Joe Corns	Civil Engineer	E & E	(312) 663-9415
Zelma Zieman	Chemist	E & E	(312) 663-9415
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Karl Stevens	Superintendent	South Bend City Park Dept.	(219) 284-9401
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION ☐ WARRANT	beginning 0645	partly cloudy, ~60°F, variable winds @ ~15mph

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Harry Atkinson	IDEM	(317) 232-8927

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Zelma Zieman	USEPA	E & E / FIT	(312) 663-9415	12 27 88 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D980904379

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

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

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

TONS unknown

CUBIC YARDS _____

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

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

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	unknown	unknown	Detected in on-site soil and sediment samples collected by FIT on 4/20/88.
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown	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
			detected in on-site soil and sediment samples collected by FIT on 4/20/88		
OCC	naphthalene	91-20-3		610 J	ug/kg
OCC	2-methylnaphthalene	91-57-6		390 J	
OCC	acenaphthene	83-32-9		1700 J	
OCC	dibenzofuran	132-64-9		760 J	
OCC	fluorene	86-73-7		1700 J	
OCC	phenanthrene *	85-01-8		18000	
OCC	anthracene	120-12-7		4700	
OCC	di-n-butylphthalate	84-74-2		200 J	
OCC	fluoranthene *	206-44-0		26000	
OCC	pyrene *	129-00-0		21000	
OCC	benzo[a]anthracene *	56-55-3		9500	
OCC	Chrysene *	218-01-9		14000	
OCC	benzo[b]fluoranthene	205-99-2		7000	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	none known		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

FIT site inspection performed on 4/20/88.
FIT files, Region V

EPA FORM 2070-13 (7-81)

* Continued from Part II, Section IV.

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

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	benzo[k]fluoranthene	207-08-9	detected in on-site soil and	11000	ug/kg
OCC	benzo[a]pyrene	50-32-8	sediment samples collected	8200	
OCC	indeno[1,2,3-cd]pyrene	193-39-5	by FEI on 4/20/88	5700	
OCC	benzo[g,h,i]perylene	191-24-2		4600	
PSD	4,4'-DDE	72-55-9		44	
PSD	4,4'-DDD	72-54-8		230 J	
PSD	4,4'-DDT	50-29-3		78	
MES	arsenic *	7440-38-2		20	mg/kg
MES	cadmium *	7440-43-9		6.6	
MES	chromium *	7440-47-3		34 *	
MES	cobalt	7440-48-4		6.7 B	
MES	copper *	7440-50-8		80	
MES	lead *	7439-92-1		634 *	
MES	manganese *	7439-96-5		957	
MES	mercury	7439-97-6		0.90	
MES	nickel	7440-02-0		22 B	
MES	selenium	7782-49-2		3.9 S+	
MES	vanadium	7440-62-2		26 B	
ME	zinc *	7440-66-6		523 *	

* Denotes contaminant was detected in background sample S2.

All values listed represent the highest concentration of each contaminant.

Concentration symbols (J, B, S, +, *) indicate QA/QC comments from CRDL laboratories. See Table 4-1 of SSI Report for thorough explanation.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	D980904379

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ■ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 128,072 — 04 NARRATIVE DESCRIPTION

Municipal drinking water for South Bend and private wells in area obtain water from the St. Joseph Aquifer System which is designated as a sole source aquifer. The aquifer system consists of unconsolidated sand and gravel. Well logs indicate an aquifer thickness ranging 2 to 210 feet and a depth to groundwater from 4 to 20 feet. TCL compounds and TAL analytes detected in on-site soil/sed. samples

01 ■ B. SURFACE WATER CONTAMINATION — 02 ■ OBSERVED (DATE: 4/20/88) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Site does not lie within floodplain of potential drinking water source. No surface water migration pathways are present to the St. Joseph River.
Pathway exists for surface water used for recreational purposes. TCL compounds and TAL analytes detected in sediment samples from Beck's Lake collected by FIT on 4/20/88.

01 ■ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 96,967 — 04 NARRATIVE DESCRIPTION

Potential exists for eolian forces to carry TCL compounds and TAL analytes from site since detected areas of contamination are unconfined.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Site history and site observations indicate no apparent potential for fire and/or explosion.

01 ■ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 15,689 — 04 NARRATIVE DESCRIPTION

Potential exists for La Salle Park users to come in contact with TAL analytes and TCL compounds identified in on-site soil/soil. samples.

01 ■ F. CONTAMINATION OF SOIL — 02 ■ OBSERVED (DATE: 4/20/88) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 40 (ACRES) — 04 NARRATIVE DESCRIPTION

TCL compounds and TAL analytes including PAHs, metals, heavy metals, and pesticides were detected in soil and sediment samples collected on-site. See table 4-1 and section 4-1 of the SSI Report for complete soil sample analysis

01 ■ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 128,072 — 04 NARRATIVE DESCRIPTION

Drinking water contamination potential exists due to shallow groundwater depth (4 to 20 feet), aquifer consists of highly permeable sand and gravel, no containment system exists on site, and TCL compounds and TAL analytes were detected on-site. See A above.

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

City of South Bend employs several workers to maintain the La Salle Park property. TCL compounds and TAL analytes were detected in surface soil samples at La Salle Park.

01 ■ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 128,072 — 04 NARRATIVE DESCRIPTION

The greatest potential for population exposure exists through groundwater contamination. See A, C, E above.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	D980904379

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

04 NARRATIVE DESCRIPTION

No damage to flora observed during SSI. TCL compounds and TAL analytes were detected in Beck's Lake sediment samples. Damage and/or bioaccumulation of contaminants in aquatic flora may occur.

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

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

Potential does exist for TCL compounds and TAL analytes to bioaccumulate and/or damage aquatic life in Beck's Lake.

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

04 NARRATIVE DESCRIPTION

Bioaccumulation may occur in fish found in Beck's Lake. Fishing activities have been observed at Beck's Lake.

01 ■ M. UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 128,072 — 04 NARRATIVE DESCRIPTION

No observed indigenous or engineered containment systems were observed by FIT. Population who depend on groundwater for drinking water may be affected.

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

04 NARRATIVE DESCRIPTION

No off-site property damage allegations were identified by FIT. A potential exists for off-site damage via air or groundwater migration. See A, B, C, D and E.

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

04 NARRATIVE DESCRIPTION

None observed or identified by FIT.

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

04 NARRATIVE DESCRIPTION

The Bendix Company submitted a 103 (c) notification identifing site as potential disposal area for organics, inorganics, solvents, heavy metals, acids, bases, and asbestos.

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

None.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 128,072

IV. COMMENTS

Principal routes of concern are groundwater, air and direct contact. Surrounding population most likely to come in contact with TCL compounds and TAL analytes through the groundwater route.

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

FIT site inspection performed on 4/20/88
FIT files, Region V

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D980904379

II. PERMIT INFORMATION

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

III. SITE DESCRIPTION

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

04 TREATMENT (Check all that apply) N/A
- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER
- ■ A. BUILDINGS ON SITE: one

06 AREA OF SITE: ~40 (Acres)

07 COMMENTS
Site is believed to have been used as an unrestricted open dump during the 1950s. In the 1960s, site became a city park named La Salle Park.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)
☐ A. ADEQUATE, SECURE ☐ B. MODERATE ■ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.
No known liners, barriers, or leachate collection system were installed at the Beck's Lake Site.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ■ YES ☐ NO

02 COMMENTS
Since site is a city park, unrestricted access to the area and Beck's Lake is possible. TCL compounds and TAL analytes were detected in on-site soil and sediment samples.

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

FIT site inspection performed on 4/20/88.
FIT files, Region V.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D980904379

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check all applicable)

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

02 STATUS

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

03 DISTANCE TO SITE

A. 1 (mi)
B. 1 1/2 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

■ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSABLE

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

02 POPULATION SERVED BY GROUND WATER 128,072

03 DISTANCE TO NEAREST DRINKING WATER WELL 1 (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
4 - 20 (ft)	NE	4-20 (ft)	unknown (gpd)	■ YES ☐ NO

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

A review of well logs within a 4-mile radius of the Beck's Lake site indicates a topsoil layer ranging from 2 to 20 feet, a depth to groundwater ranging from 4 to 20 feet, and a depth to bedrock ranging from 130 to 210 feet.

10 RECHARGE AREA

■ YES ☐ NO

COMMENTS: Area is a recharge area for the St. Joseph River. Recharge of aquifer is primarily through precipitation

11 DISCHARGE AREA

☐ YES ■ NO

COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

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

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Beck's Lake	■	on site (mi)
	☐	(mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 15,689 (NO. OF PERSONS)	B. 48,082 (NO. OF PERSONS)	C. 76,064 (NO. OF PERSONS)

02 DISTANCE TO NEAREST POPULATION

on-site
< 50 ft. (mi)

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

unknown - city of South Bend

04 DISTANCE TO NEAREST OFF-SITE BUILDING

< 50 ft (mi)

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

Population within the Beck's Lake site includes the city of South Bend and rural area residents.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D980904379

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

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

02 PERMEABILITY OF BEDROCK (Check one)

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

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
130 - 210 (ft)	unknown (ft)	unknown

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
40 (in)	2.3 (in)	0 %	N/A	0 %

09 FLOOD POTENTIAL

SITE IS IN N/A YEAR FLOODPLAIN

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 1/2 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

> 3 (mi)

ENDANGERED SPECIES: none known

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. < 1/4 (mi)	B. < 1/4 (mi)	C. N/A (mi)	D. 2 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Refer to 4-mile radius map in Appendix A.

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

FIT site inspection performed on 4/20/88.
FIT files, Region V.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	0980904379

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	5	TCL: Centre Labs, Brighton, CO TAL: Post Buckley Schuh and Jernigan, Orlando FL	6/28/88 6/13/88
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
OVA - 128	Concentrations above background levels were not detected.
Radiation monitor	No readings above background (below 0.1 mR)
HCN monitor	No readings above background (< 1 ppm)

IV. PHOTOGRAPHS AND MAPS

01 TYPE ■ GROUND ☐ AERIAL

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

03 MAPS ■ YES ☐ NO

04 LOCATION OF MAPS File room of E & E, Inc., Chicago, IL

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Photographs were taken during the site inspection.

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

FIT site inspection performed on 4/20/88.
FIT files, Region V.

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D980904379

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER
City of South Bend	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
City Hall, 227 E. Jefferson	
05 CITY	06 STATE	07 ZIP CODE
South Bend	IN	46601

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

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

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

PARENT COMPANY (if applicable)

08 NAME	09 D+B NUMBER
none	
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE
12 CITY	13 STATE	14 ZIP CODE

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

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

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

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

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

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

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

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

01 NAME	02 D+B NUMBER
none	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE

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

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

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

FIT site inspection performed on 4/20/88.
FIT files, Region V.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D980904379

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME: City of South Bend	02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.): City Hall, 227 E. Jefferson	04 SIC CODE:
05 CITY: South Bend	06 STATE: IN / 07 ZIP CODE: 46601
08 YEARS OF OPERATION: ~ 25 yrs	09 NAME OF OWNER: Department of Parks and Recreation

OPERATOR'S PARENT COMPANY (if applicable)

10 NAME:	11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):	13 SIC CODE:
14 CITY:	15 STATE: / 16 ZIP CODE:

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME: unknown	02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):	04 SIC CODE:
05 CITY:	06 STATE: / 07 ZIP CODE:
08 YEARS OF OPERATION:	09 NAME OF OWNER DURING THIS PERIOD:

PREVIOUS OPERATORS' PARENT COMPANIES (if applicable)

10 NAME: unknown	11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):	13 SIC CODE:
14 CITY:	15 STATE: / 16 ZIP CODE:

01 NAME:	02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):	04 SIC CODE:
05 CITY:	06 STATE: / 07 ZIP CODE:
08 YEARS OF OPERATION:	09 NAME OF OWNER DURING THIS PERIOD:

10 NAME:	11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):	13 SIC CODE:
14 CITY:	15 STATE: / 16 ZIP CODE:

01 NAME:	02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):	04 SIC CODE:
05 CITY:	06 STATE: / 07 ZIP CODE:
08 YEARS OF OPERATION:	09 NAME OF OWNER DURING THIS PERIOD:

10 NAME:	11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):	13 SIC CODE:
14 CITY:	15 STATE: / 16 ZIP CODE:

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

FIT site inspection performed on 4/20/88.
FIT files, Region V.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	0980904379

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
none known	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
The Bendix Corporation			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
401 Bendix Drive (P.O. Box 4001)			
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
South Bend	IN / 46620		
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
none known			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

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

FIT site inspection performed on 4/20/88.
FIT files, Region V.

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	0980904379

II. PAST RESPONSE ACTIVITIES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	D980904379

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)

FIT site inspection performed on 4/20/88.
FIT files, Region V.

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	D980904379

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ 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)

FIT site inspection performed on 4/20/88.
FIT files, Region V

EPA FORM 2070-13 (7-81)

Immediate Removal Action Check Sheet

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

Comments:

(1) the BL site is currently a South Bend city park named La Salle Park. Access to the site and to detected areas of TCL compound and TAL analyte contaminated is not restricted.

(2) TCL compounds and TAL analytes were detected in on site surface soil samples

(3) Sole source, shallow, sand and gravel aquifer lies below the BL site.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Beck's Lake Site PAGE 1 OF 9

U.S. EPA ID: IND980904379 TDD: F05-8611-149 PAN: FIN0476SA

DATE: > 4-20-88

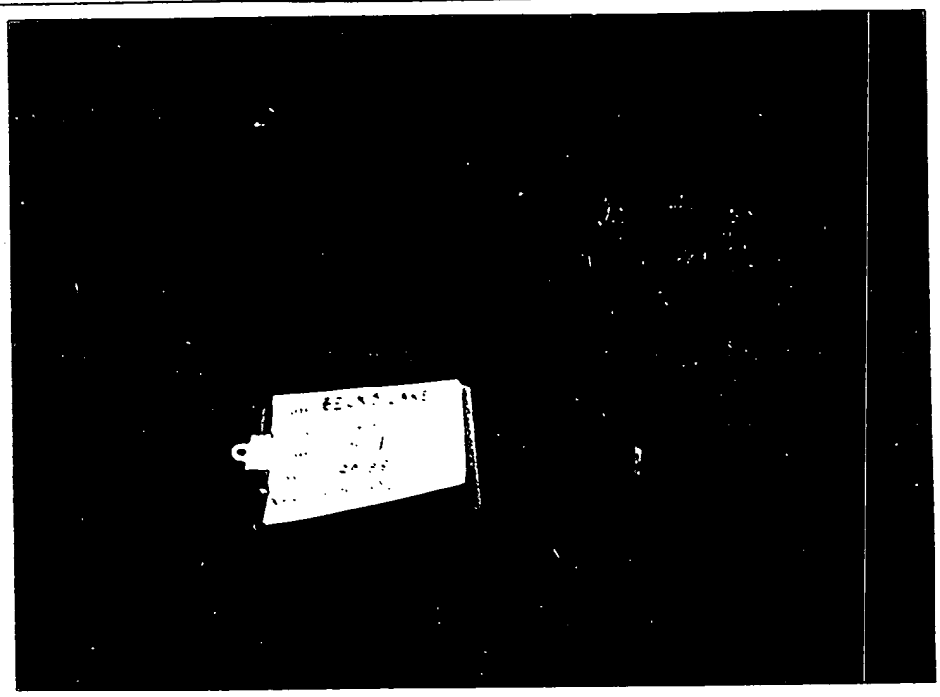
TIME: >0820

DIRECTION OF PHOTOGRAPH:
> E

WEATHER CONDITIONS:
> partly cloudy
> ~60°F

PHOTOGRAPHED BY:
>Steve Anderson

SAMPLE ID (if applicable):
> S1



DESCRIPTION: > Close-up
>

DATE: >4-20-88

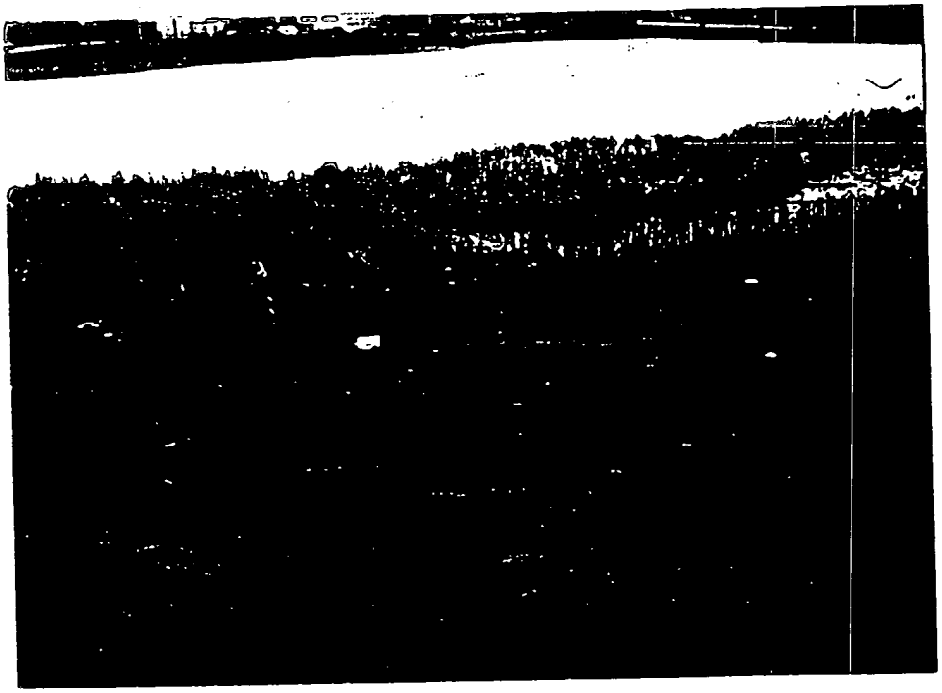
TIME: > 0820

DIRECTION OF PHOTOGRAPH:
> E

WEATHER CONDITIONS:
> partly cloudy
> ~60°F

PHOTOGRAPHED BY:
>Steve Anderson

SAMPLE ID (if applicable):
> S1



DESCRIPTION: > Perspective
>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Beck's Lake Site

U.S. EPA ID: IND980904379 TDD: F05-8611-149 PAN: FIN0476SA

DATE: > 4-20-88

TIME: > 0900

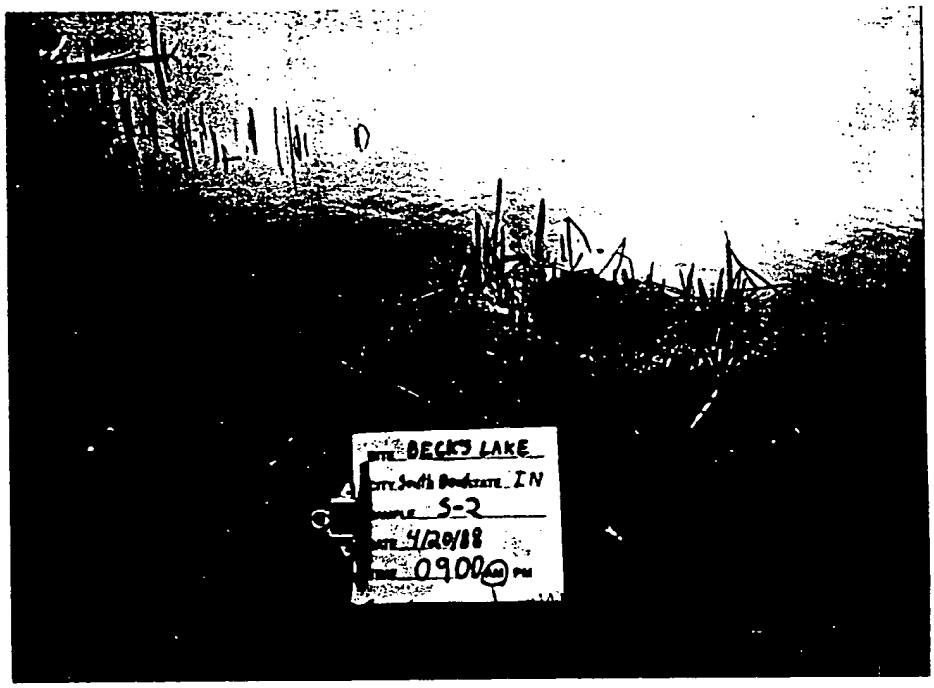
DIRECTION OF PHOTOGRAPH: > E

WEATHER CONDITIONS: > partly cloudy

> ~60°F

PHOTOGRAPHED BY: > Steve Anderson

SAMPLE ID (if applicable): > S2



DESCRIPTION: > Close-up

>

DATE: > 4-20-88

TIME: > 0900

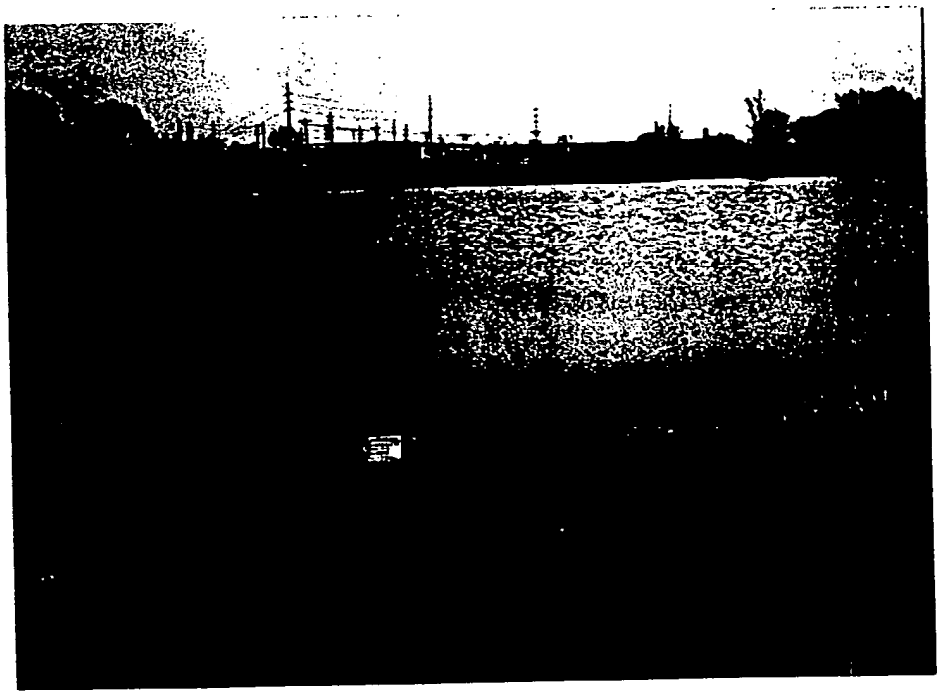
DIRECTION OF PHOTOGRAPH: > E

WEATHER CONDITIONS: > partly cloudy

> ~60°F

PHOTOGRAPHED BY: > Steve Anderson

SAMPLE ID (if applicable): > S2



DESCRIPTION: > Perspective

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Beck's Lake Site

U.S. EPA ID: IND980904379 TDD: F05-8611-149 PAN: FIN0476SA

DATE: > 4-20-88

TIME: > 0950

DIRECTION OF PHOTOGRAPH: > W

WEATHER CONDITIONS: > partly cloudy

> ~60°F

PHOTOGRAPHED BY: > Steve Anderson

SAMPLE ID (if applicable): > S3

DESCRIPTION: > close-up

>

DATE: > 4-20-88

TIME: > 1040

DIRECTION OF PHOTOGRAPH: > ENE

WEATHER CONDITIONS: > partly cloudy

> ~60°F

PHOTOGRAPHED BY: > Steve Anderson

SAMPLE ID (if applicable): > S3

DESCRIPTION: > Perspective

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Beck's Lake Site PAGE 4 OF 9

