EPA Five-Year Review Signature Cover

Preliminary Information

Site Name: **Alpha Chemical**			*EPA ID*: **FLD 041495441**
Region: **EPA, Region 4**	*State*: **Florida**		*County*: **Polk**
LTRA: **Yes**	*Construction Completion Date*: **September 21, 1990**		
Lead: **PRP**	*NPL Status*: **Deleted from NPL on June 28, 1995**		
Lead Agency: **US EPA, Region 4, Atlanta, Georgia**			
Who Conducted the Review: **US EPA, Region 4, Atlanta, Georgia**			
Dates Review Conducted: From: **March 1, 1998** *To*: **July 1, 1998**			*Site Visit*: **April 8, 1998**
Whether First or Successive Review: **2nd Five-Year Review**			
Type of Review: **Statutory**	*Level of Review*: **Level 1**		*Due*: **September 30, 1998**
Trigger for this Review: **Initiation of Remedial Action in 1988**			

Deficiencies: EPA found no deficiencies with the selected remedial action of capping the source area with a synthetic cover. ARARs have been reviewed on the State and Federal level for the contaminants of concern. Visual inspection of the site area indicated that the cap and monitoring wells are operational and in good physical condition.

Recommendations: EPA recommends that the selected remedy continue to be carried out as designed. Semi-annual Operation and Maintenance Reports should continue to be submitted to EPA, Region 4. During the third Five-Year Review period, Alpha must perform two surface and ground water sampling evaluations. The first sampling event will take place mid-way through the review period (year 2000) and include monitoring wells AC-105, AC-106 and AC-107. All nine monitoring wells will be sampled during the site visit for the third Five-Year Review (year 2003).

Protectiveness Statement: This review reveals that the remedy is operating and functioning as designed and remains protective of human health and the environment.

Other Comments: This is the second Five-Year Review. The first Five-Year Review was completed on May 16, 1994. At that time, the report concluded that the selected remedial action of capping the source area remained protective of human health and the environment. During this past five year review period, sampling results and O&M reports support that the remedy is still functional and protective. FDEP and Alpha have reviewed this report and have no objections to its findings or recommendations.

_____ _____

Richard D. Green
Waste Management Division Director
U.S. EPA, Region 4, Atlanta, GA

Date

Five-Year Review

Alpha Chemical Company

Lakeland, Florida

EPA ID# 041495441

United States Environmental Protection Agency
Region 4, Atlanta, Georgia
September 2, 1998

Five-Year Review Report

Table of Contents

I. INTRODUCTION

The U.S. Environmental Protection Agency (EPA), Region 4, conducted a second Five-Year Review of the remedial action implemented at the Alpha Chemical Site in Kathleen, Polk County, Florida. The remedial action placed a synthetic cover over an area previously used by Alpha as an unlined percolation pond. The pond accepted a waste water stream from Alpha's resin production process containing volatile organic compounds (VOCs). The primary purpose of the review determined if the cap over the source area protects human health and the environment. This Five-Year Review evaluated the effectiveness of the selected remedy, which included the appropriateness of the remedial action objectives and the ongoing operation and maintenance program (O&M).

This was the second statutory Five-Year Review for Alpha Chemical. EPA completed the first statutory Five-Year Review on May 16, 1994. The trigger date for such reviews at Alpha Chemical corresponds with the initiation of the remedial action in 1988. Section 121© of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and Section 300.430 (f) (4) (ii) of the National Oil and Hazardous Substance Contingency Plan (NCP) requires that periodic (no less than every five years) reviews be conducted at sites where hazardous substances, pollutants or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure following the remedial action completion.

EPA uses a tiered approach to conduct Five-Year Reviews to allow reviews to be tailored to site-specific considerations. Four levels of review exist- 1,2,3, and 1a - based on the activity type. Level 1 represents a fundamental review where construction of the remedial action is complete. Levels 2 and 3 represent enhanced reviews, which are needed to address site-specific issues. Level 1a reviews, which were developed for sites with an ongoing response, generally apply to sites with incomplete construction. EPA conducted a Level 1 review at the Alpha Chemical site.

II. BACKGROUND

Table 1. Chronology of NPL Listing and Removal Actions.

