US EPA RECORD CENTER REGION 5

978059

SAMPLING DATA

SWP Kellen

IN-2-56

LANE RESTORATION

1. Business Name: 4600 Bluff Road

Address: Indianapolis, Indiana

City: Marion, 46217 State:

County: IN 5402-000-11 Zip:

Operator Permit No.

STATE OF INDIANA
STREAM POLLUTION CONTROL BOARD

SPC-17 LIQUID WASTE REMOVAL RECORD
HAULER REPORT

2. For month of May, 1978

3. DATE HAULED			4. STATE LIC. PLATE		5.	6.	7.	REMOVAL 8.	DISPOSAL 9.	10.
Mo.	Day	Year	No.	Year	VEH. NO.	WASTE DESCRIPTION	QUANTITY	SOURCE OF WASTE	LOCATION OF DISPOSAL	METHOD OF DISPOSAL
5	1	78	IN 3235	78	510	PICKLE LIQUOR	4635 gal	FORD MOTOR COMPANY	4600 Bluff Road	Land Disposal
5	2	78	"	"	"	"	13905	ENGLISH AVE.	"	"
5	3	78	"	"	"	"	4635	"	"	"
5	4	78	"	"	"	"	4635	"	"	"
5	5	78	"	"	"	"	9270	"	"	"
5	8	78	"	"	"	"	4635	"	"	"
5	9	78	"	"	"	"	9270	"	"	"
5	10	78	"	"	"	"	4635	"	"	"
5	12	78	"	"	"	"	4635	"	"	"
5	15	78	"	"	"	"	18540	"	"	"
5	16	78	"	"	"	"	13905	"	"	"
5	18	78	"	"	"	"	4635	"	"	"
5	23	78	"	"	"	"	9270	"	"	"
5	24	78	"	"	"	"	9270	"	"	"
5	30	78	"	"	"	"	13905	"	"	"
							129,780			
5	1	78	"	"	"	"	4635	Jones & Laughlin St	"	"
5	2	78	"	"	"	"	4635	Holt Road	"	"
5	3	78	"	"	"	"	4635	"	"	"
5	15	78	"	"	"	"	4635	"	"	"
5	16	78	"	"	"	"	4635	"	"	"
5	19	78	"	"	"	"	4635	"	"	"
5	23	78	"	"	"	"	4635	"	"	"
5	24	78	"	"	"	"	4635	"	"	"
							37,050			
							166,860			

11. Signature (Authorized Representative) [signature]

12. Date June 12, 1978

SPC-17 LIQUID WASTE REMOVAL RECORD - HAULER REPORT (cont.)

DATE HAULED			STATE LIC. PLATE		VEH. NO.	WASTE DESCRIPTION	QUANTITY	REMOVAL	DISPOSAL	
Mo.	Day	Year	No.	Year				SOURCE OF WASTE	LOCATION OF DISPOSAL	METHOD OF DISPOSAL
5	1	78	IN 3226	78	826	LIME SLURRY	4000 gal.	UNION CARBIDE	FORD MOTOR COMPANY	Re-Use for Tre
5	3	78	"	"	"	"	4000	SPEEDWAY	"	"
5	5	78	"	"	"	"	4000	"	"	"
5	8	78	"	"	"	"	4000	"	"	"
5	9	78	"	"	"	"	4000	"	"	"
5	11	78	"	"	"	"	8000	"	"	"
5	12	78	"	"	"	"	4000	"	"	"
5	25	78	"	"	"	"	4000	"	"	"
5	31	78	"	"	"	"	4000	"	"	"
5	1	78	"	"	"	"	12000	Indpls'Pwr & Light	4600 Bluff Road	Land Disposal
5	2	78	"	"	"	"	20000	Kentucky Ave.	"	"
5	3	78	"	"	"	"	12000	"	"	"
5	4	78	"	"	"	"	4000	"	"	"
5	5	78	"	"	"	"	8000	"	"	"
5	8	78	"	"	"	"	4000	"	"	"
5	9	78	"	"	"	"	8000	"	"	"
5	10	78	"	"	"	"	4000	"	"	"
5	12	78	"	"	"	"	4000	"	"	"
5	15	78	"	"	"	"	24000	"	"	"
5	16	78	"	"	"	"	20000	"	"	"
5	18	78	"	"	"	"	4000	"	"	"
5	19	78	"	"	"	"	8000	"	"	"
5	23	78	"	"	"	"	16000	"	"	"
5	24	78	"	"	"	"	16000	"	"	"
5	30	78	"	"	"	"	12000	"	"	"
5	3	78	"	"	"	"	16000	"	3300 Harding Street	"
5	8	78	"	"	"	"	24000	"	"	"
5	12	78	"	"	"	"	24000	"	"	"
5	19	78	"	"	"	"	16000	"	"	"
5	23	78	"	"	"	"	16000	"	"	"
5	25	78	"	"	"	"	16000	"	"	"
5	26	78	"	"	"	"	24000	"	"	"
5	29	78	"	"	"	"	12000	"	"	"

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CENTRAL LABORATORY, DENVER, COLORADO

WATER QUALITY ANALYSIS
LAB ID # 208040 RECORD # 23032

SAMPLE LOCATION: BELMONT STP-- GREASE PIT, INDPLS
STATION ID: 394300086120002 LAT.LONG.SEQ.: 394300 0861200 02
DATE OF COLLECTION: BEGIN--760719 END-- TIME--
STATE CODE: 18 COUNTY CODE: 097 PROJECT IDENTIFICATION: 3
DATA TYPE: 2 SOURCE: OTHER GEOLOGIC UNIT:
COMMENTS:
EE HORSLEY-SBH

ALDRIN	BTM UG/KG	2500	HEPT EPOX	BTM UG/KG	0.0
CHLORDANE	BTM UG/KG	4400	HEPTACHLOR	BTM UG/KG	0.0
DDD	BTM UG/KG	0.0	LINDANE	BTM UG/KG	1300
DDE	BTM UG/KG	0.0	PCB	BTM UG/KG	87000
DDT	BTM UG/KG	3700	PCN	BTM UG/KG	0
DIELDRIN	BTM UG/KG	13	SAMPLE SOURCE CODE		40
ENDRIN	BTM UG/KG	0.0	TOXAPHENE	BTM UG/KG	0

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CENTRAL LABORATORY, DENVER, COLORADO

WATER QUALITY ANALYSIS
LAB ID # 208042 RECORD # 23036

SAMPLE LOCATION: BELMONT STP--INCINERATOR ASH, INDPLS
STATION ID: 394300086120003 LAT.LONG.SEQ.: 394300 0861200 03
DATE OF COLLECTION: BEGIN--760719 END-- TIME--
STATE CODE: 18 COUNTY CODE: 097 PROJECT IDENTIFICATION: 3
DATA TYPE: 2 SOURCE: OTHER GEOLOGIC UNIT:
COMMENTS:
EE HORSLEY-SBH

ALDRIN	BTM UG/KG	0.0	HEPT EPOX	BTM UG/KG	0.0
CHLORDANE	BTM UG/KG	14	HEPTACHLOR	BTM UG/KG	0.5
DDD	BTM UG/KG	0.0	LINDANE	BTM UG/KG	0.0
DDE	BTM UG/KG	0.3	PCB	BTM UG/KG	0
DDT	BTM UG/KG	0.0	PCN	BTM UG/KG	0
DIELDRIN	BTM UG/KG	0.6	SAMPLE SOURCE CODE		40
ENDRIN	BTM UG/KG	0.0	TOXAPHENE	BTM UG/KG	0

DATA FROM SAMPLES FROM THE LANE LANDFILL

	SAMPLE 1	2	3	4	Drinking Water Standards
Cd	ND@0.03	ND@0.03	ND@0.03	< 0.01	0.01*
Pb	ND@0.05	ND@0.05	ND@0.05	< 0.1	0.05*
Zn	0.04	0.12	ND@0.01	< 0.1	5**
Cu	0.07	ND@0.05	ND@0.05	0.01	1**
Ni	ND@0.05	ND@0.05	ND@0.05	< 0.05	—
TSS	1355	1729	11,244	6	---
pH@29°C	11.0	8.9	8.9	8.1	6.5-8.5*
PCB	—	—	—	< 0.0005	—

All values are in mg/l

Tests on Samples 1, 2 and 3 were performed on the leachate resulting from the samples being treated according to ASTM Method A (attached).

Sample 4 is from a pond located on the landfill site.

* Primary Drinking Water Regulations

** Secondary Maximum Contaminant Levels

Note: Location, depth and method of obtaining the samples is unknown.

3. Analysis

A. The samples will be analyzed by EMS Laboratories. A brochure is attached, noting their capabilities, equipment, instrumentation and the analytical methods to be used.

B. Leachate will be obtained from the samples, using the SLT method described in EPA Research and Development Manual, "Comparison of Three Waste Leaching Tests," (EPA - 600/2-79-071), published in July, 1979). Procedure C and Procedure R will be run, using distilled deionized water as the leaching solution.

C. Analyses will be made for the following components: PCB, Cadmium, Lead, Zinc, Copper, Nickel, pH, total dissolved solids and chlorides.

D. Contaminant levels for these components are as listed in 40 CFR, Part 257, Appendix A and are: PCB - 0.001 mg/l; Cadmium - 0.01 mg/l; Lead - 0.05 mg/l; Zinc - 5 mg/l; Copper - 1 mg/l; pH - 6.5 to 8.5; total dissolved solids - 500 mg/l; Chromium 50 mg/l and chlorides - 250 mg/l.

E. Limits of detection for analysis will be set at one order of magnitude less than the standards listed above for lower limits of detection. All results will be reported in milligrams per liter.

F. One-third of the samples will be run in triplicate for statistical reliability.

R5-8410-02

IN0230-001

ecology and environment, inc.

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

International Specialists in the Environment

Date Received for Review: 11-26-85 **Date Review Completed:** 12-3-85

To: Ken Krueger (an old Sternberg site)

From: Cynthia Pugh / Suzanne Kozlowski

0230

Subject: McKinley Thompson Landfill R05-8410-2A Indiana

Sample Description: Case # 5136 3 low soil total metals

Project Data Status: waiting for organics and low water metals

FIT Data Review Findings:

See attached CRL review. Data acceptable for use

Additional Comments:

Missing data request filed for 4 low water metals.

Book No. 5

Page No. 60, 62

recycled paper

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

RECEIVED NOV 2 6 1985

DATE: 11-25-85

SUBJECT: Review of Region V CLP Data
Received for Review on 11/25/85

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

TO: Data User: Jet

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

SITE NAME: McKinley-Thompson L.F. SMO Case No. 5136

EPA Data Set No. 5F 2780 No. of Samples: 7 D.U./Activity Numbers 1905 / C48500

CRL No. 86F502324 - 86F502329

SMO Traffic No. MEG483 - MEG489

CLP Laboratory: RMAL Hrs. Required for Review: 3 hrs

Following are our findings.

This review covers three low soil samples and four low H_2O for total metals. Duplicate RPD for soil on Fe (29%) and Zn (58%) exceed 20% limits while sample values are >5xs CRDL. Interferance was found in Zn on the soil serial dilution. Spike recovery for water samples is biased low for Al (71%), Ba (68%), Fe (69%), Se (60%), Tl (48%) and Sb (73%). Fe was not flagged on Form I's, only on Form I. Duplicate values on Form II for H_2O did not show Pb to be 6.8 µg/l and calculate the RPD. Thallium duplicate showed 2U, not the raw-data value of 10U. Both analyte duplicates were corrected.

11-25-85
DMM

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

cc: Dr. Alfred Haeberer/Joan Fisk/Gary Ward, EPA Support Services
Ross K. Robeson, EMSL-Las Vegas
Don Trees, CLP/Sample Management Office

EPA FORM 1320-6 (REV 3-76)

DATA REVIEW SHEET

CASE # 5136
DATA SET # SF 2780
LAB Q.C. # 55430 + 55429 (H2O)
DATE: 11-25-85

SITE McKinley-Thompson L.F.
LAB RMAL
REVIEWED BY Dorothy M. May

MATRIX: soil + H2O
CONC. : low

WATER SAMPLE SPK. MEG 487
WATER SAMPLE DUP. MEG 486
SOIL SAMPLE SPK. MEG 483
SOIL SAMPLE DUP. MEG 483

Metals:	CALIBRATION ICV	CCV	CCV	CCV	BLANKS ICB	PREP	PREP	ICP INTER. INT	FINAL	SPIKE WATER	SOIL	DUPLICATE WATER	SOIL	LCS WATER	SOIL
1. Aluminum										71%					
2. Antimony															
3. Arsenic															
4. Barium										68%					
5. Beryllium															
6. Cadmium															
7. Calcium															
8. Chromium															
9. Cobalt															
10. Copper															
11. Iron										69%			29%		
12. Lead															
13. Magnesium															
14. Manganese															
15. Mercury															
16. Nickel															
17. Potassium															
18. Selenium										60%					
19. Silver															
20. Sodium															
21. Thallium										48%					
22. Vanadium															
23. Zinc													58%		
24. Cyanide															
Other: Sn										73%					

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SF2780

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

Date 11-21-85

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name ROCKY MOUNTAIN ANALYTICAL
SOW No. 784

Case No. 5136
QC Report No. 55430

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MEG483D			
MEG483			
MEG483+			
MEG484			
MEG485			
[MEG999]			

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NOV 25 1985
U.S. EPA CENTRAL REGIONAL LAB.
536 S. CLARK STREET
CHICAGO, ILLINOIS 60605

Comments: 3 LOW SOILS TASK 1 2 ONLY
SERIAL DILUTION OF SAMPLE MEG485 IS IDENTIFIED AS [MEG999]
~~Sert~~ Interference noted on serial dilution for Zn.

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 method used with P (for ICP/Flame AA) or F (for furnace).
U - Indicates element was analyzed for but not detected. Report with the 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.
E - Indicates spike sample recovery is not within control limits.
X - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is Less than 0.995
CV - Indicates Cold Vapor
AS - Indicates Automated Spectrophotometric

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Narrative

RMA QC # 55430

Case # 5136

Comments; → Pb, As data used by both ICAP and Furnace, Forms II, III and VII reflect 2 sets of QC.

→ Duplicate RPD > 20% noted for Fe, Zn. Results reported flagged w/ "*".

→ RPD's > 20% for Be, ~~Fe~~ Cr, V not flagged. Results are < 5X CRDL. Sample and Duplicate are within ± CRDL for these element.

→ Interference noted on ICAP serial dilution for Zn. Data reported flagged with an "S".

Lab Manager JM

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Form I

86F502524

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.
MEG483

Date 11-21-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5136
QC REPORT NO. 55430

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	8260	P	13.	MAGNESIUM	[671]	P
2.	ANTIMONY	15U	P	14.	MANGANESE	146	P
3.	ARSENIC	27	F	15.	MERCURY	0.06U	CV
4.	BARIUM	[92]	P	16.	NICKEL	31	P
5.	BERYLLIUM	5	P	17.	POTASSIUM	1310U	P
6.	CADMIUM	4.2	P	18.	SELENIUM	1.2U	F
7.	CALCIUM	10400	P	19.	SILVER	[3.4]	P
8.	CHROMIUM	21	P	20.	SODIUM	[418]	P
9.	COBALT	[12]	P	21.	THALLIUM	1.2U	F
10.	COPPER	47	P	22.	TIN	9.6U	P
11.	IRON	28700	P ~~X~~ J	23.	VANADIUM	66	P
12.	LEAD	9	F	24.	ZINC	163	P ~~X~~ S J

Cyanide NR Percent Solids (%) 83

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: ✓ are toxic metals
J is an estimated value
P, F and CV are methods of analysis
[x] less than x

Lab Manager JN

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Form I

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

EPA Sample No. 86F502525 MEG484

Date 11-21-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5136
QC REPORT NO. 55430

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	11900	P	13.	MAGNESIUM	[1290]	P
2.	ANTIMONY	18U	P	14.	MANGANESE	213	P
3.	ARSENIC	123	P	15.	MERCURY	[0.088]	CV
4.	BARIUM	[110]	P	16.	NICKEL	75	P
5.	BERYLLIUM	5.9	P	17.	POTASSIUM	[2420]	P
6.	CADMIUM	6.4	P	18.	SELENIUM	1.5U	F
7.	CALCIUM	25100	P	19.	SILVER	[4.5]	P
8.	CHROMIUM	34	P	20.	SODIUM	[1130]	P
9.	COBALT	[28]	P	21.	THALLIUM	[2.8]	F
10.	COPPER	78	P	22.	TIN	12U	P
11.	IRON	59700	P X J	23.	VANADIUM	135	P
12.	LEAD	24	F	24.	ZINC	167	P X S J

Cyanide NR Percent Solids (%) 68

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:

Lab Manager JM

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Form I

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

53

86F502526
EPA Sample No.
MEG485

Date 11-21-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5136
QC REPORT NO. 55430

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	13600	P	13.	MAGNESIUM	[1710]	P
2.	ANTIMONY	60	P	14.	MANGANESE	252	P
3.	ARSENIC	134	P	15.	MERCURY	[0.17]	CV
4.	BARIUM	221	P	16.	NICKEL	58	P
5.	BERYLLIUM	5.2	P	17.	POTASSIUM	[3780]	P
6.	CADMIUM	7.7	P	18.	SELENIUM	[3.1]	F
7.	CALCIUM	7360	P	19.	SILVER	[6.5]	P
8.	CHROMIUM	78	P	20.	SODIUM	[1280]	P
9.	COBALT	[28]	P	21.	THALLIUM	[1.7]	F
10.	COPPER	88	P	22.	TIN	14U	P
11.	IRON	77100	P x J	23.	VANADIUM	108	P
12.	LEAD	89	P	24.	ZINC	245	P x S J

Cyanide NR Percent Solids (%) 59

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:

Lab Manager JW

page 1

Form III

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Q.C. Report No. 55430

BLANKS

LAB NAME ROCKY MOUNTAIN ANALYTICAL CASE NO. 5136

DATE 11-21-85 UNITS ug/L

Matrix SOIL

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2	
Metals:								
1. ALUMINUM	25U	25U				25U		
2. ANTIMONY	25U	25U				25U		
3. ARSENIC	28U	28U				28U		P
4. BARIUM	13U	13U				13U		
5. BERYLLIUM	0.4U	0.4U				0.4U		
6. CADMIUM	4U	4U				4U		
7. CALCIUM	207U	207U				207U		
8. CHROMIUM	4U	4U				4U		
9. COBALT	5U	5U				5U		
10. COPPER	3U	3U				3U		
11. IRON	10U	10U				[29]		
12. LEAD	22U	22U				22U		P
13. MAGNESIUM	312U	312U				312U		
14. MANGANESE	5U	5U				5U		
15. MERCURY	0.1U	0.1U				0.1U		
16. NICKEL	7U	7U				7U		
17. POTASSIUM	2170U	2170U				2170U		
18. SELENIUM	2U	2U				2U		
19. SILVER	3U	3U				3U		
20. SODIUM	588U	588U				[692]		
21. THALLIUM	2U	2U				2U		
22. TIN	16U	16U				16U		
23. VANADIUM	4U	4U				4U		
24. ZINC	2U	2U				[3.9]		
Other:								
Cyanide								

Page 2

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Form III

Q.C. Report No. 55430

BLANKS

LAB NAME ROCKY MOUNTAIN ANALYTICAL CASE NO. 5136

DATE 11-21-85 UNITS ug/L

Matrix Soil

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2	
Metals:								
1. ALUMINUM								
2. ANTIMONY								
3. ARSENIC	2u	2u			2u			F
4. BARIUM								
5. BERYLLIUM								
6. CADMIUM								
7. CALCIUM								
8. CHROMIUM								
9. COBALT								
10. COPPER								
11. IRON								
12. LEAD	2u	2u			2u			F
13. MAGNESIUM								
14. MANGANESE								
15. MERCURY								
16. NICKEL								
17. POTASSIUM								
18. SELENIUM								
19. SILVER								
20. SODIUM								
21. THALLIUM								
22. TIN								
23. VANADIUM								
24. ZINC								
Other:								
Cyanide								

Form V

Q.C. Report No. 55430

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SPIKE SAMPLE RECOVERY

LAB NAME ROCKY MOUNTAIN ANALYTICAL

CASE NO. 5136
EPA Sample No. MEC483
Lab Sample ID No. -
Units mg/kg

DATE 11-21-85

MATRIX SOIL

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. ALUMINUM	75-125	7030	6850	NR	
2. ANTIMONY	75-125	245	12U	250	94
3. ARSENIC	75-125	42	22	20	100
4. BARIUM	75-125	1040	[76]	1000	96
5. BERYLLIUM	75-125	29	4.1	25	100
6. CADMIUM	75-125	31	3.5	25	110
7. CALCIUM	75-125	6940	8660	NR	
8. CHROMIUM	75-125	119	17	100	102
9. COBALT	75-125	285	[9.7]	250	110
10. COPPER	75-125	166	39	125	102
11. IRON	75-125	29600	32100	NR	
12. LEAD	75-125	16	7.5	10	85
13. MAGNESIUM	75-125	[542]	[557]	NR	
14. MANGANESE	75-125	361	121	250	96
15. MERCURY	75-125	0.54	0.05U	0.5	108
16. NICKEL	75-125	279	26	250	101
17. POTASSIUM	75-125	1080U	1080U	NR	
18. SELENIUM	75-125	4.4	1U	5	88
19. SILVER	75-125	27	[2.8]	25	97
20. SODIUM	75-125	[297]	[347]	NR	
21. THALLIUM	75-125	26	1U	25	104
22. TIN	75-125	216	8U	250	86
23. VANADIUM	75-125	312	55	250	103
24. ZINC	75-125	322	135	250	75
Other:					
Cyanide	75-125				

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

"R"- out of control

Comments:

Form VI

RECEIVED NOV 2 6 1985

Q.C. Report No. 55430

DUPLICATES

LAB NAME ROCKY MOUNTAIN ANALYTICAL

CASE NO. 5136
EPA Sample No. MEG483D
Lab Sample ID No. -
Units mg/kg

DATE 11-21-85

Matrix SOIL

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]	
Metals:					
1. ALUMINUM		6850	6130	11	
2. ANTIMONY		12U	12U	NC	
3. ARSENIC		22	22	0	
4. BARIUM		[76]	[64]	NC	
5. BERYLLIUM		4.1	3.1	28	
6. CADMIUM		3.5	3.8	8.2	
7. CALCIUM		8660	8510	1.7	
8. CHROMIUM		17	12	34	
9. COBALT		[9.7]	[6.4]	NC	
10. COPPER		39	32	20	
11. IRON		32100	24000	29	*
12. LEAD		7.5	6.5	14	
13. MAGNESIUM		[557]	[480]	NC	
14. MANGANESE		121	99	20	
15. MERCURY		0.05U	0.05U	NC	
16. NICKEL		26	[19]	NC	
17. POTASSIUM		1080U	1080U	NC	
18. SELENIUM		1U	1U	NC	
19. SILVER		[2.8]	[1.7]	NC	
20. SODIUM		[347]	[724]	NC	
21. THALLIUM		1U	1U	NC	
22. TIN		8U	8U	NC	
23. VANADIUM		55	44	22	
24. ZINC		135	74	58	*
Other:					
Cyanide					

* Out of Control

[1] To be added at a later date.

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

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

WPF
IN-2-60

Chemical Analysis Summary

MAR 28 1977

From: Steve W. Kim

To: Horace L. Smith

Evaluation of New Data from Belmont Lagoon Sludge
Indianapolis

Per request by Bob Penno, I reviewed the new set of data on samples collected from the subject lagoons in early February 1977 and tested by the U.S. EPA, Region V.

The averages computed by Penno were compared with the similar data obtained by Purdue University in July 1975 as follows:

Comparison of Sampling Data

Averages of Data from 10 Lagoons

Parameters	Unit	Feb. '77 Samples	July '75 Samples
Testing Agency		U.S.EPA	Purdue University
Sample No/Lagoon		15	4
Depth of Sampling/Site		1' from top, mid depth 1' from bottom	3' & 6' from top
Site/lagoon		5	2
Total Vol.	MG	92	91.4
Total Solids	%	20.8 (17.6)**	5.95
PCB	ug/kg (ppm)	21.3 (20)	8.4*
Cd	"	163 (169)	131
Ni	"	120 (117)	296
Cu	"	1325 (1376)	1375
Zn	"	2949 (2830)	4094
Pb	"	1431 (1458)	1053
Cr	"	52 (37)	--
As	"	26.8 (27.1)	--
NH_3-N	%	0.59 (0.678)	1.22
TKN	%	2.01 (1.99)	2.61
Phosphorus as P	%	1.98 (1.98)	2.59
Fecal Colif.	MPN/100ml	230 2,400,000	--

* Analyzed by the State Board of Health on samples from lagoon Nos. 3 and 7

** Weighed averages using total solid content in each lagoon are shown in parenthesis. These values will be used in the following discussion.

In the following, I will discuss significant items:

1. Total Solids

One of the several major differences between the two groups of data is the solid content; the new value of 17.6% solids is approximately three times greater than that from the Purdue data. Since all of the sample test data are converted from wet values of mg/l to dry values of mg/kg by use of the solid content, this discrepancy is very significant; i.e., for the same wet value of NH_3-N, the dry value of the 17.6% solid sample (Feb. 1977) will be 1/3 of the same for the 5.95% solid sample (July 1975).

As computed by RTP, the total solids in the first 10 lagoons will amount to 69,290 tons compared to the previously computed value of 22,826 tons.

The fact that July, 1975 samples didn't collect heavy solids near the bottom (average depth, 16') may be the reason of the descrepancy. On the other hand, the inclusion of clear supernatant (ice layer during the sampling period) could lower the computed amount of solids by approximately 6% if one foot supernatant out of 16' deep sludge is assumed.

2. Arsenic and Cyanide

A U.S. EPA report indicates the normal range of arsenic in soil is 0.2-80 kg/ha (0.18-71.4 lb/acre) with an average of 12 kg/ha (10.7 lb/acre). Belmont sludge has an average of 27.1 ppm arsenic. When applied to land at the sludge application rate of 2.95 ton/A-y (derived from 1.0 lb/acre/year), the arsenic application rate will be 0.18 kg/ha/year (0.16 lb/acre/year) which is much below the normal range of arsenic in soil.

The same report describes "the literature reviewed indicates that sewage sludges from most sewage treatment plants can be applied in modest amounts to most soil for limited periods of time without causing trace-element toxicities or adversely affecting the quality of most crop species."

As to cyanide, there is no literature mentioning this item in regard to land application of sludge. Lee Somers indicates that its biodegradability renders it of minimum concern. As long as a proper precaution is taken for sludge runoff control to protect aquatic life, cyanide may not pose a problem.

3. Fecal Coliform and Parasite Eggs

The data showed that No. 8 and 10 lagoons have relatively high fecal coliform count (2,600,000/100 ml) which is probably due to recent discharges of undigested sludge to the lagoons.

This situation may not pose a big problem because of expected rapid die-off of the bacteria in storage and on land. It is reported that undigested sludge having fecal coliform count in the order of 10^7/100 ml can have the count reduced by 99 and 99.9% during storage periods of 7 and 30 days, respectively. When applied on land, Chicago MSD reported that the fecal coliform count was reduced by 99.98% in 12 days. Also, it is reported that bacteria do not travel more than 100 feet horizontally through soil.

For safety precaution, sludge should not be applied on land for vegetables eaten raw. Pasture land should not be used at least three months after the application in order to facilitate wash-down of sludge from grass and bacterial die-off. Also, the content of lagoon Nos. 8 and 10 should be applied on land after providing a few months detention ~~an~~ after retesting for fecal coliform if no additional sludge is discharged.

Moseley Laboratory reported that very few parasite eggs and no intact nematodes were found in the sludge. In view of unavailability of a method to determine viability of the parasite eggs, no value was reported. It is known that round worm (ascaris) ova can survive 2.5 years and tapeworm eggs 20-30 years at times, while hookworm (necator) eggs survive only six weeks outside a human body. Dr. Headlee noted in one of his reports that 4.7% of a student group in Indiana in 1939 was infected with helminths. No recent survey data was available.

An EPA report said "Pastureland and farmland used to grow forage crops are frequently used as land application sites, a practice which appears to present little problem from the standpoint of disease transmission via livestock grazing on such fields." Pathogens and parasites on land devoted to producing farm crop would present less hazard than on land where raw vegetables or forage are produced.

4. Nitrogen and Phosphorus Loading

Since the concentrations of NH_3-N and TKN are lower than the previous data, there would not be a problem of excess loading of nitrogen. Rather, the need to make up a nitrogen deficit with commercial fertilizer will be greater.

At the recommended Cd loading of 1.0 lb/acre/year and corresponding solid loading of 2.95 ton/acre/year, the available nitrogen loading will be 55.5 lb/acre/year which is quite a reduction of the original estimate of 125 lb/acre/year available nitrogen.

For corn crop of 160 Bu/acre, the necessary nitrogen is considered 185 lb/acre/year, and an additional 130 lb/acre of nitrogen needs to be supplemented from sources other than the sludge.

Phosphorus loading at the above-mentioned solid loading will be 117.4 lb/acre/year which is in excess of the phosphorus demand of 35 lb/acre/year of corn crop.

5. PCBs

The average PCB concentration is 20 mg/kg which is in excess of the FDA proposed limit of 10.0 mg/kg. The basis of such a proposal is described in the November 12, 1976, letter from J.P. Hile of FDA to A.W. Breidenbach of EPA: "The risk of food chain contamination (such as by PCBs) is greatest where sludge is applied by overhead spray to growing crops, where root crops are grown and, most of all, where sludge is used on pasture where direct ingestion by domestic food-producing animals may result in the accumulation of these fat soluble chemicals. The incident in Bloomington, Indiana, of milk contamination with PCBs because of sludge shows the potential for much broader effect on the human and animal food chains. For these reasons, we recommend that sludges containing more than 10 ppm PCBs (on dry weight basis) not be used on agricultural land and crops."

The proposed value apparently didn't have any firm scientific basis except for the consideration of the possible surface contamination of pasture grass by PCBs containing sludge. Even sludge with 10 mg/kg PCBs could build up considerable quantity of PCB in soils of crop and pasture lands if sludge is repeatedly applied. A rational approach would be to set up a concentration limit in soil, but paucity of data does not allow this approach. Lee Sommers' letter of July 7, 1976, indicated that he believed the milk contamination in Bloomington was due to direct ingestion of PCB-contaminated grass rather than translocation of PCB from soil to grass. Application of sludge to cropland and incorporation into soil may minimize such a hazard.

At the recommended Cd. rate of 1.0 lb/acre/year, or solid loading of 2.95 ton/acre/year, the expected PCB in soil will be 0.064 mg/kg average at 100#soil/cf and 6 inches incorporation of sludge into soil.

6. Cd Consideration

The total poundage of Cd increased from the original estimate of 5,980 lbs. to 22,759 lbs. This is due to the increase of solid content and Cd. concentration in sludge.