U.S. EPA ID: IND980904379 TDD: F05-8611-149 PAN: FIN0476SA

DATE: > 4-20-88

TIME: > 1000

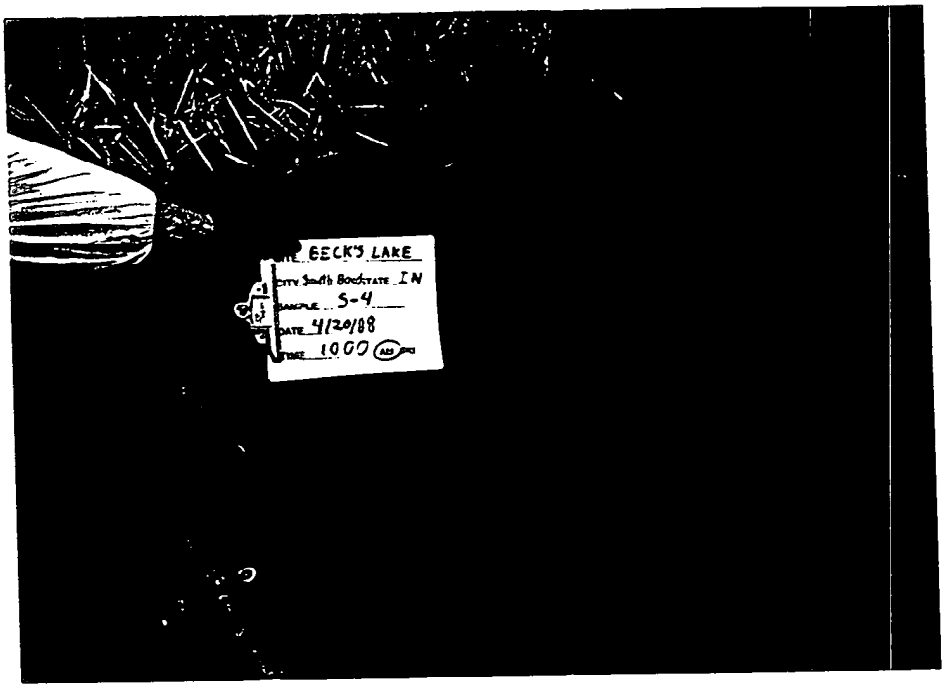
DIRECTION OF PHOTOGRAPH: > unk

WEATHER CONDITIONS: > partly cloudy

> ~60°F

PHOTOGRAPHED BY: > Steve Anderson

SAMPLE ID (if applicable): > S4



DESCRIPTION: > Close-up

>

DATE: > 4-20-88

TIME: > unk

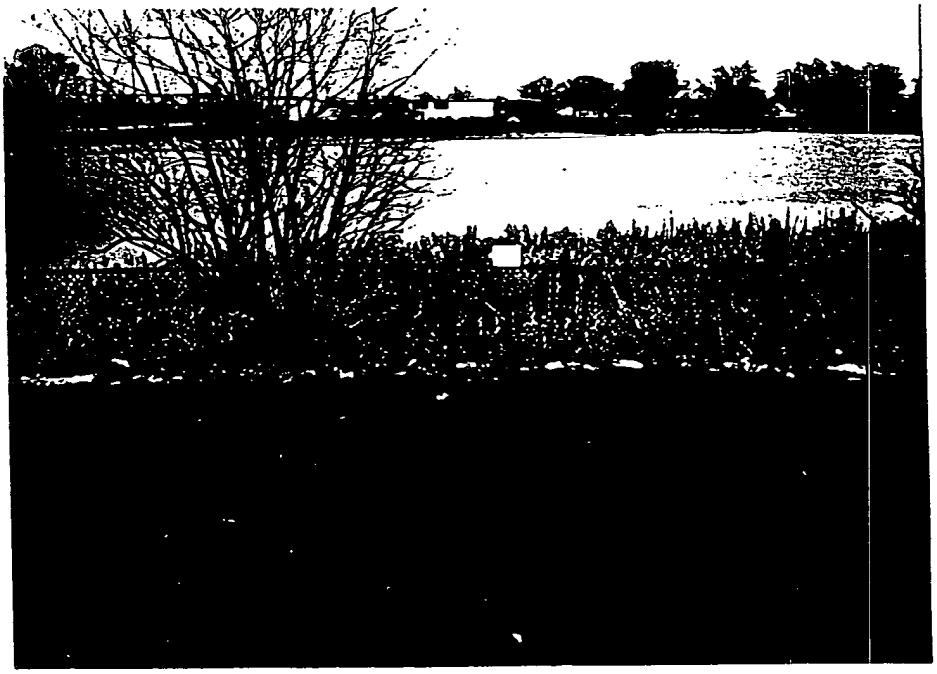
DIRECTION OF PHOTOGRAPH: > unk

WEATHER CONDITIONS: > partly cloudy

> ~60°F

PHOTOGRAPHED BY: > Steve Anderson

SAMPLE ID (if applicable): > S4



DESCRIPTION: > Perspective

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Beck's Lake Site PAGE 5 OF 9

U.S. EPA ID: IND980904379 TDD: F05-8611-149 PAN: FIN0476SA

DATE: > 4-20-88

TIME: > 1022

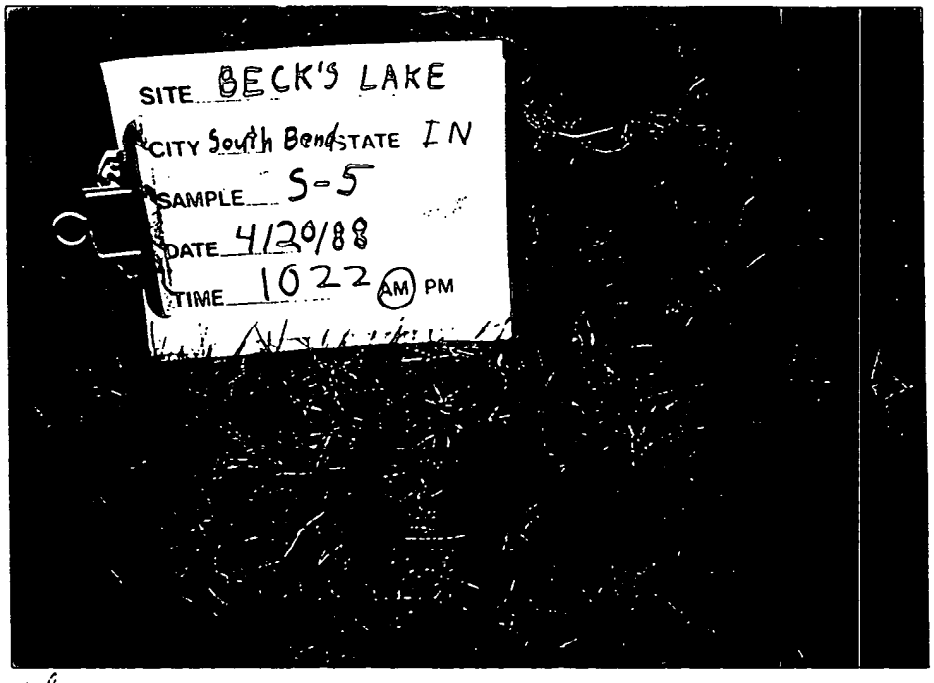
DIRECTION OF PHOTOGRAPH: > E

WEATHER CONDITIONS: > partly cloudy

> ~60°F

PHOTOGRAPHED BY: > Steve Anderson

SAMPLE ID (if applicable): > S5



DESCRIPTION: > Close-up

>

DATE: > 4-20-88

TIME: > 1022

DIRECTION OF PHOTOGRAPH: > E

WEATHER CONDITIONS: > partly cloudy

> ~60°F

PHOTOGRAPHED BY: > Steve Anderson

SAMPLE ID (if applicable): > S5

DESCRIPTION: > perspective

>

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Beck's Lake Site

PAN: FIN0476SA

U.S. EPA ID: IND980904379

TDD: F05-8611-149

DATE: > 4-20-88 TIME: > 1050 DIRECTION OF PHOTOGRAPH: > W PHOTOGRAPHED BY: > Steve Anderson

WEATHER CONDITIONS: > partly cloudy, ~60°F SAMPLE ID (if applicable): > None

DESCRIPTION: > Panoramic view of western half of La Salle Park photographed from hill top. Park employees visible in photograph.

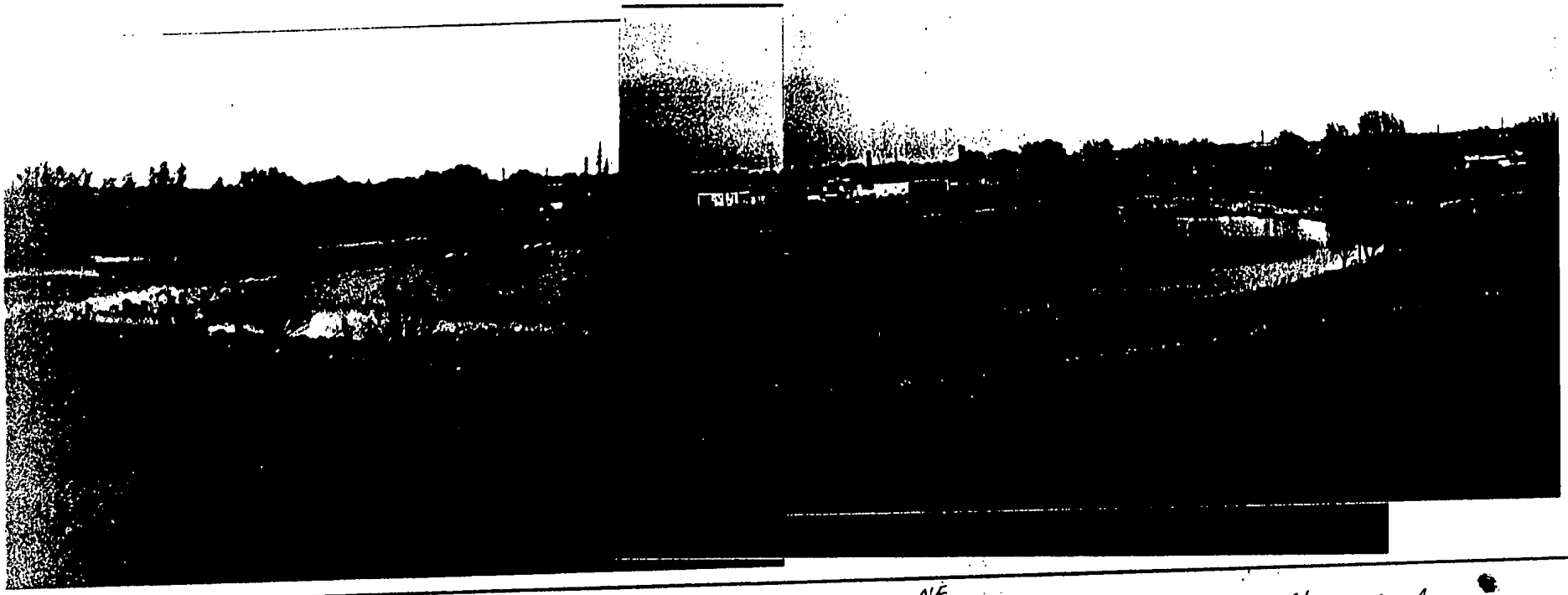
FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Beck's Lake Site

PAN: FIN0476SA

U.S. EPA ID: IND980904379

TDD: F05-8611-149



DATE: 4-20-88 TIME: 1055 DIRECTION OF PHOTOGRAPH: NE, E, ESE PHOTOGRAPHED BY: Steve Anderson

WEATHER CONDITIONS: partly cloudy, ~60° F SAMPLE ID (if applicable): none

DESCRIPTION: Panoramic view of Beck's Lake photographed from hill top.

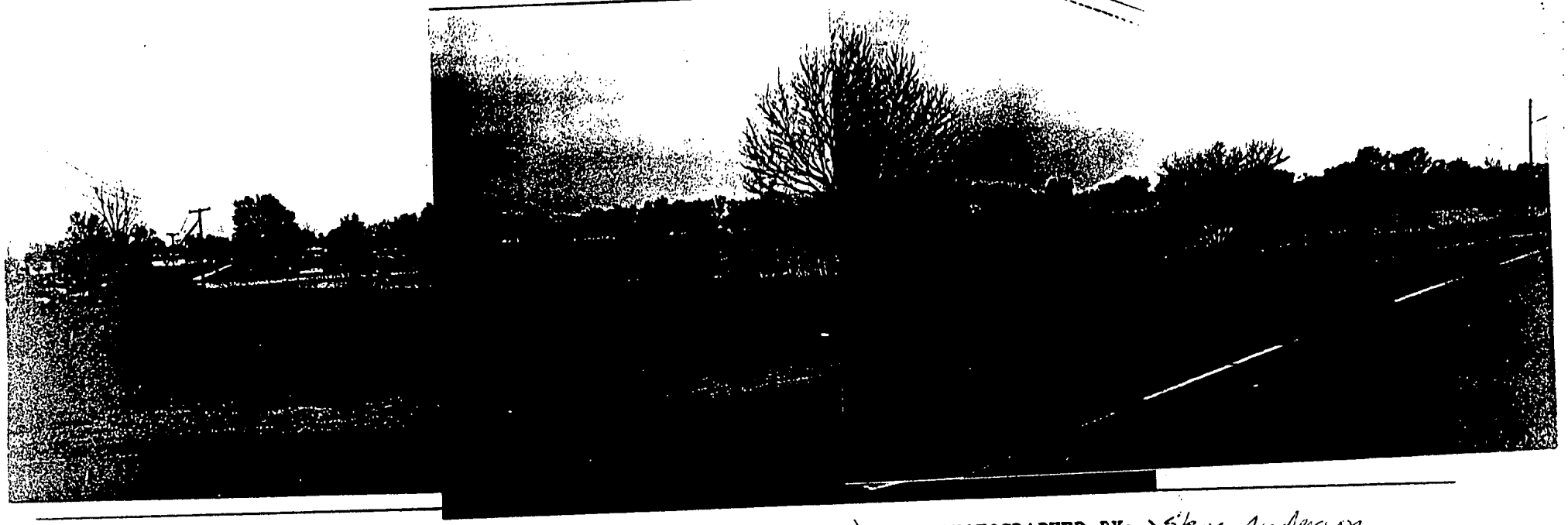
FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Beck's Lake Site

PAN: FIN0476SA

U.S. EPA ID: IND980904379

TDD: F05-8611-149



DATE: > 4-20-88 TIME: > 1120 DIRECTION OF PHOTOGRAPH: > W PHOTOGRAPHED BY: > Steve Anderson

WEATHER CONDITIONS: > partly cloudy, ~60° F SAMPLE ID (if applicable): > none

DESCRIPTION: > Panoramic view of Beck's Lake photographed from Linden Avenue

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Beck's Lake Site PAGE 9 OF 9

U.S. EPA ID: IND980904379 TDD: F05-8011-149 PAN: FIN0476SA

DATE: > 4-20-88

TIME: > 1120

DIRECTION OF PHOTOGRAPH: > W

WEATHER CONDITIONS: > partly cloudy > ~60°F

PHOTOGRAPHED BY: > Steve Anderson

SAMPLE ID (if applicable): > none

DESCRIPTION: > Beck's Lake and hill photographed > from Linden Avenue.

DATE: > 4-20-88

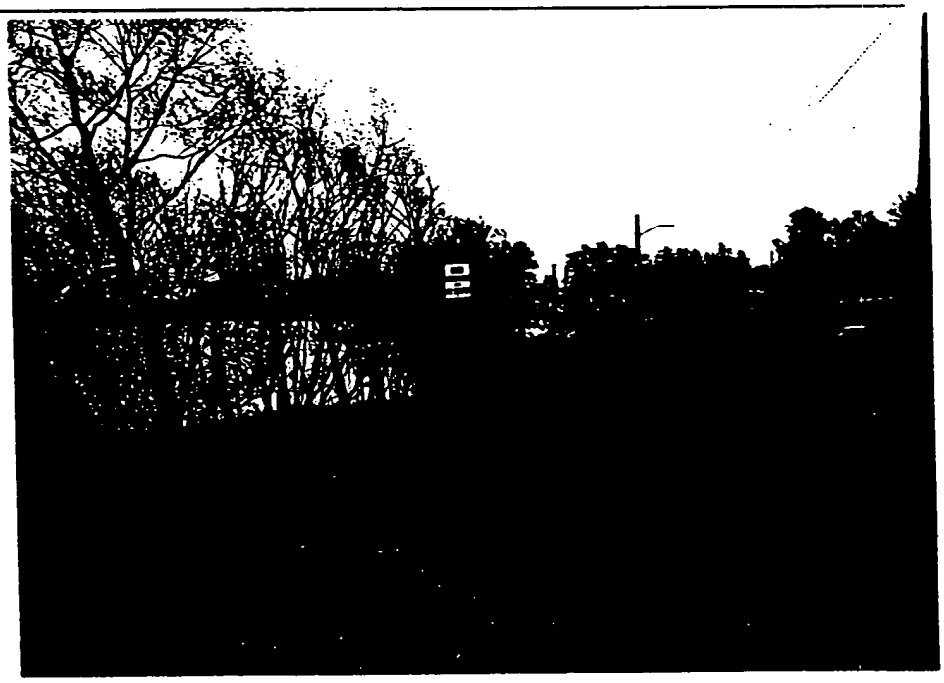
TIME: > unk

DIRECTION OF PHOTOGRAPH: > E

WEATHER CONDITIONS: > partly Cloudy > ~60°F

PHOTOGRAPHED BY: > Steve Anderson

SAMPLE ID (if applicable): > none



DESCRIPTION: > Photograph of "No swimming or ice > skating" sign posted on southern edge of Beck's Lake.

Contract Laboratory Program
Target Compound List
Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
Chloromethane	74-87-3	10 ug/L	10 ug/Kg
Bromomethane	74-83-9	10	10
Vinyl chloride	75-01-4	10	10
Chloroethane	75-00-3	10	10
Methylene chloride	75-09-2	5	5
Acetone	67-64-1	10	5
Carbon disulfide	75-15-0	5	5
1,1-dichloroethene	75-35-4	5	5
1,1-dichloroethane	75-34-3	5	5
1,2-dichloroethene (total)	540-59-0	5	5
Chloroform	67-66-3	5	5
1,2-dichloroethane	107-06-2	5	5
2-butanone (MEK)	78-93-3	10	10
1,1,1-trichloroethane	71-55-6	5	5
Carbon tetrachloride	56-23-5	5	5
Vinyl acetate	108-05-4	10	10
Bromodichloromethane	75-27-4	5	5
1,2-dichloropropane	78-87-5	5	5
cis-1,3-dichloropropene	10061-01-5	5	5
Trichloroethene	79-01-6	5	5
Dibromochloromethane	124-48-1	5	5
1,1,2-trichloroethane	79-00-5	5	5
Benzene	71-43-2	5	5
Trans-1,3-dichloropropene	10061-02-6	5	5
Bromoform	75-25-2	5	5
4-Methyl-2-pentanone	108-10-1	10	10
2-Hexanone	591-78-6	10	10
Tetrachloroethene	127-18-4	5	5
Tolene	108-88-3	5	5
1,1,2,2-tetrachloroethane	79-34-5	5	5
Chlorobenzene	108-90-7	5	5
Ethyl benzene	100-41-4	5	5
Styrene	100-42-5	5	5
Xylenes (total)	1330-20-7	5	5

Contract Laboratory Program
Target Compound List
Semivolatiles Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
Phenol	108-95-2	10 ug/L	330 ug/Kg
bis(2-Chloroethyl) ether	111-44-4	10	330
2-Chlorophenol	95-57-8	10	330
1,3-Dichlorobenzene	541-73-1	10	330
1,4-Dichlorobenzene	106-46-7	10	330
Benzyl Alcohol	100-51-6	10	330
1,2-Dichlorobenzene	95-50-1	10	330
2-Methylphenol	95-48-7	10	330
bis(2-Chloroisopropyl) ether	108-60-1	10	330
4-Methylphenol	106-44-5	10	330
N-Nitroso-di-n-dipropylamine	621-64-7	10	330
Hexachloroethane	67-72-1	10	330
Nitrobenzene	98-95-3	10	330
Isophorone	78-59-1	10	330
2-Nitrophenol	88-75-5	10	330
2,4-Dimethylphenol	105-67-9	10	330
Benzoic Acid	65-85-0	50	1600
bis(2-Chloroethoxy) methane	111-91-1	10	330
2,4-Dichlorophenol	120-83-2	10	330
1,2,4-Trichlorobenzene	120-82-1	10	330
Naphthalene	91-20-3	10	330
4-Chloroaniline	106-47-8	10	330
Hexachlorobutadiene	87-68-3	10	300
4-Chloro-3-methylphenol	59-50-7	10	330
2-Methylnaphthalene	91-57-6	10	330
Hexachlorocyclopentadiene	77-47-4	10	330
2,4,6-Trichlorophenol	88-06-2	10	330
2,4,5-Trichlorophenol	95-95-4	50	1600
2-Chloronaphthalene	91-58-7	10	330
2-Nitroaniline	88-74-4	50	1600
Dimethylphthalate	131-11-3	10	330
Acenaphthylene	208-96-8	10	330
2,6-Dinitrotoluene	606-20-2	10	330
3-Nitroaniline	99-09-2	50	1600
Acenaphthene	83-32-9	10	330
2,4-Dinitrophenol	51-28-5	50	1600
4-Nitrophenol	100-02-7	50	1600
Dibenzofuran	132-64-9	10	330
2,4-Dinitrotoluene	121-14-2	10	330
Diethylphthalate	84-66-2	10	330
4-Chlorophenyl-phenyl ether	7005-72-3	10	330

Contract Laboratory Program
Target Compound List
Semivolatiles Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SLUDGE SEDIMENT
Fluorene	86-73-7	10 ug/L	330 ug/Kg
4-Nitroaniline	100-01-6	50	1600
4,6-Dinitro-2-methylphenol	534-52-1	50	1600
N-nitrosodiphenylamine	86-30-6	10	330
4-Bromophenyl-phenylether	101-55-3	10	330
Hexachlorobenzene	118-74-1	10	330
Pentachlorophenol	87-86-5	50	1600
Phenanthrene	85-01-8	10	330
Anthracene	120-12-7	10	330
Di-n-butylphthalate	84-74-2	10	330
Fluoranthene	206-44-0	10	330
Pyrene	129-00-0	10	330
Butylbenzylphthalate	85-68-7	10	330
3,3'-Dichlorobenzidine	91-94-1	20	660
Benzo(a)anthracene	56-55-3	10	330
Chrysene	218-01-9	10	330
bis(2-Ethylhexyl)phthalate	117-81-7	10	330
Di-n-octylphthalate	117-84-0	10	330
Benzo(b)fluoranthene	205-99-2	10	330
Benzo(k)fluoranthene	207-08-9	10	330
Benzo(a)pyrene	50-32-8	10	330
Indeno(1,2,3-cd)pyrene	193-39-5	10	330
Dibenz(a,h)anthracene	53-70-3	10	330
Benzo(g,h,i)perylene	191-24-2	10	330

Contract Laboratory Program
Target Compound List
Pesticide and PCB Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
alpha-BHC	319-84-6	0.05 ug/L	8 ug/Kg
beta-BHC	319-85-7	0.05	8
delta-BHC	319-86-8	0.05	8
gamma-BHC (Lindane)	58-89-9	0.05	8
Heptachlor	76-44-8	0.05	8
Aldrin	309-00-2	0.05	8
Heptachlor epoxide	1024-57-3	0.05	8
Endosulfan I	959-98-8	0.05	8
Dieldrin	60-57-1	0.10	16
4,4'-DDE	72-55-9	0.10	16
Endrin	72-20-8	0.10	16
Endosulfan II	33213-65-9	0.10	16
4,4'-DDD	72-54-8	0.10	16
Endosulfan sulfate	1031-07-8	0.10	16
4,4'-DDT	50-29-3	0.10	16
Methoxychlor (Mariate)	72-43-5	0.5	80
Endrin ketone	53494-70-5	0.10	16
alpha-Chlordane	5103-71-9	0.5	80
gamma-chlordane	5103-74-2	0.5	80
Toxaphene	8001-35-2	1.0	160
AROCLOR-1016	12674-11-2	0.5	80
AROCLOR-1221	11104-28-2	0.5	80
AROCLOR-1232	11141-16-5	0.5	80
AROCLOR-1242	53469-21-9	0.5	80
AROCLOR-1248	12672-29-6	0.5	80
AROCLOR-1254	11097-69-1	1.0	160
AROCLOR-1260	11096-82-5	1.0	160

Contract Laboratory Program
Target Analyte List
Inorganic Quantitation Limits

COMPOUND	PROCEDURE	SOIL WATER	SEDIMENT SLUDGE
Aluminum	ICP	200 ug/L	40 mg/Kg
Antimony	Furnace	60	2.4
Arsenic	Furnace	10	2
Barium	ICP	200	40
Beryllium	ICP	5	1
Cadmium	ICP	5	1
Calcium	ICP	5000	1000
Chromium	ICP	10	2
Cobalt	ICP	50	10
Copper	ICP	25	5
Iron	Icp	100	20
Lead	Furnace	5	1
Magnesium	ICP	5000	1000
Manganese	ICP	15	3
Mercury	Cold Vapor	0.2	0.008
Nickel	ICP	40	8
Potassium	ICP	5000	1000
Selenium	Furnace	5	1
Silver	ICP	10	2
Sodium	ICP	5000	1000
Thallium	Furnace	10	2
Vanadium	ICP	50	10
Zinc	ICP	20	4
Cyanide	Color	10	2

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

CRL Receipt Date 5/25/88 FIT Receipt Date 6/13/88 Review Completed 6/16/88

TO: S. ANDERSON
FROM: Mary Gzyra
SUBJECT: BECKS LAKE
PAN: IN0476SA (1 hour charged for review) Case # 9411

Sample Description

Organics (VOA, ABN, Pest/PCB)		Inorganics (Metals, Cyanide)	
#	Low Soil	# 5	Low Soil
	Low Water		Low Water
	Drinking Water		Drinking Water
	Other		Other

Project Data Status _____ Completed!!

✓ Incomplete, awaiting low poli org.

FIT Data Review Findings:
As, Cd, Cr, Pb detected in all samples.
Hg detected in MEX 162, 164/165, 166.

Check Data Sheets for Transcription Errors

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

Book No. 8 Page No. 24-26 Date Sampled 4/20/88

0759:2

recycled paper

6/13/88

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 6.9.88 RVP

SUBJECT: Review of Region V CLP Data Received for Review on 5-25-88

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

TO: Data User: FIT

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

SITE NAME: Becks Lake (IN)

SMO Case No. 9411

D.U./Activity Numbers Y905/C721ZZ

EPA Data Set No. SF 5087

No. of Samples: 5

CRL No. 88FA18S85 - S89

SMO Traffic No. MEX162-166

Hrs. Required for Review: 4.5 +

CLP Laboratory: PBS & J

Following are our findings:

The laboratory's portion of this case included 5 low level soil samples analyzed for total metals and total cyanide.