Initial discovery of problem / contamination	October 23, 1981 (proposed to the NPL)
NPL Listing (final)	September 8, 1983
Remedial Investigation sampling	1984
Consent Orders signed	March 1985
Endangerment Assessment Report	1986

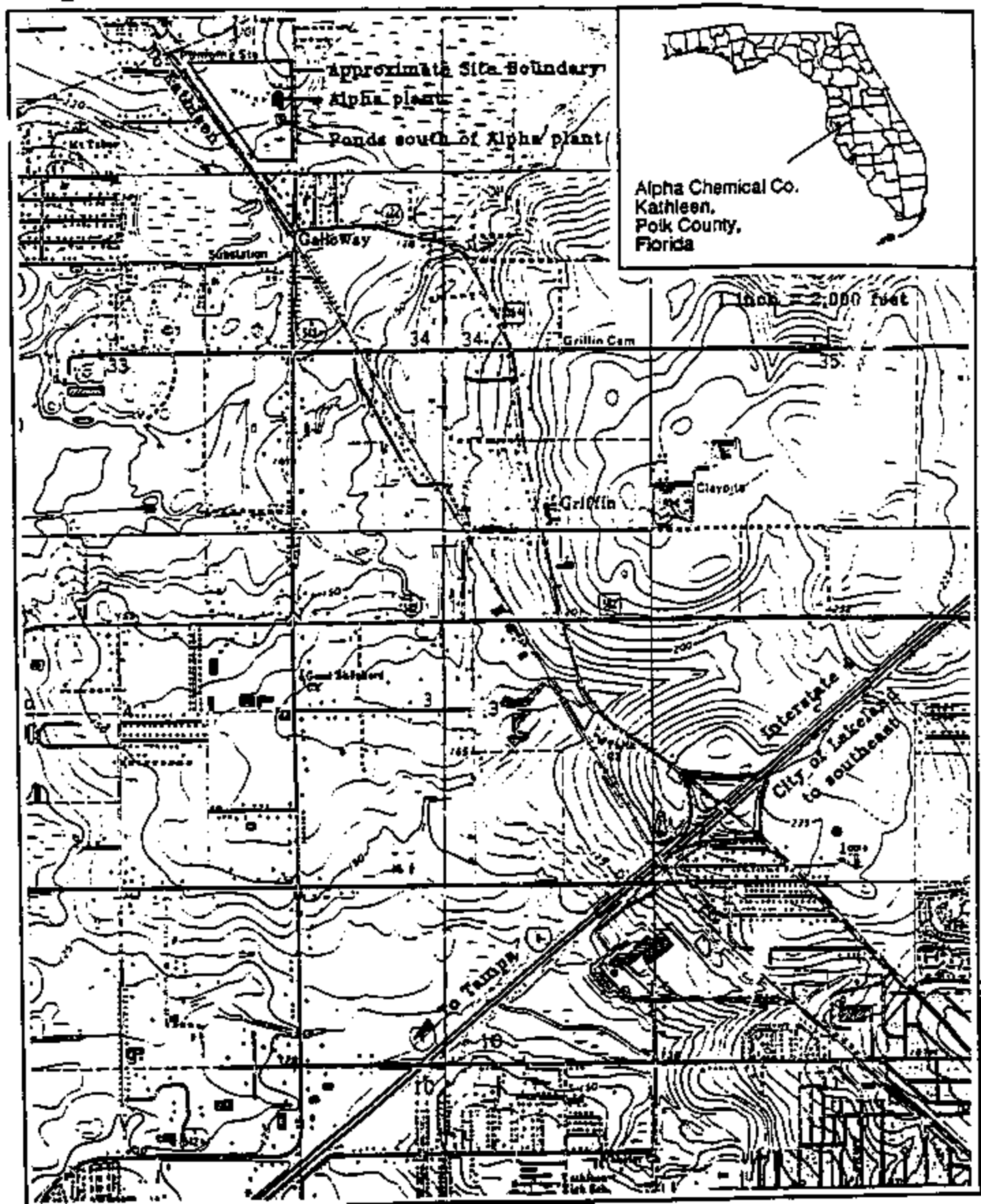
Physical Characteristics

Alpha Chemical, a subsidiary of the Alpha Corporation of Tennessee, is located three miles north of Lakeland, Florida, at 4620 N. Galloway Road. Figures 1 and 2 provide the geographical location and site layout. Alpha purchased the property in 1967. Currently, the site boundaries encompass 32 acres of land in the SE 1/4, Section 28, Township 27 S, Range 23 E of Polk County, Florida. (ROD, 1)