Recapping the available and proposed criteria of Cd. application rate:

	Date Proposed	Total Poundage for Life of the Land (Soil CEC5--15 meq/100 gr)	Annual Rate
USDA	2/6/76	10 kg/ha*	1.0kg/ha wet sludge 2.0 kg/ha dry sludge
FDA	11/19/76	10 kg/ha	1) no ann. rate proposed 2) no more than 20 mg/kg Cd content
NC-118	1/20/76	10 kg/ha	2.0 kg/ha
Purdue Univ.	Oct. '76	10 lb/acre	2.0 lb/acre
U. of Misc.	1975	20 lb/acre max.	2.0 lb/acre
OSWMP (EPA)	Oct. 76	10 kg/ha	0.5 kg/ha Eff. 1/1/77 0.3 kg/ha Eff. 1/1/82 0.2 kg/ha Eff. 1/1/87

* 1.0 Kg/ha=0.893 lb/acre

There are several research works available which were summarized in a report prepared by Council for Agricultural Science and Technology (CAST Rept. No. 64) for the U.S. EPA dated November 15, 1976. It recommended to abandon the criteria of Cd/Zn ratio and to adopt total and annual loading limits of cadmium. It also recommended to:

a. maintain soil pH above 6.5
b. grow crops which accumulate relatively low concentration of Cd. or, for crops harvested for grain, those which have a low concentration of cadmium in grain (corn over soybean and wheat)
c. Make only small annual applications of cadmium when food or feed crops are to be grown.
d. Use sludges low in cadmium on cropland.
e. Grow nonedible crops.

The report didn't recommend any numerical Cd. criteria. In the evaluation of sludge application proposal, a consideration should be given if the sludge application is not repetitive and is for one or two-year application, only.

7. Other Heavy Metals

The recommended rate of heavy metal loadings (lifetime) has the following ratio: Cd:Ni:Cu:Zn:Pb=1:10:25:50:100. The Belmont sludge has the heavy metal ratio of Cd:Ni:Cu:Zn:Pb=1:0.69:8.1:16.7:8.6. If one allows 1/10 of lifetime loading be applied on an annual basis (cf 10 lb/A Cd for life and 1.0 lb/A-year), the annual application rate meeting Cd limits would also meet the other heavy metal limits. Another word, Cd is the controlling heavy metal and the rest would not pose problems if Cd is within the approvable limit.

The revised draft of the Sludge Guidelines by the U.S. EPA was published on June 3, 1976, and its final version is expected in July 1977. Meanwhile, there was a mention in the Feb. '77 issue of "Sludge" that a new group was formed within the U.S. EPA to prepare document on sludge disposal guidelines on land as called for in the Resources Conservation and Recovery Act (PL 94-580). This may be the same group who undertook the sludge guidelines preparation since 1974. If not, the expected final guidelines could be delayed, or there may be two sets of sludge guidelines.

SWKie/hh
cc: RCP
OHH
RTP
SWK

IN-2-59

Table 11.--Logs of test holes on or near landfill at 2561 Kentucky Avenue

[ID no. (site-identification number): latitude, first 6 digits; longitude, next 7 digits]

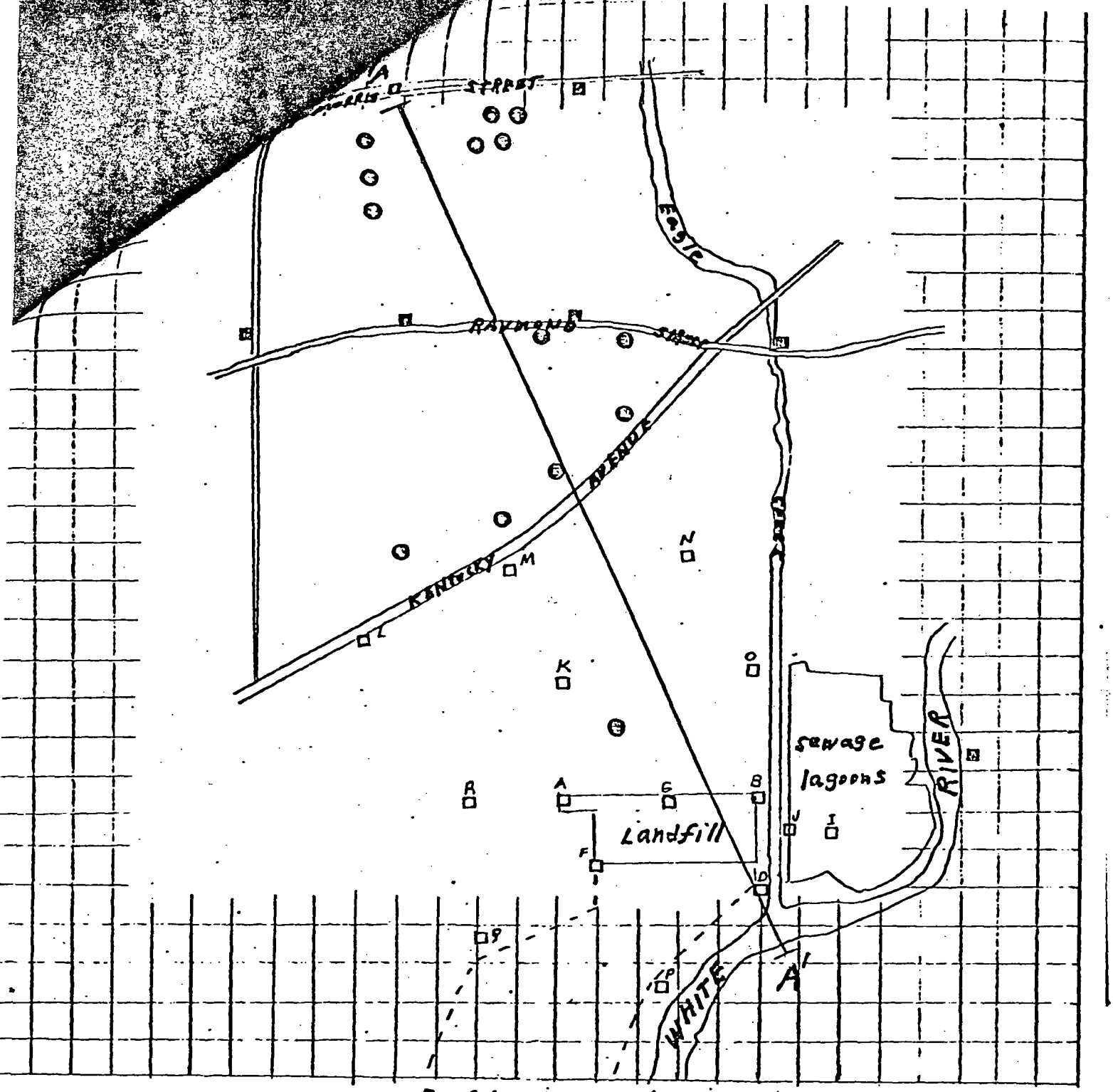
Material	Thickness (ft)	Depth (ft)
Site A ID no. 3943160861219	Altitude:	680 ft
Quaternary System:		
Holocene and Pleistocene Series:		
Clay	16	16
Sand, coarse	13	29
Sand, fine	11	40
Gravel	6	46
Clay, with sand	21	67
Sand and gravel, coarse	12	79
Sand, medium to fine	12	91
Sand, medium to coarse	11	102
Devonian System:		
Lower Devonian Series:		
Limestone		102
Site B ID no. 3943170861151	Altitude:	675 ft
Quaternary System:		
Holocene and Pleistocene Series:		
Clay and silty sand	9	9
Gravel with some sand	7	16
Sand and gravel, coarse	11	27
Sand and gravel with some clay	9	36
Clay with some sand and gravel	17	53
Sand, coarse, with some clay	5	58
Clay with some sand and gravel	6	64
Sand and gravel	28	92
Clay with some sand and gravel	5	97
Site C ID no. 3943130861151	Altitude:	671 ft
Quaternary System:		
Holocene and Pleistocene Series:		
Clay	8	8
Sand with some clay	2	10
Sand and gravel	19	29
Clay with some sand and gravel	10	39

Table 11.--Logs of test holes on or near landfill at 2561 Kentucky Avenue--Continued

Material		Thickness (ft)	Depth (ft)
Site D	ID no. 3943100861150	Altitude:	675 ft
Quaternary System:			
Holocene and Pleistocene Series:			
Top soil and clay		11	11
Sand and gravel		15	26
Clay with sand and gravel		23	49
Clay, sand and gravel stringers		15	64
Sand and gravel		9	73
Sand and gravel, clay stringers		10	83
Gravel and sand		18	101
Devonian System:			
Lower Devonian Series:			
Boulders		1	102
Shale			102
Site E	ID no. 3943130861204	Altitude:	695 ft
Quaternary System:			
Holocene and Pleistocene Series:			
Clay, brown		8	8
Sand with some clay		4	12
Sand and gravel		14	26
Clay with sand		40	66
Sand, medium, with some clay		19	85
Gravel		10	95
Clay		5	100
Devonian System:			
Lower Devonian Series:			
Shale			100
Site F	ID no. 3943110861213	Altitude:	680 ft
Quaternary System:			
Holocene and Pleistocene Series:			
Clay, brown		14	14
Gravel and sand		3	17
Clay with silt and sand		10	27
Sand, coarse		7	34
Clay, sandy		18	52
Sand with some clay		18	70
Sand and gravel with clay stringers		17	87
Sand and gravel		6	93
Clay		26	119

Table 11.--Logs of test holes on or near landfill at 2561 Kentucky Avenue--Continued

Material	Thickness (ft)	Depth (ft)
Site F--Continued		
Devonian System:		
Lower Devonian Series:		
Limestone		119
Site G ID no. 3943170861205	Altitude:	690 ft
Quaternary System:		
Holocene and Pleistocene Series:		
Clay cover	0	0
Refuse	22	22
Clay, gravel and sand	17	39
Site H ID no. 3943170861054	Altitude:	687 ft
Quaternary System:		
Holocene and Pleistocene Series:		
Clay cover	4	4
Refuse	14	18
Clay	1	19



EXPLANATION
and designation

- A Landfill observation-well site
- Industrial well
- other USGS observation well
- ------ Boundary of enlarged landfill area

0 400 800 1200 1600 2000 Feet

gure 2.- Data collection network and finite difference grid for modeling study area.

IN-0230-07

ecology and environment, inc.

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

Date Received for Review: 2-11-86 Date Review Completed: 2-19-86

To: Pat Petrella

From: Cynthia Pugh

Subject: Mc Kinley Thompson Landfill (Indiana)
(R05- 8410-2A)

Sample Description: Case # 5136: Low Soil and Low Water Organics and Low Water Metals

Project Data Status: COMPLETE

FIT Data Review Findings: Data Acceptable with qualifications noted below and on attached review sheets.

Organics: All Pesticide Data is Estimated. Use 2-Butanone and
(Low Water) methylene chloride data with caution - See comment #4 & #5
(Low Soil) on attached review sheet.

Metals: Field Blank MEG489 contains Cu [7.6 ug/l]; Iron [29 ug/l];
(Low Water) Na [605 ug/l]; and Zn [4.9 ug/l].

[ ] = result is ≥ instrument detection limit but < contract required detection limit

Sample values w/in an order of magnitude of the value for a metal found in a blank are unusable.

Additional Comments:

Copies of data for Low Soil Metals MEG483-485 are included. These were already received - this is just an extra copy.

Book No. 5
Page No. 60

recycled paper

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 11-25-85

SUBJECT: Review of Region V CLP Data
Received for Review on 11/25/85

FROM: Curtis Ross, Director (5SCRL)
Central Regional Laboratory Jay Thacker RECEIVED FEB 11 1986

TO: Data User: Jet

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

SITE NAME: McKinley-Thompson L.F. SMO Case No. 5136

EPA Data Set No. 5F 2780 No. of Samples: 7 D.U./Activity Numbers 1905 1C48500

CRL No. 86F502324 - 86F502329

SMO Traffic No. MEG483 - MEG489

CLP Laboratory: RMAL Hrs. Required for Review: 3 hrs

Following are our findings.

This review covers three low soil samples and four low H_2O for total metals. Duplicate RPD for soil on Fe (29%) and Zn (58%) exceed 20% limits while sample values are > 5XS CRDL. Interferance was found in Zn on the soil serial dilution. Spike recovery for water samples is biased low for Al (71%), Ba (68%), Fe (69%), Se (60%), Tl (48%) and Sb (73%). Fe was not flagged on Form I's, only on Form I. Duplicate values on Form VI for H_2O did not show Pb to be 6.8 µg/l and calculate the RPD. Thallium duplicate showed 2U, not the raw-data value of 10U. Both analyte duplicates were corrected.

11-25-85
DMM

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

cc: Dr. Alfred Haeberer/Joan Fisk/Gary Ward, EPA Support Services
Ross K. Robeson, EMSL-Las Vegas
Don Trees, CLP/Sample Management Office

EPA FORM 1320-6 (REV. 3-76)

REGION V, U.S. ENVIRONMENTAL PROTECTION AGENCY
ESD/Central Regional Laboratory

DATA TRACKING - FORM I

CRL Data Set No. 5F 2780 ERRIS No. _____

SMO Case No. 5136 Site Name: McKinley-Thompson Landfill

Name of Laboratory: RMAL Data User: FIT

No. of Samples: 7 Date Samples Received: 11/25/85

1. Have chain-of-custody records been received? YES ✓ NO ___
2. Have Traffic reports been received? YES ✓ NO ___ RECEIVED FEB 11 1986
3. If no, are Traffic report numbers written on the chain-of-custody record? YES ✓ NO ___
4. If no, which Traffic report numbers are missing?

5. Are basic data forms in? YES ✓ NO ___
6. Number of samples claimed: 7 Number of samples received: 7
7. Checked by: Nilda Feliciano Date: 11/25/85
8. Received by Contract Project Management Section: JJC Date: 11-25-85
9. Review Started: 11-25-85 Reviewer Signature: Dorothy M. May
10. Total time spent on review: 3 hrs Date review completed: 11-25-85
11. Copied (xeroxed) by: _____ Date: _____
12. Mailed to Data User by: Nilda Feliciano Date: 11/26/85

TO DATA USERS:

Please fill in the blanks and return this form to:

Charles Elly, DPO, Region V, 5SCRL

13. Data received by: Cynthia Pugh Date: 2-18-86
14. Q.A. review received by: Cynthia Pugh Date: 2-18-86
15. Received by CRL - CPM Section for file by: _____

Date: _____

Inorganic + Organic
Complete

REGION V, U.S. ENVIRONMENTAL PROTECTION AGENCY
ESD/Central Regional Laboratory

DATA TRACKING - FORM I

CRL Data Set No. SF 2780 ERRIS No. _____

SMO Case No. 5036 Site Name: McKinley Thompson L.F.

Name of Laboratory: ERG Data User: Sit

No. of Samples: 7 Date Samples Received: 12/18/85

1. Have chain-of-custody records been received? YES ✓ NO ___
2. Have Traffic reports been received? YES ✓ NO ___
3. If no, are Traffic report numbers written on the chain-of-custody record? YES ✓ NO ___
4. If no, which Traffic report numbers are missing?

RECEIVED FEB 11 1986

5. Are basic data forms in? YES ✓ NO ___
6. Number of samples claimed: 7 Number of samples received: 7
7. Checked by: Nidia Feliciano Date: 12/19/85
8. Received by Contract Project Management Section: Patrick J. Chunlo Date: 12/23/85
9. Review Started: 1-24-86 Reviewer Signature: Patrick J. Chunlo
10. Total time spent on review: 12 HRS Date review completed: 1-27-86
11. Copied (xeroxed) by: _____ Date: _____
12. Mailed to Data User by: Nidia Feliciano Date: 2/11/86

TO DATA USERS:

Please fill in the blanks and return this form to:

Charles Elly, DPO, Region V, SSCRL

13. Data received by: Cynthia Pugh Date: 2-18-86
14. Q.A. review received by: Cynthia Pugh Date: 2-18-86
15. Received by CRL - CPM Section for file by: _____

IN0 + OR6 Complete Date: _____

SF2780

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

RECEIVED FEB 11 1986

Date 11-21-85

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name ROCKY MOUNTAIN ANALYTICAL
SOW No. 784

Case No. 5136
QC Report No. 55430

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MEG483D			
MEG483			
MEG483+			
MEG484			
MEG485			
[MEG999]			

RECEIVED
NOV 25 1985
U.S. EPA CENTRAL REGIONAL LAB.
536 S. CLARK STREET
CHICAGO, ILLINOIS 60605

Comments: 3 LOW SOILS TASK 1 2 ONLY
SERIAL DILUTION OF SAMPLE MEG485 IS IDENTIFIED AS [MEG999]
~~Set~~ Interference noted on serial dilution for Zn.

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 method used with P (for ICP/Flame AA) or F (for furnace).
U - Indicates element was analyzed for but not detected. Report with the 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.
X - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is Less than 0.995
CV - Indicates Cold Vapor
AS - Indicates Automated Spectrophotometric

Narrative

RECEIVED FEB 11 1986

RMA QC # 55430

Case # 5136

Comments; → Pb, As data used by both ICAP and Furnace. Forms II, III and VII reflect 2 sets of QC.

→ Duplicate RPD > 20% noted for Fe, Zn. Results reported flagged w/ "*".

→ RPD's > 20% for Be, ~~Fe~~ Cr, V not flagged. Results are < 5X CRDL. Sample and Duplicate are within ± CRDL for these element.

→ Interference noted on ICAP serial dilution for Zn. Data reported flagged with an "S".

Lab Manager JM

RECEIVED FEB 1 1 1986

Form I

86F502524

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.
MEG483

Date 11-21-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5136
QC REPORT NO. 55430

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	8260	P	13.	MAGNESIUM	[671]	P
2.	ANTIMONY	15U	P	14.	MANGANESE	146	P
3.	ARSENIC	27	F	15.	MERCURY	0.06U	CV
4.	BARIUM	[92]	P	16.	NICKEL	31	P
5.	BERYLLIUM	5	P	17.	POTASSIUM	1310U	P
6.	CADMIUM	4.2	P	18.	SELENIUM	1.2U	F
7.	CALCIUM	10400	P	19.	SILVER	[3.4]	P
8.	CHROMIUM	21	P	20.	SODIUM	[418]	P
9.	COBALT	[12]	P	21.	THALLIUM	1.2U	F
10.	COPPER	47	P	22.	TIN	9.6U	P
11.	IRON	38700	P X J	23.	VANADIUM	66	P
12.	LEAD	9	F	24.	ZINC	163	P X S J

Cyanide NR

Percent Solids (%) 83

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:

Lab Manager

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Form I

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

86F502525
EPA Sample No.
MEG484

Date 11-21-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5136
QC REPORT NO. 55430

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	11900	P	13.	MAGNESIUM	[1290]	P
2.	ANTIMONY	18U	P	14.	MANGANESE	213	P
3.	ARSENIC	123	P	15.	MERCURY	[0.088]	CV
4.	BARIUM	[110]	P	16.	NICKEL	75	P
5.	BERYLLIUM	5.9	P	17.	POTASSIUM	[2420]	P
6.	CADMIUM	6.4	P	18.	SELENIUM	1.5U	F
7.	CALCIUM	25100	P	19.	SILVER	[4.5]	P
8.	CHROMIUM	34	P	20.	SODIUM	[1130]	P
9.	COBALT	[23]	P	21.	THALLIUM	[2.8]	F
10.	COPPER	78	P	22.	TIN	12U	P
11.	IRON	59700	P ~~X~~ J	23.	VANADIUM	135	P
12.	LEAD	24	F	24.	ZINC	167	P ~~X~~ S J

Cyanide NR

Percent Solids (%) 68

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:

Lab Manager JM

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Form I

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

86F502526
EPA Sample No.
MEG485

Date 11-21-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5136
QC REPORT NO. 55430

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	13600	P	13.	MAGNESIUM	[1710]	P
2.	ANTIMONY	60	P	14.	MANGANESE	252	P
3.	ARSENIC	134	P	15.	MERCURY	[0.17]	CV
4.	BARIUM	221	P	16.	NICKEL	58	P
5.	BERYLLIUM	5.2	P	17.	POTASSIUM	[3780]	P
6.	CADMIUM	7.7	P	18.	SELENIUM	[3.1]	F
7.	CALCIUM	7360	P	19.	SILVER	[6.5]	P
8.	CHROMIUM	78	P	20.	SODIUM	[1380]	P
9.	COBALT	[23]	P	21.	THALLIUM	[1.7]	F
10.	COPPER	88	P	22.	TIN	14U	P
11.	IRON	77100	P X J	23.	VANADIUM	108	P
12.	LEAD	89	P	24.	ZINC	245	P X S J

Cyanide NR Percent Solids (%) 59

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:

Lab Manager JW

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Form I

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

86F502527
EPA Sample No.
MEG486

Date 11-21-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5136
QC REPORT NO. 55429

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

UG/L

1.	ALUMINUM	257	P	R J	13.	MAGNESIUM	31200	P	
2.	ANTIMONY	25U	P		14.	MANGANESE	69	P	
3.	ARSENIC	2U	F		15.	MERCURY	0.1U	CV	
4.	BARIUM	[74]	P	R J	16.	NICKEL	7U	P	
5.	BERYLLIUM	0.4U	P		17.	POTASSIUM	[4560]	P	
6.	CADMIUM	4U	P		18.	SELENIUM	5U	F	R J
7.	CALCIUM	87900	P		19.	SILVER	3U	P	
8.	CHROMIUM	[5.3]	P		20.	SODIUM	46700	P	
9.	COBALT	5U	P		21.	THALLIUM	10U	F	R J
10.	COPPER	[10]	P		22.	TIN	16U	P	R J
11.	IRON	631	P	R J	23.	VANADIUM	4U	P	
12.	LEAD	6.5	F		24.	ZINC	21	P	

Cyanide NR Percent Solids (%) ____

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:

Lab Manager JW

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Form I

SW2 DOWNSTREAM

86F502528

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.
MEG487

Date 11-21-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5136
QC REPORT NO. 55429

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

UG/L

1.	ALUMINUM	[176]	P R J	13.	MAGNESIUM	30400	P
2.	ANTIMONY	25U	P	14.	MANGANESE	57	P
3.	ARSENIC	2U	F	15.	MERCURY	0.1U	CV
4.	BARIUM	[70]	P R J	16.	NICKEL	7U	P
5.	BERYLLIUM	0.4U	P	17.	POTASSIUM	[4420]	P
6.	CADMIUM	4U	P	18.	SELENIUM	5U	F R J
7.	CALCIUM	85900	P	19.	SILVER	3U	P
8.	CHROMIUM	4U	P	20.	SODIUM	46000	P
9.	COBALT	5U	P	21.	THALLIUM	10U	F R J
10.	COPPER	[7.7]	P	22.	TIN	16U	P R J
11.	IRON	402	P R J	23.	VANADIUM	4U	P
12.	LEAD	[3.7]	F	24.	ZINC	[15]	P

Cyanide NR Percent Solids (%) ____

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:

Lab Manager JM

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Form I

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

SW3 upstream

86FS02529
EPA Sample No.
MEG488

Date 11-21-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5136
QC REPORT NO. 55429

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

UG/L

1.	ALUMINUM	[159]	P	R J	13.	MAGNESIUM	29400	P	
2.	ANTIMONY	25U	P		14.	MANGANESE	53	P	
3.	ARSENIC	2U	F		15.	MERCURY	0.1U	CV	
4.	BARIUM	[67]	P	R J	16.	NICKEL	7U	P	
5.	BERYLLIUM	0.4U	P		17.	POTASSIUM	[4290]	P	
6.	CADMIUM	4U	P		18.	SELENIUM	5U	F	R J
7.	CALCIUM	83400	P		19.	SILVER	3U	P	
8.	CHROMIUM	4U	P		20.	SODIUM	43700	P	
9.	COBALT	5U	P		21.	THALLIUM	10U	F	R J
10.	COPPER	[14]	P		22.	TIN	16U	P	R J
11.	IRON	377	P	R J	23.	VANADIUM	4U	P	
12.	LEAD	[4.3]	F		24.	ZINC	[17]	P	

Cyanide NR Percent Solids (%) ____

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:

Lab Manager JW

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Form I

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

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86F502R03
EPA Sample No.
MEG489

Date 11-21-85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 5136
QC REPORT NO. 55429

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

UG/L

1.	ALUMINUM	25U	P R J	13.	MAGNESIUM	312U	P
2.	ANTIMONY	25U	P	14.	MANGANESE	5U	P
3.	ARSENIC	2U	F	15.	MERCURY	0.1U	CV
4.	BARIUM	13U	P R J	16.	NICKEL	7U	P
5.	BERYLLIUM	0.4U	P	17.	POTASSIUM	2170U	P
6.	CADMIUM	4U	P	18.	SELENIUM	2U	F R J
7.	CALCIUM	207U	P	19.	SILVER	3U	P
8.	CHROMIUM	4U	P	20.	SODIUM	[605]	P
9.	COBALT	5U	P	21.	THALLIUM	2U	F R J
10.	COPPER	[7.6]	P	22.	TIN	16U	P R J
11.	IRON	[29]	P R J	23.	VANADIUM	4U	P
12.	LEAD	2U	F	24.	ZINC	[4.9]	P

Cyanide NR Percent Solids (%) ____

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: BLANK

Lab Manager JW

SF2780

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

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Date 11-21-85

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name ROCKY MOUNTAIN ANALYTICAL
SOW No. 784

Case No. 5136
QC Report No. 55429

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MEG486			
MEG486D			
MEG487			
MEG487+			
MEG488			
MEG489			
[MEG999]			

RECEIVED
NOV 25 1985
U.S. EPA CENTRAL REGIONAL LAB.
536 S. CLARK STREET
CHICAGO, ILLINOIS 60605

Comments: 4 LOW WATERS TASK 1 2 ONLY
SERIAL DILUTION OF SAMPLE MEG488 IS IDENTIFIED AS [MEG999]

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 method used with P (for ICP/Flame AA) or F (for furnace).
U - Indicates element was analyzed for but not detected. Report with the 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.
R - 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
CV - Indicates Cold Vapor
AS - Indicates Automated Spectrophotometric

Narrative

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RMA QC # 55429

Case # 5136

Comments; Matrix spike recovery < 75% for Sb, Ba, Fe, Se, Tl, Sn. Results flagged w/ "R".

Lab Manager

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 2/10/86

RECEIVED FEB 11 1986

SUBJECT: Review of Region V CLP Data
Received for Review on 12/19/85

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

TO: Data User: Fit

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

SITE NAME: McKinley-Thompson L.F. SMO Case No. 5136

EPA Data Set No. SE 2780 No. of Samples: 7 D.U./Activity Numbers 14905 / C48500

CRL No. 86F502524-86F502529

SMO Traffic No. EE451-EE463

CLP Laboratory: ERL Hrs. Required for Review: 12

Following are our findings.

1. Sample EE458 had two volatile surrogates outside recovery limits. Matrix spike and matrix spike duplicate analysis of this sample verified that this problem was due to matrix effect.

2. The pesticide matrix spike/matrix spike duplicate of sample EE457 exhibited considerable sample inhomogeneity. Aroclor 1242 was found in the matrix spike but not the matrix spike duplicate or the sample. The value reported for Heptachlor in the matrix spike of sample EE457 is wrong. This peak is due to Aroclor 1242, not Heptachlor.

3. Pesticide QC: Mixed phase column: endrin %RSD = 13%, 4,4'-DDT %RSD = 6.4%
4,4'-DDT Breakdown = 32%
3% SP2100 column: Aldrin %RSD = 14%, 4,4'-DDT %RSD = 43%
4,4'-DDT Breakdown = 79%
Because of these ~~with~~ quality control problems all pesticide data is considered estimated.

CONTINUED →

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

cc: Dr. Alfred Haeberer/Joan Fisk/Gary Ward, EPA Support Services
Ross K. Robeson, EMSL-Las Vegas
Don Trees, CLP/Sample Management Office

EPA FORM 1320-4 (REV 3-78)

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DATA QUALIFIERS

Contractor: ERG

Case 5136

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

4. In the low level VOA method blanks (11-3/4-85) methylene chloride was found at levels 5X greater than the contract required detection limit. Results for samples run on 11-3 and 11-4 are considered false positives for methylene chloride.

5. In the medium level VOA method blank on 11-4-85, 2-butanone was found at levels 5X greater than the contract required detection limit. Results for ~~samples run~~ medium level samples run on 11-4-85 are considered false positives for 2-Butanone.

Reviewed by: Patrick J. Chuilla

Phone: 353-2720

Date: 1-27-86

ENVIRONMENTAL RESEARCH GROUP, INC.

117 N. First Ann Arbor, Michigan 48104 (313) 662-3104

December 13, 1985

Mr. Curtis Ross
USEPA Region V
536 South Clark Street
Central Regional Laboratory
10th Floor
Chicago, IL 60605

RECEIVED
RECEIVED FEB 11 1986
DEC 18 1985

Dear Mr. Ross:

The following report contains the final results for the chemical analysis of the four water and three soil samples contained in RAS Case 5136. The samples arrived in the laboratory on October 31, 1985 and were analyzed for full organics according to the September 1984 revision of the Statement of Work. The work was performed according to Contract 68-01-6869.

QA/QC Summary - GC/MS Volatiles

Six of 66 surrogates were outside of QC limits. Zero of 30 matrix spike recoveries and zero of 15 matrix spike RPD's were outside of QC limits. BFB tuning criteria were met for all BFB spectra.

QA/QC Summary - GC/MS Semi-Volatiles

Zero of 75 surrogates were outside of QC limits. Five of 48 matrix spike recoveries and zero of 24 matrix spike RPD's were outside of QC limits. DFTPP tuning criteria were met for all DFTPP spectra.

QA/QC Summary - GC/EC

Zero of 14 surrogate recoveries fell outside the QC limits for dibutyl chlorendate. Six of 24 matrix spike recoveries and three of 12 matrix spike RPD's were outside of QC limits.

Analytical Problems

Sample E458 was run twice to verify the matrix effect upon the surrogates D8-toluene and bromofluorobenzene.

If you have any questions regarding this case, please do not hesitate to contact me.