The % RPDs on duplicates for Pb(23%), Cr(24%) and Zn(21%) are acceptable for soils(35%).

All Hg and CN data are acceptable.

Reviewed By: Duane Kruse
Date: 6/2/88

D Kruse

The qualifier * does not affect the data. M. [illegible]

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

a Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
Petty, Chief Quality Assurance Research, EMSL, Las Vegas

EPA FORM [illegible] (RE)

Table 4- Cont.

BECKS LAKE CASE # 9411

Sample Collection Information and Parameters	Sample Number											
	>_1	>_2	>_3	>_4	>_5	>_6	>_7	>_8	>_9	>_10	>_11	>_12
Pesticides/PCBs Cont.												
Aroclor 1232												
Aroclor 1242												
Aroclor 1248												
Aroclor 1254												
Aroclor 1260												
Analyte Detected (values in mg/ [ppm])	MEX 162	163	164	165	166							
aluzinum	3560	1010	8780	7010	4410							
antimony												
arsenic	8.5	3.7	17	20	9							
barium	185	[18]	225	213	96							
beryllium												
cadmium	4.4	[1]	6	6.6	2.2							
calcium	29600	2710	126000	59500	11100							
chromium	12 *	4 *	22 *	34 *	14 *							
cobalt	[1]			[67]	[43]							
copper	79	19	55	80	37							
iron	19300	4920	36300	29700	16410							
lead	267 *	36 *	321 *	634 *	82 *							
magnesium	4460	13700	9380	9120	1300							
manganese	466	120	957	714	360							
mercury	0.12		0.40	690	0.12							
nickel	12		[11]	[22]	12							
potassium	[340]	[162]	[667]	[719]	[449]							
selenium	2.7 S+		39 S+		1.9							
silver												
sodium												
thallium												
vanadium	13		[26]	[26]	13							
zinc	324 *	77 *	290 *	523 *	101 *							
cyanide												

-- Not detected.

The qualifier * does not affect the data for Cr, Pb, Zn.

M. Dyffer

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

ANALYTE FOOTNOTES		DEFINITION	INTERPRETATION
OLD	NEW		
E	E	Estimated or not reported due to inteference. See laboratory narrative.	Compound or element was not detected or value may be semi-quantitative.
S	S	Analysis by Method of Standard Additions.	Value may be quantitative.
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.
A	*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be semi-quantitative.
+	+	Correlation coefficient for standard additions in less than 0.995. See review and laboratory narrative.	Data value may be biased.
[ ]	B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
UJ		DL is estimated because of a QC protocol. DL is possibly above or below CRDL.	Compound or element was not detected.
J		Value is above CRDL and is an estimated value because of a QC Protocol.	Value may be semi-quantitative.
U	U	Compound was analyzed for but not detected.	Compound was not detected.
	M	Duplicate injection precision not met.	Value may be semi-quantitative.
	W	Post digestion spike for furnance AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semi-quantitative.
NA		Value not available due to insufficient data.	
NR		Value not recommended to be calculated, since chemical has proven to be a human carcinogen.	
( )		Estimated value.	

Source: Ecology and Environment, Inc. 1988.

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

EPA Sample No. MEX 162

Date 5/19/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME PBS&J

SOW NO. 7/85

LAB SAMPLE ID. NO. 8804124-01

CASE NO. 9411

Lab Receipt Date 4/21/88

QC REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	3560	P	13.	Magnesium	4460	P
2.	Antimony	8.6u	P	14.	Manganese	466	P
3.	Arsenic	8.5	F	15.	Mercury	0.12	CV
4.	Barium	185	P	16.	Nickel	12	P
5.	Beryllium	0.2u	P	17.	Potassium	[340]	A
6.	Cadmium	4.4	P	18.	Selenium	2.7ut	F
7.	Calcium	29600	P	19.	Silver	2.4u	F
8.	Chromium	12 * ~~EOX~~ OX	P	20.	Sodium	347u	P
9.	Cobalt	L[6.1]	P	21.	Thallium	2.4u	F
10.	Copper	79 ~~EOX~~ OX	P	22.	Vanadium	13	P
11.	Iron	19300	P	23.	Zinc	324 *	P
12.	Lead	267 *	P		Precent Solids (%)	81.8	

Cyanide 0.6u

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

Comments: Black, medium

The qualifier * does not affect the data for Cr, Pb, & Zn in all 5 samples.
M. [illegible]

Lab Manager [illegible]

IFB Amend. One

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

EPA Sample No.
MEX 163

Date 5/19/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME PBS&J
SOW NO. 7/85
LAB SAMPLE ID. NO. 8804124-02

CASE NO. 9411
Lab Receipt Date 4/21/88
QC REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or ~~mg~~/kg dry weight (Circle One)

1.	Aluminum	1010	P	13.	Magnesium	13700	P
2.	Antimony	11u	P	14.	Manganese	120	P
3.	Arsenic	3.7	F	15.	Mercury	0.2u	CV
4.	Barium	[18]	P	16.	Nickel	5.4u	P
5.	Beryllium	0.3u	P	17.	Potassium	[162]	A
6.	Cadmium	[1.0]	P	18.	Selenium	1.5u	F
7.	Calcium	27100	P	19.	Silver	3.0u	F
8.	Chromium	4.0 * ~~E~~ OK	P	20.	Sodium	427u	P
9.	Cobalt	2.5u	P	21.	Thallium	3.0u	F
10.	Copper	19 ~~E~~ OK	P	22.	Vanadium	5.1u	P
11.	Iron	4920	P	23.	Zinc	79 *	P
12.	Lead	36 *	P		Percent Solids (%)	66.5	

Cyanide 0.8u

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

Comments: Black, medium

Lab Manager [signature]

IFB Amend. One

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

EPA Sample No. MEX 164

Date 5/19/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME PBS&J

CASE NO. 9411

SOW NO. 7/85

Lab Receipt Date 4/21/88

LAB SAMPLE ID. NO. 8804124-03

QC REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	8780	P	13.	Magnesium	9580	P
2.	Antimony	20u	P	14.	Manganese	957	P
3.	Arsenic	17.8	F	15.	Mercury	0.40	CV
4.	Barium	225	P	16.	Nickel	[18]	P
5.	Beryllium	0.6u	P	17.	Potassium	[567]	A
6.	Cadmium	6.0	P	18.	Selenium	3.95+	F
7.	Calcium	126000	P	19.	Silver	5.8u	F
8.	Chromium	22 * ~~E DX~~ DX	P	20.	Sodium	830u	P
9.	Cobalt	4.9u	P	21.	Thallium	5.8u	F
10.	Copper	55 ~~E DX~~ DX	P	22.	Vanadium	[26]	P
11.	Iron	36300	P	23.	Zinc	290 *	P
12.	Lead	321 *	P		Precent Solids (%)	34.2	

Cyanide 1.5u

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

Comments: Black, fine

Lab Manager KA Kunihiro

IFB Amend. One

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

EPA Sample No. MEX 165

Date 5/19/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME PBS&J

CASE NO. 9411

SOW NO. 7/85

Lab Receipt Date 4/21/88

LAB SAMPLE ID. NO. 8804124-04

QC REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	7010	P	13.	Magnesium	9120	P
2.	Antimony	26u	P	14.	Manganese	714	P
3.	Arsenic	20	F	15.	Mercury	0.90	CV
4.	Barium	213	P	16.	Nickel	[22]	P
5.	Beryllium	0.7u	P	17.	Potassium	[719]	A
6.	Cadmium	6.6	P	18.	Selenium	19u	F
7.	Calcium	59500	P	19.	Silver	7.4u	F
8.	Chromium	34* ~~E 0X~~	P	20.	Sodium	1050u	P
9.	Cobalt	[6.7]	P	21.	Thallium	7.4u	F
10.	Copper	80 ~~E 0X~~	P	22.	Vanadium	[26]	P
11.	Iron	29700	P	23.	Zinc	523*	P
12.	Lead	634*	P		Precent Solids (%)	27.0	
	Cyanide	1.9u					

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

Comments: Black, fine
Se sample is diluted by a factor of 5.

Lab Manager KA Kunihiro

IFB Amend. One

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

EPA Sample No. MEX 166

Date 5/19/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME PBS&J

SOW NO. 7/85

LAB SAMPLE ID. NO. 8804124-05

CASE NO. 9411

Lab Receipt Date 4/21/88

QC REPORT NO. 1

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One.)

1.	Aluminum	4410	P	13.	Magnesium	1300	P
2.	Antimony	8.7u	P	14.	Manganese	360	P
3.	Arsenic	9.0	F	15.	Mercury	0.12	CV
4.	Barium	96	P	16.	Nickel	12	P
5.	Beryllium	0.2u	P	17.	Potassium	[449]	A
6.	Cadmium	2.2	P	18.	Selenium	1.9 S	F
7.	Calcium	11000	P	19.	Silver	12u	F
8.	Chromium	14 *	~~E OX~~ OX P	20.	Sodium	352u	P
9.	Cobalt	[4.3]	P	21.	Thallium	2.5u	F
10.	Copper	37	~~E OX~~ OX P	22.	Vanadium	13	P
11.	Iron	10400	P	23.	Zinc	101 *	P
12.	Lead	82 *	P		Precent Solids (%)	80.6	

Cyanide 0.6u

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

Comments: Black, fine
Ag sample is diluted by a factor of 5 [illegible] 5/15/88

Lab Manager: KA Kunihiro

IFB Amend. One

QC EXCEPTION SUMMARY REPORT

CASE # 5477
DATA SET # SF 5087
LAB Q.C.#
DATE: 6/1/86

SITE Berkeley
LAB PBS & J
REVIEWED BY D. Krause

MATRIX: Solid
CONC. : low
MATRIX :
CONC. :

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

	OVERALL CASE QC									MATRIX SPECIFIC QC						SAMPLE SPECIFIC QC		FIELD QC			REGIONAL QC			OTHER/ COMMENTS
	Holding Time	Cal Blanks	Init Calver	Contin Calver	Prep Blk AQ	Prep Blk SOL	ICS %R	LCS % AQ	LCS % SOL	Sol Dup RPD	Sol Spk %R	AQ Dup RPD	AQ Spk %R	Ser Dilu AQ	Ser Dilu SOL	GFAA Dup	GFAA Spike	Blank	Dup RPD	Spike %R	Blind Blank	Blind Spike %R	Split Sample RPD	
Aluminum																								
Antimony																								
Arsenic																								
Barium																								
Beryllium																								
Cadmium																								
Calcium																								
Chromium									OK	24					~~125~~									
Cobalt																								
Copper															~~125~~									
Iron																								
Lead									OK	23														
Magnesium																								
Manganese																								
Mercury																								
Nickel																								
Potassium																								
Selenium																								
Silver																								
Sodium																								
Thallium																								
Tin																								
Vanadium																								
Zinc									OK	21														
Cyanide																								

No field Dups or BLKs

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

5087

Date 5/19/88

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

Lab Name PBS&J

Case No. 9411

SOW No. 7/85

Q.C. Report No. 1

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MEX 162	8804124-01		
MEX 163	8804124-02		
MEX 164	8804124-03		
MEX 165	8804124-04		
MEX 166	8804124-05		

RECEIVED
MAY 24 1988
U.S. EPA CENTRAL REGIONAL LAB

Comments:

ICP interelement and background corrections applied? Yes X No ____.

If yes, corrections applied before X or after ____ generation of raw data.

Footnotes:

NR - Not required by contract at this time

Form I:

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

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

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

S - Indicates value determined by Method of Standard Addition.

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

* - Indicates duplicate analysis is not within control limits.

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

W - Indicates duplicate injection results exceeded control limits.

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

Form 111a

Q. C. Report No. 1

BLANKS

LAB NAME PBS&J

DATE 5/19/88

CASE NO. 9411

UNITS ug/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank Matrix: 1	Matrix: LS 2
Metals:							
1. Aluminum	34u	34u	34u	34u	34u		6.8
2. Antimony	35u	35u	35u	35u	35u		7.0
3. Arsenic	8.0u	8.0u	8.0u	8.0u	8.0u		1.6
4. Barium	31u	31u	31u	31u	31u		6.2
5. Beryllium	1.0u	1.0u	1.0u	1.0u	1.0u		0.2
6. Cadmium	2.8u	2.8u	2.8u	2.8u	2.8u		0.6u
7. Calcium	749u	749u	749u	749u	749u		150
8. Chromium	4.5u	4.5u	4.5u	4.5u	4.5u		0.9
9. Cobalt	8.4u	8.4u	8.4u	8.4u	8.4u		1.7
10. Copper	12u	12u	12u	12u	12u		2.4
11. Iron	22u	22u	22u	22u	22u		4.4
12. Lead	10u	10u	10u	10u	10u		2.0
13. Magnesium	741u	741u	741u	741u	741u		148u
14. Manganese	4.0u	4.0u	4.0u	4.0u	4.0u		0.8
15. Mercury	0.1u	0.1u					0.05
16. Nickel	18u	18u	18u	18u	18u		3.6
17. Potassium	459u	459u					92
18. Selenium	3.1u	[3.6]	3.1u	[3.2]	[3.4]		0.6
19. Silver	1.0u	1.0u	1.0u	1.0u			0.2
20. Sodium	1420u	1420u	1420u	1420u	1420u		284
21. Thallium	3.0u	3.0u	3.0u				0.6
22. Vanadium	17u	17u	17u	17u	17u		3.4
23. Zinc	9.9u	9.9u	9.9u	9.9u	9.9u		2.0
Other:							
Cyanide	10u	10u					0.5

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

Form III b

Q. C. Report No. 1

BLANKS

LAB NAME: PBS&J

DATE: 5/19/88

CASE NO. 9411

UNITS: ug/L

Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank Matrix: 1	Matrix: 2
Metals:							
1. Aluminum		34U					
2. Antimony		35U					
3. Arsenic		8.0U					
4. Barium		3.1U					
5. Beryllium		1.0U	1.0U				
6. Cadmium		2.8U	2.8U				
7. Calcium		749U					
8. Chromium		4.5U	4.5U				
9. Cobalt		8.4U					
10. Copper		12U					
11. Iron		22U					
12. Lead		10U					
13. Magnesium		741U	741U				
14. Manganese		4.0U	4.0U				
15. Mercury							
16. Nickel		18U	18U				
17. Potassium							
18. Selenium		3.1U	[4.1]	3.1U			
19. Silver							
20. Sodium		1420U	1420U	1420U	1420U		
21. Thallium							
22. Vanadium		17U					
23. Zinc		9.9U	9.9U				
Other:							
Cyanide							

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

Form V a

Q. C. Report No. 1

SPIKE SAMPLE RECOVERY

LAB NAME PBS&J

DATE 5/19/88

CASE NO. 9411

EPA Sample No. MEX 163

Lab Sample ID No. 8804124-02

Units mg/kg

Matrix LS

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	75-125		NR		
2. Antimony	"	134	11u	150	89
3. Arsenic	"	17	3.7	12	111
4. Barium	"	602	18	602	97
5. Beryllium	"	15	0.3u	15	100
6. Cadmium	"	16	[1.0]	15	100
7. Calcium	"		NR		
8. Chromium	"	61	4.0	60	95
9. Cobalt	"	154	2.5u	150	103
10. Copper	"	87	19	75	91
11. Iron	"		NR		
12. Lead	"	179	36	150	95
13. Magnesium	"		NR		
14. Manganese	"	281	120	150	107
15. Mercury	"				
16. Nickel	"	157	5.4u	150	105
17. Potassium	"		NR		
18. Selenium	"	2.9	1.5u	3.0	97
19. Silver	"	2.6	3.0u	3.0	87
20. Sodium	"		NR		
21. Thallium	"	12	3.0u	15	80
22. Vanadium	"	152	5.1u	150	101
23. Zinc	"	196	79	150	78
Other:					
Cyanide	"				

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

"N" - out of control

"NR" - Not required

Comments:

Form V b

Q. C. Report No. 1

SPIKE SAMPLE RECOVERY

LAB NAME PBS&J

DATE 5/19/88

CASE NO. 9411

EPA Sample No. MEX 166

Lab Sample ID No. 8804124-05

Units mg/kg

Matrix LS

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	75-125		NR		
2. Antimony	-				
3. Arsenic	-				
4. Barium	-				
5. Beryllium	-				
6. Cadmium	-				
7. Calcium	-		NR		
8. Chromium	-				
9. Cobalt	-				
10. Copper	-				
11. Iron	-		NR		
12. Lead	-				
13. Magnesium	-		NR		
14. Manganese	-				
15. Mercury	-	0.8	0.1	0.6	117
16. Nickel	-				
17. Potassium	-		NR		
18. Selenium	-				
19. Silver	-				
20. Sodium	-		NR		
21. Thallium	-				
22. Vanadium	-				
23. Zinc	-				
Other:					
Cyanide	-	5.1	0.60	6.2	82

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

"N" - out of control

"NR" - Not required

Comments:

Form VI a

Q. C. Report No. 1

DUPLICATES

LAB NAME PBS&J

DATE 5/19/88

CASE NO. 9411

EPA Sample No. MEX 166

Lab Sample ID No. 8804124-a

Units mg/kg

Matrix LS

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum	±20%	3560	3790	6.3
2. Antimony	±7.0	7.0u	7.0u	NC
3. Arsenic	±2.0	7.3	7.6	4.0
4. Barium	±40	77	83	~~9.4~~ 7.5
5. Beryllium	±1.0	0.2u	0.2u	NC
6. Cadmium	±1.0	1.8	1.8	0.0
7. Calcium	±20%	8900	10100	13
8. Chromium	±20%	11*	14	24*
9. Cobalt	±10	[3.5]	[2.6] ~~[2.6]~~ ~~8.4u~~	NC
10. Copper	±20%	29	34	16
11. Iron	±20%	8400	8960	6.5
12. Lead	±20%	66	83	23*
13. Magnesium	±1000	1050	1130	7.3
14. Manganese	±20%	290	293	1.0
15. Mercury				
16. Nickel	±8.0	9.6	11	14
17. Potassium	±1000	[362]	[362]	NC
18. Selenium	±1.0	1.5s	2.4s	46
19. Silver	±10	10u	10u	NC
20. Sodium	±1000	284u	284u	NC
21. Thallium		2.0u	2.0u	NC
22. Vanadium	±10	10	10	0.0
23. Zinc	±20%	82*	101	21*
Other:				
Cyanide				

* Out of Control Ag sample, dup diluted by a factor of 5

[1] To be added at a later date.

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

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

Form VI b

Q. C. Report No. 1

DUPLICATES

LAB NAME PBS&J

DATE 5/19/88

CASE NO. 9411

EPA Sample No. MEX 162

Lab Sample ID No. 8804124-C

Units mg/kg

Matrix LS

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum				
2. Antimony				
3. Arsenic				
4. Barium				
5. Beryllium				
6. Cadmium				
7. Calcium				
8. Chromium				
9. Cobalt				
10. Copper				
11. Iron				
12. Lead				
13. Magnesium				
14. Manganese				
15. Mercury	±0.1	0.12	0.12	0.0
16. Nickel				
17. Potassium				
18. Selenium				
19. Silver		~~2.0~~ 5/5/88 MD		
20. Sodium				
21. Thallium				
22. Vanadium				
23. Zinc				
Other:				
Cyanide	~~±0.5~~ 0.5	0.5U	0.5U	NC

* Out of Control

[1] To be added at a later date.

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

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

FORMATTED

Q.C. Report No. 1

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME PBS&J CASE NO. 9411 DATE 5/19/88

LCS NO. 9411 ISI, ISF

Compound	Required Detection Limits (CRDL)-ug/l	Instrument Detection Limits (IDL)-ug/l ICP/AA ID/5000A TL200P	Instrument Detection Limits (IDL)-ug/l Furnace ID/PE3030F	Lab Control Sample ug/l, mg/kg (circle one) True	Found	%R
Metals:						
1. Aluminum	200	34P		1980	1880	95
2. Antimony	60	35P		1010	1040	103
3. Arsenic	10		8.0F	47	42	89
4. Barium	200	31P		1980	1960	99
5. Beryllium	5	1.0P		481	498	104
6. Cadmium	5	2.8P		489	498	102
7. Calcium	5000	749P		49800	49300	99
8. Chromium	10	4.5P		506	499	99
9. Cobalt	50	8.4P		474	506	107
10. Copper	25	12P		542	510	94
11. Iron	100	22P		1990	2000	101
12. Lead	5	10P		4510	4370	97
13. Magnesium	5000	741P		25000	24500	98
14. Manganese	15	4.0P		513	512	100
15. Mercury	0.2					
16. Nickel	40	18P		496	486	98
17. Potassium	5000	459A		50200	47100	94
18. Selenium	5		3.1F	104	104st	100
19. Silver	10					
20. Sodium	5000	1420P		50700	43700	86
21. Thallium	10					
22. Vanadium	50	17P		511	507	99
23. Zinc	20	9.9P		3100	2890 ~~2800~~ SHELL AND	93
Other:						
Cyanide	10	NR	NR	50	48	96

NR - Not required

COMPUTED

Q.C. Report No. 1

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME PGSSJ CASE NO. 9411 DATE 5/19/88

LCS NO. 9411 ISF

Compound	Required Detection Limits (CRDL)-ug/l	Instrument Detection Limits (IDL)-ug/l ICP/AA	Instrument Detection Limits (IDL)-ug/l Furnace	Lab Control Sample (ug/l, mg/kg) (Circle one) True	Found	%R
Metals:						
1. Aluminum	200					
2. Antimony	60					
3. Arsenic	10					
4. Barium	200					
5. Beryllium	5					
6. Cadmium	5					
7. Calcium	5000					
8. Chromium	10					
9. Cobalt	50					
10. Copper	25					
11. Iron	100					
12. Lead	5					
13. Magnesium	5000					
14. Manganese	15					
15. Mercury	0.2	0.1CV		NR	NR	NR
16. Nickel	40					
17. Potassium	5000					
18. Selenium	5					
19. Silver	10		1.0F	97.6	96.2	99
20. Sodium	5000					
21. Thallium	10		3.0F	97.3	92	95
22. Vanadium	50					
23. Zinc	20					
Other:						
Cyanide	10	NR	NR			

NR - Not required

February 2, 1989

MEMORANDUM

To: File

FROM: Dennis Palmer, Chemist/Analytical Support, E&E

In Re: Semivolatile (SVOA) analyses results for Beck's Lake Soil/Sediment Samples; SMO Case #9411

The surrogate recoveries of phenol-d^6 (S4) in the SVOA were observed to be slightly elevated for samples #'s EW942, EW943, EW944, and EW945. This event has no effect on the analyses results for the base neutral fractions of these samples. No qualifiers are necessary solely for the elevated results for a surrogate representative of the acid fraction.

Additionally the surrogate recoveries of ~~2 Fluor~~ 2-fluorobiphenyl (S2) is slightly ~~[illegible]~~ elevated for EW944, EW945, EW944 RE, and EW945 RE. As the reanalysis has a surrogate recovery for S2 at ~~[illegible]~~ the same level, a matrix effect problem is indicated. The other two base neutral surrogate representatives (S1 and S2) ~~[illegible]~~ remain well within limits. This analyst is of the opinion that no qualifiers are indicated for the SVOA analyses of this base neutral fraction solely for the elevated S2 result.

Dennis W Palmer

ecology and environment, inc.

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

CRL Receipt Date 5/26 FIT Receipt Date 6/28 Review Completed 7/5/88

TO: Steve Anderson

FROM: Zena Gold-Kaufman ZGK

SUBJECT: Becks Lake

PAN: 1N0476 (1 hour charged for review) Case # 9411

Sample Description

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

Project Data Status _____ Completed!!

_____ Incomplete, awaiting _____

FIT Data Review Findings:

Semi-volatiles were reanalyzed due to low surrogate recoveries. Lab feels this is a matrix effect.

PAHs detected; some pesticides

Check Data Sheets for Transcription Errors

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

Book No. 8 Page No. 25 Date Sampled 4/20

0759:2

recycled paper

[illegible] PROVIDED IN THE ATTACHED DATA SHEETS.

REPORTING UNITS

A. Organics

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

B. Metals

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

DEFINITION OF FOOTNOTES TO ANALYTICAL DATA

A. Organics

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

B. Metals

FOOTNOTE	DEFINITION	INTERPRETATION
NEW		
E	Estimated or not reported due to inteference. See laboratory narrative.	Compound or element was not detected or value may be semi-quantitative.
S	Analysis by Method of Standard Additions.	Value may be quantitative.
N	Spike recoveries outside QC protocols which indicates a possible matrix problem. Data may be biased high or low. See spike results and laboratory narrative.	Value may be quantitative or semi-quantitative.
*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be semi-quantitative.
+	Correlation coefficient for standard additions is less than 0.995. See review and laboratory narrative.	Data value may be biased.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
	DL is estimated because of a QC protocol. DL is possibly above or below CRDL.	Compound or element was not detected.
	Value is above CRDL and is an estimated value because of a QC Protocol.	Value may be semi-quantitative.
U	Compound was analyzed for but not detected.	Compound was not detected.
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

[illegible] Value not available due to insufficient data.
[illegible] Value not calculated since chemical is not a carcinogen.
[illegible] Estimated value.