Land and Resource Use

Prior to Alpha Chemical plant construction in 1967, the land was used primarily for agricultural purposes. No previous industrial practices are known to have taken place. The plant produces unsaturated polyester resins for other manufacturers who produce fiberglass boats, shower stalls and other construction and recreation products. (ROD, 1)

The Alpha site lies on a ridge in the Hillsborough River drainage basin. Surface water from the site drains into a swampy, low-lying wetland area at the property's southeastern corner. Water drains from the swamp in a east - northeast direction to a bayhead east of Galloway Road. (ROD, 1)


Approximate Site Boundary
Alpha plant
Ponds south of Alpha plant
Alpha Chemical Co.
Kathleen,
Polk County,
Florida
1 inch = 2,000 feet
Galloway
Griffin
Interstate
City of Lakeland
to southeast
to Tampa

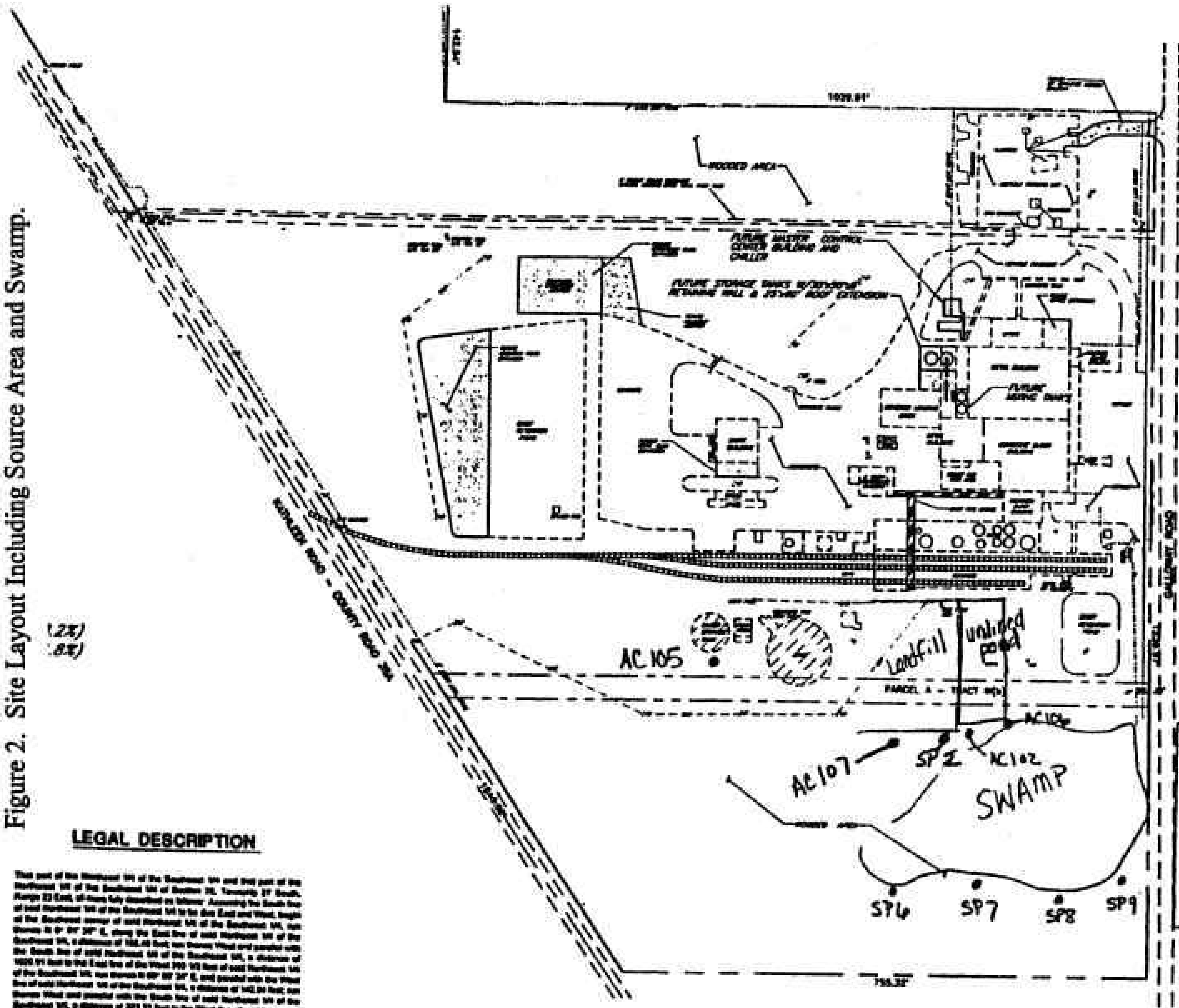


Figure 2. Site Layout Including Source Area and Swamp.