Sincerely,

Joseph A. Hnatow

Joseph A. Hnatow
RAS Program Manager

cc: Linda Boynton
USEPA Contract Lab Program
Sample Management Office (SMO)

Data Audit Staff
USEPA Environmental Monitoring
Systems Laboratory (EMS/LV)

SW1

86F502327

Sample Number
EE 460

Organics Analysis Data Sheet
(Page 1)

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Laboratory Name: E.R.G. Inc.
Case No: 5136
Lab Sample ID No: VEE 460
QC Report No: —
Sample Matrix: Water
Contract No: 68-01-6869
Data Release Authorized By: Josepha Ignatius
Date Sample Received: 10-31-85

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 11-1-85
Date Analyzed: 11-1-85
Conc/Dil Factor: 1 pH —
Percent Moisture: (Not Decanted) —

CAS Number		ug/l or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	J
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	14	B	J
67-64-1	Acetone	10	U	J
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	
156-60-5	Trans-1, 2-Dichloroethene	1	J	
67-66-3	Chloroform	2	J	
107-06-2	1, 2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1, 1, 1-Trichloroethane	5	U	J
56-23-5	Carbon Tetrachloride	5	U	J
108-05-4	Vinyl Acetate	10	U	J
75-27-4	Bromodichloromethane	5	U	

PJC 1-27-86

CAS Number		ug/l or ug/Kg (Circle One)		
78-87-5	1, 2-Dichloropropane	5	U	
10061-02-6	Trans-1, 3-Dichloropropene	5	U	
79-01-6	Trichloroethene	2	J	
124-48-1	Dibromochloromethane	5	U	J
79-00-5	1, 1, 2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-01-5	cis-1, 3-Dichloropropene	5	U	J
110-75-8	2-Chloroethylvinylether	10	U	R
75-25-2	Bromoform	5	U	J
108-10-1	4-Methyl-2-Pentanone	10	U	R
591-78-6	2-Hexanone	10	U	J
127-18-4	Tetrachloroethene	1	J	
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	J
	Total Xylenes	5	U	J

PJC 1-27-86

Data Reporting Qualifiers

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

R = UNUSABLE

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

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

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

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

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

NR No value required.

Laboratory Name: ERG Inc

Case No: 5136

SW2

Sample Number
EE 460

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-1-85

Date Analyzed: 11-21-85

Conc/Dil Factor: 1

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

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CAS Number		(ug/l) or ug/Kg (Circle One)		
108-95-2	Phenol	10	U	
111-44-4	bis(-2-Chloroethyl)Ether	10	U	J
95-57-8	2-Chlorophenol	10	U	
541-73-1	1, 3-Dichlorobenzene	10	U	
106-46-7	1, 4-Dichlorobenzene	10	U	
100-51-6	Benzyl Alcohol	10	U	J
95-50-1	1, 2-Dichlorobenzene	10	U	
95-48-7	2-Methylphenol	10	U	
39638-32-9	bis(2-chloroisopropyl)Ether	10	U	
106-44-5	4-Methylphenol	10	U	
621-64-7	N-Nitroso-Di-n-Propylamine	10	U	
67-72-1	Hexachloroethane	10	U	
98-95-3	Nitrobenzene	10	U	
78-59-1	Isophorone	10	U	
88-75-5	2-Nitrophenol	10	U	
105-67-9	2, 4-Dimethylphenol	10	U	
65-85-0	Benzoic Acid	50	U	J
111-91-1	bis(-2-Chloroethoxy)Methane	10	U	
120-83-2	2, 4-Dichlorophenol	10	U	
120-82-1	1, 2, 4-Trichlorobenzene	10	U	
91-20-3	Naphthalene	10	U	J
106-47-8	4-Chloroaniline	10	U	J
87-68-3	Hexachlorobutadiene	10	U	
59-50-7	4-Chloro-3-Methylphenol	10	U	
91-57-6	2-Methylnaphthalene	10	U	
77-47-4	Hexachlorocyclopentadiene	10	U	
88-06-2	2, 4, 6-Trichlorophenol	10	U	
95-95-4	2, 4, 5-Trichlorophenol	50	U	
91-58-7	2-Chloronaphthalene	10	U	
88-74-4	2-Nitroaniline	50	U	
131-11-3	Dimethyl Phthalate	10	U	
208-96-8	Acenaphthylene	10	U	
99-09-2	3-Nitroaniline	50	U	R

PJC 1-27-86

CAS Number		(ug/l) or ug/Kg (Circle One)		
83-32-9	Acenaphthene	10	U	
51-28-5	2, 4-Dinitrophenol	50	U	
100-02-7	4-Nitrophenol	50	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2, 4-Dinitrotoluene	10	U	J
606-20-2	2, 6-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	4	JB	
7005-72-3	4-Chlorophenyl-phenylether	10	U	J
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	50	U	J
534-52-1	4, 6-Dinitro-2-Methylphenol	50	U	R
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	J
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	50	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
84-74-2	Di-n-Butylphthalate	10	U	J
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	U	
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3, 3'-Dichlorobenzidine	20	U	J
56-55-3	Benzo(a)Anthracene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U	
218-01-9	Chrysene	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10	U	
53-70-3	Dibenz(a, h)Anthracene	10	U	
191-24-2	Benzo(g, h, i)Perylene	10	U	

PJC 1-27-86

(1)-Cannot be separated from diphenylamine

Laboratory Name E.R.G. Inc.

Case No 5136

Sub

Sample Number
EE460

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

RECEIVED FEB 11 1986

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/21/85

Date Analyzed: 11/23/85

Conc./Dil Factor: 1

Percent Moisture (decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.5	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 500ml or W_s —— V_t 10,000 ul V_i 1.0 ul

Laboratory Name: E.R.G., inc.

Case No: 5136

SW1

Sample Number
EE460

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

RECEIVED FEB 11 1986

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO VOLATILE COMPOUNDS FOUND	VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11. —	UNKNOWN ALDEHYDE (C16-C20)	BNA	1299	7
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

5W2

86F502528

Sample Number
EE 461

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: E.R.G. Inc.
Case No: 5136
Lab Sample ID No: VEE461R
QC Report No: —
Sample Matrix: Water
Contract No: 68-01-6869
Data Release Authorized By: Joseph A. Hrutowe
Date Sample Received: 10-31-85

Volatile Compounds

Concentration: (Low) Medium (Circle One)
RECEIVED FEB 11 1986
Date Extracted/Prepared: 11-1-85
Date Analyzed: 11-1-85
Conc/Dil Factor: 1 pH —
Percent Moisture: (Not Decanted) —

CAS Number		(ug/l) or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	J
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	11	B	J
67-64-1	Acetone	10	U	J
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	
156-60-5	Trans-1, 2-Dichloroethene	1	J	
67-66-3	Chloroform	2	J	
107-06-2	1, 2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1, 1, 1-Trichloroethane	5	U	J
56-23-5	Carbon Tetrachloride	5	U	J
108-05-4	Vinyl Acetate	10	U	J
75-27-4	Bromodichloromethane	5	U	

PJC 1-27-86

CAS Number		(ug/l) or ug/Kg (Circle One)		
78-87-5	1, 2-Dichloropropane	5	U	
10061-02-6	Trans-1, 3-Dichloropropene	5	U	
79-01-6	Trichloroethene	2	J	
124-48-1	Dibromochloromethane	5	U	J
79-00-5	1, 1, 2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-01-5	cis-1, 3-Dichloropropene	5	U	J
110-75-8	2-Chloroethylvinylether	10	U	R
75-25-2	Bromoform	5	U	J
108-10-1	4-Methyl-2-Pentanone	10	U	R
591-78-6	2-Hexanone	10	U	J
127-18-4	Tetrachloroethene	1	J	
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	J
	Total Xylenes	5	U	J

PJC 1-27-86

Data Reporting Qualifiers

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

R = UNUSABLE

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

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

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

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

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

NR No value required.

Laboratory Name: ERG Inc

Case No: 5136

SW2

Sample Number
EE 461

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

RECEIVED FEB 11 1986

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-1-85

Date Analyzed: 11-21-85

Conc/Dil Factor: 1

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)		
108-95-2	Phenol	10	U	
111-44-4	bis(-2-Chloroethyl)Ether	10	U	J
95-57-8	2-Chlorophenol	10	U	
541-73-1	1, 3-Dichlorobenzene	10	U	
106-46-7	1, 4-Dichlorobenzene	10	U	
100-51-6	Benzyl Alcohol	10	U	J
95-50-1	1, 2-Dichlorobenzene	10	U	
95-48-7	2-Methylphenol	10	U	
39638-32-9	bis(2-chloroisopropyl)Ether	10	U	
106-44-5	4-Methylphenol	10	U	
621-64-7	N-Nitroso-Di-n-Propylamine	10	U	
67-72-1	Hexachloroethane	10	U	
98-95-3	Nitrobenzene	10	U	
78-59-1	Isophorone	10	U	
88-75-5	2-Nitrophenol	10	U	
105-67-9	2, 4-Dimethylphenol	10	U	
65-85-0	Benzoic Acid	50	U	J
111-91-1	bis(-2-Chloroethoxy)Methane	10	U	
120-83-2	2, 4-Dichlorophenol	10	U	
120-82-1	1, 2, 4-Trichlorobenzene	10	U	
91-20-3	Naphthalene	10	U	J
106-47-8	4-Chloroaniline	10	U	J
87-68-3	Hexachlorobutadiene	10	U	
59-50-7	4-Chloro-3-Methylphenol	10	U	
91-57-6	2-Methylnaphthalene	10	U	
77-47-4	Hexachlorocyclopentadiene	10	U	
88-06-2	2, 4, 6-Trichlorophenol	10	U	
95-95-4	2, 4, 5-Trichlorophenol	50	U	
91-58-7	2-Chloronaphthalene	10	U	
88-74-4	2-Nitroaniline	50	U	
131-11-3	Dimethyl Phthalate	10	U	
208-96-8	Acenaphthylene	10	U	
99-09-2	3-Nitroaniline	50	U	R

PJC 1-27-86

CAS Number		(ug/l) or ug/Kg (Circle One)		
83-32-9	Acenaphthene	10	U	
51-28-5	2, 4-Dinitrophenol	50	U	
100-02-7	4-Nitrophenol	50	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2, 4-Dinitrotoluene	10	U	J
606-20-2	2, 6-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	3		JB
7005-72-3	4-Chlorophenyl-phenylether	10	U	J
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	50	U	J
534-52-1	4, 6-Dinitro-2-Methylphenol	50	U	R
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	J
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	5		J
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
84-74-2	Di-n-Butylphthalate	1		J
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	2		J
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3, 3'-Dichlorobenzidine	20	U	J
56-55-3	Benzo(a)Anthracene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U	
218-01-9	Chrysene	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10	U	
53-70-3	Dibenz(a, h)Anthracene	10	U	
191-24-2	Benzo(g, h, i)Perylene	10	U	

PJC 1-27-86

(1)-Cannot be separated from diphenylamine

Laboratory Name: F.R.G. Inc.

Case No: 5136

SW2

Sample Number: EE 461

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

RECEIVED FEB 11 1986

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/21/85

Date Analyzed: 11/23/85

Conc/Dil Factor: 1

Percent Moisture (decanted): NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4, 4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4, 4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4, 4'-DDT	0.10	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.5	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s —— V_t 10,000 ul V_i 1.0 ul

Laboratory Name: ERG. INC.

Case No: 5136

GW

Sample Number
EE 461

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

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CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. 110-54-3	HEXANE	VOA	564	1
2.				
3.				
4.				
5.				
6.				
7. —	UNKNOWN ALDEHYDE	BNA	1298	6
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

86F502529

SW3 upstr.

Sample Number
EE 462

Organics Analysis Data Sheet
(Page 1)

RECEIVED FEB 11 1986

Laboratory Name: E.R.G. Inc.
Case No: 5136
Lab Sample ID No: VEE462R
QC Report No: —
Sample Matrix: Water
Contract No: 68-01-6869
Data Release Authorized By: Joseph C. Hunter
Date Sample Received: 10-31-85

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 11-2-85
Date Analyzed: 11-2-85
Conc./Dil Factor: 1 pH —
Percent Moisture: (Not Decanted) —

CAS Number		(ug/l) or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	J
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	11	B	J
67-64-1	Acetone	10	U	J
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	
156-60-5	Trans-1, 2-Dichloroethene	1	J	
67-66-3	Chloroform	1	J	
107-06-2	1, 2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1, 1, 1-Trichloroethane	5	U	J
56-23-5	Carbon Tetrachloride	5	U	J
108-05-4	Vinyl Acetate	10	U	J
75-27-4	Bromodichloromethane	5	U	

PJC 1-27-86

CAS Number		(ug/l) or ug/Kg (Circle One)		
78-87-5	1, 2-Dichloropropane	5	U	
10061-02-6	Trans-1, 3-Dichloropropene	5	U	
79-01-6	Trichloroethene	2	J	
124-48-1	Dibromochloromethane	5	U	J
79-00-5	1, 1, 2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-01-5	cis-1, 3-Dichloropropene	5	U	J
110-75-8	2-Chloroethylvinylether	10	U	R
75-25-2	Bromoform	5	U	J
108-10-1	4-Methyl-2-Pentanone	10	U	R
591-78-6	2-Hexanone	10	U	J
127-18-4	Tetrachloroethene	1	J	
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	J
	Total Xylenes	5	U	J

PJC 1-27-86

Data Reporting Qualifiers

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

R = UNUSABLE

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

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

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

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

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

NR No value required.

Laboratory Name: ERG Inc

Case No: 5136

SW3 up

Sample Number
EE 462

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

RECEIVED FEB 11 1986

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-1-85

Date Analyzed: 11-21-85

Conc/Dil Factor: 1

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)		
108-95-2	Phenol	10	U	
111-44-4	bis(-2-Chloroethyl)Ether	10	U	J
95-57-8	2-Chlorophenol	10	U	
541-73-1	1, 3-Dichlorobenzene	10	U	
106-46-7	1, 4-Dichlorobenzene	10	U	
100-51-6	Benzyl Alcohol	10	U	J
95-50-1	1, 2-Dichlorobenzene	10	U	
95-48-7	2-Methylphenol	10	U	
39638-32-9	bis(2-chloroisopropyl)Ether	10	U	
106-44-5	4-Methylphenol	10	U	
621-64-7	N-Nitroso-Di-n-Propylamine	10	U	
67-72-1	Hexachloroethane	10	U	
98-95-3	Nitrobenzene	10	U	
78-59-1	Isophorone	10	U	
88-75-5	2-Nitrophenol	10	U	
105-67-9	2, 4-Dimethylphenol	10	U	
65-85-0	Benzoic Acid	50	U	J
111-91-1	bis(-2-Chloroethoxy)Methane	10	U	
120-83-2	2, 4-Dichlorophenol	10	U	
120-82-1	1, 2, 4-Trichlorobenzene	10	U	
91-20-3	Naphthalene	10	U	J
106-47-8	4-Chloroaniline	10	U	J
87-68-3	Hexachlorobutadiene	10	U	
59-50-7	4-Chloro-3-Methylphenol	10	U	
91-57-6	2-Methylnaphthalene	10	U	
77-47-4	Hexachlorocyclopentadiene	10	U	
88-06-2	2, 4, 6-Trichlorophenol	10	U	
95-95-4	2, 4, 5-Trichlorophenol	50	U	
91-58-7	2-Chloronaphthalene	10	U	
88-74-4	2-Nitroaniline	50	U	
131-11-3	Dimethyl Phthalate	10	U	
208-96-8	Acenaphthylene	10	U	
99-09-2	3-Nitroaniline	50	U	R

PJC 1-27-86

CAS Number		(ug/l) or ug/Kg (Circle One)		
83-32-9	Acenaphthene	10	U	
51-28-5	2, 4-Dinitrophenol	50	U	
100-02-7	4-Nitrophenol	50	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2, 4-Dinitrotoluene	10	U	J
606-20-2	2, 6-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	3	JB	
7005-72-3	4-Chlorophenyl-phenylether	10	U	J
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	50	U	J
534-52-1	4, 6-Dinitro-2-Methylphenol	50	U	R
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	J
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	50	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
84-74-2	Di-n-Butylphthalate	10	U	J
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	U	
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3, 3'-Dichlorobenzidine	20	U	J
56-55-3	Benzo(a)Anthracene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U	
218-01-9	Chrysene	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10	U	
53-70-3	Dibenz(a, h)Anthracene	10	U	
191-24-2	Benzo(g, h, i)Perylene	10	U	

PJC 1-27-86

(1)-Cannot be separated from diphenylamine

Laboratory Name: E R G Inc.

Case No: 5136

Sample Number: EE 462

Organics Analysis Data Sheet
(Page 3)

RECEIVED FEB 11 1986

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/21/85

Date Analyzed: 11/23/85

Conc/Dil Factor: 1

Percent Moisture (decanted): NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4, 4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4, 4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4, 4'-DDT	0.10	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.5	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s —— V_t 10,000 ul V_i 1.0 ul

Laboratory Name: E.R.G., inc.

Case No: 5136

SW3 vp

Sample Number
EE462

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

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CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO VOLATILE COMPOUNDS FOUND	VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.	UNKNOWN ALDEHYDE (C16-C20)	BNA	1300	5
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Blank

86FS02R03

Sample Number
EE463

Organics Analysis Data Sheet
(Page 1)

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Laboratory Name: E.R.G. Inc.
Case No: 5136
Lab Sample ID No: VEE463R
QC Report No: —
Sample Matrix: Water
Contract No: 68-01-6869
Data Release Authorized By: Joseph A. Hudson
Date Sample Received: 10-31-85

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 11-2-85
Date Analyzed: 11-2-85
Conc/Dil Factor: 1 pH —
Percent Moisture: (Not Decanted) —

CAS Number		(ug/l) or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	J
74-83-9	Bromomethane	10	U	J
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	12	B	
67-64-1	Acetone	10	U	J
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	
156-60-5	Trans-1, 2-Dichloroethene	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1, 2-Dichloroethane	5	U	J
78-93-3	2-Butanone	10	U	J
71-55-6	1, 1, 1-Trichloroethane	5	U	J
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	J
75-27-4	Bromodichloromethane	5	U	

PJC 1-27-86

CAS Number		(ug/l) or ug/Kg (Circle One)		
78-87-5	1, 2-Dichloropropane	5	U	
10061-02-6	Trans-1, 3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1, 1, 2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-01-5	cis-1, 3-Dichloropropene	5	U	J
110-75-8	2-Chloroethylvinylether	10	U	R
75-25-2	Bromoform	5	U	J
108-10-1	4-Methyl-2-Pentanone	10	U	R
591-78-6	2-Hexanone	10	U	J
127-18-4	Tetrachloroethene	5	U	
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
	Total Xylenes	5	U	

PJC 1-27-8

Data Reporting Qualifiers

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

R = UNUSABLE

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

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

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

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

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

NR No value required.

Laboratory Name: ERG Inc

Case No: 5136

Blank

Sample Number
EE 463

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

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Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-1-85

Date Analyzed: 11-21-85

Conc/Dil Factor: 1

Percent Moisture (Decanted) NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)		
108-95-2	Phenol	10	U	
111-44-4	bis(-2-Chloroethyl)Ether	10	U	J
95-57-8	2-Chlorophenol	10	U	
541-73-1	1, 3-Dichlorobenzene	10	U	
106-46-7	1, 4-Dichlorobenzene	10	U	
100-51-6	Benzyl Alcohol	10	U	J
95-50-1	1, 2-Dichlorobenzene	10	U	
95-48-7	2-Methylphenol	10	U	
39638-32-9	bis(2-chloroisopropyl)Ether	10	U	
106-44-5	4-Methylphenol	10	U	
621-64-7	N-Nitroso-Di-n-Propylamine	10	U	
67-72-1	Hexachloroethane	10	U	
98-95-3	Nitrobenzene	10	U	
78-59-1	Isophorone	10	U	
88-75-5	2-Nitrophenol	10	U	
105-67-9	2, 4-Dimethylphenol	10	U	
65-85-0	Benzoic Acid	50	U	J
111-91-1	bis(-2-Chloroethoxy)Methane	10	U	
120-83-2	2, 4-Dichlorophenol	10	U	
120-82-1	1, 2, 4-Trichlorobenzene	10	U	
91-20-3	Naphthalene	10	U	J
106-47-8	4-Chloroaniline	10	U	J
87-68-3	Hexachlorobutadiene	10	U	
59-50-7	4-Chloro-3-Methylphenol	10	U	
91-57-6	2-Methylnaphthalene	10	U	
77-47-4	Hexachlorocyclopentadiene	10	U	
88-06-2	2, 4, 6-Trichlorophenol	10	U	
95-95-4	2, 4, 5-Trichlorophenol	50	U	
91-58-7	2-Chloronaphthalene	10	U	
88-74-4	2-Nitroaniline	50	U	
131-11-3	Dimethyl Phthalate	10	U	
208-96-8	Acenaphthylene	10	U	
99-09-2	3-Nitroaniline	50	U	R

PJC 1-27-86

CAS Number		(ug/l) or ug/Kg (Circle One)		
83-32-9	Acenaphthene	10	U	
51-28-5	2, 4-Dinitrophenol	50	U	
100-02-7	4-Nitrophenol	50	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2, 4-Dinitrotoluene	10	U	J
606-20-2	2, 6-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	3	JB	
7005-72-3	4-Chlorophenyl-phenylether	10	U	J
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	50	U	J
534-52-1	4, 6-Dinitro-2-Methylphenol	50	U	R
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	J
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	50	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
84-74-2	Di-n-Butylphthalate	10	U	J
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	U	
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3, 3'-Dichlorobenzidine	20	U	J
56-55-3	Benzo(a)Anthracene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U	
218-01-9	Chrysene	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10	U	
53-70-3	Dibenz(a, h)Anthracene	10	U	
191-24-2	Benzo(g, h, i)Perylene	10	U	

PJC 1-27-86

(1)-Cannot be separated from diphenylamine

Laboratory Name: F R G Inc.

Case No: 5136

Blank

Sample Number: EE 463

Organics Analysis Data Sheet.
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/21/85

Date Analyzed: 11/23/85

Conc/Dil Factor: 1

Percent Moisture (decanted): NA

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

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CAS Number		(ug/l) or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4, 4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4, 4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4, 4'-DDT	0.10	U
72-43-5	Methoxychlor	0.5	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.5	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 ml or W_s — V_t 10,000 ul V_i 1.0 ul

Laboratory Name: E.R.G., inc.

Case No: 5136

Blk

Sample Number
EE463

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

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CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO VOLATILE COMPOUNDS FOUND	VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.	NO SEMI-VOLATILE COMPOUNDS FOUND			
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

57

Sample Number
EE 457

R6

86F502524

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: E.R.G., Inc.

Case No: 5136

Lab Sample ID No: EE457

QC Report No: —

Sample Matrix: SOIL/SED.

Contract No: 68-01-6869

Data Release Authorized By: Joseph A. Kmatour

Date Sample Received: 10/31/85

Volatile Compounds

Concentration: Low (Medium) (Circle One)

Date Extracted/Prepared: 11/4/85

Date Analyzed: 11/4/85

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Conc/Dil Factor: 0.3 pH 7.59

Percent Moisture: (Not Decanted) 16.2

CAS Number		ug/l or ug/Kg (Circle One)		
74-87-3	Chloromethane	360	U	J
74-83-9	Bromomethane	360	U	J
75-01-4	Vinyl Chloride	360	U	
75-00-3	Chloroethane	360	U	J
75-09-2	Methylene Chloride	7600	B	
67-64-1	Acetone	360	U	J
75-15-0	Carbon Disulfide	180		
75-35-4	1, 1-Dichloroethene	180	U	
75-34-3	1, 1-Dichloroethane	180	U	
156-60-5	Trans-1, 2-Dichloroethene	180	U	
67-66-3	Chloroform	180	U	
107-06-2	1, 2-Dichloroethane	180	U	J
78-93-3	2-Butanone	8200	B	J
71-55-6	1, 1, 1-Trichloroethane	120	JB	
56-23-5	Carbon Tetrachloride	180	U	J
108-05-4	Vinyl Acetate	360	U	J
75-27-4	Bromodichloromethane	180	U	J

PJC 1-27-86

CAS Number		ug/l or ug/Kg (Circle One)		
78-87-5	1, 2-Dichloropropane	180	U	
10061-02-6	Trans-1, 3-Dichloropropene	180	U	J
79-01-6	Trichloroethene	59	JB	
124-48-1	Dibromochloromethane	180	U	J
79-00-5	1, 1, 2-Trichloroethane	180	U	
71-43-2	Benzene	180	U	J
10061-01-5	cis-1, 3-Dichloropropene	180	U	J
110-75-8	2-Chloroethylvinylether	360	U	R
75-25-2	Bromoform	180	U	J
108-10-1	4-Methyl-2-Pentanone	1100		J
591-78-6	2-Hexanone	360	U	J
127-18-4	Tetrachloroethene	180	U	J
79-34-5	1, 1, 2, 2-Tetrachloroethane	180	U	
108-88-3	Toluene	180		←
108-90-7	Chlorobenzene	180	U	
100-41-4	Ethylbenzene	120	J	
100-42-5	Styrene	180	U	
	Total Xylenes	180	U	

PJC 1-27-86

Data Reporting Qualifiers

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

R = UNUSABLE

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

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

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

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

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

NR No value required.

Laboratory Name: E.R.G., Inc.

Case No: 5136

Sample Number
EE.457

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-7-85

Date Analyzed: 11-22-85

Conc/Dil Factor: 1

Percent Moisture (Decanted) NOT 16.2

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

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CAS Number		ug/l or ug/Kg (Circle One)		
108-95-2	Phenol	390	U	
111-44-4	bis(-2-Chloroethyl)Ether	390	U	
95-57-8	2-Chlorophenol	390	U	
541-73-1	1, 3-Dichlorobenzene	390	U	J
106-46-7	1, 4-Dichlorobenzene	390	U	
100-51-6	Benzyl Alcohol	390	U	
95-50-1	1, 2-Dichlorobenzene	390	U	J
95-48-7	2-Methylphenol	390	U	
39638-32-9	bis(2-chloroisopropyl)Ether	390	U	
106-44-5	4-Methylphenol	390	U	
621-64-7	N-Nitroso-Di-n-Propylamine	390	U	
67-72-1	Hexachloroethane	390	U	
98-95-3	Nitrobenzene	390	U	
78-59-1	Isophorone	390	U	
88-75-5	2-Nitrophenol	390	U	
105-67-9	2, 4-Dimethylphenol	360	U	
65-85-0	Benzoic Acid	1900	U	J
111-91-1	bis(-2-Chloroethoxy)Methane	390	U	
120-83-2	2, 4-Dichlorophenol	390	U	
120-82-1	1, 2, 4-Trichlorobenzene	390	U	
91-20-3	Naphthalene	40	J	
106-47-8	4-Chloroaniline	390	U	J
87-68-3	Hexachlorobutadiene	390	U	
59-50-7	4-Chloro-3-Methylphenol	390	U	
91-57-6	2-Methylnaphthalene	260	J	
77-47-4	Hexachlorocyclopentadiene	390	U	
88-06-2	2, 4, 6-Trichlorophenol	390	U	
95-95-4	2, 4, 5-Trichlorophenol	1900	U	
91-58-7	2-Chloronaphthalene	390	U	
88-74-4	2-Nitroaniline	1900	U	
131-11-3	Dimethyl Phthalate	390	U	
208-96-8	Acenaphthylene	390	U	
99-09-2	3-Nitroaniline	1900	U	R

CAS Number		ug/l or ug/Kg (Circle One)		
83-32-9	Acenaphthene	36	J	
51-28-5	2, 4-Dinitrophenol	1900	U	
100-02-7	4-Nitrophenol	1900	U	
132-64-9	Dibenzofuran	77	J	
121-14-2	2, 4-Dinitrotoluene	390	U	J
606-20-2	2, 6-Dinitrotoluene	390	U	J
84-66-2	Diethylphthalate	250	JB	
7005-72-3	4-Chlorophenyl-phenylether	390	U	
86-73-7	Fluorene	390	U	
100-01-6	4-Nitroaniline	1900	U	J
534-52-1	4, 6-Dinitro-2-Methylphenol	1900	U	R
86-30-6	N-Nitrosodiphenylamine (1)	390	U	
101-55-3	4-Bromophenyl-phenylether	390	U	
118-74-1	Hexachlorobenzene	390	U	J
87-86-5	Pentachlorophenol	1900	U	
85-01-8	Phenanthrene	480		J
120-12-7	Anthracene	390	U	
84-74-2	Di-n-Butylphthalate	390	U	
206-44-0	Fluoranthene	86	J	
129-00-0	Pyrene	75	J	
85-68-7	Butylbenzylphthalate	390	U	J
91-94-1	3, 3'-Dichlorobenzidine	790	U	
56-55-3	Benzo(a)Anthracene	390	U	J
117-81-7	bis(2-Ethylhexyl)Phthalate	390	U	J
218-01-9	Chrysene	48	J	
117-84-0	Di-n-Octyl Phthalate	390	U	
205-99-2	Benzo(b)Fluoranthene	390	U	
207-08-9	Benzo(k)Fluoranthene	390	U	
50-32-8	Benzo(a)Pyrene	390	U	
193-39-5	Indeno(1, 2, 3-cd)Pyrene	390	U	J
53-70-3	Dibenz(a, h)Anthracene	390	U	
191-24-2	Benzo(g, h, i)Perylene	390	U	J

(1)-Cannot be separated from diphenylamine

Laboratory Name E.R.G., inc.

Case No 5136

Sample Number EE 457

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11/19/85

Date Analyzed: 11/23/85

Conc./Dil Factor: 1

Percent Moisture (decanted) 16.2%

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

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CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	9.5	U
319-85-7	Beta-BHC	9.5	U
319-86-8	Delta-BHC	9.5	U
58-89-9	Gamma-BHC (Lindane)	9.5	U
76-44-8	Heptachlor	9.5	U
309-00-2	Aldrin	9.5	U
1024-57-3	Heptachlor Epoxide	~~2.3~~	~~J~~ 9.5U RJC 1-24-86
959-98-8	Endosulfan I	9.5	U
60-57-1	Dieldrin	19	U
72-55-9	4, 4'-DDE	19	U
72-20-8	Endrin	19	U
33213-65-9	Endosulfan II	19	U
72-54-8	4, 4'-DDD	19	U
1031-07-8	Endosulfan Sulfate	19	U
50-29-3	4, 4'-DDT	19	U
72-43-5	Methoxychlor	95	U
53494-70-5	Endrin Ketone	19	U
57-74-9	Chlordane	95	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	95	U
11104-28-2	Aroclor-1221	95	U
11141-16-5	Aroclor-1232	95	U
53469-21-9	Aroclor-1242	95	U
12672-29-6	Aroclor-1248	95	U
11097-69-1	Aroclor-1254	190	U
11096-82-5	Aroclor-1260	190	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s ——— or W_s 25.37g DRY WT. V_t 1000ml V_i 1.0ml

Laboratory Name: E.R.G., inc.

