



**CLIFF BERRY, INC.**

Environmental Services  
Waste Petroleum & Water Removal  
Emergency Oil Spill Response

P.O. Box 13079, Port Everglades Station, Fort Lauderdale, Florida 33316 • (305) 763-3390

(3)

**SITE ASSESSMENT REPORT:**

Return to the 2nd Floor  
MAIN FILE ROOM

March 28, 1996

**CLEANUP SECTION**

Florida Dept. of Environmental Protection  
P. O. Box 15425  
West Palm Beach, FL 33416

ATTENTION: Paul Wierzbicki

RECEIVED  
APR 1 1996  
DEPT OF ENV PROTECTION  
WEST PALM BEACH

Dear Paul:

Included here for your review is the completed IRA report for the following project:

American Land Housing Group  
Vacant Lot at N.E. intersection of Cypress Creek Rd. & FL Turnpike

If you should have any questions, please feel free to call me at 1-800-899-7745.

Respectfully submitted,

CLIFF BERRY, INC.

Donald Church  
Manager

Miami

Fort Lauderdale

Fort Pierce

INITIAL REMEDIAL ACTION

FOR

AMERICAN LAND  
VACANT LAND LOCATED NORTHEAST OF THE INTERSECTION  
OF CYPRESS CREEK ROAD AND THE FLORIDA TURNPIKE  
FT. LAUDERDALE, FLORIDA

PROJECT NUMBER: 624903

SUBMITTED TO:

MR. BERNIE DEVLIN  
CLIFF BERRY, INC.  
P.O. BOX 13079  
PORT EVERGLADES STATION  
FT. LAUDERDALE, FLORIDA 33316

RECEIVED  
APR 1 1996  
DEPT OF ENV PROTECTION  
WEST PALM BEACH

SUBMITTED BY:

U.S. ENVIRONMENTAL GROUP, INC.  
2301 N.W. 33RD COURT, SUITE 115  
POMPANO BEACH, FLORIDA 33069  
(305) 979-3400

MARCH, 1996

PREPARED BY:

  
*Brant J. Muekeley*  
BRANT J. MUEKELEY  
ENVIRONMENTAL ENGINEER

REVIEWED BY:

*John C. Baeringer*  
JOHN C. BAERINGER, P.G.  
SENIOR GEOLOGIST  
LICENSE NO. 0001208  
DATE: 3/26/96

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## 1.0 INTRODUCTION

On March 18, 1996, U.S. Environmental Group, Inc. (USEG) and Cliff Berry, Inc. (CBI) began an Initial Remedial Action (IRA) on a localized area of hydrocarbon impacted soil near the intersection of Cypress Creek Road and the Florida Turnpike, Ft. Lauderdale, Florida. A site location map is included in **Attachment 1**. The IRA was initiated in response to the discovery of impacted soils during a subsurface investigation. Suspected diesel products had impacted the soils adjacent to monitoring well No. 1 (MW-1) see Site Plan, (**Attachment 2**).

The IRA documented by USEG consisted of the excavation of 1657.7 tons of diesel impacted soil, which was properly disposed of at a thermal treatment facility. The IRA Report Form, required by the regulatory agency for the excavation and disposal of hydrocarbon impacted soil, is included in **Appendix A**.

## 2.0 INITIAL REMEDIAL ACTION

On March 18 through 21, 1996, USEG personnel collected soil samples from the impacted area as the soils were being excavated by CBI personnel. Sixteen (16) ounce glass jars were half-filled with the soil, covered with aluminum foil and allowed to equilibrate. The headspace of each sample was analyzed in the field using an organic vapor analyzer (OVA), equipped with a flame ionization detector (FID). Since diesel fuel was the suspected source of soil impact, an OVA/FID reading of 50 ppm was used as the limit for "excessively impacted soil" in accordance with the FDEP Guidelines for Assessment and Remediation of Petroleum Contaminated Soil.

Prior to analysis, the OVA/FID was zeroed with the atmosphere and calibrated using 100 ppm methane gas. Soils were excavated horizontally and vertically within the impacted area until soil samples were obtained that verified all "excessively" impacted soil had been removed.

The soil sample locations are illustrated in **Attachment 3**. Throughout excavation, the top six (6) to eight (8) feet of soil below grade level (BGL) did not exhibit excessive OVA readings. The "clean" soil was removed and stockpiled separately from the excessively impacted soil. Impacted soil was excavated horizontally until OVA/FID readings of less than 50 ppm were obtained, and vertically until the water table was encountered. The water table was encountered at approximately 16 feet BGL during the excavation. The final dimensions of the excavation were: 55 feet in length, 50 feet in width, and 15.5 feet in depth (average depth). The OVA/FID readings verified that all soil removed from the site for disposal was excessively impacted.

OVA/FID results from the soil excavation are summarized in **Table 1**. The soil incineration profile laboratory results of the excavated soils is provided in **Appendix B**. The soils were disposed of by incineration at Rinker Materials Corporation in Miami, Florida. Soil disposal manifests are provided in **Appendix C**.

A professional land survey of the site and a proposed building illustration showing the approximate location of the excavation have been included in **Appendix D**. As indicated in the survey, the excavation area is not located beneath any of the proposed buildings.

**Table 1**  
**OVA/FID Readings (3/18/96 - 3/21/96)**

Sample No.	Depth (ft)	Results* (ppm)
1	1.0	0
	3.0	0
	10.0	75
2	1.0	0
	3.0	0
	10.0	60
3	1.0	0
	3.0	0
	10.0	65
4	8.0	10
5	10.0	65
6	8.0	210
	10.0	290
7	8.0	25
	10.0	950
8	8.0	0
	10.0	460
9	10.0	260
10	8.0	20
	10.0	20
	12.0	50
11	8.0	50
12	8.0	18
	10.0	35
13	10.0	240
14	7.0	900
	14.0	330
15	9.0	950
16	8.0	930

**Table 1**  
**OVA/FID Readings (3/18/96 - 3/21/96)**

Sample No.	Depth (ft)	Results* (ppm)
17	9.0	260
	12.0	170
18	12.0	100
19	12.0	220
20	8.0	4
	10.0	12
	12.0	15
21	10.0	20
	12.0	10
22	10.0	1200
	12.0	110
23	8.0	40
	10.0	20
	12.0	15
24	8.0	77
25	10.0	1800
26	6.0	0
	10.0	60
27	11.0	230
28	11.0	80
27	14.0	450
28	6.0	40
29	8.0	48
	11.0	15
30	10.0	110
	12.0	120
31	11.0	40
32	10.0	1100
33	11.0	1200

**Table 1**  
**OVA/FID Readings (3/18/96 - 3/21/96)**

Sample No.	Depth (ft)	Results* (ppm)
34	8.0	300
35	8.0	470
	10.0	200
36	8.0	310
	12.0	800
37	10.0	10
	12.0	15
38	10.0	420
	12.0	420
39	10.0	40
	12.0	45
40	10.0	20
	12.0	25
41	12.0	340
	14.0	110
42	12.0	340
43	4.0	40
	12.0	460
	16.0	1500
44	10.0	110
45	12.0	130
46	12.0	210
47	12.0	36
	14.0	64
48	12.0	70
49	12.0	30
	14.0	55
50	14.0	1400

**Table 1**  
**OVA/FID Readings (3/18/96 - 3/21/96)**

Sample No.	Depth (ft)	Results* (ppm)
51	12.0	60
	14.0	210
52	10.0	9
	12.0	20
53	10.0	35
	12.0	47
54	8.0	18
	10.0	20
	12.0	19
55	10.0	10
	12.0	16
	15.0	28
56	8.0	84
	12.0	23
57	12.0	20
58	12.0	15
59	10.0	5
	14.0	14
60	10.0	0
	12.0	4
61	12.0	31
	14.0	43
62	12.0	76
63	10.0	12
	12.0	18
64	10.0	16
	12.0	32
65	8.0	13
	12.0	46



**Table 1**  
**OVA/FID Readings (3/18/96 - 3/21/96)**

Sample No.	Depth (ft)	Results* (ppm)
66	8.0	6
	12	69
67	10.0	38
	12.0	40
68	10.0	20
	12.0	25
69	8.0	19
	10.0	140
70	8.0	19
	10.0	69
71	6.0	46
	10.0	430
72	7.0	240
	10.0	390
73	8.0	32
	10.0	34
	12.0	40
74	10.0	45
	12.0	38
75	8.0	25
	10.0	26
	12.0	32
76	8.0	32
	10.0	42
	12.0	35
77	10.0	900
78	8.0	18
	10.0	1100

**Table 1**  
**OVA/FID Readings (3/18/96 - 3/21/96)**

Sample No.	Depth (ft)	Results* (ppm)
79	8.0	43
	10.0	120
	14.0	110
80	8.0	39
	10.0	80
81	8.0	23
	14.0	310
82	8.0	244
	10.0	110
83	8.0	40
	10.0	47
	12.0	45
84	8.0	65
	10.0	75
85	8.0	210
	10.0	160
86	8.0	189
	10.0	105
87	8.0	46
	10.0	47
88	8.0	55
	10.0	22
89	8.0	40
	10.0	246
	12.0	128
90	8.0	75
	10.0	66
91	8.0	210
	10.0	130

**Table 1**  
**OVA/FID Readings (3/18/96 - 3/21/96)**

Sample No.	Depth (ft)	Results* (ppm)
92	6.0	25
	8.0	22
	10.0	32
93	8.0	34
	10.0	40
94	8.0	34
	10.0	42
	12.0	30
95	8.0	25
	10.0	6
	12.0	13
96	8.0	8
	10.0	11
	12.0	15
97	8.0	20
	10.0	16
	12.0	40
98	12.0	1300
99	12.0	130
100	10.0	68
101	10.0	100
	12.0	195
102	10.0	740
	12.0	720
103	10.0	350
	14.0	165
104	12.0	150
105	10.0	48
106	10.0	48

**Table 1**  
**OVA/FID Readings (3/18/96 - 3/21/96)**

Sample No.	Depth (ft)	Results* (ppm)
107	12.0	47
108	10.0	20
	12.0	10
109	10.0	3
	12.0	8
110	8.0	6
	10.0	12
	12.0	22
111	10.0	195
112	10.0	16
	12.0	12
113	10.0	4
	12.0	2
114	12.0	110
115	10.0	16
	12.0	12
116	10.0	32
	12.0	45
117	12.0	155
118	8.0	2
	10.0	5
	12.0	4
119	8.0	200
120	10.0	73
121	8.0	4
	10.0	16
	12.0	24
122	10.0	22
	12.0	40

Table 1 OVA/FID Readings (3/18/96 - 3/21/96)		
Sample No.	Depth (ft)	Results* (ppm)
123	10.0	0
	12.0	8
124	10.0	0
	12.0	0
125	10.0	15
	12.0	17
	14.0	23
126	8.0	7
	10.0	4
	12.0	13
127	8.0	18
	12.0	18
128	8.0	40
	12.0	37
129	12.0	47
	14.0	45
130	8.0	17
	10.0	43
	12.0	44
131	10.0	2
	12.0	6
132	8.0	16
	10.0	22
	12.0	46

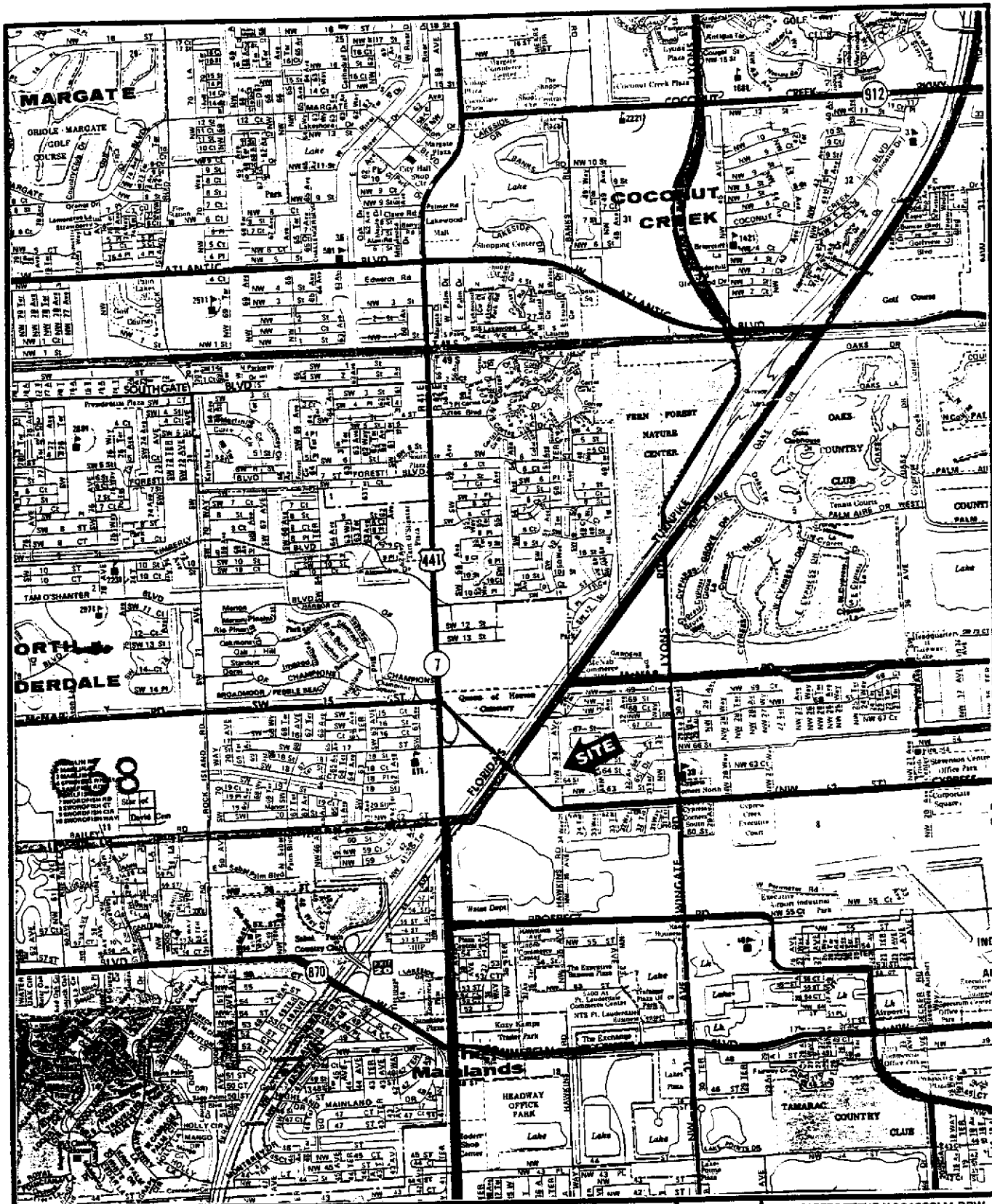
\* Note: All readings have been corrected for methane content.

### 3.0 CONCLUSIONS

Due to the discovery of suspected diesel impacted soils during a subsurface investigation at the subject site, an Initial Remedial Action (IRA) was performed which involved the excavation of 1657.7 tons of suspected diesel impacted soil. The soils were excavated horizontally and vertically until acceptable OVA readings were obtained indicating that all "excessively impacted" soils from the impacted area had been removed. The groundwater table was encountered at approximately 16 feet below grade level during the excavation.

Based on these conclusions, it is recommended that a groundwater sample be collected from the monitoring well located just west of the excavation (MW-2) to evaluate groundwater quality conditions down gradient of the excavation area. Additionally, a groundwater monitoring well should be installed in the center of the excavation area to evaluate the groundwater quality in the source area. These groundwater samples should be analyzed using EPA Method 602 and 610.

ATTACHMENTS



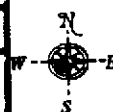
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ENVIRONMENTAL  
GROUP, INC.



# **SITE LOCATION MAP**

SCALE: 1.5 INCHES = 1 MILE

SUSPECT DIESEL IMPACTED SOILS  
NE OF THE CYPRESS CREEK ROAD AND  
THE FLORIDA TURNPIKE INTERSECTION  
FT. LAUDERDALE, FLORIDA

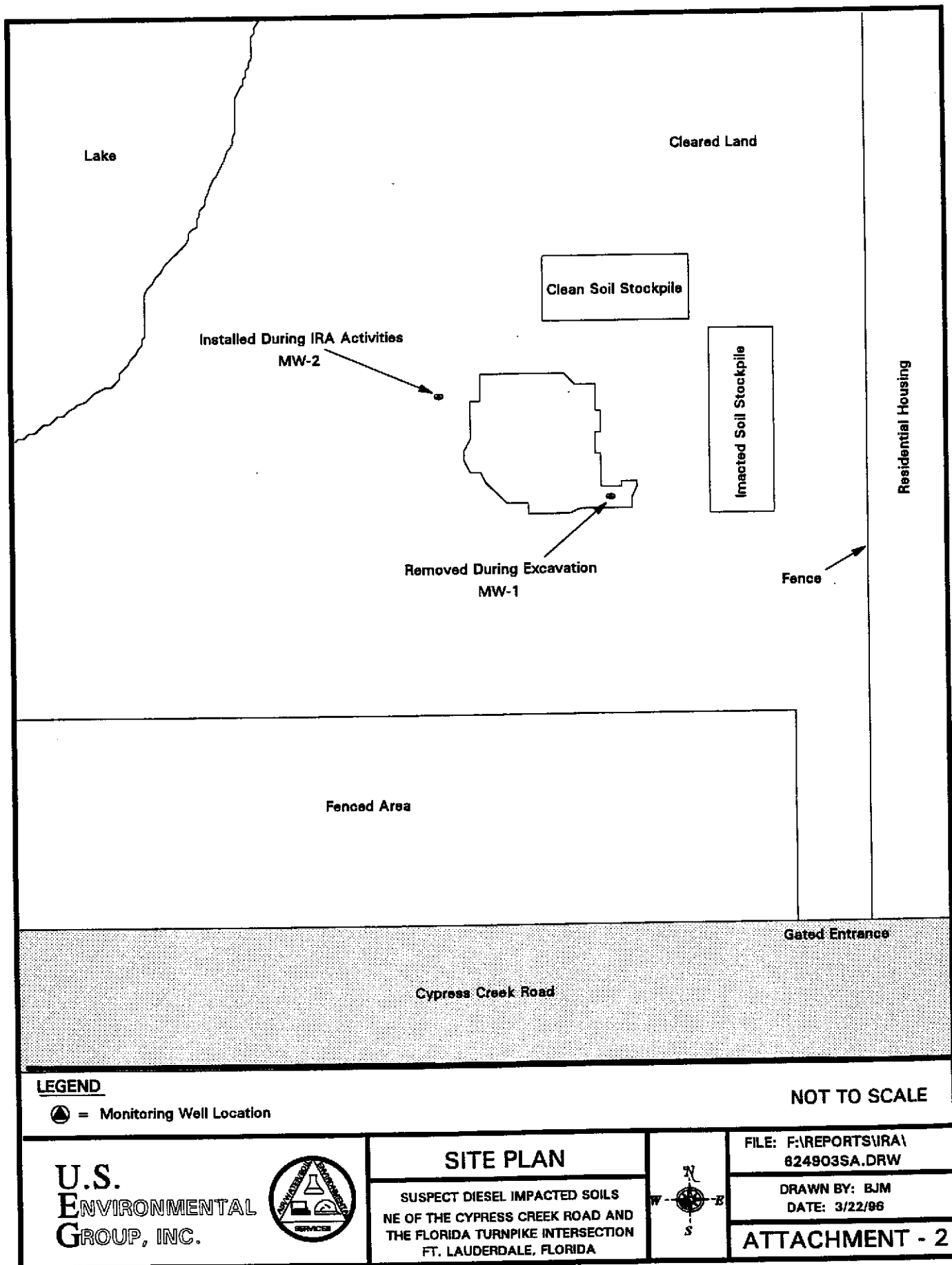


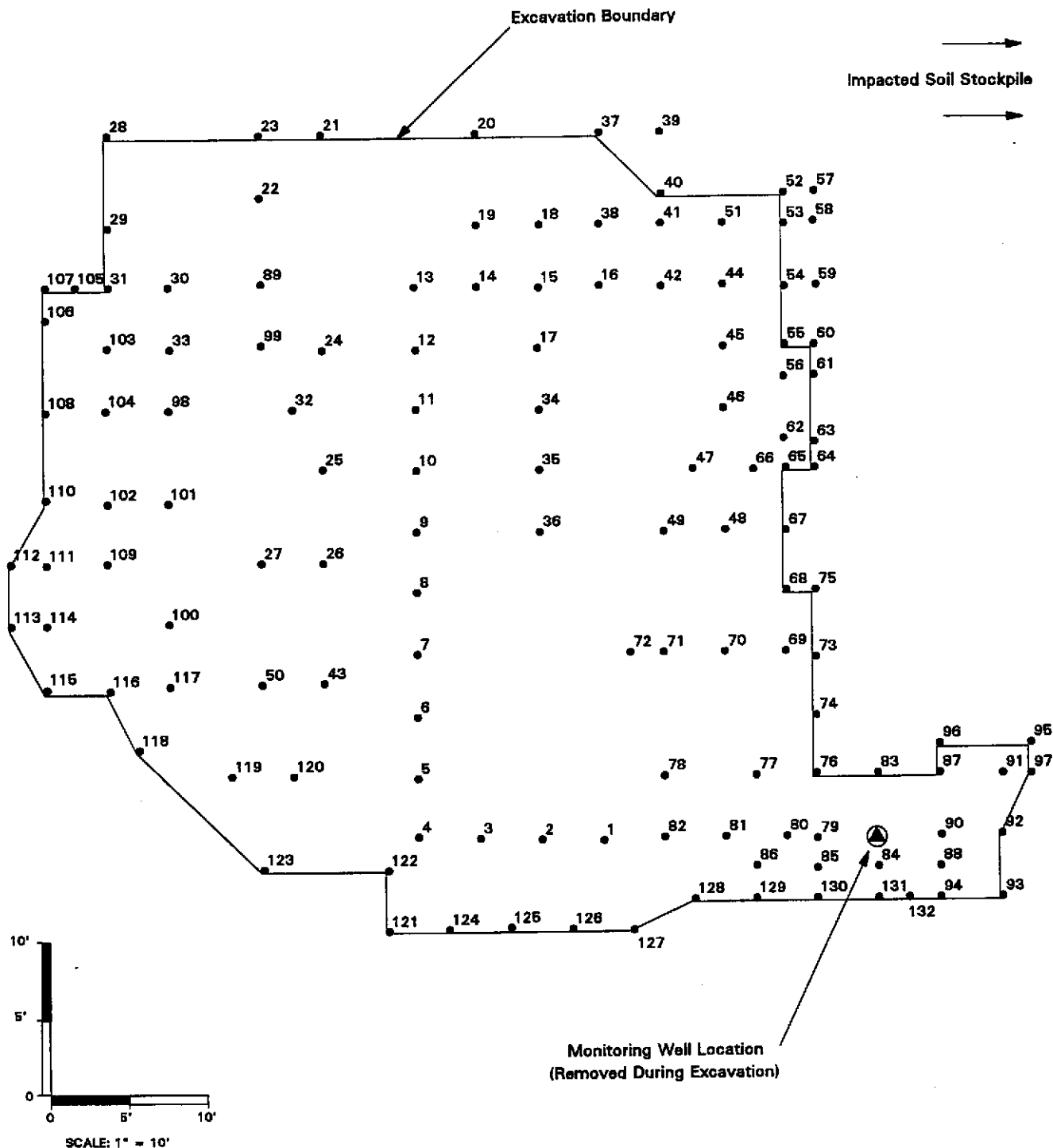
FILE: F:\REPORTS\NRA\624903\LM.DRW

SOURCE:  
MAP OF METROPOLITAN  
BROWARD COUNTY  
DOLPH MAP CO. INC. 1990

**ATTACHMENT - 1**







#### LEGEND

● = Soil Sample Location

1 = Soil Sample Number

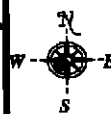
⊙ = Monitoring Well Location

**U.S.  
ENVIRONMENTAL  
GROUP, INC.**



#### SOIL SAMPLE LOCATION MAP

SUSPECT DIESEL IMPACTED SOILS  
NE OF THE CYPRESS CREEK ROAD AND  
THE FLORIDA TURNPIKE INTERSECTION  
FT. LAUDERDALE, FLORIDA



FILE: F:\REPORTS\IRA\  
624903SP.DRW

DRAWN BY: BJM  
DATE: 3/22/96

**ATTACHMENT - 3**

APPENDIX A
IRA REPORT FORM

**PETROLEUM CONTAMINATION  
INITIAL REMEDIAL ACTION REPORT FORM**

An Initial Remedial Action report, summarizing the initial remedial action (IRA), should be prepared to satisfy the requirements of Chapters 17-770.630 (1) 14; 17-773.500 (1) (a) 4; and 17-773.500 (2) (a) 4, Florida Administrative Code, (FAC). This form may be used for the IRA report. The report should be sent to the appropriate local program and:

**FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION  
BUREAU OF WASTE CLEAN-UP  
ENGINEERING SUPPORT SECTION  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32399-2400**

**I. FACILITY NAME:** American Land

Facility Address: 45 acres of vacant land northeast of the intersection of  
Cypress Creek Road and the Florida Turnpike

DER Facility Number (if applicable): N/A

Date IRA Initiated: 03/18/96

Date IRA Completed: 03/21/96

**II. FREE PRODUCT RECOVERY**

A. Type(s) of Product Discharged: Suspected Diesel Fuel

B. Quantity

1. Estimated Gallons Lost: Unknown

2. Gallons Recovered: N/A

3. Attach Exhibit Indicating Amount of Product Recovered, Dates and Cumulative Totals. N/A

C. Attach a Scaled Site Plan, Indicating the Locations and Product Thickness in Wells, Boreholes, Excavations, or Utility Conduits and Wells Utilized for Recovery of Free Product. N/A

D. Method of Product Recovery: N/A

E. Type of Discharge During Product Recovery: N/A

F. Type of Treatment, i.e., Oil/Water Separator: N/A

G. Attach Written Proof of Proper Disposal of Recovered Product: N/A

### III. SOIL EXCAVATION

NOTE: Soil shall be defined as excessively contaminated using the procedure stated in Chapter 27-770.200 (2), FAC. Representative soil sampling shall be performed as close to the time of excavation as possible, but at no time shall exceed three (3) months prior to the start of excavation. Stockpiled soils greater than thirty (30) days on site waiting for treatment and disposal, must be re-sampled immediately prior to disposal to assure soils are still excessively contaminated.

If soil sampling data indicates that the amount of soil that is excessively contaminated exceeds 1500 cubic yards, treatment of all excessively contaminated soil at the site shall be addressed in a remedial action plan, and no soil IRA activities shall be performed except for the removal of soils in the immediate vicinity of the tanks.

Only soil above the ambient water table at the time of excavation can be considered as excessively contaminated soil.

Unless the established weight per unit volume of 1.4 tons/cubic yard (as referenced in FAC rule 17-775) is used for the excavated soil, the weight per unit volume must be determined by a field test (in which an accurately measured volume of soil is weighted) at the time of excavation.

- A. Volume of Contaminated Soil Excavated in Cubic Yards: Approximately 1185

Dimensions Including Depth of Excavation(s):  
Approximately 55 ft in length X 50 ft in width X 11.6 ft in depth

NOTE: Attach written proof from the Department in the form of an Alternate Procedure Approval Order authorizing excavating over 1500 cubic yards if applicable. Authorization must be prior to the excavation of soils.

- B. Type(s) of Product in Soil: Suspected diesel fuel

- C. Depth (ft) to Ambient Groundwater at the Time of Excavation(s):  
Approximately 16 ft

- D. Did Dewatering (i.e. groundwater depression) Occur at Time of Excavation?: No

- E. Type of Instrument and Method Used to Determine Excessive Soil Contamination:  
Used an OVA/FID, and a reading of 50 ppm as the lower level of delineation for excessive soil contamination.

F. Attach a table that compares the OVA-FID readings taken with charcoal filter verses readings without filter. Include vertical depths for each sample.  
See Table 1

G. Using the OVA procedure for defining excessively contaminated soil as referenced in Rule 17-770.200 (2), FAC, include a scaled site plan with the information listed below:

1. Location of excavation, old tank farm, dispensers, and product lines, present tank farm, and all soil samples. The corresponding OVA-FID readings for each soil sample (with charcoal filter and without) and its depth must be given. See Attachment 3 and Table 1

2. Sampling procedure is as follows:

Start sampling in a location where it is suspected that excessively contaminated soil exists. Sample from the first soil boring outward in a grid pattern, at five (5) to ten (10) foot intervals, until the perimeter of the excessively contaminated soil plume is defined. Vertical sampling should be performed starting approximately at the initial area of contamination and continued at three (3) foot intervals, or fraction thereof, until a depth of approximately one (1) foot above the water table is reached.

H. Copies of Laboratory Analyses for Pre Treatment Soil Samples as Required in Chapter 17-775.410 (3), Table II, FAC Must be Attached.  
See Appendix B

I. Were Tanks Replaced at this Site?: N/A

#### IV. SOIL TREATMENT AND DISPOSAL

A. Method of Treatment of Excessively Contaminated Soil:  
Thermal Treatment

B. For Off Site Treatment and Disposal at Permitted STTF, Land Farms, or Landfills Attach Documentation From the Treatment Facility Which Confirms the Weight or Volume of Soil Treated and Date Received. See Appendix C

For Other Treatment and Disposal Methods (i.e., On-Site Land Farming, Bioremediation), Attach Post Treatment Laboratory Analyses for Each 250 - 300 Cubic Yards of Treated Soil in Accordance with Chapter 17-775.400 and the "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils", Edition February 1991 or Most Current Revision.

For Mobile Thermal Treatment Units, Attach Laboratory Analysis per Chapter 17-775 (5), FAC.

- C. Method of Disposal of Contaminated Soil and Indicate Recipient and Address:  
**Thermal Treatment:** Rinker Materials Corp.  
1200 N.W. 137th Avenue  
Miami, FL 33182

V. ADDITIONAL COMMENTS

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Brant J. Muekeley

\_\_\_\_\_  
Person Completing Form

Brant J. Muekeley 3/25/96  
Signature, Date

Environmental Engineer  
US ENVIRONMENTAL GROUP, INC

\_\_\_\_\_  
Title, Affiliation

**APPENDIX B**

**SOIL INCINERATION PROFILE LABORATORY RESULTS**



# All State Engineering and Testing Consultants, Inc.

TESTING LABORATORIES • ENGINEERS • INSPECTION SERVICES • CHEMISTS • DRILLING • ENVIRONMENTAL SERVICES

## EPA Method 8010: Purgeable Halocarbons

ERS LAB ID. # E-86198

Client:	American Housing Group		
Address:	65 N. W. 168th Street, N. Miami Beach, FL 33169		
Project:	Forest Lakes		
Address:	Cypress Creek Rd & Turnpike		
Matrix:	Soil		
Sampling Date:	02/06/96	Collected By:	Rahimi
Analysis Date:	02/07/96 to 02/09/96	Analysis By:	F.A.
Report Date:	02/12/96	Sample ID #:	1098-638
Location:	Boring Holes #1		

Compounds	B H #1	DL	Units
Bromodichloromethane	BDL	0.050	mg/Kg
Bromoform	BDL	0.050	mg/Kg
Bromomethane	BDL	0.050	mg/Kg
Carbon tetrachloride	BDL	0.050	mg/Kg
Chlorobenzene	BDL	0.050	mg/Kg
Chloroethane	BDL	0.050	mg/Kg
Chloroform	BDL	0.050	mg/Kg
2-Chloroethoxyethyl ether	BDL	0.050	mg/Kg
Chloromethane	BDL	0.050	mg/Kg
Dibromochloromethane	BDL	0.050	mg/Kg
1,2-Dichlorobenzene	BDL	0.050	mg/Kg
1,3-Dichlorobenzene	BDL	0.050	mg/Kg
1,4-Dichlorobenzene	BDL	0.050	mg/Kg
Dichlorodifluoromethane	BDL	0.050	mg/Kg
1,1-Dichloroethane	BDL	0.050	mg/Kg
1,2-Dichloroethane	BDL	0.050	mg/Kg
1,1-Dichloroethane	BDL	0.050	mg/Kg
trans-1,2-Dichloroethane	BDL	0.050	mg/Kg
1,2-Dichloropropane	BDL	0.050	mg/Kg
cis-1,3-Dichloropropene	BDL	0.050	mg/Kg
trans-1,3-Dichloropropene	BDL	0.050	mg/Kg
Methylene chloride	BDL	0.050	mg/Kg
1,1,2,2-Tetrachloroethane	BDL	0.050	mg/Kg
Tetrachloroethene	BDL	0.050	mg/Kg
1,1,1-Trichloroethane	BDL	0.050	mg/Kg
1,1,2-Trichloroethane	BDL	0.050	mg/Kg
Trichloroethene	BDL	0.050	mg/Kg
Trichlorofluoromethane	BDL	0.050	mg/Kg
Vinyl chloride	BDL	0.050	mg/Kg

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully Submitted,

*[Signature]*  
 F. A. Rahimi  
 Chemist

3745 N.W. 30th STREET / MIAMI, FLORIDA 33142  
 P.O. BOX 110066, MIAMI, FLORIDA 33101 PHONE: (305) 694-5812-33

# All State Engineering and Testing Consultants, Inc.

TESTING LABORATORY - ENGINEERS - INSPECTION SERVICES - SURVEYS - DRILLING - ENVIRONMENTAL SERVICES

## EPA Method 8020: Purgeable Aromatics

HRS LAB ID. # E-86198


<b>Client:</b>	American Housing Group		
<b>Address:</b>	65 N. W. 168th Street., N. Miami Beach, FL 33169		
<b>Project:</b>	Forest Lakes		
<b>Address:</b>	Cypress Creek Rd & Turnpike		
<b>Matrix:</b>	Soil.		
<b>Sampling Date:</b>	02/06/96	<b>Collected By:</b>	Rahimi
<b>Analysis Date:</b>	02/08/96	<b>Analysis By:</b>	F.A.
<b>Report Date:</b>	02/12/96	<b>Sample ID #:</b>	1098-638
<b>Location:</b>	Boring Holes #1		

Compound.	B H #1	DL	Units
Benzene	BDL	0.050	mg/Kg
Chlorobenzene	BDL	0.050	mg/Kg
1,2-Dichlorobenzene	BDL	0.050	mg/Kg
1,3-Dichlorobenzene	BDL	0.050	mg/Kg
1,4-Dichlorobenzene	BDL	0.050	mg/Kg
Ethylbenzene	BDL	0.050	mg/Kg
MTBE	BDL	0.050	mg/Kg
Toluene	BDL	0.050	mg/Kg
Total Xylene	BDL	0.050	mg/Kg

DL: Detection Limit      BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully submitted,

  
Farhana Abbasi  
Chemist

**All State Engineering and Testing Consultants, Inc.**

TESTING LABORATORIES • ENGINEERS • INSPECTION SERVICES • CHEMISTS • DREDGING • ENVIRONMENTAL SERVICES

**Chemical Analysis Report**

HRS LAB I.D. # E-86198

<b>Client:</b>	American Housing Group		
<b>Address:</b>	65 N. W. 168th Street., N. Miami Beach, FL 33169		
<b>Project:</b>	Forest Lakes		
<b>Address:</b>	Cypress Creek Rd & Turnpike		
<b>Matrix:</b>	Soil		
<b>Sampling Date:</b>	02/06/96	<b>Collected By:</b>	Rahimi
<b>Analysis Date:</b>	02/07/96 to 02/09/96	<b>Analysis By:</b>	F.A.
<b>Report Date:</b>	02/12/96	<b>Sample ID #:</b>	1098-538
<b>Location:</b>	Boring Holes #1		


Parameter.	Method	B H #1	DL	Units	Analysis Date
Arsenic.	7062	BDL	0.005	mg/L	02/09/96
Barium.	7080	BDL	0.100	mg/L	02/08/96
Cadmium	7130	BDL	0.005	mg/L	02/07/95
Chromium.	7190	BDL	0.050	mg/L	02/07/96
Lead.	7420	BDL	0.050	mg/L	02/07/96
Mercury.	7471	BDL	0.001	mg/L	02/08/96
Selenium.	7742	BDL	0.002	mg/L	02/09/96
Silver.	7760	BDL	0.010	mg/L	02/07/96
Sodium	7770	BDL	0.020	mg/L	02/09/96
Potassium	7610	BDL	0.010	mg/L	02/08/96
Total Halides	9020	1.27	1.0	mg/Kg	02/09/96
Total Chloride	9252	1.07	0.1	mg/Kg	02/09/96
TRPH	9073	4.08	0.100	mg/Kg	02/08/96

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully submitted,

  
Farhana Abbasi  
Chemist

3745 N.W. 50th STREET / MIAMI, FLORIDA 33142  
P.O. BOX 110066, HIALEAH, FLORIDA 33010. PHONE: (305) 638-5882-83



**All State Engineering and Testing Consultants, Inc.**

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**EPA Method 8020: Purgeable Aromatics**

HRS LAB ID. # E-86198

<b>Client:</b>	American Housing Group		
<b>Address:</b>	65 N. W. 168th Street., N. Miami Beach, FL 33169		
<b>Project:</b>	Forest Lakes		
<b>Address:</b>	Cypress Creek Rd & Turnpike		
<b>Matrix:</b>	Soil		
<b>Sampling Date:</b>	02/06/96	<b>Collected By:</b>	Rahimi
<b>Analysis Date:</b>	02/08/96	<b>Analysis By:</b>	F.A.
<b>Report Date:</b>	02/12/96	<b>Sample ID #:</b>	1098-639
<b>Location:</b>	Boring Holes #2		


Compound.	B H #2	DL	Units
Benzene	BDL	0.050	mg/Kg
Chlorobenzene	BDL	0.050	mg/Kg
1,2-Dichlorobenzene	BDL	0.050	mg/Kg
1,3-Dichlorobenzene	BDL	0.050	mg/Kg
1,4-Dichlorobenzene	BDL	0.050	mg/Kg
Ethylbenzene	0.182	0.050	mg/Kg
MTBE	BDL	0.050	mg/Kg
Toluene	1.086	0.050	mg/Kg
Total Xylene	0.350	0.050	mg/Kg

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully submitted,

  
Farhana Abbasi  
Chemist

**All State Engineering and Testing Consultants, Inc.**

TESTING LABORATORIES • ENGINEERS • INSPECTION SERVICES • CHEMISTS • DRILLING • ENVIRONMENTAL SERVICES

**Chemical Analysis Report**

HRS LAB ID. # E-86198

<b>Client:</b>	American Housing Group		
<b>Address:</b>	65 N.W. 168th Street., N. Miami Beach, FL 33169		
<b>Project:</b>	Forest Lakes		
<b>Address:</b>	Cypress Creek Rd & Turnpike		
<b>Matrix:</b>	Soil		
<b>Sampling Date:</b>	02/06/96	<b>Collected By:</b>	Rahimi
<b>Analysis Date:</b>	02/07/96 to 02/09/96	<b>Analysis By:</b>	F.A.
<b>Report Date:</b>	02/12/96	<b>Sample ID #:</b>	1098-639
<b>Location:</b>	Boring Holes #2		

Parameter.	Method	B H #2	DL	Units	Analysis Date
Arsenic.	7062	BDL	0.005	mg/L	02/09/96
Barium.	7080	BDL	0.100	mg/L	02/08/96
Cadmium	7130	BDL	0.005	mg/L	02/07/95
Chromium.	7190	BDL	0.050	mg/L	02/07/96
Lead.	7420	BDL	0.050	mg/L	02/07/96
Mercury.	7471	BDL	0.001	mg/L	02/08/96
Selenium.	7742	BDL	0.002	mg/L	02/09/96
Silver.	7760	BDL	0.010	mg/L	02/07/96
Sodium	7770	BDL	0.050	mg/L	02/09/96
Potassium	7610	0.074	0.050	mg/L	02/08/96
Total Halides	9020	3.16	1.0	mg/Kg	02/09/96
Total Chloride	9252	2.04	0.1	mg/Kg	02/09/96
TRPH	9073	12.58	0.100	mg/Kg	02/08/96

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully submitted,

*Fathana Abbasi*  
Fathana Abbasi  
Chemist

3745 N.W. 50th STREET / MIAMI, FLORIDA 33143  
P.O. BOX 110066, HALLAND BEACH, FLORIDA 33010. PHONE: (305) 432-5122-23

**All State Engineering and Testing Consultants, Inc.**

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**EPA Method 8010: Purgeable Halocarbons**