COMMERCIAL SITE REVIEW NO.
POLK COUNTY ENGINEERING DEPARTMENT
PRODUCTION DATE
DRAINAGE DATE 12-23-97
The development owners shall be liable for stormwater runoff damages to adjacent properties and responsible for obtaining the necessary DER / Water Management permits.

LEGAL DESCRIPTION

[illegible]

AND

[illegible]

AND

[illegible]

RECEIVED
OCT 24 1997
DEVELOPMENT SERVICES

MASTER SITE PLAN

PROJECT NAME:

ALPHA/ OWENS-CORNING LAKELAND FACILITY

Owner/Developer:

ALPHA/OWENS-CORNING CORP.
4620 N. GALLOWAY ROAD
LAKELAND, FLORIDA 33809

Planner/Engineer:

MILLER SELLEN ASSOC., INC.
214 E. LUCERNE CIRCLE
ORLANDO, FLORIDA 32801
(407) 422-3330

Surveyor:

GANUNG-BELTON ASSOC., INC.
1275 E. ROBINSON ST.
ORLANDO, FLORIDA 32801
(407) 894-6656

MSA JOB NUMBER: 9380.54
DATE: OCTOBER 1997
APPROVED BY: JWC
DRAWN BY: HAL
UPDATED: 10/23/97

FILE: EXH1.DWG

SCALE: 1" = 100'

100 0 50 100 200

EXHIBIT 1

There are two aquifers of concern at the Alpha site: the surficial aquifer and the deeper, artesian Floridan aquifer. The surficial aquifer exists in the varying layers of clayey sand and sandy clay underlying the site at depths between 2 feet and 16 feet below the surface. Figure 3 shows how ground water in the surficial aquifer flows toward the south - southeast. Ground water flow in the surficial aquifer is limited to down gradient and lateral flow with only minor vertical percolation downward due to the confining, impermeable clays and marls of the Hawthorn formation. (ROD, 5)

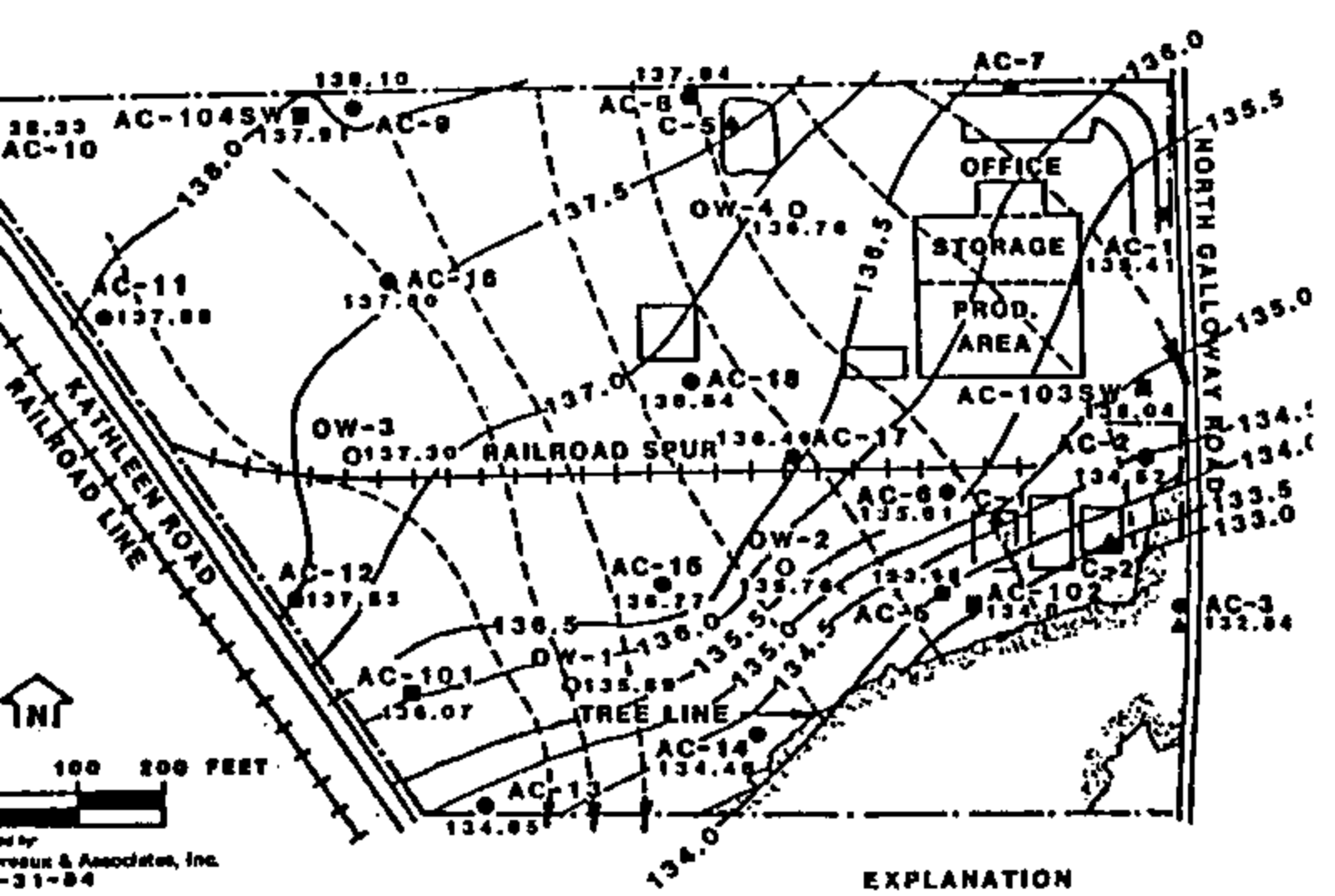
The Floridan aquifer begins at depths from 95 feet to 100 feet below the ground surface. This aquifer serves as the area's main ground water supply. A well inventory in the immediate area determined ground water flow toward the south. See Figure 4. The Floridan aquifer is an artesian system due to the confining nature of the overlying, relatively impermeable sediments. (ROD, 5)