Case No: 5136

Sample Number
EE457

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

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CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. 554-12-1	METHYL ESTER PROPANOIC ACID	VOA	502	560
2.	UNKNOWN-NOT IN EPA/NIH LIBRARY	VOA	526	110
3. 563-80-4	3-METHYL-2-BUTANONE	VOA	546	690
4. 6137-11-7	4-METHYL-3-HEPTANONE	VOA	591	1500
5. 106-70-7	METHYL ESTER HEXANOIC ACID	VOA	637	660
6. 868-57-5	METHYL ESTER-2-METHYL-BUTANOIC ACID	VOA	704	490
7. 13151-04-7	5-METHYL-1-HEPTENE	VOA	716	200
8.	UNKNOWN-NOT IN EPA/NIH LIBRARY	VOA	729	170
9.	UNKNOWN-NOT IN EPA/NIH LIBRARY	VOA	860	170
10. 17257-81-7	3,4-EPOXY-2-HEXANONE	VOA	948	220
11. 62016-34-6	2,3,7-trimethyloctane	BNA	855	250
12.	UNKNOWN HYDROCARBON	BNA	880	380
13. 90-12-0	1-methylnaphthalene	BNA	885	250
14.	UNKNOWN HYDROCARBON	BNA	949	240
15. 62108-21-8	6-ETHYL-2-METHYL DECANE	BNA	969	600
16. 575-37-1	1,7-DIMETHYL-NAPHTHALENE	BNA	982	440
17.	DIMETHYL NAPHTHALENE	BNA	999	300
18.	UNKNOWN HYDROCARBON	BNA	1021	520
19.	UNKNOWN HYDROCARBON	BNA	1052	460
20.	UNKNOWN-NOT IN EPA/NIH LIBRARY	BNA	1067	440
21. 2245-38-7	1,6,7-TRIMETHYLNAPHTHALENE	BNA	1087	280
22. 829-26-5	2,3,6-TRIMETHYLNAPHTHALENE	BNA	1101	370
23.	UNKNOWN HYDROCARBON	BNA	1130	430
24. 7320-53-8	4-METHYLDIBENZOFURAN	BNA	1145	300
25.	UNKNOWN HYDROCARBON	BNA	1167	400
26.	UNKNOWN-NOT IN EPA/NIH LIBRARY	BNA	1229	430
27.	UNKNOWN HYDROCARBON (C14-C18)	BNA	1275	300
28.	UNKNOWN PHENANTHRENE	BNA	1343	370
29. 883-20-5	9-METHYL PHENANTHRENE	BNA	1355	340
30.	UNKNOWN-NOT IN EPA/NIH LIBRARY	BNA	2007	600

SP

Sample Number
EE 458

R2

86F502525

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: E.R.G., Inc.

Case No: 5136

Lab Sample ID No: EE 458 R2

QC Report No: —

Sample Matrix: SOIL/SED.

Contract No: 68-01-6869

Data Release Authorized By: Josepha Hnatow

Date Sample Received: 10/31/85

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/3/85

Date Analyzed: 11/3/85

Conc/Dil Factor: 5 pH 7.93

Percent Moisture: (Not Decanted) 31.3

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CAS Number		ug/l or ug/Kg (Circle One)		
74-87-3	Chloromethane	73	U	J
74-83-9	Bromomethane	73	U	J
75-01-4	Vinyl Chloride	73	U	
75-00-3	Chloroethane	73	U	J
75-09-2	Methylene Chloride	1300	B	
67-64-1	Acetone	73	U	J
75-15-0	Carbon Disulfide	44		←
75-35-4	1, 1-Dichloroethene	36	U	
75-34-3	1, 1-Dichloroethane	36	U	
156-60-5	Trans-1, 2-Dichloroethene	36	U	
67-66-3	Chloroform	36	U	
107-06-2	1, 2-Dichloroethane	36	U	J
78-93-3	2-Butanone	73	U	J
71-55-6	1, 1, 1-Trichloroethane	15	J	
56-23-5	Carbon Tetrachloride	36	U	J
108-05-4	Vinyl Acetate	73	U	J
75-27-4	Bromodichloromethane	36	U	J

PJC 1-27-86

CAS Number		ug/l or ug/Kg (Circle One)		
78-87-5	1, 2-Dichloropropane	36	U	
10061-02-6	Trans-1, 3-Dichloropropene	36	U	J
79-01-6	Trichloroethene	15	J	
124-48-1	Dibromochloromethane	36	U	J
79-00-5	1, 1, 2-Trichloroethane	36	U	
71-43-2	Benzene	36	U	J
10061-01-5	cis-1, 3-Dichloropropene	36	U	J
110-75-8	2-Chloroethylvinylether	73	U	R
75-25-2	Bromoform	36	U	J
108-10-1	4-Methyl-2-Pentanone	73	U	R
591-78-6	2-Hexanone	73	U	J
127-18-4	Tetrachloroethene	36	U	J
79-34-5	1, 1, 2, 2-Tetrachloroethane	36	U	
108-88-3	Toluene	66		←
108-90-7	Chlorobenzene	36	U	
100-41-4	Ethylbenzene	36	U	
100-42-5	Styrene	36	U	J
	Total Xylenes	36	U	

PJC 1-27-86

Data Reporting Qualifiers

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

R = UNUSABLE

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

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

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

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

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

NR No value required.

Laboratory Name: E.R.G., inc.

Case No: 5136

Sample Number: EE 458

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-7-85

Date Analyzed: 11-22-85

Conc/Dil Factor: 1

Percent Moisture (Decanted) 31.3

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

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CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	480 U	
111-44-4	bis(-2-Chloroethyl)Ether	480 U	
95-57-8	2-Chlorophenol	480 U	
541-73-1	1, 3-Dichlorobenzene	480 U	J
106-46-7	1, 4-Dichlorobenzene	480 U	
100-51-6	Benzyl Alcohol	480 U	
95-50-1	1, 2-Dichlorobenzene	480 U	J
95-48-7	2-Methylphenol	480 U	
39638-32-9	bis(2-chloroisopropyl)Ether	480 U	
106-44-5	4-Methylphenol	480 U	
621-64-7	N-Nitroso-Di-n-Propylamine	480 U	
67-72-1	Hexachloroethane	480 U	
98-95-3	Nitrobenzene	480 U	
78-59-1	Isophorone	480 U	
88-75-5	2-Nitrophenol	480 U	
105-67-9	2, 4-Dimethylphenol	440 U	
65-85-0	Benzoic Acid	2300 U	J
111-91-1	bis(-2-Chloroethoxy)Methane	480 U	
120-83-2	2, 4-Dichlorophenol	480 U	
120-82-1	1, 2, 4-Trichlorobenzene	480 U	
91-20-3	Naphthalene	480 U	
106-47-8	4-Chloroaniline	480 U	J
87-68-3	Hexachlorobutadiene	480 U	
59-50-7	4-Chloro-3-Methylphenol	480 U	
91-57-6	2-Methylnaphthalene	480 U	J
77-47-4	Hexachlorocyclopentadiene	480 U	
88-06-2	2, 4, 6-Trichlorophenol	480 U	
95-95-4	2, 4, 5-Trichlorophenol	2300 U	
91-58-7	2-Chloronaphthalene	480 U	
88-74-4	2-Nitroaniline	2300 U	
131-11-3	Dimethyl Phthalate	480 U	
208-96-8	Acenaphthylene	480 U	
99-09-2	3-Nitroaniline	2300 U	R

PSC 1-27-86

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	480 U	
51-28-5	2, 4-Dinitrophenol	2300 U	
100-02-7	4-Nitrophenol	2300 U	
132-64-9	Dibenzofuran	480 U	
121-14-2	2, 4-Dinitrotoluene	480 U	J
606-20-2	2, 6-Dinitrotoluene	480 U	J
84-66-2	Diethylphthalate	130 B	
7005-72-3	4-Chlorophenyl-phenylether	480 U	
86-73-7	Fluorene	480 U	
100-01-6	4-Nitroaniline	2300 U	J
534-52-1	4, 6-Dinitro-2-Methylphenol	2300 U	R
86-30-6	N-Nitrosodiphenylamine (1)	480 U	
101-55-3	4-Bromophenyl-phenylether	480 U	
118-74-1	Hexachlorobenzene	480 U	J
87-86-5	Pentachlorophenol	2300 U	
85-01-8	Phenanthrene	480 U	J
120-12-7	Anthracene	480 U	
84-74-2	Di-n-Butylphthalate	480 U	
206-44-0	Fluoranthene	480 U	
129-00-0	Pyrene	480 U	
85-68-7	Butylbenzylphthalate	480 U	J
91-94-1	3, 3'-Dichlorobenzidine	960 U	
56-55-3	Benzo(a)Anthracene	480 U	J
117-81-7	bis(2-Ethylhexyl)Phthalate	480 U	J
218-01-9	Chrysene	480 U	
117-84-0	Di-n-Octyl Phthalate	480 U	
205-99-2	Benzo(b)Fluoranthene	480 U	
207-08-9	Benzo(k)Fluoranthene	480 U	
50-32-8	Benzo(a)Pyrene	480 U	
193-39-5	Indeno(1, 2, 3-cd)Pyrene	480 U	J
53-70-3	Dibenz(a, h)Anthracene	480 U	
191-24-2	Benzo(g, h, i)Perylene	480 U	J

PSC 1-27-86

(1)-Cannot be separated from diphenylamine

Laboratory Name: E.R.G., Inc.

Case No.: 5136

Sample Number: EE 458 RE

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/19/85

Date Analyzed: 11/23/85

Conc/Dil Factor: 5

Percent Moisture (decanted): 31.3 %

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

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CAS Number		ug/l or (ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	58	U
319-85-7	Beta-BHC	58	U
319-86-8	Delta-BHC	58	U
58-89-9	Gamma-BHC (Lindane)	58	U
76-44-8	Heptachlor	58	U
309-00-2	Aldrin	58	U
1024-57-3	Heptachlor Epoxide	58	U
959-98-8	Endosulfan I	58	U
60-57-1	Dieldrin	120	U
72-55-9	4, 4'-DDE	120	U
72-20-8	Endrin	120	U
33213-65-9	Endosulfan II	120	U
72-54-8	4, 4'-DDD	120	U
1031-07-8	Endosulfan Sulfate	120	U
50-29-3	4, 4'-DDT	120	U
72-43-5	Methoxychlor	580	U
53494-70-5	Endrin Ketone	120	U
57-74-9	Chlordane	580	U
8001-35-2	Toxaphene	1200	U
12674-11-2	Aroclor-1016	580	U
11104-28-2	Aroclor-1221	580	U
11141-16-5	Aroclor-1232	580	U
53469-21-9	Aroclor-1242	~~290~~ J	580 U PSC 1-27-86
12672-29-6	Aroclor-1248	580	U
11097-69-1	Aroclor-1254	1200	U
11096-82-5	Aroclor-1260	1200	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s — or W_s 20.66 g DRY WT. V_t 1000 µL V_i 1.0 µL

Laboratory Name: ERG, INC.

Case No: 5136

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Sample Number
EE 458

Organics Analysis Data Sheet
(Page 4)

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Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. 563-80-4	3-METHYL-2-BUTANONE	VOA	589	5
2.				
3.				
4.	NO SEMI-VOLATILE COMPOUNDS FOUND			
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
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17.				
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21.				
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23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

S3

Sample Number
EE 459 R1

86F502526

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: E.R.G., Inc.
Case No: 5136
Lab Sample ID No: EE 459 R1
QC Report No: —
Sample Matrix: SOIL / SED.
Contract No: 68-01-6869
Data Release Authorized By: Joseph A. Hrutowt
Date Sample Received: 10/31/85

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 11/4/85
Date Analyzed: 11/4/85
Conc/Dil Factor: 5 pH 7.46
Percent Moisture: (Not Decanted) 38.1

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CAS Number		ug/l or ug/Kg (Circle One)		
74-87-3	Chloromethane	81	U	J
74-83-9	Bromomethane	81	U	J
75-01-4	Vinyl Chloride	81	U	
75-00-3	Chloroethane	81	U	J
75-09-2	Methylene Chloride	730	B	
67-64-1	Acetone	81	U	J
75-15-0	Carbon Disulfide	16	J	
75-35-4	1, 1-Dichloroethene	40	U	
75-34-3	1, 1-Dichloroethane	40	U	
156-60-5	Trans-1, 2-Dichloroethene	40	U	
67-66-3	Chloroform	40	U	
107-06-2	1, 2-Dichloroethane	40	U	J
78-93-3	2-Butanone	81	U	J
71-55-6	1, 1, 1-Trichloroethane	8	J	
56-23-5	Carbon Tetrachloride	40	U	J
108-05-4	Vinyl Acetate	81	U	J
75-27-4	Bromodichloromethane	40	U	J

PJC 1-27-86

CAS Number		ug/l or ug/Kg (Circle One)		
78-87-5	1, 2-Dichloropropane	40	U	
10061-02-6	Trans-1, 3-Dichloropropene	40	U	J
79-01-6	Trichloroethene	40	U	
124-48-1	Dibromochloromethane	40	U	J
79-00-5	1, 1, 2-Trichloroethane	40	U	
71-43-2	Benzene	40	U	J
10061-01-5	cis-1, 3-Dichloropropene	40	U	J
110-75-8	2-Chloroethylvinylether	81	U	R
75-25-2	Bromoform	40	U	J
108-10-1	4-Methyl-2-Pentanone	81	U	R
591-78-6	2-Hexanone	81	U	J
127-18-4	Tetrachloroethene	40	U	J
79-34-5	1, 1, 2, 2-Tetrachloroethane	40	U	
108-88-3	Toluene	40	U	
108-90-7	Chlorobenzene	40	U	
100-41-4	Ethylbenzene	40	U	
100-42-5	Styrene	40	U	
	Total Xylenes	40	U	

PJC 1-27-86

Data Reporting Qualifiers

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

R = UNUSABLE

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

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

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

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

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

NR No value required.

Laboratory Name: E.R.G., inc.

Case No: 5136

Sample Number
EE 459

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-7-85

Date Analyzed: 11-22-85

Conc/Dil Factor: 1

Percent Moisture (Decanted) NOT 38.1

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

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CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	530 U	
111-44-4	bis(-2-Chloroethyl)Ether	530 U	
95-57-8	2-Chlorophenol	530 U	
541-73-1	1, 3-Dichlorobenzene	530 U	J
106-46-7	1, 4-Dichlorobenzene	530 U	
100-51-6	Benzyl Alcohol	530 U	
95-50-1	1, 2-Dichlorobenzene	530 U	J
95-48-7	2-Methylphenol	530 U	
39638-32-9	bis(2-chloroisopropyl)Ether	530 U	
106-44-5	4-Methylpheno:	530 U	
621-64-7	N-Nitroso-Di-n-Propylamine	530 U	
67-72-1	Hexachloroethane	530 U	
98-95-3	Nitrobenzene	530 U	
78-59-1	Isophorone	530 U	
88-75-5	2-Nitrophenol	530 U	
105-67-9	2, 4-Dimethylphenol	480 U	
65-85-0	Benzoic Acid	2600 U	J
111-91-1	bis(-2-Chloroethoxy)Methane	530 U	
120-83-2	2, 4-Dichlorophenol	530 U	
120-82-1	1, 2, 4-Trichlorobenzene	530 U	
91-20-3	Naphthalene	530 U	
106-47-8	4-Chloroaniline	530 U	J
87-68-3	Hexachlorobutadiene	530 U	
59-50-7	4-Chloro-3-Methylphenol	530 U	
91-57-6	2-Methylnaphthalene	530 U	J
77-47-4	Hexachlorocyclopentadiene	530 U	
88-06-2	2, 4, 6-Trichlorophenol	530 U	
95-95-4	2, 4, 5-Trichlorophenol	2600 U	
91-58-7	2-Chloronaphthalene	530 U	
88-74-4	2-Nitroaniline	2600 U	
131-11-3	Dimethyl Phthalate	530 U	
208-96-8	Acenaphthylene	530 U	
99-09-2	3-Nitroaniline	2600 U	R

PSC 1-27-86

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	530 U	
51-28-5	2, 4-Dinitrophenol	2600 U	
100-02-7	4-Nitrophenol	2600 U	
132-64-9	Dibenzofuran	530 U	
121-14-2	2, 4-Dinitrotoluene	530 U	J
606-20-2	2, 6-Dinitrotoluene	530 U	J
84-66-2	Diethylphthalate	330 JB	
7005-72-3	4-Chlorophenyl-phenylether	530 U	
86-73-7	Fluorene	530 U	
100-01-6	4-Nitroaniline	2600 U	J
534-52-1	4, 6-Dinitro-2-Methylphenol	2600 U	R
86-30-6	N-Nitrosodiphenylamine (1)	530 U	
101-55-3	4-Bromophenyl-phenylether	530 U	
118-74-1	Hexachlorobenzene	530 U	J
87-86-5	Pentachlorophenol	2600 U	
85-01-8	Phenanthrene	100 J	
120-12-7	Anthracene	530 U	
84-74-2	Di-n-Butylphthalate	530 U	
206-44-0	Fluoranthene	110 J	
129-00-0	Pyrene	100 J	
85-68-7	Butylbenzylphthalate	530 U	J
91-94-1	3, 3'-Dichlorobenzidine	1100 U	
56-55-3	Benzo(a)Anthracene	59 J	
117-81-7	bis(2-Ethylhexyl)Phthalate	530 U	J
218-01-9	Chrysene	85 J	
117-84-0	Di-n-Octyl Phthalate	530 U	
205-99-2	Benzo(b)Fluoranthene	530 U	
207-08-9	Benzo(k)Fluoranthene	530 U	
50-32-8	Benzo(a)Pyrene	530 U	
193-39-5	Indeno(1, 2, 3-cd)Pyrene	530 U	J
53-70-3	Dibenz(a, h)Anthracene	530 U	
191-24-2	Benzo(g, h, i)Perylene	530 U	J

PSC 1-27-86

(1)-Cannot be separated from diphenylamine

Laboratory Name: E.R.G., inc.

Case No: 5136

Sample Number: EE459

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11/19/85

Date Analyzed: 11/23/85

Conc/Dil Factor: 1

Percent Moisture (decanted) 38.4%

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

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CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	13	U
319-85-7	Beta-BHC	13	U
319-86-8	Delta-BHC	13	U
58-89-9	Gamma-BHC (Lindane)	13	U
76-44-8	Heptachlor	13	U
309-00-2	Aldrin	13	U
1024-57-3	Heptachlor Epoxide	13	U
959-98-8	Endosulfan I	13	U
60-57-1	Dieldrin	26	U
72-55-9	4, 4'-DDE	26	U
72-20-8	Endrin	26	U
33213-65-9	Endosulfan II	26	U
72-54-8	4, 4'-DDD	26	U
1031-07-8	Endosulfan Sulfate	26	U
50-29-3	4, 4'-DDT	26	U
72-43-5	Methoxychlor	130	U
53494-70-5	Endrin Ketone	26	U
57-74-9	Chlordane	130	U
8001-35-2	Toxaphene	260	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	260	U
11096-82-5	Aroclor-1260	260	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s — or W_s 18.55g DRY WT. V_t 1000 ml V_i 1.0 ml

Laboratory Name: E.R.G., inc.

Case No: 5136

Sample Number
EE459

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

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CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.				
2.				
3.	NO VOLATILE COMPOUNDS FOUND	VOA		
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.	UNKNOWN HYDROCARBON (C19 - C21)	BNA	1206	440
12.	UNKNOWN CARBOXYLIC ACID (C12-C16)	BNA	1379	340
13.	UNKNOWN PAH	BNA	1829	450
14.	UNKNOWN - NOT IN EPA/NIH LIBRARY	BNA	1855	490
15.	UNKNOWN - NOT IN EPA/NIH LIBRARY	BNA	1890	290
16.	UNKNOWN - NOT IN EPA/NIH LIBRARY	BNA	2006	280
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

DATA REVIEW SHEET

CASE # 5136
DATA SET # SF 2780
LAB Q.C.# 55430 + 55429 (soil) (H2O)
DATE: 11-25-85

SITE McKinley-Thompson L.F.
LAB RMAL
REVIEWED BY Dorothy M. May

MATRIX: soil + H2O
CONC. : low

WATER SAMPLE SPK. MEG 487
WATER SAMPLE DUP. MEG 486
SOIL SAMPLE SPK. MEG 483
SOIL SAMPLE DUP. MEG 483

Metals:	CALIBRATION ICV	CCV	CCV	CCV	BLANKS ICB	PREP	PREP	ICP INTER. INT	FINAL	SPIKE WATER	SOIL	DUPLICATE WATER	SOIL	LCS WATER	SOIL
1. Aluminum										71%					
2. Antimony															
3. Arsenic															
4. Barium										68%					
5. Beryllium															
6. Cadmium															
7. Calcium															
8. Chromium															
9. Cobalt															
10. Copper															
11. Iron										69%			29%		
12. Lead															
13. Magnesium															
14. Manganese															
15. Mercury															
16. Nickel															
17. Potassium															
18. Selenium										60%					
19. Silver															
20. Sodium															
21. Thallium										48%					
22. Vanadium															
23. Zinc													58%		
24. Cyanide															
Other: Sn										73%					

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page 1

Form III

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Q.C. Report No. 55430

BLANKS

LAB NAME ROCKY MOUNTAIN ANALYTICAL
DATE 11-21-85

CASE NO. 5136
UNITS ug/L

Matrix SOIL

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2
Metals:							
1. ALUMINUM	25U	25U				25U	
2. ANTIMONY	25U	25U				25U	
3. ARSENIC	28U	28U				28U	P
4. BARIUM	13U	13U				13U	
5. BERYLLIUM	0.4U	0.4U				0.4U	
6. CADMIUM	4U	4U				4U	
7. CALCIUM	207U	207U				207U	
8. CHROMIUM	4U	4U				4U	
9. COBALT	5U	5U				5U	
10. COPPER	3U	3U				3U	
11. IRON	10U	10U				[29]	
12. LEAD	22U	22U				22U	P
13. MAGNESIUM	312U	312U				312U	
14. MANGANESE	5U	5U				5U	
15. MERCURY	0.1U	0.1U				0.1U	
16. NICKEL	7U	7U				7U	
17. POTASSIUM	2170U	2170U				2170U	
18. SELENIUM	2U	2U				2U	
19. SILVER	3U	3U				3U	
20. SODIUM	583U	583U				[692]	
21. THALLIUM	2U	2U				2U	
22. TIN	16U	16U				16U	
23. VANADIUM	4U	4U				4U	
24. ZINC	2U	2U				[3.9]	
Other:							
Cyanide							

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Form III

RECEIVED FEB 11 1986

Q.C. Report No. 55430

BLANKS

LAB NAME ROCKY MOUNTAIN ANALYTICAL
DATE 11-21-85

CASE NO. 5136
UNITS ug/L

Matrix Soil

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2	
Metals:								
1. ALUMINUM								
2. ANTIMONY								
3. ARSENIC	2u	2u			2u			F
4. BARIUM								
5. BERYLLIUM								
6. CADMIUM								
7. CALCIUM								
8. CHROMIUM								
9. COBALT								
10. COPPER								
11. IRON								
12. LEAD	2u	2u			2u			F
13. MAGNESIUM								
14. MANGANESE								
15. MERCURY								
16. NICKEL								
17. POTASSIUM								
18. SELENIUM								
19. SILVER								
20. SODIUM								
21. THALLIUM								
22. TIN								
23. VANADIUM								
24. ZINC								
Other:								
Cyanide								

Form V

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Q.C. Report No. 55430

SPIKE SAMPLE RECOVERY

LAB NAME ROCKY MOUNTAIN ANALYTICAL

DATE 11-21-85

CASE NO. 5136
EPA Sample No. MEG483
Lab Sample ID No. -
Units mg/kg

MATRIX SOIL

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. ALUMINUM	75-125	7030	6850	NR	
2. ANTIMONY	75-125	245	12U	250	94
3. ARSENIC	75-125	42	22	20	100
4. BARIUM	75-125	1040	[76]	1000	96
5. BERYLLIUM	75-125	29	4.1	25	100
6. CADMIUM	75-125	31	3.5	25	110
7. CALCIUM	75-125	6940	8660	NR	
8. CHROMIUM	75-125	119	17	100	102
9. COBALT	75-125	285	[9.7]	250	110
10. COPPER	75-125	166	39	125	102
11. IRON	75-125	29600	33100	NR	
12. LEAD	75-125	16	7.5	10	85
13. MAGNESIUM	75-125	[542]	[557]	NR	
14. MANGANESE	75-125	361	121	250	96
15. MERCURY	75-125	0.54	0.05U	0.5	108
16. NICKEL	75-125	279	26	250	101
17. POTASSIUM	75-125	1080U	1080U	NR	
18. SELENIUM	75-125	4.4	1U	5	88
19. SILVER	75-125	27	[2.8]	25	97
20. SODIUM	75-125	[297]	[347]	NR	
21. THALLIUM	75-125	26	1U	25	104
22. TIN	75-125	216	8U	250	86
23. VANADIUM	75-125	312	55	250	103
24. ZINC	75-125	322	135	250	75
Other:					
Cyanide	75-125				

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

"R"- out of control

Comments:

Form VI

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Q.C. Report No. 55430

DUPLICATES

LAB NAME ROCKY MOUNTAIN ANALYTICAL

CASE NO. 5136
EPA Sample No. MEG483D
Lab Sample ID No. -
Units mg/kg

DATE 11-21-85

Matrix SOIL

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]	
Metals:					
1. ALUMINUM		6850	6130	11	
2. ANTIMONY		12U	12U	NC	
3. ARSENIC		22	22	0	
4. BARIUM		[76]	[64]	NC	
5. BERYLLIUM		4.1	3.1	28	
6. CADMIUM		3.5	3.8	8.2	
7. CALCIUM		8660	8510	1.7	
8. CHROMIUM		17	12	34	
9. COBALT		[9.7]	[6.4]	NC	
10. COPPER		39	32	20	
11. IRON		32100	24000	29	*
12. LEAD		7.5	6.5	14	
13. MAGNESIUM		[557]	[480]	NC	
14. MANGANESE		121	99	20	
15. MERCURY		0.05U	0.05U	NC	
16. NICKEL		26	[19]	NC	
17. POTASSIUM		1080U	1080U	NC	
18. SELENIUM		1U	1U	NC	
19. SILVER		[2.8]	[1.7]	NC	
20. SODIUM		[347]	[724]	NC	
21. THALLIUM		1U	1U	NC	
22. TIN		8U	8U	NC	
23. VANADIUM		55	44	22	
24. ZINC		135	74	58	*
Other:					
Cyanide					

* Out of Control

[1] To be added at a later date.

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

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

Form III

Q.C. Report No. 55429

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BLANKS

LAB NAME ROCKY MOUNTAIN ANALYTICAL

CASE NO. 5136

DATE 11-21-85

UNITS ug/L

Matrix WATER

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2	
Metals:								
1. ALUMINUM	25U	25U				25U		
2. ANTIMONY	25U	25U				25U		
3. ARSENIC	2U	2U	2U			2U		F
4. BARIUM	13U	13U				13U		
5. BERYLLIUM	0.4U	0.4U				0.4U		
6. CADMIUM	4U	4U				4U		
7. CALCIUM	207U	207U				207U		
8. CHROMIUM	4U	4U				4U		
9. COBALT	5U	5U				5U		
10. COPPER	3U	3U				3U		
11. IRON	10U	10U				[25]		
12. LEAD	2U	2U	2U			2U		F
13. MAGNESIUM	312U	312U				312U		
14. MANGANESE	5U	5U				5U		
15. MERCURY	0.1U	0.1U				0.1U		
16. NICKEL	7U	7U				7U		
17. POTASSIUM	2170U	2170U				2170U		
18. SELENIUM	2U	2U	2U			2U		
19. SILVER	3U	3U				3U		
20. SODIUM	583U	583U				583U		
21. THALLIUM	2U	2U	2U			2U		
22. TIN	16U	16U				16U		
23. VANADIUM	4U	4U				4U		
24. ZINC	2U	2U				2U		
Other:								
Cyanide								

Form V

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Q.C. Report No. 55429

SPIKE SAMPLE RECOVERY

LAB NAME ROCKY MOUNTAIN ANALYTICAL

DATE 11-21-85

CASE NO. 5136
EPA Sample No. MEG487
Lab Sample ID No. -
Units UG/L

MATRIX WATER

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]	
Metals:						
1. ALUMINUM	75-125	1590	[176]	2000	71	R
2. ANTIMONY	75-125	397	25U	500	79	
3. ARSENIC	75-125	17	2U	20	85	
4. BARIUM	75-125	1430	[70]	2000	68	R
5. BERYLLIUM	75-125	46	0.4U	50	92	
6. CADMIUM	75-125	45	4U	50	85	
7. CALCIUM	75-125	186000	85900	100000	100	
8. CHROMIUM	75-125	158	4U	200	78	
9. COBALT	75-125	479	5U	500	96	
10. COPPER	75-125	250	[7.7]	250	97	
11. IRON	75-125	1090	402	1000	69	R
12. LEAD	75-125	24	[3.7]	20	102	
13. MAGNESIUM	75-125	80400	30400	50000	100	
14. MANGANESE	75-125	242	57	200	93	
15. MERCURY	75-125	1.06	0.1U	1.00	106	
16. NICKEL	75-125	386	7U	400	95	
17. POTASSIUM	75-125	53700	[4420]	50000	99	
18. SELENIUM	75-125	6	5U	10	60	R
19. SILVER	75-125	44	3U	50	87	
20. SODIUM	75-125	145000	46000	100000	99	
21. THALLIUM	75-125	24	10U	50	48	R
22. TIN	75-125	292	16U	400	73	R
23. VANADIUM	75-125	464	4U	500	92	
24. ZINC	75-125	199	[15]	200	92	
Other:						
Cyanide	75-125					

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

"R"- out of control

Comments:

Form VI

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Q.C. Report No. 55429

DUPLICATES

LAB NAME ROCKY MOUNTAIN ANALYTICAL

CASE NO. 5136
EPA Sample No. MEG486
Lab Sample ID No. -
Units UG/L

DATE 11-21-85

Matrix WATER

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. ALUMINUM		257	274	6.4
2. ANTIMONY		25U	25U	NC
3. ARSENIC		2U	2U	NC
4. BARIUM		[74]	[73]	NC
5. BERYLLIUM		0.4U	0.4U	NC
6. CADMIUM		4U	4U	NC
7. CALCIUM		87900	86400	1.7
8. CHROMIUM		[5.3]	[4.2]	NC
9. COBALT		5U	5U	NC
10. COPPER		[10]	[13]	NC
11. IRON		631	643	1.9
12. LEAD		6.5	~~DOI~~ 6.8 dm	~~NC~~ 4.5
13. MAGNESIUM		31200	30800	1.3
14. MANGANESE		69	65	6
15. MERCURY		0.1U	0.1U	NC
16. NICKEL		7U	7U	NC
17. POTASSIUM		[4560]	[4450]	NC
18. SELENIUM		5U	5U	NC
19. SILVER		3U	3U	NC
20. SODIUM		46700	45600	2.4
21. THALLIUM		10U	~~NC~~ 10U dm	NC
22. TIN		16U	16U	NC
23. VANADIUM		4U	4U	NC
24. ZINC		21	21	0
Other:				
Cyanide				

X 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

WATER SURROGATE PERCENT RECOVERY SUMMARY

Case No. 5136 Contract Laboratory E.R.G. Inc. Contract No. 68-01-6869

	VOLATILE			SEMI-VOLATILE								PESTICIDE
SMO TRAFFIC NO.	TOLUENE-D8 (88-110)	BFB (86-115)	1,2 DICHLORO-ETHANE-D4 (76-114)	NITRO-BENZENE-D5 (35-114)	2-FLUORO-BIPHENYL (43-116)	TERPHENYL-D14 (33-141)			PHENOL-D5 (10-94)	2-FLUORO-PHENOL (21-100)	2,4,6 TRIBROMO PHENOL (10-123)	DIBUTYL-CHLORENDATE ** (24-154)
EE460	104	94	98	72	67	64			46	70	71	52
EE461	98	90	92	73	74	83			28	52	76	66
EE462	100	102	89	77	77	87			28	54	70	58
EE463	100	101	87	70	73	78			32	56	98	51
EE460 MS	NR	NR	NR	86	67	72			54	63	79	54
EE460 MSD	NR	NR	NR	93	66	68			62	73	85	60
EE461 MS	98	90	92	NR	NR	NR			NR	NR	NR	NR
EE461 MSD	98	90	93	NR	NR	NR			NR	NR	NR	NR
V5136MB1	102	96	82	NR	NR	NR			NR	NR	NR	NR
V5136WB2	100	92	88	NR	NR	NR			NR	NR	NR	NR
V5136WB4	101	101	91	NR	NR	NR			NR	NR	NR	NR
AB5136WMB1	NR	NR	NR	71	71	81			28	52	76	NR
P5136WB1	NR	NR	NR	NR	NR	NR			NR	NR	NR	75

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

** ADVISORY LIMITS ONLY

Volatiles: 0 out of 27 ; outside of QC limits

Semi-Volatiles: 0 out of 42 ; outside of QC limits

Pesticides: 0 out of 7 ; outside of QC limits

Comments: NR = No value required.