6/28/88

86 pages

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 6/ -/88

SUBJECT: Review of Region V CLP Data
Received for Review on 5-26-88

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

TO: Data User: FIT

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

SITE NAME: BECKS LAKE (IN) SMO Case No. 9411

EPA Data Set No. SF 5087 No. of Samples: 5 D.U./Activity Numbers Y905/C721

CRL No. 88FA18585 - 589

SMO Traffic No. EW942 - 946

CLP Laboratory: CENREF Hrs. Required for Review: 11.5 hrs.

Following are our findings:

Five(5) low level soil samples labeled as above were submitted. All samples were analyzed for Volatiles, Semivolatiles, and Pesticides/PCB's. The review narrative with qualifications follows:

6/9/88
ESAT / Alston

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

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

Table 4-12

RESULTS OF CHEMICAL ANALYSIS OF FIT-COLLECTED SOIL SAMPLES

Physical State*	Waste Characteristics**	Category***	SI Memo	Sample Collection Information and Parameters	S2_1	S2_2	S2_3	S2_4	S2_5	2_6	2_7	2_8	2_9	2_10	2_11	2_12
				Date	4-20-88	4-20-88	4-20-88	4-20-88	4-20-88							
				Time	0820	0900	0950	1000	1022							
				Organic Traffic Report Number	EW942	EW943	EW944	EW945	EW946							
				Inorganic Traffic Report Number	MEX162	MEX163	MEX164	MEX165	MEX166							
				Temperature (°C)												
				Specific Conductivity (µmhos)	N/A	N/A	N/A	N/A	N/A							
				pH												
2070-13				Compound Detected (values in) µg/L or µg/kg)												
				Volatile Organics												
Gas	A,D,G,I	OCC	HH	chloroethane												
Gas	A,D,G,I	OCC	HH	bromoethane												
Gas	A,D,G,I	OCC	HH	vinyl chloride												
Gas	A,D,G,I	OCC	HH	chloroethane												
Liquid	A,D,H,I	SOL	HH,CLA	methylene chloride												
Liquid	E,H,I,A	SOL	E,CLA	acetone		310 B	1630 B	500 B	16 B							
Liquid	A,H,I	SOL	HH	carbon disulfide												
Liquid	A,D,G,I	SOL	HH	1,1-dichloroethene												
Liquid	A,D,H,G	SOL	HH	1,1-dichloroethane												
Liquid	A,D,G	SOL	HH	1,2-dichloroethene (total)												
Liquid	A,D	SOL	HH	chloroform												
Liquid	A,D,G	SOL	HH	1,2-dichloroethane												
Liquid	A,E,G	SOL	E,CLA	2-butanone (MEK) cab blk comp	38	23	180 B	210	10 J							
Liquid	A,D	SOL	HH	1,1,1-trichloroethane												
Liquid	A,D	SOL	HH	carbon tetrachloride												
Liquid	A,D,G	SOL	HTD	vinyl acetate												
Liquid	A,D	OCC	HH	bromodichloromethane												
Liquid	A,D,G	SOL	HH	1,2-dichloropropane												
Liquid	A,D,G	SOL	HH	cis-1,3-dichloropropene												
Liquid	A,D,G,B	SOL	HH	trichloroethene												
Liquid	A,D	OCC	HH	dibromochloromethane												
Liquid	A,D	SOL	HH	1,1,2-trichloroethane												
Liquid	A,G	SOL	A	benzene												
Liquid	A,D,G	SOL	HH	trans-1,3-dichloropropene												
Liquid	A,D	SOL	HH,CLA	bromoform												
Liquid	A,E,G	SOL	E,CLA	4-methyl-2-pentanone												
Liquid	A,E,G	SOL	E	2-hexanone												
Liquid	A,D	SOL	HH	tetrachloroethene												
Liquid	A,G,E	SOL	A,CLA	toluene	8				29							
Liquid	A,D,E	SOL	HH	1,1,2,2-tetrachloroethane												
Liquid	A,D,G	SOL	HA	chlorobenzene												
Liquid	A,G	SOL	A	ethylbenzene												
Liquid	A,D,G	OCC	A	styrene												
Liquid	A,G	SOL	A	xylenes (total)												

Table 4-> Cont.

2070-13 Physical State*	Waste CHARACTERISTICS	CATEGORY**	SI Memo	Sample Collection Information and Parameters	S>_1	S>_2	S>_3	S>_4	S>_5	>_6	>_7	>_8	>_9	>_10	>_11	>_12
				Semivolatile Organics												
S, thick liquid	A,B,C	OCC	P	phenol												
Liquid	A,D,B	OCC	HH	bis(2-chloroethyl)ether												
Liquid	A,D,B	OCC	P	2-chlorophenol												
Liquid	A,D,H	SOL	HA	1,3-dichlorobenzene												
Solid	A,D,H	OCC	HA	1,4-dichlorobenzene												
Liquid	A,E,H	SOL	A	benzyl alcohol												
Liquid	A,D,H	OCC	HA	1,2-dichlorobenzene												
Liquid	A,B	OCC	P	2-methylphenol												
	A,D	OCC	HH	bis(2-chloroisopropyl)ether												
Liquid	A,B	OCC	P	4-methylphenol												
	A	OCC	N-Amino	n-nitroso-di-n-dipropylamine												
Solid	A,D	OCC	HH	hexachloroethane												
Liquid	A,D	OCC	HA	nitrobenzene												
Liquid	A,D	OCC	H	isophorone												
Solid	A,D	OCC	P	2-nitrophenol												
Solid	A,B	OCC	P	2,4-dimethylphenol												
Solid	A	OCC	A	benzoic acid												
	A,D	OCC	HH	bis(2-chloroethoxy)methane												
Liquid	A,B	OCC	P	2,4-dichlorophenol												
Liquid	A,B	OCC	HA	1,2,4-trichlorobenzene												
Solid	A	OCC	PAH	naphthalene	100 J		260 J	610 J								
Solid	A,D	OCC	HH	4-chloroaniline												
Liquid	A,D,B	OCC	HH	hexachlorobutadiene												
Solid	A,D	OCC	P	4-chloro-3-methylphenol												
Liquid	A,B	OCC	PAH	2-methylnaphthalene	64 J		390 J									
Liquid	A,D,B	OCC	HH	hexachlorocyclopentadiene												
Solid	A,D	OCC	P	2,4,6-trichlorophenol												
Solid	A,B	OCC	P	2,4,5-trichlorophenol												
Liquid	A,D	OCC	PAH	2-chloronaphthalene												
Solid	A,D	OCC	HH	2-nitroaniline												
Liquid	A,D	OCC	PH,CLA	dimethylphthalate												
Solid	A,D	OCC	PAH	acenaphthylene												
Solid	A,D	OCC	HA	2,6-dinitrotoluene												
Solid	A,D	OCC	HH	3-nitroaniline												
Solid	A,D	OCC	PAH	acenaphthene	92 J		600 J	1700 J								
Solid	A,D,G	OCC	P	2,4-dinitrophenol												
Solid	A,D	OCC	P	4-nitrophenol												
Solid	A,D	OCC	A	dibenzofuran	61 J		290 J	760 J								
Solid	A,D	OCC	HA	2,4-dinitrotoluene												
Liquid	A,D	OCC	PH	diethylphthalate												
	A,D	OCC	HH	4-chlorophenyl-phenylether												
Solid	A,D	OCC	PAH	fluorene	99 J		590 J	1700 J								
Solid	A,B,E	OCC	HH	4-nitroaniline												
Solid	A,B	OCC	P	4,6-dinitro-2-methylphenol												
Solid	A,D	OCC	HH	N-nitrosodiphenylamine												
Liquid	A,D	OCC	HH	4-bromophenyl-phenylether												
Solid	A,D	OCC	HA	hexachlorobenzene												
Solid	A,D	OCC	P	pentachlorophenol												

Table 4-> Cont.

Physical State*	Waste Characteristics**	Category***	SI Memo	Sample Collection Information and Parameters	Sample Number ≥_1	≥_2	≥_3	≥_4	≥_5	≥_6	≥_7	≥_8	≥_9	≥_10	≥_11	≥_12
				Semivolatile Organics, Cont.												
Solid	A,D	OCC	PAH	anthracene	310 J		1400	4700	240 J							
Liquid	A,D	OCC	PH,CLA	di-n-butylphthalate	200 J											
Solid	A,D	OCC	PAH	fluoranthene	2100	220 J	10000	26000	1600							
Solid	A,D	OCC	PAH	pyrene	1600	220 J	8200	21000	1300							
Liquid	A,D	OCC	PH,CLA	butylbenzylphthalate												
	A,D	OCC	NA	3,3'-dichlorobenzidine												
Solid	A,D	OCC	PAH	benzo(a)anthracene	880	120 J	3100	9500	710							
Solid	A,D	OCC	PAH	chrysene	1100	220 J	4900	14000	930							
Liquid	A,D	OCC	PH,CLA	bis(2-ethylhexyl)phthalate												
Liquid	A,D	OCC	PH,CLA	di-n-octylphthalate												
Solid	A,D	OCC	PAH	benzo(b)fluoranthene	540		3100	7000	500							
Solid	A,D	OCC	PAH	benzo(k)fluoranthene	900		3600	11000	720							
Solid	A,D,E,L	OCC	PAH	benzo(a)pyrene	800		2100	8200	760							
Solid	A,D	OCC	PAH	indeno(1,2,3-cd)pyrene	440		2100	5700	530							
Solid	A,D	OCC	PAH	dibenzo(a,h)anthracene												
Solid	A,D	OCC	PAH	benzo(g,h,i)perylene	360 J		1900	4600	600							
				Pesticides/PCBs												
Solid	A,D	PSD	PEST	alpha BHC												
Solid	A,D	PSD	PEST	beta BHC												
Solid	A,D	PSD	PEST	delta BHC												
Solid	A,D	PSD	PEST	gamma BHC (Lindane)												
Solid	A,D	PSD	PEST	Heptachlor												
Solid	A,D	PSD	PEST	Aldrin												
Solid	A,D	PSD	PEST	Heptachlor epoxide												
Solid	A,D	PSD	PEST	Endosulfan I												
Solid	A,D,E	PSD	PEST	Dieldrin												
Solid	A,D	PSD	PEST	4,4'-DDE					44							
Solid	A,D	PSD	PEST	Endrin												
Solid	A,D	PSD	PEST	Endosulfan II												
Solid	A,D	PSD	PEST	4,4'-DDD				230 J								
Solid	A,D	PSD	PEST	Endosulfan sulfate												
Solid	A,D	PSD	PEST	4,4'-DDT					78							
Solid	A,D	PSD	PEST	Methoxychlor (Marlate)												
Solid	A,D	PSD	PEST	Endrin ketone												
Solid	A,D	PSD	PEST	alpha Chlordane												
Solid	A,D	PSD	PEST	gamma Chlordane												
Solid	A,D	PSD	PEST	Toxaphene												
Liquid	A,D	OCC	PCB	Aroclor 1016												
Liquid	A,D	OCC	PCB	Aroclor 1221												
Liquid	A,D	OCC	PCB	Aroclor 1232												
Liquid	A,D	OCC	PCB	Aroclor 1242												
Liquid	A,D	OCC	PCB	Aroclor 1248												
Liquid	A,D	OCC	PCB	Aroclor 1254												
Liquid	A,D	OCC	PCB	Aroclor 1260												

DATA QUALIFIERS

Contractor: Cenref

Case 9411

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

1) Holding Times

The criteria of 7 days from sample collection to extraction and/or analysis was employed. All samples in all three fractions met the criteria, except VOA fraction, EW1945RE. The reanalysis exceeded the criteria by 9 days. EW1945RE Form I should be qualified "Positive results estimated J" and "Quantitation limits estimated UJ"

2a) G.C./MS Tuning

Tunings for both BFB and DFTPP were acceptable without expanded criteria and within the QC limits.

2b) G.C. Instrument Performance

All criteria for the Pest fraction were within acceptable limits with respect to Rt, linearity, and degradation.

3) Calibration

The initial and continuing calibrations of the VOA and S.V. fractions were evaluated. Any outliers noted are recorded on the outlier form included with this narrative. Estimated positive results are flagged "J". Unusable non-detect results are flagged "R". The Pest calibration was acceptable with the %RSD within limits. The continuing calibration met the criteria.

4) Method Blanks

VOA - There were 3 blanks associated with the fraction. [illegible] contained [illegible] and [illegible] contained [illegible] [illegible] were [illegible] with [illegible] [illegible] the 10X. [illegible]

Reviewed by: [illegible]

Phone: [illegible]

Date: [illegible]

DATA QUALIFIERS

Contractor: Cenref

Case 9411

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

S.V. - There was 1 blank associated with the S.V. fraction. SBlk1 contained bis (2-ethylhexyl) phthalate and di-n-octylphthalate. All samples were evaluated using the 10X above blank level criteria. Results below the 10X level are flagged "U" on the sample Form I's. Pest. There was 1 blank associated with Pest fraction. PBlk1 did not contain any TCL compounds.

5) Surrogate Recoveries

VOA - Samples EW943, VBlk1, EW946, EW946MSD, EW942, EW945RE, VBlk3 had all 3 surrogates within QC limits. Samples EW944 had S1 with a high % recov.; EW945 - S1 high & S2 low; EW946-MS - S1 high; EW944RE S1 & S3 high; EW942RE S3 high. The re-analysis of samples produced similar results except for EW945. As the contractor narrative states there are severe problems with the matrix. All positive results should be estimated "J" and quantitation limits for negative results should be estimated "UJ" except in samples EW942, 943, 946.

S.V. - all samples except EW946, 946RE, & SBlk1 had surrogates out of criteria with high % recoveries. All positive results for the basic compounds should be estimated "J" and quantitation limits for negative results estimated "UJ," except sample EW946.

Pest. - all samples met the criteria.

Matrix Spike / Matrix Spike Duplicate -

VOA Sample EW946 was used. All compounds met the criteria except Toluene which had a high % recovery in the MS and 1,1-dichloroethene had a high % recovery in the MSD.

S.V. Sample EW942 was used. All compounds met the criteria except Acenaphthene and Pyrene had high % recoveries and high % RPDs in the MSD.

Pest. Sample EW942 was used. All compounds met the criteria except Heptachlor which had a high % RPD.

Reviewed by: [signature]

Phone: (312) 353-2947

Date: 1/6/88

DATA QUALIFIERS

Contractor: [illegible]

Case 9411

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

7) Field Duplicates - There were no field duplicates submitted.

8) Internal Standard Performance (IS)

Only the blanks had IS performance that was acceptable overall. VOA - The R+ met the criteria. The area counts were low in 23 of 30 sample results. Only EW943 was acceptable. All other samples should have the positive results estimated "J" and neg. quantitative results estimated UJ. S.V. - The R+ met the criteria and all samples had low area counts except SB1R1. All positive results should be estimated J and negative quantitative limits should be estimated "UJ".

9) Compound Identification

The TIC* and unknowns are noted on the Form I-TIC's. Compound identification was carried out properly and GC-MS results substantiate the compounds identified.

10) Compound Quantitation and Reported Detection Limits

The compound quantitative limits are reported on their respective Form I for all fractions. They should be qualified as indicated. The instrument detection limits were not submitted.

11) System Performance

[illegible] GC-MS [illegible]

Reviewed by: [illegible]

Phone: [illegible]

Date: [illegible]

DATA QUALIFIERS

Contractor: [illegible]

Case [illegible]

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

12) Spectra Problem

The SV [illegible] standards [illegible] in Form VI [illegible] the data [illegible] would not [illegible] affect [illegible] %RSD or RPF [illegible] with the [illegible] standards [illegible] [illegible]

[illegible] and noted problems will not affect [illegible] data.

Reviewed by: [illegible]

Phone: [illegible]

Date: [illegible]

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

CASE/SAS # [illegible]

CONTRACTOR [illegible]

Instrument # [illegible]	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	[illegible]			[illegible]	1301		[illegible]								
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane	[illegible]			[illegible]	[illegible]	J	[illegible]	[illegible]	J						
Bromomethane	[illegible]			[illegible]	[illegible]	J	[illegible]	[illegible]	J						
Vinyl Chloride															
Chloroethane	[illegible]						[illegible]	[illegible]	J						
Methylene Chloride	[illegible]						[illegible]	[illegible]	J						
Acetone	[illegible]			[illegible]	[illegible]	—	[illegible]	[illegible]	J						
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone	[illegible]	[illegible]	J	[illegible]	[illegible]	J									
1,2-Dichloroethane	[illegible]						[illegible]	[illegible]	J						
1,1,1-Trichloroethane	[illegible]						[illegible]	[illegible]	J						
Carbon Tetrachloride	[illegible]			[illegible]	[illegible]	J	[illegible]	[illegible]	J						
Vinyl Acetate	[illegible]	[illegible]	J	[illegible]	[illegible]	J	[illegible]	[illegible]	J						
Bromodichloromethane	[illegible]			[illegible]	[illegible]	J									
1,2-Dichloropropane															
Trans-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
cis-1,3-Dichloropropene	[illegible]			[illegible]	46.1	J	[illegible]	[illegible]	J						
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone	[illegible]			[illegible]	[illegible]	J	[illegible]	[illegible]	J						
2-Hexanone	[illegible]			[illegible]	[illegible]	J	[illegible]	[illegible]	J						
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
m-Xylene															
o/p-Xylene															

AFFECTED SAMPLES:

Reviewer's Initials/Date: [illegible]

* 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 # _____ CONTRACTOR _____

Instrument #	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:															
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane															
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride															
Acetone															
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone															
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:

Reviewer's Initials/Date: _____

* 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 # _____ CONTRACTOR _____

Instrument #	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:															
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene	.145	47.6													
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

Reviewer Initials/Date: _____

* 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 # _____ CONTRACTOR _____

Instrument #	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:															
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene															
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene															

SEE PAGE 1 FOR AFFECTED SAMPLES.

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

Reviewer's Initials/Date: _____

Case: 9411

Contractor: [illegible]

TENTATIVELY IDENTIFIED COMPOUNDS
MATCH ASSESSMENT

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

CRITERIA

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

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

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

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

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

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

695 North Seventh Street
Brighton, Colorado 80601-1559
Telephone 303 659-0497

Cenref Labs

Analytical Chemistry Laboratories

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REGIONAL LAB

May 24, 1988

Case Narrative

Case : 9411, ALL RAS
Region : V
SDG No. : EW942
Contract: 68-01-7465

Samples: EW942,EW942RE,EW943,EW944,EW944RE,EW945,EW945RE,EW946, EW946MS,EW946MSD--Low Level Soils for VOA analysis.

EW942,EW942MS,EW942MSD,EW943,EW943RE,EW944,EW944RE,EW945,EW945RE, EW946,EW946RE--Low Level Soils for BNA analysis.

EW942,EW942MS,EW942MSD,EW943,EW944,EW945,EW946--Low Level Soils for Pesticide analysis.

General

Five soil samples plus associated matrix spike samples were analyzed for full HSL compounds.

Sample Receiving/Chain of Custody

1. All samples were received in good condition April 21, 1988.
2. The Sample Tag Numbers were not listed on the Chain of Custody.
3. No airbill was received with the Case.

VOAs

1. All samples were extracted and analyzed within the holding time period.
2. All samples except EW943 needed reanalysis due to low Internal Standard Area recoveries. Sample EW946 was not reanalyzed since the spike and spike duplicate for this sample show the same low recoveries, indicating a matrix effect. All reanalyses show the same recovery problems, indicating a matrix effect.

VOAs

3. Samples EW944, EW945, EW944RE, and EW946MS all had surrogate recovery problems. This is probably directly related to the internal standard recovery problems.

4. The matrix spike recovery for Toluene was too high, and the matrix spike duplicate recovery for 1,1-Dichloroethene was too high. The RPD values and all other recoveries were inside the Q.C. Limits.

5. There are no Form1E pages on the diskette for the TIC compounds. This is due to an HP1000 software problem. We have been unable to create the "L" files needed to generate these forms on the diskette. These have been generated for the hardcopy.

6. The instrument identifier is incorrect on all the forms generated by the diskette. The dilution factor on all forms created by the diskette software are incorrect. These problems have been corrected on the hardcopy.

7. Several samples were flagged by the diskette software with "E", and "D". These flags are used to indicate values that are outside the linear range, thus indicating a dilution is required. These flags are incorrect.

8. The Hewlett-Packard data system does not report spectrum matches for TIC's when the probability of a match is less than one percent. All possible matches have been reported.

BNAs

1. All samples were extracted and analyzed within the holding time period.

2. All samples needed reanalysis due to low Internal Standard Area recoveries. The reanalyses were also low. We believe this was due to matrix effect as the Internal Standard Area recoveries for the Blank were fine. Also the sample extracts were extremely viscous.

3. The Phenol-d6 recovery for all samples was high. EW944,EW944RE,EW945,and EW945RE also had high recoveries for 2-Fluorobiphenyl. We believe this was due to matrix effect as the Blank had no surrogate recovery problems. All other surrogate recoveries were inside Q.C. Limits.

4. The amount of contamination in EW942MSD did not match the amount in EW942 or EW942MS. The spike recoveries of Acenaphthene and Pyrene in EW942MSD were high and the RPDs for these two compounds were also high. All other spike recoveries and RPDs were inside Q.C. Limits.

5. EW945 has several compounds present above the calibraton range. EW945RE was run at a dilution. EW942MSD also has several compounds present above the calibration range.

6. The Public Domain Software used to create the diskette flagged all the detected compounds with an "E". This is due to a bug in the software, and has been corrected on the hardcopy.

7. There are no FormIF pages on the diskette for the TIC compounds. This is due to a software problem on the HP1000 computer. We have been unable to generate the "L" files needed to create these forms on the diskette. These have been generated for the hardcopy.

8. The Hewlett-Packard data system does not report spectrum matches for TIC's when the probability of a match is less than one percent. All possible matches have been reported.

Pesticides

1. All samples were extracted and analyzed within the holding time period.

2. All surrogate recoveries were inside Q.C. Limits.

3. All spike recoveries were inside the Q.C. Limits. The RPD value for Heptachlor was too high. All other RPD values were within the Q.C. Limits.

4. The pesticides detected were too low to detect by GC/MS.

5. 4,4'-DDD was identified in sample EW945. 4,4'-DDD and 4,4'-DDT were identified in sample EW946. These compounds were outside the retention time windows on the primary column. In the opinion of our pesticide specialist, these compounds are actually present.

6. Some of the compounds in one of the EVALB, EW942MS, and EW942MSD are outside of the retention time windows.

7. There are several problems with the diskette. The detection limits are incorrect for the spike samples. The diskette has flagged EVALA with a "W", indicating a bad retention time window. The lab sample ID for the blank is missing. The sample weight is rounded to 2 digits. All the sample quantitations are incorrect. The intermediate continuing INDA and INDB are missing on the diskette, because the the last INDA and INDB overwrite them. The quantitations on the spike recovery form (Form 3) are not rounded at all. These problems have been corrected on the hard copy.

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

Karen Kuoppala (5-24-88)

Karen Kuoppala, Organic Section Supervisor

Optional Flags used for Reporting GC/MS Data

A - Aldol condensation product. This flag is used for tentatively identified compounds in soil samples when the compound is suspected aldol condensation byproduct of the extraction technique.

M - Analyte has not met the identification criteria but, in the opinion of the Mass Spectral Interpretation Specialist, the identification is correct.

This flag is used when the mass spectrum of the target analyte does not meet all of the criteria in the contract Task III, but the Mass Spectral Interpretation Specialist feels that the compound is actually present.

Sp- Spike compound.

This flag is used for Matrix Spike results to indicate that the compound was spiked into the sample before analysis.

DL- Diluted

This flag is used for samples analyzed at a secondary dilution.

E- Exceeds calibration range

This flag is used to flag compounds that are present outside the linear calibration range.

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

CASE NO: 9411 | SAS NO: (IF APPLICABLE)

ORGANIC TRAFFIC REPORT
(FOR CLP USE ONLY)

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

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

REGION NO: V
SAMPLING COMPANY ②: FII
SAMPLER: (NAME) Gordon Ferguson

SHIP TO: ③
Cenref Labs
695 North Seventh Street
Brighton CO 80601
ATTN: Kami Gelek

SAMPLING DATE: ④
BEGIN: 4/2/88 END: 4/2/88

DATE SHIPPED: 4/2/88 CARRIER: F ⑤
AIRBILL NO: 5768192684

DATE REC'D: 4/2/88 SDG NO: EW942 ⑥
REC'D BY: [illegible] $579.00
LABORATORY CONTRACT NO. UNIT PRICE
68-01-7465

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

Shipment is complete

CLP SAMPLE NUMBER (FROM LABELS)	SAMPLE DESCRIPTION (FROM BOX 1) Ⓐ 1 2 3 4 5 6 7	CONCENTRATION Ⓑ L = LOW/MED. H = HIGH (SAS)	RAS ANALYSIS Ⓒ VOLATILE	BASE/NEUT /ACID	PESTICIDE /PCB's		SPECIAL HANDLING Ⓓ	STATION LOCATION Ⓔ	SAMPLE CONDITION ON RECEIPT Ⓕ	HIGH CONC. PHASES (CHECK) Ⓖ SOLID	WATER—MIS LIQUID	NON WATER—MIS LIQUID
EW942	4	L	✓	✓	✓			S-1	Good Condition			
EW943	5	L	✓	✓	✓			S-2	↓			
EW944	5	L	✓	✓	✓			S-3	↓			
EW945	5	L	✓	✓	✓			S-4	↓			
EW946	4	L	✓	✓	✓			S-5	↓			

CENTRAL REGIONAL LABORATORY SAMPLE DATA ...