Contaminants (History and Discovery of Contamination)

As noted, Alpha Chemical manufactures unsaturated polyester resins. Polyester resins form from an esterification reaction of various difunctional organic alcohols and acids, which yields ester salts and corresponding water. Within this wastewater stream exists small amounts of VOCs. (ROD, 5)

The manufacturing process produces two different types of waste streams. The first waste stream is non-contact (non-contaminated) cooling water used to cool the outsides of the reaction "kettles", which is where the resin production occurs. The second waste stream results as a by-product from the reactions themselves. Alpha refers to this waste stream as the "water of reaction". The "water of reaction" contains primarily water with a small amount of organics. (ROD, 10)

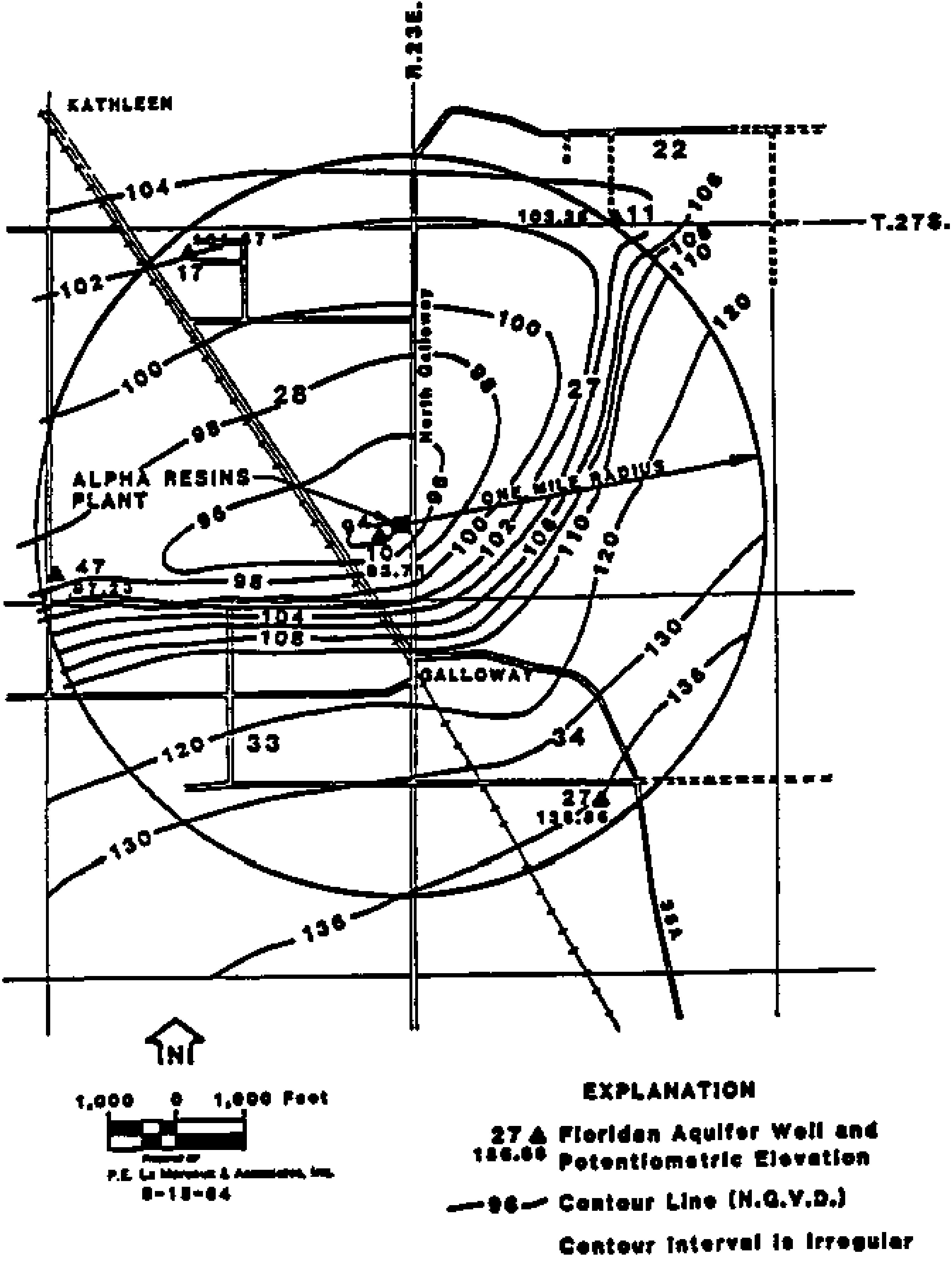
While building the plant in 1967, Alpha constructed two unlined surface impoundments to receive



EXPLANATION

AC-3 ●	Piezometer
OW-1 O	Old Observation Well
AC-101 ■	Monitoring Well
C-5 ▲	Surface Water Site
——→———	Flow Direction Line
—136.0—	Contour Line

Contour Interval is 0.5 Foot
Datum is N.G.V.D.


KATHLEEN
R.23E.
T.27S.
22
104
102
100
98
96
104
108
120
130
136
106
108
110
28
27
17
11
33
34
North Galloway
ALPHA RESINS PLANT
ONE MILE RADIUS
GALLOWAY
47
N