HHS LAB ID. # E-36198

<b>Client:</b>	American Housing Group		
<b>Address:</b>	65 N. W. 168th Street, N. Miami Beach, FL 33169		
<b>Project:</b>	Forest Lakes		
<b>Address:</b>	Cypress Creek Rd & Turnpike		
<b>Matrix:</b>	Soil		
<b>Sampling Date:</b>	02/06/96	<b>Collected By:</b>	Rahimi
<b>Analysis Date:</b>	02/07/96 to 02/09/96	<b>Analysis By:</b>	P.A.
<b>Report Date:</b>	02/12/96	<b>Sample ID #:</b>	1098-641
<b>Location:</b>	Boring Holes #4		


Compounds	B H #4	DL	Units
Bromodichloromethane	BDL	0.050	mg/Kg
Bromoform	BDL	0.050	mg/Kg
Bromomethane	BDL	0.050	mg/Kg
Carbon tetrachloride	BDL	0.050	mg/Kg
Chlorobenzene	BDL	0.050	mg/Kg
Chloroethane	BDL	0.050	mg/Kg
Chloroform	BDL	0.050	mg/Kg
2-Chloroethylvinylether	BDL	0.050	mg/Kg
Chloromethane	BDL	0.050	mg/Kg
Dibromochloromethane	BDL	0.050	mg/Kg
1,2-Dichlorobenzene	BDL	0.050	mg/Kg
1,3-Dichlorobenzene	BDL	0.050	mg/Kg
1,4-Dichlorobenzene	BDL	0.050	mg/Kg
Dichlorodifluoromethane	BDL	0.050	mg/Kg
1,1-Dichloroethane	BDL	0.050	mg/Kg
1,2-Dichloroethane	BDL	0.050	mg/Kg
1,1-Dichloroethene	BDL	0.050	mg/Kg
trans-1,2-Dichloroethene	BDL	0.050	mg/Kg
1,2-Dichloropropane	BDL	0.050	mg/Kg
cis-1,3-Dichloropropene	BDL	0.050	mg/Kg
trans-1,3-Dichloropropene	BDL	0.050	mg/Kg
Methylene chloride	BDL	0.050	mg/Kg
1,1,1,2-Tetrachloroethane	BDL	0.050	mg/Kg
Tetrachloroethane	BDL	0.050	mg/Kg
1,1,1-Trichloroethane	BDL	0.050	mg/Kg
1,1,2-Trichloroethane	BDL	0.050	mg/Kg
Trichloroethene	BDL	0.050	mg/Kg
Trichlorofluoromethane	BDL	0.050	mg/Kg
Vinylchloride	BDL	0.050	mg/Kg

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully Submitted,

  
Farhana Abbasi  
Chemist

**All State Engineering and Testing Consultants, Inc.**

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**EPA Method 8020: Purgeable Aromatics**

HRS LAB ID. # E-86198

<b>Client:</b>	American Housing Group		
<b>Address:</b>	65 N. W. 168th Street., N. Miami Beach, FL 33169		
<b>Project:</b>	Forest Lakes		
<b>Address:</b>	Cypress Creek Rd & Turnpike		
<b>Matrix:</b>	Soil.		
<b>Sampling Date:</b>	02/06/96	<b>Collected By:</b>	Rahimi
<b>Analysis Date:</b>	02/08/96	<b>Analysis By:</b>	F.A.
<b>Report Date:</b>	02/12/96	<b>Sample ID #:</b>	1098-641
<b>Location:</b>	Boring Holes #4		

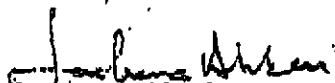
Compound.	B H #4	DL	Units
Benzene	BDL	0.050	mg/Kg
Chlorobenzene	BDL	0.050	mg/Kg
1,2-Dichlorobenzene	BDL	0.050	mg/Kg
1,3-Dichlorobenzene	BDL	0.050	mg/Kg
1,4-Dichlorobenzene	BDL	0.050	mg/Kg
Ethylbenzene	BDL	0.050	mg/Kg
MTBE	BDL	0.050	mg/Kg
Toluene	BDL	0.050	mg/Kg
Total Xylene	BDL	0.050	mg/Kg

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully submitted,

  
Farhana Abbasi  
Chemist



# All State Engineering and Testing Consultants, Inc.

TESTING LABORATORIES - ENGINEERS - INSPECTION SERVICES - CHEMISTS - DRILLING - ENVIRONMENTAL SERVICES

## Chemical Analysis Report

HRS LAB ID. # E-86198

Client:	American Housing Group		
Address:	65 N. W. 168th Street., N. Miami Beach, FL 33169		
Project:	Forest Lakes		
Address:	Cypress Creek Rd & Turnpike		
Matrix:	Soil		
Sampling Date:	02/06/96	Collected By:	Rahimi
Analysis Date:	02/07/96 to 02/09/96	Analysis By:	F.A.
Report Date:	02/12/96	Sample ID #:	1098-641
Location:	Boring Holes #4		

Parameter.	Method	B H #4	DL	Units	Analysis Date
Arsenic.	7062	BDL	0.005	mg/L	02/09/96
Barium.	7080	BDL	0.100	mg/L	02/08/96
Cadmium	7130	BDL	0.005	mg/L	02/07/95
Chromium.	7190	BDL	0.050	mg/L	02/07/96
Lead.	7420	BDL	0.050	mg/L	02/07/96
Mercury.	7471	BDL	0.001	mg/L	02/08/96
Selenium.	7742	BDL	0.002	mg/L	02/09/96
Silver.	7760	BDL	0.010	mg/L	02/07/96
Sodium	7770	BDL	0.020	mg/L	02/09/96
Potassium	7810	BDL	0.010	mg/L	02/08/96
Total Halides	9020	1.15	1.0	mg/Kg	02/09/96
Total Chloride	9252	1.25	0.1	mg/Kg	02/09/96
THPH	9073	3.6	0.100	mg/Kg	02/08/96

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully submitted,

*Fahana Abbasi*  
Fahana Abbasi  
Chemist

3745 N.W. 50th STREET / MIAMI, FLORIDA 33142  
P.O. BOX 110066, MIAMI, FLORIDA 33010. PHONE: (305) 638-3883-83

# All State Engineering and Testing Consultants, Inc.

TESTING LABORATORIES • ENGINEERS • INSPECTION SERVICES • CHEMISTS • DRILLING • ENVIRONMENTAL SERVICES

## EPA Method 8010: Purgeable Halocarbons

HRS LAB ID. # E-86198

Client:	Americasm Housing Group		
Address:	65 N.W. 168th Street, N. Miami Beach, FL 33169		
Project:	Forest Lakes		
Address:	Cypress Creek Rd & Turnpike		
Matrix:	Soil		
Sampling Date:	02/06/96	Collected By:	Rahimi
Analysis Date:	02/11/96	Analysis By:	F.A.
Report Date:	02/12/96	Sample ID #:	1098-642 & 643
Location:	Boring Holes #5 & #6		

Compounds	B H #5 (1098-642)	B H #6 (1098-643)	DL	Units
Bromodichloromethane	BDL	BDL	0.050	mg/Kg
Bromoform	BDL	BDL	0.050	mg/Kg
Bromomethane	BDL	BDL	0.050	mg/Kg
Carbon tetrachloride	BDL	BDL	0.050	mg/Kg
Chlorobenzene	BDL	BDL	0.050	mg/Kg
Chloroethane	BDL	BDL	0.050	mg/Kg
Chloroform	BDL	BDL	0.050	mg/Kg
2-Chloroethylvinylether	BDL	BDL	0.050	mg/Kg
Chloromethane	BDL	BDL	0.050	mg/Kg
Dibromochloromethane	BDL	BDL	0.050	mg/Kg
1,2-Dichlorobenzene	BDL	BDL	0.050	mg/Kg
1,3-Dichlorobenzene	BDL	BDL	0.050	mg/Kg
1,4-Dichlorobenzene	BDL	BDL	0.050	mg/Kg
Dichlorodifluoromethane	BDL	BDL	0.050	mg/Kg
1,1-Dichloroethane	BDL	BDL	0.050	mg/Kg
1,2-Dichloroethane	BDL	BDL	0.050	mg/Kg
1,1-Dichloroethene	BDL	BDL	0.050	mg/Kg
trans-1,2-Dichloroethene	BDL	BDL	0.050	mg/Kg
1,2-Dichloropropane	BDL	BDL	0.050	mg/Kg
cis-1,3-Dichloropropene	BDL	BDL	0.050	mg/Kg
trans-1,3-Dichloropropene	BDL	BDL	0.050	mg/Kg
Methylen chloride	BDL	BDL	0.050	mg/Kg
1,1,2,2-Tetrachloroethane	BDL	BDL	0.050	mg/Kg
Tetrachloroethane	BDL	BDL	0.050	mg/Kg
1,1,1-Trichloroethane	BDL	BDL	0.050	mg/Kg
1,1,2-Trichloroethane	BDL	BDL	0.050	mg/Kg
Trichloromethane	BDL	BDL	0.050	mg/Kg
Trichlorofluoromethane	BDL	BDL	0.050	mg/Kg
Vinylchloride	BDL	BDL	0.050	mg/Kg

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully Submitted,

*Farhan Akbari*  
Farhan Akbari

Chemist

2746 N.W. 50th STREET / MIAMI, FLORIDA 33142  
P.O. BOX 110099, MIAMI, FLORIDA 33101. PHONE: (305) 681-5112-13

# All State Engineering and Testing Consultants, Inc.

TESTING LABORATORIES - ENGINEERS - INSPECTION SERVICES - CHEMISTS - DRILLING - ENVIRONMENTAL SERVICES

## Chemical Analysis Report

HRS LAB ID. # E-86198

Client:	American Housing Group		
Address:	65 N. W. 168th Street., N. Miami Beach, FL 33169		
Project:	Forest Lakes		
Address:	Cypress Creek Rd & Turnpike		
Matrix:	Soil.		
Sampling Date:	02/06/96	Collected By:	Rahimi
Analysis Date:	02/07/96 to 02/09/96	Analysis By:	F.A.
Report Date:	02/12/96	Sample ID #:	1098-642 & 643
Location:	Boring Holes #5 & #6		

Parameter.	Method	B H #5 (1098-642)	B H #6 (1098-643)	DL	Units	Analysis Date
Arsenic	7062	BDL	BDL	0.005	mg/L	02/09/96
Barium	7080	BDL	BDL	0.100	mg/L	02/08/96
Cadmium	7130	BDL	BDL	0.005	mg/L	02/07/96
Chromium	7190	BDL	BDL	0.050	mg/L	02/07/96
Lead	7420	BDL	BDL	0.050	mg/L	02/07/96
Mercury	7471	BDL	BDL	0.001	mg/L	02/08/96
Selenium	7742	BDL	BDL	0.002	mg/L	02/09/96
Silver	7760	BDL	BDL	0.010	mg/L	02/07/96
Sodium	7770	2.1	1.98	0.020	mg/L	02/09/96
Potassium	7610	1.1	0.89	0.010	mg/L	02/08/96
Total Halides	9020	4.97	3.67	1.0	mg/Kg	02/09/96
Total Chloride	9252	3.95	4.25	0.1	mg/Kg	02/09/96
TRPH	9073	7.60	9.75	0.100	mg/Kg	02/08/96

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully submitted,

*Farhana Abbasi*  
Farhana Abbasi  
Chemist

3745 N.W. 50th STREET / MIAMI, FLORIDA 33142  
P.O. BOX 110066, MIAMI, FLORIDA 33010. PHONE: (305) 638-5122-23

# **All State Engineering and Testing Consultants, Inc.**

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## **EPA Method 8020: Purgeable Aromatics**

HRS LAB ID. # E-86198

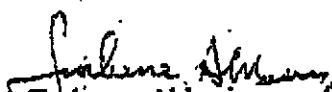
<b>Client:</b>	American Housing Group		
<b>Address:</b>	65 N. W. 168th Street., N. Miami Beach, FL 33169		
<b>Project:</b>	Forest Lakes		
<b>Address:</b>	Cypress Creek Rd & Turnpike		
<b>Matrix:</b>	Soil		
<b>Sampling Date:</b>	02/06/96	<b>Collected By:</b>	Rahimi
<b>Analysis Date:</b>	02/11/96	<b>Analysis By:</b>	F.A.
<b>Report Date:</b>	02/12/96	<b>Sample ID #:</b>	1098-642 & 643
<b>Location:</b>	Boring Holes #5 & #6		

Compound.	BH #5 (1098-642)	BH #6 (1098-643)	DL	Units
Benzene	BDL	BDL	0.050	mg/Kg
Chlorobenzene	BDL	BDL	0.050	mg/Kg
1,2-Dichlorobenzene	BDL	BDL	0.050	mg/Kg
1,3-Dichlorobenzene	BDL	BDL	0.050	mg/Kg
1,4-Dichlorobenzene	BDL	BDL	0.050	mg/Kg
Ethylbenzene	BDL	BDL	0.050	mg/Kg
MTBE	BDL	BDL	0.050	mg/Kg
Toluene	BDL	BDL	0.050	mg/Kg
Total Xylene	BDL	BDL	0.050	mg/Kg

DL: Detection Limit      BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully submitted,

  
Farhana Abbasi  
Chemist

# All State Engineering and Testing Consultants, Inc.

TESTING LABORATORIES • ROCKETEERS • INSPECTION SERVICES • CHEMISTS • DRILLING • ENVIRONMENTAL SERVICES

## EPA Method 8020: Purgeable Aromatics

HRS LAB I.D. # E-86198

<b>Client:</b>	American Housing Group		
<b>Address:</b>	65 N. W. 168th Street., N. Miami Beach, FL 33169		
<b>Project:</b>	Forest Lakes		
<b>Address:</b>	Cypress Creek Rd & Turnpike		
<b>Matrix:</b>	Soil.		
<b>Sampling Date:</b>	02/06/96	<b>Collected By:</b>	Rahimi
<b>Analysis Date:</b>	02/11/96	<b>Analysis By:</b>	F.A.
<b>Report Date:</b>	02/12/96	<b>Sample ID #:</b>	1098-644
<b>Location:</b>	Composit sample of site.		

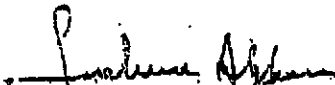
Compound.	Results.	DL	Units
Benzene	BDL	0.050	mg/Kg
Chlorobenzene	BDL	0.050	mg/Kg
1,2-Dichlorobenzene	BDL	0.050	mg/Kg
1,3-Dichlorobenzene	BDL	0.050	mg/Kg
1,4-Dichlorobenzene	BDL	0.050	mg/Kg
Ethylbenzene	BDL	0.050	mg/Kg
MTBE	BDL	0.050	mg/Kg
Toluene	BDL	0.050	mg/Kg
Total Xylene	BDL	0.050	mg/Kg

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully submitted,

  
Farhana Abbas  
Chemist.

3745 N.W. 50th STREET / MIAMI, FLORIDA 33142  
P.O. BOX 110066, HIALEAH, FLORIDA 33010. PHONE: (305) 638-5852-83

# All State Engineering and Testing Consultants, Inc.

TESTING LABORATORIES • ENGINEERS • INSPECTION SERVICES • CHEMISTS • DRILLING • ENVIRONMENTAL SERVICES

## EPA Method 8010: Purgeable Halocarbons

HES LAB ID. # E-86198

<b>Client:</b>	American Housing Group		
<b>Address:</b>	65 N. W. 168th Street., N. Miami Beach, FL 33169		
<b>Project:</b>	Forest Lakes		
<b>Address:</b>	Cypress Creek Rd & Turnpike		
<b>Matrix:</b>	Soil		
<b>Sampling Date:</b>	02/06/96	<b>Collected By:</b>	Rahimi
<b>Analysis Date:</b>	02/11/96	<b>Analysis By:</b>	F.A.
<b>Report Date:</b>	02/12/96	<b>Sample ID #:</b>	1098-644
<b>Location:</b>	Composite sample of site		

Compounds	Results.	DL	Units
Bromodichloromethane	BDL	0.050	mg/Kg
Bromoform	BDL	0.050	mg/Kg
Bromomethane	BDL	0.050	mg/Kg
Carbon tetrachloride	BDL	0.050	mg/Kg
Chlorobenzene	BDL	0.050	mg/Kg
Chloroethane	BDL	0.050	mg/Kg
Chloroform	BDL	0.050	mg/Kg
2-Chloroethylvinylether	BDL	0.050	mg/Kg
Chloromethane	BDL	0.050	mg/Kg
Dibromochloromethane	BDL	0.050	mg/Kg
1,2-Dichlorobenzene	BDL	0.050	mg/Kg
1,3-Dichlorobenzene	BDL	0.050	mg/Kg
1,4-Dichlorobenzene	BDL	0.050	mg/Kg
Dichlorodifluoromethane	BDL	0.050	mg/Kg
1,1-Dichloroethane	BDL	0.050	mg/Kg
1,2-Dichloroethane	BDL	0.050	mg/Kg
1,1-Dichloroethane	BDL	0.050	mg/Kg
trans-1,2-Dichloroethane	BDL	0.050	mg/Kg
1,2-Dichloropropane	BDL	0.050	mg/Kg
cis-1,3-Dichloropropene	BDL	0.050	mg/Kg
trans-1,3-Dichloropropene	BDL	0.050	mg/Kg
Methylene chloride	BDL	0.050	mg/Kg
1,1,2,2-Tetrachloroethane	BDL	0.050	mg/Kg
Tetrachloroethane	BDL	0.050	mg/Kg
1,1,1-Trichloroethane	BDL	0.050	mg/Kg
1,1,2-Trichloroethane	BDL	0.050	mg/Kg
Trichloroethane	BDL	0.050	mg/Kg
Trichlorofluoromethane	BDL	0.050	mg/Kg
Vinylchloride	BDL	0.050	mg/Kg

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully Submitted,

*Farhan Akbar*  
Farhan Akbar  
Chemist

# All State Engineering and Testing Consultants, Inc.

TESTING LABORATORIES - ENGINEERS - INSPECTION SERVICES - CHEMISTS - DRAINING - ENVIRONMENTAL SERVICES

## Chemical Analysis Report

HRS LAB I.D. # E-86198

<b>Client:</b>	American Housing Group		
<b>Address:</b>	65 N.W. 168th Street., N. Miami Beach, FL 33169		
<b>Project:</b>	Forest Lakes		
<b>Address:</b>	Cypress Creek Rd & Turnpike		
<b>Matrix:</b>	Soil.		
<b>Sampling Date:</b>	02/06/96	<b>Collected By:</b>	Rahimi
<b>Analysis Date:</b>	02/07/96 to 02/09/96	<b>Analysis By:</b>	F.A.
<b>Report Date:</b>	02/12/96	<b>Sample ID #:</b>	1098-644
<b>Location:</b>	Composite sample of site		


Parameter.	Method	B H #3	DL	Units	Analysis Date
Arsenic.	7062	BDL	0.005	mg/L	02/09/96
Barium.	7080	BDL	0.100	mg/L	02/08/96
Cadmium.	7130	BDL	0.005	mg/L	02/07/95
Chromium.	7190	BDL	0.050	mg/L	02/07/96
Lead.	7420	BDL	0.050	mg/L	02/07/96
Mercury.	7471	BDL	0.001	mg/L	02/08/96
Selenium.	7742	BDL	0.002	mg/L	02/09/96
Silver.	7760	BDL	0.010	mg/L	02/07/96
Sodium	7770	BDL	0.020	mg/L	02/09/96
Potassium	7610	BDL	0.010	mg/L	02/08/96
Total Halides	9020	4.89	1.0	mg/Kg	02/09/96
Total Chloride	9252	5.21	0.1	mg/Kg	02/09/96
TRPH	9073	63.85	0.100	mg/Kg	02/08/96

DL: Detection Limit

BDL: Below Detection Limit

Analysis performed in accordance with E.P.A., A.S.T.M., Standard Methods, or other approved methods.

Respectfully submitted,

  
Farhana Abbasi  
Chemist

3745 N.W. 50th STREET / MIAMI, FLORIDA 33142  
P.O. BOX 110086, MIAMI, FLORIDA 33106. PHONE: (305) 638-5182-83

**APPENDIX C**

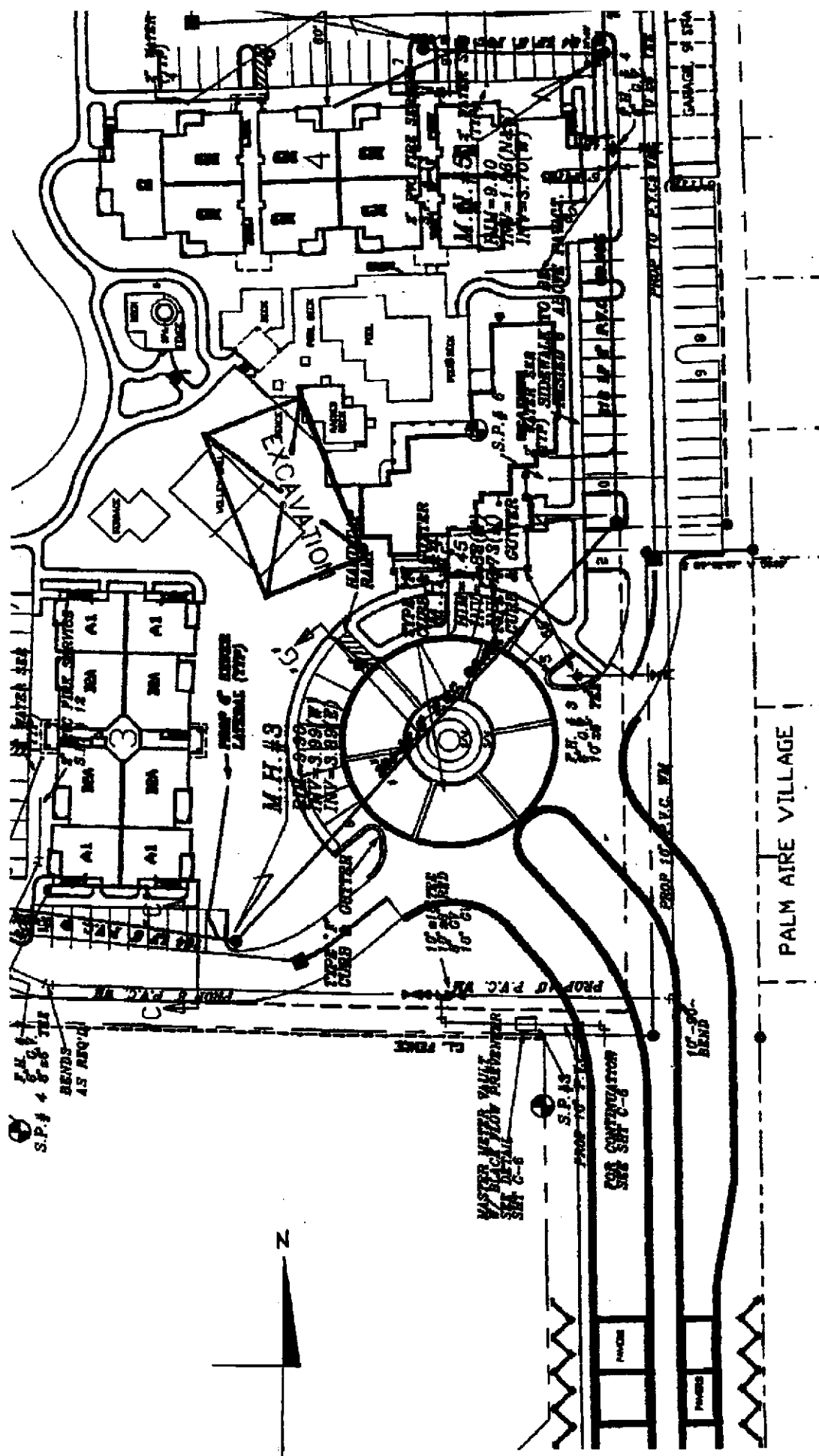
**SOIL DISPOSAL MANIFESTS**



**APPENDIX D**

**LAND SURVEY AND PROPOSED BUILDING ILLUSTRATION**





CONTAMINATION ASSESSMENT REPORT  
AND  
RECOMMENDATIONS FOR REMEDIAL ACTION

CLIFF BERRY, INCORPORATED  
SITE CLOSURE

MARCH 7, 1986

SUBMITTED TO:

B.C.E.Q.C.B.  
500 S.W. 14TH COURT  
FT. LAUDERDALE, FLORIDA

AND

STATE OF FLORIDA DER  
SOUTHEAST FLORIDA DISTRICT  
P.O. BOX 3858  
WEST PALM BEACH, FLORIDA

SUBMITTED BY:

ENVIROPACT, INC.  
4790 N.W. 157 STREET  
HIALEAH, FLORIDA

**RECEIVED**

MAR 7 1986

Broward County  
ENVIRONMENTAL QUALITY CONTROL BOARD

**RECEIVED**

MAR 14 1986

BUREAU OF  
OPERATIONS

## INTRODUCTION AND BACKGROUND

Enviro-pact, Inc. has completed a contamination assessment project at Cliff Berry, Inc. in Port Everglades, Ft. Lauderdale, Florida. This study was undertaken as a step toward obtaining approval for closure at the site, and is a continuation of one conducted in April 1985.

[The preliminary investigation consisted of taking samples from trenches dug on the western and southern edges of the property (labelled D.F., W.B. and S.B. in Figure 1). Soil and water samples from the trenches were found to contain phenols, PCB's, oil/grease, EPA test series 602 compounds, and barium, chromium, and lead.]

Samples were collected using more conventional methods during the course of this investigation. Soil samples were collected in 12 soil borings taken using a penetration drilling, split spoon method (ASTM D1586) in accordance with "Soil Boring, Monitoring Well, and Associated Protocols" submitted to the B.C.E.Q.C.B. with the proposal for this study. Water samples were collected from six monitoring wells installed and developed according to B.C.E.Q.C.B. specifications. Wells were constructed of 2 feet of riser casing and 17 feet of well screen, and secured with a locking steel casing. All spoons, rods, and augers were steam-cleaned between holes. See Figure 1 for the location of soil borings and monitoring wells.

## RESULTS

### 1. SOIL SAMPLES

Splits from the surface (0 to 1 foot), water table/soil interface (4 to 5 feet, except 6 to 7 feet in soil borings 1, 7, and 12), and 14 to 15 feet were analyzed for phenols, oil/grease (soxhlet), EPA test series 602 compounds, PCB scan, and metals barium, chromium, and lead. Results are attached as Appendix I.

Most of the soil contamination at Cliff Berry, Inc. is due to metals and oil/grease. No phenols were found in the soil. Two samples (soil boring 3, 0 to 1 foot, and soil boring 8, 14 to 15 feet) contained trace amounts of PCB's (2.0 and 1.5 ppm

respectively). Various 602 compounds such as xylene, benzene, 1,3- and 1,4-dichlorobenzene are present in all borings except 9 and 10 at low levels (mostly less than 20 ppm). The only sample with higher concentrations of volatile organic compounds is the water table/soil interface split from boring 7, where 50.2 ppm xylene and 224.0 ppm 1,4-dichlorobenzene were detected.

Oil and grease were found in every soil sample. Generally, the greatest concentrations (15,369 ppm to 181 ppm) are at the surface, and decrease with depth (1544 ppm to 26 ppm at 14 to 15 feet). Barium is the metal found in greatest concentrations at this site. Barium is present in all samples, in concentrations ranging from 23 ppm in the 14 to 15 feet split of boring 9 to 1190 ppm in boring 1 at 14 to 15 feet. Generally, barium concentration increases with depth.

Lead levels, on the other hand, generally decrease with depth. Lead is found in almost every soil sample, in concentrations ranging from 1.1 ppm to 238 ppm. Two samples, soil boring 2 and 3, 0-1 foot, had lead in sufficiently high concentrations to run extraction procedure leachable tests. Results of the tests showed only small amounts of leachable lead (see Appendix B). Chromium is also present in almost every sample; however, this metal shows no trend in concentration with depth.

NOTED  
E.P. Toxic  
Test ??

## 2. GROUNDWATER SAMPLES

Of the parameters analyzed, phenols are the only compounds found in the monitoring wells at Cliff Berry, Inc. in concentrations which exceed groundwater standards. Total phenols ranged in concentration from 0.03 mg/l to 0.11 mg/l; this range is above the B.C.E.Q.C.B. standard for phenols of 0.001 mg/l. Other contaminants found below groundwater standards are: zinc (0.09 mg/l to 0.18 mg/l) in all six wells; nickel (0.17 mg/l) in well 4; and oil/grease in concentrations of 1.0 mg/l in four of the wells. Other metals and the 602 compounds were not found in any of the groundwater samples.

## DISCUSSION AND RECOMMENDATIONS

Comparison of soil and groundwater data and site-specific geological conditions aides in the interpretation of the data gathered at Cliff Berry, Inc. The clay layer present throughout the site at Cliff Berry, Inc. seems to prevent the majority of the contamination found in the soil from reaching the groundwater. Figures 2 and 3 are geological cross sections (see Figure 1 for index map) north-south and east-west across the site. [The clay is almost eleven (11) feet thick in the north and decreases to five (5) feet in thickness at the southern end of the property. This low permeability clay layer appears to cover the entire area; evidence of the unit is found in every boring (see geologic logs attached as Appendix II) except 6, and was found in most of the trenches as well.

A comparison of the data collected from the trenches and data collected by more conventional (and presumably more accurate) methods from the same area is shown in Table 1. Data collected from the same area on the western side of the site, trench WB4 and boring 5/well 2, are used for comparison.

NO! Overall, data from soil collected using a split spoon and soil from the trench correspond fairly well. Soil collected at the soil/water table interface in the trench contains less lead and oil/grease but greater concentrations of PCB's and phenols than the corresponding sample taken using a split spoon.

Water samples collected by the different methods show a greater discrepancy. Metals and 602 compounds are present in the water collected in the trench, whereas these constituents are absent (except zinc) in water collected from the monitoring well. Oil/grease and phenols are also found in lower concentrations in groundwater from the monitoring well than in standing water in the trench.

We believe that the second set of soil and groundwater data more accurately reflect contamination at Cliff Berry, Inc. The crude and imprecise methods of sample collection in the trenches lead to unrepresentative samples and more possibilities for cross-contamination.

TABLE 1

SOIL

	<u>WB4A</u> (Trench) 4-5' <u>soil/watertable interface</u>	<u>TB3</u> (Boring)			EPToxic levels MCL 100 ppm MCL 5 ppm MCL 5 ppm
		<u>0 - 1</u>	<u>4 - 5</u>	<u>14 - 15</u>	
Barium	210 ppm	253 ppm	646 ppm	902 ppm	
Chromium (total)	1.9	6.8	8.6	7.2	
Lead	< 1.0	36	9.9	2.3	
PCB's	3.2	< 1	< 1	< 1	
Benzene	< 1.0	21.2	< 1	17.8	
Oil & Grease	205	5697	1419	51	
Phenols	3.1	< 1	< 1	< 1	

GROUNDWATER

	<u>SB4</u> <u>WB4</u> <u>standing water in trench</u>	<u>W-2</u> <u>monitoring well</u>
Arsenic	0.01 mg/l	< 0.005 mg/l
Barium	1.53	—
Chromium	0.02	< 0.005
Lead	0.02	< 0.005
Zinc	—	0.12
Xylene	6.4 µg/l	< 1 µg/l
1,3-dichlorobenzene	658 µg/l	< 1 µg/l
Benzene	19.4 µg/l	< 1 µg/l
Oil & Grease	5 mg/l	1.0 mg/l
Phenols (total)	0.09	0.04



Based on the results of the two rounds of sampling at Cliff Berry, Inc., Enviropact, Inc. recommends the following remedial action plan for the site:

1. Monitor groundwater quality in the six (6) new wells on a quarterly basis for one year, and semi-annually for the next two years. Samples will be analyzed for phenols, oil/grease, PCB scan, and barium, chromium, and lead. The clay layer seems to effectively contain most contamination, but monitoring groundwater periodically for the next few years for contaminants known to be in the soil will confirm our hypothesis.
2. Monitor water in the unsaturated zone along the southern and southeastern edges of the site. This remedial action is necessary to insure that contaminants are not leaching into the lake to the south and the borrow canals to the east of the site. This will be done by analyzing samples taken from 2 foot long suction lysimeters installed in locations shown in Figure 4. The depth to the top of the clay layer as seen in trenches and soil borings ranges from 2 feet (S.B. 3) to 5 feet (T.B. 1) below land surface. Lysimeters will be sampled at the same time as the monitoring wells and for the same parameters.
3. Areas found to contain elevated (greater than 10,000 ppm) levels of oil/grease in the soil will be excavated to the depth of the water table. High concentrations of oil/grease are found along the eastern edge of the site (T.B. 3, T.B. 12, T.B. 8). Soil excavated will be spread out in the southeastern corner of the site and treated with 8-8-8 fertilizer to reduce levels of oil and grease (approximately 60 to 100 pounds of fertilizer per acre of soil). Soil moisture must be maintained at 20 to 25%; this will be accomplished by attaching a moisture meter to a sprinkler system. To ensure that all soil is exposed to the bacterial action of the fertilizer, the soil will be tilled once or twice a week.
4. [Drainfields 1 and 2 on the northeastern perimeter of the site will also be excavated. These drainfields were found to contain PCB's in both the soil and water. We need to define the extent of PCB contamination (both in terms of concentration and areal extent) more accurately; this will be done by a dig and test method. We are unable to specify the fate of soil excavated from these drainfields until further analyses are done on the soil. Groundwater in the excavated drainfields will be filtered to reduce levels of PCB contamination.]

DIRECT EXAMINATION OF RON LANE:

404  
X8107

1. Your name is Ron Lane and you are presently employed by the Department of Environmental Regulation in the West Palm Beach Office. Is that right Mr. Lane?
2. How long have you been so employed by the Department?
3. Please describe for the Hearing Officer your work experience beginning chronologically with the first job you held after the completion of your education up to the present time.

ANSWER:

- A. 1981-1983 - water quality lab FAU--Geo-chemical Lab Researcher. Duties: analysing soils and crude oil core samples and sediments
- B. U.S. Forestry Service, Field Hydrologist, Alaska. Duties: Studying affects of discontinuous perma frost regions in a watershed area, sample collection.
- C. Same lab Geo-chemical laboratory research - 6 months.
- D. September 1984, 1-1/2 years with Palm Beach County Health Department, position Geologist. Duties: Hydrology - local DER program for enforcement of FAC 17-61 stationary tank rule, also groundwater contamination problems - monitoring wells, appointed member of Technical Advisory Committee for well field protection ordinance of Palm Beach County.
- E. DER Environmental Specialist III, Groundwater Section. Duties: Evaluate hydrogeological investigations - permitting, RAPS - CARS.

4. Mr. Lane please tell the Hearing Officer your educational background.

ANSWER:

- 1) Associate Degree - Biotechnology
- 2) Marine Biology - Sampling hardware, State University in New York
- 3) BS - Biology - FAU, minor in chemistry (water chemistry)
- 4) BS - Geology - FAU, hydrogeology class, other emphasis

5. Had any additional training or education?

6. Mr. Lane have you had any involvement in the Cliff Berry case?

7. How did you become involved in that case?

8. As part of your duties with the Department and your previous work experience, have you had occasion to become familiar with any Florida Administrative Code Rules or Florida Statutes?

ANSWER:

(19)  
17-3.021(17)

17-3.402

17-22.104

17-34, Florida Statutes

Chapter 376, Florida Statutes

Chapter 403, Florida Statutes

9. Mr. Lane you stated that you have evaluated, investigated or otherwise dealt with groundwater contamination cases. How many do you estimate you have dealt with?
10. And in how many of those cases were groundwater flow directions indicated?
11. ~~How many contamination assessment reports have you dealt with?~~
12. Have you seen a contamination assessment report relating to the Cliff Berry Property?
13. How did you get that?
14. Mr. Lane, I am now handing you Respondents Exhibit No. \_\_\_\_\_ for identification; can you identify this document?

ANSWER:

Document: Contamination Assessment Report

15. Mr. Lane were you asked to review this CAR?

Ron, I want you to go over the Contamination Assessment Report in detail, pointing out problems with it and detailing the contaminants which have been found, the fact that it doesn't submit groundwater flow directions, and detailing all the problems you had with it.

16. Did you make those comments in a written report?

17. I am now handing you Respondents Exhibit No. \_\_\_\_\_ for identification, is that the report which you drafted?

18. Does it contain all of your concerns?

19. What additional concerns, if any do you have?

20. Mr. Lane I am now handing you Exhibit No. \_\_\_\_\_. Do you recognize this document?

ANSWER:

Dredge and fill permit application

21. Does this document contain any groundwater flow directions?

22. Have the Berry's or their agents ever to your knowledge, submitted such information.

23. Mr. Lane are you familiar with Florida Administrative Code Section 17-3.401(3)?

ANSWER: a violation of any groundwater criterion contained in this part constitutes pollution.

24. Are you familiar with 17-3.402?

ANSWER: FREE-FROMS

25. Do you know what classification the groundwater is at the Cliff Berry site?

26. What water quality standards are applicable to Class G-II?

ANSWER: 17-3.404(1)(a), 17-22.104 - Drinking Water

27. Mr. Lane do you know what the maximum contaminant level is for arsenic?

28. Mr. Lane do you know what the maximum contaminant level is for Barium?

29. Mr. Lane do you know what the maximum contaminant level is for Lead?

30. Are you aware of any Rules relating to polychlorinated byphenols?

31. Are there any water quality standards related to polychlorinated byphenols?

32. Mr. Lane are you familiar with Section 376.302, Florida Statutes?

ANSWER: the discharge of pollutants into or upon any waters of the state or lands, which discharge violates any Departmental "standard" as defined in s.403.803(13) is prohibited.

33. Mr. Lane are you familiar with the definition of pollution as it is found in Florida Administrative Code Section 17-3.021?

34. In your opinion would the presence of any of the contaminants disclosed by the Contamination Assessment Report or the departments own testing in the waters of the state be potentially harmful or injurious to human health or welfare, animal or plant life, or property, including outdoor recreation?

35. Mr. Lane you have listened to all of the testimony so far in this case and you have seen the proposals which the Berry's say have been sufficient. In your opinion have the Berry's provided the Department with reasonable assurance that water quality standards will not be violated by their project as that term is used in Section 403.918(1), Florida Statutes?

36. What information would they need to provide you with to so satisfy the statute?



BROWARD COUNTY ENVIRONMENTAL QUALITY CONTROL BOARD

500 S.W. 14th Court  
Fort Lauderdale, Florida 33315  
(305) 765-5881

March 19, 1986

RECEIVED

APR 3 1986

BUREAU OF  
OPERATIONS

Mr. Cliff Berry  
Cliff Berry, Inc.  
PO Box 13079  
Port Everglades  
Ft. Lauderdale, FL 33316

Subject: Submittal of Contaminant Assessment Report (CAR) and  
Recommendations for Remedial Actions, at 1000 SE 28 Street  
facility, Port Everglades, Florida

Dear Mr. Berry:

On 2/7/86, BCEQCB received the above submittal titled "Report for Continued site Investigation and Recommendations for Remedial Action", dated 1/31/86, prepared by Enviropact, Inc. Copies of the final submittal have been distributed to FDER and Amoco Oil for review and comment.

Staff feels that scheduling a cooperative final review meeting will expedite the comment and response period necessary for regulatory review of the subject submittal. A tentative date of 4/16/86 at 2 PM at the office of BCEQCB has been scheduled. Please contact our staff hydrogeologist, Mr. T. A. Lawrence, if further details are necessary.

Sincerely,

VICTOR N. HOWARD, P.E.  
POLLUTION CONTROL OFFICER

cc: A. Pavda (DER/WPB)  
T. Gogle (Amoco)  
J. Tostanoski (Enviropact)  
T. Zinn (attorney C. Berry)  
Mr. Dean (DER/Tall.)

TAL/VNH/sc  
T3/1trClfBry9

8/19  
ROUTE  
FH  
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PROPOSAL FOR  
CONTINUED SITE INVESTIGATION

CLIFF BERRY, INC.  
SITE CLOSURE

AUGUST 8, 1985

SUBMITTED TO:

B.C.E.Q.C.B.  
500 S.W. 14 COURT  
FT. LAUDERDALE, FLORIDA

AND

STATE OF FLORIDA D.E.R.  
SOUTHEAST FLORIDA DISTRICT  
P.O. BOX 3858  
WEST PALM BEACH, FLORIDA

SUBMITTED BY:

ENVIROPACT, INC.  
4790 N.W. 157 STREET  
HIALEAH, FLORIDA

RECEIVED

AUG 19 1985

Broward County  
ENVIRONMENTAL QUALITY CONTROL BOARD



## INTRODUCTION AND BACKGROUND

This proposal addresses the continued site investigation at Cliff Berry, Inc., located in Port Everglades, Ft. Lauderdale, Florida. In an effort to facilitate closure at the site, a preliminary soil and groundwater investigation was conducted in April 1985. The preliminary investigation consisted of taking samples from trenches dug on the western and southern edges of the property (see Figure 1). Samples were analyzed for metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), EPA test methods 601 and 602 for volatile organic compounds (VOC's), oil and grease, phenols, PCB's, and pH.