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SOIL SURROGATE PERCENT RECOVERY SUMMARY

Case No. 5136 Contract Laboratory E.R.G. Inc. Contract No. 68-01-6869

Low X Medium ____

	VOLATILE			SEMI-VOLATILE								PESTICIDE**
SMO TRAFFIC NO.	TOLUENE-D8 (81-117)	BFB (74-121)	1,2 DICHLORO-ETHANE-D4 (70-121)	NITRO-BENZENE-D5 (23-120)	2-FLUORO-BIPHENYL (30-115)	TERPHENYL-D14 (18-137)			PHENOL-D5 (24-113)	2-FLUORO-PHENOL (25-121)	2,4,6 TRIBROMO PHENOL (19-122)	DIBUTYL-CHLORENDATE (20-150)
EE457	NR	NR	NR	62	60	46			52	56	68	48
EE458	136 *	56 *	82	63	60	34			52	59	64	47
EE459	94	80	89	58	63	55			36	36	38	36
EE457 MS	NR	NR	NR	67	59	48			65	57	67	110
EE457 MSD	NR	NR	NR	69	62	53			69	59	65	38
EE458 MS	132 *	68 *	92	NR	NR	NR			NR	NR	NR	NR
EE458 MSD	128 *	72 *	90	NR	NR	NR			NR	NR	NR	NR
V5136WB13	98	98	96	NR	NR	NR			NR	NR	NR	NR
V5136WB15	93	104	76	NR	NR	NR			NR	NR	NR	NR
V5136WB16	89	94	92	NR	NR	NR			NR	NR	NR	NR
V5136WB17	99	100	86	NR	NR	NR			NR	NR	NR	NR
AB5136MB1	NR	NR	NR	66	63	65			60	69	75	NR
P5136SB1	NR	NR	NR	NR	NR	NR			NR	NR	NR	46
P5136SB2	NR	NR	NR	NR	NR	NR			NR	NR	NR	55

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

**ADVISORY LIMITS ONLY

Volatiles: 6 out of 27 ; outside of QC limits

Semi-Volatiles: 0 out of 33 ; outside of QC limits

Pesticides: 0 out of 7 ; outside of QC limits

7/85

Comments: NR = No value required.

FORM II

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SOIL SURROGATE PERCENT RECOVERY SUMMARY

Case No. 5136 Contract Laboratory E.R.G. Inc. Contract No. 68-01-6869

Low ____ Medium X

	VOLATILE			SEMI-VOLATILE								PESTICIDE**
SMO TRAFFIC NO.	TOLUENE-D8 (81-117)	BFB (74-121)	1,2 DICHLORO-ETHANE-D4 (70-121)	NITRO-BENZENE-D5 (23-120)	2-FLUORO-BIPHENYL (30-115)	TERPHENYL-D14 (18-137)			PHENOL-D5 (24-113)	2-FLUORO-PHENOL (25-121)	2,4,6 TRIBROMO PHENOL (19-122)	DIBUTYL-CHLORENDATE (20-150)
EE457	87	89	97	NR	NR	NR			NR	NR	NR	NR
EE457 MS	88	88	98	NR	NR	NR			NR	NR	NR	NR
EE457 MSD	90	87	98	NR	NR	NR			NR	NR	NR	NR
V5136MB3	100	95	101	NR	NR	NR			NR	NR	NR	NR

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

**ADVISORY LIMITS ONLY

Volatiles: 0 out of 12 ; outside of QC limits

Semi-Volatiles: NR out of NR ; outside of QC limits

Pesticides: NR out of NR ; outside of QC limits

7/85

Comments: NR = No value required.

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FORM II

WATER MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 5136 **Contractor** E.R.G., inc. **Contract No.** 68-01-6869

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/L)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO. EE 461	1,1-Dichloroethene	50	0	46	93	49	98	6	14	61-145
	Trichloroethene	50	2	49	98	51	102	4	14	71-120
	Chlorobenzene	50	0	47	94	48	97	2	13	75-130
	Toluene	50	0	46	93	48	97	4	13	76-125
	Benzene	50	0	46	93	48	46	4	11	76-127
B/N SMO SAMPLE NO. EE 460	1,2,4-Trichlorobenzene	100	0	103	103 *	99	99 *	4	28	39-98
	Acenaphthene	100	0	122	122 *	116	116	5	31	46-118
	2,4 Dinitrotoluene	100	0	55	55	60	60	9	38	24-96
	Pyrene	100	0	57	57	51	51	11	31	26-127
	N-Nitroso-Di-n-Propylamine	100	0	88	88	85	85	3	38	41-116
	1,4-Dichlorobenzene	100	0	84	84	89	89	6	28	36-97
ACID SMO SAMPLE NO. EE 460	Pentachlorophenol	200	0	57	57	57	57	0	50	9-103
	Phenol	200	0	174	87	191	96	10	42	12-89
	2-Chlorophenol	200	0	116	58	133	67	14	40	27-123
	4-Chloro-3-Methylphenol	200	0	149	75	166	83	14	42	23-97
	4-Nitrophenol	200	0	173	86	191	96	11	50	10-80
PEST SMO SAMPLE NO. EE 460	Lindane	0.20	0	0.16	80	0.16	80	0	15	56-123
	Heptachlor	0.20	0	0.14	70	0.14	70	0	20	40-131
	Aldrin	0.20	0	0.13	65	0.13	65	0	22	40-120
	Dieldrin	0.50	0	0.36	72	0.40	80	10	18	52-126
	Endrin	0.50	0	0.38	76	0.40	80	5	21	56-121
	4,4'-DDT	0.50	0	0.26	52	0.30	60	14	27	38-127

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs 0 out of 5; outside QC limits
B/N 0 out of 7; outside QC limits
ACID 0 out of 5; outside QC limits
PEST 0 out of 6; outside QC limits

RECOVERY: VOAs 0 out of 10; outside QC limits
B/N 3 out of 14; outside QC limits
ACID 2 out of 10; outside QC limits
PEST 0 out of 12; outside QC limits

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Comments:

7/85

FORM III

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 5136 **Contractor** E.R.G., inc. **Contract No.** 68-01-6869

Low Level X **Medium Level** _____

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/Kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO. EE 458	1,1-Dichloroethene	50	0	48	96	48	96	0	22	59-172
	Trichloroethene	50	2	64	128	57	114	12	24	62-137
	Chlorobenzene	50	0	55	110	53	106	4	21	60-133
	Toluene	50	9	68	136	60	120	13	21	59-139
	Benzene	50	0	63	126	65	130	6	21	66-142
B/N SMO SAMPLE NO. EE 457	1,2,4-Trichlorobenzene	100	0	75	75	78	78	4	23	38-107
	Acenaphthene	100	1	73	72	77	77	7	19	31-137
	2,4 Dinitrotoluene	100	0	44	44	42	42	5	47	28-89
	Pyrene	100	2	77	77	78	78	1	36	35-142
	N-Nitrosodi-n-Propylamine	100	0	39	39	44	44	12	38	41-126
	1,4-Dichlorobenzene	100	0	54	54	55	55	2	27	28-104
ACID SMO SAMPLE NO. EE 457	Pentachlorophenol	200	0	43	43	44	44	2	47	17-109
	Phenol	200	0	109	55	104	52	4	35	26-90
	2-Chlorophenol	200	0	126	63	132	61	3	50	25-102
	4-Chloro-3-Methylphenol	200	0	121	60	127	63	5	33	26-103
	4-Nitrophenol	200	0	132	61	141	70	14	50	11-114
PEST SMO SAMPLE NO. EE 457	Lindane	7.9	0	8.7	110	4.2	53	70 *	50	46-127
	Heptachlor	7.9	0	~~103~~	~~1300*①~~	0	0 *	100 *	31	35-130
	Aldrin	7.9	0	~~71~~	~~900*①~~	16	200 *	126 *	43	34-132
	Dieldrin	20	0	12	60	10.3	52	14	38	31-134
	Endrin	20	0	9.8	49	11.9	60	19	45	42-139
	4,4'-DDT	20	0	32	160 *	27	140 *	17	50	23-134

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD:
VOAs 0 out of 5; outside QC limits
B/N 0 out of 7; outside QC limits
ACID 0 out of 5; outside QC limits
PEST 3 out of 6; outside QC limits

RECOVERY:
VOAs 0 out of 10; outside QC limits
B/N 0 out of 14; outside QC limits
ACID 0 out of 10; outside QC limits
PEST 6 out of 12; outside QC limits

Comments:
① VALUE ELEVATED DUE TO MATRIX EFFECT **
** WRONG! THAT PEAK IS AROCLOR 1242 NOT HEPTACLOR. HEPTACLOR RECOVERY IS 0% FOR MATRIX SPIKE ALSO. THIS IS ALSO TRUE FOR THE ALDRIN PEAK.
[signature] 1-27-86

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FORM III

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 5136 **Contractor** E.R.G., inc. **Contract No.** 68-01-6869

Low Level _____ **Medium Level** X

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/Kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO. EE 457	1,1-Dicholorethene	50	0	42	84	43	86	2	22	59-172
	Trichloroethene	50	1	40	80	40	80	0	24	62-137
	Chlorobenzene	50	0	44	88	45	90	2	21	60-133
	Toluene	50	3	42	84	42	84	0	21	59-139
	Benzene	50	0	41	82	41	82	0	21	66-142
B/N SMO SAMPLE NO. NR	1,2,4-Trichlorobenzene	NR	NR	NR	NR	NR	NR	NR	23	38-107
	Acenaphthene								19	31-137
	2,4 Dinitrotoluene								47	28-89
	Pyrene								36	35-142
	N-Nitrosodi-n-Propylamine								38	41-126
	1,4-Dichlorobenzene								27	28-104
ACID SMO SAMPLE NO. NR	Pentachlorophenol								47	17-109
	Phenol								35	26-90
	2-Chlorophenol								50	25-102
	4-Chloro-3-Methylphenol								33	26-103
	4-Nitrophenol								50	11-114
PEST SMO SAMPLE NO. NR	Lindane								50	46-127
	Heptachlor								31	35-130
	Aldrin								43	34-132
	Dieldrin								38	31-134
	Endrin								45	42-139
	4,4'-DDT								50	23-134

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

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

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

Comments:

NR = NO VALUE REQUIRED.

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METHOD BLANK SUMMARY

Case No. 5136 Region V Contractor E.R.G., inc. Contract No. 68-01-6869

FILE ID	DATE OF ANALYSIS	FRACTION	MATRIX	CONC. LEVEL	INST. ID	CAS NUMBER	COMPOUND (HSL, TIC OR UNKNOWN)	CONC.	UNITS	CRDL
V5136 MB1	11/1/85	VOA	WATER	L	F103	75-09-2	METHYLENE CHLORIDE	5	ug/L	5
						67-64-1	ACETONE	7	ug/L	10
V5136WB2	11/1/85	VOA	WATER	L	F103	75-09-2	METHYLENE CHLORIDE	7	ug/L	5
V5136WB4	11/2/85	VOA	WATER	L	F103	75-09-2	METHYLENE CHLORIDE	3	ug/L	5
						67-64-1	ACETONE	3	ug/L	10
V5136 WB13	11/3/85	VOA	WATER	L	F103	75-09-2	METHYLENE CHLORIDE	51	ug/L	5
V5136WB15	11/4/85	VOA	WATER	L	F103	75-09-2	METHYLENE CHLORIDE	53	ug/L	5
						71-43-2	BENZENE	2	ug/L	5
V5136 MB3 (METHANOL BLANK)	11/4/85	VOA	WATER	M	F103	75-09-2	METHYLENE CHLORIDE	600	ug/L	500
						78-93-3	2-BUTANONE	11000	ug/L	1000
						71-55-6	1,1,1-TRICHLOROETHANE	70	ug/L	500
						79-01-6	TRICHLOROETHENE	70	ug/L	500
V5136WB16	11/4/85	VOA	WATER	L	F103	75-09-2	METHYLENE CHLORIDE	5	ug/L	5
V5136 WB17	11/4/85	VOA	WATER	L	F103	75-09-2	METHYLENE CHLORIDE	9	ug/L	5
						75-15-0	CARBON DISULFIDE	1	ug/L	5
						71-43-2	BENZENE	1	ug/L	5

METHOD BLANK SUMMARY

Case No. 5136 Region IV Contractor E.R.G., inc. Contract No. 68-01-6869

FILE ID	DATE OF ANALYSIS	FRACTION	MATRIX	CONC. LEVEL	INST. ID	CAS NUMBER	COMPOUND (HSL, TIC OR UNKNOWN)	CONC.	UNITS	CRQL
AB5136SMB1	11/22/85	BNA	SOIL	L	F101	84-66-2	DIETHYLPHTHALATE	100	ug/Kg	330
						87-86-5	PENTACHLORO PHENOL	30	ug/Kg	1600
						84-74-2	DI-N-BUTYLPHTHALATE	26	ug/Kg	330
AB5136WMB1	11/21/85	BNA	WATER	L	F101	84-66-2	DIETHYL PHTHALATE	3	ug/L	10
PS136SB1	11/22/85	PEST	SOIL	L	HP5880		(NONE FOUND)			
PS136SB2	11/22/85	PEST	SOIL	L	HP5880		(NONE FOUND)			
PS136WB1	11/23/85	PEST	WATER	L	HP5880		(NONE FOUND)			

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Comments:

GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

Case No: 5136 Contractor ERG, Inc. Contract No. 68-01-6869

Instrument ID FI01 Date Thur. Nov 14, 1985 Time 8:33

Lab ID DFTPP1114 Data Release Authorized By: Joseph A. Amatuzio

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	39.92
68	less than 2.0% of mass 69	0.00 (0.00)[1]
69	mass 69 relative abundance	20.88
70	less than 2.0% of mass 69	0.11 (0.52)[1]
127	40.0 - 60.0% of mass 198	51.98
197	less than 1.0% of mass 198	0.00
198	base peak, 100% relative abundance	100.00
199	5.0 - 9.0% of mass 198	6.21
275	10.0 - 30.0% of mass 198	25.77
365	greater than 1.00% of mass 198	2.39
441	present, but less than mass 443	14.52
442	greater than 40.0% of mass 198	92.35
443	17.0 - 23.0% of mass 442	15.77 (17.07)[2]

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THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS:

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
AB160S1114A	AB160S1114A	11/14/85	9:18
AB120S1114A	AB120S1114A	↓	10:09
AB80S1114A	AB80S1114A		11:05
AB20S1114A	AB20S1114A		12:03
AB50S1114A	AB50S1114A		12:54

GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

Case No. NAS 5136 Contractor ERG, INC. Contract No. 68-01-6869

Instrument ID FJ01 Date 11/21/85 Time 9:13

Lab ID DFTPP1121A Data Release Authorized By: Joseph A. Amatore

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	50.84
68	less than 2.0% of mass 69	0.00 (0.00)[1]
69	mass 69 relative abundance	24.11
70	less than 2.0% of mass 69	0.12 (0.51)[1]
127	40.0 - 60.0% of mass 198	48.69
197	less than 1.0% of mass 198	0.0
198	base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.57
275	10.0 - 30.0% of mass 198	23.62
365	greater than 1.00% of mass 198	1.58
441	present, but less than mass 443	9.91
442	greater than 40.0% of mass 198	66.10
443	17.0 - 23.0% of mass 442	11.37 (17.19)[2]

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THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
AB5051121A	AB5051121A	11/21/85	9:44
5136WMB1	AB5136WMB1		12:58
EE463	EE463		13:48
EE460	EE460		14:45
EE460MS	EE460MS		15:37
EE460MSD	EE460MSD		16:30
EE461	EE461		17:23
EE462	EE462		18:23

GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

Case No. RAS 5136 Contractor ERG, INC Contract No. 68-01-6869

Instrument ID FI01 Date 11/22/85 Time 9:22

Lab ID DFTPP1122A Data Release Authorized By: Joseph C. Hamilton

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	52.44
68	less than 2.0% of mass 69	0.0 (0.00)[1]
69	mass 69 relative abundance	25.32
70	less than 2.0% of mass 69	0.13 (0.52)[1]
127	40.0 - 60.0% of mass 198	51.41
197	less than 1.0% of mass 198	0.0
198	base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.62
275	10.0 - 30.0% of mass 198	21.65
365	greater than 1.00% of mass 198	1.38 RECEIVED FEB 11 1986
441	present, but less than mass 443	8.00
442	greater than 40.0% of mass 198	54.83
443	17.0 - 23.0% of mass 442	9.57 (17.44)[2]

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
AB5031122A	AB5031122A	11/22/85	10:23
AB51365MB1	AB51365MB1	↓	11:18
EE 458	EE458	↓	12:08
EE 457	EE457	↓	13:01
EE 457 MS	EE457MS	↓	13:47
EE 457 MSD	EE457MSD	↓	14:38
EE 459	EE459	↓	15:31

GC/MS TUNING AND MASS CALIBRATION

Bromofluorobenzene (BFB)

Case No. 5136 Contractor ERG, Inc. Contract No. 68-01-6869

Instrument ID FI03 Date 10/30/85 Time 8:29

Lab ID BFB1030A Data Release Authorized By: Joseph C. Hnatowich

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE	
50	15.0 - 40.0% of the base peak	21.36	
75	30.0 - 60.0% of the base peak	45.21	
95	Base peak, 100% relative abundance	100	
96	5.0 - 9.0% of the base peak	7.23	
173	Less than 1.0% of the base peak	0.39	
174	Greater than 50.0% of the base peak	76.28	
175	5.0 - 9.0% of mass 174	5.70	(7.5)[1]
176	Greater than 95.0%, but less than 101.0% of mass 174	75.96	(99.6)[1]
177	5.0 - 9.0% of mass 176	5.39	(7.1)[2]

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

[1]Value in parenthesis is % mass 174.
[2]Value in parenthesis is % mass 176.

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SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
	V20UGL1030A	10/30/85	9:09
	V50UGL1030A	10/30/85	10:03
	V100UGL1030	10/30/85	11:00
	V150UGL1030	10/30/85	12:55
	V200UGL1030	10/30/85	14:38

GC/MS TUNING AND MASS CALIBRATION

Bromofluorobenzene (BFB)

RECEIVED FEB 11 1986

Case No. RAS 5136 Contractor Erg Contract No. 68-01-6859

Instrument ID FI03 Date Nov 1, 1985 Time 10:30

Lab ID V50496111A Data Release Authorized By: Joseph A. Amatore

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15.0 - 40.0% of the base peak	28.6
75	30.0 - 60.0% of the base peak	54.5
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of the base peak	8.5
173	Less than 1.0% of the base peak	0.0
174	Greater than 50.0% of the base peak	87.7
175	5.0 - 9.0% of mass 174	6.7 (7.6)[1]
176	Greater than 95.0%, but less than 101.0% of mass 174	85.6 (97.6)[1]
177	5.0 - 9.0% of mass 176	5.4 (6.3)[2]

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

[1] Value in parenthesis is % mass 174.
[2] Value in parenthesis is % mass 176.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
	V50496111A	11/1/85	10:30
AQU. MTD BLK	V5136 MB1		11:23
EE460	VEE460		12:08
V5136WB2	V5136WB2		17:52
EE461	VEE461R		18:37
EE461MS	VEE461MSR		19:20
EE461MSD	VEE461MSDR		20:06

GC/MS TUNING AND MASS CALIBRATION

Bromofluorobenzene (BFB)

RECEIVED FEB 11 1986

Case No. 5136 Contractor ERG Contract No. 68-01-6869

Instrument ID FI03 Date 11/1/85 Time 23:14

Lab ID BFB111B Data Release Authorized By: Joseph C. Hnatow

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15.0 - 40.0% of the base peak	20.22
75	30.0 - 60.0% of the base peak	45.09
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of the base peak	7.82
173	Less than 1.0% of the base peak	0.0
174	Greater than 50.0% of the base peak	71.77
175	5.0 - 9.0% of mass 174	5.36 (7.5)[1]
176	Greater than 95.0%, but less than 101.0% of mass 174	69.54 (96.9)[1]
177	5.0 - 9.0% of mass 176	4.97 (7.2)[2]

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

[1] Value in parenthesis is % mass 174.
[2] Value in parenthesis is % mass 176.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
	V5CUGL112A	11/1/85	23:59
V5136WB4	V5136WB4	11/2/85	0:53
EE462	VEE462R	↓	1:52
EE463	VEE463R	↓	2:38

GC/MS TUNING AND MASS CALIBRATION

Bromofluorobenzene (BFB)

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Case No. RAS 5136 Contractor ERG Contract No. 68-01-6869

Instrument ID FI03 Date 11-3-85 Time 4:38

Lab ID V50UGL113B Data Release Authorized By: Joseph C. Hnatow

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15.0 - 40.0% of the base peak	23.65
75	30.0 - 60.0% of the base peak	49.81
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of the base peak	7.33
173	Less than 1.0% of the base peak	0.00
174	Greater than 50.0% of the base peak	66.04
175	5.0 - 9.0% of mass 174	5.08 (7.7)[1]
176	Greater than 95.0%, but less than 101.0% of mass 174	63.53 (96.2)[1]
177	5.0 - 9.0% of mass 176	4.60 (7.2)[2]

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

[1] Value in parenthesis is % mass 174.
[2] Value in parenthesis is % mass 176.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
	V50UGL113B	11-3-85	4:38
V5136WB13	V5136WB13	↓	8:38
EE458	V EE458R2	↓	9:23

GC/MS TUNING AND MASS CALIBRATION

Bromofluorobenzene (BFB)

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Case No. 5136 Contractor ERG, INC Contract No. 68-01-6869

Instrument ID FI03 Date 11/4/85 Time 7:04

Lab ID BFB114A Data Release Authorized By: Joseph C. Hnatowich

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15.0 - 40.0% of the base peak	19.92
75	30.0 - 60.0% of the base peak	42.99
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of the base peak	6.85
173	Less than 1.0% of the base peak	0.14
174	Greater than 50.0% of the base peak	66.21
175	5.0 - 9.0% of mass 174	4.89 (7.4)[1]
176	Greater than 95.0%, but less than 101.0% of mass 174	66.21 (100)[1]
177	5.0 - 9.0% of mass 176	4.68 (7.1)[2]

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

[1] Value in parenthesis is % mass 174.
[2] Value in parenthesis is % mass 176.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
	V5049L114A	11/4/85	7:46
V5136WB15	V5136WB15	↓	8:31
V5136MB3	V5136MB3		9:16
EE457	VEE457RC		10:01
EE457MS	VEE457MS		10:46
EE457MSD	VEE457MSD		11:31
V5136WB16	V5136WB16		12:16
EE459	VEE459R1		13:01
V5136WB17	V5136WB17		13:46
EE458MS	VEE458MS		14:31
EE458MSD	VEE458MSD		15:16

Pesticide Evaluation Standards Summary
(Page 1)

Case No: 5136 Region: IV
Contract No: 68-01-6869
Date of Analysis: 11/22 - 11/23/85

Laboratory: ERG, Inc
GC Column: 1.5% SP2250 + 1.95% SP2401
Instrument ID: HP 5880A Det A

Evaluation Check for Linearity

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Laboratory ID:	1	2	3	
Pesticide	Calibration Factor Eval. Mix A	Calibration Factor Eval. Mix B	Calibration Factor Eval. Mix C	% RSD (≤10%)
Aldrin	228101	252202	247924	5.3
Endrin	93310	116303	118290	13
4,4'- DDT(1)	9767	29973	46733	64
Dibutyl Chlorendate	161700	192813	188007	9.3

Evaluation Check for 4,4'- DDT/ Endrin Breakdown
(percent breakdown expressed as total degradation)

	Laboratory I.D.	Time of Analysis	Endrin	4,4'- DDT	Combined(2)
Eval Mix B 72 Hour					
Eval Mix B	2	12:20	9.0	32	—
Eval Mix B	19	1:36	0.0	14	—
Eval Mix B	21	10:11	0.0	11	—
Eval Mix B					
Eval Mix B					
Eval Mix B					
Eval Mix B					
Eval Mix B					
Eval Mix B					
Eval Mix B					
Eval Mix B					

(1) See Exhibit E Section 7.5.4
(2) See Exhibit E Section 7.3.1.2.2.1

Pesticide Evaluation Standards Summary
(Page 2)
Evaluation of Retention Time Shift for Dibutyl Chlorendate
Report all standards, blanks and samples

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SMO Sample No.	Lab I.D.	Time of Analysis	Percent Diff.	SMO Sample No.	Lab I.D.	Time of Analysis	Percent Diff.
EVAL. STD. A	1	11:38	0				
EVAL. STD. B	2	12:20	0.073				
EVAL. STD. C	3	13:03	0.15				
INDIV. STD. A	4	13:45	0.036				
INDIV. STD. B	5	14:36	0.0				
TOXAPHENE	6	16:14	0.073				
CHLORDANE	7	17:00	0.0				
PCB 1016/1260	8	17:43	0.073				
PCB 1221	9	18:25	0.15				
PCB 1232	10	19:09	0.11				
PCB 1242	11	19:52	0.036				
PCB 1248	12	20:35	0.15				
PCB 1254	13	21:18	0.18				
P5136SMB1	14	22:01	0.073				
P5136SMB2	15	22:44	0.073				
EE 457	17	00:10	0.073				
EE 457 MS	18	00:53	0.22				
EVAL. STD. B	19	01:36	0.15				
EE 457 MSD	22	03:46	0.11				
EE 458 RE	23	04:29	0.11				
EE 459	24	05:12	0.18				
INDIV STD B	25	05:55	0.26				
P5136WMB1	26	06:38	0.15				
EE 460	27	07:21	0.26				
EE 460 MS	28	08:03	0.29				
EE 460 MSD	29	08:46	0.18				
EE 461	30	09:28	0.073				
EVAL STD. B	31	10:11	0.11				
EE 462	32	10:53	0.073				
EE 463	33	11:36	0.11				
INDV. STD. A	34	12:19	0.69				

Pesticide Evaluation Standards Summary
(Page 1)

Case No: 5136 Region: V
Contract No: 68-01-6869
Date of Analysis: 11/22-11/23/85

Laboratory: ERG, Inc
GC Column: 3% SP2100
Instrument ID: HP 5880A D/B

Evaluation Check for Linearity RECEIVED FEB 11 1986

Laboratory ID:	1	2	3	
Pesticide	Calibration Factor Eval. Mix A	Calibration Factor Eval. Mix B	Calibration Factor Eval. Mix C	% RSD (≤10%)
Aldrin	425316	524354	557240	14
Endrin	115793	97476	112421	9.0
4,4'- DDT(1)	100500	46460	121063	43
Dibutyl Chlorendate	448733	493953	484297	5.0

Evaluation Check for 4,4'- DDT/ Endrin Breakdown
(percent breakdown expressed as total degradation)

	Laboratory I.D.	Time of Analysis	Endrin	4,4'- DDT	Combined(2)
Eval Mix B 72 Hour					
Eval Mix B	2	12:22	0.0	79	65
Eval Mix B	19	01:38	0.0	60	44
Eval Mix B	31	10:13	0.0	51	42
Eval Mix B					
Eval Mix B					
Eval Mix B					
Eval Mix B					
Eval Mix B					
Eval Mix B					
Eval Mix B					
Eval Mix B					

(1) See Exhibit E Section 7.5.4
(2) See Exhibit E Section 7.3.1.2.2.1

Pesticide Evaluation Standards Summary
(Page 2)
Evaluation of Retention Time Shift for Dibutyl Chlorendate
Report all standards, blanks and samples

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SMO Sample No.	Lab I.D.	Time of Analysis	Percent Diff.	SMO Sample No.	Lab I.D.	Time of Analysis	Percent Diff.
EVAL. STD. A	1	11:38	0.0				
EVAL. STD. B	2	12:12	0.065				
EVAL. STD. C	3	13:04	0.097				
INDIV. STD. A	4	13:47	0.0				
INDIV. STD. B	5	14:38	0.0				
TOXAPHENE	6	16:16	0.032				
CHLORDANE	7	17:01	0.032				
PCB 1221	8	17:44	0.032				
PCB 1016/1260	9	18:27	0.0				
PCB 1232	10	19:10	0.097				
PCB 1242	11	19:54	0.032				
PCB 1248	12	20:37	0.16				
PCB 1254	13	21:20	0.26				
PS136 SMB1	14	22:03	0.23				
PS136 SMB2	15	22:46	0.097				
EE457	17	00:12	0.16				
EE457 MS	18	00:55	1.1				
EVAL. STD. B	19	01:38	0.19				
EE457 MSD	22	03:46	0.26				
EE458	23	04:31	0.39				
EE459	24	05:14	0.32				
INDIV. STD. B	25	05:57	0.32				
PS136 WMB1	26	06:40	0.42				
EVAL. STD. B	31	10:13	0.19				
EE463	33	11:37	0.032				
INDIV. STD. A	34	12:20	0.81				

PESTICIDE/PCB STANDARDS SUMMARY

Case No. 5136 Laboratory ERG, Inc

Contract No. 68-01-6869 GC Column 1.5% SP2250+1.5% SP2401 GC Instrument ID HP5880A Det A

	DATE OF ANALYSIS 11-22-85				DATE OF ANALYSIS 11-23-85			
	TIME OF ANALYSIS 13:45				TIME OF ANALYSIS 12:19			
	LABORATORY ID (4)				LABORATORY ID (34)			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF.**
alpha-BHC	2.52	±0.040	130381	Q	2.50	123619	Q	5.2
beta-BHC								
delta-BHC								
gamma-BHC	3.11	±0.040	242596	Q	3.09	253123	Q	4.3
Heptachlor	3.81	±0.060	201235		3.78	222529		11
Aldrin	4.56	±0.060	252051		4.53	255899		1.5
Heptachlor Epoxide	6.61	±0.11	253527		6.56	264436		4.3
Endosulfan I								
Dieldrin	9.92	±0.13	235222	Q	9.86	240356	Q	2.2
4,4'-DDE								
Endrin	11.93	±0.17	151034	Q	11.85	162069	Q	7.4
Endosulfan II								
4,4'-DDD	13.56	±0.21	255945	Q	13.46	261317	Q	2.1
Endosulfan Sulfate	22.01	±0.34	53483		21.85	66709		25
4,4'-DDT	16.22	±0.23	64380		16.11	88547		25
Methoxychlor	29.35	±0.44	37822		29.14	50778		35
Endrin Ketone								
Tech. Chlordane								
alpha-Chlordane*	7.88	±0.11	258831	Q	7.83	267476	Q	3.3
gamma-Chlordane*	7.26	±0.11	278400		7.21	287267		3.2
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

* SEE EXHIBIT E, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<15% DIFFERENCE)

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PESTICIDE/PCB STANDARDS SUMMARY

Case No. 5136 Laboratory ERG, INC

Contract No. 68-01-6869 GC Column 1.5% SP2250 + 1.95% SP2401 GC Instrument ID HP 5880A Det A

	DATE OF ANALYSIS 11-22-85 TIME OF ANALYSIS 14:36 LABORATORY ID (5)				DATE OF ANALYSIS 11-23-85 TIME OF ANALYSIS 05:55 LABORATORY ID (25)			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF. **
alpha-BHC								
beta-BHC	3.45	±0.030	140600	Q	3.46	145520	Q	3.5
delta-BHC	4.00	±0.030	170450	Q	4.01	180550	Q	6.9
gamma-BHC								
Heptachlor								
Aldrin								
Heptachlor Epoxide								
Endosulfan I	8.23	±0.060	223040	Q	8.26	228987	Q	2.7
Dieldrin								
4,4'-DDE	9.10	±0.040	204956	Q	9.12	209089	Q	2.0
Endrin								
Endosulfan II	14.19	±0.080	210414	Q	14.23	206571	Q	1.8
4,4'-DDD								
Endosulfan Sulfate								
4,4'-DDT								
Methoxychlor								
Endrin Ketone	29.52	±0.15	149176	Q	29.59	159576	Q	7.0
Tech. Chlordane								
alpha-Chlordane*								
gamma-Chlordane*								
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

* SEE EXHIBIT E, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<15% DIFFERENCE)

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PESTICIDE/PCB STANDARDS SUMMARY

Case No. 5136 Laboratory ERG, Inc.