1,000 0 1,000 Feet
EXPLANATION
27 ▲ Floridan Aquifer Well and Potentiometric Elevation
—96— Contour Line (N.G.V.D.)
Contour Interval is Irregular

the different waste streams. Pond #1 receives the non-contact (non-contaminated) cooling water to allow it to cool before it is directly discharged south into the swamp. Pond #2-3 received the “water of reaction” waste stream. In 1972, Alpha constructed a third unlined surface impoundment (Pond #4) to receive additional “water of reaction” discharges. (ROD, 10) Figure 5 depicts a chronology of Alpha Chemical’s construction and use of the surface impoundments.

Alpha operated these unlined collection ponds under a Florida Department of Environmental Regulation (FDER) permit from 1967 to 1976. Operating Permit # 1053-2182 allowed Ponds #2-3 and Pond #4 to act as percolation basins. Natural biodegradation of the VOCs in the “water of reaction” waste stream occurs with exposure to the environment. (ROD, 10)

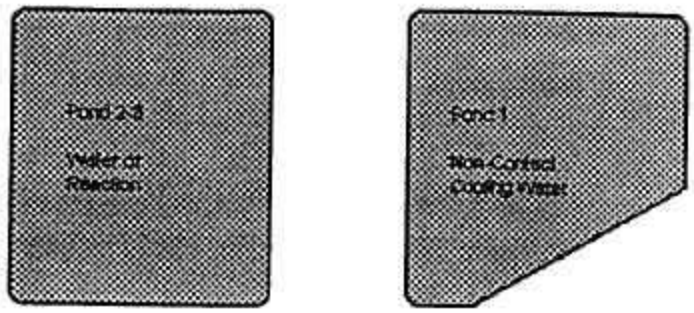
To minimize odor and treat the “water of reaction” in a more environmentally sound manner, Alpha installed a thermal oxidizer at the facility in 1976. After thermal oxidizer installation, the “water of reaction” was no longer discharged into Pond #2-3 or Pond #4. All of the “water of reaction” has been incinerated since 1976. ROD, 10)