Based on the results of this preliminary investigation, the B.C.E.Q.C.B. and the D.E.R. have requested further investigation of the site. Pursuant to the requests for further site investigation, the following plan of action has been developed for submittal to the B.C.E.Q.C.B. and the D.E.R.

## RECOMMENDATIONS

### 1. SOIL SAMPLING

We propose to take ten 15 foot soil borings at Cliff Berry's Port Everglades location, spaced so that we get a representative sampling of the site. The one area excluded is the nursery on the eastern side of the property. According to conversations with the client, this area has been used solely to raise plants since he has occupied the property. See Figure 1 for the proposed soil boring locations. Soil borings will be taken in accordance with ASTM D 1586 procedure using a State of Florida certified driller. See "Soil Boring, Monitoring Well, and Associated Protocols" in Appendix 1 for details of drilling, sampling, and decontamination procedures. Borings will be geologically logged and sampled at the surface (0-1 ft.), the <sup>soil water interface</sup> water table, the base of the boring (14-15 ft.) and in other zones as determined by Envirofact personnel. Soil samples will be analyzed for extraction procedure (E.P.) <sup>arsenic, cadmium, & mercury</sup> ~~toxic~~ barium, chromium, and lead, and phenols, PCB's, oil and grease, and E.P.A. test (method 602) for volatile organic compounds such as benzene, xylene, toluene, dichlorobenzene, and ethyl benzene. High concentrations of these parameters were found in water and/or soil samples taken in April 1985, and have been specified by the B.C.E.Q.C.B. and the D.E.R. in a letter of 31 May 1985.

why was  
barium  
deleted?

other  
concerns  
of table

what letter?

## INTRODUCTION AND BACKGROUND

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other  
confering  
at table

## 2. MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING

The proposed groundwater monitoring program places wells evenly down the eastern and western edges of the site (see Figure 1). A well will also be placed in the area where underground tanks were excavated. Wells will be installed according to E.C.E.Q.C.B. specifications, and will be 17 feet deep, with 10 feet of screen, <sup>5' below & 2' above wt.</sup> 5 feet of casing above the screen, two feet of tailpipe below the screen, and secured with a locking steel casing or meter box. A total of six wells will be installed in addition to the existing monitoring well which is located in the northwestern corner. If the water table proves to be higher than six feet below land surface, ~~the wells will be screened from the surface to 15 feet.~~ Groundwater samples from all six wells will be analyzed for the same parameters as the soil: <sup>arsenic, cad, mercury</sup> ~~barium~~, chromium, lead, phenols, PCB's, oil and grease, and the 602 VOC's. Again, drilling, decontamination and sampling procedures to be followed are described in Appendix 1.

## 3. QUALITY ASSURANCE AND SAFETY PROCEDURES

Field techniques for soil and groundwater sample acquisition and preservation are detailed in "Soil Boring, Monitoring Well, and Associated Protocols" in Appendix 1. This section details procedures used in the field up to the point where samples are delivered to the laboratory. Analytical procedures are as follows:

- (a) Metals analyses will be conducted as described in "Methods for Testing Water and Wastewater", U.S.E.P.A. 600-4-79-020, March 1983. Direct aspiration will be used.

The extraction procedure is described in "Extraction Procedure (EP) Toxicity Test Method and Structural Integrity Test", Method 1310 SW-846, from "Test Methods for Evaluating Solid Waste", U.S.E.P.A., Second Edition, July 1982.

- (b) The VOC analysis will be conducted as described in "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", EPA-600/4-82057, July 1982.

- (c) PCB analyses will be according to U.S.E.P.A. Test Method Organochloride Pesticides and PCB's, Method 608, in EPA 600/4-82-057.
- (d) Analyses for oil and grease will be according to Standard Methods 1985 #503C. Soxhlet extraction procedures will be used on soil samples.
- (e) Analyses for phenols will be conducted as described in "Methods for Testing Water and Wastewater", U.S.E.P.A. 600/4-79-020, March 1983.

Internal laboratory quality control procedures used are those described in "Handbook for Laboratory Quality Control in Water and Wastewater Laboratories", U.S.E.P.A. 600/4-79-019.

Safety procedures used by Envirofact field personnel are detailed in Envirofact's Safety Procedures Manual. An organic vapor analyzer (OVA) will be on site during all phases of drilling and sampling. We anticipate using a Level 4 type of safety gear: air purifying respirator with chemical cartridge available on backpack at all times, TYVEK-SARAN or poly laminated coveralls, safety boots, gloves, hard hats, goggles, and personal first aid kit.

#### 4. INVESTIGATION OF GROUNDWATER RECLASSIFICATION

In conjunction with the legal effort to reclassify groundwater in Port Everglades and/or at the Cliff Berry, Inc. site, fire wells around Cliff Berry's site will be sampled to determine ambient water quality. This effort will focus on classification of groundwater to class G-III or G-IV based on the concentration of total dissolved solids and/or on obtaining an exempted aquifer status (F.A.C. 17-28.13(3)) or non-drinking water status.

NO → Water will be sampled from fire wells which penetrate approximately 100 feet into the aquifer and will be analyzed for total dissolved solids (TDS), chlorides, and the 602 E.P.A. test series parameters. We have been unable thus far to obtain locations of all the fire wells around the Port and their well construction details; however we have been advised by the client that two wells are located close to the site. Consequently, for the purpose of this proposal, we plan to sample and analyze groundwater from only two fire wells.

### TIME TABLE

The investigation outlined in this report will commence within thirty (30) days of approval of the Broward County Environmental Quality Control Board (BCEQCB), and the Florida Department of Environmental Regulation (DER). Sampling will be completed within seventy (70) days of Notice to Proceed, and analyses of samples from soil borings and monitoring wells will be completed within an additional forty-five (45) days. A report on the results of the initial analyses will be submitted within 150 days of agency approvals for the proposed activities.

COST ESTIMATE - CONTINUED SITE INVESTIGATION - CLIFF BERRY, INC.

- I. Soil Borings:
- a. Ten 15 ft. deep borings, @ \$12.50/ft. \$ 1,875.00
  - b. Driller down time for decontamination,  
est. 0.5 hrs. per boring @ \$60.00/hr. \$ 300.00
  - c. Envirofact geologist labor:
    - 1. geologic logging, sample acquisition/  
preservation, sampler decontamination,  
est. 12 hrs. @ \$75.00/hr. \$ 900.00
    - 2. field mobilization/demobilization, est.  
2 hrs. per day @ \$75.00/hr. \$ 300.00
  - d. Envirofact field technician labor:
    - 1. sampler steam-cleaning and decon-  
tamination, est. 12 hrs. @ \$45.00/hr. \$ 540.00
- II. Monitoring Well Installation:
- a. Six (6) 17 ft. monitoring wells @ \$500.00\*  
each, installed according to BCEQCB well  
specifications, includes down time for  
decontamination. \$ 3,000.00
  - b. Envirofact geologist labor:
    - 1. geologic logging, decontamination of  
well casing, well installation supervision.  
Est. 16 hrs. @ \$75.00/hr. \$ 1,200.00
    - 2. field mobilization/demobilization.  
Est. 1 hr. per day @ \$75.00/hr. \$ 150.00

**III. Sample Analysis:****a. Soil samples -**

Est. 30 soil samples analyzed for phenols,  
PCB scan, oil & grease (Soxhlet), 602 VOC's.,  
and E.P. toxic Ba, Cr, Pb @ \$380.00 each\*\*

\$ 11,400.00

**b. Groundwater samples -**

for Ba, Cr, Pb, phenols, PCB scan,  
oil and grease, 602's

Six samples @ \$320.00\*\* each.

\$ 1,920.00

**c. Fire wells - water samples -**

samples for 602's, TDS and chlorides.

Est. 2 samples @ \$92.00\*\* each.

\$ 184.00

\* This price provided to client at cost.

\*\* All prices for analyses are at a 20% discount from book price.

**IV. Safety Gear**

Level 4 safety equipment, 4 men @ \$65.00/day each.

\$ 520.00

**V. Consulting Services:**

Report writing, consultations with BCEQCB.

Est. 40 hrs. @ \$90.00/hr.

\$ 3,600.00

Est. 8 hrs. @ \$125.00/hr.

\$ 1,000.00

**VI. Drafting Services**

20 hrs. @ \$37.50/hr.

\$ 750.00

**TOTAL ESTIMATED COST \$ 27,639.00**

\*\* If unforeseen problems arise during the course of the project which require additional time and/or materials, charges will be adjusted accordingly.\*\*

APPENDIX 1



## SOIL BORING, MONITORING WELL AND ASSOCIATED PROTOCOLS

### I. FIELD PREPARATION

- A. Check maintenance of field equipment (pumps, meters, drill rig) to be used in the field; calibrate instruments as necessary.
- B. Labels for sample containers and chain-of-custody records.
  - 1. All sample containers should be pre-labeled to save time in the field and to insure an adequate supply.
  - 2. All appropriate information must be filled-in (see example):
    - a. date, time, person who collected sample,
    - b. date, time, person who received sample,
    - c. client name, address, phone number,
    - d. sample designation,
    - e. preservative and sample description,
    - f. log number assigned; these are recorded in the office each day and the analysis work orders turned in to the appropriate data processing employee,
    - g. fill-in label using black, waterproof marker.
- C. Chain of Custody records.

In special cases, field personnel will be required to follow chain of custody procedures.

  - 1. An entry must be on the form for each sample.
  - 2. Samples must not leave the custody of the field investigator until relinquished to another party after the appropriate signatures, dates, and times have been recorded.
  - 3. Transfer of samples will be achieved by:
    - a. field personnel personally relinquish possession of samples after obtaining the appropriate signatures, dates and times,
    - b. if using a common carrier, samples must be secured in such a way that containers cannot be opened in transit. Also, carrier used and date of delivery should be noted on chain of custody form.
- D. Sampling plan of action.

If possible, when sampling both soil and water, plan order of sampling so that the areas of least contamination are sampled first and the areas of greatest contamination are sampled last.

## II. DRILLING PROCEDURES FOR SOIL BORINGS SAMPLES

### A. EQUIPMENT AND USE (CONFORMS TO ASTM D 1586 PROCEDURE)

1. Use penetration drilling equipment with pile driver type hammer.
2. Use a standard 24" long ASTM split spoon or split barrel coring device.
3. Do not use air or water during drilling operation.
4. Use a sand catcher when soft, porous material or sand is encountered.

### B. DRILLING OPERATION

It is extremely important to maintain in situ soil conditions throughout the drilling operation.

Although caving of materials is inevitable during the soil boring operation, the following method can be employed to keep it to a minimum.

1. Use more than one split spoon, keeping one clean and ready for use at all times.
2. Do NOT remove the contaminated split spoon from the hole until a decontaminated split spoon is ready for use.
3. Replace the contaminated split spoon with a clean split spoon immediately, reducing time between runs, thereby minimizing caving.

## III. SOIL SAMPLE COLLECTION

Since analyses may differ from one project to the next, sampling procedures should be tailored to meet the analytical specifications of each project.

### A. GENERAL SAMPLING PROCEDURE

1. Take samples from the split spoon at one foot intervals or at the intervals called for in the project description.
2. Open the device. Visually inspect the sample to determine caved portions and discard them.
3. Divide the remaining section of the core in half; each half represents one (1) foot of drill penetration.
4. Only analyze the bottom half of each core. This will minimize cross contamination from down hole caving.

5. Bag sample in a two mil Ziplock heavy duty plastic bag; squeeze out air, seal bag, or use mason jar with aluminum foil liner depending on parameter being sampled.
6. Transport and store in an individually labelled box or container.

**B. VOLATILE ORGANIC COMPOUNDS (VOC) SAMPLING PROCEDURE**

1. Clean the outside of the split spoon coring device prior to opening.
2. Disassemble split spoon and cut the core longitudinally, bottom to top, with a clean spatula.
3. Locate and discard the caved sections.
4. Subdivide the boring into one (1) foot sections.
5. Scoop out sample from the center of the core with a curved scoopula taking care that the sample has never contacted the side of the split spoon and has not been touched by hand.
6. Insert soil into a THM vial with a Teflon septum and cap tightly.
7. Using the spatula, place the remaining portion of the sample in an appropriate container.
8. Label the THM vial, place it on ice, and transport to the laboratory as soon as possible.

**C. ALTERNATE PROCEDURE**

Sometimes it is impossible to cut the core in half and take a sample from the center (e.g. rocky soil character). In a case such as this, the following method may be employed.

1. Locate and discard caved portion.
2. Sub-divide the boring into one (1) foot sections.
3. Take sample by filling a pint glass Mason jar as full as possible, thus eliminating all excess air and place on ice. Specially cleaned jars must be used (same cleaning/baking as VOC vials) and the caps must be screwed down over an aluminum foil seal.

#### IV. GEOLOGIC LOGS AND NOTES

The geologist and driller must keep detailed notes from which reports and geologic logs can be constructed.

These notes should include all information required to fully complete the Florida DER Water Well Contractor's Well Completion Report (if applicable). If not required, the minimum should include:

1. Date, start and finish time for each boring
2. Offset distance and direction or location of each boring
3. Footages of high porosity areas, caving, over-drilling, zones of poor recovery.
4. Footages of lost or no-sample.
5. Geologic descriptions and classifications - these may be completed in either the field or office.
6. Special care must be taken to avoid cross contamination of samples logged in the office.
7. Record Depth to Water. DTW readings are recorded to the average of undisturbed ground surface.

#### V. DECONTAMINATION PROCEDURE

To prevent cross contamination the following four phase cleaning procedure must be adhered to strictly.

- |         |  |
|---------|--|
| PHASE 1 | CLEANING OPERATION<br>Clean the split spoon in a bucket of tap water using a large sponge or brush. The objective of this operation is to wash off all adhering soil and debris. |
| PHASE 2 | WASH OPERATION<br>Wash the split spoon thoroughly in a tub of mild detergent and distilled water using a separate brush.   |
| PHASE 3 | RINSE OPERATION<br>Rinse the split spoon in a bucket of distilled water to remove detergent. Follow with a fresh rinse using a squeeze bottle or a cup of fresh distilled water. |
| PHASE 4 | DRY OPERATION<br>Dry both sides of the split spoon using a paper towel soaked in pesticide grade methanol.   |

Care should be taken to clean the bit head, sand catcher and tail assembly of the split spoon device following the same Four Phase Cleaning Procedures with these exceptions:

- 1) a two inch baby bottle brush should be used in the washing operation.
- 2) a squeeze bottle of pesticide grade methanol should be used for the dry operation instead of a pesticide grade methanol soaked towel.
- 3) special care should be taken to ensure that the sand catcher is properly decontaminated.

Brushes and/or sponges used in the cleaning and washing phases should not be interchanged. Cleaning, washing and rinse water should be changed frequently to ensure adequacy of decontamination. Care should be taken to keep hands clean when reassembling the split spoon.

#### **B. DRILLING EQUIPMENT DECONTAMINATION**

It is customary to drill from the least to most highly contaminated areas, thus each day's drilling should be layed out with this in mind. Wash and rinse the drilling rods inside and out between each boring. Wash the drilling rig as necessary to prevent cross-contamination.

#### **C. SPECIAL DECONTAMINATION PROCEDURE FOR SAMPLING IN OIL AND GREASE CONTAMINATED AREAS**

The split spoon should be hot-water pressure cleaned or steam cleaned before the Four Phase Decontamination Operation. The drill rod and drilling rig should be similarly cleaned between borings to prevent cross-contamination.

### **VI. QUALITY CONTROL SAMPLE PROCEDURE**

Quality control samples should be taken regularly; a minimum of one per day or one per project. It is generally recommended that at least one quality control sample be taken per soil boring. Clean disposable surgical gloves should be worn when taking samples. The sample should be taken randomly, without advance notice, to insure consistency in cleaning.

Quality control samples should be analyzed for the same parameters as those called for in the project when needed.

**A. RINSE SAMPLING PROCEDURE**

1. Rinse the inside of the assembled decontaminated split spoon with distilled water and collect the sample in a Mason jar as it drains from the opposite end of the coring device.
2. Use the same preservation and transportation procedure as employed for water samples for identical parameters.

**B. WIPE SAMPLING PROCEDURE**

1. Wipe the inside of the split spoon with a fresh sterilized cotton ball moistened with deionized, distilled water and store in an air tight container.

**VII. MONITORING WELL DRILLING AND INSTALLATION**

**A. DRILLING OPERATION**

1. Use hollow stem augers to desired depth.
2. The bore hole shall be at least six (6) inches in diameter. All temporary casings must be removed.

**B. INSTALLATION PROCEDURE**

1. The monitoring well(s) shall be two (2) inches in diameter with coupled or threaded joints. The monitoring well casing shall be constructed of stainless steel, PVC (schedule 40 minimum) or black iron or equivalent. The materials may be specified as a license condition.
2. The monitoring well screen shall be two (2) inch diameter, with slot size 0.010 inches.
3. A tail pipe two (2) feet in length, connected at the bottom of the well screen to accumulate sediment shall be a two (2) inch diameter casing with coupled or threaded joints. The bottom of the tail pipe shall be sealed.
4. Solvents or P.V.C. glue shall NOT be used. P.V.C. threaded/slip couplings may be secured using stainless steel screws or rivets.
5. The monitoring well casing shall be installed sufficiently plumb and straight/vertical in the drilled hole.

6. Screen depths shall be based upon site specific hydrologic conditions. Generally, the top of the screen should be set one to two feet above the encountered water table.
7. A sand pack shall be used, the annular space between the drilled hole and the monitoring well screen shall be sand packed with clean washed quartz sand to a depth of approximately two (2) feet above the top of the well screen.
8. Clean washed sand shall be used as a seal above the sand pack material to avoid grout migration into the sand pack.
9. The remaining bore hole shall be filled with cement grout from the top of the fine sand seal to approximately one (1) foot below grade.
10. The well-heads shall be slightly elevated (1 inch) above grade to prevent run-off into the well head.
11. The top of the monitoring well shall be protected with a threaded slip P.V.C. removable cap containing a vent hole.
12. When necessary, monitoring well-heads may extend two (2) feet above grade. A locking protective steel casing and concrete pad shall be installed around the monitoring well.
13. A designated identification number shall be clearly visible on each completed monitoring well.

#### C. WELL COMPLETION AND DEVELOPMENT

1. All completed wells will be developed by surging or interrupted over-pumping, using a centrifugal gasoline powered pump, a peristaltic pump, or a teflon bailer in low permeability zones. A fully developed well should be producing water that is free of sand and drilling contaminants.
2. When necessary, completed monitoring wells will be surveyed at the top of the well casing (measuring point) with reference to the N.G.V.D.

### VIII. GROUNDWATER SAMPLING

#### A. Purging monitoring wells

1. Determine well volume:
  - a. sound the well to determine the depth using a clean tape measure,

- b. determine the depth to water (DTW) using a tape measure and chalk,
  - c. calculate the volume of water in the well casing (see attached groundwater sampling work sheet).
2. Pump well:
- a. 3 to 5 times the volume of the well casing should be evacuated, using a gasoline powered centrifugal pump, a peristaltic pump, a bladder pump, or a teflon bailer.
  - b. during purging, temperature, conductivity, and pH will be measured after each volume of the casing is pumped.

B. Decontamination of sampling equipment

1. Peristaltic pump; rinse tubing with pesticide-grade methanol and distilled water.
2. Bailer; wash in laboratory detergent using a bottle brush. Rinse with distilled water, then rinse and dry with pesticide-grade methanol.

C. Sampling *when is this used*

1. only a peristaltic or bladder pump, or teflon bailer should be used for sample collection. Tubing on pumps should be silicon or teflon. The pump and tubing should be flushed with sample water prior to filling sample containers. If not used for purging, bailers should be triple rinsed.
2. No filtering device will be used during sample collection
3. Sample containers and preservatives used for each parameter are detailed in Table 1.

D. Quality Control/Quality Assurance

To insure the integrity of the cleaning process of sampling devices, field blanks will be taken regularly; a minimum of one per day per project. Quality control samples should be analyzed for the same parameters as those called for in the project when needed.

1. Peristaltic or bladder pump: water from a clean well will be run through the pump; the same preservation and transportation procedures as with other water samples will be used.
2. Bailer: The bailer will be filled with water from a clean well; identical preservation and transportation procedures will be employed as with other water samples.



#### REFERENCES

1. Broward County Environmental Quality Control Board Minimum Requirements for Monitoring Wells.
2. Remedial Action at Waste Disposal Sites EPA-625/6-82-006.
3. Supplement A to Standard Operating Procedures and Quality Assurance Manual, Florida Department of Environmental Regulation, Tallahassee Solid Waste Section, Tallahassee Special Analytical Laboratory, Draft, June 15, 1981.

## EXAMPLE OF SAMPLE CONTAINER LABEL

<b>LABORATORY SAMPLE</b>			<b>LOG#</b>
<b>COLLECTED</b>	<b>DATE:</b>	<b>TIME:</b>	<b>BY:</b>
<b>RECEIVED</b>	<b>DATE:</b>	<b>TIME:</b>	<b>BY:</b>
<b>CLIENT NAME: /CONTACT:</b>			<b>REQ. BY:</b>
<b>ADDRESS:</b>			<b>PHONE:</b>
<b>DESIGNATION:</b>			<b>PRES.</b>
<b>DESCRIPTION:</b>			
<i>Envirofact, Inc.</i> Environmental Consulting and Analysis			4790 N.W. 157 ST. HIALEAH, FL. 33014 (305) 620-1700 1-800-432-9706

Attachments for  
soil boring, monitoring  
well and associated  
protocols, didn't  
get attached to the  
written portion - sorry!

JMP

**RECEIVED**

AUG 27 1985

Broward County  
ENVIRONMENTAL QUALITY CONTROL BOARD

*Enviroimpact, Inc.*

*Environmental Consulting and Analysis*

4790 N.W. 157th Street / Hialeah, Florida 33014  
Phone: (305) 620-1700

**CHAIN-OF-CUSTODY RECORD**

No 0000

Project Location			Name of Client		Project Telephone No.		Project Number			
Item Number	Sample Number	Number & Size of Containers	Description			Transfer No. & Check				
						1	2	3	4	
VOID										
Person Responsible for Sample			Date	Time	Transfer Number	Item Number	Transfers Relinquished by	Accepted by	Date	Time
Remarks					1					
					2					
					3					

## GROUNDWATER SAMPLING WORK SHEET FOR 2 INCH DIAMETER WELLS

4790 N.W. 157 Street  
Hialeah, Florida 33014  
Telephone: (305) 620-1700  
Fax: (305) 432-9706

CLIENT: \_\_\_\_\_

WELL #: \_\_\_\_\_

DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

SAMPLER: \_\_\_\_\_

DEPTH OF WELL: \_\_\_\_\_

HELD - WET = DEPTH TO WATER

WATER TABLE: \_\_\_\_\_ = \_\_\_\_\_

VOLUME OF WATER =  $V_{ft^3} = (0.022 \text{ ft}^2) \text{ (well depth-depth to water)}$

$$V_{ft^3} = (0.022 \text{ ft}^2) ( \text{ } \text{ft} - \text{ } \text{ft} ) = \text{ } \text{ft}^3$$

$$V_{gal} = (V_{ft^3}) (7.48 \text{ gallons/ft}^3)$$

$$V_{gal} = ( \text{ } \text{ft}^3 ) (7.48 \text{ gallons/ft}^3) = \text{storage volume}$$

VOLUME	CUMULATIVE VOLUME	T (°C)	COND	pH
1				
2				
3				
4				
5				
6				
7				

NOTES: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Parameter No./Name	Container <sup>1</sup>	Preservation <sup>1,2</sup>	Maximum holding time <sup>3</sup>
<b>Table IA—Bacterial Tests:</b>			
1-4. Coliform, fecal and total	P, G	Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> <sup>4</sup>	6 hours.
5. Fecal streptococci	P, G	do	Do.
<b>Table IB—Inorganic Tests:</b>			
1. Acidity	P, G	Cool, 4°C	14 days
2. Alkalinity	P, G	do	Do.
3. Ammonia	P, G	Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH < 2	28 days
9. Biochemical oxygen demand	P, G	Cool, 4°C	48 hours
11. Bromide	P, G	None required	28 days
14. Biochemical oxygen demand, carbonaceous	P, G	Cool, 4°C	48 hours
15. Chemical oxygen demand	P, G	Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH < 2	28 days
16. Chloride	P, G	None required	Do.
17. Chlorine, total residual	P, G	do	Analyze immediately.
21. Color	P, G	Cool, 4°C	48 hours
23-24. Cyanide, total and amenable to chlorination	P, G	Cool, 4°C, NaOH to pH > 12, 0.6g ascorbic acid <sup>5</sup>	14 days <sup>6</sup>
25. Fluoride	P	None required	28 days
27. Hardness	P, G	HNO <sub>3</sub> to pH < 2, H <sub>2</sub> SO <sub>4</sub> to pH < 2	9 months
28. Hydrogen ion (pH)	P, G	None required	Analyze immediately.
31, 43. Kjeldahl and organic nitrogen	P, G	Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH < 2	28 days
<b>Table IC—Metals:</b>			
18. Chromium VI	P, G	Cool, 4°C	24 hours
25. Mercury	P, G	HNO <sub>3</sub> to pH < 2	28 days
3, 3-8, 10, 12, 13, 18, 20, 22, 26, 29, 30, 32-34, 36, 37, 45, 47, 51, 52, 56-60, 62, 63, 70-72, 74, 75. Metals, except chromium VI and mercury	P, G	do	6 months
38. Nitrate	P, G	Cool, 4°C	48 hours
39. Nitrate-nitrite	P, G	Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH < 2	28 days
40. Nitrite	P, G	Cool, 4°C	48 hours
41. Oil and grease	G	Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH < 2	28 days
42. Organic carbon	P, G	Cool, 4°C, HCl or H <sub>2</sub> SO <sub>4</sub> to pH < 2	Do.
44. Orthophosphate	P, G	Filter immediately. Cool, 4°C	48 hours
46. Oxygen, Dissolved Probe	G Bottle and top	None required	Analyze immediately.
47. Wastewater	do	Fix on site and store in dark	8 hours
48. Phenols	G only	Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH < 2	28 days
49. Phosphorus (elemental)	G	Cool, 4°C	48 hours
50. Phosphorus, total	P, G	Cool, 4°C, H <sub>2</sub> SO <sub>4</sub> to pH < 2	28 days
53. Residue, total	P, G	Cool, 4°C	7 days
54. Residue, Filterable	P, G	do	48 hours
55. Residue, Nonfilterable (TSS)	P, G	do	7 days
56. Residue, Settlingable	P, G	do	48 hours
57. Residue, volatile	P, G	do	7 days
61. Silica	P	do	28 days
64. Specific conductance	P, G	do	Do.
65. Sulfate	P, G	do	Do.
66. Sulfide	P, G	Cool, 4°C add zinc acetate plus sodium hydroxide to pH > 9	7 days
67. Sulfite	P, G	None required	Analyze immediately.
68. Surfactants	P, G	Cool, 4°C	48 hours
69. Temperature	P, G	None required	Analyze
73. Turbidity	P, G	Cool, 4°C	48 hours
<b>Table ID—Organic Tests:</b>			
13, 18-20, 22, 24-28, 34-37, 39-43, 45-47, 55, 56, 58, 59, 62-65, 97. Purgeable Halocarbons	G, Teflon-lined septum	Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> <sup>4</sup>	14 days
6, 57, 80. Purgeable aromatic hydrocarbons	do	Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> <sup>4</sup> , HCl to pH 2 <sup>7</sup>	Do.
3, 4. Acrolein and acrylonitrile	do	Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> <sup>4</sup> , Adjust pH to 4-5 <sup>10</sup>	Do.
23, 30, 44, 49, 53, 67, 70, 71, 83, 85, 86. Phenols <sup>11</sup>	G, Teflon-lined cap	Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> <sup>4</sup>	7 days until extraction, 40 days after extraction
7, 38. Benzodioxins <sup>12</sup>	do	do	7 days until extraction <sup>13</sup>
14, 17, 48, 50-52. Phthalate esters <sup>11</sup>	do	Cool, 4°C	7 days until extraction, 40 days after extraction
72-74. Neuroamines <sup>14</sup>	do	Cool, 4°C, store in dark, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> <sup>4</sup>	Do.
76-82. PCBs <sup>15</sup> acrylonitrile	do	do	Do.
54, 55, 69. Neuroamines and isophorone <sup>11</sup>	do	Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> <sup>4</sup> store in dark	Do.
1, 2, 5, 8-12, 32, 33, 58, 59, 64, 68, 84, 85. Polynuclear aromatic hydrocarbons <sup>11</sup>	do	do	Do.
15, 16, 21, 31, 75. Halocarbon <sup>11</sup>	do	Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> <sup>4</sup>	Do.
29, 35-37, 60-63, 91. Chlorinated hydrocarbons <sup>11</sup>	do	Cool, 4°C	Do.
87. TCDD <sup>11</sup>	do	Cool, 4°C, 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> <sup>4</sup>	Do.
<b>Table IE—Pesticides Tests:</b>			
1-70. Pesticides <sup>11</sup>	do	Cool, 4°C, pH 5-9 <sup>11</sup>	Do.
<b>Table IF—Radiological Tests:</b>			
1-5. Alpha, beta and radium	P, G	HNO <sub>3</sub> to pH < 2	6 months

Table II Notes

<sup>1</sup> Polyethylene (P) or Glass (G)

<sup>2</sup> Sample preservation should be performed immediately upon sample collection. For composite chemical samples each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then chemical samples may be preserved by maintaining at 4°C until compositing and sample splitting is completed.

<sup>3</sup> When any sample is to be shipped by common carrier or sent through the United States Mails, it must comply with the Department of Transportation Hazardous Materials Regulations (49 CFR Part 172). The person offering such material for transportation is responsible for ensuring such compliance. For the preservation requirements of Table II, the Office of Hazardous Materials, Materials Transportation Bureau, Department of Transportation has determined that the Hazardous Materials Regulations do not apply to the following materials: Hydrochloric acid (HCl) in water solutions at concentrations of 0.04% by weight or less (pH about 1.88 or greater); Nitric acid (HNO<sub>3</sub>) in water solutions at concentrations of 0.15% by weight or less (pH about 1.82 or greater); Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) in water solutions at concentrations of 0.35% by weight or less (pH about 1.15 or greater); and Sodium hydroxide (NaOH) in water solutions at concentrations of 0.080% by weight or less (pH about 12.30 or less).

<sup>4</sup> Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid. Samples may be held for longer periods only if the permittee, or monitoring laboratory, has data on file to show that the specific types of samples under study are stable for the longer time, and has received a variance from the Regional Administrator under § 136.3(e). Some samples may not be stable for the maximum time period given in the table. A permittee, or monitoring laboratory, is obligated to hold the sample for a shorter time if knowledge exists to show that this is necessary to maintain sample stability. See § 136.3(e) for details.

<sup>5</sup> Should only be used in the presence of residual chlorine.

<sup>6</sup> Maximum holding time is 24 hours when sulfide is present. Optionally all samples may be tested with lead acetate paper before pH adjustments in order to determine if sulfide is present. If sulfide is present, it can be removed by the addition of calcium nitrate powder until a negative spot test is obtained. The sample is filtered and then NaOH is added to pH 12.

<sup>7</sup> Samples should be filtered immediately on-site before adding preservative for dissolved metals.

<sup>8</sup> Guidance applies to samples to be analyzed by GC, LC, or GC/MS for specific compounds.

<sup>9</sup> Samples requiring no pH adjustment must be analyzed within seven days of sampling.

<sup>10</sup> The pH adjustment is not required if acrolein will not be measured. Samples for acrolein receiving no pH adjustment must be analyzed within 3 days of sampling.

<sup>11</sup> When the extractable analysis of concern fall within a single chemical category, the specified preservative and maximum holding times should be observed for optimum safeguard of sample integrity. When the analysis of concern fall within two or more chemical categories, the sample may be preserved by cooling to 4°C, reducing residual chlorine with 0.008% sodium bisulfite, storing in the dark, and adjusting the pH to 5-9; samples preserved in this manner may be held for seven days before extraction and for forty days after extraction. Exceptions to this general preservation and holding time procedure are noted in footnote 5 for the requirement for immediate reduction of residual chlorine, and footnotes 12, 13 for the analysis of benzodioxins.

<sup>12</sup> If 1,2-dichlorobenzene is likely to be present, adjust the pH of the sample to 4.0±0.2 to prevent rearrangement to benzodioxins.

<sup>13</sup> Extracts may be stored up to 7 days before analysis if storage is conducted under an inert (oxygen-free) atmosphere.

<sup>14</sup> For the analysis of diphenylhydroxylamine, add 0.008% Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub> and adjust pH to 7-10 with NaOH within 24 hours of sampling.

<sup>15</sup> The pH adjustment may be performed upon receipt at the laboratory and may be omitted if the samples are extracted within 72 hours of collection. For the analysis of aldrin, add 0.008% Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>.

April 15, 1986

GMS 86-264

Mr. T. Lawrence  
Broward County EQCB  
500 S.W. 14th Court  
Ft. Lauderdale, FL 33315

Subject: Review of Contamination Assessment Report and Recommendations  
for Remedial Action, Cliff Berry, Incorporated Site Closure

Amoco Oil Company appreciates the opportunity to comment on the subject report. Following are my comments.

#### RESULTS

##### Soil Samples

1. Second paragraph states that no phenols were found in the soil samples, yet phenol concentrations were determined to be present in many of the soil samples collected during the initial investigation. In particular, 127 mg/kg were analyzed in the Drainfield No. 2 sample, 13.6 mg/kg were analyzed in the South Boundary 2B soil/water interface sample, and 121 mg/kg were analyzed in the South Boundary 6A soil/water interface sample. Lower concentrations in other soil samples were also reported in the initial work.
2. PCB concentrations were found in only two soil samples collected during the recent investigation. However, concentrations were present in several samples collected during the initial investigation, particularly the Drain Field No. 2 sample.
3. Second paragraph. A concentration of 63 ppb total xylene was reported in the 0-1 ft sample from boring 7. This is in addition to the 50.2 ppm concentration reported in the intermediate sample from the same boring.
4. Third paragraph. Oil and grease concentrations do not decrease with depth in samples from test boring nos. 1, 5, 6, 9, and 12.

6. Third paragraph. Barium concentrations do not increase with depth in borings 3, 4, and 9.

#### Groundwater Samples

1. Paragraph 1. In addition to the groundwater sampled from the drain field in the original work, some BTX's were found in water samples collected from trenches, namely, 19.4 mg/kg in the sample from South Boundary No. 4, and 4,180 gm/kg total xylene in the sample from West Boundary No. 3. The same comment can be made regarding several samples for other parameters, i.e., 1,3-dichlorobenzene concentration of 658 mg/kg in the water sample from South Boundary No. 4; 16 mg/kg PCB, 25 mg/kg oil and grease, and 42 mg/kg 1,4-dichlorobenzene in the sample from West Boundary No. 2.

#### DISCUSSION AND RECOMMENDATIONS

1. First paragraph. The clay layer is not present beneath the entire site as evidenced by its lack of presence in the area of TB6. Also, according to the cross section, it is only slightly in excess of 2 ft thick in TB4.
2. Third paragraph. It is very risky to draw conclusions concerning agreement of concentrations by comparing only two samples collected in the same area by different methods. Be that as it may, the soil sample from WB4A was collected from the same vertical range as the 4-5 ft sample from TB5. A barium concentration of 210 ppb<sub>m</sub> does not "correspond fairly well" with a concentration of 646 ppb<sub>m</sub>. Likewise, an oil and grease concentration of 205 ppm does not compare well with a concentration of 1,419 ppm.
3. Fourth paragraph and Table 1. The groundwater sample analysis listed is not from trench WB4, but from SB4. Thus, no comparison can be made.
4. Fifth paragraph. I would agree that water samples collected from the trench would tend to exhibit higher concentrations of contaminants than samples collected from properly installed monitoring wells. **what the above does exhibit, however, is that significant soil contamination is present.** It remains to be seen what impact this contamination will have on groundwater in the future.

Recommendation 1. Analysis for volatile aromatic hydrocarbons (EPA 602) and zinc should be included.

Recommendation 2. Proposed concentration of 10,000 ppm oil and grease to trigger excavation is too high. Elevated concentrations of oil and grease are present (greater than 500 ppm) in the soil over a large area of the site. Further, some of the higher concentrations are present in the area of the water table where monitor wells are not

present (TB4, TB6, TB8, and TB9). Is landfarming allowable? If so, maybe landfarming of a major portion of the site should be considered. Amoco feels that a minimum of four additional monitor wells should be installed along a line defined by borings TB2 through TB9. At present, there is no definition of groundwater quality except along the perimeter of the property.

Recommendation 4. What type of dig and test method is proposed? It was stated earlier that the trenching method was unsatisfactory. What is proposed for disposal of the groundwater recovered in the drainfield area?

Regarding groundwater quality monitoring as outlined in recommendation no. 1, while agreeing that long term monitoring is necessary, Amoco has a basic, underlying concern. That concern centers on the following hypothetical situation:

1. Cliff Berry, Incorporated, completes monitoring and other mitigation work to the satisfaction of DER and EQCB.
2. No development to the property occurs.
3. Several years later monitoring determines that groundwater and/or soil contamination have reoccurred, or at least reappeared.

While not desiring to place unnecessary burden on Cliff Berry, Incorporated, the fact remains that that firm was responsible for original contamination of the property. Amoco's position is, that barring any new sources of contamination, Cliff Berry, Incorporated should remain liable for future evidences of groundwater and/or soil contamination.

T. Gogel  
Professional Hydrogeologist

TG:mph  
86105ART0090

cc: R. G. Farmer, Chicago  
M. P. Hubbarth, Chicago  
J. A. Lamping, Chicago  
J. Pickett, Chicago  
C. B. Smiley, Ft. Lauderdale  
S. Thomas, Chicago  
G. W. Schmidt, Tulsa



RECEIVED

APR 25 11 44

April 1, 1986

Mr. Terry Lawrence  
Broward County Environmental Quality  
Control Board  
500 SW 14th Court  
Ft. Lauderdale, Florida 33315

RE: Cliff Berry Site

Dear Mr. Lawrence:

A discrepancy exists between the contaminant levels found in the soils and the levels found in the monitoring wells. The organic soil/water partitioning equation indicates the soil contamination should cause water concentrations to be in the 100's of parts per billion. This is assuming a 20% organic soil content. A lower, more realistic, value for the organic soil content would yield higher water concentrations.

One obvious cause of this discrepancy is the fact that 4 of the 6 wells are located in cleaner areas of the site. At least one additional well, near TB6, will be needed. Another possible cause could be the well construction, sampling, or analytical procedures. Information on these procedures needs to be examined to determine if resampling will be required. The Bureau does not currently have this information to examine.

The clay layer underneath the site is not acting as a competent confining layer. The fill in TB6 clearly breeches this layer. The oil and grease and solvents found in the soil below this layer also indicates that the downward migration has not been stopped.

*Friedrich Coeff  
(found in physical chem)  
partially using TOC.*

Mr. Terry Lawrence  
April 1, 1986-  
Page two

The proposed excavation and landfarming should help remove the source and slow migration. The method of determining the areal extent of the excavation, as well as suggested final levels of oil and grease, need to be proposed. The benefits of fertilizing and tilling the entire site surface should be evaluated.

If you have any questions regarding these comments, please contact myself or John Gentry at (904)488-0190.

Sincerely,

Gordon Dean  
Bureau of Operations

GD/cs

TONY Gogel QUESTIONS/out until May 5<sup>th</sup>

No - Fire wells with steel casings  
could exhibit rust and/or corrosion that could  
falsely represent actual groundwater conditions

Furthermore, the sampling of only 2 wells  
is not representative of groundwater in the  
area.