ORGANICS/INORGANICS

DUE DATE: 6/29/88

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

PERFUND 5087

CASE NUMBER/SAS No. 9411 SITE NAME Becks Lake LABORATORY CenRef / PBS&J DATE SHIPPED 4/20/88

SUPERFUND DU NUMBER Y905 EPA RPM or OSC (S.M.S.)/(CES) CERCLIS NUMBER IND980904379 PAGE 1 OF 1

ACTIVITY NUMBER C72100

CRL LOG NUMBER	ORGANIC TRAFFIC REPORT NUMBER or SAS Packing List No.	INORGANIC TRAFFIC REPORT NUMBER	WATER OR LIQUIDS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN UG/L TOX17574	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN UG/L TOX17564	WATER POLYCHLORINATED BIPHENYLS UG/L PES 17144	WATER CHLORINATED PESTICIDES UG/L PES17134	TOTAL METALS IN WATER UG/L MET111	WATER CYANIDE UG/L MIN74919	NITRATE/NITRITE MG/L MIN7284	AMMONIA MG/L MIN7294	RESIDUE, FILTERABLE TDS MG/L MIN7362	RESIDUE, NON-FILT TSS MG/L MIN7372	SEDIMENTS or SOILS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN MG/KG TOX215722	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN MG/KG TOX215622	SEDIMENTS POLYCHLORINATED BIPHENYLS MG/KG PES211422	SEDIMENT CHLORINATED PESTICIDES MG/KG 211322	TOTAL METALS MG/KG MET413	CYANIDE MG/KG MIN44930	EP TOXICITY METALS MG/KG	AMMONIA MG/KG MIN42925
88FA18585	EW942	MEX162	•										✓	✓	✓	✓	✓	✓		
88FA18586	EW943	MEX163	•										✓	✓	✓	✓	✓	✓		
88FA18587	EW944	MEX164	•										✓	✓	✓	✓	✓	✓		
88FA18588	EW945	MEX165	•										✓	✓	✓	✓	✓	✓		
88FA18587	EW946	MEX166	•										✓	✓	✓	✓	✓	✓		
	IP	cor	data																	

2B

SOIL VOLATILE SURROGATE RECOVERY

006

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
1	VBLK1	99	97	97		0
2	EW943	109	90	99		0
3	EW944	137 *	76	102		1
4	EW945	124 *	70 *	102		2
5	EW946	115	84	102		0
6	EW946MS	117 *	77	99		1
7	EW946MSD	115	79	100		0
8	EW942	114	88	102		0
9	VBLK2	104	102	112		0
10	EW944 RE	130 *	86	128 *		2
11	EW942 RE	115	103	136 *		1
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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

OC 5/8/88 FIC

FORM II VOA-2

1/87 Rev.

2B

SOIL VOLATILE SURROGATE RECOVERY

007

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
1	VBLK3	100	104	99		0
2	EW945 RE	113	90	107		0
3						
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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

OK 7/8/88 KK

FORM II VOA-2 1/87 Rev.

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	OTHER	TOT OUT
1	SBLK1	72	71	80	91	52	56		0
2	EW942	102	110	85	122 *	83	66		1
3	EW945	92	120 *	78	129 *	67	75		2
4	EW943	97	111	86	127 *	64	73		1
5	EW944	112	130 *	84	130 *	87	74		2
6	EW942MSD	112	80	93	136 *	98	74		1
7	EW942MS	86	98	86	123 *	80	85		1
8	EW946	78	90	74	104	67	56		0
9	EW943 RE	95	111	83	121 *	62	62		1
10	EW944 RE	104	125 *	91	125 *	87	70		2
11	EW945 RE	93	121 *	86	134 *	88	65		2
12	EW946 RE	84	99	72	102	70	42		0
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		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(23-120)
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)
S3 (TPH)	= Terphenyl-d14	(18-137)
S4 (PHL)	= Phenol-d6	(24-113)
S5 (2FP)	= 2-Fluorophenol	(30-115)
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

OK 5/23/88 KC

2F

SOIL PESTICIDE SURROGATE RECOVERY

614

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (DBC)#	OTHER
1	PBLK1	93	
2	EW942	77	
3	EW942MS	81	
4	EW942MSD	104	
5	EW943	52	
6	EW944	79	
7	EW945	79	
8	EW946	83	
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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

OK
KL 5/20/88

FORM II PEST-2 1/87 Rev.

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

008

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix Spike - EPA Sample No.: EW946 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	62.	0.	101.	164.	59-172
Trichloroethene	62.	0.	46.	75.	62-137
Benzene	62.	0.	80.	129.	66-142
Toluene	62.	29.	119.	145. *	59-139
Chlorobenzene	62.	0.	57.	93.	60-133

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	62.	109.	177. *	8.	22	59-172
Trichloroethene	62.	51.	83.	10.	24	62-137
Benzene	62.	84.	137.	6.	21	66-142
Toluene	62.	109.	129.	12.	21	59-139
Chlorobenzene	62.	65.	105.	12.	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: 2 out of 10 outside limits

COMMENTS:

FORM III VOA-2

1/87 Rev.

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix Spike - EPA Sample No.: EW942 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC LIMITS REC.
Phenol	7953.	0.	5119.	64.	126- 90
2-Chlorophenol	7953.	0.	4331.	54.	125-102
1,4-Dichlorobenzene	3976.	0.	2589.	65.	128-104
N-Nitroso-di-n-prop.(1)	3976.	0.	3884.	98.	141-126
1,2,4-Trichlorobenzene	3976.	0.	3252.	82.	138-107
4-Chloro-3-methylphenol	7953.	0.	4622.	58.	126-103
Acenaphthene	3976.	98.	3825.	94.	131-137
4-Nitrophenol	7953.	0.	7674.	96.	111-114
2,4-Dinitrotoluene	3976.	0.	3052.	77.	128- 89
Pentachlorophenol	7953.	0.	2274.	29.	117-109
Pyrene	3976.	1570.	4726.	79.	135-142

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	7953.	5983.	75.	16.	35	126- 90
2-Chlorophenol	7953.	6488.	82.	40.	50	125-102
1,4-Dichlorobenzene	3976.	3039.	76.	16.	27	128-104
N-Nitroso-di-n-prop.(1)	3976.	4933.	124.	24.	38	141-126
1,2,4-Trichlorobenzene	3976.	3796.	95.	15.	23	138-107
4-Chloro-3-methylphenol	7953.	4836.	61.	5.	33	126-103
Acenaphthene	3976.	7260.	180. *	63. *	19	131-137
4-Nitrophenol	7953.	8252.	104.	7.	50	111-114
2,4-Dinitrotoluene	3976.	2543.	64.	18.	47	128- 89
Pentachlorophenol	7953.	2926.	37.	25.	47	117-109
Pyrene	3976.	18773.	433. *	138. *	36	135-142

(1) N-Nitroso-di-n-propylamine

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

* Values outside of QC limits

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

OK 5/23/85 KK

COMMENTS:

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

615

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix Spike - EPA Sample No.: EW942 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	79.58	.00	56.70	71.	46-127
Heptachlor	79.58	.00	60.99	77.	35-130
Aldrin	79.58	.00	95.53	120.	34-132
Dieldrin	198.95	.00	195.80	98.	31-134
Endrin	198.95	.00	175.41	88.	42-139
4,4'-DDT	198.95	.00	150.02	75.	23-134

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	79.63	80.12	101.	34.	50	46-127
Heptachlor	79.63	85.23	107.	33. *	31	35-130
Aldrin	79.63	83.56	105.	13.	43	34-132
Dieldrin	199.08	189.60	95.	3.	38	31-134
Endrin	199.08	175.92	88.	0.	45	42-139
4,4'-DDT	199.08	94.03	47.	46.	50	23-134

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

* Values outside of QC limits

RPD: 1 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

OK
KL 5/20/88

4A

VOLATILE METHOD BLANK SUMMARY

009

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Lab File ID: >A0436 Lab Sample ID: VBLK1

Date Analyzed: 4/22/88 Time Analyzed: 15:19

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

Instrument ID: ~~9601A~~ 1A JM 5-11-88

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1	EW943		>A0438	17:21
2	EW944		>A0439	18:10
3	EW945		>A0440	18:59
4	EW946		>A0441	19:48
5	EW946MS		>A0442	20:36
6	EW946MSD		>A0443	21:25
7	EW942		>A0444	22:13
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COMMENTS:

OK 5/8/88

FORM IV VOA 1/87 ~~Rev.~~

4A

VOLATILE METHOD BLANK SUMMARY

010

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Lab File ID:> A0449 Lab Sample ID: VBLK2

Date Analyzed: 4/27/88 Time Analyzed: 15:35

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

Instrument ID: ~~9601A~~ 1A JM 5-11-88

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1	EW944 RE		>A0451	17:14
2	EW942 RE		>A0456	21:19
3				
4				
5				
6				
7				
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COMMENTS:

OK 5/5/88 KL

FORM IV VOA

1/87 Rev.

4A

VOLATILE METHOD BLANK SUMMARY

011

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Lab File ID: >A0465 Lab Sample ID: VBLK 3

Date Analyzed: 4/29/88 Time Analyzed: 14:58

Matrix: (soil/water) SOIL JM 5-11-88 Level:(low/med) LOW

Instrument ID: ~~9601A~~ 1A

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1	EW945 RE		>A0472	21:01
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COMMENTS:

OK 5/5/88 KC

FORM IV VOA 1/87 ~~Rev.~~

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 5. (g/mL) G Lab File ID: A0436

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

% Moisture: not dec. 0. Date Analyzed: 4/22/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	6.	J
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
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK1

Lab Name:Cenref Labs Contract:68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.:----- SDG No.: EW942

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0436

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec.100% Date Analyzed: 04/22/88

Column: PACK Dilution Factor: 1.0

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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OK 5/8/88 KK

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK2

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 5. (g/mL) G Lab File ID: A0449

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

% Moisture: not dec. 0. Date Analyzed: 4/27/88

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK2

Lab Name:Cenref Labs Contract:68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.:----- SDG No.: EW942

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0449

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec.100% Date Analyzed: 04/27/88

Column: PACK Dilution Factor: 1.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. --------	UNKNOWN HYDROCARBON	34.25	6	J
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04/25/88
KC

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK3

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 5. (g/mL) G Lab File ID:)A0465

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

% Moisture: not dec. 0. Date Analyzed: 4/29/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	3.	J
67-64-1	Acetone	21.	
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	17.	
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
1330-20-7	Xylene (total)	5.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK3

Lab Name: Cenref Labs Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: ----- SDG No.: EW942

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0465

Level: (low/med) LOW Date Received: 00/00/00

% Moisture: not dec. 100% Date Analyzed: 04/29/88

Column: PACK Dilution Factor: 1.0

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

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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O/C 5/8/88 LC

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Lab File ID: >D0181 Lab Sample ID: SBLK1

Date Extracted: 4/25/88 Extraction:(SepF/Cont/Sonc) SONC

Date Analyzed: 5/ 9/88 Time Analyzed: 22:16

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

Instrument ID: 2D

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	EW942		>D0182	5/ 9/88
2	EW945		>D0184	5/10/88
3	EW943		>D0186	5/10/88
4	EW944		>D0187	5/10/88
5	EW942MSD		>D0188	5/10/88
6	EW942MS		>D0192	5/10/88
7	EW946		>D0193	5/10/88
8	EW943 RE		>D0194	5/10/88
9	EW944 RE		>D0195	5/10/88
10	EW945 RE		>D0196	5/10/88
11	EW946 RE		>D0197	5/10/88
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COMMENTS:

OK 5/23/88 KC

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK1

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 31. (g/mL) G Lab File ID: D0181

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

% Moisture: not dec. 0. dec. 0. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/ 9/88

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

593

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	320.	U
111-44-4	bis(2-Chloroethyl)ether	320.	U
95-57-8	2-Chlorophenol	320.	U
541-73-1	1,3-Dichlorobenzene	320.	U
106-46-7	1,4-Dichlorobenzene	320.	U
100-51-6	Benzyl alcohol	320.	U
95-50-1	1,2-Dichlorobenzene	320.	U
95-48-7	2-Methylphenol	320.	U
108-60-1	bis(2-Chloroisopropyl)ether	320.	U
106-44-5	4-Methylphenol	320.	U
621-64-7	N-Nitroso-di-n-propylamine	320.	U
67-72-1	Hexachloroethane	320.	U
98-95-3	Nitrobenzene	320.	U
78-59-1	Isophorone	320.	U
88-75-5	2-Nitrophenol	320.	U
105-67-9	2,4-Dimethylphenol	320.	U
65-85-0	Benzoic acid	1600.	U
111-91-1	bis(2-Chloroethoxy)methane	320.	U
120-83-2	2,4-Dichlorophenol	320.	U
120-82-1	1,2,4-Trichlorobenzene	320.	U
91-20-3	Naphthalene	320.	U
106-47-8	4-Chloroaniline	320.	U
87-68-3	Hexachlorobutadiene	320.	U
59-50-7	4-Chloro-3-methylphenol	320.	U
91-57-6	2-Methylnaphthalene	320.	U
77-47-4	Hexachlorocyclopentadiene	320.	U
88-06-2	2,4,6-Trichlorophenol	320.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	320.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethylphthalate	320.	U
208-96-8	Acenaphthylene	320.	U
606-20-2	2,6-Dinitrotoluene	320.	U

OK 5/23/88 KK

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK1

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 31. (g/mL) G Lab File ID: D0181 594

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

% Moisture: not dec. 0. dec. 0. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/ 9/88

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	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	320.	U
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	320.	U
121-14-2	2,4-Dinitrotoluene	320.	U
84-66-2	Diethylphthalate	320.	U
7005-72-3	4-Chlorophenyl-phenylether	320.	U
86-73-7	Fluorene	320.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine	320.	U
101-55-3	4-Bromophenyl-phenylether	320.	U
118-74-1	Hexachlorobenzene	320.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	320.	U
120-12-7	Anthracene	320.	U
84-74-2	Di-n-butylphthalate	320.	U
206-44-0	Fluoranthene	320.	U
129-00-0	Pyrene	320.	U
85-68-7	Butylbenzylphthalate	320.	U
91-94-1	3,3'-Dichlorobenzidine	650.	U
56-55-3	Benzo(a)anthracene	320.	U
218-01-9	Chrysene	320.	U
117-81-7	bis(2-Ethylhexyl)phthalate	1200.	
117-84-0	Di-n-octylphthalate	260.	J
205-99-2	Benzo(b)fluoranthene	320.	U
207-08-9	Benzo(k)fluoranthene	320.	U
50-32-8	Benzo(a)pyrene	320.	U
193-39-5	Indeno(1,2,3-cd)pyrene	320.	U
53-70-3	Dibenz(a,h)anthracene	320.	U
191-24-2	Benzo(g,h,i)perylene	320.	U

(1) - Cannot be separated from diphenylamine

OK 5/23/88 KL

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLK1

Name: CENREF Contract: 68-01-7465

Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix: (soil/water) SOIL Lab Sample ID: 595

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0181

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

Moisture: not dec. 0. dec. 0. Date Extracted: 04/25/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 05/09/88

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

Number TICs found: 2

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	6.85	210	J
2.		UNKNOWN	8.13	130	J
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OK 5/23/88 PK

4C

PESTICIDE METHOD BLANK SUMMARY

616

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Lab Sample ID: PBLK1 Lab File ID: EPE15

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

Date Extracted: 4/25/88 Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed (1): 5/ 5/88 Date Analyzed (2): 5/13/88

Time Analyzed (1): 22:02 Time Analyzed (2): 6:59

Instrument ID (1): C Instrument ID (2): J

GC Column ID (1): 22502401 GC Column ID (2): SP2100

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

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	EW942		5/ 5/88	5/13/88
2	EW942MS		5/ 5/88	5/13/88
3	EW942MSD		5/ 5/88	5/13/88
4	EW943		5/ 6/88	5/13/88
5	EW944		5/ 6/88	5/13/88
6	EW945		5/ 6/88	5/13/88
7	EW946		5/ 6/88	5/13/88
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Comments:

OK
KL 5/20/88

FORM IV PEST 1/87 Rev.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK1

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix: (soil/water) SOIL Lab Sample ID: 670

Sample wt/vol: 31. (g/mL) G Lab File ID: EPE15

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

% Moisture: not dec. 0. dec. 0. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/ 5/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.	U
319-85-7	beta-BHC	8.	U
319-86-8	delta-BHC	8.	U
58-89-9	gamma-BHC (Lindane)	8.	U
76-44-8	Heptachlor	8.	U
309-00-2	Aldrin	8.	U
1024-57-3	Heptachlor Epoxide	8.	U
959-98-8	Endosulfan I	8.	U
60-57-1	Dieldrin	16.	U
72-55-9	4,4'-DDE	16.	U
72-20-8	Endrin	16.	U
33213-65-9	Endosulfan II	16.	U
72-54-8	4,4'-DDD	16.	U
1031-07-8	Endosulfan Sulfate	16.	U
50-29-3	4,4'-DDT	16.	U
72-43-5	Methoxychlor	79.	U
53494-70-5	Endrin Ketone	16.	U
5103-71-9	alpha-Chlordane	79.	U
5103-74-2	gamma-Chlordane	79.	U
8001-35-2	Toxaphene	160.	U
12674-11-2	Aroclor-1016	79.	U
11104-28-2	Aroclor-1221	79.	U
11141-16-5	Aroclor-1232	79.	U
53469-21-9	Aroclor-1242	79.	U
12672-29-6	Aroclor-1248	79.	U
11097-69-1	Aroclor-1254	160.	U
11096-82-5	Aroclor-1260	160.	U

OK
KL 5/24/88

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW942

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 5. (g/mL) G Lab File ID: A0444

Level: (low/med) LOW Date Received: 4/20/88

% Moisture: not dec. 17. Date Analyzed: 4/22/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	6.	U
67-64-1	Acetone	73.	B
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	6.	U
107-06-2	1,2-Dichloroethane	6.	U
78-93-3	2-Butanone	38.	
71-55-6	1,1,1-Trichloroethane	6.	U
56-23-5	Carbon Tetrachloride	6.	U
108-05-4	Vinyl Acetate	12.	U
75-27-4	Bromodichloromethane	6.	U
78-87-5	1,2-Dichloropropane	6.	U
10061-01-5	cis-1,3-Dichloropropene	6.	U
79-01-6	Trichloroethene	6.	U
124-48-1	Dibromochloromethane	6.	U
79-00-5	1,1,2-Trichloroethane	6.	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6.	U
75-25-2	Bromoform	6.	U
108-10-1	4-Methyl-2-Pentanone	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	8.	
108-90-7	Chlorobenzene	6.	U
100-41-4	Ethylbenzene	6.	U
100-42-5	Styrene	6.	U
1330-20-7	Xylene (total)	6.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW942

Lab Name: Cenref Labs Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: ----- SDG No.: EW942

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0444

Level: (low/med) LOW Date Received: 04/13/88

% Moisture: not dec. 17. Date Analyzed: 04/22/88

Column: PACK Dilution Factor: 1.0

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. ---------	UNKNOWN	11.60	13	J
2. ---------	UNKNOWN	20.30	7	J
3. ---------	UNKNOWN	22.04	6	J
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW942 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 5. (g/mL) G Lab File ID: A0456

Level: (low/med) LOW Date Received: 4/20/88

% Moisture: not dec. 17. Date Analyzed: 4/27/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	6.	U
67-64-1	Acetone	67.	~~B~~ u 6/9/88 GCF
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	6.	U
107-06-2	1,2-Dichloroethane	6.	U
78-93-3	2-Butanone	12.	U
71-55-6	1,1,1-Trichloroethane	6.	U
56-23-5	Carbon Tetrachloride	6.	U
108-05-4	Vinyl Acetate	12.	U
75-27-4	Bromodichloromethane	6.	U
78-87-5	1,2-Dichloropropane	6.	U
10061-01-5	cis-1,3-Dichloropropene	6.	U
79-01-6	Trichloroethene	6.	U
124-48-1	Dibromochloromethane	6.	U
79-00-5	1,1,2-Trichloroethane	6.	U
71-43-2	Benzene	6.	U
10061-02-6	trans-1,3-Dichloropropene	6.	U
75-25-2	Bromoform	6.	U
108-10-1	4-Methyl-2-Pentanone	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	Xylene (total)	6.	U

OK 5/5/88 KL

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW942RE

Lab Name: Cenref Labs Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: ----- SDG No.: EW942

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0456

Level: (low/med) LOW Date Received: 04/13/88

% Moisture: not dec. 17. Date Analyzed: 04/27/88

Column: PACK Dilution Factor: 1.0

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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ok 5/18/88 KC

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW943

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 5. (g/mL) G Lab File ID: A0438

Level: (low/med) LOW Date Received: 4/20/88

% Moisture: not dec. 32. Date Analyzed: 4/22/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	15.	U
74-83-9	Bromomethane	15.	U
75-01-4	Vinyl Chloride	15.	U
75-00-3	Chloroethane	15.	U
75-09-2	Methylene Chloride	7.	U
67-64-1	Acetone	310.	B
75-15-0	Carbon Disulfide	7.	U
75-35-4	1,1-Dichloroethene	7.	U
75-34-3	1,1-Dichloroethane	7.	U
540-59-0	1,2-Dichloroethene (total)	7.	U
67-66-3	Chloroform	7.	U
107-06-2	1,2-Dichloroethane	7.	U
78-93-3	2-Butanone	23.	
71-55-6	1,1,1-Trichloroethane	7.	U
56-23-5	Carbon Tetrachloride	7.	U
108-05-4	Vinyl Acetate	15.	U
75-27-4	Bromodichloromethane	7.	U
78-87-5	1,2-Dichloropropane	7.	U
10061-01-5	cis-1,3-Dichloropropene	7.	U
79-01-6	Trichloroethene	7.	U
124-48-1	Dibromochloromethane	7.	U
79-00-5	1,1,2-Trichloroethane	7.	U
71-43-2	Benzene	7.	U
10061-02-6	trans-1,3-Dichloropropene	7.	U
75-25-2	Bromoform	7.	U
108-10-1	4-Methyl-2-Pentanone	15.	U
591-78-6	2-Hexanone	15.	U
127-18-4	Tetrachloroethene	7.	U
79-34-5	1,1,2,2-Tetrachloroethane	7.	U
108-88-3	Toluene	7.	U
108-90-7	Chlorobenzene	7.	U
100-41-4	Ethylbenzene	7.	U
100-42-5	Styrene	7.	U
1330-20-7	Xylene (total)	7.	U

OK

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO

EW943

Lab Name: Cenref Labs Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: ----- SDG No.: EW942

039

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0438

Level: (low/med) LOW Date Received: 04/13/88

% Moisture: not dec. 32. Date Analyzed: 04/22/88

Column: PACK Dilution Factor: 1.0

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 96377	METHYL-CYCLOPENTANE	14.50	62	J
2. 110543	HEXANE	18.53	9	J
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OK 5/8/88 KC

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VOLATILE ORGANICS ANALYSIS DATA SHEET

050

EPA SAMPLE NO.