Contract No. 68-01-6869 GC Column 3% SP2100 GC Instrument ID HP5880 A+B

	DATE OF ANALYSIS 11-22-85 TIME OF ANALYSIS 14:38 LABORATORY ID 5				DATE OF ANALYSIS 11-23-85 TIME OF ANALYSIS 05:57 LABORATORY ID 25			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF.**
alpha-BHC								
beta-BHC	3.11	±0.030	323240	C	3.12	343800	C	6.4
delta-BHC	3.46	±0.030	334800	C	3.47	389850	C	16
gamma-BHC								
Heptachlor								
Aldrin								
Heptachlor Epoxide								
Endosulfan I	9.08	±0.080	522213	C	9.12	554640	C	6.2
Dieldrin								
4,4'-DDE	10.14	±0.080	439556	C	10.18	471356	C	7.2
Endrin								
Endosulfan II	11.96	±0.080	478657	C	12.00	512943	C	7.2
4,4'-DDD								
Endosulfan Sulfate								
4,4'-DDT								
Methoxychlor								
Endrin Ketone	18.91	±0.17	298624	C	18.99	343320	C	15
Tech. Chlordane								
alpha-Chlordane*								
gamma-Chlordane*								
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

* SEE EXHIBIT E, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<15% DIFFERENCE)

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PESTICIDE/PCB STANDARDS SUMMARY

Case No. 5136 Laboratory ERG, Inc

Contract No. 68-01-6869 GC Column 3% SP2100 GC Instrument ID HP5880A OutB

	DATE OF ANALYSIS 11-22-85				DATE OF ANALYSIS 11-23-35			
	TIME OF ANALYSIS 13:47				TIME OF ANALYSIS 12:20			
	LABORATORY ID (4)				LABORATORY ID (34)			
COMPOUND	RT	RETENTION TIME WINDOW	CALIBRATION FACTOR	CONF. OR QUANT.	RT	CALIBRATION FACTOR	CONF. OR QUANT.	PERCENT DIFF. **
alpha-BHC	2.94	±0.040	305905	C	2.92	349905	C	14
beta-BHC								
delta-BHC								
gamma-BHC	3.37	±0.040	523088	C	3.35	625965	C	20
Heptachlor	5.13	±0.080	360000		5.09	465235		29
Aldrin	6.23	±0.11	530076		6.18	602937		14
Heptachlor Epoxide	7.42	±0.11	580655		7.37	647745		12
Endosulfan I								
Dieldrin	10.48	±0.15	557444	C	10.41	610422	C	9.5
4,4'-DDE								
Endrin	11.65	±0.21	120166	C	11.55	170455	C	
Endosulfan II								
4,4'-DDD	12.59	±0.21	737710	C	12.49	793931	C	7.6
Endosulfan Sulfate	14.95	±0.28	203443		14.82	257539		26
4,4'-DDT	16.12	±0.25	79793		16.00	126487		58
Methoxychlor	22.93	±0.40	34602		22.74	96056		180
Endrin Ketone								
Tech. Chlordane								
alpha-Chlordane*	9.19	±0.15	578123	C	9.12	719300	C	24
gamma-Chlordane*	8.39	±0.15	647733		8.32	642400		0.82
Toxaphene								
Aroclor - 1016								
Aroclor - 1221								
Aroclor - 1232								
Aroclor - 1242								
Aroclor - 1248								
Aroclor - 1254								
Aroclor - 1260								

* SEE EXHIBIT E, PART 7

** CONF. = CONFIRMATION (<20% DIFFERENCE)
QUANT. = QUANTITATION (<15% DIFFERENCE)

7/85

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Pesticide/PCB Identification

Case No. 5136 Laboratory ERG, Inc

Contract No. 68-01-6869

SAMPLE ID	PRIMARY COLUMN	PESTICIDE/ PCB	RT OF TENTATIVE ID	RT WINDOW OF APPROPRIATE STANDARD	CONFIRMATION COLUMN	RT ON CONFIRMATORY COLUMN	RT WINDOW OF APPROPRIATE STANDARD	GC/MS CONFIRMED (Y or N)
EE 457 MS	(1)	PCB 1242	Multi	Resp Comp	SOSP2100	Multi	Resp Comp	N

4/84

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LANDFILL AT 2561 KENTUCKY AVENUE

Description and History of the Area

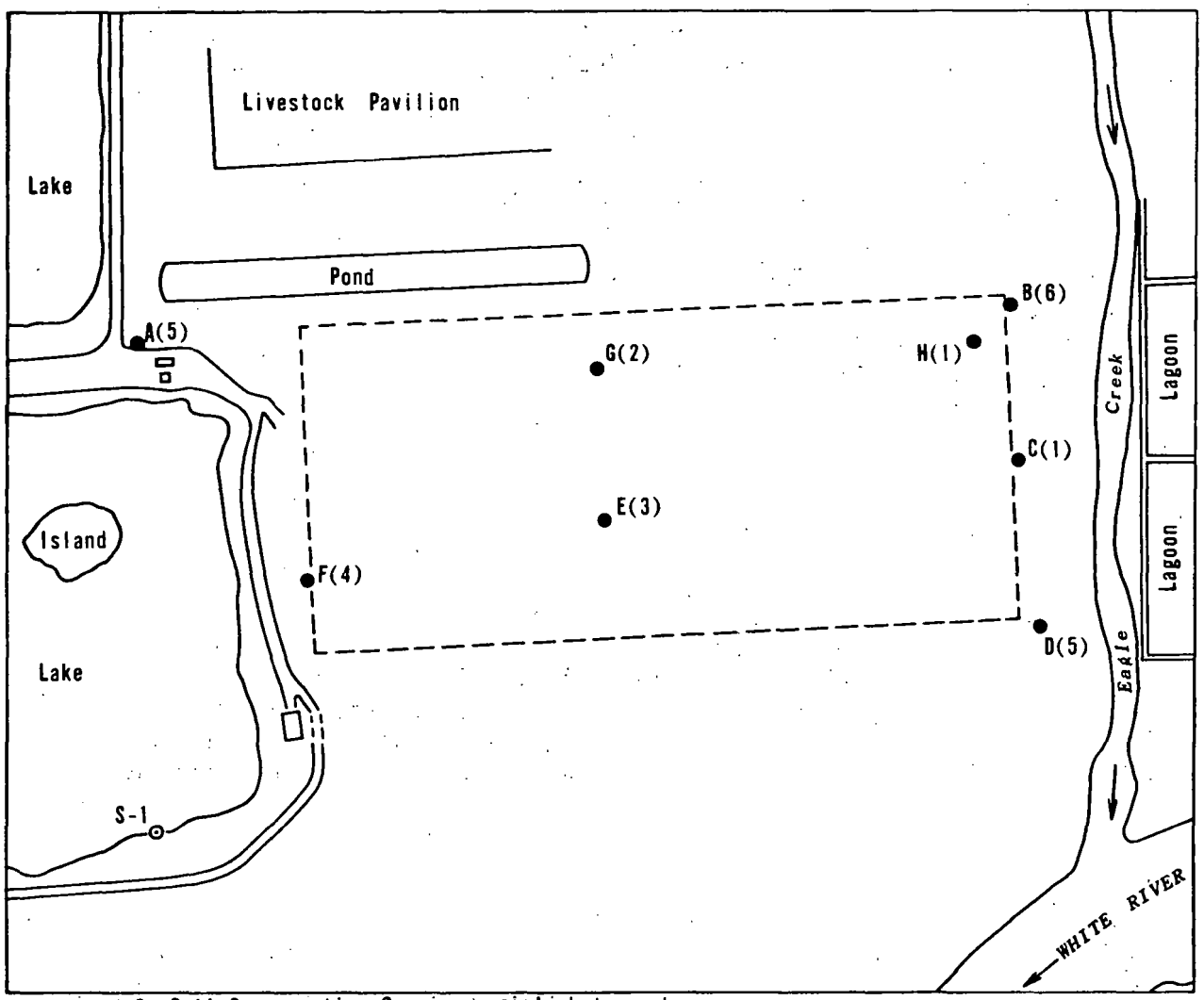
This landfill, 0.5 mi south of the intersection of Kentucky Avenue and Warman Road and just west of Eagle Creek near its mouth (fig. 1), in southwest Indianapolis, was opened in mid-December 1971. The fill area covers 34 acres of the White River flood plain, whose unconsolidated material consists of recent stream deposits overlying outwash sand and gravel. Drillers' logs (table 11) show layering, with clay and silt covering the surface to a depth of as much as 16 ft; below this depth is a 10-ft thick layer of clean sand and gravel. The remaining profile to bedrock consists of layers of sand and gravel, some clay stringers, and a mixture of clay in sand and gravel.

The landfill was constructed and operated as follows: Beginning on the north side of the area licensed for disposal of solid wastes, a 100-ft width of land was excavated to depths ranging from 3 ft on the north side to 6 ft on the south. The loose dirt (silt loam) was piled on a 50-ft wide strip of land immediately south of the excavated area for use later as cover material. After the first excavated area was filled to a prescribed thickness by alternate dumping of refuse and covering with a layer of dirt, a second similar area was excavated 150 ft south of the first one. After the first two 100-ft widths of land were filled to prescribed thicknesses, the 50-ft width between the two, where loose dirt had been piled, was excavated and filled. This method of fill continued until the entire 34 acres was filled in July 1975. At that time, the fill was topped out at about 695 ft above mean sea level or about 25 ft above the surrounding area. The volume of solid wastes buried at the site probably exceeds 1×10^6 yd^3.

Aquifers and Data-Collection Network

The observation-well network at the landfill includes 27 observation wells at 8 sites; 3 on the refuse, 3 on the perimeter of the landfill, and 2 outside the perimeter (fig. 16). One of the two wells at site G on the fill was installed at the bottom of the refuse and the other in a gravelly zone below the refuse. The single well at site H was installed at the bottom of the refuse. A gravel pack was placed around the screen of each well in the refuse. Because of the many clay stringers in the unconsolidated material below the landfill, five to six wells were constructed at sites A, B, and D to determine the effect of clay on the vertical movement of the leachate. A surface-water sampling site (S-1) was established on a small lake at the west edge of the landfill.

The unconsolidated material underlying the landfill consists of layers of fine sand and sandy, coarse gravel, separated by clay stringers or layers of clay mixed with sand and gravel (table 11). On the basis of thickness



Based on U.S. Soil Conservation Service aerial photographs

0 500 1000 FEET

0 150 300 METERS

N

EXPLANATION

Boundary of refuse area

A Observation-well site and designation

(5) Number of wells at site

S-1 Surface-water sampling site and number

Figure 16.-- Location of well sites in landfill area at 2561 Kentucky Avenue.

and percentage of coarse sediments, the best unconsolidated aquifers are just below the alluvial cover and just above the bedrock (fig. 17). Bedrock consists of 10 to 20 ft of shale underlain by a limestone aquifer.

Water Movement

Altitude of the surface of the landfill area was between 670 and 675 ft above mean sea level before refuse was added, and drainage was generally from northwest to southeast. Because of the slight land-surface gradient, water commonly pooled on the surface during rainfall.

The regional ground-water gradient in the area of the landfill is from northwest to southeast and to ground-water discharge into White River. Depths to ground water range from 7.5 ft below land surface at site B to 27.5 ft at site G. Annual fluctuation was greatest, 5.0 ft along the east edge of the landfill. Water level is highest during April and lowest during November.

Maps showing the configuration of water levels in the shallow (A) and the deep (B) unconsolidated aquifers (fig. 18) were constructed from data collected during October 1974. The contours show that water in the shallow aquifer flows laterally to the southeast toward Eagle Creek and White River. Water also flows vertically from this aquifer to the deeper sand and gravel aquifer (fig. 19).

Water-level contours for the deeper sand and gravel aquifer indicate a ground-water divide near the center of the landfill, between site E and sites B and D. Thus, water flows from the divide to the northwest and the southeast. However, during the spring, when precipitation and bank storage results in high water levels near the river, there is no divide. Under this condition, flow in the deep aquifer is principally toward the northwest.

Although the regional ground-water gradient in the area of the landfill is to the southeast and the White River, the gradient has been reversed locally in the deep aquifer. This reversal is due to heavy ground-water pumping northwest of the landfill. If this pumping should cease or be reduced, the gradient would again be to the southeast. However, if the present rate of pumping continues or is increased, water from the landfill site may reach the pumping wells.

The lateral rate of movement of ground water from the landfill area to the pumping sites is proportional to the amount of water being pumped. Using the hydraulic gradient for October 1974 (0.0013), a lateral hydraulic conductivity of 335 ft/d (Cable and others, 1971), and an effective porosity of 25 percent, the author calculated a velocity of 1.8 ft/d or 689 ft/yr for movement of leachate away from the landfill in October 1974.

The infiltration rate at the landfill is approximately 11 to 12 in/yr (Cable and others, 1971). These figures do not consider the effect of surface compaction or the rate of percolation through the refuse.

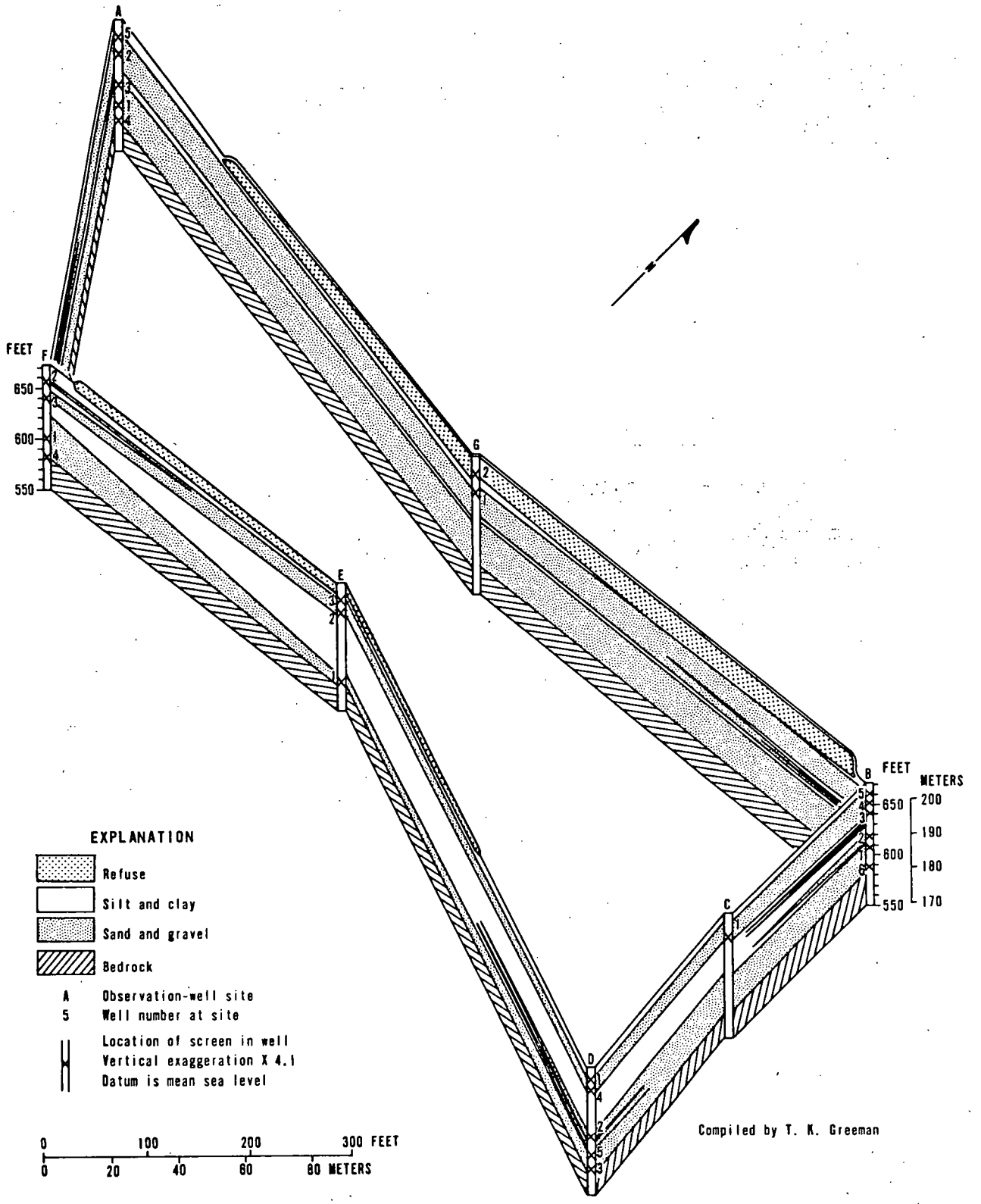
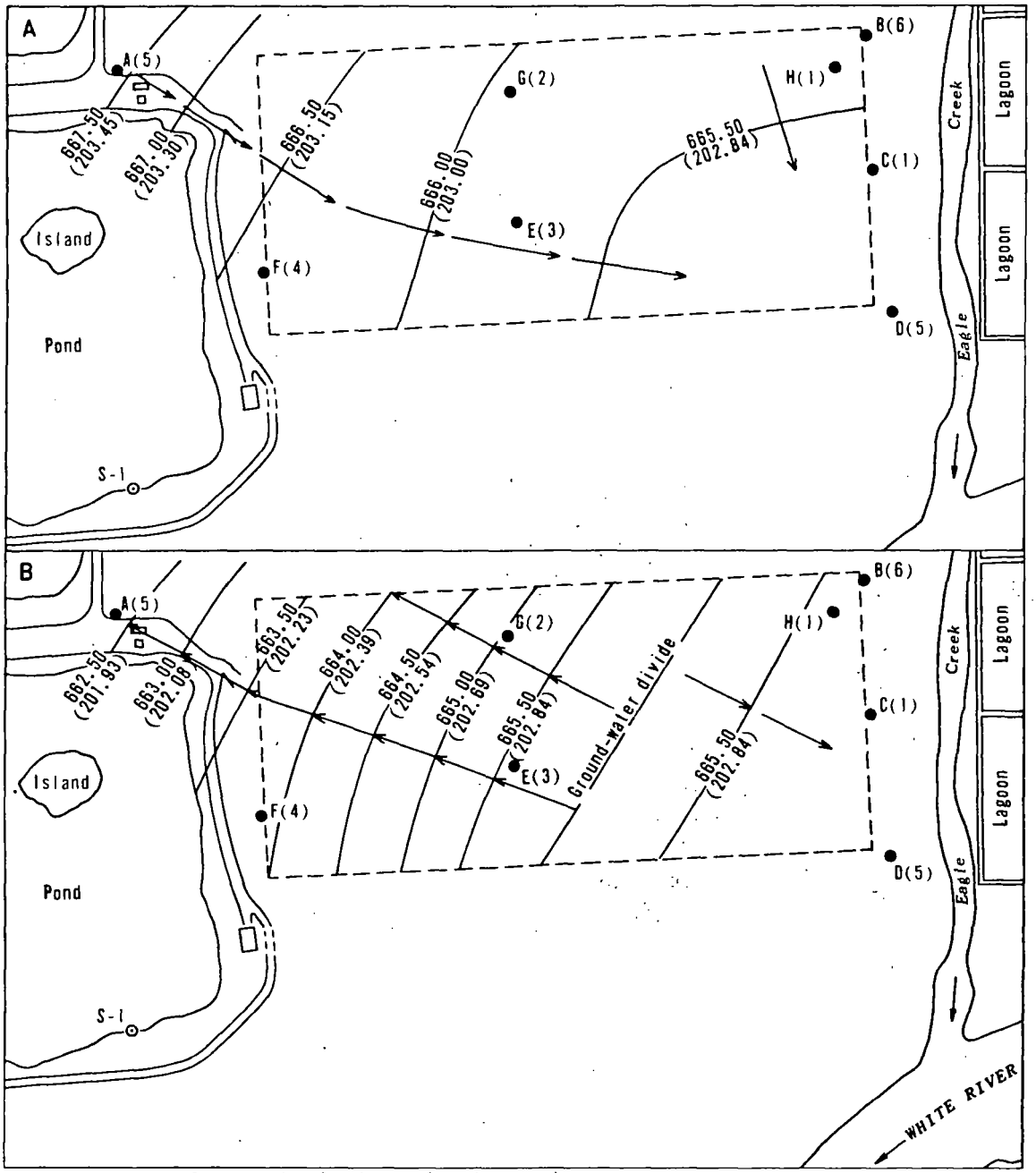


Figure 17.-- Stratigraphy and well-screen locations in landfill area at 2561 Kentucky Avenue.



Based on U.S. Soil Conservation Service aerial photographs

0 500 1000 FEET

0 150 300 METERS

N

EXPLANATION

- - - - - Boundary of refuse area

—665.50 (202.84)— Water-level contour showing elevation of the potentiometric surface, in feet(meters). Contour interval 0.5 foot(0.15 meter) Datum is mean sea level

——— Direction of ground-water flow

●A Observation-well site and designation

(5) Number of wells at site

⊙S-1 Surface-water sampling site and number

Figure 18 -- Water-level contours in the shallow(A) and deep(B) aquifers below landfill area at 2561 Kentucky Avenue, October 1974.

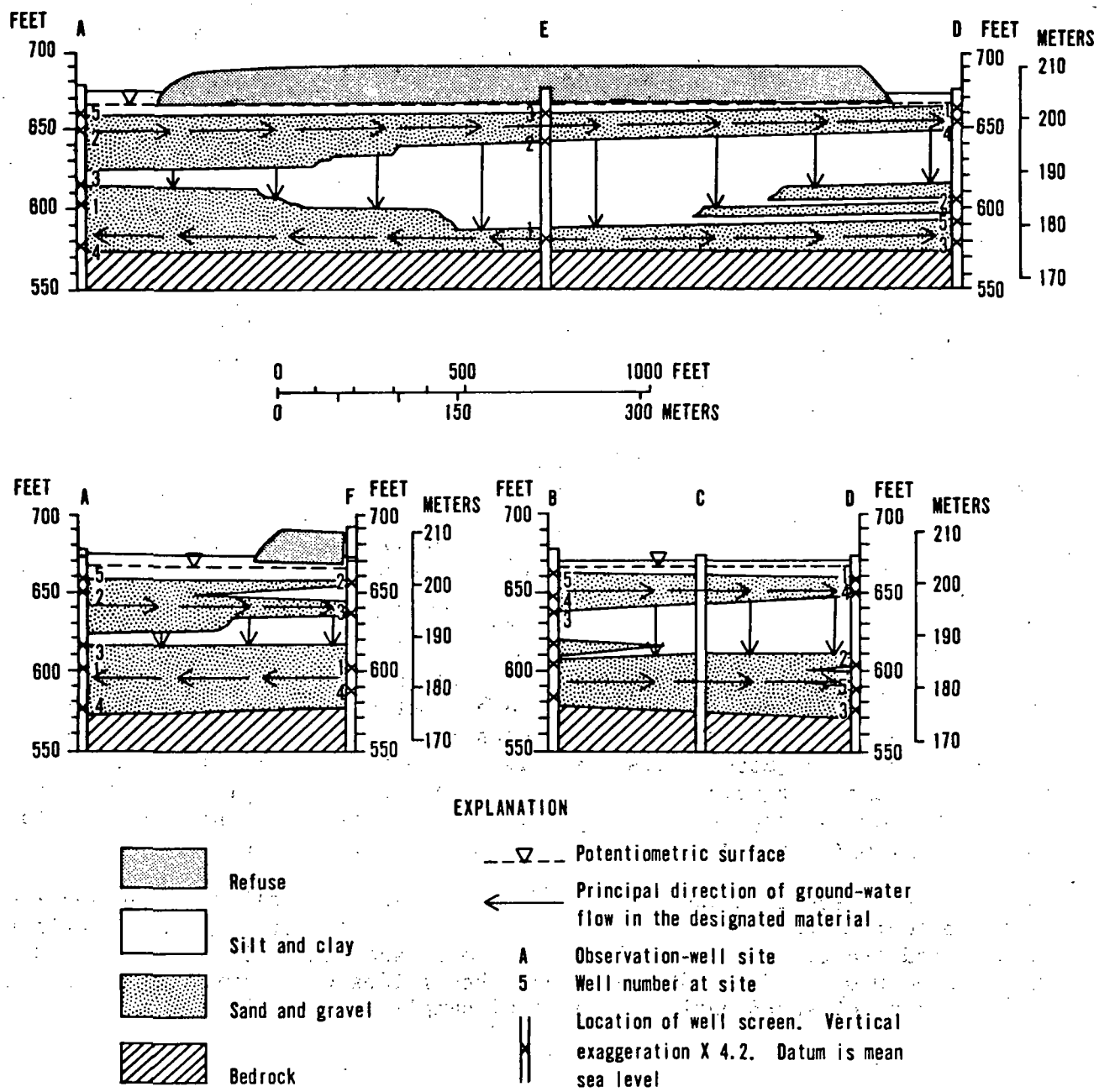


Figure 19.-- Hydrologic sections in landfill area at 2561 Kentucky Avenue, October 1974.

Water Quality

The effect of leachate on ground water can be seen by comparing an analysis of water from well 4 at site A (background quality) with an analysis of water from the aquifer under the landfill, well 1 at site G (table 4). These data indicate that leachate caused a significant increase in the concentration of several constituents.

Areal extent and direction of movement of the leachate can be inferred from the specific-conductance data plotted on figure 20. The highest specific conductances in the shallow aquifers are near site G, the area of initial deposition of wastes. In general, the pattern of decreasing specific conductance roughly parallels the pattern of development of the landfill.

Lines of equal specific conductance for deep aquifers (fig. 20-B) show decreasing values from east to west across the landfill and do not follow the pattern of landfill development. The higher specific conductance on the east edge of the landfill suggests a source of mineralization to the aquifer other than the landfill leachate. The increase in mineralization with increasing depth (fig. 21 and table 4, sites B-4 and B-6) also supports the hypothesis of a second source of leachate.

The second source of leachate moving through the deep aquifer is probably from a series of sewage-sludge lagoons east of the landfill. The hypothesis that waste water from the lagoons is entering the deep aquifer is supported by two facts. First, at times of high water level, ground water flows from the direction of the lagoons toward the landfill. Second, the very high ammonia concentrations in the deep zones under the landfill (for example, 210 mg/L at site B-6, table 4) are typical for sewage.

Water analyses in table 4 show the ground-water quality of the shallow and deep aquifers 30 to 38 months after the landfill opened. Concentrations of selected trace metals in two ground-water samples collected in May 1974 ranged from 0.0 to 20 mg/L (table 4). Pesticides were virtually absent in ground water collected during the initial sampling.