Barium was sampled for in standing water in  
SB4 but not monitoring well W-2

Why was application for GWMP,  
submitted in Apr. of 1985 withdrawn

Brad Rieck

Applicants Exhibit 3  
BR ID P.W. 12-11-85  
0 usem

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE: WATER - FRESH ☒ SALINE ☐ SEDIMENT ☐

SPAN LAB ID

24747

Petitioner # 3 for ID  
4-23-86 BR

AGENCY CODE 51	STORET STATION NUMBER	DATE (M/D/Y) 072485	TIME A - GRAB SAMPLE
			TIME B COMPOSITE SAMPLE
			COMP BEGIN
			END

REMARKS Job #	BLANK	LOCATION Berry Nursery	PSL Lab
------------------	-------	---------------------------	---------

SAMPLE SOURCE: <input checked="" type="checkbox"/> GROUNDWATER <input type="checkbox"/> MONITORING WELL <input type="checkbox"/> DRINKING WATER WELL	<input checked="" type="checkbox"/> SURFACE WATER <input type="checkbox"/> RIVER/STREAM <input type="checkbox"/> LAKE/POND <input type="checkbox"/> ESTUARY/BAY	<input type="checkbox"/> EFFLUENT <input type="checkbox"/> FIELD BLANK <input type="checkbox"/> FIELD DUPLICATE <input type="checkbox"/> OTHER
---	--	---

TAS #	FIELD/LAB ID # 51-BLK-M	PRESERVATION	WELL #	SPECIFIC CONDUCTANCE	UNIT µMHOS/CM	CODE 94
SAMPLED BY: Rieck				TEMPERATURE	STD UNIT	400
FIELD REPORT PREPARED BY:				MEASURED BY:	°C	10

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM 11-30-85 LHM		
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						
CADMIUM						

CALCIUM

STORET FIELD SAMPLE #

AGENCY COLLECTING

AGENCY ANALYZING

L = Actual value is known to be greater than  
U = Material was analyzed for but not detected  
Minimum Detection Limit

DATE RECEIVED: 10/12/85

CHAIN OF CUSTODY SAMPLE

SAMPLE TYPE: WATER - PESTICIDE EXTRACTABLES

REMARKS PSL LAB BLANK	LOCATION Berry Nursery
--------------------------	---------------------------

[illegible]

- Estimated Value
- Actual value is known to be less than value given
- Actual value is known to be greater than value given.
- Material was analyzed for but not detected. The number is the Minimum Detection Limit.

ALIST	8-7-85	CA VERIFIED	REPORT VERIFIED BY	DATE
JH		7	RMP	8-8-85

SPAN LAB ID

24754

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE **WATER** - FRESH ☒ SALINE ☐ SEDIMENT ☐

AGENCY CODE STORET STATION NUMBER

51

DATE (M/D/Y)

072485

TIME A - GRAB SAMPLE

TIME B COMPOSITE SAMPLE

COMP

BEGIN

END

REMARKS

Job #

BLANK

LOCATION

Berry Nursery

PSL Lab

SAMPLE SOURCE:

GROUNDWATER ☐

MONITORING WELL ☐

DRINKING WATER WELL ☐

SURFACE WATER

RIVER/STREAM ☐

LAKE/POND ☐

ESTUARY/BAY ☐

EFFLUENT ☐

FIELD BLANK ☐

FIELD DUPLICATE ☐

OTHER ☐

TAS #	FIELD/LAB ID #	PRESERVATION	WELL #	SPECIFIC CONDUCTANCE	UNIT	CODE
	51-BLK-V	Ice			µMHOS/CM	94
SAMPLED BY:	R. R. H.			PH	STD UNIT	400
FIELD REPORT PREPARED BY:				TEMPERATURE	°C	10
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM		
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						
CADMIUM						
CALCIUM						

CHAIN OF CUSTODY SAMPLE

STORET FIELD SAMPLE #

AGENCY COLLECTING

AGENCY ANALYZING

\* Estimated Value

\* Actual value is known to be less than value given.

L = Actual value is known to be greater than value given

U = Material was analyzed for but not detected. The number is Minimum Detection Limit

DATE OF ANALYSIS

DATE OF REPORT

NOTE: THIS FORM APPLIES TO ONLY SURFACE WATER SAMPLES

NOTE: THIS FORM APPLIES TO ONLY SURFACE WATER SAMPLES

## Chemical Analysis Report Form - PURGEABLES

Sample Type: Water (Fresh)

Agency Code SA LAB-	STORET Station Number none	Date Sampled (M/D/Y) 07/24/85	Time A - Grab Sample NA	Time B - Composite Sample NA	Depth, Feet NA
			COMP BEGINNING END	NA NA	
Remarks Blank			Site Location: PSL Lab		

PHAS # 1315 FIELD ID # 51-BLK-V WELL # NA Sample Source: Field Blank

PARAMETER	UNIT	STORET CODE	VALUE	PARAMETER	UNIT	STORET CODE	VALUE
Benzene	ug/L	34030	1 U	o-Chlorotoluene	ug/L	77970	1 U
Bromodichloroethane	ug/L	32101	1 U	1,2-Dibromoethane	ug/L	77651	1 U
Bromoform	ug/L	32104	1 U	Styrene	ug/L	77128	1 U
Bromomethane	ug/L	34413	1 U	Xylenes	ug/L	81551	1 U
Carbon tetrachloride	ug/L	32102	1 U	cis-1,2-Dichloroethene	ug/L		1 U
Chlorobenzene	ug/L	34301	1 U	Other Purgeables	ug/L		2 J
Chloroethane	ug/L	34311	1 U				
2-Chloroethylvinyl ether	ug/L	34576	1 U				
Chloroform	ug/L	32106	1 U				
Chloromethane	ug/L	34418	1 U				
1,2-Dichlorobenzene	ug/L	34536	1 U				
1,3-Dichlorobenzene	ug/L	34566	1 U				
1,4-Dichlorobenzene	ug/L	34571	1 U				
Dibromochloromethane	ug/L	32105	1 U				
1,1-Dichloroethane	ug/L	34496	1 U				
1,2-Dichloroethane	ug/L	34531	1 U				
1,1-Dichloroethene	ug/L	34501	1 U				
trans-1,2-Dichloroethene	ug/L	34546	1 U				
1,2-Dichloropropane	ug/L	34541	1 U				
cis-1,3-Dichloropropene	ug/L	34561	1 U				
trans-1,3-Dichloropropene	ug/L	34561	1 U				
Ethylbenzene	ug/L	34371	1 U				
Methylene chloride	ug/L	34423	1 U				
1,1,2,2-Tetrachloroethane	ug/L	34516	1 U				
Tetrachloroethene	ug/L	34475	1 U				
1,1,1-Trichloroethane	ug/L	34506	1 U				
1,1,2-Trichloroethane	ug/L	34511	1 U				
Trichloroethene	ug/L	39180	1 U				
Toluene	ug/L	34910	1 U				
Vinyl chloride	ug/L	39175	1 U				
				STORET FIELD SAMPLE #		29	
				AGENCY COLLECTING		27	
				AGENCY ANALYZING		28	8066

J - Estimated Value  
K - Actual value is known to be less than value given.  
NA - Not analyzed for this compound.  
L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.  
E - Scientific Notation (Example:  $6 \times 10^4 = 6E4$ )  
\* - Confirmed by PID/Hall-Detectors

ANALYST

QA VERIFIED BY

LAB REPORT VERIFIED BY

DATE

8/14/85

8-14-85

RWP

R-15-85

Sample type: Water (Fresh)

[illegible]



CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE WATER - FRESH ☒ SALINE ☐ SEDIMENT ☐

AGENCY CODE 51	STORET STATION NUMBER	DATE (M/D/Y) 072485	TIME A - GRAB SAMPLE	CERT
			TIME B COMPOSITE SAMPLE	
			COMP BEGIN END	

REMARKS Job # BLANK LOCATION Berry Nursery PSL Lab

SAMPLE SOURCE: <input checked="" type="checkbox"/> RAINWATER <input type="checkbox"/> MONITORING WELL <input type="checkbox"/> DRINKING WATER WELL	<input type="checkbox"/> SURFACE WATER <input type="checkbox"/> RIVER/STREAM <input type="checkbox"/> LAKE/POND <input type="checkbox"/> ESTUARY/BAY	<input type="checkbox"/> EFFLUENT <input type="checkbox"/> FIELD BLANK <input type="checkbox"/> FIELD DUPLICATE <input type="checkbox"/> OTHER
---	---	---

TAS #	FIELD/LAB ID # 51-BLK-PCBYA	PRESERVATION Ice	WELL #	SPECIFIC CONDUCTANCE µMHOS/CM	UNIT 94	CODE #
SAMPLED BY: Kreech				PH	STD UNIT	400
FIELD REPORT PREPARED BY:				TEMPERATURE	°C	10
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM		
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
Al req'd all sediments				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						

CHAIN OF CUSTODY SAMPLE

CADMIUM	STORET FIELD SAMPLE #	29
CALCIUM	AGENCY COLLECTING	25
	AGENCY ANALYZING	28

\* Estimated Value  
- Actual value is known to be less than value given  
U - Actual value is known to be greater than value given  
N - Material was analyzed for but not detected. The number Minimum Detection Limit

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE WATER - FRESH ☒ SALINE ☐ SEDIMENT ☐

AGENCY CODE 51	STORET STATION NUMBER	DATE (M/D/Y) 072485	TIME A - GRAB SAMPLE 1630	TIME B COMPOSITE SAMPLE
			COMP	BEGIN END

REMARKS Job # LOCATION Berry Nursery

SAMPLE SOURCE: ☒ SURFACE WATER ☐ EFFLUENT: ☐  
GROUNDWATER ☐ RIVER/STREAM: ☐ FIELD BLANK: ☐  
MONITORING WELL: ☐ LAKE/POND: ☐ FIELD DUPLICATE: Ditch ☒  
DRINKING WATER WELL: ☐ ESTUARY/BAY: ☐ OTHER:

TAS #	FIELD/LAB ID #	PRESERVATION	WELL #	SPECIFIC CONDUCTANCE	UNIT	CODE
	51-D-PCBYP Ice				µMHOS/CM	94
SAMPLED BY: Riech / Thiel				PH	STD UNIT	400
FIELD REPORT PREPARED BY: Riech				TEMPERATURE	°C	10
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM		
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al rec'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						
CADMIUM						
CALCIUM						

CHAIN OF CUSTODY SAMPLE

\* - Estimated Value  
L - Actual value is known to be less than value given.  
U - Actual value is known to be greater than value given.  
M - Material was analyzed for but not detected. The number Minimum Detection Limit.  
AGENCY COLLECTING  
AGENCY ANALYZING  
DATE

24737

SAMPLE TYPE: WATER - PESTICIDE EXTRACTABLES

AGENCY CODE	STORET STATION NUMBER	DATE	1630	DEPTH
SA LAB		072485	TIME 3 COMPOSITE SAMPLE	
			COMP	BEGIN
				END

**REMARKS**

51-D

LOCATION

Berry Nursery Dite

[illegible]

- Estimated Value
- Actual value is known to be less than value given.
- Actual value is known to be greater than value given.
- Material was analyzed for but not detected. The number is the Minimum Detection Limit.

ANALYST	CA VERIFIED	REPORT VERIFIED BY	DATE
JB 8-7-85	Y 8-8-85	RWP	8-8-85

CHEMICAL ANALYSIS REPORT FORM

SPAN LAB ID 24739

SAMPLE TYPE WATER - FRESH ☐ SALINE ☐ SEDIMENT ☒

AGENCY CODE <b>51</b>	STORET STATION NUMBER	DATE (M/D/Y) <b>072485</b>	TIME A - GRAB SAMPLE <b>1630</b>	TIME B COMPOSITE SAMPLE
			COMP	BEGIN END

REMARKS  
**Job #**

LOCATION  
**Berry Nursery**

SAMPLE SOURCE:  
☒ SURFACE WATER  
☐ RIVER/STREAM  
☐ LAKE/POND  
☐ ESTUARY/BAY  
☐ EFFLUENT  
☐ FIELD BLANK  
☐ FIELD DUPLICATE  
☐ OTHER: **Ditch**

TAS #	FIELD/LAB ID # <b>51-SD-PCB4P</b>	PRESERVATION <b>Ice</b>	WELL # <b>-</b>	SPECIFIC CONDUCTANCE	UNIT <b>µMHOS/CM</b>	CODE <b>94</b>
SAMPLED BY: <b>Rice / Thiel</b>				PH	STD UNIT	<b>400</b>
FIELD REPORT PREPARED BY: <b>Rice</b>				TEMPERATURE	°C	<b>10</b>
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM		
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						
CADMIUM						
CALCIUM						

1 - Estimated Value  
2 - Actual value is known to be less than value given.  
3 - Actual value is known to be greater than value given.  
4 - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

STORET FIELD SAMPLE #  
AGENCY COLLECTING  
AGENCY ANALYZING

DATE REPORT GENERATED

STATE TITLES APPLY TO ONLY SURFACE WATER SAMPLES  
USE OF TITLES APPLY TO FIELD MEASUREMENTS

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE: **SEDIMENT** - PESTICIDE EXTRACTABLES

AGENCY CODE	STORET STATION NUMBER	DATE	TIME A - GRAB SAMPLE	DEPTH
LAB		072485	1630	1
			TIME B COMPOSITE SAMPLE	
			COMP	BEGIN
				END

REMARKS

LOCATION

Berry Nursery

PARAMETER	UNIT	CODE	VALUE	PARAMETER	UNIT	CODE	VALUE
Aldrin	µg/kg	39333	4 U	32. Total PCB's	µg/kg	39519	100
a-BHC	µg/kg	39076	3 U	33. PCB-1016	µg/kg	39514	100
b-BHC	µg/kg	34257	3 U	34. PCB-1221	µg/kg	39491	100
d-BHC	µg/kg	34262	3 U	35. PCB-1232	µg/kg	39495	100
g-BHC	µg/kg	39343	3 U	36. PCB-1242	µg/kg	39499	100
Chlordane	µg/kg	39351	100 U	37. PCB-1248	µg/kg	39503	100
cis isomer of chlordane	µg/kg	39064	3 U	38. PCB-1254	µg/kg	39507	37
trans isomer of chlordane	µg/kg	39067	3 U	39. PCB-1260	µg/kg	39511	100
cis isomer of nonachlor	µg/kg	39070	4 U	40. Toxaphene	µg/kg	39403	100
trans isomer of nonachlor	µg/kg	39073	4 U				
Total DDT	µg/kg	39359	8 U				
o,p'-DDE	µg/kg	39328	8 U	AGENCY COLLECTING		27	
p,p'-DDE	µg/kg	39321	8 U				
o,p'-DDD	µg/kg	39316	8 U	AGENCY ANALYZING		28	80
p,p'-DDD	µg/kg	39311	8 U				
o,p'-DDT	µg/kg	39306	8 U	SAMPLE #		29	
p,p'-DDT	µg/kg	39301	8 U				
Dieldrin	µg/kg	39383	8 U				
Endosulfan I	µg/kg	34364	8 U				
Endosulfan II	µg/kg	34369	8 U				
Endosulfan Sulfate	µg/kg	34354	8 U				
Endrin	µg/kg	39393	8 U				
Endrin Aldehyde	µg/kg	34369	8 U				
Guthion	µg/kg	39581	200 U				
Heptachlor	µg/kg	39413	3 U				
Heptachlor Epoxide	µg/kg	39423	4 U				
Hexachlorobenzene	µg/kg	39701	3 U				
Malathion	µg/kg	39531	200 U				
Methoxychlor	µg/kg	39481	100 U				
Mirex	µg/kg	39758	20 U				
Parathion	µg/kg	39541	100 U				

- Estimated Value
- Actual value is known to be less than value given.
- Actual value is known to be greater than value given.
- Material was analyzed for but not detected. The number is the Minimum Detection Limit.

ANALYST	QA VERIFIED	REPORT VERIFIED BY	DATE
AOB 8-2-85	8-8-85	12/17	8-8-85

CHEMICAL ANALYSIS REPORT FORM

SPAN LAB ID

24753

SAMPLE TYPE **WATER** - FRESH ☒ SALINE ☐ SEDIMENT ☐

AGENCY CODE STORET STATION NUMBER

51

DATE (M/D/Y)

072485

TIME A - GRAB SAMPLE

1630

TIME B COMPOSITE SAMPLE

COMP

BEGIN

END

REMARKS

Job #

LOCATION

Berry Nursery

SAMPLE SOURCE:

GROUNDWATER

MONITORING WELL: ☐

DRINKING WATER WELL: ☐

SURFACE WATER

RIVER/STREAM: ☐

LAKE/POND: ☐

ESTUARY/BAY: ☐

EFFLUENT:

FIELD BLANK: ☐

FIELD DUPLICATE: Ditch ☐

OTHER:

TAS #

FIELD/LAB ID #

PRESERVATION

WELL #

51-D-V

Ice

-

SAMPLED BY:

Riedel/Thiel

FIELD REPORT PREPARED BY:

Riedel

SPECIFIC CONDUCTANCE

UNIT  $\mu\text{MHOS}/\text{CM}$

CODE 94

PH

STD UNIT

400

TEMPERATURE

°C

10

MEASURED BY:

PARAMETER

UNIT

CODE\*

VALUE

PARAMETER

UNIT

CODE\*

AS CIRCLED:

PURGEABLES

BASE/NEUTRAL EXT

ACID EXTRACTABLE

PESTICIDE

HERBICIDE

PCB'S

ALUMINUM

(Al req'd all sediments)

ANTIMONY

ARSENIC

BARIUM

BERYLLIUM

BORON

CADMIUM

CALCIUM

CHROMIUM

COPPER

IRON

LEAD

MAGNESIUM

MANGANESE

MERCURY

NICKEL

POTASSIUM

SELENIUM

SILVER

SODIUM

ZINC

CHAIN OF CUSTODY SAMPLE

STORET FIELD SAMPLE #

29

AGENCY COLLECTING

27

AGENCY ANALYZING

29

J - Estimated Value

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given

U - Material was analyzed for but not detected. The number Minimum Detection Limit

DATE: 07/24/85

ANALYZED BY:

DATE: 07/24/85

DATE:

NOTE: CODES APPLY TO ONLY SURFACE WATER SAMPLES

NOTE: CODES APPLY TO FIELD MEASUREMENTS

Chemical Analysis Report Form - PLEASABLES

Water (Fresh)		Time A - Grab Sample 1630	
STORET Station Number none		Time B - Composite Sample NA	
Date Sampled (M/D/Y) 07/24/85		COMP	BEGINNING NA
		END	NA
		Depth, Feet 1	

Site Location: Berry Nursery

5	FIELD ID # 51-D-V	WELL # NA	Sample Source: Ditch
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PARAMETER	UNIT	STORET CODE	VALUE	PARAMETER	UNIT	STORET CODE	VALUE
Bromomethane	ug/L	34030	1 U	o-Chlorotoluene	ug/L	77970	1 U
Bromobenzene	ug/L	32101	1 U	1,2-Dibromoethane	ug/L	77651	1 U
Bromochloroethane	ug/L	32104	1 U	Styrene	ug/L	77128	1 U
Bromodichloroethane	ug/L	34413	1 U	Xylenes	ug/L	81551	1 J
Bromotrichloroethane	ug/L	32102	1 U	cis-1,2-Dichloroethene	ug/L		1 U
Carbon tetrachloride	ug/L	34301	1 U	Other Purgables	ug/L		100 J
Chlorobenzene	ug/L	34311	1 U	Acetone	ug/L		200 J
Chloroethane	ug/L	34576	1 U				
2-Chloroethane	ug/L	32106	1 U				
Chloroethene	ug/L	34418	1 U				
Chlorobenzene	ug/L	34536	1 U				
1,2-Dichlorobenzene	ug/L	34566	1 U				
1,3-Dichlorobenzene	ug/L	34571	1 U				
1,4-Dichlorobenzene	ug/L	32105	1 U				
Dibromomethane	ug/L	34496	1 U				
1,1-Dibromomethane	ug/L	34531	1 U				
1,2-Dibromomethane	ug/L	34501	1 U				
1,1-Dichloroethene	ug/L	34546	1 U				
trans-1,2-Dichloroethene	ug/L	34541	1 U				
1,2-Dichloropropene	ug/L	34561	1 U				
cis-1,2-Dichloropropene	ug/L	34561	1 U				
trans-1,2-Dichloropropene	ug/L	34371	1 U				
Ethylchloride	ug/L	34423	1 U				
Methylchloride	ug/L	34516	1 U				
1,1,2-Trichloroethane	ug/L	34475	1 U				
Tetrachloroethane	ug/L	34506	1 U				
1,1,1-Trichloroethane	ug/L	34511	1 U				
1,1,2-Trichloroethane	ug/L	39180	1 U				
Trichloroethene	ug/L	34910	1 U				
Toluene	ug/L	39175	1 U				
Vinylchloride				STORET FIELD SAMPLE #		29	
				AGENCY COLLECTING		27	
				AGENCY ANALYZING		28	8066

U-Value is known to be less than value given.  
K-Value is known to be greater than value  
NA-Not Analyzed  
L-Label  
ANAL

U-Material was analyzed for but not detected. The number is the Minimum Detection Limit.  
E-Scientific Notation (Example: 6 X 10<sup>4</sup> = 6E4)  
\*-Confirmed by PID/Hall-Detectors

8/14/85	LAB REPORT VERIFIED BY	DATE 8-15-85
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CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE WATER - FRESH ☒ SALINE ☐ SEDIMENT ☐

AGENCY CODE <b>51</b>	STORET STATION NUMBER	DATE (M/D/Y) <b>072485</b>	TIME A - GRAB SAMPLE <b>1630</b>
			TIME B COMPOSITE SAMPLE
		COMP	BEGIN END

REMARKS <b>Job #</b>	LOCATION <b>Berry Nursery</b>
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SAMPLE SOURCE: <input checked="" type="checkbox"/> RAINWATER <input type="checkbox"/> MONITORING WELL <input type="checkbox"/> DRINKING WATER WELL	SURFACE WATER: <input type="checkbox"/> RIVER/STREAM <input type="checkbox"/> LAKE/POND <input type="checkbox"/> ESTUARY/BAY	EFFLUENT: <input type="checkbox"/> FIELD BLANK <input type="checkbox"/> FIELD DUPLICATE: <b>Ditch</b> <input type="checkbox"/> OTHER:
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TAS #	FIELD/LAB ID # <b>51-D-M</b>	PRESERVATION <b>HNO<sub>3</sub></b>	WELL # <b>-</b>	SPECIFIC CONDUCTANCE	UNIT <b>µMHOS/CM</b>	CODE <b>94</b>
SAMPLED BY: <b>Rieck / Thiel</b>				PH	STD UNIT	<b>400</b>
FIELD REPORT PREPARED BY: <b>Rieck</b>				TEMPERATURE	PC	<b>10</b>
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM <b>17-30 85 LH</b>		
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON				<b>CHAIN OF CUSTODY SAMPLE</b>		
CADMIUM						
CALCIUM						
				STORET FIELD SAMPLE #		
				AGENCY COLLECTING		
				AGENCY ANALYZING		

J - Estimated Value  
K - Actual value is known to be less than value given

L - Actual value is known to be greater than value given  
U - Material was analyzed for but not detected. The number Minimum Detection Limit



Depth, Feet  
1.0

END NA

Site Location:  
Berry Nursery

Sample Source: Ditch

8066

DATE 8-9-85

USE OF THIS FORM IS LIMITED TO THE PURPOSES OF THE NATIONAL SANITATION FOUNDATION

SAMPLE TYPE **WATER** - FRESH ☐ SALINE ☐ SEDIMENT ☒

DATE LAB 10

24753

LABORATORY CODE <b>51</b>	STREET STATION NUMBER	DATE (M/D/Y) <b>072485</b>	TIME A - GRAB SAMPLE <b>1630</b>
		TIME B COMPOSITE SAMPLE	
		COMP	BEGIN
		END	

REMARKS <b>Job #</b>	LOCATION <b>Berry Nursery</b>
SAMPLE SOURCE: GROUNDWATER <input type="checkbox"/> MONITORING WELL <input type="checkbox"/> DRINKING WATER WELL <input type="checkbox"/>	SURFACE WATER RIVER/STREAM <input type="checkbox"/> LAKE/POND <input type="checkbox"/> ESTUARY/BAY <input type="checkbox"/>
	EFFLUENT <input type="checkbox"/> FIELD BLANK <input type="checkbox"/> FIELD DUPLICATE <input checked="" type="checkbox"/> <b>Ditch</b> OTHER <input type="checkbox"/>

TAS #	FIELD/LAB ID # <b>51-SD-M</b>	PRESERVATION <b>Ice</b>	WELL #	SPECIFIC CONDUCTANCE <b>PM</b>	UNIT <b>UMHOS/CM</b>	CODE # <b>94</b>
SAMPLED BY <b>Rieck / Yudel</b>				TEMPERATURE	STO UNIT	400
FIELD REPORT PREPARED BY <b>Rieck</b>				MEASURED BY	9C	10

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				<b>CHROMIUM</b>	<b>8-7-85 L</b>	
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				<b>LEAD</b>	<b>8-7-85 L</b>	
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				<b>MERCURY</b>		
<b>EP TOX 10</b>				NICKEL		
ALUMINUM				POTASSIUM		
(Al req'd all sediments)				SELENIUM		
ANTIMONY				SILVER		
<b>ARSENIC</b>				SODIUM		
BARIUM				ZINC		
BERYLLIUM						
BORON						
<b>CADMIUM</b>						
<b>8-7-85 L</b>						
<b>.01K</b>						
CALCIUM						

## CHAIN OF CUSTODY SAMPLE

ANALYST	DATE
LABORATORY	DATE
CLIENT	DATE
USE OF THIS FORM IS LIMITED TO THE PURPOSES OF THE NATIONAL SANITATION FOUNDATION	

## STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

SPAN Lab ID 24753

## CHEMICAL ANALYSIS REPORT FORM

## EP TOXICITY TEST - METALS

Agency Code SA LAB	Date Collected (M/D/Y) 072485	Time 1630	Sample Type	Depth, Feet 1
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Remarks	Location Berry Nursery Lake #1?
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TAS # 1315	Field Lab ID # 51-50-M	Sampled By	Field Report Prepared By
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**NOTE:** All results are reported in milligrams per liter rather than micrograms per liter so that a comparison can be made to EPA's criteria.

PARAMETER	RESULTS milligrams per liter (mg/l)	MINIMUM CONCENTRATION AT WHICH SAMPLE EXHIBITS CHARACTERISTIC OF EP TOXICITY* milligrams per liter (mg/l)
1. Arsenic 8-6-85 SSC	0.006	5.0
2. Barium		100.0
3. Cadmium 8-7-85 LW	.01K	1.0
4. Chromium 8-7-85 LW	.025K	5.0
5. Lead 8-7-85 LW	.050U	5.0
6. Mercury 8-5-85 JH	0.0001 K	0.2
7. Selenium		1.0
8. Silver		5.0

\* As per Part 261.24/Federal Register/Volume 45, No. 98/Monday, May 19, 1980/Rules and Regulations.

Comments
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J-Estimated Value K-Actual value is known to be less than value given.	L-Actual value is known to be greater than value given. U-Material was analyzed for but not detected. The number is the Minimum Detection Limit.
ANALYST 8-8-85	QA VERIFIED BY Ham 8-8-85
LAB REPORT VERIFIED BY RWH	DATE 8-9-85

ANALYSIS REPORT FORM

SAMPLE TYPE ~~WATER~~ - FRESH \_\_\_\_\_ SALINE \_\_\_\_\_ SEDIMENT ☒

AGENCY CODE 51	STORET STATION NUMBER	DATE (M/D/Y) 072485	TIME A - GRAV SAMPLE 1630	TIME B COMPOSITE SAMPLE
			COMP	BEGIN END

REMARKS Job #	LOCATION Berry Nursery
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SAMPLE SOURCE: <input checked="" type="checkbox"/> SURFACE WATER <input type="checkbox"/> RIVER/STREAM <input type="checkbox"/> LAKE/POND <input type="checkbox"/> ESTUARY/BAY	EFFLUENT: <input type="checkbox"/> FIELD BLANK <input type="checkbox"/> FIELD DUPLICATE: Ditch <input type="checkbox"/> OTHER:
--	---

TAG #	FIELD/LAB ID # 51-SD-V	PRESERVATION Ice	WELL #	SPECIFIC CONDUCTANCE µMHOS/CM	UNIT 94	CODE #	V
MPLED BY: Riehl / Thiel				PH	STD UNIT	400	
ELD REPORT PREPARED BY: Riehl				TEMPERATURE	°C	10	
				MEASURED BY:			

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*	V
AS CIRCLED:				CHROMIUM			
PURGEABLES				COPPER			
BASE/NEUTRAL EXT				IRON			
ACID EXTRACTABLE				LEAD			
PESTICIDE				MAGNESIUM			
HERBICIDE				MANGANESE			
PCB'S				MERCURY			
ALUMINUM				NICKEL			
Al req'd all sediments)				POTASSIUM			
ANTIMONY				SELENIUM			
ARSENIC				SILVER			
BARIUM				SODIUM			
BERYLLIUM							
BORON							
CADMIUM							
CALCIUM							

CHAIN OF CUSTODY SAMPLE

STORET FIELD SAMPLE #	
AGENCY COLLECTING	
AGENCY ANALYZING	
L - Actual value is known to be greater than value given	
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit	

\* - Estimated Value  
- Actual value is known to be less than value given

## Chemical Analysis Report Form - PURGEABLES

Sample Type: Sediment (Fresh)

Agency Code SA LAB	STORET Station Number none	Date Sampled (M/D/Y) 07/24/85	Time A - Grab Sample 1630	Time B - Composite Sample NA	Depth, Feet 1
			COMP BEGINNING END	NA NA	
Remarks Ditch			Site Location: Berry Nursery		

PMAS # 1315 FIELD ID # 51-SD-V WELL # NA Sample Source: Ditch

PARAMETER	UNIT	STORET CODE	VALUE	PARAMETER	UNIT	STORET CODE	VALUE
Benzene			50 U	o-Chlorotoluene			50 U
Bromodichloromethane			50 U	1,2-Dibromoethane			50 U
Bromoform			50 U	Styrene			50 U
Bromomethane			50 U	Xylenes			50 K
Carbon tetrachloride			50 U	cis-1,2-Dichloroethene			50 U
Chlorobenzene			50 U	Other Purgeables			200 J
Chloroethane			50 U				
2-Chloroethylvinyl ether			50 U				
Chloroform			50 U				
Chloromethane			50 U				
1,2-Dichlorobenzene			50 U				
1,3-Dichlorobenzene			50 U				
1,4-Dichlorobenzene			50 U				
Dibromochloromethane			50 U				
1,1-Dichloroethane			50 U				
1,2-Dichloroethane			50 U				
1,1-Dichloroethene			50 U				
trans-1,2-Dichloroethene			50 U				
1,2-Dichloropropane			50 U				
cis-1,3-Dichloropropene			50 U				
trans-1,3-Dichloropropene			50 U				
Ethylbenzene			50 U				
Methylene chloride			50 U				
1,1,2,2-Tetrachloroethane			50 U				
Tetrachloroethene			50 U				
1,1,1-Trichloroethane			50 U				
1,1,2-Trichloroethane			50 U				
Trichloroethene			50 U				
Toluene			50 K				
Vinyl chloride			50 U	STORET FIELD SAMPLE #		29	
				AGENCY COLLECTING		27	
				AGENCY ANALYZING		28	8066

J - Estimated Value  
K - Actual value is known to be less than value given.  
NA - Not analyzed for this compound.  
L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.  
E - Scientific Notation (Example:  $6 \times 10^4 = 6E4$ )  
\* - Confirmed by PID/Hall-Detectors

ANALYST

QA VERIFIED BY

LAB REPORT VERIFIED BY

DATE

11/10/85 8/14/85

9/3/85-14-85

10/11/85

8-15-85

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE: ~~WATER~~ - FRESH ☐ SALINE ☐ SEDIMENT ☒

AGENCY CODE 51	STORET STATION NUMBER	DATE (M/D/Y) 072485	TIME A - GRAB SAMPLE 1430	DEPTH 6
			TIME B COMPOSITE SAMPLE	
			COMP	BEGIN END

REMARKS: Job # LOCATION: Berry Nursery

SAMPLE SOURCE: ☐ SURFACE WATER ☐ EFFLUENT: ☐  
 RIVER/STREAM: ☐ FIELD BLANK: ☐  
 MONITORING WELL: ☐ LAKE/POND: ☐ FIELD DUPLICATE: ☐  
 RINKING WATER WELL: ☐ ESTUARY/BAY: ☐ OTHER: ☐

TAS #	FIELD/LAB ID # 51-SLN-V	PRESERVATION Ice	WELL #	SPECIFIC CONDUCTANCE	UNIT µMHOS/CM	CODE 94	VA
AMPLED BY: Rieck / Thiel				PH	STD UNIT	400	
FIELD REPORT PREPARED BY: Rieck				TEMPERATURE	°C	10	
				MEASURED BY:			

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*	VA
AS CIRCLED:				CHROMIUM			
PURGEABLES				COPPER			
BASE/NEUTRAL EXT				IRON			
ACID EXTRACTABLE				LEAD			
PESTICIDE				MAGNESIUM			
HERBICIDE				MANGANESE			
PCB'S				MERCURY			
ALUMINUM				NICKEL			
Al req'd all sediments)				POTASSIUM			
ANTIMONY				SELENIUM			
ARSENIC				SILVER			
BARIUM				SODIUM			
BERYLLIUM				ZINC			
BORON				CHAIN OF CUSTODY SAMPLE			
CADMIUM							
CALCIUM							
				STORET FIELD SAMPLE #			20
				AGENCY COLLECTING			27
				AGENCY ANALYZING			23

J - Estimated Value  
 K - Actual value is known to be less than value given.  
 L - Actual value is known to be greater than value given.  
 U - Material was analyzed for but not detected. The number is Minimum Detection Limit.

ANALYST: DA VERIFIED BY: SPAN LAB REPORT VERIFIED BY: DATE:

STORET CODES APPLY TO ONLY SURFACE WATER SAMPLES  
 STORET CODES APPLY TO FIELD MEASUREMENTS

## Chemical Analysis Report Form - PURGEABLES

Sample Type: Sediment (Fresh)

Time A - Grab Sample 1430

Time B - Composite Sample NA

COMP

BEGINNING NA

END NA

Depth, Feet  
6Agency Code  
SA LABSTORET Station Number  
noneDate Sampled (M/D/Y)  
07/24/85

Remarks

Site Location:  
Berry Nursery

PMAS # 1315

FIELD ID # 51-SLN-V

WELL # NA

Sample Source: Lake/Pond

PARAMETER	UNIT	STORET CODE	VALUE	PARAMETER	UNIT	STORET CODE	VALUE
Benzene			50 U	o-Chlorotoluene			50 U
Bromodichloromethane			50 U	1,2-Dibromoethane			50 U
Bromoform			50 U	Styrene			50 U
Bromomethane			50 U	Xylenes			50 U
Carbon tetrachloride			50 U	cis-1,2-Dichloroethene			50 U
Chlorobenzene			50 U	Other Purgeables			50 U
Chloroethane			50 U				
2-Chloroethylvinyl ether			50 U				
Chloroform			50 U				
Chloromethane			50 U				
1,2-Dichlorobenzene			50 U				
1,3-Dichlorobenzene			50 U				
1,4-Dichlorobenzene			50 U				
Dibromochloromethane			50 U				
1,1-Dichloroethane			50 U				
1,2-Dichloroethane			50 U				
1,1-Dichloroethene			50 U				
trans-1,2-Dichloroethene			50 U				
1,2-Dichloropropane			50 U				
cis-1,3-Dichloropropene			50 U				
trans-1,3-Dichloropropene			50 U				
Ethylbenzene			50 U				
Methylene chloride			50 U				
1,1,2,2-Tetrachloroethane			50 U				
Tetrachloroethene			50 U				
1,1,1-Trichloroethane			50 U				
1,1,2-Trichloroethane			50 U				
Trichloroethene			50 U				
Toluene			50 U				
Vinyl chloride			50 U				
				STORET FIELD SAMPLE #			29
				AGENCY COLLECTING			27
				AGENCY ANALYZING			28 8066

J - Estimated Value

K - Actual value is known to be less than value given.