EW944

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EN942

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

Sample wt/vol: 5. (g/mL) G Lab File ID: A0439

Level: (low/med) LOW Date Received: 4/20/88

% Moisture: not dec. 67. Date Analyzed: 4/22/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	
74-87-3	Chloromethane	30.	U
74-83-9	Bromomethane	30.	U
75-01-4	Vinyl Chloride	30.	U
75-00-3	Chloroethane	30.	U
75-09-2	Methylene Chloride	15.	U
67-64-1	Acetone	390.	B
75-15-0	Carbon Disulfide	15.	U
75-35-4	1,1-Dichloroethene	15.	U
75-34-3	1,1-Dichloroethane	15.	U
540-59-0	1,2-Dichloroethene (total)	15.	U
67-66-3	Chloroform	15.	U
107-06-2	1,2-Dichloroethane	15.	U
78-93-3	2-Butanone	160.	
71-55-6	1,1,1-Trichloroethane	15.	U
56-23-5	Carbon Tetrachloride	15.	U
108-05-4	Vinyl Acetate	30.	U
75-27-4	Bromodichloromethane	15.	U
78-87-5	1,2-Dichloropropane	15.	U
10061-01-5	cis-1,3-Dichloropropene	15.	U
79-01-6	Trichloroethene	15.	U
124-48-1	Dibromochloromethane	15.	U
79-00-5	1,1,2-Trichloroethane	15.	U
71-43-2	Benzene	15.	U
10061-02-6	trans-1,3-Dichloropropene	15.	U
75-25-2	Bromoform	15.	U
108-10-1	4-Methyl-2-Pentanone	30.	U
591-78-6	2-Hexanone	30.	U
127-18-4	Tetrachloroethene	15.	U
79-34-5	1,1,2,2-Tetrachloroethane	15.	U
108-88-3	Toluene	15.	U
108-90-7	Chlorobenzene	15.	U
100-41-4	Ethylbenzene	15.	U
100-42-5	Styrene	15.	U
1330-20-7	Xylene (total)	15.	U

OK 5/8/88 KC

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW944

Lab Name: Cenref Labs Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: ----- SDG No.: EW942

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0439

Level: (low/med) LOW Date Received: 04/13/88

% Moisture: not dec. 67. Date Analyzed: 04/22/88

Column: PACK Dilution Factor: 1.0

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	HEXANE	18.53	24	J
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW944 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 5. (g/mL) G Lab File ID: A0451

Level: (low/med) LOW Date Received: 4/20/88

% Moisture: not dec. 67. Date Analyzed: 4/27/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	30.	IU
74-83-9	Bromomethane	30.	IU
75-01-4	Vinyl Chloride	30.	IU
75-00-3	Chloroethane	30.	IU
75-09-2	Methylene Chloride	~~15.~~	~~IU~~
67-64-1	Acetone	630.	IB
75-15-0	Carbon Disulfide	15.	IU
75-35-4	1,1-Dichloroethene	15.	IU
75-34-3	1,1-Dichloroethane	15.	IU
540-59-0	1,2-Dichloroethene (total)	15.	IU
67-66-3	Chloroform	15.	IU
107-06-2	1,2-Dichloroethane	~~15.~~	~~IU~~
78-93-3	2-Butanone	180.	IB
71-55-6	1,1,1-Trichloroethane	15.	IU
56-23-5	Carbon Tetrachloride	15.	IU
108-05-4	Vinyl Acetate	30.	IU
75-27-4	Bromodichloromethane	15.	IU
78-87-5	1,2-Dichloropropane	15.	IU
10061-01-5	cis-1,3-Dichloropropene	15.	IU
79-01-6	Trichloroethene	15.	IU
124-48-1	Dibromochloromethane	15.	IU
79-00-5	1,1,2-Trichloroethane	15.	IU
71-43-2	Benzene	15.	IU
10061-02-6	trans-1,3-Dichloropropene	15.	IU
75-25-2	Bromoform	15.	IU
108-10-1	4-Methyl-2-Pentanone	30.	IU
591-78-6	2-Hexanone	30.	IU
127-18-4	Tetrachloroethene	15.	IU
79-34-5	1,1,2,2-Tetrachloroethane	15.	IU
108-88-3	Toluene	15.	IU
108-90-7	Chlorobenzene	15.	IU
100-41-4	Ethylbenzene	15.	IU
100-42-5	Styrene	15.	IU
1330-20-7	Xylene (total)	15.	IU

OK 5/8/88 KLC

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
EW944RE

Lab Name: Cenref Labs Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: ----- SDG No.: EW942

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0451

Level: (low/med) LOW Date Received: 04/13/88

% Moisture: not dec. 67. Date Analyzed: 04/27/88

Column: PACK Dilution Factor: 1.0

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	----------	UNKNOWN HYDROCARBON	34.28	43	JB
2.					
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DK 5/8/88 KC

070

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW945

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 5. (g/mL) G Lab File ID: A0440.

Level: (low/med) LOW Date Received: 4/20/88

% Moisture: not dec. 69. Date Analyzed: 4/22/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	32.	U
74-83-9	Bromomethane	32.	U
75-01-4	Vinyl Chloride	32.	U
75-00-3	Chloroethane	32.	U
75-09-2	Methylene Chloride	16.	U
67-64-1	Acetone	500.	B
75-15-0	Carbon Disulfide	16.	U
75-35-4	1,1-Dichloroethene	16.	U
75-34-3	1,1-Dichloroethane	16.	U
540-59-0	1,2-Dichloroethene (total)	16.	U
67-66-3	Chloroform	16.	U
107-06-2	1,2-Dichloroethane	16.	U
78-93-3	2-Butanone	210.	
71-55-6	1,1,1-Trichloroethane	16.	U
56-23-5	Carbon Tetrachloride	16.	U
108-05-4	Vinyl Acetate	32.	U
75-27-4	Bromodichloromethane	16.	U
78-87-5	1,2-Dichloropropane	16.	U
10061-01-5	cis-1,3-Dichloropropene	16.	U
79-01-6	Trichloroethene	16.	U
124-48-1	Dibromochloromethane	16.	U
79-00-5	1,1,2-Trichloroethane	16.	U
71-43-2	Benzene	16.	U
10061-02-6	trans-1,3-Dichloropropene	16.	U
75-25-2	Bromoform	16.	U
108-10-1	4-Methyl-2-Pentanone	32.	U
591-78-6	2-Hexanone	32.	U
127-18-4	Tetrachloroethene	16.	U
79-34-5	1,1,2,2-Tetrachloroethane	16.	U
108-88-3	Toluene	16.	U
108-90-7	Chlorobenzene	16.	U
100-41-4	Ethylbenzene	16.	U
100-42-5	Styrene	16.	U
1330-20-7	Xylene (total)	16.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW945

Lab Name: Cenref Labs Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: ----- SDG No.: EW942

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0440

Level: (low/med) LOW Date Received: 04/13/88

% Moisture: not dec. 69. Date Analyzed: 04/22/88

Column: PACK Dilution Factor: 1.0

Number TICs found: 0

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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OK 5/5/88 KC

078

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW945 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 5. (g/mL) G Lab File ID: A0472

Level: (low/med) LOW Date Received: 4/20/88

% Moisture: not dec. 69. Date Analyzed: 4/29/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	32.	IU
74-83-9	Bromomethane	32.	IU
75-01-4	Vinyl Chloride	32.	IU
75-00-3	Chloroethane	32.	IU
75-09-2	Methylene Chloride	16.	IU
67-64-1	Acetone	440.	IB
75-15-0	Carbon Disulfide	16.	IU
75-35-4	1,1-Dichloroethene	16.	IU
75-34-3	1,1-Dichloroethane	16.	IU
540-59-0	1,2-Dichloroethene (total)	16.	IU
67-66-3	Chloroform	16.	IU
107-06-2	1,2-Dichloroethane	16.	IU
78-93-3	2-Butanone	70.	~~IB~~ u
71-55-6	1,1,1-Trichloroethane	16.	IU
56-23-5	Carbon Tetrachloride	16.	IU
108-05-4	Vinyl Acetate	32.	IU
75-27-4	Bromodichloromethane	16.	IU
78-87-5	1,2-Dichloropropane	16.	IU
10061-01-5	cis-1,3-Dichloropropene	16.	IU
79-01-6	Trichloroethene	16.	IU
124-48-1	Dibromochloromethane	16.	IU
79-00-5	1,1,2-Trichloroethane	16.	IU
71-43-2	Benzene	16.	IU
10061-02-6	trans-1,3-Dichloropropene	16.	IU
75-25-2	Bromoform	16.	IU
108-10-1	4-Methyl-2-Pentanone	32.	IU
591-78-6	2-Hexanone	32.	IU
127-18-4	Tetrachloroethene	16.	IU
79-34-5	1,1,2,2-Tetrachloroethane	16.	IU
108-88-3	Toluene	16.	IU
108-90-7	Chlorobenzene	16.	IU
100-41-4	Ethylbenzene	16.	IU
100-42-5	Styrene	16.	IU
1330-20-7	Xylene (total)	16.	IU

OK 5/5/88

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW945RE

Lab Name: Cenref Labs Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: ----- SDG No.: EW942

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0472

Level: (low/med) LOW Date Received: 04/13/88

% Moisture: not dec. 69. Date Analyzed: 04/29/88

Column: PACK Dilution Factor: 1.0

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

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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3.				
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DK 5/18/88 CLL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW946

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EN942

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

Sample wt/vol: 5. (g/mL) G Lab File ID: A044I

Level: (low/med) LOW Date Received: 4/20/88

% Moisture: not dec. 19. Date Analyzed: 4/22/88

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	6.	U
67-64-1	Acetone	16.	B
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	6.	U
107-06-2	1,2-Dichloroethane	6.	U
78-93-3	2-Butanone	10.	J
71-55-6	1,1,1-Trichloroethane	6.	U
56-23-5	Carbon Tetrachloride	6.	U
108-05-4	Vinyl Acetate	12.	U
75-27-4	Bromodichloromethane	6.	U
78-87-5	1,2-Dichloropropane	6.	U
10061-01-5	cis-1,3-Dichloropropene	6.	U
79-01-6	Trichloroethene	6.	U
124-48-1	Dibromochloromethane	6.	U
79-00-5	1,1,2-Trichloroethane	6.	U
71-43-2	Benzene	6.	U
10061-02-6	trans-1,3-Dichloropropene	6.	U
75-25-2	Bromoform	6.	U
108-10-1	4-Methyl-2-Pentanone	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	29.	
108-90-7	Chlorobenzene	6.	U
100-41-4	Ethylbenzene	6.	U
100-42-5	Styrene	6.	U
1330-20-7	Xylene (total)	6.	U

5/8/88 JC

IE

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW946

Lab Name: Cenref Labs Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: ----- SDG No.: EW942

087

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

Sample wt/vol: 5.0 (g/mL) g Lab File ID: >A0441

Level: (low/med) LOW Date Received: 04/13/88

% Moisture: not dec. 19. Date Analyzed: 04/22/88

Column: PACK Dilution Factor: 1.0

Number TICs found: 7 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 118827	CYCLOHEXANE	13.68	9	J
2. ------	UNKNOWN MF=C7H14	19.19	10	J
3. ------	UNKNOWN	19.33	9	J
4. ------	DIMETHYL PENTANE	20.33	21	J
5. ------	ETHYL PENTANE	20.63	12	J
6. 589344	3-METHYL HEXANE	21.55	80	J
7. 591764	2-METHYL HEXANE	22.03	38	J
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JK 5/8/88 KC

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW942

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942 187

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0182

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 17. dec. 17. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/ 9/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400.	U
111-44-4	bis(2-Chloroethyl)ether	400.	U
95-57-8	2-Chlorophenol	400.	U
541-73-1	1,3-Dichlorobenzene	400.	U
106-46-7	1,4-Dichlorobenzene	400.	U
100-51-6	Benzyl alcohol	400.	U
95-50-1	1,2-Dichlorobenzene	400.	U
95-48-7	2-Methylphenol	400.	U
108-60-1	bis(2-Chloroisopropyl)ether	400.	U
106-44-5	4-Methylphenol	400.	U
621-64-7	N-Nitroso-di-n-propylamine	400.	U
67-72-1	Hexachloroethane	400.	U
98-95-3	Nitrobenzene	400.	U
78-59-1	Isophorone	400.	U
88-75-5	2-Nitrophenol	400.	U
105-67-9	2,4-Dimethylphenol	400.	U
65-85-0	Benzoic acid	2000.	U
111-91-1	bis(2-Chloroethoxy)methane	400.	U
120-83-2	2,4-Dichlorophenol	400.	U
120-82-1	1,2,4-Trichlorobenzene	400.	U
91-20-3	Naphthalene	100.	J
106-47-8	4-Chloroaniline	400.	U
87-68-3	Hexachlorobutadiene	400.	U
59-50-7	4-Chloro-3-methylphenol	400.	U
91-57-6	2-Methylnaphthalene	64.	J
77-47-4	Hexachlorocyclopentadiene	400.	U
88-06-2	2,4,6-Trichlorophenol	400.	U
95-95-4	2,4,5-Trichlorophenol	2000.	U
91-58-7	2-Chloronaphthalene	400.	U
88-74-4	2-Nitroaniline	2000.	U
131-11-3	Dimethylphthalate	400.	U
208-96-8	Acenaphthylene	400.	U
606-20-2	2,6-Dinitrotoluene	400.	U

OK 5/13/88

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW942

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0182 188

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 17. dec. 17. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/ 9/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2000.	U
83-32-9	Acenaphthene	98.	J
51-28-5	2,4-Dinitrophenol	~~2000.~~	~~U~~
100-02-7	4-Nitrophenol	2000.	U
132-64-9	Dibenzofuran	61.	J
121-14-2	2,4-Dinitrotoluene	~~400.~~	~~U~~
84-66-2	Diethylphthalate	400.	U
7005-72-3	4-Chlorophenyl-phenylether	~~400.~~	~~U~~
86-73-7	Fluorene	99.	J
100-01-6	4-Nitroaniline	~~2000.~~	~~U~~
534-52-1	4,6-Dinitro-2-methylphenol	2000.	U
86-30-6	N-Nitrosodiphenylamine	400.	U
101-55-3	4-Bromophenyl-phenylether	400.	U
118-74-1	Hexachlorobenzene	400.	U
87-86-5	Pentachlorophenol	2000.	U
85-01-8	Phenanthrene	~~1200.~~	
120-12-7	Anthracene	310.	J
84-74-2	Di-n-butylphthalate	200.	J
206-44-0	Fluoranthene	2100.	
129-00-0	Pyrene	~~1600.~~	
85-68-7	Butylbenzylphthalate	400.	U
91-94-1	3,3'-Dichlorobenzidine	~~800~~	~~U~~
56-55-3	Benzo(a)anthracene	880.	
218-01-9	Chrysene	1100.	
117-81-7	bis(2-Ethylhexyl)phthalate	5600.	B
117-84-0	Di-n-octylphthalate	~~400.~~	~~U~~
205-99-2	Benzo(b)fluoranthene	540.	
207-08-9	Benzo(k)fluoranthene	900.	
50-32-8	Benzo(a)pyrene	800.	
193-39-5	Indeno(1,2,3-cd)pyrene	~~440.~~	
53-70-3	Dibenz(a,h)anthracene	400.	U
191-24-2	Benzo(g,h,i)perylene	360.	J

(1) - Cannot be separated from diphenylamine

OK 5/23/88 KK

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW942

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0182

Level: (low/med) LOW Date Received: 04/21/88

% Moisture: not dec. 17. dec. 17. Date Extracted: 04/25/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 05/09/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 1.00

189

Number TICs found: 9

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	6.85	270	JB
2.		COLUMN BLEED	9.77	210	J
3.	541026	DECAMETHYLCYCLOPENTASILOXANE	11.34	360	J
4.		UNKNOWN	14.55	290	J
5.		UNKNOWN ALKANE	17.50	170	J
6.		CYCLIC KETONE	20.12	200	J
7.	629505	TRIDECANE	20.59	210	J
8.		UNKNOWN ALKANE MF=C13H28	20.67	260	J
9.	10544500	MOLECULAR SULFUR	25.67	1300	J
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OK 5/23/88 KC

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW943

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0186 231

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 32. dec. 30. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

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	Phenol	470.	U
111-44-4	bis(2-Chloroethyl)ether	470.	U
95-57-8	2-Chlorophenol	470.	U
541-73-1	1,3-Dichlorobenzene	470.	U
106-46-7	1,4-Dichlorobenzene	470.	U
100-51-6	Benzyl alcohol	470.	U
95-50-1	1,2-Dichlorobenzene	470.	U
95-48-7	2-Methylphenol	470.	U
108-60-1	bis(2-Chloroisopropyl)ether	470.	U
106-44-5	4-Methylphenol	470.	U
621-64-7	N-Nitroso-di-n-propylamine	470.	U
67-72-1	Hexachloroethane	470.	U
98-95-3	Nitrobenzene	470.	U
78-59-1	Isophorone	470.	U
88-75-5	2-Nitrophenol	470.	U
105-67-9	2,4-Dimethylphenol	470.	U
65-85-0	Benzoic acid	2400.	U
111-91-1	bis(2-Chloroethoxy)methane	470.	U
120-83-2	2,4-Dichlorophenol	470.	U
120-82-1	1,2,4-Trichlorobenzene	470.	U
91-20-3	Naphthalene	470.	U
106-47-8	4-Chloroaniline	470.	U
87-68-3	Hexachlorobutadiene	470.	U
59-50-7	4-Chloro-3-methylphenol	470.	U
91-57-6	2-Methylnaphthalene	470.	U
77-47-4	Hexachlorocyclopentadiene	470.	U
88-06-2	2,4,6-Trichlorophenol	470.	U
95-95-4	2,4,5-Trichlorophenol	2400.	U
91-58-7	2-Chloronaphthalene	470.	U
88-74-4	2-Nitroaniline	2400.	U
131-11-3	Dimethylphthalate	470.	U
208-96-8	Acenaphthylene	470.	U
606-20-2	2,6-Dinitrotoluene	470.	U

OK 5/23/88

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW943

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0186 230

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 32. dec. 30. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

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	3-Nitroaniline	2400.	U
83-32-9	Acenaphthene	470.	U
51-28-5	2,4-Dinitrophenol	2400.	U
100-02-7	4-Nitrophenol	2400.	U
132-64-9	Dibenzofuran	470.	U
121-14-2	2,4-Dinitrotoluene	470.	U
84-66-2	Diethylphthalate	470.	U
7005-72-3	4-Chlorophenyl-phenylether	470.	U
86-73-7	Fluorene	470.	U
100-01-6	4-Nitroaniline	2400.	U
534-52-1	4,6-Dinitro-2-methylphenol	2400.	U
86-30-6	N-Nitrosodiphenylamine	470.	U
101-55-3	4-Bromophenyl-phenylether	470.	U
118-74-1	Hexachlorobenzene	470.	U
87-86-5	Pentachlorophenol	2400.	U
85-01-8	Phenanthrene	160.	J
120-12-7	Anthracene	470.	U
84-74-2	Di-n-butylphthalate	470.	U
206-44-0	Fluoranthene	260.	J
129-00-0	Pyrene	200.	J
85-68-7	Butylbenzylphthalate	470.	U
91-94-1	3,3'-Dichlorobenzidine	940.	U
56-55-3	Benzo(a)anthracene	100.	J
218-01-9	Chrysene	160.	J
117-81-7	bis(2-Ethylhexyl)phthalate	450.	BJ
117-84-0	Di-n-octylphthalate	490.	B
205-99-2	Benzo(b)fluoranthene	470.	U
207-08-9	Benzo(k)fluoranthene	470.	U
50-32-8	Benzo(a)pyrene	470.	U
193-39-5	Indeno(1,2,3-cd)pyrene	470.	U
53-70-3	Dibenz(a,h)anthracene	470.	U
191-24-2	Benzo(g,h,i)perylene	470.	U

(1) - Cannot be separated from diphenylamine

OK 5/20/88

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW943

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

232

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0186

Level: (low/med) LOW Date Received: 04/21/88

% Moisture: not dec. 32. dec. 30. Date Extracted: 04/25/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 05/10/88

GPC Cleanup: (Y/N) N pH: 7.0 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	6.85	340	JB
2.		UNKNOWN ALKANE	15.83	190	J
3.		UNKNOWN ALKANE	20.58	460	J
4.	10544500	MOLECULAR SULFUR	25.64	710	J
5.		UNKNOWN ALKANE	34.28	2000	J
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW943 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix: (soil/water) SOIL Lab Sample ID: 254

Sample wt/vol: 30. (g/mL) G Lab File ID: D0194

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 32. dec. 30. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

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	Phenol	470.	U
111-44-4	bis(2-Chloroethyl)ether	470.	U
95-57-8	2-Chlorophenol	470.	U
541-73-1	1,3-Dichlorobenzene	470.	U
106-46-7	1,4-Dichlorobenzene	470.	U
100-51-6	Benzyl alcohol	470.	U
95-50-1	1,2-Dichlorobenzene	470.	U
95-48-7	2-Methylphenol	470.	U
108-60-1	bis(2-Chloroisopropyl)ether	470.	U
106-44-5	4-Methylphenol	470.	U
621-64-7	N-Nitroso-di-n-propylamine	470.	U
67-72-1	Hexachloroethane	470.	U
98-95-3	Nitrobenzene	470.	U
78-59-1	Isophorone	470.	U
88-75-5	2-Nitrophenol	470.	U
105-67-9	2,4-Dimethylphenol	470.	U
65-85-0	Benzoic acid	2400.	U
111-91-1	bis(2-Chloroethoxy)methane	470.	U
120-83-2	2,4-Dichlorophenol	470.	U
120-82-1	1,2,4-Trichlorobenzene	470.	U
91-20-3	Naphthalene	470.	U
106-47-8	4-Chloroaniline	470.	U
87-68-3	Hexachlorobutadiene	470.	U
59-50-7	4-Chloro-3-methylphenol	470.	U
91-57-6	2-Methylnaphthalene	470.	U
77-47-4	Hexachlorocyclopentadiene	470.	U
88-06-2	2,4,6-Trichlorophenol	470.	U
95-95-4	2,4,5-Trichlorophenol	2400.	U
91-58-7	2-Chloronaphthalene	470.	U
88-74-4	2-Nitroaniline	2400.	U
131-11-3	Dimethylphthalate	470.	U
208-96-8	Acenaphthylene	470.	U
606-20-2	2,6-Dinitrotoluene	470.	U

OK 5/23/88 KK

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW943 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0194 255

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 32. dec. 30. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

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	3-Nitroaniline	2400.	U
83-32-9	Acenaphthene	470.	U
51-28-5	2,4-Dinitrophenol	2400.	U
100-02-7	4-Nitrophenol	2400.	U
132-64-9	Dibenzofuran	470.	U
121-14-2	2,4-Dinitrotoluene	470.	U
84-66-2	Diethylphthalate	470.	U
7005-72-3	4-Chlorophenyl-phenylether	470.	U
86-73-7	Fluorene	470.	U
100-01-6	4-Nitroaniline	2400.	U
534-52-1	4,6-Dinitro-2-methylphenol	2400.	U
86-30-6	N-Nitrosodiphenylamine	470.	U
101-55-3	4-Bromophenyl-phenylether	470.	U
118-74-1	Hexachlorobenzene	470.	U
87-86-5	Pentachlorophenol	2400.	U
85-01-8	Phenanthrene	150.	J
120-12-7	Anthracene	470.	U
84-74-2	Di-n-butylphthalate	470.	U
206-44-0	Fluoranthene	220.	J
129-00-0	Pyrene	220.	J
85-68-7	Butylbenzylphthalate	470.	U
91-94-1	3,3'-Dichlorobenzidine	940.	U
56-55-3	Benzo(a)anthracene	120.	J
218-01-9	Chrysene	220.	J
117-81-7	bis(2-Ethylhexyl)phthalate	560.	B
117-84-0	Di-n-octylphthalate	670.	B
205-99-2	Benzo(b)fluoranthene	470.	U
207-08-9	Benzo(k)fluoranthene	470.	U
50-32-8	Benzo(a)pyrene	470.	U
193-39-5	Indeno(1,2,3-cd)pyrene	470.	U
53-70-3	Dibenz(a,h)anthracene	470.	U
191-24-2	Benzo(g,h,i)perylene	470.	U

(1) - Cannot be separated from diphenylamine

5/23/88

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW943RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

256

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0194

Level: (low/med) LOW Date Received: 04/21/88

% Moisture: not dec. 32. dec. 30. Date Extracted: 04/25/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 05/10/88

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

Number TICs found: 3

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	6.85	280	JB
2.	10544500	MOLECULAR SULFUR	25.62	1100	J
3.		UNKNOWN ALKANE	34.26	2400	J
4.					
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OK 5/19/88

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW944

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0187

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 67. dec. 59. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	810.	U
111-44-4	bis(2-Chloroethyl)ether	810.	U
95-57-8	2-Chlorophenol	810.	U
541-73-1	1,3-Dichlorobenzene	810.	U
106-46-7	1,4-Dichlorobenzene	810.	U
100-51-6	Benzyl alcohol	810.	U
95-50-1	1,2-Dichlorobenzene	810.	U
95-48-7	2-Methylphenol	810.	U
108-60-1	bis(2-Chloroisopropyl)ether	810.	U
106-44-5	4-Methylphenol	810.	U
621-64-7	N-Nitroso-di-n-propylamine	810.	U
67-72-1	Hexachloroethane	810.	U
98-95-3	Nitrobenzene	810.	U
78-59-1	Isophorone	810.	U
88-75-5	2-Nitrophenol	810.	U
105-67-9	2,4-Dimethylphenol	810.	U
65-85-0	Benzoic acid	4100.	U
111-91-1	bis(2-Chloroethoxy)methane	810.	U
120-83-2	2,4-Dichlorophenol	810.	U
120-82-1	1,2,4-Trichlorobenzene	810.	U
91-20-3	Naphthalene	260.	J
106-47-8	4-Chloroaniline	810.	U
87-68-3	Hexachlorobutadiene	810.	U
59-50-7	4-Chloro-3-methylphenol	810.	U
91-57-6	2-Methylnaphthalene	390.	J
77-47-4	Hexachlorocyclopentadiene	810.	U
88-06-2	2,4,6-Trichlorophenol	810.	U
95-95-4	2,4,5-Trichlorophenol	4100.	U
91-58-7	2-Chloronaphthalene	810.	U
88-74-4	2-Nitroaniline	4100.	U
131-11-3	Dimethylphthalate	810.	U
208-96-8	Acenaphthylene	810.	U
606-20-2	2,6-Dinitrotoluene	810.	U

OK 5/23/88 AK

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW944

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0187 275

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 67. dec. 59. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	4100.	U
83-32-9	Acenaphthene	600.	J
51-28-5	2,4-Dinitrophenol	4100.	U
100-02-7	4-Nitrophenol	4100.	U
132-64-9	Dibenzofuran	290.	J
121-14-2	2,4-Dinitrotoluene	810.	U
84-66-2	Diethylphthalate	810.	U
7005-72-3	4-Chlorophenyl-phenylether	810.	U
86-73-7	Fluorene	590.	J
100-01-6	4-Nitroaniline	4100.	U
534-52-1	4,6-Dinitro-2-methylphenol	4100.	U
86-30-6	N-Nitrosodiphenylamine	810.	U
101-55-3	4-Bromophenyl-phenylether	810.	U
118-74-1	Hexachlorobenzene	810.	U
87-86-5	Pentachlorophenol	4100.	U
85-01-8	Phenanthrene	5400.	
120-12-7	Anthracene	1400.	
84-74-2	Di-n-butylphthalate	810.	U
206-44-0	Fluoranthene	10000.	
129-00-0	Pyrene	7200.	
85-68-7	Butylbenzylphthalate	810.	U
91-94-1	3,3'-Dichlorobenzidine	1600.	U
56-55-3	Benzo(a)anthracene	3100.	
218-01-9	Chrysene	4900.	
117-81-7	bis(2-Ethylhexyl)phthalate	1300.	B
117-84-0	Di-n-octylphthalate	1300.	B
205-99-2	Benzo(b)fluoranthene	3100.	
207-08-9	Benzo(k)fluoranthene	3600.	
50-32-8	Benzo(a)pyrene	3100.	
193-39-5	Indeno(1,2,3-cd)pyrene	2100.	
53-70-3	Dibenz(a,h)anthracene	810.	U
191-24-2	Benzo(g,h,i)perylene	1900.	