Immediately thereafter, Pond #2-3 and Pond #4 began to dry up. During 1977, Alpha and its employees used Pond #4 as a solid waste landfill. One year later, Alpha covered the landfill with two feet of compacted native soil. (ROD, 18) At the same time, Alpha constructed a dam through the middle of Pond #2-3 creating two smaller ponds. Pond #2 was the eastern half; Pond # 3 was the western half. Water and sludge from Pond #2 was pumped into Pond #3. Alpha lined Pond #2 with concrete to store and evaporate caustic floor wash waste from the plant. (ROD, 12)

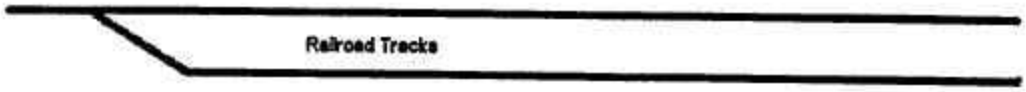
In October 1981, Alpha Resins was one of the original sites proposed for placement on the National Priorities List (NPL), as recommended by the Florida Department of Environmental Regulation (FDER). The site went final on September 8, 1983. (ROD, 12) Several investigations of the site’s contamination were documented between 1982 and 1984. Soil and ground water sampling indicated ethylbenzene, styrene and xylene as prevalent site contaminants.

1967 - Beginning of Operations at Alpha Chemical

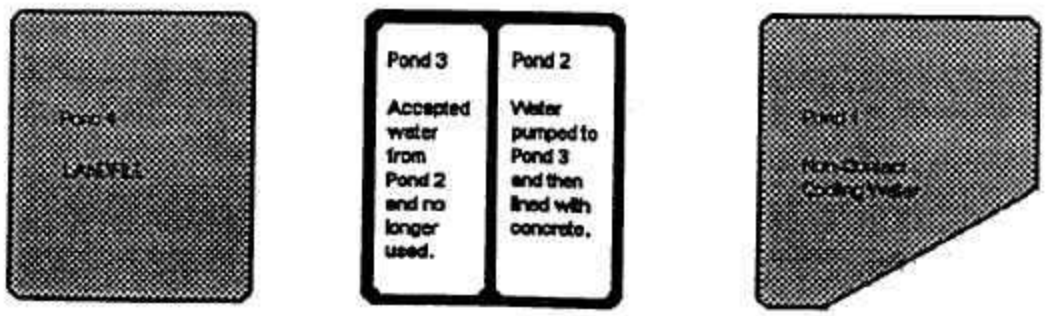
Figure 5. History of Changes of the Surface Impoundments at the Site.



1972 - Addition of Third Unlined Surface Impoundment (Pond 4)



1977 - Thermal Oxidizer Installed in 1976. Both Water of Reaction Ponds Begin Drying Up.



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CompuChem Environmental Corporation

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 650843
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: EQUIPBLK
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 1948

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
541-73-1	1,3-Dichlorobenzene	1.00	U
106-46-7	1,4-Dichlorobenzene	1.00	U
95-50-1	1,2-Dichlorobenzene	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane	1.00	U
1330-20-7	Xylenes (Total)	1.00	U
460-00-4	Bromofluorobenzene	4.37	