NA - Not analyzed for this compound.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.  
 E - Scientific Notation (Example:  $6 \times 10^4 = 6E4$ )  
 \* - Confirmed by PID/Hall-Detectors

ANALYST

WJH 8/14/85

QA VERIFIED BY

JES 8-14-85

LAB REPORT VERIFIED BY

RWH

DATE

8-15-85

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE: **WATER** - FRESH ☐ SALINE ☐ SEDIMENT ☒

AGENCY CODE 51	STORET STATION NUMBER	DATE (M/D/Y) 072485	TIME A - GRAB SAMPLE 1430	DEPTH 6
			TIME B COMPOSITE SAMPLE	
			COMP	BEGIN END

REMARKS: Job # LOCATION: Berry Nursery

SAMPLE SOURCE: ☒ SURFACE WATER ☐ EFFLUENT: ☐  
GROUNDWATER ☐ RIVER/STREAM: ☐  
MONITORING WELL: ☐ LAKE/POND: ☐  
DRINKING WATER WELL: ☐ ESTUARY/BAY: ☐ FIELD BLANK: ☐  
FIELD DUPLICATE: ☐  
OTHER: ☐

TAS #	FIELD/LAB ID #	PRESERVATION	WELL #	SPECIFIC CONDUCTANCE	UNIT	CODE
	51-SLN-PCBPP	Ice			µMHOS/CM	94
SAMPLED BY: Kreck/Thiel				PH	STD UNIT	400
FIELD REPORT PREPARED BY: Kreck				TEMPERATURE	°C	10
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*	V
AS CIRCLED:				CHROMIUM			
PURGEABLES				COPPER			
BASE/NEUTRAL EXT				IRON			
ACID EXTRACTABLE				LEAD			
PESTICIDE				MAGNESIUM			
HERBICIDE				MANGANESE			
PCB'S				MERCURY			
ALUMINUM				NICKEL			
(Al req'd all sediments)				POTASSIUM			
ANTIMONY				SELENIUM			
ARSENIC				SILVER			
BARIUM				SODIUM			
BERYLLIUM				ZINC			
BORON							
CADMIUM				STORET FIELD SAMPLE #		20	
CALCIUM				AGENCY COLLECTING		27	
				AGENCY ANALYZING		28	

J - Estimated Value  
K - Actual value is known to be less than value given.  
L - Actual value is known to be greater than value given  
U - Material was analyzed for but not detected. The number Minimum Detection Limit

ANALYST	QA VERIFIED BY	SPAN LAB REPORT VERIFIED BY	DATE
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## DEPARTMENT OF ENVIRONMENTAL REGULATION

## CHEMICAL ANALYSIS REPORT FORM

SPAN LAB ID 24738SAMPLE TYPE: **SEDIMENT** - PESTICIDE EXTRACTABLES

AGENCY CODE SA LAB	STORET STATION NUMBER <i>1430</i> <i>a ditch</i>	DATE <i>072485</i>	TIME A - GRAB SAMPLE <i>1430</i>	DEPTH <i>6</i>
			TIME B COMPOSITE SAMPLE	
			COMP	BEGIN END

REMARKS

LOCATION  
*Berry Nursery*

PARAMETER	UNIT	CODE	VALUE	PARAMETER	UNIT	CODE	VALUE
1. Aldrin	µg/kg	39333	4 U	32. Total PCB's	µg/kg	39519	100
2. a-BHC	µg/kg	39076	3 U	33. PCB-1016	µg/kg	39514	100
3. b-BHC	µg/kg	34257	3 U	34. PCB-1221	µg/kg	39491	100
4. d-BHC	µg/kg	34262	3 U	35. PCB-1232	µg/kg	39495	100
5. g-BHC	µg/kg	39343	3 U	36. PCB-1242	µg/kg	39499	100
6. Chlordane	µg/kg	39351	100 U	37. PCB-1248	µg/kg	39503	100
7. cis isomer of chlordane	µg/kg	39064	3 U	38. PCB-1254	µg/kg	39507	100
8. trans isomer of chlordane	µg/kg	39067	3 U	39. PCB-1260	µg/kg	39511	100
9. cis isomer of nonachlor	µg/kg	39070	4 U	40. Toxaphene	µg/kg	39403	100
10. trans isomer of nonachlor	µg/kg	39073	4 U				
11. Total DDT	µg/kg	39359	8 U				
12. o,p'-DDE	µg/kg	39328	8 U	AGENCY COLLECTING		27	
13. p,p'-DDE	µg/kg	39321	8 U				
14. o,p'-DDD	µg/kg	39316	8 U	AGENCY ANALYZING		23	80
15. p,p'-DDD	µg/kg	39311	8 U				
16. o,p'-DDT	µg/kg	39306	8 U	SAMPLE #		29	
17. p,p'-DDT	µg/kg	39301	8 U				
18. Dieldrin	µg/kg	39383	8 U				
19. Endosulfan I	µg/kg	34364	8 U				
20. Endosulfan II	µg/kg	34359	8 U				
21. Endosulfan Sulfate	µg/kg	34354	8 U				
22. Endrin	µg/kg	39393	8 U				
23. Endrin Aldehyde	µg/kg	34369	8 U				
24. Guthion	µg/kg	39581	200 U				
25. Heptachlor	µg/kg	39413	3 U				
26. Heptachlor Epoxide	µg/kg	39423	4 U				
27. Hexachlorobenzene	µg/kg	39701	3 U				
28. Malathion	µg/kg	39531	200 U				
29. Methoxychlor	µg/kg	39481	100 U				
30. Mirex	µg/kg	39758	20 U				
31. Parathion	µg/kg	39541	100 U				

- J - Estimated Value  
K - Actual value is known to be less than value given.  
L - Actual value is known to be greater than value given.  
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

ANALYST <i>WBS 8-2-85</i>	QA VERIFIED <i>8-8-85</i>	REPORT VERIFIED BY <i>RWP</i>	DATE <i>8-8-85</i>
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24758

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE: WATER - FRESH ☒ SALINE ☐ SEDIMENT ☐

AGENCY CODE 51	STORET STATION NUMBER	DATE (M/D/Y) 072485	TIME A - GRAB SAMPLE 1430	TIME B COMPOSITE SAMPLE
			COMP	BEGIN END

REMARKS Job #	LOCATION Berry Nursery
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SAMPLE SOURCE: CROWNOVER MONITORING WELL: <input type="checkbox"/> DRINKING WATER WELL: <input type="checkbox"/>	SURFACE WATER RIVER/STREAM: <input type="checkbox"/> LAKE/POND: <input type="checkbox"/> ESTUARY/BAY: <input type="checkbox"/>	EFFLUENT: FIELD BLANK: <input type="checkbox"/> FIELD DUPLICATE: <input type="checkbox"/> OTHER: <input type="checkbox"/>
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TAS #	FIELD/LAB ID # 51-LN-V	PRESERVATION Ice	WELL # -	SPECIFIC CONDUCTANCE μMHOS/CM	UNIT 94	CODE
SAMPLED BY: <i>Reck / Thel</i>				TEMPERATURE °C	STD UNIT 400	10
FIELD REPORT PREPARED BY: <i>Reck</i>				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*	VALUE
AS CIRCLED:				CHROMIUM			
PURGEABLES				COPPER			
BASE/NEUTRAL EXT				IRON			
ACID EXTRACTABLE				LEAD			
PESTICIDE				MAGNESIUM			
HERBICIDE				MANGANESE			
PCB'S				MERCURY			
ALUMINUM				NICKEL			
(Al req'd all sediments)				POTASSIUM			
ANTIMONY				SELENIUM			
ARSENIC				SILVER			
BARIUM				SODIUM			
BERYLLIUM				ZINC			
BORON				CHAIN OF CUSTODY SAMPLE			
CADMIUM				STORET FIELD SAMPLE #			20
CALCIUM				AGENCY COLLECTING			21
				AGENCY ANALYZING			23

J - Estimated Value  
K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given  
U - Material was analyzed for but not detected. The number Minimum Detection Limit

DATE	QA VERIFIED BY	QA LAB REPORT NUMBER
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## Chemical Analysis Report Form - PURGEABLES

Sample Type: Water (Fresh)

Agency Code SA LAB		STORET Station Number none		Date Sampled (M/D/Y) 07/24/85		Time A - Grab Sample 1430		Time B - Composite Sample NA		Depth, Feet 1
						COMP BEGINNING NA		END NA		
Remarks						Site Location: Berry Nursery				
PMAS # 1315		FIELD ID # 51-LN-V		WELL # NA		Sample Source: Lake/Pond				
PARAMETER		UNIT	STORET CODE	VALUE	PARAMETER		UNIT	STORET CODE	VALUE	
Benzene		ug/L	34030	-1 U	o-Chlorotoluene		ug/L	77970	1 U	
Bromodichloromethane		ug/L	32101	1 U	1,2-Dibromoethane		ug/L	77651	1 U	
Bromoform		ug/L	32104	1 U	Styrene		ug/L	77128	1 U	
Bromomethane		ug/L	34413	1 U	Xylenes		ug/L	81551	1 U	
Carbon tetrachloride		ug/L	32102	1 U	cis-1,2-Dichloroethene		ug/L		1 U	
Chlorobenzene		ug/L	34301	1 U	Other Purgeables		ug/L		2 J	
Chloroethane		ug/L	34311	1 U						
2-Chloroethylvinyl ether		ug/L	34576	1 U						
Chloroform		ug/L	32106	1 U						
Chloromethane		ug/L	34418	1 U						
1,2-Dichlorobenzene		ug/L	34536	1 U						
1,3-Dichlorobenzene		ug/L	34566	1 U						
1,4-Dichlorobenzene		ug/L	34571	1 U						
Dibromochloromethane		ug/L	32105	1 U						
1,1-Dichloroethane		ug/L	34496	1 U						
1,2-Dichloroethane		ug/L	34531	1 U						
1,1-Dichloroethene		ug/L	34501	1 U						
trans-1,2-Dichloroethene		ug/L	34546	1 U						
1,2-Dichloropropane		ug/L	34541	1 U						
cis-1,3-Dichloropropene		ug/L	34561	1 U						
trans-1,3-Dichloropropene		ug/L	34561	1 U						
Ethylbenzene		ug/L	34371	1 U						
Methylene chloride		ug/L	34423	1 U						
1,1,2,2-Tetrachloroethane		ug/L	34516	1 U						
Tetrachloroethene		ug/L	34475	1 U						
1,1,1-Trichloroethane		ug/L	34506	1 U						
1,1,2-Trichloroethane		ug/L	34511	1 U						
Trichloroethene		ug/L	39180	1 U						
Toluene		ug/L	34910	1 U						
Vinyl chloride		ug/L	39175	1 U						
STORET FIELD SAMPLE #								29		
AGENCY COLLECTING								27		
AGENCY ANALYZING								28	8066	
J - Estimated Value K - Actual value is known to be less than value given. NA - Not analyzed for this compound. L - Actual value is known to be greater than value given.					U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. E - Scientific Notation (Example: $6 \times 10^4 = 6E4$ ) * - Confirmed by PID/Hall-Detectors					
ANALYST		QA VERIFIED BY		LAB REPORT VERIFIED BY		DATE				
JW/h		8/14/85		8/14/85		RWH		8-15-85		

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE **WATER** - FRESH ☒ SALINE ☐ SEDIMENT ☐

SPAN LAB ID

24736

AGENCY CODE 51	STORET STATION NUMBER	DATE (M/D/Y) 072485	TIME A - GRAB SAMPLE 1430	TIME B COMPOSITE SAMPLE
			COMP	BEGIN END

REMARKS  
Job #

LOCATION  
Berry Nursery

SAMPLE SOURCE:  
GROUNDWATER ☐ SURFACE WATER ☐ EFFLUENT ☐  
MONITORING WELL ☐ RIVER/STREAM ☐ FIELD BLANK ☐  
DRINKING WATER WELL ☐ LAKE/POND ☐ FIELD DUPLICATE ☐  
ESTUARY/BAY ☐ OTHER ☐

TAS #	FIELD/LAB ID # 51-LN-PCBAP	PRESERVATION Ice	WELL #		SPECIFIC CONDUCTANCE	UNIT µMHOS/CM	CODE 94
SAMPLED BY: <i>Reck/Thiel</i>					PH	STD UNIT	400
FIELD REPORT PREPARED BY: <i>Reck</i>					TEMPERATURE	°C	10
					MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM		
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						
CADMIUM						
CALCIUM						

CHAIN OF CUSTODY SAMPLE

J - Estimated Value  
K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given  
U - Material was analyzed for but not detected. The sample Minimum Detection Limit

STORET FIELD SAMPLE #  
AGENCY COLLECTING  
AGENCY ANALYZING

DATE LAB REPORT COMPLETED BY

STORET CODES APPLY TO ONLY SURFACE WATER SAMPLES  
STORET CODES APPLY TO ONLY FIELD AND REMOTE

## CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE: WATER - PESTICIDE EXTRACTABLES

AGENCY CODE

STORET STATION NUMBER

DATE

SA LAB

07-24-85

TIME A - GRAB SAMPLE

1430

TIME B COMPOSITE SAMPLE

COMP

BEGIN

END

REMARKS

51-LN

LOCATION

Berry Nursery

PARAMETER	UNIT	CODE	VALUE	PARAMETER	UNIT	CODE	VALUE
1. Aldrin	µg/l	39330	.01 U	2,4-D	µg/l	39730	
2. a-BHC	µg/l	39337	.01 U	2,4,5-TP	µg/l	39760	
3. b-BHC	µg/l	39338	.01 U	Demeton	µg/l	39560	
4. g-BHC	µg/l	39340	.01 U	Guthion	µg/l	39580	
5. d-BHC	µg/l	34259	.01 U	Malathion	µg/l	39530	
6. Chlordane	µg/l	39350	.25 U	Methoxychlor	µg/l	39480	
7. 4,4'-DDD	µg/l	39310	.03 U	Mirex	µg/l	39755	
8. 4,4'-DDE	µg/l	39320	.03 U	Parathion	µg/l	39540	
9. 4,4'-DDT	µg/l	39300	.03 U				
10. Dieldrin	µg/l	39380	.03 U				
11. Endosulfan I	µg/l	34361	.03 U	AGENCY COLLECTING		27	
12. Endosulfan II	µg/l	34356	.03 U				
13. Endosulfan Sulfate	µg/l	34351	.03 U	AGENCY ANALYZING		28	
14. Endrin	µg/l	39390	.03 U				
15. Endrin Alderhyde	µg/l	34366	.03 U	SAMPLE #		29	
16. Heptachlor	µg/l	39410	.01 U				
17. Heptachlor Epoxide	µg/l	39420	.01 U				
18. Toxaphene	µg/l	39400	.25 U				
19. PCB-1016	µg/l	34671	.25 U				
20. PCB-1221	µg/l	39488	.25 U				
21. PCB-1232	µg/l	39492	.25 U				
22. PCB-1242	µg/l	39496	.25 U				
23. PCB-1248	µg/l	39500	.25 U				
24. PCB-1254	µg/l	39504	.5 U				
25. PCB-1260	µg/l	39508	.5 U				

- Estimated Value
- Actual value is known to be less than value given.
- Actual value is known to be greater than value given.
- Material was analyzed for but not detected. The number is the Minimum Detection Limit.

ANALYST

CA VERIFIED

REPORT VERIFIED BY

DATE

HB 8-7-85

HJ 8-8-85

RNP

8-8-85

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE WATER - FRESH ☒ SALINE ☐ SEDIMENT ☐

SPAN LAB ID

24751

AGENCY CODE 51	STORET STATION NUMBER	DATE (M/D/Y) 072485	TIME A - GRAB SAMPLE 1430	CE
			TIME B COMPOSITE SAMPLE	
			COMP	BEGIN END

REMARKS Job #	LOCATION Berry Nursery
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SAMPLE SOURCE: <input checked="" type="checkbox"/> GROUNDWATER <input type="checkbox"/> MONITORING WELL <input type="checkbox"/> DRINKING WATER WELL	<input checked="" type="checkbox"/> SURFACE WATER RIVER/STREAM: LAKE/POND: ESTUARY/BAY:	<input type="checkbox"/> EFFLUENT <input type="checkbox"/> FIELD BLANK <input type="checkbox"/> FIELD DUPLICATE OTHER:
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TAS #	FIELD/LAB ID # 51-LN-M	PRESERVATION HNO <sub>3</sub>	WELL #			
SAMPLED BY: <u>Rieck/Thiel</u>				SPECIFIC CONDUCTANCE	UNIT μMHOS/CM	CODE 94
FIELD REPORT PREPARED BY: <u>Rieck</u>				PH	STD UNIT	400
				TEMPERATURE	°C	10
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM	17-3035 LIT	
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						
CADMIUM						
CALCIUM						

CHAIN OF CUSTODY SAMPL

STORET FIELD SAMPLE #	20
AGENCY COLLECTING	21
AGENCY ANALYZING	22

J - Estimated Value  
K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given  
U - Material was analyzed for but not detected. The number Minimum Detection Limit

ANALYST	QA VERIFIED BY	QA LAB REPORT NUMBER
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DER FORM PERM 22-3

## STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

SPAN Lab ID 24752

## CHEMICAL ANALYSIS REPORT FORM

## EP TOXICITY TEST - METALS

Agency Code SA LAB	Date Collected (M/D/Y) 072485	Time 1430 072485	Sample Type	Depth, Feet 6
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Remarks	Location Berry Nursery
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TAS # 1315	Field Lab ID # 41-SLN-M	Sampled By	Field Report Prepared By
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NOTE: All results are reported in milligrams per liter rather than micrograms per liter so that a comparison can be made to EPA's criteria.

PARAMETER	RESULTS milligrams per liter (mg/l)	MINIMUM CONCENTRATION AT WHICH SAMPLE EXHIBITS CHARACTERISTIC OF EP TOXICITY milligrams per liter (mg/l)
1. Arsenic 8-6-85 SS	0.005	5.0
2. Barium		100.0
3. Cadmium 8-7-85 LW	.01U	1.0
4. Chromium 8-7-85 LW	.025U	5.0
5. Lead 8-7-85 LW	.05U	5.0
6. Mercury 2-5-85 JM	0.0001 U	0.2
7. Selenium		1.0
8. Silver		5.0

\* As per Part 261.24/Federal Register/Volume 45, No. 98/Monday, May 19, 1980/Rules and Regulations.

Comments
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J-Estimated Value  
K-Actual value is known to be less than value given.

L-Actual value is known to be greater than value given.  
U-Material was analyzed for but not detected. The number is the Minimum Detection Limit.

ANALYST 8-8-85	QA VERIFIED BY 8-8-85	LAB REPORT VERIFIED BY 8-9-85	DATE 8-9-85
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CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE: WATER - FRESH ☒ SALINE ☐ SEDIMENT ☐

AGENCY CODE <b>51</b>	STORET STATION NUMBER	DATE (M/D/Y) <b>072485</b>	TIME A - GRAB SAMPLE <b>1330</b>	DEPTH <b>10</b>
			TIME B COMPOSITE SAMPLE	
			COMP	BEGIN END

REMARKS  
**Job #**

LOCATION  
**Berry Nursery**

SAMPLE SOURCE:  
☒ SURFACE WATER  
☐ RIVER/STREAM:  
☐ MONITORING WELL:  
☐ LAKE/POND:  
☐ DRINKING WATER WELL:  
☐ ESTUARY/BAY:

EFFLUENT:  
FIELD BLANK:  
FIELD DUPLICATE: **Sample**  
OTHER:

TAS #	FIELD/LAB ID #	PRESERVATION	WELL #	SPECIFIC CONDUCTANCE	UNIT	CODE #	V
	<b>51- G1-PCB4P</b>	<b>Ice</b>	<b>G1</b>		<b>µMHOS/CM</b>	<b>94</b>	
SAMPLED BY: <b>Kieck/Hiel</b>				PH	STD UNIT	<b>400</b>	
FIELD REPORT PREPARED BY: <b>Kieck</b>				TEMPERATURE	°C	<b>10</b>	
				MEASURED BY:			

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*	V
AS CIRCLED:				CHROMIUM			
PURGEABLES				COPPER			
BASE/NEUTRAL EXT				IRON			
ACID EXTRACTABLE				LEAD			
PESTICIDE				MAGNESIUM			
HERBICIDE				MANGANESE			
PCB'S				MERCURY			
ALUMINUM				NICKEL			
(Al req'd all sediments)				POTASSIUM			
ANTIMONY				SELENIUM			
ARSENIC				SILVER			
BARIUM				SODIUM			
BERYLLIUM				ZINC			
BORON							
CADMIUM				STORET FIELD SAMPLE #			28
CALCIUM				AGENCY COLLECTING			27
				AGENCY ANALYZING			28

CHAIN OF CUSTODY SAMPLE

J - Estimated Value  
K - Actual value is known to be less than value given.  
L - Actual value is known to be greater than value given  
U - Material was analyzed for but not detected. The number Minimum Detection Limit

DATE	QA VERIFIED BY	SPAN LAB REPORT VERIFIED BY	DATE
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TIME A - GRAB SAMPLE

AGENCY CODE	STORET STATION NUMBER	DATE	1330	DEPTH
SA LAB		7/24/85	TIME B COMPOSITE SAMPLE	
			COMP	BEGIN
				END

REMARKS

### LOCATION

51-G1

Berry Nisley

[illegible]

- 1 - Estimated Value
- 0 - Actual value is known to be less than value given.
- - Actual value is known to be greater than value given.
- 1 - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

ANALYST	CA VERIFIED	REPORT VERIFIED BY	DATE
DB/ROB F-785	8-8-85	RW	8-8-85

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE: **WATER** - FRESH ☒ SALINE ☐ SEDIMENT ☐

AGENCY CODE  
51

STORET STATION NUMBER

DATE (M/D/Y)

072485

TIME A - GRAB SAMPLE

1330

TIME B COMPOSITE SAMPLE

COMP

BEGIN

END

REMARKS

Job #

LOCATION

Berry Nursery

SAMPLE SOURCE:

GROUNDWATER

MONITORING WELL: ☐

DRINKING WATER WELL: ☐

SURFACE WATER

RIVER/STREAM: ☐

LAKE/POND: ☐

ESTUARY/BAY: ☐

EFFLUENT: ☐

FIELD BLANK: ☐

FIELD DUPLICATE: ☐

OTHER: ☐

Sample Point

TAS #	FIELD/LAB ID #	PRESERVATION	WELL #	UNIT	CODE
	51-G1-V	Ice	G1		
SAMPLER BY: <i>Kiehl / Thiel</i>				SPECIFIC CONDUCTANCE	µMHOS/CM
FIELD REPORT PREPARED BY: <i>Kiehl</i>				PH	STD UNIT
				TEMPERATURE	°C
				MEASURED BY:	

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM		
<b>PURGEABLES</b>				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON				<b>CHAIN OF CUSTODY SAMPLE</b>		
CADMIUM						
CALCIUM						
				STORET FIELD SAMPLE #		29
				AGENCY COLLECTING		27
				AGENCY ANALYZING		28

J - Estimated Value  
K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given  
U - Material was analyzed for but not detected. The number Minimum Detection Limit.

ANALYST

QA VERIFIED BY

SPAN LAB REPORT VERIFIED BY

DATE

\*STORET CODES APPLY TO ONLY SURFACE WATER SAMPLES

\*STORET CODES APPLY TO FIELD MEASUREMENTS

## Chemical Analysis Report Form - PURGEABLES

Sample Type: Water (Fresh)

Agency Code SA LAB	STORET Station Number none	Date Sampled (M/D/Y) 07/24/85	Time A - Grab Sample 1330	Time B - Composite Sample NA	Depth, Feet 10
			COMP	BEGINNING NA	END NA

Remarks  
SandpointSite Location:  
Berry Nursery

PMAS # 1315	FIELD ID # 51-G1-V		WELL # G1	Sample Source: Sandpoint			
PARAMETER	UNIT	STORET CODE	VALUE	PARAMETER	UNIT	STORET CODE	VALUE
Benzene	ug/L	34030	1 U	o-Chlorotoluene	ug/L	77970	1 U
Bromodichloromethane	ug/L	32101	1 U	1,2-Dibromoethane	ug/L	77651	1 U
Bromoform	ug/L	32104	1 U	Styrene	ug/L	77128	1 U
Bromomethane	ug/L	34413	1 U	Xylenes	ug/L	81551	1 U
Carbon tetrachloride	ug/L	32102	1 U	cis-1,2-Dichloroethene	ug/L		1 U
Chlorobenzene	ug/L	34301	1 U	Other Purgeables	ug/L		10 J
Chloroethane	ug/L	34311	1 U				
2-Chloroethylvinyl ether	ug/L	34576	1 U				
Chloroform	ug/L	32106	1 U				
Chloromethane	ug/L	34418	1 U				
1,2-Dichlorobenzene	ug/L	34536	1 U				
1,3-Dichlorobenzene	ug/L	34566	1 U				
1,4-Dichlorobenzene	ug/L	34571	1 U				
Dibromochloromethane	ug/L	32105	1 U				
1,1-Dichloroethane	ug/L	34496	1 U				
1,2-Dichloroethane	ug/L	34531	1 U				
1,1-Dichloroethene	ug/L	34501	1 U				
trans-1,2-Dichloroethene	ug/L	34546	1 U				
1,2-Dichloropropane	ug/L	34541	1 U				
cis-1,3-Dichloropropene	ug/L	34561	1 U				
trans-1,3-Dichloropropene	ug/L	34561	1 U				
Ethylbenzene	ug/L	34371	1 U				
Methylene chloride	ug/L	34423	1 U				
1,1,2,2-Tetrachloroethane	ug/L	34516	1 U				
Tetrachloroethene	ug/L	34475	1 U				
1,1,1-Trichloroethane	ug/L	34506	1 U				
1,1,2-Trichloroethane	ug/L	34511	1 U				
Trichloroethene	ug/L	39180	1 U				
Toluene	ug/L	34910	1 U				
Vinyl chloride	ug/L	39175	1 U	STORET FIELD SAMPLE #		29	
				AGENCY COLLECTING		27	
				AGENCY ANALYZING		28	8066

J - Estimated Value  
 K - Actual value is known to be less than value given.  
 NA - Not analyzed for this compound.  
 L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.  
 E - Scientific Notation (Example:  $6 \times 10^4 = 6E4$ )  
 \* - Confirmed by PID/Hall-Detectors

ANALYST

8/14/85

QA VERIFIED BY

8-14-85

LAB REPORT VERIFIED BY

12/1/85

DATE

8-15-85

State of Florida  
DEPARTMENT OF ENVIRONMENTAL REGULATION

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE: **WATER** - FRESH ☒ SALINE ☐ SEDIMENT ☐

SPAN LAB ID

24749

AGENCY CODE <b>51</b>	STORET STATION NUMBER	DATE (M/D/Y) <b>072485</b>	TIME A - GRAB SAMPLE <b>1330</b>
			TIME B COMPOSITE SAMPLE
		COMP	BEGIN END

REMARKS <b>Job #</b>	LOCATION <b>Berry Nursery</b>
-------------------------	----------------------------------

SAMPLE SOURCE: GROUNDWATER <input type="checkbox"/> MONITORING WELL: <input type="checkbox"/> DRINKING WATER WELL: <input type="checkbox"/>	SURFACE WATER RIVER/STREAM: <input type="checkbox"/> LAKE/POND: <input type="checkbox"/> ESTUARY/BAY: <input type="checkbox"/>	EFFLUENT: FIELD BLANK: <input type="checkbox"/> FIELD DUPLICATE: <input type="checkbox"/> OTHER: <b>Sandpoint</b>
--	---	--

TAS #	FIELD/LAB ID # <b>51- G1- M</b>	PRESERVATION <b>HNO<sub>3</sub></b>	WELL # <b>G1</b>	SPECIFIC CONDUCTANCE	UNIT <b>µMHOS/CM</b>	CODE <b>94</b>
SAMPLED BY: <b>Rieck/Thiel</b>				PH	STD UNIT	<b>400</b>
FIELD REPORT PREPARED BY: <b>Rieck</b>				TEMPERATURE	°C	<b>10</b>
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM		
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						
CADMIUM						
CALCIUM						

**CHAIN OF CUSTODY SAMPLE**

STORET FIELD SAMPLE #	20
AGENCY COLLECTING	21
AGENCY ANALYZING	22

J - Estimated Value  
K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given  
U - Material was analyzed for but not detected. The number Minimum Detection Limit.

ANALYST	QA VERIFIED BY	SPAN LAB REPORT VERIFIED BY	DATE
---------	----------------	-----------------------------	------

\*STORET CODES APPLY TO ONLY SURFACE WATER SAMPLES

\*STORET CODES APPLY TO FIELD MEASUREMENTS

D

Time A - Grab Sample 1330

Time B - Composite Sample NA

COMP	BEGINNING	NA
	END	NA

Depth, Feet  
10.0

Remarks	Sandpoint
---------	-----------

Site Location:  
Berry Nursery

PMAS # 1315

FIELD ID # 51-G1-M

WELL # NA

Sample Source: Sandpoint

[illegible]

J - Estimated Value

K -Actual value is known to be less than value given.

NA - Not analyzed for this compound.

L -Actual value is known to be greater than value given.

U-Material was analyzed for but not detected. The number is the Minimum Detection Limit.

E-Scientific Notation (Example:  $6 \times 10^4 = 6E4$ )  
\*-Confirmed by

•-Confirmed by

ANALYST

QA VERIFIED BY

LAB REPORT VERIFIED BY

DATE \_\_\_\_\_

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE WATER - FRESH ☒ SALINE ☐ SEDIMENT ☐

SPAN LAB ID

24735

AGENCY CODE 51	STORET STATION NUMBER	DATE (M/D/Y) 072485	TIME A - GRAB SAMPLE 1530
			TIME B COMPOSITE SAMPLE
			COMP BEGIN END

REMARKS  
Job #

LOCATION  
Berry Nursery

SAMPLE SOURCE:  
GROUNDWATER ☐ SURFACE WATER ☐  
MONITORING WELL ☐ RIVER/STREAM ☐  
DRINKING WATER WELL ☐ LAKE/POND ☐  
ESTUARY/BAY ☐

EFFLUENT:  
FIELD BLANK:  
FIELD DUPLICATE: Sand point  
OTHER:

TAS #	FIELD/LAB ID # 51-62-PCBP Ice	PRESERVATION Ice	WELL # G2	SPECIFIC CONDUCTANCE	UNIT µMHOS/CM	CODE 94
SAMPLED BY: Rick/Thel				PH	STD UNIT	400
FIELD REPORT PREPARED BY: Rick				TEMPERATURE	°C	10
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM		
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						
CADMIUM						
CALCIUM						

STORET FIELD SAMPLE #	
AGENCY COLLECTING	
AGENCY ANALYZING	

J - Estimated Value  
K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.  
U - Material was analyzed for but not detected. The name Minimum Detection Limit

DATE	DATE VERIFIED BY	DATE REPORT COMPLETED BY
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CHAIN OF CUSTODY SAMPLE





## CHEMICAL ANALYSIS REPORT FORM

SPAN LAB ID

24757

SAMPLE TYPE: WATER - FRESH ☒ SALINE ☐ SEDIMENT ☐

AGENCY CODE <b>51</b>	STORET STATION NUMBER	DATE (M/D/Y) <b>072485</b>	TIME A - GRAB SAMPLE <b>1530</b>
			TIME B COMPOSITE SAMPLE
			COMP
			BEGIN
			END

## REMARKS

Job #

## LOCATION

Berry Nursery

## SAMPLE SOURCE:

CROWNDY WATER

MONITORING WELL: ☐DRINKING WATER WELL: ☐

## SURFACE WATER

RIVER/STREAM: ☐LAKE/POND: ☐ESTUARY/BAY: ☐

## EFFLUENT:

FIELD BLANK: ☐FIELD DUPLICATE: ☐OTHER: Sand point

TAS #	FIELD/LAB ID #	PRESERVATION	WELL #	SPECIFIC CONDUCTANCE	UNIT	CODE
	51-G2-V	Ice	G2		µMHOS/CM	94
SAMPLED BY: <u>Rick/Thel</u>				PH	STD UNIT	400
FIELD REPORT PREPARED BY: <u>Rick</u>				TEMPERATURE	°C	10
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM		
<u>PURGEABLES</u>				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						
CADMIUM						
CALCIUM						

## CHAIN OF CUSTODY SAMPLE

STORET FIELD SAMPLE #	20
AGENCY COLLECTING	27
AGENCY ANALYZING	29

J - Estimated Value

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number Minimum Detection Limit.

DATE	DATE VERIFIED BY	DATE LAB REPORT COMPLETED BY
------	------------------	------------------------------

Chemical Analysis Report Form - PURGEABLES

Sample Type: Water (Fresh)

Time A - Grab Sample 1530

Time 8 - Composite Sample NA

COMP	BEGINNING	NA
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END NA

Depth, Feet  
4

Agency Code  
SA LAB

STORE Station Number  
none

Date Sampled (M/D/Y)  
07/24/85

Remarks  
Sandpoint

Site Location:  
Berry Nursery

PNAS 1315

FIELD ID # 51-G2-V

WELL # G2

Sample Source: Sandpoint

PARAMETER	UNIT	STORET CODE	VALUE	PARAMETER	UNIT	STORET CODE	VALUE
Benzene	ug/L	34030	1 U	o-Chlorotoluene	ug/L	77970	1 U
Bromodichloromethane	ug/L	32101	1 U	1,2-Dibromoethane	ug/L	77651	1 U
Bromoform	ug/L	32104	1 U	Styrene	ug/L	77128	1 U
Bromomethane	ug/L	34413	1 U	Xylenes	ug/L	81551	1 U
Carbon tetrachloride	ug/L	32102	1 U	cis-1,2-Dichloroethene	ug/L		1 U
Chlorobenzene	ug/L	34301	1 U	Other Purgeables	ug/L		10 J
Chloroethane	ug/L	34311	1 U				
2-Chloroethylvinyl ether	ug/L	34576	1 U				
Chloroform	ug/L	32106	1 U				
Chloromethane	ug/L	34418	1 U				
1,2-Dichlorobenzene	ug/L	34536	1 U				
1,3-Dichlorobenzene	ug/L	34566	1 U				
1,4-Dichlorobenzene	ug/L	34571	1 U				
Dibromochloromethane	ug/L	32105	1 U				
1,1-Dichloroethane	ug/L	34496	1 U				
1,2-Dichloroethane	ug/L	34531	1 U				
1,1-Dichloroethene	ug/L	34501	1 U				
trans-1,2-Dichloroethene	ug/L	34546	1 U				
1,2-Dichloropropane	ug/L	34541	1 U				
cis-1,3-Dichloropropene	ug/L	34561	1 U				
trans-1,3-Dichloropropene	ug/L	34561	1 U				
Ethylbenzene	ug/L	34371	1 U				
Methylene chloride	ug/L	34423	1 U				
1,1,2,2-Tetrachloroethane	ug/L	34516	1 U				
Tetrachloroethene	ug/L	34475	1 U				
1,1,1-Trichloroethane	ug/L	34506	1 U				
1,1,2-Trichloroethane	ug/L	34511	1 U				
Trichloroethene	ug/L	39180	1 U				
Toluene	ug/L	34910	1 U				
Vinyl chloride	ug/L	39175	1 U				
				STORET FIELD SAMPLE #		29	
				AGENCY COLLECTING		27	
				AGENCY ANALYZING		28	8066

J -Estimated Value  
K -Actual value is known to be less than value given.  
NA-Not analyzed for this compound.  
L -Actual value is known to be greater than value given.

U-Material was analyzed for but not detected. The number is the Minimum Detection Limit.  
E-Scientific Notation (Example:  $6 \times 10^4 = 6E4$ )  
\*-Confirmed by PID/Hall-Detectors

## ANALYSIS

DA VERIFIED BY

LAB REPORT VERIFIED BY

DATE \_\_\_\_\_

## CHEMICAL ANALYSIS REPORT FORM

SPAN LAB ID 24750SAMPLE TYPE WATER - FRESH ☒ SALINE ☐ SEDIMENT ☐

AGENCY CODE <b>51</b>	STORET STATION NUMBER	DATE (M/D/Y) <b>072485</b>	TIME A - GRAB SAMPLE <b>1530</b>
			TIME B COMPOSITE SAMPLE
			COMP
			BEGIN
			END

REMARKS Job #	LOCATION <b>Berry Nursery</b>
------------------	----------------------------------

SAMPLE SOURCE: <input checked="" type="checkbox"/> GROUNDWATER <input type="checkbox"/> MONITORING WELL: <input type="checkbox"/> DRINKING WATER WELL:	<input checked="" type="checkbox"/> SURFACE WATER RIVER/STREAM: LAKE/POND: ESTUARY/BAY:	EFFLUENT: FIELD BLANK: FIELD DUPLICATE: OTHER: <b>Second point</b>
---	--	---

TAS #	FIELD/LAB ID # <b>51-G2-M</b>	PRESERVATION <b>HNO<sub>3</sub></b>	WELL # <b>G2</b>	SPECIFIC CONDUCTANCE	UNIT <b>µMHOS/CM</b>	CODE <b>94</b>
SAMPLED BY: <b>Rick H. Thiel</b>				pH	STD UNIT	<b>400</b>
FIELD REPORT PREPARED BY: <b>Rick H. Thiel</b>				TEMPERATURE	°C	<b>10</b>
				MEASURED BY:		

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*
AS CIRCLED:				CHROMIUM <b>17-30-85 LIT</b>		
PURGEABLES				COPPER		
BASE/NEUTRAL EXT				IRON		
ACID EXTRACTABLE				LEAD		
PESTICIDE				MAGNESIUM		
HERBICIDE				MANGANESE		
PCB'S				MERCURY		
ALUMINUM				NICKEL		
(Al req'd all sediments)				POTASSIUM		
ANTIMONY				SELENIUM		
ARSENIC				SILVER		
BARIUM				SODIUM		
BERYLLIUM				ZINC		
BORON						
CADMIUM						
CALCIUM						

## CHAIN OF CUSTODY SAMPLE

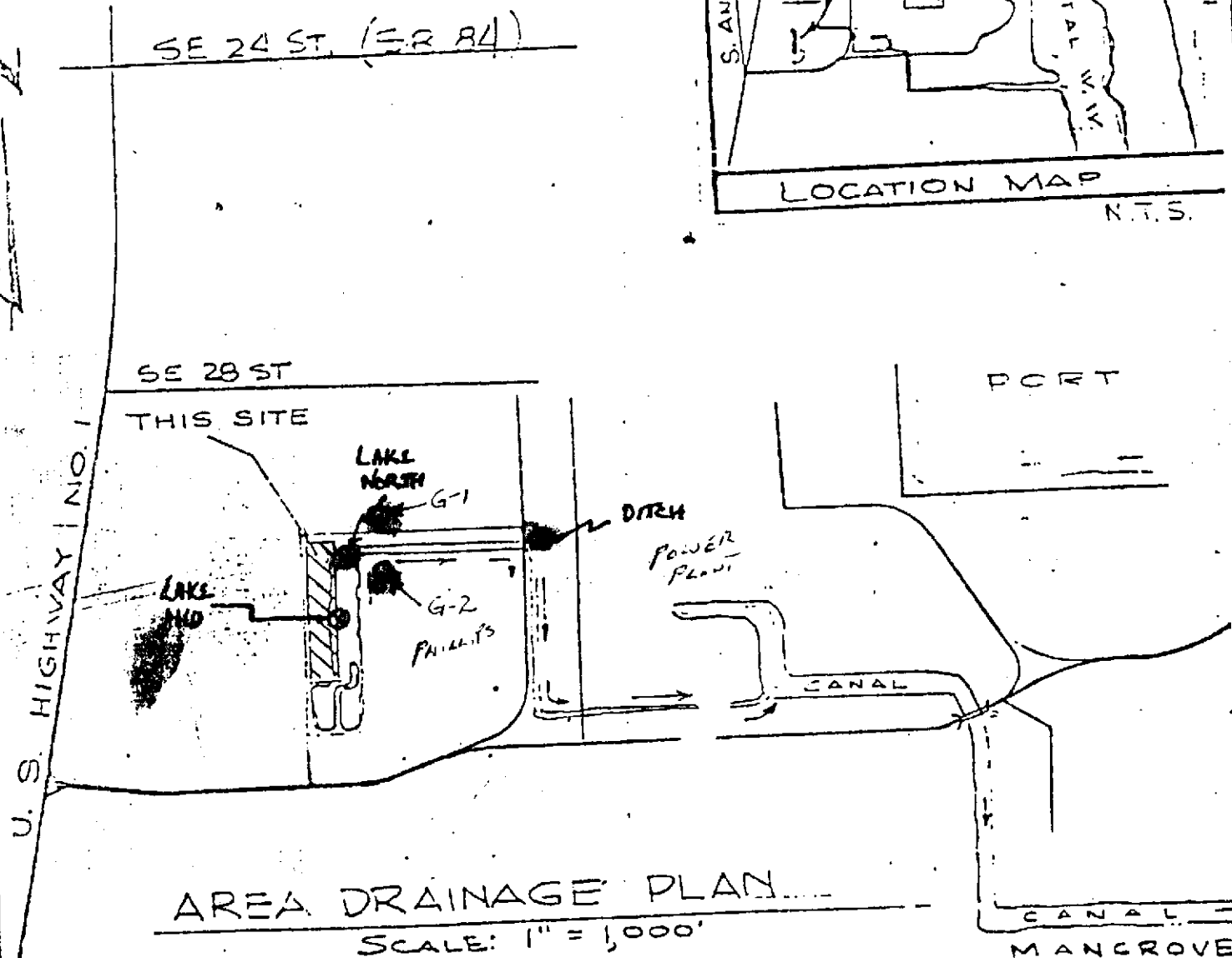
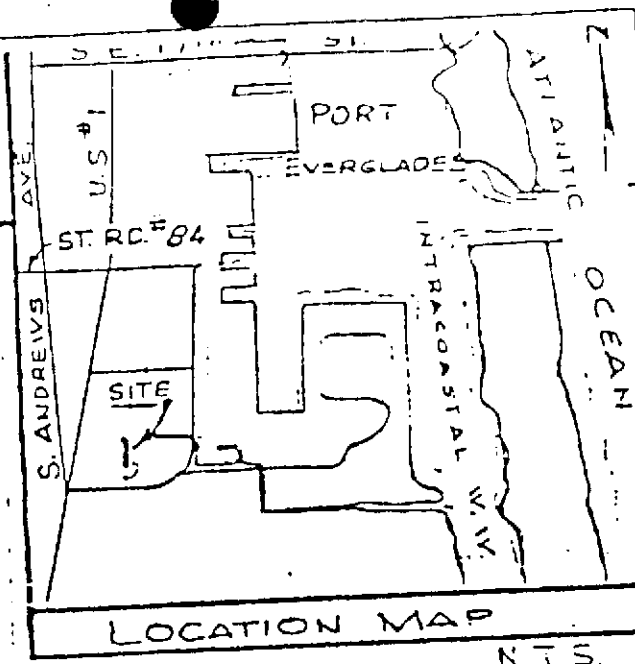
STORET FIELD SAMPLE #	
AGENCY COLLECTING	
AGENCY ANALYZING	
J - Estimated Value	L - Actual value is known to be greater than value given
K - Actual value is known to be less than value given	U - Material was analyzed for but not detected. The normal Minimum Detection Limit

DATE: 07/24/85 TIME: 1530 BY: Rick H. Thiel



# BERRY NURSERY

IN  
SEC. 23, 50 S., 42 E.



PURPOSE: PROPOSED NURSERY DZV

DATUM: MEAN SEA LEVEL

ADJACENT PROPERTY OWNERS:

① AMOCO

② WARREN GAS

③ WILLIAM LEONARD

④ WILLIAM LEONARD

Rev. 1/31/82

82M-0912

PF06-57203-6E

31 JAN '83 REVISED

1/83

IN SEC. 23-50-42

AT PORT EVERGLADES

COUNTY OF BROWARD STATE FLA.

APPLICATION BY CLIFF BERRY, INC.

SHEET 1 OF 3 DATE NOV. 82

2018 ST

B.O.S.

BEST  
COMBUST

N  
↑

← FENCE

G1

G2

SX (LV)

LAKE

TANK FARM

PHILLIPS PETROL.

**RIO PALENQUE RESEARCH CORPORATION**

4212 LAGUNA • CORAL GABLES, FLORIDA 33146 • TEL (305) 444-5822



August 3, 1984

Mr. Robert J. Compton  
Compton, Jacobson, and Pierce  
617 SE 4th Ave.  
Fort Lauderdale, FL 33101

re: Cliff Berry Permit Application

Dear Bob,

I have put together the attached report that summarizes my findings. My position on alternative plans is clearly set forth and I believe that the argument for Alternative 1 could be presented to DER. Deliberation on the various alternatives should involve Mr. Berry and Jim Bauch of course.

I am leaving town the 5th and will return Sept. 9. Should you need to consult with us call my colleague

Dr. Leonard Greenfield  
305-662-8666

Although Lennie has not visited the site he is somewhat familiar with the project and can review the file.

I wish you well in pursuit of the permits.