(1) - Cannot be separated from diphenylamine

DK 5/23/88 KK

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW944

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0187

276

Level: (low/med) LOW Date Received: 04/21/88

% Moisture: not dec. 67. dec. 59. Date Extracted: 04/25/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 05/10/88

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.00

Number TICs found: 16

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.85	750	JB
2.	UNKNOWN	8.53	380	J
3.	COLUMN BLEED	9.80	640	J
4.	UNKNOWN	11.36	410	J
5.	UNKNOWN HYDROCARBON	12.32	380	J
6.	UNKNOWN ALKANE	12.50	470	J
7.	UNKNOWN	12.77	440	J
8.	UNKNOWN ALKANE	13.58	520	J
9. 90120	1-METHYL NAPHTHALENE	14.40	600	J
10.	UNKNOWN	14.56	500	J
11.	UNKNOWN	15.84	550	J
12.	DIMETHYL NAPHTHALENE	16.07	790	J
13.	DIMETHYL NAPHTHALENE	16.31	830	J
14.	UNKNOWN ALKANE	16.88	890	J
15. 629787	HEPTADECANE	20.59	1700	J
16. 10544500	MOLECULAR SULFUR	25.66	2800	J
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OK 5/23/88 KC

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW944 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0195 331

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 67. dec. 59. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	810.	U
111-44-4	bis(2-Chloroethyl)ether	810.	U
95-57-8	2-Chlorophenol	810.	U
541-73-1	1,3-Dichlorobenzene	810.	U
106-46-7	1,4-Dichlorobenzene	810.	U
100-51-6	Benzyl alcohol	810.	U
95-50-1	1,2-Dichlorobenzene	810.	U
95-48-7	2-Methylphenol	810.	U
108-60-1	bis(2-Chloroisopropyl)ether	810.	U
106-44-5	4-Methylphenol	810.	U
621-64-7	N-Nitroso-di-n-propylamine	810.	U
67-72-1	Hexachloroethane	810.	U
98-95-3	Nitrobenzene	810.	U
78-59-1	Isophorone	810.	U
88-75-5	2-Nitrophenol	810.	U
105-67-9	2,4-Dimethylphenol	810.	U
65-85-0	Benzoic acid	4100.	U
111-91-1	bis(2-Chloroethoxy)methane	810.	U
120-83-2	2,4-Dichlorophenol	810.	U
120-82-1	1,2,4-Trichlorobenzene	810.	U
91-20-3	Naphthalene	290.	J
106-47-8	4-Chloroaniline	810.	U
87-68-3	Hexachlorobutadiene	810.	U
59-50-7	4-Chloro-3-methylphenol	810.	U
91-57-6	2-Methylnaphthalene	370.	J
77-47-4	Hexachlorocyclopentadiene	810.	U
88-06-2	2,4,6-Trichlorophenol	810.	U
95-95-4	2,4,5-Trichlorophenol	4100.	U
91-58-7	2-Chloronaphthalene	810.	U
88-74-4	2-Nitroaniline	4100.	U
131-11-3	Dimethylphthalate	810.	U
208-96-8	Acenaphthylene	810.	U
606-20-2	2,6-Dinitrotoluene	810.	U

OK 5/23/88 EL

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW944 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0195 332

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 67. dec. 59. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	4100.	U
83-32-9	Acenaphthene	560.	J
51-28-5	2,4-Dinitrophenol	4100.	U
100-02-7	4-Nitrophenol	4100.	U
132-64-9	Dibenzofuran	290.	J
121-14-2	2,4-Dinitrotoluene	810.	U
84-66-2	Diethylphthalate	810.	U
7005-72-3	4-Chlorophenyl-phenylether	810.	U
86-73-7	Fluorene	590.	J
100-01-6	4-Nitroaniline	4100.	U
534-52-1	4,6-Dinitro-2-methylphenol	4100.	U
86-30-6	N-Nitrosodiphenylamine	810.	U
101-55-3	4-Bromophenyl-phenylether	810.	U
118-74-1	Hexachlorobenzene	810.	U
87-86-5	Pentachlorophenol	4100.	U
85-01-8	Phenanthrene	5300.	
120-12-7	Anthracene	1300.	
84-74-2	Di-n-butylphthalate	810.	U
206-44-0	Fluoranthene	8700.	
129-00-0	Pyrene	7200.	
85-68-7	Butylbenzylphthalate	810.	U
91-94-1	3,3'-Dichlorobenzidine	1600.	U
56-55-3	Benzo(a)anthracene	3200.	
218-01-9	Chrysene	4900.	
117-81-7	bis(2-Ethylhexyl)phthalate	1800.	B
117-84-0	Di-n-octylphthalate	1400.	B
205-99-2	Benzo(b)fluoranthene	1900.	
207-08-9	Benzo(k)fluoranthene	4500.	
50-32-8	Benzo(a)pyrene	2600.	
193-39-5	Indeno(1,2,3-cd)pyrene	1700.	
53-70-3	Dibenz(a,h)anthracene	810.	U
191-24-2	Benzo(g,h,i)perylene	2000.	

(1) - Cannot be separated from diphenylamine

OK 5/23/88

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW944RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0195

Level: (low/med) LOW Date Received: 04/21/88

% Moisture: not dec. 67. dec. 59. Date Extracted: 04/25/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 05/10/88

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.00

333

Number TICs found: 16

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	6.85	780	JB
2.		UNKNOWN	8.52	530	J
3.		UNKNOWN	11.35	430	J
4.		UNKNOWN HYDROCARBON	12.30	380	J
5.		UNKNOWN ALKANE	12.49	510	J
6.		UNKNOWN	12.75	430	J
7.		UNKNOWN ALKANE	13.57	550	J
8.	90120	1-METHYL NAPHTHALENE	14.38	630	J
9.		UNKNOWN	14.55	490	J
10.		UNKNOWN ALKANE	15.42	1200	J
11.		ETHYL NAPHTHALENE	15.85	550	J
12.		DIMETHYL NAPHTHALENE	16.05	890	J
13.		DIMETHYL NAPHTHALENE	16.30	980	J
14.		UNKNOWN ALKANE	16.87	1100	J
15.	629505	TRIDECANE	20.58	1600	J
16.	10544500	MOLECULAR SULFUR	25.63	1800	J
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OK 5/19/88 EK

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW945

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0184

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 72. dec. 69. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1100.	U
111-44-4	bis(2-Chloroethyl)ether	1100.	U
95-57-8	2-Chlorophenol	1100.	U
541-73-1	1,3-Dichlorobenzene	1100.	U
106-46-7	1,4-Dichlorobenzene	1100.	U
100-51-6	Benzyl alcohol	1100.	U
95-50-1	1,2-Dichlorobenzene	1100.	U
95-48-7	2-Methylphenol	1100.	U
108-60-1	bis(2-Chloroisopropyl)ether	1100.	U
106-44-5	4-Methylphenol	1100.	U
621-64-7	N-Nitroso-di-n-propylamine	1100.	U
67-72-1	Hexachloroethane	1100.	U
98-95-3	Nitrobenzene	1100.	U
78-59-1	Isophorone	1100.	U
88-75-5	2-Nitrophenol	1100.	U
105-67-9	2,4-Dimethylphenol	1100.	U
65-85-0	Benzoic acid	5300.	U
111-91-1	bis(2-Chloroethoxy)methane	1100.	U
120-83-2	2,4-Dichlorophenol	1100.	U
120-82-1	1,2,4-Trichlorobenzene	1100.	U
91-20-3	Naphthalene	540.	J
106-47-8	4-Chloroaniline	1100.	U
87-68-3	Hexachlorobutadiene	1100.	U
59-50-7	4-Chloro-3-methylphenol	1100.	U
91-57-6	2-Methylnaphthalene	290.	J
77-47-4	Hexachlorocyclopentadiene	1100.	U
88-06-2	2,4,6-Trichlorophenol	1100.	U
95-95-4	2,4,5-Trichlorophenol	5300.	U
91-58-7	2-Chloronaphthalene	1100.	U
88-74-4	2-Nitroaniline	5300.	U
131-11-3	Dimethylphthalate	1100.	U
208-96-8	Acenaphthylene	1100.	U
606-20-2	2,6-Dinitrotoluene	1100.	U

OK 5/23/88 EL

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW945

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0184

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 72. dec. 69. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: Y/N) N pH: 6.7 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	5300.	U
83-32-9	Acenaphthene	1700.	
51-28-5	2,4-Dinitrophenol	5300.	U
100-02-7	4-Nitrophenol	~~5300.~~	~~U~~
132-64-9	Dibenzofuran	790.	J
121-14-2	2,4-Dinitrotoluene	1100.	U
84-66-2	Diethylphthalate	1100.	U
7005-72-3	4-Chlorophenyl-phenylether	~~1100.~~	~~U~~
86-73-7	Fluorene	1600.	
100-01-6	4-Nitroaniline	~~5300.~~	~~U~~
534-52-1	4,6-Dinitro-2-methylphenol	5300.	U
86-30-6	N-Nitrosodiphenylamine	1100.	U
101-55-3	4-Bromophenyl-phenylether	1100.	U
118-74-1	Hexachlorobenzene	1100.	U
87-86-5	Pentachlorophenol	~~5300.~~	~~U~~
85-01-8	Phenanthrene	17000.	
120-12-7	Anthracene	4200.	
84-74-2	Di-n-butylphthalate	~~1100.~~	~~U~~
206-44-0	Fluoranthene	28000.	
129-00-0	Pyrene	19000.	
85-68-7	Butylbenzylphthalate	1100.	U
91-94-1	3,3'-Dichlorobenzidine	2100.	U
56-55-3	Benzo(a)anthracene	9200.	
218-01-9	Chrysene	14000.	
117-81-7	bis(2-Ethylhexyl)phthalate	1500.	B
117-84-0	Di-n-octylphthalate	1100.	B
205-99-2	Benzo(b)fluoranthene	6000.	
207-08-9	Benzo(k)fluoranthene	12000.	
50-32-8	Benzo(a)pyrene	8900.	
193-39-5	Indeno(1,2,3-cd)pyrene	5200.	
53-70-3	Dibenz(a,h)anthracene	~~1100.~~	~~U~~
191-24-2	Benzo(g,h,i)perylene	3300.	

(1) - Cannot be separated from diphenylamine

OK 5/23/88 KC

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW945

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

390

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0184

Level: (low/med) LOW Date Received: 04/21/88

% Moisture: not dec. 72. dec. 69. Date Extracted: 04/25/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 05/10/88

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 1.00

Number TICs found: 15

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	6.64	1500	J
2.		UNKNOWN	6.85	720	JB
3.		UNKNOWN	8.53	630	J
4.	541026	DECAMETHYLCYCLOPENTASILOXANE	11.34	540	J
5.		UNKNOWN ALKANE	13.58	460	J
6.	90120	1-METHYL NAPHTHALENE	14.41	470	J
7.		UNKNOWN	14.55	520	J
8.		UNKNOWN ALKANE	15.43	830	J
9.		DIMETHYL NAPHTHALENE	16.31	570	J
10.		UNKNOWN ALKANE	16.88	800	J
11.	629505	TRIDECANE	20.58	2200	J
12.		UNKNOWN ALKANE	20.68	2000	J
13.		UNKNOWN PNA MF=C15H10	23.92	2600	J
14.		UNKNOWN	25.51	1600	J
15.	10544500	MOLECULAR SULFUR	25.67	3600	J
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QC 5/19/88 KLC

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW945 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0196

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 72. dec. 69. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 2.00

443

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	2100.	U
111-44-4	bis(2-Chloroethyl)ether	2100.	U
95-57-8	2-Chlorophenol	2100.	U
541-73-1	1,3-Dichlorobenzene	2100.	U
106-46-7	1,4-Dichlorobenzene	2100.	U
100-51-6	Benzyl alcohol	2100.	U
95-50-1	1,2-Dichlorobenzene	2100.	U
95-48-7	2-Methylphenol	2100.	U
108-60-1	bis(2-Chloroisopropyl)ether	2100.	U
106-44-5	4-Methylphenol	2100.	U
621-64-7	N-Nitroso-di-n-propylamine	2100.	U
67-72-1	Hexachloroethane	2100.	U
98-95-3	Nitrobenzene	2100.	U
78-59-1	Isophorone	2100.	U
88-75-5	2-Nitrophenol	2100.	U
105-67-9	2,4-Dimethylphenol	2100.	U
65-85-0	Benzoic acid	11000.	U
111-91-1	bis(2-Chloroethoxy)methane	2100.	U
120-83-2	2,4-Dichlorophenol	2100.	U
120-82-1	1,2,4-Trichlorobenzene	~~2100.~~	~~U~~
91-20-3	Naphthalene	610.	J
106-47-8	4-Chloroaniline	~~2100.~~	~~U~~
87-68-3	Hexachlorobutadiene	2100.	U
59-50-7	4-Chloro-3-methylphenol	2100.	U
91-57-6	2-Methylnaphthalene	2100.	U
77-47-4	Hexachlorocyclopentadiene	2100.	U
88-06-2	2,4,6-Trichlorophenol	2100.	U
95-95-4	2,4,5-Trichlorophenol	11000.	U
91-58-7	2-Chloronaphthalene	2100.	U
88-74-4	2-Nitroaniline	11000.	U
131-11-3	Dimethylphthalate	2100.	U
208-96-8	Acenaphthylene	2100.	U
606-20-2	2,6-Dinitrotoluene	2100.	U

OK 5/23/88 JK

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW945 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix: (soil/water) SOIL Lab Sample ID: 444

Sample wt/vol: 30. (g/mL) G Lab File ID: D0196

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 72. dec. 69. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	11000.	U
83-32-9	Acenaphthene	1700.	J
51-28-5	2,4-Dinitrophenol	11000.	U
100-02-7	4-Nitrophenol	11000.	U
132-64-9	Dibenzofuran	760.	J.
121-14-2	2,4-Dinitrotoluene	2100.	U
84-66-2	Diethylphthalate	2100.	U
7005-72-3	4-Chlorophenyl-phenylether	2100.	U
86-73-7	Fluorene	1700.	J
100-01-6	4-Nitroaniline	11000.	U
534-52-1	4,6-Dinitro-2-methylphenol	11000.	U
86-30-6	N-Nitrosodiphenylamine	2100.	U
101-55-3	4-Bromophenyl-phenylether	2100.	U
118-74-1	Hexachlorobenzene	2100.	U
87-86-5	Pentachlorophenol	11000.	U
85-01-8	Phenanthrene	18000.	
120-12-7	Anthracene	4700.	
84-74-2	Di-n-butylphthalate	2100.	U
206-44-0	Fluoranthene	26000.	
129-00-0	Pyrene	21000.	
85-68-7	Butylbenzylphthalate	2100.	U
91-94-1	3,3'-Dichlorobenzidine	4300.	U
56-55-3	Benzo(a)anthracene	9500.	
218-01-9	Chrysene	14000.	
117-81-7	bis(2-Ethylhexyl)phthalate	2900.	B
117-84-0	Di-n-octylphthalate	1800.	BJ
205-99-2	Benzo(b)fluoranthene	7000.	
207-08-9	Benzo(k)fluoranthene	11000.	
50-32-8	Benzo(a)pyrene	8200.	
193-39-5	Indeno(1,2,3-cd)pyrene	5200.	
53-70-3	Dibenz(a,h)anthracene	2100.	U
191-24-2	Benzo(g,h,i)perylene	4600.	

(1) - Cannot be separated from diphenylamine

OK 5/23/88 KC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW945RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

445

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

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0196

Level: (low/med) LOW Date Received: 04/21/88

% Moisture: not dec. 72. dec. 69. Date Extracted: 04/25/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 05/10/88

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 2.00

Number TICs found: 6

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN ALKANE	15.41	980	J
2.		UNKNOWN ALKANE	16.86	1000	J
3.	629505	TRIDECANE	20.56	2400	J
4.		UNKNOWN ALKANE	20.66	2400	J
5.		UNKNOWN PNA MF=C15H10	23.89	2500	J
6.	10544500	MOLECULAR SULFUR	25.58	1800	J
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ok 5/9/88 KC

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW946

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942 479

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0193

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 19. dec. 19. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	410.	U
111-44-4	bis(2-Chloroethyl)ether	410.	U
95-57-8	2-Chlorophenol	410.	U
541-73-1	1,3-Dichlorobenzene	410.	U
106-46-7	1,4-Dichlorobenzene	410.	U
100-51-6	Benzyl alcohol	410.	U
95-50-1	1,2-Dichlorobenzene	410.	U
95-48-7	2-Methylphenol	410.	U
108-60-1	bis(2-Chloroisopropyl)ether	410.	U
106-44-5	4-Methylphenol	410.	U
621-64-7	N-Nitroso-di-n-propylamine	410.	U
67-72-1	Hexachloroethane	410.	U
98-95-3	Nitrobenzene	410.	U
78-59-1	Isophorone	410.	U
88-75-5	2-Nitrophenol	410.	U
105-67-9	2,4-Dimethylphenol	410.	U
65-85-0	Benzoic acid	2100.	U
111-91-1	bis(2-Chloroethoxy)methane	410.	U
120-83-2	2,4-Dichlorophenol	410.	U
120-82-1	1,2,4-Trichlorobenzene	410.	U
91-20-3	Naphthalene	410.	U
106-47-8	4-Chloroaniline	410.	U
87-68-3	Hexachlorobutadiene	410.	U
59-50-7	4-Chloro-3-methylphenol	410.	U
91-57-6	2-Methylnaphthalene	410.	U
77-47-4	Hexachlorocyclopentadiene	410.	U
88-06-2	2,4,6-Trichlorophenol	410.	U
95-95-4	2,4,5-Trichlorophenol	2100.	U
91-58-7	2-Chloronaphthalene	410.	U
88-74-4	2-Nitroaniline	2100.	U
131-11-3	Dimethylphthalate	410.	U
208-96-8	Acenaphthylene	410.	U
606-20-2	2,6-Dinitrotoluene	410.	U

OK 5/23/88 KC

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW946

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix: (soil/water) SOIL Lab Sample ID: 480

Sample wt/vol: 30. (g/mL) G Lab File ID: D0193

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 19. dec. 19. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2100.	U
83-32-9	Acenaphthene	100.	J.
51-28-5	2,4-Dinitrophenol	2100.	U
100-02-7	4-Nitrophenol	2100.	U
132-64-9	Dibenzofuran	410.	U
121-14-2	2,4-Dinitrotoluene	410.	U
84-66-2	Diethylphthalate	410.	U
7005-72-3	4-Chlorophenyl-phenylether	410.	U
86-73-7	Fluorene	410.	U
100-01-6	4-Nitroaniline	2100.	U
534-52-1	4,6-Dinitro-2-methylphenol	2100.	U
86-30-6	N-Nitrosodiphenylamine	410.	U
101-55-3	4-Bromophenyl-phenylether	410.	U
118-74-1	Hexachlorobenzene	410.	U
87-86-5	Pentachlorophenol	2100.	U
85-01-8	Phenanthrene	1100.	
120-12-7	Anthracene	250.	J.
84-74-2	Di-n-butylphthalate	410.	U
206-44-0	Fluoranthene	1400.	
129-00-0	Pyrene	1300.	
85-68-7	Butylbenzylphthalate	410.	U
91-94-1	3,3'-Dichlorobenzidine	820.	U
56-55-3	Benzo(a)anthracene	680.	
218-01-9	Chrysene	910.	
117-81-7	bis(2-Ethylhexyl)phthalate	410.	U
117-84-0	Di-n-octylphthalate	1100.	B
205-99-2	Benzo(b)fluoranthene	360.	J
207-08-9	Benzo(k)fluoranthene	940.	
50-32-8	Benzo(a)pyrene	640.	
193-39-5	Indeno(1,2,3-cd)pyrene	240.	J
53-70-3	Dibenz(a,h)anthracene	410.	U
191-24-2	Benzo(g,h,i)perylene	490.	

(1) - Cannot be separated from diphenylamine

ok 5/23/88 EK

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
EW946

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0193 481

Level: (low/med) LOW Date Received: 04/21/88

% Moisture: not dec. 19. dec. 19. Date Extracted: 04/25/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 05/10/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.00

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.85	320	JB
2.	UNKNOWN ALKANE	20.66	200	J
3.	UNKNOWN PNA	23.91	160	J
4.	UNKNOWN HYDROCARBON	24.77	170	J
5.	UNKNOWN HYDROCARBON	25.44	260	J
6.	UNKNOWN PHTHALATE	30.83	660	J
7.	UNKNOWN HYDROCARBON	32.33	540	J
8.	UNKNOWN ALKANE	34.29	1800	J
9.	UNKNOWN ALKANE	36.63	1000	J
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517

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW946 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0197

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 19. dec. 19. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	410.	U
111-44-4	bis(2-Chloroethyl)ether	410.	U
95-57-8	2-Chlorophenol	410.	U
541-73-1	1,3-Dichlorobenzene	410.	U
106-46-7	1,4-Dichlorobenzene	410.	U
100-51-6	Benzyl alcohol	410.	U
95-50-1	1,2-Dichlorobenzene	410.	U
95-48-7	2-Methylphenol	410.	U
108-60-1	bis(2-Chloroisopropyl)ether	410.	U
106-44-5	4-Methylphenol	410.	U
621-64-7	N-Nitroso-di-n-propylamine	410.	U
67-72-1	Hexachloroethane	410.	U
98-95-3	Nitrobenzene	410.	U
78-59-1	Isophorone	410.	U
88-75-5	2-Nitrophenol	410.	U
105-67-9	2,4-Dimethylphenol	410.	U
65-85-0	Benzoic acid	2100.	U
111-91-1	bis(2-Chloroethoxy)methane	410.	U
120-83-2	2,4-Dichlorophenol	410.	U
120-82-1	1,2,4-Trichlorobenzene	410.	U
91-20-3	Naphthalene	410.	U
106-47-8	4-Chloroaniline	410.	U
87-68-3	Hexachlorobutadiene	410.	U
59-50-7	4-Chloro-3-methylphenol	410.	U
91-57-6	2-Methylnaphthalene	410.	U
77-47-4	Hexachlorocyclopentadiene	410.	U
88-06-2	2,4,6-Trichlorophenol	410.	U
95-95-4	2,4,5-Trichlorophenol	2100.	U
91-58-7	2-Chloronaphthalene	410.	U
88-74-4	2-Nitroaniline	2100.	U
131-11-3	Dimethylphthalate	410.	U
208-96-8	Acenaphthylene	410.	U
606-20-2	2,6-Dinitrotoluene	410.	U

OK 5/23/88 KIC

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW946 RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30. (g/mL) G Lab File ID: D0197

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 19. dec. 19. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/10/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2100.	U
83-32-9	Acenaphthene	410.	U
51-28-5	2,4-Dinitrophenol	2100.	U
100-02-7	4-Nitrophenol	2100.	U
132-64-9	Dibenzofuran	410.	U
121-14-2	2,4-Dinitrotoluene	410.	U
84-66-2	Diethylphthalate	410.	U
7005-72-3	4-Chlorophenyl-phenylether	410.	U
86-73-7	Fluorene	410.	U
100-01-6	4-Nitroaniline	2100.	U
534-52-1	4,6-Dinitro-2-methylphenol	2100.	U
86-30-6	N-Nitrosodiphenylamine	410.	U
101-55-3	4-Bromophenyl-phenylether	410.	U
118-74-1	Hexachlorobenzene	410.	U
87-86-5	Pentachlorophenol	2100.	U
85-01-8	Phenanthrene	1100.	
120-12-7	Anthracene	240.	J
84-74-2	Di-n-butylphthalate	410.	U
206-44-0	Fluoranthene	1600.	
129-00-0	Pyrene	1300.	
85-68-7	Butylbenzylphthalate	410.	U
91-94-1	3,3'-Dichlorobenzidine	820.	U
56-55-3	Benzo(a)anthracene	710.	
218-01-9	Chrysene	930.	
117-81-7	bis(2-Ethylhexyl)phthalate	410.	U
117-84-0	Di-n-octylphthalate	1500.	B
205-99-2	Benzo(b)fluoranthene	500.	
207-08-9	Benzo(k)fluoranthene	720.	
50-32-8	Benzo(a)pyrene	760.	
193-39-5	Indeno(1,2,3-cd)pyrene	530.	
53-70-3	Dibenz(a,h)anthracene	410.	U
191-24-2	Benzo(g,h,i)perylene	600.	