LANDFILL AT 800 WEST RAYMOND STREET

Description and History of the Area

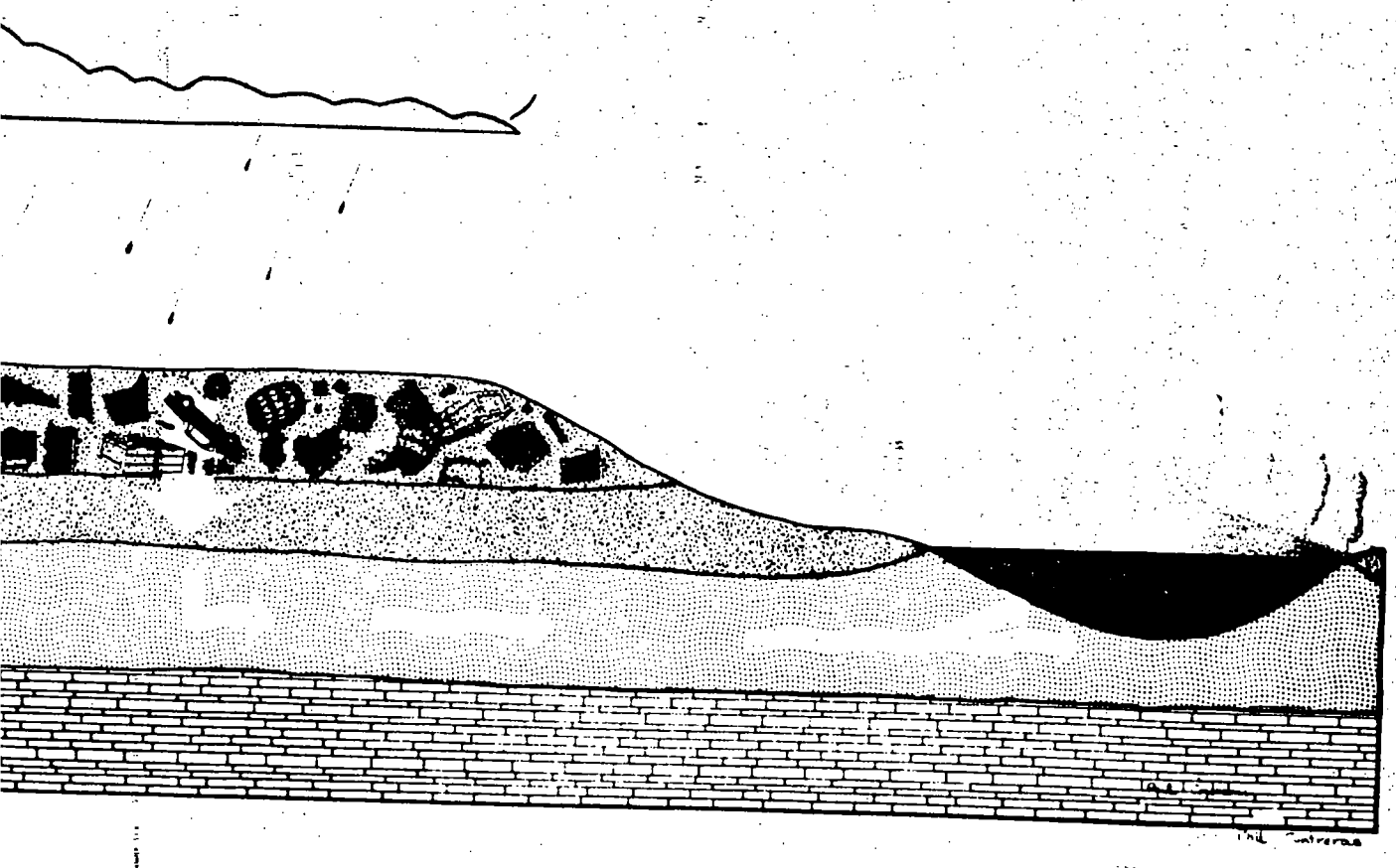
This 56-acre landfill, on the flood plain of White River, is 2 mi southwest of Monument Circle in Indianapolis. The landfill is bordered on the east by White River Parkway and on the south by White River Parkway and Raymond Street. Well logs (table 12) show some clay layers or lenses at nearly all test holes. However, poorly sorted sand and gravel are the predominant materials of the unconsolidated deposits. No sharp delineation exists between the alluvial cover and the underlying outwash sands and gravels.

IATURE AND EXTENT OF GROUND-WATER QUALITY CHANGES RESULTING FROM SOLID-WASTE DISPOSAL, MARION COUNTY, INDIANA

U.S. GEOLOGICAL SURVEY

WATER-RESOURCES INVESTIGATIONS 77-40

Prepared in cooperation with the Department of Public Works, Indianapolis, Indiana



NATURE AND EXTENT OF GROUND-WATER-QUALITY CHANGES RESULTING FROM SOLID-WASTE DISPOSAL, MARION COUNTY, INDIANA

By Robert A. Pettijohn

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations 77-40

Prepared in cooperation with the
Department of Public Works,
Indianapolis, Indiana

June 1977

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

V. E. McKelvey, Director

For additional information write to:

U.S. Geological Survey
1819 N. Meridian Street
Indianapolis, Indiana 46202

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Julietta

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the landfill and the effect of leachate on ground-water quality downgradient from the landfill, additional wells will be constructed.

A report by Bleuer (1970) and data collected in this study indicate that the landfill is in an area having the best hydrologic and geologic conditions for solid-waste disposal in the Indianapolis area. Continuation of the study at West 96th Street and Zionsville Road not only will provide data for determining the degree of recovery of the ground-water quality as it moves from the landfill but also will provide data needed to support standards used in selecting landfill sites.

Landfill at 2561 Kentucky Avenue

The shallow and the deep aquifers beneath this landfill are separated by clay. Direction of flow in the shallow aquifer is southeast toward the White River, whereas flow in the deep aquifer is northwest because of local ground-water pumping. Thus, highly mineralized ground water is moving toward an industrial water supply. The highest mineralization is in the deep aquifer and is assumed to be largely due to leakage from sludge lagoons east of the landfill. Verification of this assumption would require additional water-level and chemical data from the shallow and deep aquifers at points east, north, and south of the landfill.

Landfill at 800 West Raymond Street

Water beneath this landfill is moving northward as a result of industrial well pumping. Leachate from the refuse has altered the water quality in the unconsolidated aquifer in the immediate area of the landfill, and this water is moving in the direction of the industrial wells. To trace the movement of the leachate plume would require installation of wells between the landfill and the industrial wells. Because of the proximity of the industrial wells to the landfill, water-level and water-quality data should be collected frequently.

Landfill at 2700 South Emerson Avenue

Flow in the shallow aquifer is to Lick Creek; flow in the deep aquifer is toward the White River. The unconsolidated aquifers beneath the fill are contaminated, but the areal extent of contamination outside the landfill area is not known. An inventory of domestic and industrial wells in the area may provide a data source for determining the extent of the contamination and the direction in which the contaminated water is moving.

15 N 3 E NW NW NW 27 ✓
IN-2-68

SINGER

Layne NORTHERN COMPANY
INCORPORATED

INDIANAPOLIS • MISHAWAKA • LANSING

☐ TEST
☐ PERMANENT

Job No. _____

LF-N

WELL LOG No. _____ CITY Indpls. County _____

Owner USGS Township _____

Site J-1 Kentucky Ave Landfill Section _____

J-1

Location State _____

From Land Description west end of levee between lagoons 11 + 15

From Street or Road Indianapolis Sewage plant
200 Ft E of Eagle Creek - 1000 ft N. of Confluence with White River

FORMATION FOUND – DESCRIBE FULLY	FROM NATURAL GROUND LEVEL Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Sandy brown soil w/ gravel	0	4		
gray clay w/ sand, gravel + silt	4	23.5		
4.5 S+G — sand and gravel - with sludge	23.5	28		
29 S+G — good sand and gravel	28	57		
dark gray clay -	57	67		
gravel w/ clay	67	69		
dark gray clay	69	71		
11 S+G — gravel and sand	71	82		
clay (gray) w/ sand and gravel	82	84		
ELEV. 665 — gray clay - hard pack	84	102		
D/W 5 — white clay - weathered limestone	102	111		
W/L 665 — black shale	111	—		
T= 44.5 x 1813 = 80,679 — T/D 112				
TBR 554 — BA 665 - 82 = 583				
ST 665 - 581 = 84				
T = 10,811 ft²/day				
K = 129 ft/day				

Hole 6 3/4 "Dia Drilled by: { Cable Tool _____ Rotary ✓ Jetting _____ Reverse Circ. _____ Bucket _____ Auger _____

Rotary Hole Grouted: Neat Cement _____ Drilling Mud _____ Other _____

Casing 2 "OD From 12 "above ground to 71 feet below ground. Weight _____ Pounds per foot

Screen 2 " Set from 71 to 73 feet Make _____ Type _____ Slot _____

Pumping test _____ GPM drawdown to _____ feet after _____ hours pumping

Date Completed 4-15-75 Driller _____

15N 3E NW NW NW 27 ✓

SINGER

Layne NORTHERN COMPANY
INCORPORATED
INDIANAPOLIS • MISHAWAKA • LANSING

☐ TEST
☐ PERMANENT

Job No. _____

I-1
LP-3

WELL LOG No. _____ CITY Indianapolis County Marion

Owner USGS on City of Indianapolis property Township _____

Site I-1 Kentucky Ave Landfill Section _____

Location State _____

From Land Description 1000 NE of White River and Eagle Creek confluence

From Street or Road on levee between sludge ponds 11, 12, 15 and 16

FORMATION FOUND — DESCRIBE FULLY	FROM NATURAL GROUND LEVEL Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
clay w/ sand and gravel	0	14		
sand and gravel with gray clay and sludge from lagoons	14	26		
16 S+G good sand and gravel	26	42		
2 S sand (coarse) - possibly w/ soft clay	42	44		
sandy brown clay	44	48		
gravelly brown clay	48	55		
1 G gravel (heavy)	55	56		
gray clay w/ sand and gravel	56	89		
weathered white limestone w/ S+g	89			
black-brown shale	113	~~113~~	—	
BA 665.56 = 609				
ELEV 665 ST = 51				
D/W 5 K = 86 ft/day				
W/L 660				
T = 1 x 3081 + 2 x 320 + 16 x 1813				
= 32,729 OR 4386 ft²/day				
TBR 5016				

Hole 6 3/4 "Dia Drilled by: { Cable Tool _____ Rotary ✓ Jetting _____ Reverse Circ. _____ Bucket _____ Auger _____

Rotary Hole Grouted: Neat Cement _____ Drilling Mud _____ Other _____

Casing 3 "OD From 1 "above ground to 91 feet below ground. Weight _____ Pounds per foot

Screen 3 " Set from 91 to 93 feet . Make _____ Type _____ Slot _____

Pumping test _____ GPM drawdown to _____ feet after _____ hours pumping

Date Completed 4-15-75 Driller _____

IN-2-69

LAYNE-NORTHERN COMPANY

INCORPORATED

MISHAWAKA, INDIANA

PERMANENT

WELL LOG No. 7 City INDIANAPOLIS County MARION

non-responsive (Ex. 6)

Ow

Loc

Loc

FORMATION FOUND	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM	STATIC WATER LEVEL	TEMP.	REMARKS
top soil	1	1			
yellow clay	4	5			
sand and gravel	5	10			
sand and gravel	4	14			coarse
clay	4	18			gritty
sand and gravel	7	25			
sand and gravel	5	30			coarse
sand and gravel	8	38			
medium sand	3	41	9		
sand and gravel	19	60			coarse from 55-60
2" well					
NOTE: This well drilled on Indianapolis Power & Light Company's Order No. 31786.					

Date Started Jan. 27, 1942 Finished Jan. 29, 1942 Ed. Rash.

DRILLER

(SKETCH OF LOCATION ON BACK OF THIS LOG SHEET)

LAYNE-NORTHERN COMPANY

INCORPORATED

MISHAWAKA, INDIANA

PERMANENT
WELL LOG No. T1 City INDIANAPOLIS County MARION

Township [illegible]

Owner INDIANAPOLIS POWER & LIGHT COMPANY Section 22

State INDIANA

Location of Well 147' NORTH OF PROPERTY LINE, 60' WEST OF CENTER LINE HANDING STREET.

FORMATION FOUND	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM	STATIC WATER LEVEL	TEMP.	REMARKS
top soil and clay	6	6			
fine sand	6	12			
sand and gravel	4	16			mixed with clay
coarse gravel	3	19			dirty
clay	13	32			hard
gravel	30	62			medium
gravelly clay	8	70			
coarse gravel	21	91	8'-6"		clean
Boulders	4	95			
shale	1	96			still in shale

Date Started Aug. 19, 1941 Finished Oct. 27, 1941

Jesse R. Mitcher.
DRILLER

(SKETCH OF LOCATION ON BACK OF THIS LOG SHEET)

LAYNE-NORTHERN COMPANY

INCORPORATED

MISHAWAKA, INDIANA

WELL LOG No. Test "S" City Indianapolis County Marion

Township [illegible]

Owner Power & Light Co. Section 27

State Indiana

Location of Well Harding St. station-W. of Harding St. on S. line section 27.

FORMATION FOUND	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM	STATIC WATER LEVEL	TEMP.	REMARKS
Clay	14	14			
Sand and gravel	22	36			
Medium sand	10	46			
Sand and gravel	12	58			
Sand, gravel and clay	2	60			
Sand and gravel	7	67	9		Yield estimated at 80GPM
Sand, gravel and clay	2	69			per foot of drawdown
Sand and gravel	33	102	9		
Set Screen in main 6" test well 61' to top and 69' to bottom. Drilled					
pilot 1¼" well ~~8X~~ C/L30" from main test well. Depth of pilot well 50' to					
bottom of screen, 2' long. Pumped from main well 50 GPM for 5 hours.					
~~Xxx~~ Main well had a drawdown of 19'.					
Pilot well had a drawdown of ~~X~~ 2".					
Probable source of inconsistent results is strip of clay at 60'					

Date Started Feb 12, '41 Finished Feb 20, '41 Gerald Quick

DRILLER

(SKETCH OF LOCATION ON BACK OF THIS LOG SHEET)

LAYNE-NORTHERN COMPANY
Incorporated
MISHAWAKA, INDIANA

JOB NO. C-5377.

TEST WELL LOG No. 2 CITY INDIANAPOLIS County MARION
Owner ILLINOIS CENTRAL SYSTEM Township PERRY
Section 26-T15N-R3E

non-responsive (Ex. 6)

[redacted]

FORMATION FOUND — DESCRIBE FULLY	FROM NATURAL GROUND LEVEL Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Sandy Clay	1'	5'	5'	
Yellow Sand and Gravel	5'	15'	10'	12'
Gray Sand and Gravel	15'	43'	28'	12'
Clay and Sand and Gravel mixed	43'	47'	4'	12'
Clay and fine sand	47'	55'	8'	12'
Coarse Gravel	55'	98'	43'	12'
Shale	98'	100'	2'	
W/L = 675				
= 675				
M = TBR 577				
W/L = 673				
D/W 2				
ST 96				
T = [illegible] or 26,985 ft²/day				
K = 281 ft/day				
~~T [illegible]~~				

6 inch diameter hole drilled by ☒ Cable Tool ☐ Rotary ☐ Jetting

Pipe left in hole

Date Started 4-7-47 Finished 4-9-47 C.W. RAYBURN.
DRILLER

LAYNE-NORTHERN COMPANY

INCORPORATED

MISHAWAKA, INDIANA

NE 4 Sec 34 (

PERMANENT

WELL LOG No. 2 City INDIANAPOLIS County MARION

Township PERRY

Owner ADM AUFDENKIDE, ROUTE 20, BOX 640, STEMMERMOR ROAD, INDIANAPOLIS, INDIANA.

Section 27-21N-R3E

State INDIANA

Location—From Land Description AT MARKET HOUSE - BOILER ROOM.

Location—From Street or Road

FORMATION FOUND	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM	STATIC WATER LEVEL	TEMP.	REMARKS
top soil and clay	4	4			
dry gravel	9	13			
blue clay	10	23			
sand and gravel	2	25			coarse
clay	1	26			
sand and gravel	24	50	13		medium yellow colored
sand and gravel	10	60	13		light colored, med. sand
clay					
NOTE: Drilled on Indianapolis Power & Light Company Order No. 31786.					

Date Started 2/13/42 Finished 2/21/42

Edward Nash.

DRILLER

(SKETCH OF LOCATION ON BACK OF THIS LOG SHEET)

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Yellow clay	0	5
Gravel 65 G	5	75
Grey Shale	75	90
Black shale or Slate	90	100

680
90 Top ?
65 est 590 N.A. Shale
Does not look very good
21-9-93
680
25
655 Sh

GLE = 675
− 75
Top Shale 600 BA

6.50
PWS

REMARKS:
graphic log

ELEV. 675
D/W 10
W/L 665

STE 65

K = 4.13 ft/day

T = 65×308.1 = 200,265 OR 26,836 ft²/day

COUNTY: Marion TWP. 15N RGE. 3E SE ¼ SE ¼ NW ¼ SEC. 27

Topo Map: Marion 7½

Well log classified By — Date —
Courthouse located By — Date —
Field located By [illegible] Date [illegible]
Acc. w/o verification By [illegible] Date 7-17-95

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

2885 Ft W of EL. Ground elevation 625+
2815 Ft N of SL. Depth to bedrock —
Ft E of WL. Bedrock elevation —
Ft S of NL. Aquifer elevation —

Tops ?

17

INSTRUCTIONS

This Water Well Record form is designed to record the most essential data concerning a water well. We request that you be as accurate as possible in recording this information as it may be of great assistance in the planning and development of new water supplies.

An accurate location of the well is equally as important as an accurate well log. Please include all information possible in the space provided for well location.

As specified in Chapter 6 of the Acts of 1959, a copy of this report must be submitted within thirty days after the completion of a well to the Division of Water

LAYNE-NORTHERN COMPANY

INCORPORATED

MISHAWAKA, INDIANA

JOB NO. C-3136

REFERENCE 6

SITE NAME McKinley Thompson LF

SITE ID IND980504433

PERMANENT

WELL LOG No. 14 City INDIANAPOLIS County MARION

Township ~~PERRY~~

Owner [redacted]

Location—From [redacted]

Location—From [redacted]

non-responsive (Ex. 6)

FORMATION FOUND	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM	STATIC WATER LEVEL	TEMP.	REMARKS
Top soil	6	6			
Gravel and sand	14	20	12		
Coarse gravel	20	40	12		
NOTE: Drilled on Order No. 73207, Indianapolis Power & Light Company					

Date Started Sept 5, 1944 Finished Sept 8, 1944 C.W. Rayburn

DRILLER

(SKETCH OF LOCATION ON BACK OF THIS LOG SHEET)

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To

COUNTY MARION TWP [redacted]

Topo Map Willamina

Field Located By _____ Date _____

Courthouse Location By _____ Date _____

Location accepted w/o verification by _____

FOR ADMINISTRATIVE USE ONLY
non-responsive (Ex. 6)

_____ Ft W of EL. Ground Elevation _____

_____ Ft N of SL. Depth to bedrock _____

_____ Ft E of WL. Bedrock elevation _____

_____ Ft S of NL. Aquifer elevation _____ Lot Number _____

Subdivision Name

Parker & Wright

2

DIVISION OF WATER RESOURCES
INDIANA DEPARTMENT OF CONSERVATION
311 WEST WASHINGTON STREET
INDIANAPOLIS, INDIANA

WATER WELL RECORD

INFORMATION ON WELL LOCATION

County in which well was drilled: MARION Civil Township: DECATUR

Congressional township: 14 NORTH Range: 2E Number of section: 32

(Fill in as completely as possible)

Describe in your own words the well location with respect to nearby towns, roads, streets or distinctive landmarks: S. W. CORNER GAMBLE LANE + SUSZY

3 BL. W. OF FOLTZ ST

3 BL N OF THOMPSON RD.

1 MI. SO MARS HILL.

Name of owner: WRIGHT-BACHMAN Address:

Name of Well Drilling Contractor: HARLAN MILLER WELL & PUMP

Address: 1726 W. HAMBLEN DR. INDPLS 31 IND

Name of Drilling Equipment Operator: ART C BOWEN

INFORMATION ON THE WELL

Completed depth of well: 58 ft. Date well was completed: JULY 18 1961

Diameter of outside casing or drive pipe: 4 Length: 54'

Diameter of inside casing or liner: — Length: —

Diameter of Screen: 3" Length: 5' 3" Slot size: # 6

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 ☐ Driven ☐

Static water level in completed well (Distance from ground to water level) ____ ft.

Bailer Test: Hours tested 1 Rate 20 g.p.m. Drawdown 3 ft. (Difference between static level and water level at end of test)

Pumping Test: Hours tested — Rate — g.p.m. Drawdown — ft.

Signature Harlan Miller Agt

Date July 18 1961

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
GRAVEL CLAY	0	24
GREY CLAY HARDPAN	24	54
SAND & GRAVEL + H2O	54	58
GREY CLAY	58	

REMARKS:

FOR ADMINISTRATIVE USE ONLY
(Well Driller does not fill out)

COUNTY: Madison TWP. 15N RGE. 3E ___ ¼ ___ ¼ SW ¼ SEC. 32

Topo. Map: Mayxwood 7½ Loc. accepted w/o verification Yes ✓ No ___

El. of grnd. surface at well: ___ Courthouse Loc. By ___ Date ___

Depth to bedrock: ___ Field Located By ___ Date ___

Well Log processed by: ___ Placed in Master Well Log File Date 2-9-62

INSTRUCTIONS

This Water Well Record form is designed to record the most essential data concerning a water well. We request that you be as accurate as possible in recording this information as it may be of great assistance in the planning and development of new water supplies.

An accurate location of the well is equally as important as an accurate well log. Please include all information possible in the space provided for well location.

As specified in Chapter 6 of the Acts of 1959, a copy of this report must be submitted within thirty days after the completion of a well to the Division of Water Resources, Indiana Department of Conservation, 311 West Washington Street, Indianapolis, Indiana.

DIVISION OF WATER RESOURCES
INDIANA DEPARTMENT OF CONSERVATION
311 WEST WASHINGTON STREET
INDIANAPOLIS, INDIANA

WATER WELL RECORD

INFORMATION ON WELL LOCATION

County in which well was drilled: MARION Civil Township: _____

Congressional township: _____ Range: _____ Number of section: _____

(Fill in as completely as possible)

Describe in your own words the well location with respect to nearby towns, roads, streets or distinctive landmarks: non-responsive (Ex. 6) [redacted]

Name of ow[redacted] Address: _____

Name of Well Drilling Contractor: HARLAN MILLER WELL & PUMP

Address: 1726 W. HAMBLEN DR. INDPLS 31 IND.

Name of Drilling Equipment Operator: ART C BOWEN

INFORMATION ON THE WELL

Completed depth of well: 59' ft. Date well was completed: 10-3-62

Diameter of outside casing or drive pipe: 4" Length: 57'

Diameter of inside casing or liner: — Length: —

Diameter of Screen: 3" Length: 5'4" Slot size: #6

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 ☐ Driven ☐

Static water level in completed well (Distance from ground to water level) 25 ft.

Bailer Test: Hours tested 1½ Rate 15 g.p.m. Drawdown 10 ft. (Difference between static level and water level at end of test)

Pumping Test: Hours tested — Rate — g.p.m. Drawdown — ft.

Signature Harlan Miller Pres

Date Oct 3 1962

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

5

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
YELLOW CLAY	0	23
GREY CLAY	23	55
GRAVEL HARD PAN \ H2O ON TOP	55	57
SAND & GRAVEL & H2O	57	59
" "	59	

REMARKS:

FOR ADMINISTRATIVE USE ONLY
(Well Driller does not fill out)

COUNTY: [illegible] TW[redacted]

Topo. Map: [illegible] Loc. accepted w/o verification Yes ✓ No ___

El. of grnd. surface at well: ___ Courthouse Loc. By ___ Date ___

Depth to bedrock: ___ Field Located By ___ Date ___

Well Log processed by: [illegible] Placed in Master Well Log File Date 2-6-64

INSTRUCTIONS

This Water Well Record form is designed to record the most essential data concerning a water well. We request that you be as accurate as possible in recording this information as it may be of great assistance in the planning and development of new water supplies.

An accurate location of the well is equally as important as an accurate well log. Please include all information possible in the space provided for well location.

As specified in Chapter 6 of the Acts of 1959, a copy of this report must be submitted within thirty days after the completion of a well to the Division of Water Resources, Indiana Department of Conservation, 311 West Washington Street, Indianapolis, Indiana.

non-responsive (Ex. 6)

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46204
Telephone 633-5267 Area Code 317

WATER WELL RECORD

WELL LOCATION

(Fill in completely - Refer to instruction sheet)

County in which well was drilled Marion Civil Township Decatur

Driving directions to the well location: Include County Road Names, Numbers, Subdivision Name, lot number, distinct landmarks, etc.

[redacted] non-responsive (Ex. 6)

NAME OF WELL OWNER and/or BUILDING CONTRACTOR [redacted] non-responsive (Ex. 6)

Well Owner _____ Address _____

Building Contractor _____ Address _____

Name of Well Drilling Contractor: James Wilson

Address 7801 Mooresville Rd. West Newton

Name of Drilling Equipment Operator: James Wilson

WELL INFORMATION

Depth of well: 97 ft. Date well was completed: 8/21/76

Diameter of casing or drive pipe: 4" Total Length: 97 ft.

Diameter of liner (if used): _____ Total Length: _____

Diameter of Screen: 4" Length: 4 ft. Slot Size: 6

Type of Well: Drilled [X] Gravel Pack [ ] Driven [ ] Other _____

Use of Well: For Home [X] For Industry [ ] For Public Supply [ ] Stock [ ]

Method of Drilling: Cable Tools [ ] Rotary [X] Rev. Rotary [ ] Jet [ ] Bucket Rig [ ]

Static water level in completed well (Distance from ground to water level) 30 ft. feet

Bailer Test: Hours Tested _____ Rate _____ g.p.m. Drawdown _____ ft.

Pumping Test: Hours Tested 1 Rate 10 g.p.m. Drawdown 15 ft.

(Drawdown is the difference between static level and water level at end of test)

Signature Russell A Wilson

Date 8/19/76

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Blue Clay	0	45
Sand	45	47
Blue Clay	47	72
Sand + Gravel	72	97

COUNTY MARION TW[redacted]

Topo Map MAYWOOD 7½

Field Located By _____ Date _____

Courthouse Location By _____ Date _____

Location accepted w/o verification by BRUNS 8/25/74

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)
non-responsive (Ex. 6)

_____ Ft W of EL. Ground Elevation _____

_____ Ft N of SL. Depth to bedrock _____

_____ Ft E of WL. Bedrock elevation _____

_____ Ft S of NL. Aquifer elevation _____ Lot Number _____

Subdivision Name

15N-3E
29-32/35

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46204
Telephone 633-5267 Area Code 317

NOV 1 2 RECD

WATER WELL RECORD

WELL LOCATION

(Fill in completely - Refer to instruction sheet)

County in which well was drilled MARION Civil Township WAYNE

Driving directions to the well location: Include County Road Names, Numbers, Subdivision Name, lot number, distinctive

non-responsive (Ex. 6)

PERMIT 2824

NAME OF WELL OWNER and/or BUILDING CONTRACTOR

non-responsive (Ex. 6)

Well O

Building Contractor _____ Address _____

Name of Well Drilling Contractor: ED SHERLOCK DRILLING CO.

Address 5209 RAHKE RD.

Name of Drilling Equipment Operator: WILLIAM SHERLOCK

WELL INFORMATION

Depth of well: 35 Date well was completed: OCT 73

Diameter of casing or drive pipe: 4 Total Length: 32

Diameter of liner (if used): _____ Total Length: _____

Diameter of Screen: 3½ Length: 52 Slot Size: 30

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) 10 feet

Bailer Test: Hours Tested 1 Rate _____ g.p.m. 15 Drawdown 5 ft.

Pumping Test: Hours Tested 2 Rate _____ g.p.m. 15 Drawdown 5 ft.

(Drawdown is the difference between static level and water level at end of test)

Signature Ed Sherlock

Date Oct. 3 — 73

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

9

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
YELLOW CLAY	0	15
SAND WATER B.	15	17
HARDPAN CLAY	17	28
SAND GRAVEL WATER B.	28	35
CLAY	35	

COUNTY Madison TWP [redacted]

Topo Map Madison Nov 72

Field Located By _____ Date _____

Courthouse Location By _____ Date _____

Location accepted w/o verification by _____

FOR ADMINISTRATIVE USE ONLY

[redacted]

non-responsive (Ex. 6)

_____ Ft W of EL. Ground Elevation _____

_____ Ft N of SL. Depth to bedrock _____

_____ Ft E of WL. Bedrock elevation _____

_____ Ft S of NL. Aquifer elevation _____ Lot Number _____

Subdivision Name

DIVISION OF WATER RESOURCES
INDIANA DEPARTMENT OF CONSERVATION
609 STATE OFFICE BUILDING
INDIANAPOLIS 9, INDIANA

APR 1964 RECEIVED

WATER WELL RECORD

INFORMATION ON WELL LOCATION

County in which well was drilled: Marion Civil Township: Center

Congressional township: _____ Range: 3 RE Number of section: 7

(Fill in as completely as possible)

Describe in your own words the well location with respect to nearby towns, roads, streets

non-responsive (Ex. 6)

[redacted]

1969 ph. dir. lists James W. Hurt at 2840 W. Minnesota 241-0754

non-responsive (Ex. 6)

Name of owner [redacted]

Name of Well Drilling Contractor: Claude Royston

Address: R R 2

Name of Drilling Equipment Operator: _____

INFORMATION ON THE WELL

Completed depth of well: ~~May ft.~~ 30 Date well was completed: May 22

Diameter of outside casing or drive pipe: 2 1/2 Length: _____

Diameter of inside casing or liner: _____ Length: _____

Diameter of Screen: 1 1/4 Length: 30 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 ☐ Driven ☐

Static water level in completed well (Distance from ground to water level) 30 ft.

Bailer Test: Hours tested _____ Rate _____ g.p.m. Drawdown _____ ft. (Difference between static level and water level at end of test)

Pumping Test: Hours tested 1 Rate 0 g.p.m. Drawdown _____ ft.

Signature Claude Royston

Date May

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FOR ADMINISTRATIVE USE ONLY
(Well Driller does not fill out)

COUNTY: Marion TWP.

Topo Map: Mayswood 7½ Loc. accepted w/o verification Yes ~~X~~ No ___

Well log classified By JL Date 5-6-64 Ground elevation 695 ___ Ft W of EL
Courthouse located By ___ Date ___ Depth to bedrock ___ 2800 Ft N of SL
Field located By ___ Date ___ Bedrock elevation ___ 2400 Ft E of WL
Placed in master well log file Date 2-5-64 Aquifer elevation 660- ___ Ft S of NL

[redacted]

FORMATIONS (Color, type of material, hardness, etc.)	From	To
695 ±		
− 30		
665		
REMARKS: gravel all the way		
695 − 30 = 665		

Rebuilt & Relay Van
- City Water
Bob 10-23

INSTRUCTIONS

This Water Well Record form is designed to record the most essential data concerning a water well. We request that you be as accurate as possible in recording this information as it may be of great assistance in the planning and development of new water supplies.

An accurate location of the well is equally as important as an accurate well log. Please include all information possible in the space provided for well location.

As specified in Chapter 6 of the Acts of 1959, a copy of this report must be submitted within thirty days after the completion of a well to the Division of Water Resources, Indiana Department of Conservation.

FC
MC
12

DIVISION OF WATER RESOURCES
INDIANA DEPARTMENT OF CONSERVATION
311 WEST WASHINGTON STREET
INDIANAPOLIS, INDIANA

JAN 1961 RECEIVED

WATER WELL RECORD

INFORMATION ON WELL LOCATION

County in which well was drilled: Marion Civil Township: Mayfield

Congressional township: _____ Range: _____ Number of section: _____

(Fill in as completely as possible)

Describe in your own words the well location with respect to nearby towns, roads, streets

[redacted]

Name of ow[redacted]

Name of Well Drilling Contractor: Jim Wilson Well Drilling

Address: RR1 Box 437 Carmel Indiana

Name of Drilling Equipment Operator: Jim Wilson

INFORMATION ON THE WELL

Completed depth of well: 40 ft. Date well was completed: Jan 12 - 1961

Diameter of outside casing or drive pipe: 4 in Length: 40

Diameter of inside casing or liner: _____ Length: _____

Diameter of Screen: 3 Length: 4½ Slot size: 6

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 ☐ Driven ☐

Static water level in completed well (Distance from ground to water level) 20 ft.

Bailer Test: Hours tested 1 Rate 15 g.p.m. Drawdown _____ ft. (Difference between static level and water level at end of test)

Pumping Test: Hours tested 2 Rate 15 g.p.m. Drawdown _____ ft.