Yours truly,

Earl R. Rich

ERR:dr

encl

cc: Cliff Berry

Jim Bauch

Len Greenfield



Berry Nursery

The water quality conditions in the borrow pit, in the ditch between the borrow pit and the FPL cooling canal, and in the drainage system from the airport are not good. The levels of pesticides and herbicides in the water column and in the bottom sediments are high. They were high in both the dry and the rainy season. The sediment hydrocarbons were extremely high, worse than in the Miami River. The PCB level at the ditch station was much higher than in the borrow pit, an indication of a downstream source. In all, there is a set of bad conditions which are not being alleviated by the white mangrove area adjacent to the borrow pit. (See attached analytical data from samples collected 4/26/84)

Following our consultation with the DER staff May 21, 1984, we followed up with water sampling in a "worst case" situation. We took samples for nutrient, pesticide, and herbicide analysis at a time of heavy rainfall, runoff, and pumping from Mr. Berry's agricultural land into the waterway by way of the white mangrove area. In the preceding days there had been extremely heavy rains and the drainage from the airport to the waterway was maximal. The leaching and washing of fertilizers and pesticides had to be extreme. Our observations of nutrients, herbicides, and pesticides are reported on the enclosed table summarizing the results of the water samples collected on 5/30/84.

It is relevant to the matter of the utility of the overland water flow that at the time of the collection, the water level was high in the borrow pit, the white mangroves were inundated, and the flow of the pumped water across the white mangrove area was rapid, essentially unimpeded, and could not possibly be effective at "cleansing" the water that was being pumped from the upland ditches. Further, it is to be noted that the only time that the upland drainage is pumped across the white mangrove area is when the water is high due to rainfall and therefore, the flow across the mangrove area is rapid.

The wetlands to the east and south of the borrow pit may have some function as a retention area. It is my understanding that part of the wetlands will be filled for a traffic interchange. The only functional drainage of that wetland area seems to be by way of the borrow pit and the ditch to FPL cooling canal and hence the Intracoastal Waterway at Port Everglades. The quality of the water at the ditch station indicates that the ditch system contaminates rather than cleanses the water from the drainage basin.

If we are to be concerned with improving the quality of water drainage to the FPL cooling canal, there are several approaches we might pose. The first and most obvious approach is to clean up the entire industrial area which has served as a major source of pollution for decades. Even this would still leave need for storm drainage. To this end I would



suggest that the entire ditch system be properly maintained with vegetated banks where possible. Storm runoff from the area between the borrow pit and US1 which presently crosses the Cliff Berry Nursery and is pumped to the borrow pit could be handled better in any of three possible ways: it could be impeded in flow across the white mangrove vegetated marl soil upland, it could be diverted to the south and transported to the present ditch system by way of a new, long, shallow, vegetated ditch, it could be diverted to a new flow pattern to, and through, the wetland area south and east of the borrow pit and hence to the FPL cooling canal by passing the most polluted portion of the existing ditch network.

The attached sketches illustrate the present pattern and proposed alternative patterns. None of these proposals will solve all of the obvious pollution problems. These problems arise from decades of accumulation in the network of ditches downstream from the borrow pit.

#### Alternative Proposals

1. Overland Flow The existing axial flow pump at the north end of the fill area remains in place. All of the 3.07 acres is filled except for the northernmost 110 feet. This area is partially impounded by placement of two rock rubble dikes. The dikes are north-south in orientation and designed to impede the overland flow. The present overland flow during pumping operations uses only a small portion of the land area and flow is extremely rapid. This pattern of impeded flow will improve the possibility of nutrient and pollutant uptake by the vegetation. However, there will be little percolation of water into the low porosity marl soil of the present grade.
2. Long Ditch Flow The axial flow pump would be moved to a point near the south end of the borrow pit. The entire borrow pit would be filled except for a shallow ditch around the south and east sides. The flow during pumping operations would be directed around the south and east sides. There would be interaction and exchange with the wetland retention area to the southeast of the present borrow pit. The wetland retention area would utilize the ditch on the east side as its overflow to the east-draining ditch system. This design would increase the exposure of drainage water from the west to emergent vegetation.
3. Trans-wetland Flow The axial flow pump would be moved to the south end of the borrow pit and a shallow vegetated ditch would cross to the east. This ditch would transport from the Cliff Berry Nursery and the drainage basin between the nursery and US1 to the existing wetland south and east of the borrow pit. This wetland would serve as storm water retention area for the new traffic interchange. The drainage from the wetland would utilize the ditch that parallels Eller Drive and loads into the FPL cooling canal. All of the borrow pit would be filled with clean, porous fill, the sides of the ditch would be bermed, and should be fenced to prevent dumping. This pattern has the significant advantage of by-passing the most heavily polluted portion of the drainage system and would probably do the most to improve the quality of water entering the State waters at the Intracoastal Waterway.

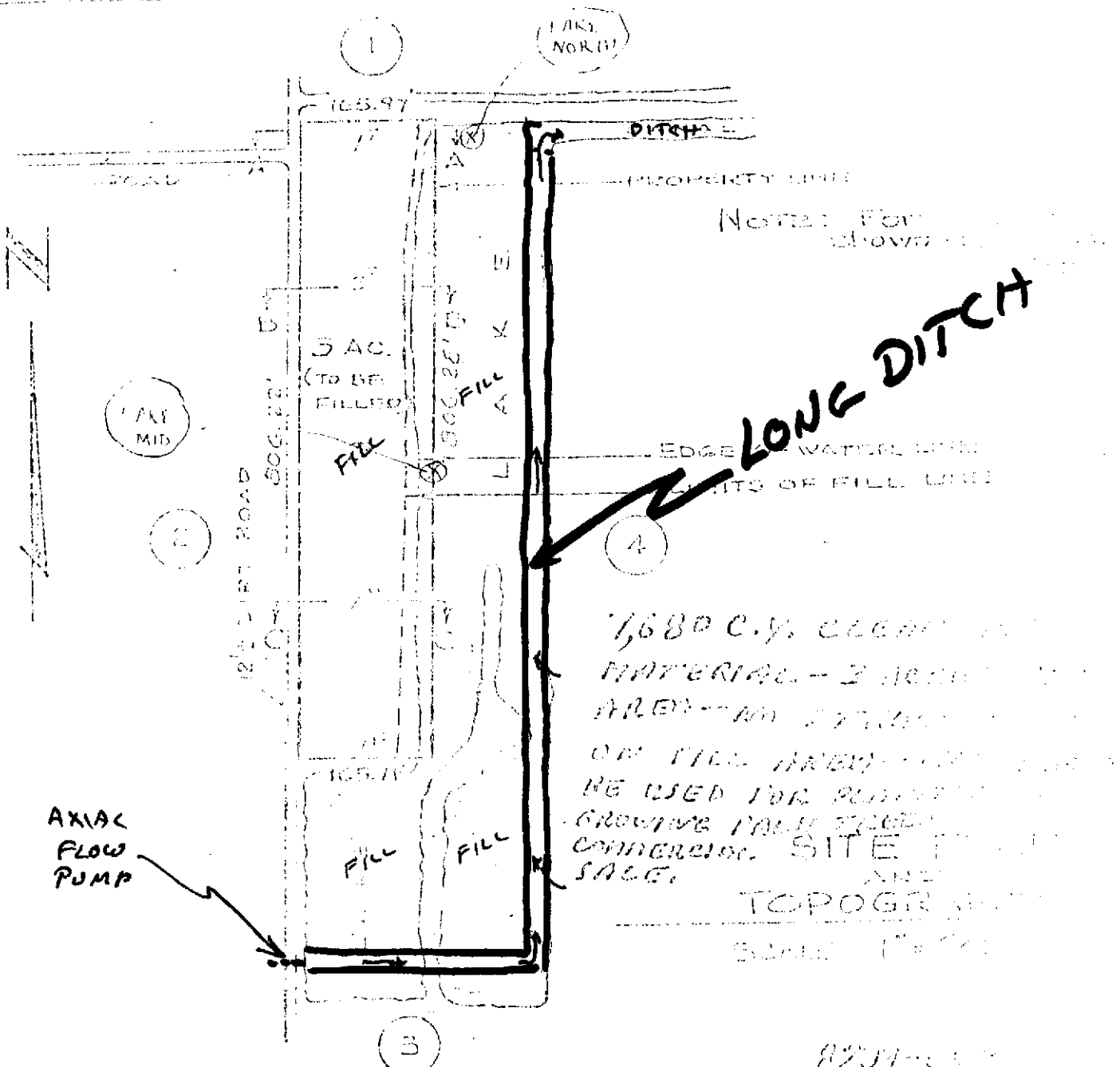
If the primary concern is the quality of water entering State waters then the third alternative is preferred. Both alternatives 2 and 3 have the disadvantage of involving property that is not under control of those who are party to these deliberations. Alternative 1 is practical, will improve conditions, and allow filling a major part of Mr. Berry's 3.07 acres. Another important merit of alternative 1 is that it would be economical, could be done expeditiously, and would not preclude the future implementation of either of the other two alternatives.

It is my opinion that we should seek immediate approval of alternative 1, and that efforts should be continued to get permitting for alternative 3, with alternative 2 a stand-by possibility.

# LONG DITCH FLOW

BERRY NURSERY  
ALT. 2

SECTION 23, TWP. 50 S. RGE. 42 E.



LONG DITCH

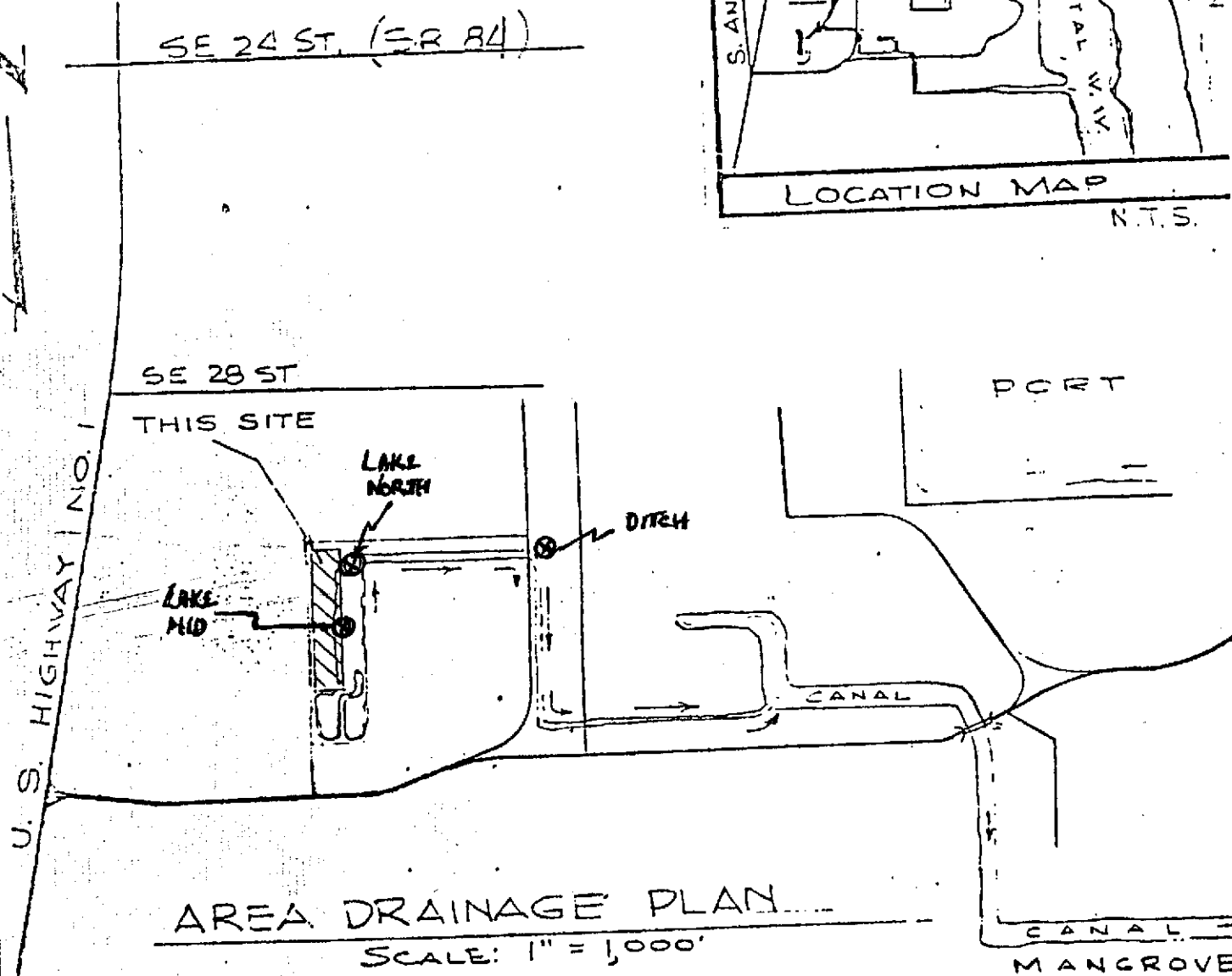
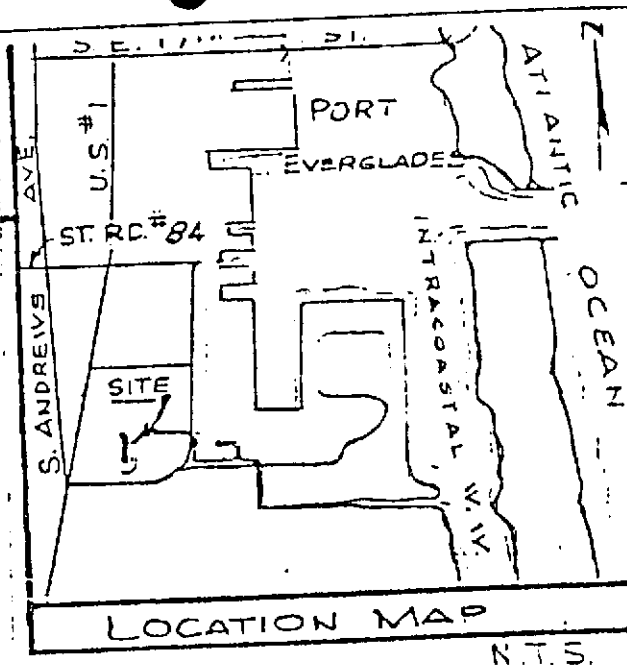
1,680 C.Y. CLEAR  
MATERIAL - 2 ACRES  
AREA - AN AREA  
OF FILL AREA -  
BE USED FOR PLANTING  
GROWING PALS TREES  
COMMERCIAL SITE  
SALE  
TOPOGRAPHY  
SCALE 1" = 50'

AXIAL  
FLOW  
PUMP

PURPOSE: PROPOSED NURSERY DEV.  
DATE: MEAN SEA LEVEL  
ADJACENT PROPERTY OWNERS:  
① AMOCO  
② WARREN  
③ WILSON  
④ ST. JOHN

8/27/11  
21 JANUARY 2012  
2 4/10  
IN SEC. 23, TWP. 50 S., RGE. 42 E.  
AT CORNER OF SECTION 23  
COUNTY OF THE STATE OF MINN.  
AFFIDAVIT OF TITLE  
FILED IN THE OFFICE OF THE  
COUNTY CLERK OF THE STATE OF MINN.

# BERRY NURSERY IN SEC. 23, 50 S., 42 E.



PURPOSE: PROPOSED NURSERY DEV

DATUM: MEAN SEA LEVEL

ADJACENT PROPERTY OWNERS:

- ① AMOCO
- ② WARREN GAS
- ③ WILLIAM LEONARD
- ④ WILLIAM LEONARD

REV. 1/31/83

82M-0912

DF06-57203-6E

31 JAN '83 REVISED

1/83

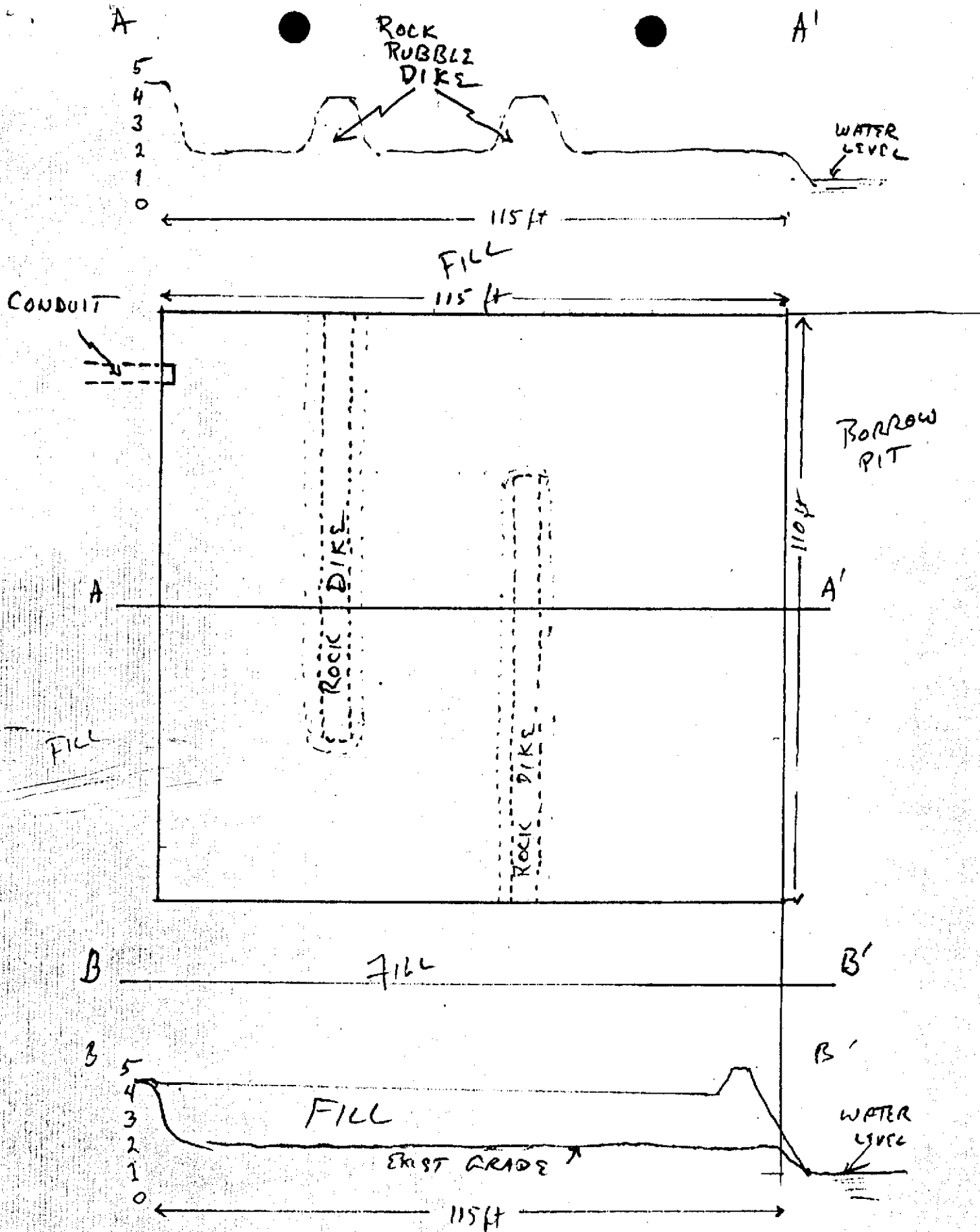
IN SEC. 23-50-42

AT PORT EVERGLADES

COUNTY OF BROWARD STATE FLA.

APPLICATION BY CLIFF BERRY, INC.

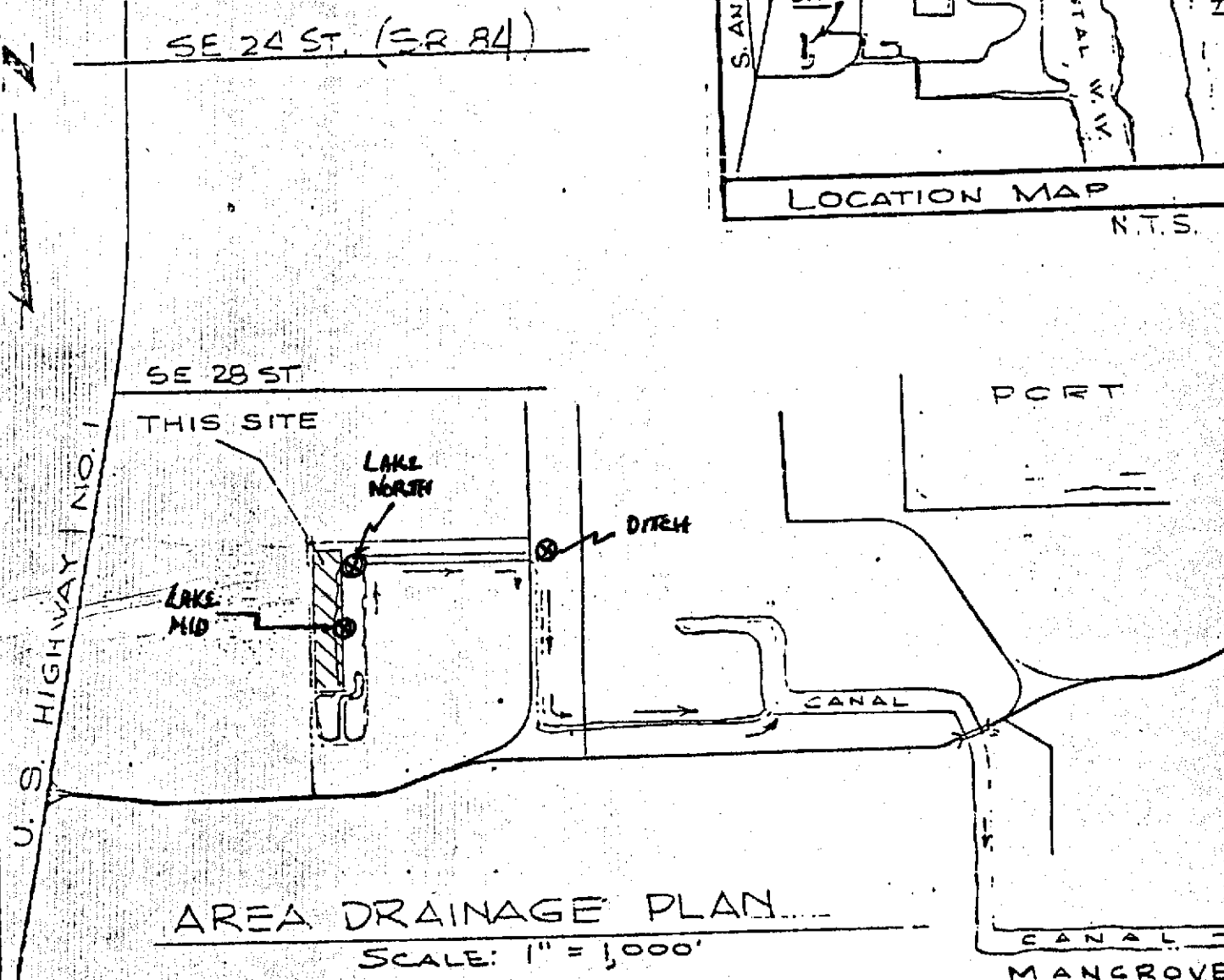
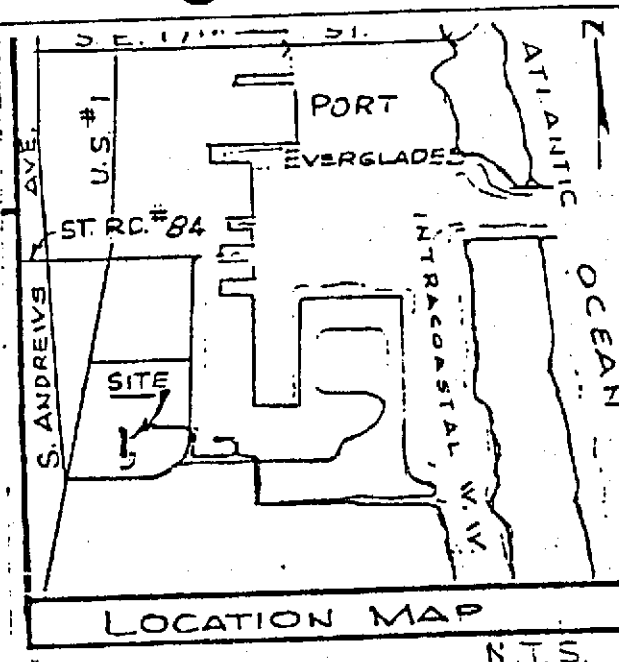
SHEET 1 OF 3 DATE NOV. 82



**OVERLAND FLOW PLAN**  
**ALT. 1**

# BERRY NURSERY

IN  
SEC. 23, 50 S., 42 E.



PURPOSE: PROPOSED NURSERY DEV

DATUM: MEAN SEA LEVEL

ADJACENT PROPERTY OWNERS:

- ① AMOCC
- ② WAZZEN GAS
- ③ WILLIAM LEONARD
- ④ WILLIAM LEONARD

REV. 1/31/83

82M-0912

DF06-57203-6E

31 JAN '83 REVISED

1983

IN SEC. 23-50-42

AT PORT EVERGLADES

COUNTY OF BROWARD STATE FLA.

APPLICATION BY CLIFF BERRY, INC

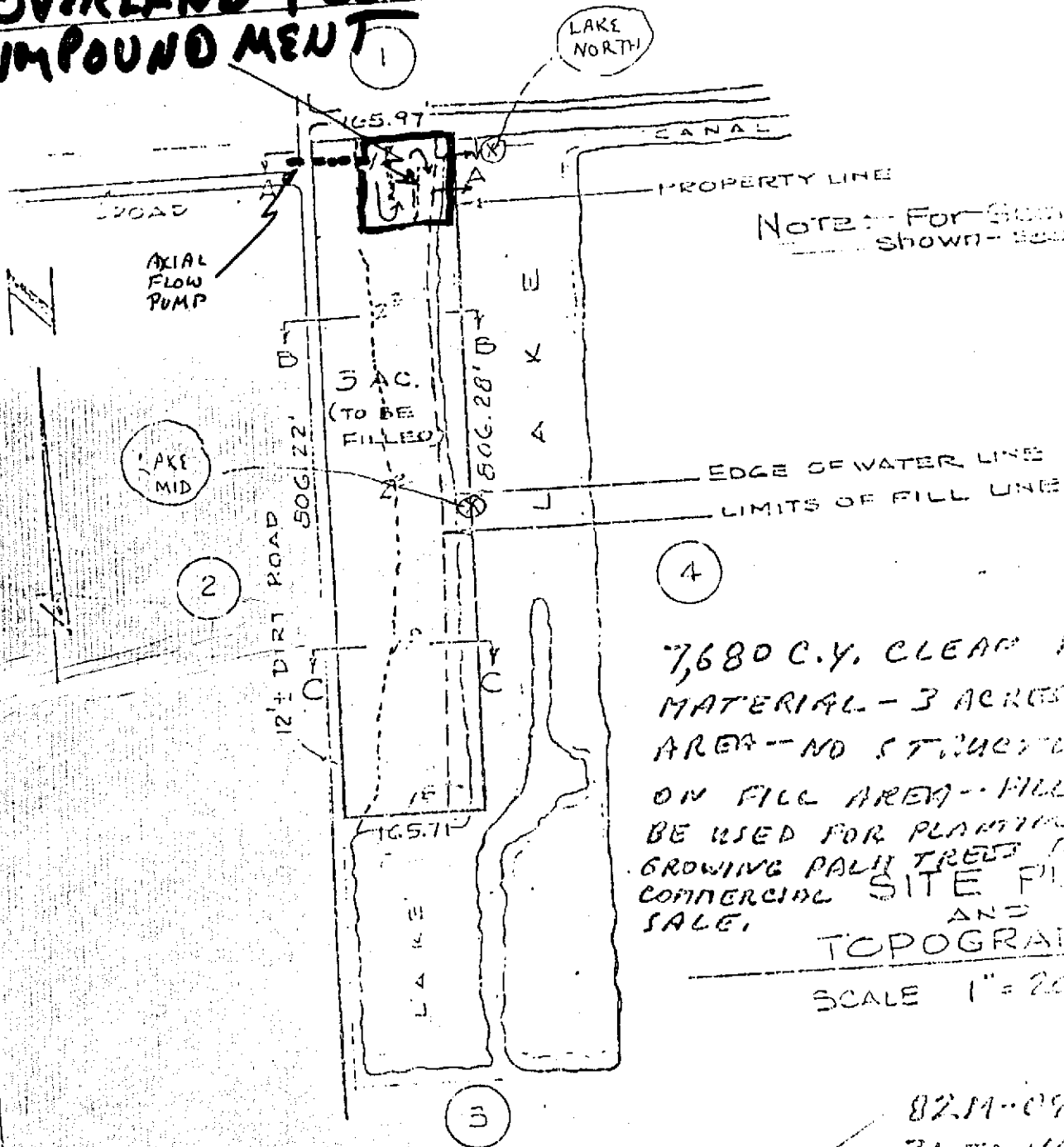
SHEET 1 OF 3 DATE NOV. 82

# ALT. 1 OVERLAND FLOW IMPOUNDMENT

BERRY NURSERY

IN

SECTION 23, T1VP. 50 S. RGE. 42 E.



Note: For SECTION 23  
shown - see SHEET 2

7,680 C.Y. CLEAR FILL  
MATERIAL - 3 ACRES FILL  
AREA - NO STRUCTURES  
ON FILL AREA - FILL AREA TO  
BE USED FOR PLANTING AND  
GROWING PALM TREES FOR  
COMMERCIAL SITE PLAN  
SALE.

TOPOGRAPHY

SCALE 1" = 200'

PURPOSE: PROPOSED NURSERY DEV.  
DATUM: MEAN SEA LEVEL  
ADJACENT PROPERTY OWNERS:  
① AMOCO  
② WARREN GAE  
③ WILLIAM LEONARD  
④ JIM LEONARD

82.11-0972  
31 JAN '82 RAL  
2 of 3

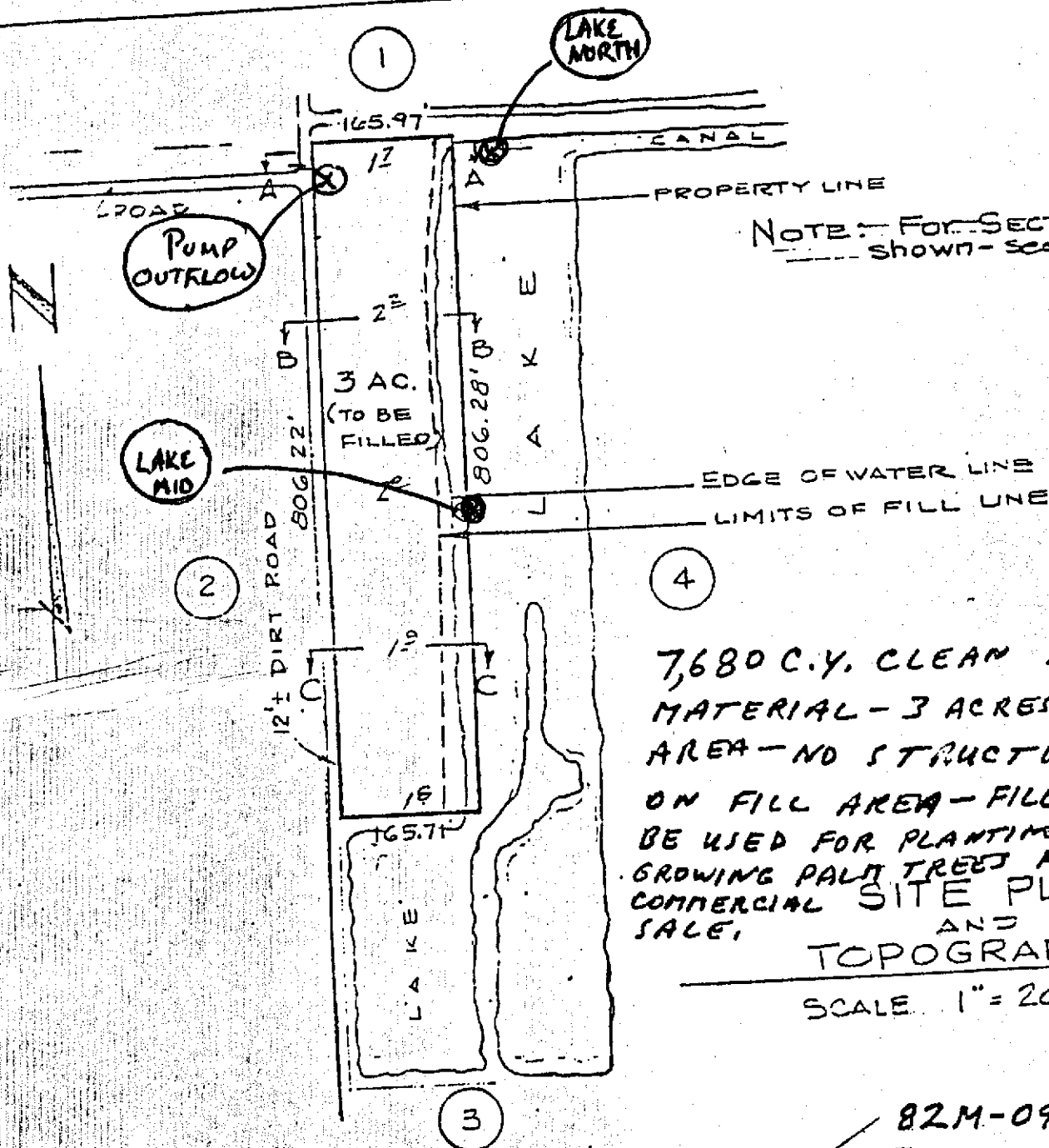
IN SEC. 23, 50 S. RGE.  
AT PORT OVERLOOKING  
COUNTY OF STENWATER STATE PLANNING  
APPLICATION BY CLIFF BERRY, INC.

SHEET 2 OF 3 DATE: NOV '82

31/83

# BERRY NURSERY

IN  
SECTION 23, T1P. 50 S. RGE. 42 E.



NOTE: FOR SECTIONS  
shown - see SHEET  
= 3

7,680 C.Y. CLEAN FILL  
MATERIAL - 3 ACRES SFC  
AREA - NO STRUCTURES  
ON FILL AREA - FILL AREA TO  
BE USED FOR PLANTING AND  
GROWING PALM TREES FOR  
COMMERCIAL SITE PLAN  
AND  
TOPOGRAPHY  
SCALE 1" = 200'

PURPOSE: PROPOSED NURSERY DEV.  
DATUM: MEAN SEA LEVEL  
ADJACENT PROPERTY OWNERS:  
① AMCC  
② WARREN GAS  
③ WILLIAM LEONARD  
④ WILLIAM LE

82M-0912  
31 JAN '83 REV.  
2 of 3

IN SEC. 23, 50 S, 42 E.  
AT PORT EVERGLADES  
COUNTY OF BROWARD, STATE FLORIDA  
APPLICATION BY: CLIFF BERRY, INC.

Rev: 1/31/83

SHEET 2 OF 3 DATE: NOV. 82



## ALIPHATIC HYDROCARBONS

Sample: LAKE N (Sediment)  
 Date analyzed: JUL 9, 1984  
 Int. Std. (ug): 101  
 Dry weight (g): 46.58836  
 Inject. volume (ul): 1  
 Sample volume (ml): 4.4

Compounds	Ref. #	Response Factor	Area	ug/g ng (corrected)	Ratios
C12	1R	.000322	0	0	Resol./Unres. .8653 Prist./Phyt. 1.065 C17/Prist. .5809 C18/Phyt. 1.149
C13	2R	.000314	0	0	
C14	3R	.000296	2157	.638472 .1302333362	
C15	4R	.000311	2789	.867379 .1769250037	
C16	5R	.000316	4700	1.4852 .3029460195	n-Alkanes  Homol. Ser. CPI 2.514
C17	6R	.000339	5077	1.721103 .3510647071	
Pristane	7R	.000323	9173	2.962079 .6043579311	
C18	8R	.000353	9055	3.196415 .6519938062	
Phytane	9R	.000339	8208	2.782512 .5675672870	% Recovery 46.30
C19	10R	.000349	10038	3.782462 .7715336701	
Androstane (int. std.)	11R	.000133	79912	10.628296 INT. STD.	
C20	12R	.000609	0	0	
C21	13R	.000359	7091	2.545669 .5192568614	
C22	14R	.000401	6573	2.635773 .5376359673	
C23	15R	.000430	3056	1.338520 .2730283663	
C24	16R	.000572	4104	2.347400 .4780325784	
C25	17R	.000784	3057	3.023800 .6168023304	
C26	18R	.001197	0	0	
C27	19R	.002792	5799	16.190800 3.302545675	
C28	20R	.002353	3760	8.84720 1.804637934	
C29	21R	.0035	7162	25.067 5.113080979	
C30	22R	.014600	0	0	

## TOTALS

Resolved for all peaks	344940	
Resolved-known peaks	93399	16.20244246
Resolved-unknown peaks	171629	22.826657 4.656103472
Unresolved (UCM)	888563	118.17888 24.10572380

Total aliphatic  
hydrocarbons

44.96426973

# AROMATIC HYDROCARBONS

Sample: LAKE N (Sediment)  
 Date analyzed: JUL 9, 1984  
 Int. Std. (ug): 181  
 Dry weight (g): 46.58836  
 Inject. volume (ul): 2  
 Sample volume (ml): 6.6

Compound	Ref. #	Response Factor	Area	ng (corrected)	ug/g	Ratios
Naphthalene	1R	.001294	0	0	0	
Dibenzothiophene	2R	.001649	1993	3.286457	1.922889336	Resol./Unres.ERROR
Phenanthrene	3R	.001317	0	0	0	
o-Terphenyl (int. std.)	4R	.001321	2805	3.705405	INT. STD.	
1-Methylphenanthrene	5R	.001384	0	0	0	
Pyrene	6R	.001655	0	0	0	
						% Recovery 12.11

## TOTALS

Resolved for all peaks	107550		
Resolved-known peaks	1993	1.922889336	
Resolved-unknown peaks	102752	135.73539	79.41478589
Unresolved (UCM)	0	0	0

Total aromatic hydrocarbons

81.33759523

# ALIPHATIC HYDROCARBONS

## Sample:

LAKE MIB (Sediment)

Date analyzed: JUL 9, 1984  
Int. Std. (ug): 101  
Dry weight (g): 14.82538  
Inject. volume (ul): 1  
Sample volume (ml): 24

Compounds	Ref. #	Response Factor	Area	ug/g ng (corrected)	Ratios
C12	1R	.000322	0	0	0
C13	2R	.000314	0	0	0
C14	3R	.000296	0	0	0
C15	4R	.000311	911	.283321	.8429177233
C16	5R	.000316	18022	5.694952	16.94324097
C17	6R	.000339	69186	23.454054	69.77893555
Pristane	7R	.000323	33824	10.925152	32.58378281
C18	8R	.000353	88826	31.355578	93.28702221
Phytane	9R	.000339	29663	10.055757	29.91721685
C19	10R	.000349	81883	28.577167	85.02887938
Androstane (int. std.)	11R	.000133	17217	2.289861	INT. STD.
C20	12R	.000689	0	0	0
C21	13R	.000359	29898	10.733382	31.93324151
C22	14R	.000401	17314	6.942914	20.65609419
C23	15R	.000438	7829	3.429102	10.28203533
C24	16R	.000572	4267	2.440724	7.261479898
C25	17R	.000784	2137	1.675408	4.984562023
C26	18R	.001197	0	0	0
C27	19R	.002792	0	0	0
C28	20R	.002353	0	0	0
C29	21R	.0035	0	0	0
C30	22R	.014608	0	0	0

Resol./Unres. 3.677  
Prist./Phyt. 1.886  
C17/Prist. 2.147  
C18/Phyt. 3.118

n-Alkanes

Homol. Ser.  
CPI 1.192

% Recovery 54.41

## TOTALS

Resolved for all peaks  
Resolved-known peaks  
Resolved-unknown peaks  
Unresolved (UCM)

Total aliphatic  
hydrocarbons

584060  
383760 483.3314876  
183883 24.350039 72.44461838  
326979 43.488207 129.3832100

605.1592278

# WATER CHEMISTRY & FIELD DATA

Project: Cliff Barry Nursery  
Date: 4/26/84

[illegible]

# RIO PALENQUE RESEARCH CORPORATION

4212 LAGUNA • CORAL GABLES, FLORIDA 33146 • TEL. (305) 444 5822



## LABORATORY ANALYSIS

PROJECT: Cliff Berry Nursery

DATE COLLECTED & METHOD USED: 4/26/84 at mid-depth by E.Rich

ANALYSIS: Herbicides, Pesticides, etc.