(1) - Cannot be separated from diphenylamine

OK 5/23/88 KK

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EW946RE

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

519

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

Sample wt/vol: 30. (g/mL) G Lab File ID: >D0193

Level: (low/med) LOW Date Received: 04/21/88

% Moisture: not dec. 17. dec. 17. Date Extracted: 04/25/88

Extraction: (Sepf/Cont/Sonc) SONC Date Analyzed: 05/10/88

GPC Cleanup: (Y/N) N pH: 7.4 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	6.84	200	JB
2.		UNKNOWN	25.42	450	J
3.		UNKNOWN ALDEHYDE	29.64	720	J
4.		UNKNOWN	32.33	510	J
5.		UNKNOWN PHTHALATE	33.89	1400	J
6.		UNKNOWN HYDROCARBON	34.28	4200	J
7.		UNKNOWN ALKANE	36.62	2200	J
8.		UNKNOWN	36.73	750	J
9.		UNKNOWN	39.66	1500	J
10.		UNKNOWN ALKANE	39.82	1100	J
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DK 5/9/88

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW942

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix: (soil/water) SOIL Lab Sample ID: 617

Sample wt/vol: 30.3 (g/mL) G Lab File ID: EPE16

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 17. dec. 17. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/ 5/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 10.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	96.	U
319-85-7	beta-BHC	96.	U
319-86-8	delta-BHC	96.	U
58-89-9	gamma-BHC (Lindane)	96.	U
76-44-8	Heptachlor	96.	U
309-00-2	Aldrin	96.	U
1024-57-3	Heptachlor Epoxide	96.	U
959-98-8	Endosulfan I	96.	U
60-57-1	Dieldrin	190.	U
72-55-9	4,4'-DDE	190.	U
72-20-8	Endrin	190.	U
33213-65-9	Endosulfan II	190.	U
72-54-8	4,4'-DDD	190.	U
1031-07-8	Endosulfan Sulfate	190.	U
50-29-3	4,4'-DDT	190.	U
72-43-5	Methoxychlor	960.	U
53494-70-5	Endrin Ketone	190.	U
5103-71-9	alpha-Chlordane	960.	U
5103-74-2	gamma-Chlordane	960.	U
8001-35-2	Toxaphene	1900.	U
12674-11-2	Aroclor-1016	960.	U
11104-28-2	Aroclor-1221	960.	U
11141-16-5	Aroclor-1232	960.	U
53469-21-9	Aroclor-1242	960.	U
12672-29-6	Aroclor-1248	960.	U
11097-69-1	Aroclor-1254	1900.	U
11096-82-5	Aroclor-1260	1900.	U

OK
KL 5/20/88

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW943

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

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

Sample wt/vol: 30.1 (g/mL) G Lab File ID: EPE19

620

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 32. dec. 30. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/ 6/88

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 10.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	110.	U
319-85-7	beta-BHC	110.	U
319-86-8	delta-BHC	110.	U
58-89-9	gamma-BHC (Lindane)	110.	U
76-44-8	Heptachlor	110.	U
309-00-2	Aldrin	110.	U
1024-57-3	Heptachlor Epoxide	110.	U
959-98-8	Endosulfan I	110.	U
60-57-1	Dieldrin	230.	U
72-55-9	4,4'-DDE	230.	U
72-20-8	Endrin	230.	U
33213-65-9	Endosulfan II	230.	U
72-54-8	4,4'-DDD	230.	U
1031-07-8	Endosulfan Sulfate	230.	U
50-29-3	4,4'-DDT	230.	U
72-43-5	Methoxychlor	1100.	U
53494-70-5	Endrin Ketone	230.	U
5103-71-9	alpha-Chlordane	1100.	U
5103-74-2	gamma-Chlordane	1100.	U
8001-35-2	Toxaphene	2300.	U
12674-11-2	Aroclor-1016	1100.	U
11104-28-2	Aroclor-1221	1100.	U
11141-16-5	Aroclor-1232	1100.	U
53469-21-9	Aroclor-1242	1100.	U
12672-29-6	Aroclor-1248	1100.	U
11097-69-1	Aroclor-1254	2300.	U
11096-82-5	Aroclor-1260	2300.	U

✓ OK
KL 5/20/88

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW944

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix: (soil/water) SOIL Lab Sample ID: 623

Sample wt/vol: 30.2 (g/mL) G Lab File ID: EPE21

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 67. dec. 59. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/ 6/88

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 10.00

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 (Lindane)	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	390.	U
72-55-9	4,4'-DDE	390.	U
72-20-8	Endrin	390.	U
33213-65-9	Endosulfan II	390.	U
72-54-8	4,4'-DDD	390.	U
1031-07-8	Endosulfan Sulfate	390.	U
50-29-3	4,4'-DDT	390.	U
72-43-5	Methoxychlor	1900.	U
53494-70-5	Endrin Ketone	390.	U
5103-71-9	alpha-Chlordane	1900.	U
5103-74-2	gamma-Chlordane	1900.	U
8001-35-2	Toxaphene	3900.	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	3900.	U
11096-82-5	Aroclor-1260	3900.	U

OK
KL 5/20/88

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW945

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix: (soil/water) SOIL Lab Sample ID: 626

Sample wt/vol: 30.3 (g/mL) G Lab File ID: EPE22

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 72. dec. 69. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/ 6/88

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 10.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	260.	U
319-85-7	beta-BHC	260.	U
319-86-8	delta-BHC	260.	U
58-89-9	gamma-BHC (Lindane)	260.	U
76-44-8	Heptachlor	260.	U
309-00-2	Aldrin	260.	U
1024-57-3	Heptachlor Epoxide	260.	U
959-98-8	Endosulfan I	260.	U
60-57-1	Dieldrin	510.	U
72-55-9	4,4'-DDE	510.	U
72-20-8	Endrin	510.	U
33213-65-9	Endosulfan II	510.	U
72-54-8	4,4'-DDD	230.	J
1031-07-8	Endosulfan Sulfate	510.	U
50-29-3	4,4'-DDT	510.	U
72-43-5	Methoxychlor	2600.	U
53494-70-5	Endrin Ketone	510.	U
5103-71-9	alpha-Chlordane	2600.	U
5103-74-2	gamma-Chlordane	2600.	U
8001-35-2	Toxaphene	5100.	U
12674-11-2	Aroclor-1016	2600.	U
11104-28-2	Aroclor-1221	2600.	U
11141-16-5	Aroclor-1232	2600.	U
53469-21-9	Aroclor-1242	2600.	U
12672-29-6	Aroclor-1248	2600.	U
11097-69-1	Aroclor-1254	5100.	U
11096-82-5	Aroclor-1260	5100.	U

OK
KL 5/20/88

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EW946

Lab Name: CENREF Contract: 68-01-7465

Lab Code: CENREF Case No.: 9411 SAS No.: SDG No.: EW942

Matrix: (soil/water) SOIL Lab Sample ID: 629

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EPE23

Level: (low/med) LOW Date Received: 4/21/88

% Moisture: not dec. 19. dec. 19. Date Extracted: 4/25/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 5/ 6/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	10.	U
319-85-7	beta-BHC	10.	U
319-86-8	delta-BHC	10.	U
58-89-9	gamma-BHC (Lindane)	10.	U
76-44-8	Heptachlor	10.	U
309-00-2	Aldrin	10.	U
1024-57-3	Heptachlor Epoxide	10.	U
959-98-8	Endosulfan I	10.	U
60-57-1	Dieldrin	20.	U
72-55-9	4,4'-DDE	44.	
72-20-8	Endrin	20.	U
33213-65-9	Endosulfan II	20.	U
72-54-8	4,4'-DDD	20.	U
1031-07-8	Endosulfan Sulfate	20.	U
50-29-3	4,4'-DDT	78.	
72-43-5	Methoxychlor	98.	U
53494-70-5	Endrin Ketone	20.	U
5103-71-9	alpha-Chlordane	98.	U
5103-74-2	gamma-Chlordane	98.	U
8001-35-2	Toxaphene	200.	U
12674-11-2	Aroclor-1016	98.	U
11104-28-2	Aroclor-1221	98.	U
11141-16-5	Aroclor-1232	98.	U
53469-21-9	Aroclor-1242	98.	U
12672-29-6	Aroclor-1248	98.	U
11097-69-1	Aroclor-1254	200.	U
11096-82-5	Aroclor-1260	200.	U

OK
KL 5/20/88

WL1

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46204

State Form 38660

Telephone 317-232-4160

WATER WELL RECORD

WELL LOCATION

(Fill in completely - Refer to instruction sheet)

County in which well was drilled St. Joseph Civil Township

Driving directions to the well location: Include County Road Names, Numbers, Subdivision Name, lot number, distinctive landmarks, etc.

Iowa Street and Huron Street, from USGS Bulletin #3

Sj 6-16 A

NAME OF WELL OWNER and/or BUILDING CONTRACTOR

Well Owner City of South Bend Address

Building Contractor Address

Name of Well Drilling Contractor:

Address

Name of Drilling Equipment Operator:

WELL INFORMATION

Depth of well: 193 Date well was completed: <1921

Diameter of casing or drive pipe: Total Length:

Diameter of liner (if used): Total Length:

Diameter of Screen: Length: Slot Size:

Type of Well: Drilled ☐ Gravel Pack ☐ Driven ☐ Other

Use of Well: For Home ☐ For Industry ☐ For Public Supply ☐ Stock ☐

Method of Drilling: Cable Tools ☐ Rotary ☐ Rev. Rotary ☐ Jet ☐ Bucket Rig ☐

Static water level in completed well (Distance from ground to water level) 5 feet

Bailer Test: Hours Tested Rate g.p.m. Drawdown ft.

Pumping Test: Hours Tested Rate g.p.m. Drawdown ft.

(Drawdown is the difference between static level and water level at end of test)

Signature from USGS Bulletin #15

Date L. Wille 2/85

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Quaternary		
top soil	0	10
fine sand	10	20
sand and gravel	20	50
coarse sand	50	130
finer sand	130	160
coarse sand	160	193
bedrock - unknown type	193	?

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

COUNTY St. Joseph TWP. 37N RGE. 26E NE ¼ NE ¼ SE SEC 9

Topo Map South Bend West 7½

Field Located By _____ Date _____

Courthouse Location By _____ Date _____

Location accepted w/o verification by _____

_____ Ft W of EL. Ground Elevation 714

_____ Ft N of SL. Depth to bedrock 193

_____ Ft E of WL. Bedrock elevation 521

_____ Ft S of NL. Aquifer elevation _____

Subdivision Name plotted on bedrock map ck

Lot Number _____

J1

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46204

WL2
State Form 35690

Telephone 317-232-4160

WATER WELL RECORD

WELL LOCATION

(Fill in completely - Refer to instruction sheet)

County in which well was drilled St. Joseph Civil Township

Driving directions to the well location: Include County Road Names, Numbers, Subdivision Name, lot number, distinctive landmarks, etc.

from USGS Bulletin #3 Sj 4-T1
observation well St. Joseph 11
2/16/45 static 19.32' below limestone
Olive Street Station, 140 feet east of west property line and 200 feet north of NYC Railroad

NAME OF WELL OWNER and/or BUILDING CONTRACTOR

Well Owner City of South Bend Address

Building Contractor Address

Name of Well Drilling Contractor: Layne Northern Company Inc.

Address

Name of Drilling Equipment Operator:

WELL INFORMATION

Depth of well: 152 Date well was completed: 10/19/44

Diameter of casing or drive pipe: 3'-1½ Total Length:

Diameter of liner (if used): Total Length:

Diameter of Screen: Length: 6' Slot Size:

Type of Well: Drilled ☐ Gravel Pack ☐ Driven ☐ Other

Use of Well: For Home ☐ For Industry ☐ For Public Supply ☐ Stock ☐

Method of Drilling: Cable Tools ☐ Rotary ☐ Rev. Rotary ☐ Jet ☐ Bucket Rig ☐

Static water level in completed well (Distance from ground to water level) 18 feet

Bailer Test: Hours Tested Rate g.p.m. Drawdown ft.

Pumping Test: Hours Tested Rate g.p.m. Drawdown ft.

(Drawdown is the difference between static level and water level at end of test)

Signature

Date

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Quaternary		
top soil	0	2
sand and clay	2	3
sand	3	15
coarse sand	15	22
sand	22	25
sand and gravel	25	86
gravelly clay	86	118
sand and gravel	118	165
Lower Mississippian series shale	165	171
I do not feel this is bedrock,		
it should be at ~ 540		
or @ 175		
not used on bedrock map		

COUNTY St. Joseph TWP. 37N RGE. 28E ¼ NE ¼ NW SEC 15 C 6

Topo Map South Bend West 7½

Field Located By _____ Date _____ Ft W of EL _____ Ground Elevation 716 Subdivision Name _____

Courthouse Location By _____ Date _____ Ft N of SL _____ Depth to bedrock 166

Location accepted w/o verification by _____ Ft E of WL _____ Bedrock elevation 554

Ft S of NL _____ Aquifer elevation _____ Lot Number _____

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46204

WL3

State Form 30660

Telephone: 317-232-4160

WATER WELL RECORD

WELL LOCATION

(Fill in completely. Refer to instruction sheet)

County in which well was drilled St Joseph Civil Township

Driving directions to the well location: Include County Road Names, Numbers, Subdivision Name, lot number, distinctive landmarks, etc.

Camden Street, 150 feet south of West Washington Street, from USGS Bulletin #3 Sj.6-11A

NAME OF WELL OWNER and/or BUILDING CONTRACTOR

Well Owner City of South Bend Address

Building Contractor Address

Name of Well Drilling Contractor: ?

Address

Name of Drilling Equipment Operator:

WELL INFORMATION

Depth of well: 211 Date well was completed: <1921

Diameter of casing or drive pipe: Total Length:

Diameter of liner (if used): Total Length:

Diameter of Screen: Length: Slot Size:

Type of Well: Drilled ☒ Gravel Pack ☐ Driven ☐ Other

Use of Well: For Home ☐ For Industry ☐ For Public Supply ☐ Stock ☐

Method of Drilling: Cable Tools ☐ Rotary ☐ Rev. Rotary ☐ Jet ☐ Bucket Rig ☐

Static water level in completed well (Distance from ground to water level) 5.8 feet

Bailer Test: Hours Tested Rate g.p.m. Drawdown ft.

Pumping Test: Hours Tested Rate g.p.m. Drawdown ft.

(Drawdown is the difference between static level and water level at end of test)

Signature from USGS Bulletin #15

Date L. Wille 2/85

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Quaternary		
top soil	0	8
sand	8	12
sand and gravel	12	20
gravel and coarse sand	20	30
muddy gravel and coarse sand	30	40
clay and some hardpan	40	50
sand and gravel	50	60
gravel	60	70
quicksand	70	80
fine sand	80	90
sand with some gravel	90	100
coarse sand and fine gravel	100	110
coarse sand and fine gravel (more sand)	110	120
finer sand with small amounts of gravel	120	130
finer sand with small amounts of gravel	130	
(more gravel)		140
small gravel and fine sand	140	160
small gravel and fine sand (more sand)	160	170
small gravel and fine sand (more gravel)	170	180
finer sand - getting muddy	180	190
mud	190	211
shale -	211	?

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

COUNTY St. Joseph TWP. 37N RGE. 2E SW ¼ SW ¼ NW SEC. 10 E 1

Topo Map South Bend West 7½

Field Located By _____ Date _____

Courthouse Location By _____ Date _____

Location accepted w/o verification by _____

_____ Ft W of EL. Ground Elevation 713 Subdivision Name plotted on

_____ Ft N of SL. Depth to bedrock 211 bedrock map

_____ Ft E of WL. Bedrock elevation 502 ck

_____ Ft S of NL. Aquifer elevation _____ Lot Number _____

WL4

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46204

Telephone 317-232-4160

WATER WELL RECORD

WELL LOCATION

(Fill in completely - Refer to instruction sheet)

County in which well was drilled St. Joseph Civil Township

Driving directions to the well location: Include County Road Names, Numbers, Subdivision Name, lot number, distinctive landmarks, etc.

15 feet west of east line of Lombardy Drive, 60 feet south of Orchard Avenue, from USGS Bulletin #3 Sj 4-T2 not in USGS Bulletin #15 ?

NAME OF WELL OWNER and/or BUILDING CONTRACTOR

Well Owner City of South Bend Address

Building Contractor Address

Name of Well Drilling Contractor: Layne Northern Company Inc.

Address

Name of Drilling Equipment Operator:

WELL INFORMATION

Depth of well: 166 Date well was completed: November 4, 1944

Diameter of casing or drive pipe: Total Length:

Diameter of liner (if used): Total Length:

Diameter of Screen: Length: Slot Size:

Type of Well: Drilled ☐ Gravel Pack ☐ Driven ☐ Other

Use of Well: For Home ☐ For Industry ☐ For Public Supply ☐ Stock ☐

Method of Drilling: Cable Tools ☐ Rotary ☐ Rev. Rotary ☐ Jet ☐ Bucket Rig ☐

Static water level in completed well (Distance from ground to water level) 19 feet

Bailer Test: Hours Tested Rate g.p.m. Drawdown ft.

Pumping Test: Hours Tested Rate 10 g.p.m. Drawdown ft.

(Drawdown is the difference between static level and water level at end of test)

Signature Lowell Wile 2/85

Date Data from USGS Bulletin ~~#8~~ #15

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
strat data from cross section		
USGS Bulletin #5 - used log in		
X-section but no log in text		
top soil and overburden	0	4
sandy gravel	4	37
sandy clay - some gravel	37	55
gravelly clay	55	85
gravel with clay	85	128
coarse sand with gravel	128	161
bedrock - unkown type	161	166

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

COUNTY St. Joseph TWP. 37N RGE. 2E NW ¼ SW ¼ NW SEC. 16 E

Subdivision Name

Topo Map South Bend West 7½

Field Located By _____ Date _____

Courthouse Location By _____ Date _____

Location accepted w/o verification by _____

_____ Ft W of EL.

_____ Ft N of SL.

_____ Ft E of WL.

_____ Ft S of NL.

Ground Elevation 715

Depth to bedrock 161

Bedrock elevation 554 (552) ab

Aquifer elevation _____

Lot Number _____

plotted on bedrock map

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46204

State Form 35680

Telephone 317-232-4160

WL5

WATER WELL RECORD

WELL LOCATION

(Fill in completely - Refer to instruction sheet)

County in which well was drilled St Joseph Civil Township

Driving directions to the well location: Include County Road Names, Numbers, Subdivision Name, lot number, distinctive landmarks, etc.

Olive Street, midway between Indiana Avenue and Sample Street, from USGS Bulletin #3, Sj 6-5A

NAME OF WELL OWNER and/or BUILDING CONTRACTOR

Well Owner City of South Bend Address

Building Contractor Address

Name of Well Drilling Contractor: ?

Address

Name of Drilling Equipment Operator:

WELL INFORMATION

Depth of well: 178 Date well was completed: <1921

Diameter of casing or drive pipe: Total Length:

Diameter of liner (if used): Total Length:

Diameter of Screen: Length: Slot Size:

Type of Well: Drilled [X] Gravel Pack [ ] Driven [ ] Other

Use of Well: For Home [ ] For Industry [ ] For Public Supply [ ] Stock [ ]

Method of Drilling: Cable Tools [ ] Rotary [ ] Rev. Rotary [ ] Jet [ ] Bucket Rig [ ]

Static water level in completed well (Distance from ground to water level) 12 (8) feet

Bailer Test: Hours Tested Rate g.p.m. Drawdown ft.

Pumping Test: Hours Tested Rate g.p.m. Drawdown ft.

(Drawdown is the difference between static level and water level at end of test)

Signature from USGS Bulletin #15

Date L. Wille 2/85

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Quaternary		
top soil	0	20
fine sand	20	43
shale (?)	43	50
heavy gravel and boulders	50	52
shale	52	63
clay	63	90
fine sand	90	100
coarse sand with some small stones	100	110
sand and fine gravel	110	120
very coarse sand	120	133
coarse sand and fine gravel	133	143
very coarse sand and gravel	143	153
medium sand	153	178
bedrock - unknown type	178	?

COUNTY St Joseph TWP. 37N RGE. 2E NW ¼ SW ¼ NE ¼ SEC. 15

Topo Map South Bend West 7½

Field Located By _____ Date _____

Courthouse Location By _____ Date _____

Location accepted w/o verification by _____

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

_____ Ft W of EL. Ground Elevation 716

_____ Ft N of SL. Depth to bedrock 178

_____ Ft E of WL. Bedrock elevation 538

_____ Ft S of NL. Aquifer elevation _____

Subdivision Name plotted on bedrock map abc

Lot Number _____

61

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46204

WL6

State Form 30690

Telephone 317-232-4160

WATER WELL RECORD

WELL LOCATION

(Fill in completely - Refer to instruction sheet)

County in which well was drilled St. Joseph Civil Township

Driving directions to the well location: Include County Road Names, Numbers, Subdivision Name, lot number, distinctive landmarks, etc.

Sample Street and Fakin Street (extended) from USGS Bulletin #3, Sj 6-21A

NAME OF WELL OWNER and/or BUILDING CONTRACTOR

Well Owner City of South Bend Address

Building Contractor Address

Name of Well Drilling Contractor:

Address

Name of Drilling Equipment Operator:

WELL INFORMATION

Depth of well: 200 Date well was completed: <1921

Diameter of casing or drive pipe: Total Length:

Diameter of liner (if used): Total Length:

Diameter of Screen: Length: Slot Size:

Type of Well: Drilled ☐ Gravel Pack ☐ Driven ☐ Other

Use of Well: For Home ☐ For Industry ☐ For Public Supply ☐ Stock ☐

Method of Drilling: Cable Tools ☐ Rotary ☐ Rev. Rotary ☐ Jet ☐ Bucket Rig ☐

Static water level in completed well (Distance from ground to water level) 3.7 feet

Bailer Test: Hours Tested Rate g.p.m. Drawdown ft.

Pumping Test: Hours Tested Rate g.p.m. Drawdown ft.

(Drawdown is the difference between static level and water level at end of test)

Signature from USGS Bulletin #15

Date L. Wille 2/85

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Quaternary		
sandy loam	0	10
fine sand	10	65
clay	65	85
hard clay	85	90
sand and gravel	90	200
bedrock - unknown type	200	?

COUNTY St. Joseph TWP. 37N RGE. 2E SW ¼ SE ¼ SE ¼ SEC 9

Topo Map South Bend West 7½

Field Located By _____ Date _____

Courthouse Location By _____ Date _____

Location accepted w/o verification by _____

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

_____ Ft W of EL. Ground Elevation 714

_____ Ft N of SL. Depth to bedrock 200

_____ Ft E of WL. Bedrock elevation 514

_____ Ft S of NL. Aquifer elevation _____

Subdivision Name plotted on bedrock map

Lot Number _____

R1

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46204

Telephone 317-232-4160

WL7
State Form 38660

WATER WELL RECORD

WELL LOCATION

(Fill in completely - Refer to instruction sheet)

County in which well was drilled St. Joseph Civil Township

Driving directions to the well location: Include County Road Names, Numbers, Subdivision Name, lot number, distinctive landmarks, etc.

South of Perfume Factory, from USGS Bulletin #3
S1 7-24

NAME OF WELL OWNER and/or BUILDING CONTRACTOR

Well Owner City of South Bend Address

Building Contractor Address

Name of Well Drilling Contractor: Austin Drilling Company

Address

Name of Drilling Equipment Operator:

WELL INFORMATION

Depth of well: 129 Date well was completed: March 18, 1927

Diameter of casing or drive pipe: Total Length:

Diameter of liner (if used): Total Length:

Diameter of Screen: Length: Slot Size:

Type of Well: Drilled ☐ Gravel Pack ☐ Driven ☐ Other

Use of Well: For Home ☐ For Industry ☐ For Public Supply ☐ Stock ☐

Method of Drilling: Cable Tools ☐ Rotary ☐ Rev. Rotary ☐ Jet ☐ Bucket Rig ☐

Static water level in completed well (Distance from ground to water level) 11 feet

Bailer Test: Hours Tested Rate g.p.m. Drawdown ft.

Pumping Test: Hours Tested Rate g.p.m. Drawdown ft.

(Drawdown is the difference between static level and water level at end of test)

Signature from USGS Bulletin #15

Date L. Wille 3/85

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Quaternary		
top soil, black dirt	0	2
dirty sand and gray gravel	2	4
medium to coarse sand and gravel	4	12
medium to coarse sand	12	18
fine sand	18	36
coarse brown sand	36	42
brown gravel	42	53
clean gravel	53	63
coarse sand and gravel	63	70
blue clay and sandy gravel	70	99
sandy brown gravel	99	104
sandy brown clay	104	110
blue clay with sand and gravel	110	126
Lower Mississippian shale	126	129

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

D3

COUNTY St Joseph TWP. 37N RGE. 2E NW ¼ NW ¼ NW SEC 24

Topo Map South Bend West 7½

Field Located By _____ Date _____

Courthouse Location By _____ Date _____

Location accepted w/o verification by _____

_____ Ft W of EL.

_____ Ft N of SL.

_____ Ft E of WL.

_____ Ft S of NL.

Ground Elevation 746½

Depth to bedrock 126

Bedrock elevation 620

Aquifer elevation _____

Subdivision Name plotted on bedrock map

ok

Lot Number _____