Signature Jim Wilson

Date Jan - 12 - 1961

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

13

WATER WELL LOG

COUNTY: MARION TWP. [redacted]

Topo. Map: MAYWOOD 7½ Loc. accepted w/o verification Yes ✓ No ___

El. of grnd. surface at well: 700 Courthouse Loc. By ___ Date ___

Depth to bedrock: ___ Field Located By ___ Date ___

Well Log processed by: ___ Placed in Master Well Log File Date 4/22/72

Located off Well, Pollution & Dry Test + City Water Tests Rec 10-73

FOR ADMINISTRATIVE USE ONLY
(Well Driller does not fill out)
non-responsive (Ex. 6)

FORMATIONS (Color, type of material, hardness, etc.)	From	To
top soil for first 5 ft.	0	5
red gravel from 5 ft to 25 ft	5	25
Blue clay 25 ft to 34 ft.	25	34
Blue gravel from 34 to 40 ft	34	40

700 ft
− 20
680 S
WL

REMARKS: graphic log

INSTRUCTIONS

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As specified in Chapter 6 of the Acts of 1959, a copy of this report must be submitted within thirty days after the completion of a well to the Division of Water Resources, Indiana Department of Conservation, 311 West Washington Street, Indianapolis, Indiana.

LAYNE-NORTHERN COMPANY
Incorporated
MISHAWAKA, INDIANA

☐ TEST
XX PERMANENT

Job No. C-20,046

WELL LOG No. # 5 CITY Indianapolis County Marion

Owner Bridgeport Brass Company Township Wayne

Section 16-T15N-R3E

Location State Indiana

From Land Description _____ ft. East and _____ ft. North of SW Corner of Section.

From Street or Road 75' South of Well #1
318' So. of C/L Minnesota Ave., 247' W. C/L Warman Avenue

FORMATION FOUND — DESCRIBE FULLY		FROM NATURAL GROUND LEVEL			
		Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Top soil		0	3		
Sand and gravel		3	18	15	
Boulders and gravel	10	18	34	16	
Fine sand and boulders	28	34	62	28	
Medium sand and gravel	2	62	64	2	
Coarse sand and gravel, boulders	33	64	97	33	24'
Clay		97			
97					
18					
Static W.L. 23'5"					

_____ Inch diameter hole drilled by ☐ Cable Tool ☐ Rotary ☐ Jetting

Pipe left in hole 70' of 38" Casing

Date Started 6/24/63 Finished 6/26/63 E. Allen & H. Smith
DRILLER

15

15-3-16

LAYNE-NORTHERN COMPANY

Incorporated

MISHAWAKA, INDIANA

☒ TEST

☐ PERMANENT

Job No. C-7421

WELL LOG No. 55A CITY Indianapolis County Marion

Owner Bridgeport Brass Township Center

Section 16

Location State Ind.

From Land Description _____ ft. East and _____ ft. North of SW Corner of Section.

From Street or Road Minnesota St. Well field - 210' N. of I.P.L. towers and 55' E. of West Power line (center line of tower)

FORMATION FOUND — DESCRIBE FULLY	FROM NATURAL GROUND LEVEL			
	Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Clay	0	13'	13'	
Very sandy clay	13'	21'	8'	
Fine to coarse gravel and sand	21'	52'	21'	24'6"
Fine sand with clay strips	52'	59'	7'	
Coarse sand and fine gravel	59'	65'	6'	
Gritty clay	65'	67'	2'	
Midium to coarse gravel and sand	67'	97'	30'	28'8"
Gritty Clay	97'	100'	3'	
Shale	100'	102'	2'	
Boulder 74' - 86'				
Boulder 94' - 97'				

6 inch diameter hole drilled by ☐ Cable Tool ☐ Rotary ☐ Jetting

Pipe left in hole 63' [illegible]" and 1[illegible]" X 24" well point.

Date Started 4/25/55 Finished 4/28/55 D. Smith 16

LAYNE-NORTHERN COMPANY
Incorporated
MISHAWAKA, INDIANA

☒ TEST
☐ PERMANENT

Job No. C-20,066

WELL LOG No. 63-A CITY Indianapolis County Marion

Owner Bridgeport Brass Company Township Wayne

Section 16-T15N-R3E

Location State Indiana

From Land Description _____ ft. East and _____ ft. North of SW Corner of Section.

From Street or Road 77' So. of #1 Well
322' So. of C/L Minnesota Ave., 245' W. C/L Harman Avenue

FORMATION FOUND — DESCRIBE FULLY	FROM NATURAL GROUND LEVEL			
	Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Top soil	0	3	3	
Sand	3	12	9	
Gravel, fine	12	20	8	
Gravel, fine with fine sand	20	33	13	
Fine sand	33	49	16	
Sand with show of red clay	49	53	4	
Sand, medium	53	64	11	
Gravel (active) with sand	64	93	29	28
Gravel, fine	93	96	3	
Clay	96	97	1	
water 23' 5"				

6 inch diameter hole drilled by ☒ Cable Tool ☐ Rotary ☐ Jetting

Pipe left in hole 84' 1½ with pilot point

Date Started 5/3/63 Finished 5/7/63 Everett Wheeler
DRILLER

17

LAYNE-NORTHERN COMPANY

Incorporated

MISHAWAKA, INDIANA

☐ TEST

☒ PERMANENT

Job No. C-20,046

WELL LOG No. # 5 AND TEST 6 & 7 CITY Indianapolis County Marion

Owner Bridgeport Brass Company Township Wayne

Section 16-T15N-R3E

Location State Indiana

From Land Description _____ ft. East and _____ ft. North of SW Corner of Section.

From Street or Road 75' South of Well #1

318' So. of C/L Minnesota Ave., 247' W. C/L Warman Avenue

FORMATION FOUND — DESCRIBE FULLY	FROM NATURAL GROUND LEVEL			
	Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Top soil	0	3		
Sand and gravel	3	18	15	
Boulders and gravel	18	34	16	
Fine sand and boulders	34	62	28	
Medium sand and gravel	62	64	2	
Coarse sand and gravel, boulders	64	97	33	24'
Clay	97			

_____ inch diameter hole drilled by ☐ Cable Tool ☐ Rotary ☐ Jetting

Pipe left in hole 70' of 30" Casing

Date Started 6/24/63 Finished 6/26/63 E. Allen & H. Smith

18

LAYNE-NORTHERN COMPANY
Incorporated
MISHAWAKA, INDIANA

☐ TEST
☒ PERMANENT

Job No. 20,800

WELL LOG No. 6 CITY Indianapolis County Marion
Owner Bridgport Brass Township Wayne
Section 16
Location State Indiana
From Land Description 2860 ft. East and 2100 ft. North of SW Corner of Section.
From Street or Road 115' W. of E. Fence, 250' N. & 110' E. of #4 well

FORMATION FOUND — DESCRIBE FULLY	FROM NATURAL GROUND LEVEL			
	Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Top Soil	0	1'	1'	
Brown Clay	1'	4'	3'	
Medium to coarse sand & gravel	4'	36'	32'	
Very fine silty sand - muddy	36'	58'	22'	40'
Medium to coarse sand & gravel - boulders	58'	100'	42'	
Brown clay	100'			

72 inch diameter hole drilled by ☐ Cable Tool ☐ Rotary ☐ Jetting
Pipe left in hole 67' of 36" R.C.

Date Started 7-6-66 Finished 7-12-66 Bill Schlefelbein
DRILLER

WATER WELL LOG

TIONS (Color, type of material, hardness, etc.)	From	To
691 ft		
− 40		
651		
REMARKS:		

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

COUNTY: Marion TWP. 15N RGE. 3E NW ¼ NW ¼ SE ¼ SEC. 16

Topo Map: Bridgeport 7½'

Well log classified By — Date —
Courthouse located By — Date —
Field located By — Date —
Acc. w/o verification By — Date —

— Ft W of EL. Ground elevation —
— Ft N of SL. Depth to bedrock —
— Ft E of WL. Bedrock elevation —
— Ft S of NL. Aquifer elevation —

INSTRUCTIONS

This Water Well Record form is designed to record the most essential data concerning a water well. We request that you be as accurate as possible in recording this information as it may be of great assistance in the planning and development of new water supplies.

An accurate location of the well is equally as important as an accurate well log. Please include all information possible in the space provided for well location.

As specified in Chapter 6 of the Acts of 1959, a copy of this report must be submitted within thirty days after the completion of a well to the Division of Water Resources, Indiana Department of Conservation.

LAYNE-NORTHERN COMPANY
Incorporated
MISHAWAKA, INDIANA

☐ TEST
☒ PERMANENT

Job No. C-7424

WELL LOG No. 3 CITY Indianapolis County Marion

Owner Bridgeport Brass Company Township Wayne

Section 16

Location State Indiana

From Land Description _____ ft. East and _____ ft. North of SW Corner of Section.

From Street or Road Approximately 300 ft. East of #1 well.

FORMATION FOUND — DESCRIBE FULLY	FROM NATURAL GROUND LEVEL			
	Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Fill	0'	21'	21'	
Sand and gravel	21'	60'	39'	26'
Clay	60'	70'	10'	
Sand and gravel	70'	72'	2'	
Clay	72'	76'	4'	
Sand and gravel	76'	96'	20'	
Clay	96'			
Water 26' 2"				

42 & 34 inch diameter hole drilled by ☐ Cable Tool ☒ Rotary ☐ Jetting

Pipe left in hole 65' of 38" casing. 25' of screen and 20' of blank.

Date Started May 24, 1955 Finished June 6, 1955 Dugger Smith

21

REFERENCE _____

SITE NAME _____

SITE ID _____

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46209
MElrose 3-6757

RECEIVED APR 1967 Dept. of Nat. Resources Division of Water

WATER WELL RECORD

INFORMATION ON WELL LOCATION

County in which well was drilled: Marion Civil Township: _____

Congressional township: _____ Range: _____ Number of section: _____

(Fill in as completely as possible)

Describe in your own words the well location with respect to nearby towns, roads, streets or distinctive landmarks: 1700 S - 3400 West

Name of owner: Enterprise Mine Co. Address: [illegible]

Name of Well Drilling Contractor: Hoosier Drill Co.

Address: 4005 Rockville Rd

Name of Drilling Equipment Operator: Bill Fowler

INFORMATION ON THE WELL

Completed depth of well: 150 ft. Date well was completed: 11-1-66

Diameter of outside casing or drive pipe: 4" Length: 60'

Diameter of inside casing or liner: — 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 ☐ Driven ☐

Static water level in completed well (Distance from ground to water level) _____ ft.

Bailer Test: Hours tested _____ Rate _____ g.p.m. Drawdown _____ ft. (Difference between static level and water level at end of test)

Pumping Test: Hours tested 11 Rate 10 g.p.m. Drawdown [illegible] ft.

22

	Clay	0	15
Dirty - smells	Sand	15	60
	Blue Shale	60	97
	Black shale	97	138
	Limestone	138	150

40'

700 — 700

97 Top — 138 Top

603 N.A. Sh. — 562 Dev. Ls.

not acceptable

to Herring

Not plotted

REMARKS:

plotted on Marin Co. bedrock map by WHH 3-3-69

graphic log

Map: Mdwood 7.5

log classified By Hell Date 3/67

house located By ___ Date ___

located By ___ Date ___

w/o verification By HH Date 3-3-69

FOR ADMINISTRATIVE USE ONLY

(Well driller does not fill out)

Ft W of EL. ___ Ft N of SL. ___ Ft E of WL. ___ Ft S of NL. ___

Ground elevation 700-

Depth to bedrock 60

Bedrock elevation 640

Aquifer elevation ___

[redacted]

non-responsive (Ex. 6)

1 only

INSTRUCTIONS

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As specified in Chapter 6 of the Acts of 1959, a copy of this report must be submitted within thirty days after the completion of a well to the Division of Water

DIVISION OF WATER RESOURCES
INDIANA DEPARTMENT OF CONSERVATION
311 WEST WASHINGTON STREET
INDIANAPOLIS, INDIANA

WATER WELL RECORD

INFORMATION ON WELL LOCATION

County in which well was drilled: Marion Civil Township: Warren

Congressional township: _____ Range: _____ Number of section: _____

(Fill in as completely as possible)

Describe in your own words the well location with respect to nearby towns, roads, streets or distinctive landmarks: _____

non-responsive (Ex. 6)

Name of own[redacted]

Name of Well Drilling Contractor: Allen Pattock

Address: 4701 W. Morris

Name of Drilling Equipment Operator: Albert Strong

INFORMATION ON THE WELL

Completed depth of well: 51 Ft. Date well was completed: 3-31-61

Diameter of outside casing or drive pipe: 4" Length: 48' 6"

Diameter of inside casing or liner: None Length: _____

Diameter of Screen: 3" Length: 48" Slot size: 6

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 ☐ Driven ☐

Static water level in completed well (Distance from ground to water level) 25 Ft.

Bailer Test: Hours tested 2 Rate 8 g.p.m. Drawdown _____ Ft. (Difference between static level and water level at end of test)

Pumping Test: Hours tested _____ Rate _____ g.p.m. Drawdown _____ Ft.

Signature Allen Pattock

Date 3-31-61

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FOR ADMINISTRATIVE USE ONLY
(Well Driller does not fill out)

COUNTY: MARION TWP [redacted]

Topo. Map: MAYWOOD 7½ Loc. accepted w/o verification Yes ✓ No

El. of grnd. surface at well: 700 Courthouse Loc. By Date

Depth to bedrock: Field Located By Date

Well log processed by: DB-4 Placed in Master Well Log File Date 4-20-1/23/63

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Yellow Clay	0	28
Sand	28	30
Gray Clay & Gravel	30	45
Sand & Gravel	45	51
699±		
-25		
674		

Blended for Public Pollution by Rudy Fan City Water Tank 13-612-23

REMARKS:

INSTRUCTIONS

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As specified in Chapter 6 of the Acts of 1959, a copy of this report must be submitted within thirty days after the completion of a well to the Division of Water Resources, Indiana Department of Conservation, 311 West Washington Street, Indianapolis, Indiana.

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To

COUNTY MARION

Topo Map MAPLWOOD 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)

[redacted]
non-responsive (Ex. 6)

_____ Ft W of EL. Ground Elevation _____

_____ Ft N of SL. Depth to bedrock _____

_____ Ft E of WL. Bedrock elevation _____

_____ Ft S of NL. Aquifer elevation _____

Subdivision Name REYNOLDS

Lot Number 11-79

RECEIVED DEQ

27

REYNOLDS SUPPLY, INC.
1730 S. HARDING STREET
INDIANAPOLIS, IN 46221
317/636-1996

COMPLETE MUNICIPAL & INDUSTRIAL WATER SYSTEMS

FORMATION LOG

[ ] TEST
[x] PERMANENT

Project No. 212N

WELL NO. 8 CITY Indianapolis County Marion

Owner Bridgeport Brass Company Township Wayne

Section 16-T15N-R3E

Location State Indiana

Land Description 450' N. of Well No. 7, 30' E. of Property Fence

Street or Road 210' S. of N. Property Fence, W. corner - 36' E. of Allison Fence

FORMATION	FROM NATURAL GROUND LEVEL			
	Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Brown sandy clay	0'	4'	4'	29'
Coarse - fine gravel	4'	38'	34'	
Coarse - fine sand	38'	71'	33'	
Coarse - fine sand and gravel	71'	86'	15'	

Hole 60 " Dia. Drilled by: Reverse Circulation

Rotary Hole Grouted with: Concrete

Casing 24 " OD from 24 " above grade to 60 ' below grade. Weight 94.6 lbs. per ft.

Screen 24 " Set from 86 to 60 feet Make Johnson Type S.S.W.W. Slot .040"

Pumping Test 1276 GPM drawdown to 38 feet after 12 Hours Pumping

DIVISION OF WATER RESOURCES
INDIANA DEPARTMENT OF CONSERVATION
311 WEST WASHINGTON STREET
INDIANAPOLIS, INDIANA

MAR 1977
RECEIVED
DEPT. OF NATURAL RESOURCES
DIVISION OF WATER

WATER WELL RECORD

INFORMATION ON WELL LOCATION

County in which well was drilled: Marion Civil Township: _____

Congressional township: _____ Range: _____ Number of section: _____

(Fill in as completely as possible)

Describe in your own words the well location with respect to nearby towns, roads, streets or distinctive landmarks: _____

[redacted]

Name of owner [redacted]

Name of Well Drilling Contractor: Matlock Well Drilling

Address: 4701 W. Morris St

Name of Drilling Equipment Operator: Allen Matlock

INFORMATION ON THE WELL

Completed depth of well: 93 ft. Date well was completed: 3/2/77

Diameter of outside casing or drive pipe: 4" Length: _____

Diameter of inside casing or liner: _____ Length: _____

Diameter of Screen: 4" Length: 5' Slot size: #6

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 ☐ Driven ☐

Static water level in completed well (Distance from ground to water level) 30 ft.

Bailer Test: Hours tested 1 Rate 15 g.p.m. Drawdown _____ ft. (Difference between static level and water level at end of test)

Pumping Test: Hours tested _____ Rate _____ g.p.m. Drawdown _____ ft.

Signature Allen Matlock

Date 3/3/77

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

28

(Well Driller does not fill out)

COUNTY: MARION TWP. [redacted] non-responsive (Ex. 6)

Topo. Map: MAYWOOD 7½ Loc. accepted w/o verification Yes ✓ No ___

El. of grnd. surface at well: ___ Courthouse Loc. By ___ Date ___

Depth to bedrock: ___ Field Located By ___ Date ___

Well Log processed by: Bruss 3-15-77 Placed in Master Well Log File Date 3-15-77

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Top Soil	0	3
Clay	3	49
Gravel	49	57
Clay	57	63
Gravel	63	93
REMARKS:		

INSTRUCTIONS

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An accurate location of the well is equally as important as an accurate well log. Please include all information possible in the space provided for well location.

As specified in Chapter 6 of the Acts of 1959, a copy of this report must be submitted within thirty days after the completion of a well to the Division of Water Resources, Indiana Department of Conservation, 311 West Washington Street, Indianapolis, Indiana.

15 N 3 E

JN-2-68

SINGER

Layne NORTHERN COMPANY
INCORPORATED

INDIANAPOLIS • MISHAWAKA • LANSING

LF-N

☐ TEST
☐ PERMANENT

Job No. _____

WELL LOG No. _____ CITY Indpls. County _____

Owner USGS Township _____

Site J-1 Kentucky Ave Landfill Section _____

J-1

Location State _____

From Land Description west end of levee between lagoons 11 + 15

From Street or Road Indianapolis Southeast plant
200 Ft E of Eagle Creek - 1000 ft N. of Confluence with white River

FORMATION FOUND – DESCRIBE FULLY	FROM NATURAL GROUND LEVEL Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Sandy brown soil w/ gravel	0	4		
gray clay w/ sand, gravel + shit	4	23.5		
sand and gravel - with sludge	23.5	28		
good sand and gravel	28	57		
dark gray clay -	57	67		
gravel w/ clay	67	69		
dark gray clay	69	71		
gravel and sand	71	82		
clay (gray) w/ sand and gravel	82	84		
gray clay - hard pack	84	102		
white clay - weathered limestone	102	111		
black shale	111	—		
T/D 112				
BA 665 - 82 = 583				
ST 665 - 581 = 84				
T = 10,811 ft²/day				
K = 129 ft/day				

4.5 S+G
29 S+G
11 S+G

ELEV. 665
D/W 5
W/L 665
T=
44.5 x 1813
= 80,679
TBR 554

Hole 6 3/4 "Dia Drilled by: { Cable Tool _____ Rotary ✓ Jetting _____ Reverse Circ. _____ Bucket _____ Auger _____

Rotary Hole Grouted: Neat Cement _____ Drilling Mud _____ Other _____

Casing 2 "OD From 12 "above ground to 71 feet below ground. Weight _____ Pounds per foot

Screen 2 " Set from 71 to 73 feet Make _____ Type _____ Slot _____

Pumping test _____ GPM drawdown to _____ feet after _____ hours pumping

30

15N 3E NW NW NW ✓

SINGER

Layne NORTHERN COMPANY

INCORPORATED

INDIANAPOLIS • MISHAWAKA • LANSING

☐ TEST

☐ PERMANENT

Job No. _____

I-1

LF-3

WELL LOG No. _____ CITY Indianapolis County Marion

Owner USGS on City of Indianapolis property Township _____

Site I-1 Kentucky Ave Randolph Section _____

Location State _____

From Land Description 1000 NE of White River and Eagle Creek confluence

From Street or Road on levee between sludge ponds 11, 12, 15 and 16

	FORMATION FOUND – DESCRIBE FULLY	FROM NATURAL GROUND LEVEL Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
	clay w/ sand and gravel	0	14		
	sand and gravel with gray clay and sludge from lagoons	14	26		
16 S+G	good sand and gravel	26	42		
2 S	sand (coarse) - possibly w/ soft clay	42	44		
	sandy brown clay	44	48		
	gravelly brown clay	48	55		
1 G	gravel (heavy)	55	56		
	gray clay w/ sand and gravel	56	89		
	weathered white limestone w/ s+g	89			
	black-brown shale	113		—	
	BA 665 - 56 = 609				
	ELEV 665 ST = 51				
	D/W 5 K = 86 ft/day				
	W/L 660				
	T = 1 x 3081 + 2 x 320 + 16 x 1813				
	= 32,729 OR 4386 ft²/day				
	TBR 5/16				

Hole 6 3/4 "Dia Drilled by: { Cable Tool _____ Rotary ✓ Jetting _____ Reverse Circ. _____ Bucket _____ Auger _____

Rotary Hole Grouted: Neat Cement _____ Drilling Mud _____ Other _____

Casing 3 "OD From 1 "above ground to 91 feet below ground. Weight _____ Pounds per foot

Screen 3 " Set from 91 to 92 feet . Make _____ Type _____ Slot _____

Pumping test _____ GPM drawdown to _____ feet after _____ hours pumping

31

DIVISION OF WATER
DEPARTMENT OF NATURAL RESOURCES, STATE OF INDIANA
STATE OFFICE BUILDING
INDIANAPOLIS, INDIANA 46204
Telephone 633-5267 Area Code 317

WATER WELL RECORD

WELL LOCATION

(Fill in completely - Refer to instruction sheet)

County in which well was drilled Marion Civil Township

Driving directions to the well location: Include County Road Names, Numbers, Subdivision Name, lot number, distinctive landmark

non-responsive (Ex. 6)

NAM

Building Contractor Address

Name of Well Drilling Contractor: Manford Dean

Address 841 W. Sumner Ave

Name of Drilling Equipment Operator: Gerald Oakley

WELL INFORMATION

Depth of well: 92 Date well was completed: Dec 9-72

Diameter of casing or drive pipe: 4 Total Length: 92

Diameter of liner (if used): Total Length:

Diameter of Screen: 3 Length: 10 Slot Size: 30

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) 10 feet

Bailer Test: Hours Tested Rate g.p.m. Drawdown ft.

Pumping Test: Hours Tested 3 Rate 30 g.p.m. Drawdown 1/2 ft.

(Drawdown is the difference between static level and water level at end of test)

Signature Manford Dean

Date Nov 11-73

FOR WELL LOG SPACE USE REVERSE SIDE OF THIS SHEET

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Yellow clay	0	5
Yellow Gravel	5	33
Grey clay	33	38
Grey Sand	38	80
Sand + Gravel	80	92

COUNTY Madison

Topo Map Magnetrod 7.5

Field Located By _____ Date _____

Courthouse Location By _____ Date _____

Location accepted w/o verification by _____

[redacted]

non-responsive (Ex. 6)

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

_____ Ft W of EL.

_____ Ft N of SL.

_____ Ft E of WL.

_____ Ft S of NL.

Ground Elevation _____

Depth to bedrock _____

Bedrock elevation _____

Aquifer elevation _____

Subdivision Name _____

Lot Number _____

Fowler Well

33

IN-2-69

LAYNE-NORTHERN COMPANY

INCORPORATED

MISHAWAKA, INDIANA

PERMANENT

WELL LOG No. 7 City INDIANAPOLIS County MARION

Township ~~PERRY~~ CENTER

Owne [redacted]

Locat [redacted]

Location From Street or Road [redacted]

FORMATION FOUND	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM	STATIC WATER LEVEL	TEMP.	REMARKS
top soil	1	1			
yellow clay	4	5			
sand and gravel	5	10			
sand and gravel	4	14			coarse
clay	4	18			gritty
sand and gravel	7	25			
sand and gravel	5	30			coarse
sand and gravel	8	38			
medium sand	3	41	9		
sand and gravel	19	60			coarse from 55-60
2" well					
NOTE: This well drilled on Indianapolis Power & Light Company's Order No. 31786.					

Date Started Jan. 27, 1942 Finished Jan. 29, 1942 Ed. Rash.

DRILLER

(SKETCH OF LOCATION ON BACK OF THIS LOG SHEET)

34

LAYNE-NORTHERN COMPANY

INCORPORATED

MISHAWAKA, INDIANA

PERMANENT
WELL LOG No. T1 City INDIANAPOLIS County MARION

Township Perry

Owner INDIANAPOLIS POWER & LIGHT COMPANY Section 22

State INDIANA

Location of Well 147' NORTH OF PROPERTY LINE, 60' WEST OF CENTER LINE HARDING STREET.

FORMATION FOUND	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM	STATIC WATER LEVEL	TEMP.	REMARKS
top soil and clay	6	6			
fine sand	6	12			
sand and gravel	4	16			mixed with clay
coarse gravel	3	19			dirty
clay	13	32			hard
gravel	30	62			medium
gravelly clay	8	70			
coarse gravel	21	91	8'-6"		clean
Boulders	4	95			
shale	1	96			still in shale

Date Started Aug. 19, 1941 Finished Oct. 27, 1941

Jesse R. Witcher.
DRILLER

(SKETCH OF LOCATION ON BACK OF THIS LOG SHEET)

35

LAYNE-NORTHERN COMPANY

INCORPORATED

MISHAWAKA, INDIANA

Test
WELL LOG No. "S" City Indianapolis County Marion

Township Center

Owner Power & Light Co. Section 27

State Indiana

Location of Well Harding St. station—W. of Harding St. on S. line section 27.

FORMATION FOUND	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM	STATIC WATER LEVEL	TEMP.	REMARKS
Clay	14	14			
Sand and gravel	22	36			
Medium sand	10	46			
Sand and gravel	12	58			
Sand, gravel and clay	2	60			
Sand and gravel	7	67	9		Yield estimated at 80GPM
Sand, gravel and clay	2	69			per foot of drawdown
Sand and gravel	33	102	9		
Set Screen in main 6" test well 61' to top and 69' to bottom. Drilled					
pilot 1½" well ~~XX~~ C/L30" from main test well. Depth of pilot well 50' to					
bottom of screen, 2' long. Pumped from main well 50 GPM for 5 hours.					
Main ~~XXX~~ well had a drawdown of 19'.					
Pilot well had a drawdown of N 2".					
Probable source of inconsistent results is strip of clay at 60'					

Date Started Feb 12, '41 Finished Feb 20, '41 Gerald Quick

DRILLER

(SKETCH OF LOCATION ON BACK OF THIS LOG SHEET)

36

LAYNE-NORTHERN COMPANY
Incorporated
MISHAWAKA, INDIANA

JOB NO. C-5377.

TEST WELL LOG No. 2 CITY INDIANAPOLIS County MARION

Owner ILLINOIS CENTRAL SYSTEM Township PERRY

Section 26-T15N-R3E

non-responsive (Ex. 6)

[redacted]

FORMATION FOUND — DESCRIBE FULLY	FROM NATURAL GROUND LEVEL Depth to Top of Stratum	Depth to Bottom of Stratum	Thickness of Stratum	Static Water Level
Sandy Clay	1'	5'	5'	
Yellow Sand and Gravel	5'	15'	10'	12
Gray Sand and Gravel	15'	43'	28'	12
Clay and Sand and Gravel mixed	43'	47'	4'	12
Clay and fine sand	47'	55'	8'	12
Coarse Gravel	55'	98'	43'	12
Shale	98'	100'	2'	
W/L = 675				
W/L = 675				
W/L = TBR 577				
W/L = 3				
D/W 2				
ST 96				
T = [illegible] or 26,985 gal/day				
K = 281 ft/day				
~~T [illegible]~~				

6 inch diameter hole drilled by ☒ Cable Tool ☐ Rotary ☐ Jetting

Pipe left in hole

Date Started 4-7-47 Finished 4-9-47 C.W. RAYBURN. DRILLER

LAYNE-NORTHERN COMPANY

INCORPORATED

MISHAWAKA, INDIANA

PERMANENT

WELL LOG No. 2 City INDIANAPOLIS County MARION

Township ~~PERRY~~ CENTER

Owner ANNA AUDERNRIDE, ROUTE 20, BOX 840, SOUTHERN ROAD, INDIANAPOLIS, INDIANA.

Section 27-21N-3E

State INDIANA

Location—From Land Description AT MARKET HOUSE - BOILER ROOM.

Location—From Street or Road

FORMATION FOUND	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM	STATIC WATER LEVEL	TEMP.	REMARKS
top soil and clay	4	4			
dry gravel	9	13			
blue clay	10	23			
sand and gravel	2	25			coarse
clay	1	26			
sand and gravel	24	50	13		medium yellow colored
sand and gravel	10	60	13		light colored, med. sand
clay					
NOTE: Drilled on Indianapolis Power & Light Company Order No. 31786.					

Date Started 2/13/42 Finished 2/21/42

Edward Nash.

DRILLER

38

WATER WELL LOG

FORMATIONS (Color, type of material, hardness, etc.)	From	To
Yellow clay	0	5
Gravel 65 G	5	75
Grey Shale	75	90
Black shale or Slate	90	100

680
90 Top ?
590 N.A. Shale
65 est
Does not look very good
21-9-93
680
25
655 Sh

GLE = 675
− 75
Top Shale 600 BA

6.50 / 3.5

REMARKS:
graphic log

ELEV. 675
D/W 10
W/L 665

SIF 65
K = 4.13 ft/day
T = 65×308.1 = 200,265 OR 26,836 ft²/day

COUNTY: Marion TWP. 15N RGE. 3E SE ¼ SE ¼ NW ¼ SEC. 27

Topo Map: Maynard 7½

Well log classified By — Date —
Courthouse located By — Date —
Field located By [illegible] Date [illegible]
Acc. w/o verification By [illegible] Date 7-17-75

2805 Ft W of EL. Ground elevation 675+
2875 Ft N of SL. Depth to bedrock —
Ft E of WL. Bedrock elevation —
Ft S of NL. Aquifer elevation —

FOR ADMINISTRATIVE USE ONLY
(Well driller does not fill out)

INSTRUCTIONS

This Water Well Record form is designed to record the most essential data concerning a water well. We request that you be as accurate as possible in recording this information as it may be of great assistance in the planning and development of new water supplies.

An accurate location of the well is equally as important as an accurate well log. Please include all information possible in the space provided for well location.

As specified in Chapter 6 of the Acts of 1959, a copy of this report must be submitted within thirty days after the completion of a well to the Division of Water