DATE RECEIVED: 4/26/84

METHOD: GLC

DATE ANALYZED: \_\_\_\_\_

STORAGE: \_\_\_\_\_

ANALYST: E.F. Corcoran, Univ. of Miami-RSMAS

## RESULTS:

### Herbicides (water) ng/l

<u>Station</u>	<u>2,4-D</u>	<u>Silvex</u>	<u>2,4,5-T</u>
Ditch	300.2	ND*	319.2
Lake-N	658.2	ND	50.7
Lake-Mid	118.5	50.5	149.7

*Parts per trillion*

### Pesticides (water) ng/l

	<u>Aldrin</u>	<u>pp/DDE</u>	<u>Dieldrin</u>
Ditch	1134.0	875.0 <i>ng/g</i>	1486.0 <i>ng/g</i>
Lake-N	ND	ND	1216.7
Lake-Mid	ND	697.0	494.2

### Herbicides (sediment) ng/g

	<u>2,4-D</u>	<u>Silvex</u>	<u>2,4,5-T</u>
Ditch	7.2	ND	ND
Lake-N	10.3	2.6	ND
Lake-Mid	ND	ND	4.3

### Pesticides, PAEs, PCBs (sediment) ng/g

#### Aroclor 1248

Ditch	619.2 <i>ng/g</i>
Lake-N	116.6
Lake-Mid	113.9

\*none detected



**LABORATORY ANALYSIS**

PROJECT: Cliff Berry Nursery  
 ANALYSIS: Metals  
 METHOD: Atomic Absorption

DATE COLLECTED & METHOD USED: 4/26/84 at  
mid-depth by E. Rich  
 DATE RECEIVED: \_\_\_\_\_  
 DATE ANALYZED: \_\_\_\_\_

STORAGE: \_\_\_\_\_  
 ANALYST: E. F. Corcoran - Univ. of Miami, RSMAS

**RESULTS:**

Metals (water) ug/l

<u>Station</u>	<u>Hg</u>	<u>Cd</u>	<u>Cr</u>	<u>Cu</u>	<u>Ni</u>	<u>Pb</u>	<u>Zn</u>
Ditch	<0.5	<5	<10	<10	<10	<10	<10
Lake-N	"	"	"	"	"	"	"
Lake-Mid	"	"	"	"	"	"	"

Metals (sediment) ug/g

	<u>Hg</u>	<u>As</u>	<u>Cd</u>	<u>Cr</u>	<u>Cu</u>	<u>Pb</u>	<u>Ag</u>	<u>Ba</u>	<u>Ni</u>	<u>Zn</u>	<u>Fe</u>
Ditch	<0.1	<1	<3	15	12	<10	<5	35	<5	51	1120
Lake-N	"	"	"	22	15	"	"	60	"	44	3200
Lake-Mid	"	"	"	16	21	30	"	20	5	151	3040

## ALIPHATIC HYDROCARBONS

## Sample:

DITCH (Sediment)

Date analyzed:

JUL 9, 1984

Int. Std. (ug):

101

Dry weight (g):

36.85389

Inject. volume (ul):

1

Sample volume (ml):

8

Compounds	Ref. #	Response Factor	Area	ug/g ng (corrected)	Ratios
C12	1R	.000322	0	0	0
C13	2R	.000314	0	0	0
C14	3R	.000296	0	0	0
C15	4R	.000311	2315	.719965 .4469017199	Resol./Unres. .7985
C16	5R	.000316	1768	.558688 .3467927383	Prist./Phyt. 2.192
C17	6R	.000339	2549	.864111 .5363770351	C17/Prist. .4214
Pristane	7R	.000323	6349	2.050727 1.272941634	C18/Phyt. .7715
C18	8R	.000353	2045	.721885 .4480935157	
Phytane	9R	.000339	2760	.93564 .5807770172	
C19	10R	.000349	2815	.982435 .6098239375	n-Alkanes
Androstane (int. std.)	11R	.000133	33196	4.415068 INT. STD.	Homol. Ser.
C20	12R	.000689	5038	3.46567 2.151234968	CPI .3273
C21	13R	.000359	4684	1.681556 1.043787224	
C22	14R	.000401	6815	2.732815 1.696332077	
C23	15R	.000438	4955	2.17829 1.347157617	
C24	16R	.000572	4183	2.392676 1.485198613	
C25	17R	.000784	2079	1.629936 1.011745296	% Recovery 34.97
C26	18R	.001197	0	0	0
C27	19R	.002792	2079	5.804568 3.603052124	
C28	20R	.002353	13077	30.770181 19.09988237	
C29	21R	.0035	0	0	0
C30	22R	.014608	0	0	0

## TOTALS

Resolved for all peaks  
 Resolved-known peaks  
 Resolved-unknown peaks  
 Unresolved (UCM)

Total aliphatic  
 hydrocarbons

325400

63503

228701 30.417233 18.08079801

836070 111.19731 69.02317347

35.68009788

18.08079801

69.02317347

123.5840694

# AROMATIC HYDROCARBONS

Sample: DITCH (Sediment)  
 Date analyzed: JUL 9, 1984  
 Int. Std. (ug): 101  
 Dry weight (g): 36.85389  
 Inject. volume (ul): 2  
 Sample volume (ml): 20

Compound	Ref. #	Response Factor	Area	ug/g ng (corrected)	Ratios
Naphthalene	1R	.001294	0	0	0
Dibenzothiophene	2R	.001649	2057	3.391993 2.705514190	Resol./Unres.ERROR
Phenanthrene	3R	.001317	5604	7.380468 5.886793075	
o-Terphenyl (int. std.)	4R	.001321	2601	3.435921 INT. STD.	
1-Methylphenanthrene	5R	.001384	3385	4.68484 3.736712044	
Pyrene	6R	.001655	2189	3.498395 2.784001382	

% Recovery 34.02

## TOTALS

Resolved for all peaks  
 Resolved-known peaks  
 Resolved-unknown peaks  
 Unresolved (UCM)

187240  
 13155 15.11302069  
 171484 226.53036 180.6846636  
 0 0 0

Total aromatic  
 hydrocarbons

195.7976843



# AROMATIC HYDROCARBONS

Sample: LAKE MID (Sediment)  
 Date analyzed: JUL 9, 1984  
 Int. Std. (ug): 101  
 Dry weight (g): 14.82538  
 Inject. volume (ul): 2  
 Sample volume (ml): 8

Compound	Ref. #	Response Factor	Area	ng (corrected)	ug/g	Ratios
Naphthalene	1R	.001294	0	0	0	
Dibenzothiophene	2R	.001649	1601	2.640049	4.096035337	Resol./Unres. .7686
Phenanthrene	3R	.001317	1702	2.241534	3.477739418	
o-Terphenyl (int. std.)	4R	.001321	3324	4.391004	INT. STD.	
1-Methylphenanthrene	5R	.001384	0	0	0	
Pyrene	6R	.001655	0	0	0	

% Recovery 17.39

## TOTALS

Resolved for all peaks	82043
Resolved-known peaks	3303 7.573774756
Resolved-unknown peaks	75416 99.624536 154.5674417
Unresolved (UCM)	102932 135.97317 210.9623410

Total aromatic hydrocarbons

373.1035575

# RIO PALENQUE RESEARCH CORPORATION

4212 LAGUNA • CORAL GABLES, FLORIDA 33146 • TEL. (305) 444-5822



## LABORATORY ANALYSIS

PROJECT: Cliff Berry Nursery

ANALYSIS: Oil & Grease

METHOD: Freon extraction

STANDARD TESTS FROM "STANDARD METHODS  
FOR THE EXAMINATION OF WATER & WASTE-  
WATER." 14th ED., 1975.

### RESULTS:

DATE COLLECTED & METHOD USED: 4/26/84 by  
Earl Rich from the surface

DATE RECEIVED: 4/27/84

DATE ANALYZED: 5/9/84

STORAGE: acidified & refrigerated

ANALYST: D. Rich

<u>Station</u>	<u>mg/l</u>
Lake mid	<0.01
Ditches	"
Lake N	"



**LABORATORY ANALYSIS**

PROJECT: Cliff Berry Nursery

ANALYSIS: Nutrients, Pesticides, Herbicides

METHOD: GLC GLC

STANDARD TESTS FROM "STANDARD METHODS  
 FOR THE EXAMINATION OF WATER & WASTE-  
 WATER." 14th ED., 1975.

RESULTS:

DATE COLLECTED & METHOD USED: 5/30/84 from  
 mid-depth by Earl Rich.

DATE RECEIVED: 5/30/84

DATE ANALYZED: Nutrients - 5/30/84

STORAGE: \_\_\_\_\_

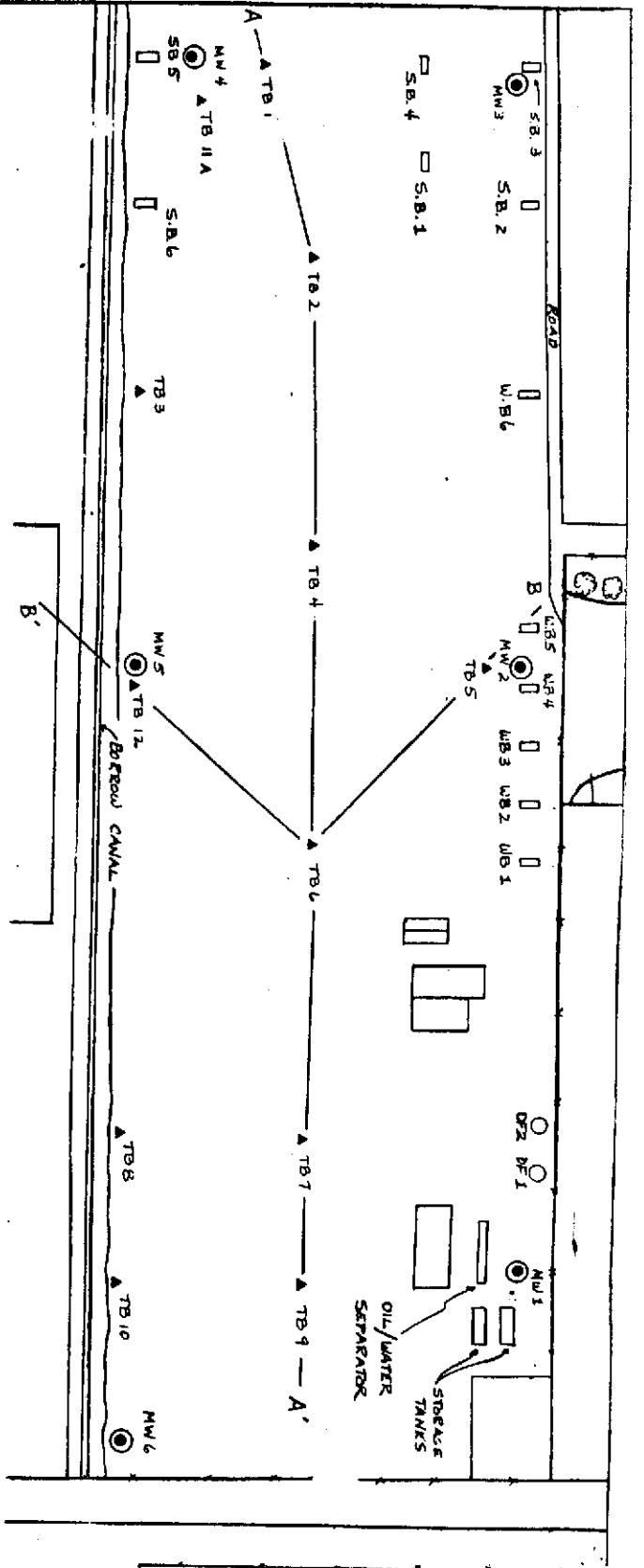
ANALYST: Nutrients - D. Rich

Pest & Herb. - E.F. Corcoran, Univ. of Miami-RSMA

<u>Herbicides ng/l</u>			
<u>Station</u>	<u>2,4-D</u>	<u>Silvex</u>	<u>2,4,5-T</u>
Pump outflow	475.9	152.3	69.4

<u>Pesticides ng/l</u>				
<u>Station</u>	<u>Endrin</u>	<u>o,p DDT</u>	<u>pp'DDT</u>	<u>DDE</u>
Pump outflow	33.2	10.6	26.5	Trace

<u>Nutrients ppm</u>				
<u>Station</u>	<u>NO<sub>3</sub>-N</u>	<u>NO<sub>2</sub>-N</u>	<u>ortho PO<sub>4</sub></u>	<u>NH<sub>3</sub>-N</u>
Pump outflow	.04	.055	.54	.31



- LEGEND**
- MONITORING WELL INSTALLED 1/8-9/86
  - ▲ SOIL BORING TAKEN 12/20/85
  - TRENCH SAMPLED 4/85

<i>Geopac, Inc.</i> <small>Environmental Consulting and Analysis</small>	
DATE JAN '86	APPROVED BY  
LOCATIONS OF SAMPLING POINTS	
SCALE APPROX. 1" = 100'	DRAWN BY JNP
DRAWING NUMBER FIGURE 1	

APPENDIX II  
GEOLOGIC LOGS

# GEOLOGIC LOG

BORE HOLE NUMBER: TB 1

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J.M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

FORMATION	DEPTH	ROCK TYPE	DESCRIPTION
Recent	0-2 ft	Limestone	Soil and light gray-brown clayey limestone
	2-4	Sand	Black fine-grained quartz sand, very organic
	4-5	Sand	Light gray fine-grained quartz sand, some limestone fragments
	5-10.5	Clay	Dark brown-gray clay
	10.5-10.9	Sand	Various colors of fine-grained quartz sand, varies from medium gray at top to black to medium brown
	10.9-15	Limestone	Cream-colored oolitic lime sand, unconsolidated

Sample(s) 0-1,6-7,14-15ft were analyzed (log #15824), all other samples archived. Standard sampling and equipment decontamination procedures were used.

The above boring was conducted in accordance with A.S.T.M. D1586 drilling and sampling procedures using penetration drilling equipment with a 140-lb pile driven hammer and 1 " ID 24" long split-spoon coring device.

Boring was abandoned immediately upon completion.

# GEOLOGIC LOG

BORE HOLE NUMBER: TB 2

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J. M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

FORMATION	DEPTH	ROCK TYPE	DESCRIPTION
Recent	0-1.5 ft.	Soil	Dark brown organic sand
	1.5-3.0	Sand	Dark brown oolitic (calcareous) sand and rotting wood
	3.0-7.0	Clay	Medium brown-gray clay
	7.0-7.7	Sand	Dark brown-black fine-grained organic quartz sand
	7.7-8.7	Sand	Medium brown medium-grained quartz sand
	8.7-15	Limestone	Cream-colored oolitic lime sand, unconsolidated, compact and hard

Sample(s) 0-1, 4-5, 14-15 ft were analyzed (log # 15824), all other samples archived. Standard sampling and equipment decontamination procedures were used.

The above boring was conducted in accordance with A.S.T.M. D1586 drilling and sampling procedures using penetration drilling equipment with a 140-lb pile driven hammer and 1 " ID 24" long split-spoon coring device.

Boring was abandoned immediately upon completion.

# GEOLOGIC LOG

BORE HOLE NUMBER: TB 3

CLIENT: Cliff Berry

DRILLING CONTRACTOR: J. H. Hensley Drilling Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

FORMATION	DEPTH	ROCK TYPE	DESCRIPTION
Recent	0-5.0 ft	Sand	Dark-brown-black organic sand, very fine-grained, silty, organic, wood fragment
	5.0-9.5	Clay	Dark brown clay and peat
	9.5-11.8	Sand	Medium gray medium-grained quartz sand
	11.8-13.5	Sand	Light brown fine-grained quartz sand
	13.5-15	Limestone	Cream-colored oolitic lime sand, unconsolidated, compact and hard

Sample(s) 0-1, 4-5, 14-15 ft. were analyzed (log # 15824), all other samples archive. Standard sampling and equipment decontamination procedures were used.

The above boring was conducted in accordance with A.S.T.M. D1586 drilling and sampling procedures using penetration drilling equipment with a 140 pile driven hammer and 1 " ID 24" long split-spoon coring device.

Boring was abandoned immediately upon completion.



# GEOLOGIC LOG

BORE HOLE NUMBER: TB 5

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J.M. Hensley Drilling Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

FORMATION	DEPTH	ROCK TYPE	DESCRIPTION
Recent	0-2.5 ft	Soil	Dark brown sandy organic soil
	2.5-3	Concrete	-----
	3-8	Clay	Dark brown-gray clay, peat and wood, one-inch of peat at base
	8-11	Sand	Medium gray-brown medium-grained quartz sand
	11-15	Limestone	Cream-colored oolitic calcareous sand, unconsolidated

Sample(s) 0-1, 4-5, 14-15 ft were analyzed (log # 15824), all other samples archive. Standard sampling and equipment decontamination Procedures were used.

The above boring was conducted in accordance with A.S.T.M. D1586 drilling and sampling procedures using penetration drilling equipment with a 140-lb pile driven hammer and 1 " ID 24" long split-spoon coring device.

Boring was abandoned immediately upon completion.

BORE HOLE NUMBER: TB 1

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J.M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

<u>FORMATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0 - 2 ft	Limestone	Soil and light gray-brown clayey limestone
	2 - 4	Sand	Black fine-grained quartz sand, very organic
	4 - 5	Sand	Light gray fine-grain quartz sand, some limestone fragments
	5 - 10.5	Clay	Dark brown-gray clay
	10.5 - 10.9	Sand	Various colors of fine-grained quartz sand, varies from medium gray at top to black to medium brown
	10.9 - 15	Limestone	Cream-colored oolitic lime sand, unconsolidated, cuttings from injection well

SAMPLE(S) 0-1, 6-7, 14-15 ft WERE ANALYZED (LOG# 15B24), ALL OTHER SAMPLES ARCHIVED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M. D-1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID 24" LONG SPLIT-SPoon CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

BORE HOLE NUMBER: TB 2

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J.M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

<u>LOCATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0 - 1.5 ft	Soil	Dark brown - black organic sand
	1.5 - 3.0	Sand	Dark brown oolitic (calcareous) sand, and rotting wood
	3.0 - 7.0	Clay	Medium brown - gray clay
	7.0 - 7.7	Sand	Dark brown - black fine-grained organic quartz sand
	7.7 - 8.7	Sand	Medium brown medium-grained quartz sand
	8.7 - 15	Limestone	Cream-colored oolitic lime sand, unconsolidated, compact and hard cuttings from injection well

SAMPLE(S) 0-1, 4-5, 14-15 ft WERE ANALYZED (LOG# 15B24), ALL OTHER SAMPLES ARCHIVED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M. D-1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID 24" LONG SPLIT-SPoon CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

BORE HOLE NUMBER: TB 3

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J. M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

<u>FORMATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0-5.0ft	Sand	Dark-brown - black organic sand, very fine-grained, silty, organic, wood fragments
	5.0-9.5	Clay	Dark brown clay and peat
	9.5-11.8	Sand	Medium gray medium grained quartz sand
	11.8-13.5	Sand	Light brown fine-grained quartz sand
	13.5-15	Limestone	Cream-colored oolitic lime sand, unconsolidated, compact and hard, cuttings from injection well

SAMPLE(S) 2-1, 4-5, 14-15ft WERE ANALYZED (LOG# 15824), ALL OTHER SAMPLES  
ARCHIVED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION  
PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M.  
D-1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION  
DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID  
24" LONG SPLIT-SPoon CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

BORE HOLE NUMBER: TB 4

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J. M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

<u>NATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0-1 ft	Soil	Brown sandy organic soil
	1-3	Sand	Black medium-grained sand, undetermined odor; blasting sand;
	3- 5.5	Clay	Dark brown clay and peat, peat more predominant toward base
	5.5-6.2	Sand	Medium gray-brown medium-grained quartz sand
	6.2-15	Limestone	Cream-colored calcitic lime some unconsolidated, cuttings from injection well.

SAMPLE(S) 0-1, 4-5, 14-15 WERE ANALYZED (LOG# 15824), ALL OTHER SAMPLES ARCHIVED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M. D-1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID 24" LONG SPLIT-SPOON CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

BORE HOLE NUMBER: TB 5

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J. M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

<u>DEPTH</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0-2.5 ft	Soil	Dark brown sandy organic soil
	2.5-3	Concrete	—
	3-8	Clay	Dark brown-gray clay, peat, and wood, one inch of peat at base
	8-11	Sand	Medium gray-brown medium-grained quartz sand
	11-15	Limestone	Cream-colored calcareous sand, unconsolidated, cuttings from injection well

SAMPLE(S) 0-1, 4-5, 11-15 WERE ANALYZED (LOG # 15824), ALL OTHER SAMPLES REJECTED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M. - 1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID 24" LONG SPLIT-SPOON CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

BORE HOLE NUMBER: TB 6

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

<u>FORMATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0 - 0.5 ft	Soil	Dark brown sandy organic soil
	0.5 - 2	Sand	Medium brown-gray fine-grained sand, few limestone fragments
	2 - 9	Gravel (?)	Black sand, clay, gravel, few dark spots which appear oily, metal pieces, soupy silt and asphalt. Poor recovery throughout interval
	9 - 9.5	Peat	Dark brown-gray peat
	9.5 - 10.5	Sand	Medium brown-gray medium-grained quartz sand
	10.5 - 15	Limestone	Cream-colored solitic calcareous sand, unconsolidated cuttings from injection well

SAMPLE(S) 0-1, 4-5, 14-15 ft WERE ANALYZED (LOG # 15824), ALL OTHER SAMPLES ARCHIVED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M. - 1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION SILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID 24" LONG SPLIT-SPoon CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

BORE HOLE NUMBER: TB 7

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J.M. Hensley Drilling, Inc.

DATE: 12/20 /85

LOGGED AND SAMPLED BY: J. Peterson

<u>FORMATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0 - 0.5 ft	Limestone	Lime rock fill
	0.5 - 1.5	Clay	Dark brown organic clay, compact, 1 inch of asphalt within layer?, hydrocarbon odor
	1.5 - 2.5	Peat	Brown - gray clayey peat
	2.5 - 5	Sand	Light gray, fine-grained sand, slightly calcareous, asphalt within layer?
	5 - 12	Clay and Peat	Dark brown - gray organic, clayey peat, becomes light brown last few inches
	12 - 13	Sand	Medium gray medium-grained sand
	13 - 15	Limestone	Oolitic sand, unconsolidated, not compacted

SAMPLE(S) 0-1, 6-7, 14-15 ft WERE ANALYZED (LOG# 15824), ALL OTHER SAMPLES  
 ARCHIVED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION  
 PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M.

- 1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION  
 DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID  
 4" LONG SPLIT-SPoon CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED



BORE HOLE NUMBER: TB 8

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J.M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

<u>FORMATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0 - 2ft	Soil	Dark brown sandy soil, looks oily and smells like diesel, outside of spoon oily
	2 - 8	Clay and Peat	Dark brown - gray clay, grading into peat toward base, saturated with fuel
	8 - 8.5	Sand	Dark gray medium-grained sand
	8.5 - 15	Limestone	Cream-colored unconsolidated limestone fragments from injection well; abundant cave in this interval

SAMPLE(S) 2-1, 4-5, 14-15ft WERE ANALYZED (LOG# 15824), ALL OTHER SAMPLES ARCHIVED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M. D-1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID 24" LONG SPLIT-SPoon CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

BORE HOLE NUMBER: TB 9

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J.M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

<u>FORMATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0-1.2	Soil	Medium brown sandy soil, limestone fragments
	1.2-12	Clay	Medium gray brown clay, silty at top, contains organic material at base, becomes darker colored with greater organic portion, odor at 5 ft
	12-12.5	Sand	Medium brown medium-grained sand
	12.5-15	Limestone	Cream-colored unconsolidated limestone fragments from injection well; slightly sandy as well

SAMPLE(S) 0-1, 4-5, 11-15 WERE ANALYZED (LOG# 15824), ALL OTHER SAMPLES RECHINED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M.

-1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID 24" LONG SPLIT-SPoon CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

BORE HOLE NUMBER: TB 10

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J. M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

<u>LOCATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0-1 ft	Soil	Dark brown, organic soil
	1 - 8.5	Clay and Peat	Dark brown clay, slightly silty from 5 to 6 feet, organic (peat) - rich at base
	8.5 - 15	Limestone	Cream-colored, weathered limestone fragments, soft, loose, loosely packed, from section well

SAMPLE(S) 0-1, 4-5, 14-15 ft WERE ANALYZED (LOG# 15824), ALL OTHER SAMPLES  
ARCHIVED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION  
PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M.  
D-1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION  
DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID  
24" LONG SPLIT-SPoon CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

BORE HOLE NUMBER: TB 11 A

CLIENT: Cliff Berry, Inc.

(TB 11 failed, hit large piece of wood)

DRILLING CONTRACTOR: J.M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY: J. Peterson

<u>NATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0-1 ft	Soil	Light brown-gray limy (?) Soil
	1-2.5	Clay	Medium brown compact clay, occasional limestone fragments
	2.5-3	Sand	Medium brown unconsolidated medium-grained sand

Hit wood again, no further penetration

SAMPLE(S) 0-1 ft WERE ANALYZED (LOG# 15B24), ALL OTHER SAMPLES ARCHIVED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION PROCEDURES WERE USED.

THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M. D-1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID 24" LONG SPLIT-SPoon CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

BORE HOLE NUMBER: TB 12

CLIENT: Cliff Berry, Inc.

DRILLING CONTRACTOR: J.M. Hensley Drilling, Inc.

DATE: 12/20/85

LOGGED AND SAMPLED BY:

<u>FORMATION</u>	<u>DEPTH</u>	<u>ROCK TYPE</u>	<u>DESCRIPTION</u>
Recent	0-1 ft	Soil	Dark brown sandy organic soil
	1-3	Concrete	-
	3-9	-	Poor recovery, wood, concrete, dark brown silty clay
	9-10	Clay	Dark brown - gray clay and peat
	10-10.5	Sand	Medium gray medium-grained sand
	10.5-15	Limestone	Light brown to cream Unconsolidated limestone fragments from injection well

SAMPLE(S) 0-1, 1-3, 10-10.5 WERE ANALYZED (LOG# 15824), ALL OTHER SAMPLES ARCHIVED. STANDARD SAMPLING AND EQUIPMENT DECONTAMINATION PROCEDURES WERE USED.

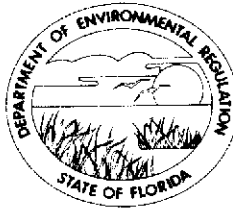
THE ABOVE BORING WAS CONDUCTED IN ACCORDANCE WITH A.S.T.M. D-1586 DRILLING AND SAMPLING PROCEDURE USING PENETRATION DRILLING EQUIPMENT WITH A 140 PILE DRIVEN HAMMER AND 1 1/2" ID 24" LONG SPLIT-SPoon CORING DEVICE

BORING WAS ABANDONED IMMEDIATELY UPON COMPLETION AND BACKFILLED

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHEAST FLORIDA  
DISTRICT

P.O. BOX 3858  
3301 GUN CLUB ROAD  
WEST PALM BEACH, FLORIDA 33402-3858



BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

ROY M. DUKE  
DISTRICT MANAGER

March 25, 1986

Mr. Terry Lawrence  
Broward County Environmental  
Quality Control Board  
500 S.W. 14 Court  
Ft. Lauderdale, Florida 33315

Dear Mr. Lawrence:

RE: C.A.R. and Recommendations for Remedial Action/Cliff Berry,  
Inc. Site Closure

I have reviewed the above referenced material submitted by Enviropact, Inc., and in view of the data presented, find the Contamination Assessment Report ("CAR") incomplete and inadequate.

The following incompleteness items are provided for your information.

- (1) Pursuant to paragraph 1.A., for Corrective Action for Groundwater Contamination Cases, the following objectives of the C.A.P. have not been met.
  1. The areal and vertical extent of soil and groundwater contamination has not been adequately defined. The PCB contamination in drainfields 1 & 2, has not been delineated on any site map. Secondly, soil borings TB-2, TB-3 and TB-4, all show elevated levels of Benzene at the 15 foot depth (at 23.0 ppm, 13.1 ppm, and 17.8 ppm respectively). This is well below the soil/water interface, and in a completely saturated zone. However, no sandpoint or monitoring wells were installed in (or near) any of these borings to determine the concentrations of Benzene and/or other 601 & 602 compounds in the groundwater at these locations.
  2. Sources of the various contaminants have not been determined. Additionally, the rate and direction of groundwater flow has not been submitted with the C.A.R.

Mr. Lawrence  
Page 2 of 4  
March 25, 1986

3. In review of the data submitted with the C.A.R., no contaminant plumes have been delineated. Although Barium has been found in virtually every test boring (in concentrations from 23 ppm to 1,190 ppm) both in the unsaturated and saturated soil zones, no groundwater samples have been analyzed for Barium.
  4. The only groundwater violation reported in the C.A.R. has been for phenols, but no interim remedial measures, other than monitoring, have been proposed to remedy the situation.
- (2) Pursuant to paragraph 1B, pertaining to the tasks the C.A.P. shall contain, the following items of incompleteness are noted.
1. No groundwater flow directions have been submitted to show local flow paths.
  2. Placement of monitoring wells along the perimeter of the property does not adequately trace the extent of groundwater contamination.
  3. No sandpoint or monitoring wells have been sampled in the vicinity of drainfields 1 and 2 to determine the extent of PCB's in the groundwater. The proposed well locations submitted in a May 11, 1984 letter to John Guidry/D.E.R., do not appear in the C.A.R. submitted March 7, 1986.
  4. Locations of any private (or public) potable supply wells within a 1 mile radius of the site need to be delineated and, if present, their locations submitted on a site map.
- (3) Pursuant to paragraph 1C, and adequate QA/QC Plan has not been submitted. The QA/QC Plan shall be prepared in accordance with the requirements set forth in the document titled "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, QAMS-005/80, December, 1980" prepared for the U.S. E.P.A.

#### COMMENTS/RECOMMEDATIONS

- (1) Due to the extent and type of contamination at this site in proximity to the existing lakes in the immediate vicinity, a groundwater monitoring plan should be implemented. This plan should include, but not be limited to the following criteria.
  - (a) Location of existing or proposed monitoring well(s) to sample natural, background water quality.

- (b) Location of intermediate and compliance wells in the downgradient direction.
- (c) Construction details of the monitoring wells (existing and proposed).
- (d) Hydrogeological, physical and chemical data for the site including:
  - 1. Direction and rate of groundwater flow.
  - 2. Vertical permeability of confining bed(s).
  - 3. Cones of depressions, water supply wells and monitoring wells located within a 1 mile radius of the site.

Additional groundwater data is needed in several areas to better define the extent of contamination.

- Analyze for 601 and 602 compounds and Barium by installing wells at locations TB-2, TB-3 and TB-4, in addition to the six monitoring wells previously sampled.
  - (b) Analyze for PCBs by installing a well(s) at or near TB-6 and in the vicinity of drainfields 1 and 2. Detection limits for PCB's in groundwater should be less than 1 ppb.
- (3) Additional data is needed concerning the recommended excavation/reclamation plan. Specific items of concern include:
- (a) A QA/QC Plan for the sampling and analysis of PCB's in the soil, surface waters and groundwaters in the drainfield vicinity.
  - (b) Will dewatering be necessary prior to excavation of the drainfields?
  - (c) How will PCB contaminated soil and water be treated and/or disposed?
  - (d) How will infiltration and runoff from the stockpiled soils be controlled to prevent off-site discharge?
  - (e) What is the source of the bacteria to be utilized in the soil reclamation plan.
- (4) In view of the questions set forth in item 3, the Department feels that a Feasibility Study Plan ("FSP") is necessary for both the drainfield excavation and the soil excavation/reclamation plan.

The FSP shall provide a detailed description of the technical approach Respondent shall use to address each task to be conducted during the F.S. At a minimum, the FSP shall address the following task elements:



Mr. Lawrence  
Page 4 of 4  
March 25, 1986

° A. The objectives of the remedial action, as required by Department rules and state and federal statutes: e.g., to prevent groundwater contamination; to remove, contain or render harmless the contamination source; to cleanup to the water quality criteria and minimum standards in Florida Administrative Code Chapter 17-3; etc.:

° B. Risk assessment, which shall include consideration of the toxicity, transport mechanisms, persistence in the environment, and impacts on human health and the environment of the substances associated with the site;

° C. Methods to quantify contaminant movement off-site, to identify impact zones, and to identify and quantify hazardous zones;

Please feel free to contact me if you have any questions prior to the scheduled meeting date of April 16, 1986.

Sincerely,

*Ronald Lane*

Ronald Lane  
Environmental Specialist

RL:ahy:h

cc: Richard Walesky/DER - WPB  
Doug Wyckoff/OGC - Tallahassee



# Real Estate Data, Inc.

P.O. BOX 019156 • MIAMI, FLA 33101 • TELEPHONE (305) 685-5731

Customer PO # \_\_\_\_\_

Customer Number  
NON

Date 4/21/86

Delivery (check one)

Ship ☒

Deliver \_\_\_\_\_

Pick-up \_\_\_\_\_  
☒

TERMS: Net 30 \_\_\_\_\_

Paid Check \$ \_\_\_\_\_

Paid Cash \$ \_\_\_\_\_

(A SERVICE CHARGE OF 1½% PER  
MONTH — EQUIVALENT TO 18%  
PER ANNUM — WILL BE ADDED TO  
UNPAID AMOUNTS.)

Florida Dept of Environmental Regulation  
3301 Gun Club Road  
West Palm Beach, FL 33402

Ordered by: Ron Lane  
Tel: 689-5800

CONTRACT NO.	QTY	COUNTY/ST	AERIAL PAGE NO.	PLAT PAGE NO.	OTHER	AER / PRICE PLAT / OTHER
0421860011	1	Broward, FL	233			10.00
NON-RETURNABLE NON-REFUNDABLE						SUB TOTAL <u>10.00</u>
						TAX <u>.50</u>
						SHIP CHGS. <u>1.85</u>
						TOTAL \$ <u>12.35</u>
						AMT. PAID _____
						BALANCE DUE \$ <u>12.35</u>

To Insure Proper Credit To Your Account, Please Return Original  
With Your Check To Address Indicated Above.

ORIGINAL — CUSTOMER COPY

• YELLOW — ACCOUNTING

• PINK — OTC

2-263A R8/8

TO: Douglas Wyckoff  
FROM: Ronald Lane, GW, Southeast District  
DATE: March 26, 1986  
SUBJECT: Berry's Warehouses

I have been asked to review the existing data pertaining to the property (and proposed warehouse facility) owned by Mr. Cliff Berry, and to evaluate the potential for contamination of this parcel from a northern parcel leased by Mr. Berry from the Amoco Oil Corporation. For clarification purposes, I will refer to these properties as the southern and northern parcels, respectively.

In a Contamination Assessment Report ("C.A.R.") submitted on March 7, 1986 for site closure of the northern parcel, the available data suggests that there may be more groundwater contamination present at the site than previously delineated. I have addressed these concerns in a March 25, 1986 letter to Terry Lawrence with the BCEQCB. The C.A.R. also delineates a clay layer present in the northern parcel which progressively thins in a southerly direction. Results submitted with the C.A.R. suggest that "The clay layer present throughout the site at Cliff Berry, Inc. seems to prevent the majority of the contamination found in the soil from reaching the groundwater."

There have been no test borings in the southern parcel (similar to those done in the northern parcel) which would help define the lithology and extent of the clay layer in the proposed stormwater lake area. Additional data is needed to further define the extent of the clay layer in this area, and what the potential impact on groundwater flow and contaminant transport from the northern parcel to the southern parcel would be if a stormwater detention pond were to be dug to 12 feet (below land surface) with the clay layer being removed. To this date, no groundwater flow directions have been delineated for either parcel.

Additionally, the fate of existing contaminants in lake sediments (and drainage ditch sediments) needs to be more clearly defined prior to any dredging and/or filling of the existing lake.

Mr. Douglas Wyckoff  
Page 2  
March 26, 1986

Consequently, until existing and additional data from both parcels can be correlated there is a definite possibility that dredge and fill activities in the southern parcel could induce groundwater flow with subsequent contaminant migration from the northern parcel.

RL:cb8

Gene W. Schmidt  
Director, Groundwater Management  
April 25, 1985

RECEIVED  
MAY 21 1985

**Standard Oil Company (Indiana)**

Box 3385 (Research Center)  
4502 East 41st Street  
Tulsa, Oklahoma 74102

Environmental and Energy Conservation  
Division of Environmental Affairs and  
Safety Department  
918-660-3218

4007

GMS 85-220

Dept. of Environmental Reg.  
West Palm Beach

Mr. S. Seyfried  
Florida Dept. of Environmental Regulation  
Southeast Florida District  
3301 Gun Club Road  
P. O. Box 3858  
West Palm Beach, FL 33402-3858

*Application withdrawn  
JSS*

Dear Mr. Seyfried:

The purpose of this letter is to supply informational material which can be used in consideration of the enclosed Application for Monitoring Plan Approval.

Amoco Oil Company owns approximately 10 acres of property at Port Everglades, Florida, which, until recently, has been leased to a Mr. C. Berry. Mr. Berry is presently performing a geohydrological investigation in cooperation with the Broward County Environmental Quality Control Board (EQCB) to determine if his business activities have caused contamination of the soil and/or groundwater. This investigation is apparently emphasizing three principal areas of the property; those being the south boundary, the west boundary, and the area in the vicinity of the separator and the associated discharge water drainfield.

Amoco Oil Company agrees that the above mentioned areas are of considerable concern and appreciates the efforts of Mr. Berry and EQCB in addressing the problem. However, Amoco is also concerned about possible contamination of surficial soils and the groundwater throughout the remainder of the property, and desires to perform its own geohydrological investigation concurrent with the work being supervised by EQCB. This investigation will be supervised by the Groundwater Management Section (GMS), Amoco Corporation.

The initial work will consist of installation of as many as 24 observation wells (Figure 1). Of course, the number and locations of the wells will probably be altered depending upon conditions observed by the GMS upon arrival at the site. For example, it may not be deemed necessary to install as many wells as indicated in Figure 1 in the three areas mentioned previously. As can be seen, installation of the wells in the locations indicated will provide a good spatial distribution and should provide for upgradient and downgradient monitoring once the direction of groundwater flow is determined.

The wells will be installed by first augering a 10-inch diameter borehole using hollow-stem augers to depths determined by the on-site geohydrologist. It is anticipated that the water table is present at a depth of about 3 ft below grade; thus, total depth of the completed well will be about 13 ft. PVC casing and machine-slotted 0.010 inch screen will be used. To preclude contamination of the groundwater no solvents or glues will be used to join the sections of casing and screen. Instead, pre-threaded casing and screen will be implemented or the sections will be joined using self-tapping steel screws. In lieu of a 5-ft screen interval and a 2-ft sump at the lower end of the well as specified in the construction guidelines issued by the Broward County Environmental Quality Control Board (EQCB), a 10-ft section of screen will be installed. This will insure maintenance of the fluctuating water table within the screened portion of the well. Also, powdered bentonite may be used in lieu of the fine sand in the interval immediately above the gravel pack. These changes have been agreed to by Mr. T. Lawrence of the EQCB. Other construction details will be as outlined in the EQCB document, "Minimum Requirements for Monitoring Wells." Figure 2 shows a typical observation well installation.

Subsequent to installation, the wells will be developed by overpumping and surveyed. After allowing for stabilization of the fluid levels, measurements will be taken of groundwater and liquid hydrocarbon levels, if any. Wells will then be sampled for liquid hydrocarbons, volatile organics, metals, phenols, PCB's, and base neutrals using EPA and/or EQCB approved sampling methods and analyses.

Subsequent to sampling of the wells, a report will be prepared which will discuss the site geohydrology and water quality. Included in the report will be maps depicting the configuration of the water table and, if present, the definition of any liquid or dissolved hydrocarbon plumes. Also, if pertinent, recommendations for recovery of liquid hydrocarbons and contaminated groundwater will be made.

Your early attention to this matter would be appreciated as arrangements are underway to install the observation wells in mid-May 1985. If you have any questions, please call me at 918-660-4007.

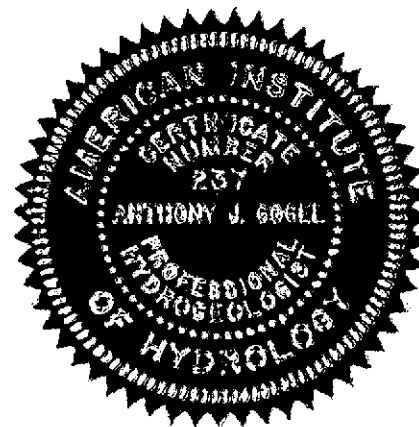
Sincerely,

*T. Gogel*

T. Gogel, P.G., P.HG.  
Certificate Number 237  
Certified by American Institute of Hydrology

TG:mph  
85115ART0034

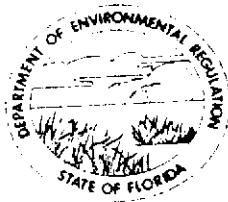
cc: J. A. Lamping, Chicago  
G. W. Schmidt, Tulsa



STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHEAST FLORIDA  
DISTRICT

3301 GUN CLUB ROAD  
P.O. BOX 3858  
WEST PALM BEACH, FLORIDA 33402



BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

ROY DUKE  
DISTRICT MANAGER

APPLICATION FOR MONITORING PLAN APPROVAL  
(Existing Sources)

**INSTRUCTIONS:** Submit four copies of this application and four copies of supporting information such as laboratory reports, maps and other documents to the appropriate District Office.

**PART I - General Information**

In compliance with Florida Administrative Code Rule 17-4.245(6)(c)2., the undersigned installation owner applies for approval from the Department for the monitoring criteria on the following property owned by:

Amoco Oil Company Permit No. \_\_\_\_\_  
Corporation or Owner's Name  
Port Everglades Terminal 5171  
Installation Name SIC Code  
Spangler Blvd. Hollywood 33316 Broward 26°05'00"N 80°07'30"W  
Street Address City Zip County Latitude Longitude  
\_\_\_\_ 1/4 \_\_\_\_ 1/4 \_\_\_\_ 1/4 of \_\_\_\_\_  
Section, Township, Range

OWNER OR AUTHORIZED REPRESENTATIVE (If representative, attach letter of authorization.)

C.B. Smiley, Distribution Center Manager  
Name and Official Title (Print or Type)  
Spangler Blvd. Hollywood Fla. 33316 (305) 523-0571  
Street City State Zip Telephone Number  
Signature: C.B. Smiley Date: 5/20/85

**PART II - Content of Monitoring Plan**

Pursuant to Rule 17-4.245(6)(d), the plan shall contain findings, recommendations and plans for ground water monitoring derived from site specific information. For the type of information to be considered in the development and assessment of the plan, see page two of this form. In any case, the following items must be included:

1. Location(s) of proposed well(s) to sample natural unaffected background water quality and the intermediate and compliance well(s) in the down gradient direction.
2. Construction details of the monitor well(s), including type of casing material, diameter of casing, depth of casing and location of screens.
3. A water sampling and chemical analysis procedure which can determine the natural unaffected background quality of the ground water, and the quality of the receiving ground water in the downgradient intermediate and compliance wells.



**Amoco Oil Company**

East/South Region  
P. O. Box 507  
Baltimore, Maryland 21203  
301-625-7891

R. D. McMullen  
Regional Vice President

May 17, 1985

Mr. Roy M. Duke  
District Manager  
Department of Environmental Regulations  
Southeast District  
P. O. Box 3858  
West Palm Beach, Fla. 33402-3858

Dear Mr. Duke:

This is in reference to the operation of our Industrial Waste Water Treatment equipment, located at our terminal facility in Port Everglades, Florida.

Please consider the Terminal Manager as the authorized representative, on behalf of Amoco Oil Company, to sign and submit applications and required reports and to maintain and operate the pollution control facilities in such a manner as to comply with the provisions stipulated in the permit limitations.

Yours truly,

R. D. McMullen  
Regional Vice President

/aw



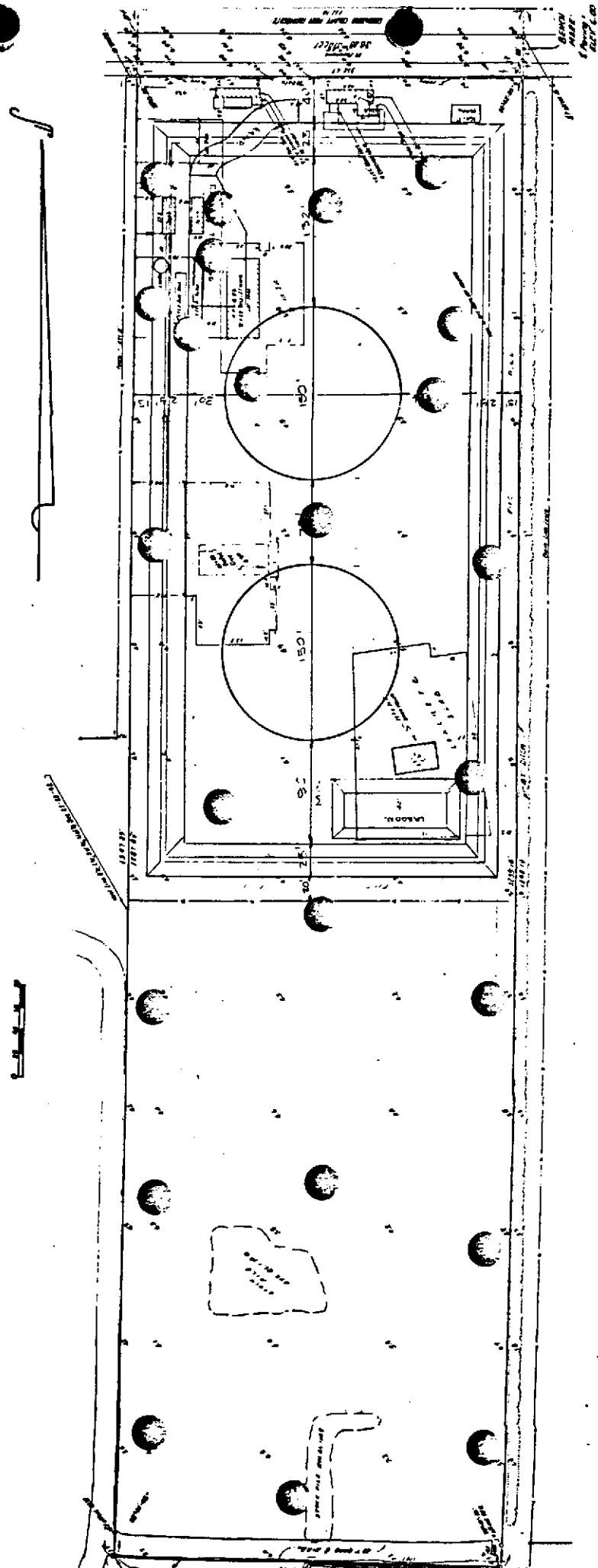
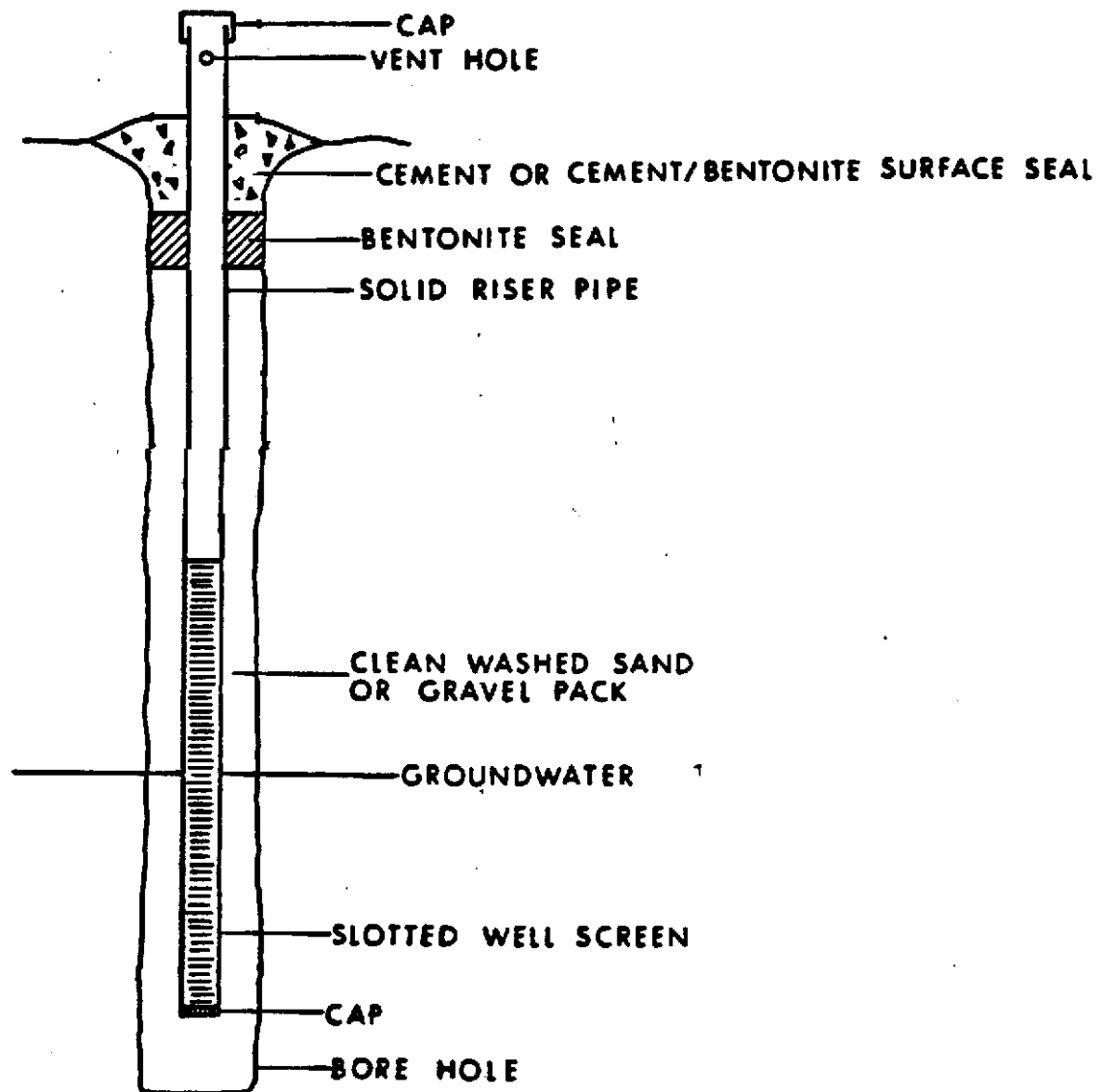


FIG. 1 -LOCATIONS OF OBSERVATION WELLS

**FIGURE 2**  
**TYPICAL OBSERVATION WELL**  
**FOR MONITORING ONE AQUIFER**



RECEIVED

MAR 10 1986

LAW OFFICES  
**COMPTON & ASSOCIATES, P. A.**

POST OFFICE BOX 14124  
1715 SOUTHEAST 4TH AVENUE  
FORT LAUDERDALE, FLORIDA 33302-4124

Dept. of Environmental Reg.  
Office of General Counsel

ROBERT J. COMPTON  
ADMIRALTY  
PERSONAL INJURY & WRONGFUL DEATH  
CORPORATION & BUSINESS LAW

(305) 763-4747  
DADE 949-0420

FORT PIERCE/VERO BEACH OFFICE  
UNIVEST BUILDING - SUITE 300  
8720 NORTH INDIAN RIVER BOULEVARD  
VERO BEACH, FLORIDA 32960  
(305) 569-9300

JOHN T. DAVID  
GENERAL TRIAL PRACTICE  
CORPORATION & BUSINESS LAW  
ADMIRALTY

SCOTT M. ROSEN  
GENERAL TRIAL PRACTICE

REPLY TO

March 5, 1986

*John Compton  
to get copy of  
DER for EQB  
7:45  
3/9/86*

Douglas M. Wyckoff, Asst. General Counsel  
State of Florida  
Department of Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Re: Berry v. DER

Dear Mr. Wyckoff:

Enclosed herewith please find reports of water quality samples taken from the property on the northern boundary of the Berrys' property which is currently the subject matter of the above styled litigation. This data clearly reflects that the northern property which was of major concern to Dr. Charles Ouseph and Mr. Richard Walesky, does not reflect contamination in excess of DER standards.

As you recall from the depositions taken on December 11, 1985, Dr. Ouseph requested the denial of the subject Permit based upon contamination problems identified on properties surrounding the subject site. Dr. Ouseph's position was that nothing should be permitted until these "surrounding" problems are addressed to his satisfaction. The enclosed data certainly raises the question whether or not there are any "surrounding" problems. In any event, the basis of Dr. Ouseph's opinion does not reasonably justify the legal denial of the Permit on the subject property.

Indeed it appears that from Mr. O'Donnel's deposition, that the Permit was ready to be approved until Mr. Walesky involved Dr. Ouseph in "re-evaluating" the site. In all honestly, it would appear that Mr. Walesky has directed a personal vendetta in the name of the DER to prevent the issuance of this Permit.

*Copy to Ouseph/...*

Another important factor of which you should be aware, is that it appears from discussions and public meetings of the Broward County Environmental Control Board, that the County has no objection and indeed is completely astonished, by the DER's refusal to issue the Permit in the above referenced matter. Both Terry Lawrence, whom you have listed as an expert witness, and Fran Henderson, have clearly indicated that they have no opposition to the Permit's approval. Indeed, the position of the Broward County Environmental Control Board is that based upon the current development of the Port, and the areas directly surrounding the Berrys' property, the DER's position as to the improvement of the water quality is not only unrealistic but also unwarranted. It is evident from the surrounding circumstances currently existing at the Port, Mr. Berry's planned development of the site would act to enhance the environment instead of damaging the environment as indicated by the Department. In fact, the Broward County Environmental Control Board has acknowledged that if any unacceptable levels of arsenic exist at the site, that they were put there by the DNR in order to fight land crabs many years ago.

It is further evident through aerial photographs dating back to 1956, that this "lake" is a man-made barrow pit created some twenty (20) years ago and has nothing to do with the natural hydrological system of the area. Undoubtedly, under these circumstances, it is questionable whether the DER even has jurisdiction to regulate the development of this site. It appears that under these and other circumstances, this Permit falls squarely within the exceptions enumerated within the Warren Henderson Wetlands Protection Act of 1984 which in effect, obviates the requirement of the Permit for this site. This position is abundantly evident when considered in light of Mary F. Smallwood's article, The Warren S. Henderson Wetlands Protection Act of 1984: A Primer, 1 J. of Land Use & Environmental Law 211 (1985). As I understand, Ms. Smallwood is the Chief Legal Counsel for the Department of Environmental Regulation. Therefore, I am concerned whether Ms. Smallwood knows of and would support, the Department's further prosecution of this matter.

The time has come to set aside the personal differences between the parties and to take a hard look at the factual and legal issues presented in this matter. This matter does not have to, and should not, be litigated further. However, it appears that this is the only action that will satisfy the Department of Environmental Regulation. We have arrived at the point where to continue further with this action will subject some persons in the Department of Environmental Regulation to civil rights actions under 42 USC §1983, for the deprivation of the Berrys' property rights in regard to the subject parcel. I also believe that there is a substantial possibility that the Department may well be liable for attorneys' fees and costs under the Florida Statute Chapter 120.57(1)(b)(9).

Therefore, in an effort to circumvent this type of action, I herein request that the Department of Environmental Regulation reconsider its prior decision and issue the Permit for Mr. & Mrs. Berry to develop their property. In any event, I respectfully request that you contact this office so that we can discuss this matter further. If you do not believe this is feasible, then we will need to discuss such matters in order that we may prepare and resubmit this matter to the Administrative Law Judge.

Thank you for your courtesy and cooperation.

Very truly yours,



John T. David, Esq.

JTD/lw

cc: Mr. & Mrs. Berry

# Envirofact, Inc.

Environmental Consulting and Analysis

4790 N.W. 157 Street  
Hialeah, Florida 33014  
Telephone (305) 620-1700  
Fia Watts. (800) 432-9706

1143

Page 1 of 6

CLIFF BERRY INDUSTRIES  
P.O. BOX 13079  
FT. LAUDERDALE, FL 33316

January 24, 1986  
Report 15962  
LAB I.D. 86119

ATT : CLIFF BERRY  
Sample Received: 1/13/86  
Sample Designation: ANALYSIS AS NOTED

Collected By: M. MONFRIES

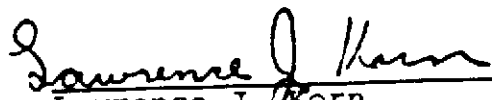
## REPORT OF ANALYSIS : WELL - W1

## UNITS

ARSENIC	< 0.005	mg/l
CADMIUM	< 0.005	mg/l
CHROMIUM, TOTAL	< 0.005	mg/l
LEAD	< 0.005	mg/l
MERCURY	< 1	µg/l
NICKEL	< 0.005	mg/l
POLYCHLORINATED BIPHENYLS	< 1	µg/l
TOLUENE	< 1	µg/l
XYLENE, TOTAL	< 1	µg/l
ZINC	0.09	mg/l
CHLOROBENZENE	< 1	µg/l
1,3-DICHLOROBENZENE	< 1	µg/l
1,2-DICHLOROBENZENE	< 1	µg/l
1,4-DICHLOROBENZENE	< 1	µg/l
BENZENE	< 1	µg/l
ETHYL BENZENE	< 1	µg/l
OIL & GREASE	1	mg/l
PHENOLS, TOTAL	0.03	mg/l

Analyses performed in accordance with E.P.A., A.S.T.M., Standard Methods or other approved methods.

Respectfully submitted,

  
Lawrence J. Korn  
Laboratory Supervisor  
Envirofact, Inc.

Jacksonville • Sebring • Melbourne • Key Largo • Tampa

1143

CLIFF BERRY INDUSTRIES  
P.O. BOX 13079  
FT. LAUDERDALE, FL 33316

Page 2 of 6

January 24, 1986  
Report 15962  
LAB I.D. 86119

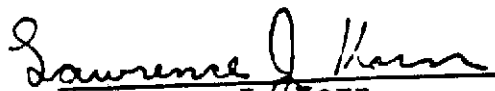
ATT : CLIFF BERRY  
Sample Received: 1/13/86  
Sample Designation: ANALYSIS AS NOTED

Collected By: M. MONFRIES

REPORT OF ANALYSIS : WELL - W2		UNITS
ARSENIC	< 0.005	mg/l
CADMIUM	< 0.005	mg/l
CHROMIUM, TOTAL	< 0.005	mg/l
LEAD	< 0.005	mg/l
MERCURY	< 1	µg/l
NICKEL	< 0.005	mg/l
POLYCHLORINATED BIPHENYLS	< 1	µg/l
TOLUENE	< 1	µg/l
XYLENE, TOTAL	< 1	µg/l
ZINC	0.12	mg/l
CHLOROBENZENE	< 1	µg/l
1,3-DICHLOROBENZENE	< 1	µg/l
1,2-DICHLOROBENZENE	< 1	µg/l
1,4-DICHLOROBENZENE	< 1	µg/l
BENZENE	< 1	µg/l
ETHYL BENZENE	< 1	µg/l
OIL & GREASE	1	mg/l
PHENOLS, TOTAL	0.04	mg/l

Analyses performed in accordance with E.P.A., A.S.T.M., Standard Methods or other approved methods.

Respectfully Submitted,

  
Lawrence J. Korn  
Laboratory Supervisor  
Envirofact, Inc.

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CLIFF BERRY INDUSTRIES  
P.O. BOX 13079  
FT. LAUDERDALE, FL 33316

January 24, 1986  
Report 15962  
LAB I.D. 86119


ATT : CLIFF BERRY  
Sample Received: 1/13/86  
Sample Designation: ANALYSIS AS NOTED

Collected By: M. MONFRIES

REPORT OF ANALYSIS : WELL - W3		UNITS
ARSENIC	< 0.005	mg/l
CADMIUM	< 0.005	mg/l
CHROMIUM, TOTAL	< 0.005	mg/l
LEAD	< 0.005	mg/l
MERCURY	< 1	µg/l
NICKEL	< 0.005	mg/l
POLYCHLORINATED BIPHENYLS	< 1	µg/l
TOLUENE	< 1	µg/l
XYLENE, TOTAL	< 1	µg/l
ZINC	0.18	mg/l
CHLOROBENZENE	< 1	µg/l
1,3-DICHLOROBENZENE	< 1	µg/l
1,2-DICHLOROBENZENE	< 1	µg/l
1,4-DICHLOROBENZENE	< 1	µg/l
BENZENE	< 1	µg/l
ETHYL BENZENE	< 1	µg/l
OIL & GREASE	< 1	mg/l
PHENOLS, TOTAL	0.03	mg/l

Analyses performed in accordance with E.P.A., A.S.T.M., Standard Methods or other approved methods.

Respectfully Submitted,

  
Lawrence J. Korn  
Laboratory Supervisor  
Envirofact, Inc.



1143

Page 4 of 6

CLIFF BERRY INDUSTRIES  
P.O. BOX 13079  
FT. LAUDERDALE, FL 33316

January 24, 1986  
Report 15962  
LAB I.D. 86119

ATT : CLIFF BERRY  
Sample Received: 1/13/86  
Sample Designation: ANALYSIS AS NOTED

Collected By: M. MONFRIES

---

REPORT OF ANALYSIS : WELL - W4


---

UNITS

ARSENIC	< 0.005	mg/l
CADMIUM	< 0.005	mg/l
CHROMIUM, TOTAL	< 0.005	mg/l
LEAD	< 0.005	mg/l
MERCURY	< 1	µg/l
NICKEL	0.17	mg/l
POLYCHLORINATED BIPHENYLS	< 1	µg/l
TOLUENE	< 1	µg/l
XYLENE, TOTAL	< 1	µg/l
ZINC	0.11	mg/l
CHLOROBENZENE	< 1	µg/l
1,3-DICHLOROBENZENE	< 1	µg/l
1,2-DICHLOROBENZENE	< 1	µg/l
1,4-DICHLOROBENZENE	< 1	µg/l
BENZENE	< 1	µg/l
ETHYL BENZENE	< 1	µg/l
OIL & GREASE	1	mg/l
PHENOLS, TOTAL	0.11	mg/l

Analyses performed in accordance with E.P.A., A.S.T.M., Standard Methods or other approved methods.

Respectfully Submitted,

  
Lawrence J. Korn  
Laboratory Supervisor  
Envirofact, Inc.

1143

Page 5 of 6

CLIFF BERRY INDUSTRIES  
P.O. BOX 13079  
FT. LAUDERDALE, FL 33316

January 24, 1986  
Report 15962  
LAB I.D. 86119

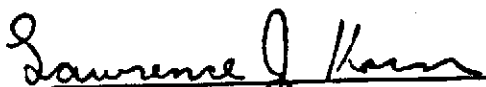
ATT : CLIFF BERRY  
Sample Received: 1/13/86  
Sample Designation: ANALYSIS AS NOTED

Collected By: M. MONFRIES

REPORT OF ANALYSIS : WELL - W5	UNITS
ARSENIC	< 0.005 mg/l
CADMIUM	< 0.005 mg/l
CHROMIUM, TOTAL	< 0.005 mg/l
LEAD	< 0.005 mg/l
MERCURY	< 1 µg/l
NICKEL	< 0.005 mg/l
POLYCHLORINATED BIPHENYLS	< 1 µg/l
TOLUENE	< 1 µg/l
XYLENE, TOTAL	< 1 µg/l
ZINC	0.09 mg/l
CHLOROBENZENE	< 1 µg/l
1,3-DICHLOROBENZENE	< 1 µg/l
1,2-DICHLOROBENZENE	< 1 µg/l
1,4-DICHLOROBENZENE	< 1 µg/l
BENZENE	< 1 µg/l
ETHYL BENZENE	< 1 µg/l
OIL & GREASE	< 1 mg/l
PHENOLS, TOTAL	0.05 mg/l

Analyses performed in accordance with E.P.A., A.S.T.M., Standard Methods or other approved methods.

Respectfully Submitted,

  
Lawrence J. Korn  
Laboratory Supervisor  
Envirofact, Inc.

1143

Page 6 of 6

CLIFF BERRY INDUSTRIES  
P.O. BOX 13079  
FT. LAUDERDALE, FL 33316

January 24, 1986  
Report 15962  
LAB I.D. 86119

ATT : CLIFF BERRY  
Sample Received: 1/13/86  
Sample Designation: ANALYSIS AS NOTED

Collected By: M. MONFRIES

---


REPORT OF ANALYSIS : WELL - W6

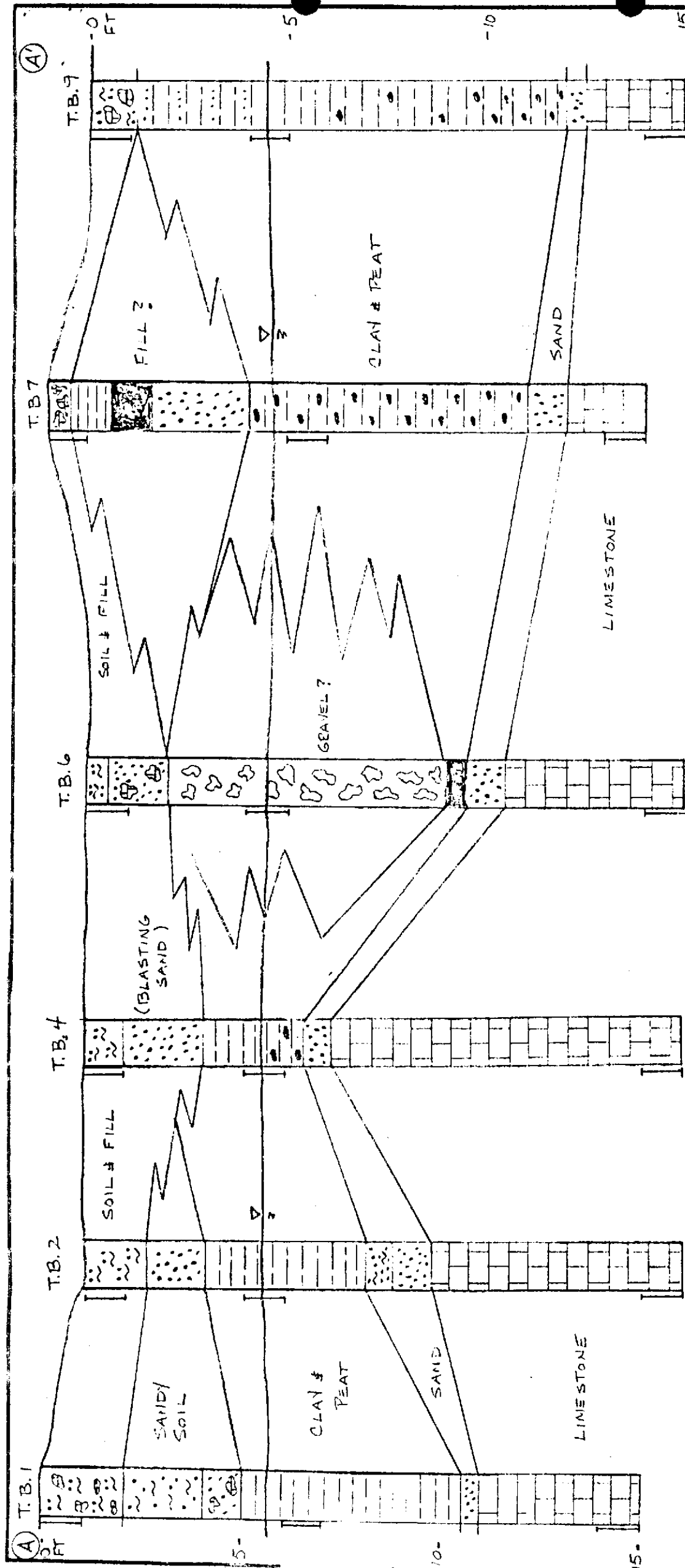
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		UNITS
ARSENIC	< 0.005	mg/l
CADMIUM	< 0.005	mg/l
CHROMIUM, TOTAL	< 0.005	mg/l
LEAD	< 0.005	mg/l
MERCURY	< 1	µg/l
NICKEL	< 0.005	mg/l
POLYCHLORINATED BIPHENYLS	< 1	µg/l
TOLUENE	< 1	µg/l
XYLENE, TOTAL	< 1	µg/l
ZINC	0.16	mg/l
CHLORO BENZENE	< 1	µg/l
1,3-DICHLORO BENZENE	< 1	µg/l
1,2-DICHLORO BENZENE	< 1	µg/l
1,4-DICHLORO BENZENE	< 1	µg/l
BENZENE	< 1	µg/l
ETHYL BENZENE	< 1	µg/l
OIL & GREASE	< 1	mg/l
PHENOLS, TOTAL	0.04	mg/l

Analyses performed in accordance with E.P.A., A.S.T.M., Standard Methods or other approved methods.

Respectfully Submitted,

  
Lawrence J. Korn  
Laboratory Supervisor  
Enviropact, Inc.



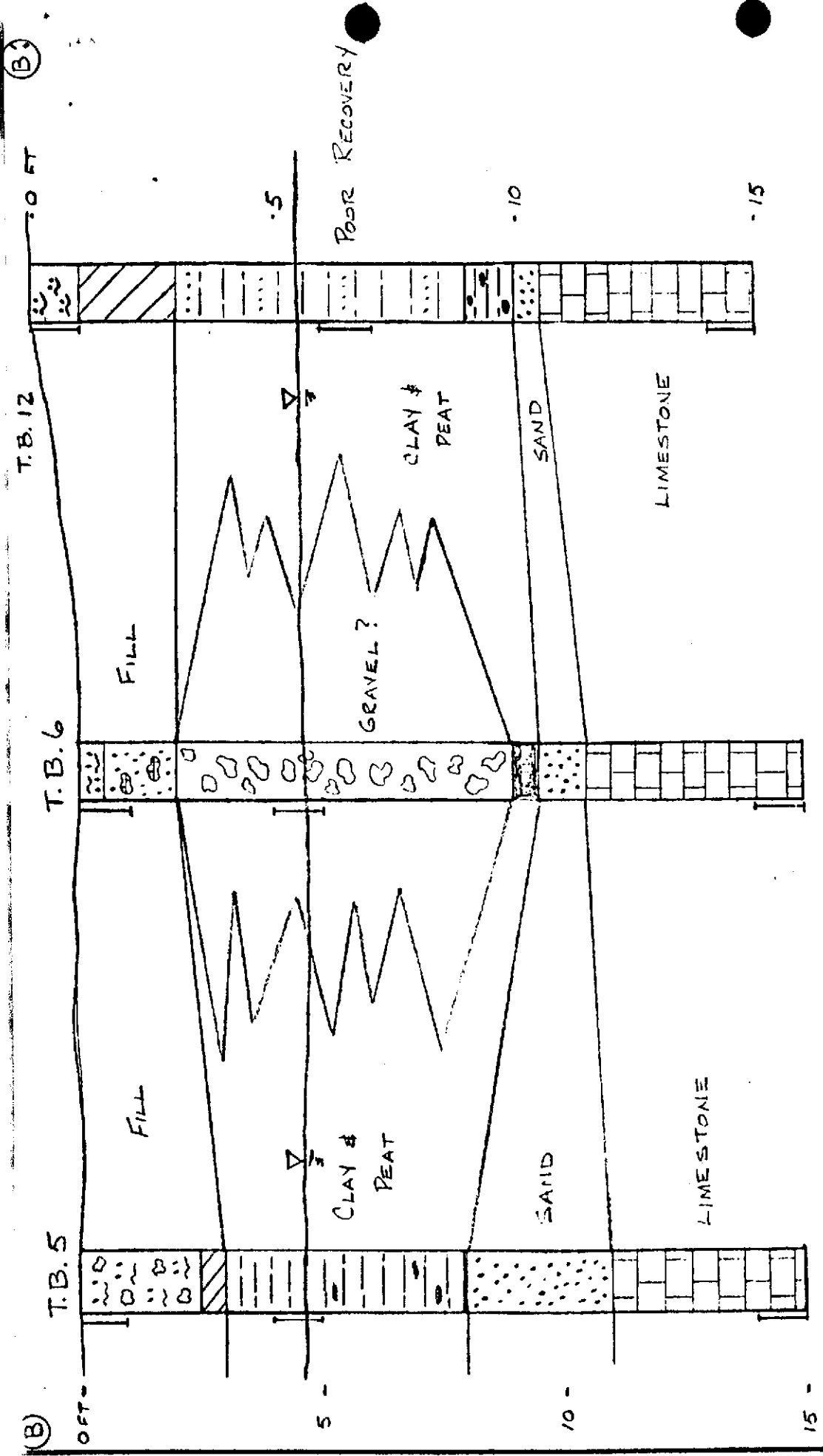
**Enviroplot, Inc.** ENVIRONMENTAL CONSULTING AND ANALYSIS

**CLIFF BERRY, INC.**

**NORTH-SOUTH CROSS-SECTION, A-A'**

**DATE:** 1-86 **APPROVED BY:** **DRAWING NUMBER:** FIGURE 2

**SCALE:** - **DRAWN BY:** JNIP **REVISED:**



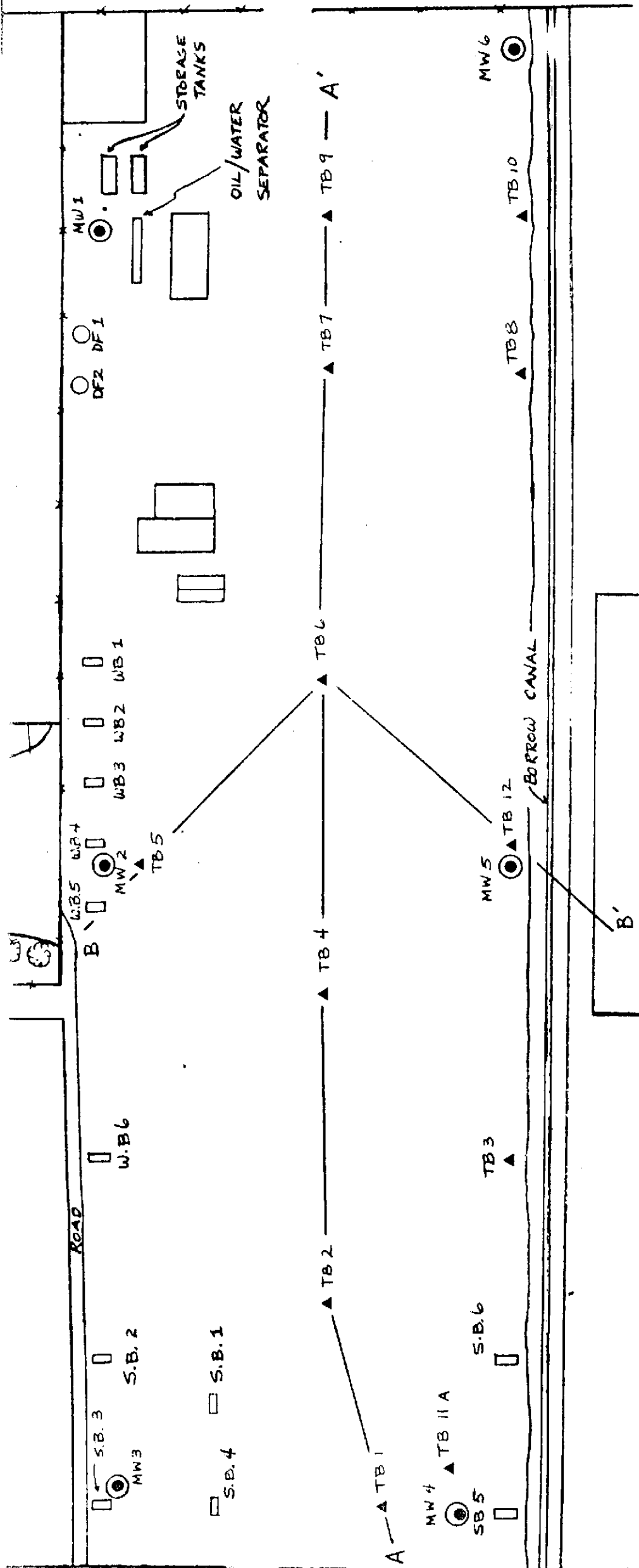
**LEGEND**

- ORGANIC-RICH SOIL
- CONCRETE
- CLAY (DARK SPOTS PEAT)
- PEAT
- SAND
- LIMESTONE
- INTERVAL SAMPLED
- WATER TABLE AT TIME OF SAMPLING

*Enviroquest, Inc.*

Environmental Consulting and Analysis

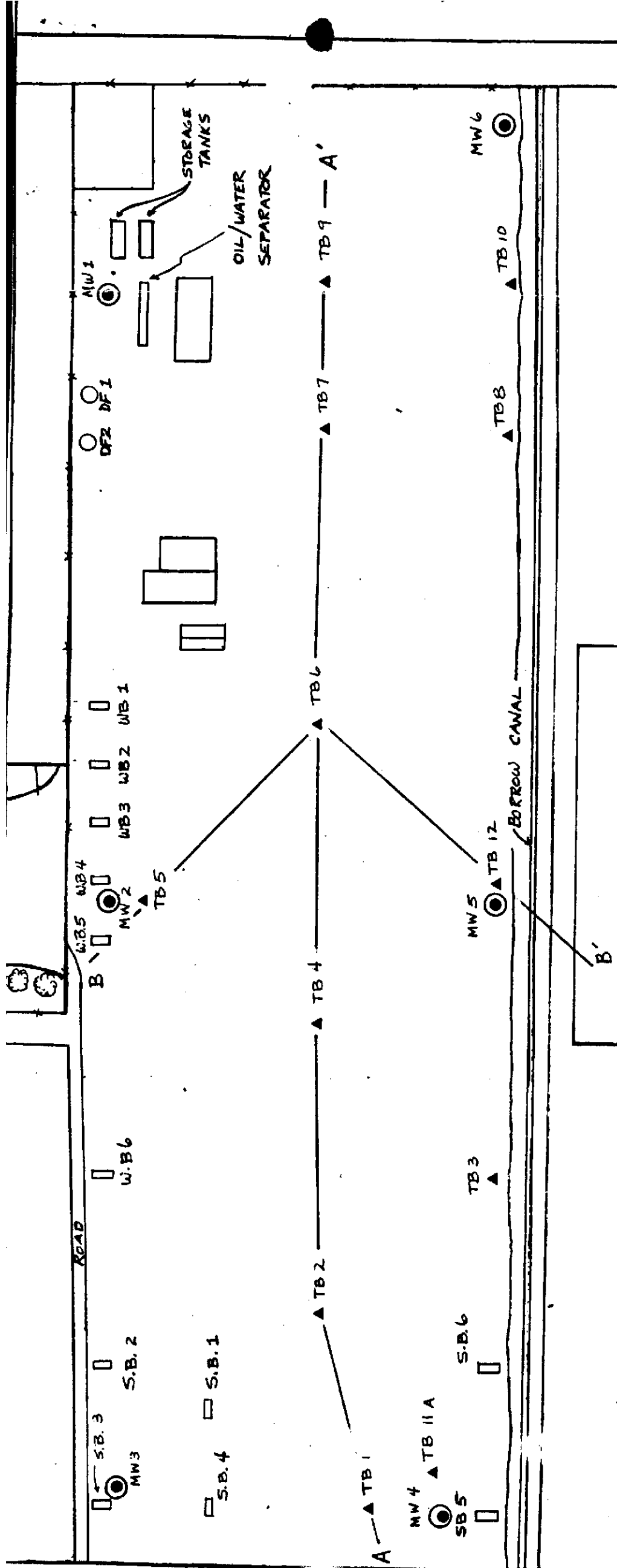
CLIFF BERRY, INC.		SCALE	DRAWN BY JMP
EAST-WEST CROSS-SECTION, B-B'		---	REVISED
DATE	APPROVED BY	DRAWING NUMBER	
1-8/6		FIGURE 3	



LEGEND

- MONITORING WELL INSTALLED 1/8-9/86
- ▲ SOIL BORING TAKEN 12/20/85
- TRENCH SAMPLED 4/85

Envirospact, Inc.		Environmental Consulting and Analysis	
CLIFF BERRY, INC.	SCALE APPROX: 1" = 100'	DRAWN BY JMP REVISED	
LOCATIONS OF SAMPLING POINTS			
DATE	APPROVED BY	DRAWING NUMBER	
JAN. '86		FIGURE 1	



# LEGEND

- MONITORING WELL INSTALLED 1/8-9/86
- ▲ SOIL BORING TAKEN 12/20/85
- TRENCH SAMPLED 4/85

Enviropect, Inc.

Environmental Consulting and Analysis

SCALE  
APPROX. 1" = 100'

DRAWN BY JMP  
REVISED

CLIFF BERRY, INC.

LOCATIONS OF SAMPLING POINTS

DATE  
JAN. '86

APPROVED BY

DRAWING NUMBER  
FIGURE 1