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CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
74-87-3	Chloromethane	1.00	U
75-01-4	Vinyl chloride	1.00	U
74-83-9	Bromomethane	1.00	U
75-00-3	Chloroethane	1.00	U
75-35-4	1,1-Dichloroethene	1.00	U
67-64-1	Acetone	5.00	U
75-15-0	Carbon disulfide	1.00	U
75-09-2	Methylene chloride	1.14	J
156-60-5	trans-1,2-Dichloroethene	1.00	U
75-34-3	1,1-Dichloroethane	1.00	U
156-59-2	cis-1,2-Dichloroethene	1.00	U
78-93-3	2-Butanone	5.00	U
74-97-5	Bromochloromethane	1.00	U
67-66-3	Chloroform	1.00	U
71-55-6	1,1,1-Trichloroethane	1.00	U
56-23-5	Carbon tetrachloride	1.00	U
71-43-2	Benzene	1.00	U
107-06-2	1,2-Dichloroethane	1.00	U
79-01-6	Trichloroethene	1.00	U
78-87-5	1,2-Dichloropropane	1.00	U
75-27-4	Bromodichloromethane	1.00	U
108-10-1	4-Methyl-2-pentanone	5.00	U
108-88-3	Toluene	1.00	U
10061-01-5	cis-1,3-Dichloropropene	1.00	U
10061-02-6	trans-1,3-Dichloropropene	1.00	U
79-00-5	1,1,2-Trichloroethane	1.00	U
127-18-4	Tetrachloroethene	1.00	U
591-78-6	2-Hexanone	5.00	U
124-48-1	Dibromochloromethane	1.00	U
106-93-4	1,2-Dibromoethane	1.00	U
108-90-7	Chlorobenzene	1.00	U
100-41-4	Ethylbenzene	1.00	U
1330-20-7	m,p-Xylene	1.00	U
95-47-6	o-Xylene	1.00	U
100-42-5	Styrene	1.00	U
75-25-2	Bromoform	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane	1.00	U

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Report Date: 10-Nov-1994 10:49

CompuChem Environmental Corporation

TARGET COMPOUNDS

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Lab Smp Id: 650842
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: TRIPBLK
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 2011

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
541-73-1	1,3-Dichlorobenzene	1.00	U
106-46-7	1,4-Dichlorobenzene	1.00	U
95-50-1	1,2-Dichlorobenzene	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane	1.00	U
1330-20-7	Xylenes (Total)	1.00	U
460-00-4	Bromofluorobenzene	5.20	

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Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 2011

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
74-87-3	Chloromethane	1.00	U
75-01-4	Vinyl chloride	1.00	U
74-83-9	Bromomethane	1.00	U
75-00-3	Chloroethane	1.00	U
75-35-4	1,1-Dichloroethene	1.00	U
67-64-1	Acetone	5.00	U
75-15-0	Carbon disulfide	1.00	U
75-09-2	Methylene chloride	1.81	J
156-60-5	trans-1,2-Dichloroethene	1.00	U
75-34-3	1,1-Dichloroethane	1.00	U
156-59-2	cis-1,2-Dichloroethene	1.00	U
78-93-3	2-Butanone	5.00	U
74-97-5	Bromochloromethane	1.00	U
67-66-3	Chloroform	1.00	U
71-55-6	1,1,1-Trichloroethane	1.00	U
56-23-5	Carbon tetrachloride	1.00	U
71-43-2	Benzene	1.00	U
107-06-2	1,2-Dichloroethane	1.00	U
79-01-6	Trichloroethene	1.00	U
78-87-5	1,2-Dichloropropane	1.00	U
75-27-4	Bromodichloromethane	1.00	U
108-10-1	4-Methyl-2-pentanone	5.00	U
108-88-3	Toluene	1.00	U
10061-01-5	cis-1,3-Dichloropropene	1.00	U
10061-02-6	trans-1,3-Dichloropropene	1.00	U
79-00-5	1,1,2-Trichloroethane	1.00	U
127-18-4	Tetrachloroethene	1.00	U
591-78-6	2-Hexanone	5.00	U
124-48-1	Dibromochloromethane	1.00	U
106-93-4	1,2-Dibromoethane	1.00	U
108-90-7	Chlorobenzene	1.00	U
100-41-4	Ethylbenzene	1.00	U
1330-20-7	m,p-Xylene	1.00	U
95-47-6	o-Xylene	1.00	U
100-42-5	Styrene	1.00	U
75-25-2	Bromoform	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane	1.00	U

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Report Date: 10-Nov-1994 10:49

CompuChem Environmental Corporation

TARGET COMPOUNDS

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Lab Smp Id: 650848
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: AC106
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 1948

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
541-73-1	1,3-Dichlorobenzene	1.00	U
106-46-7	1,4-Dichlorobenzene	1.00	U
95-50-1	1,2-Dichlorobenzene	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane	1.00	U
1330-20-7	Xylenes (Total)	7.80	
460-00-4	Bromofluorobenzene	4.92	

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Lab Smp Id: 650848
Sample Location:
Sample Date: 10/25/94
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Misc Info:

Client SDG: 0001L-29522
Client Smp ID: AC106
Sample Point:
Date Received: 10/26/94
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Level: LOW
Operator: 1948

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
74-87-3	Chloromethane	1.00	U
75-01-4	Vinyl chloride	1.00	U
74-83-9	Bromomethane	1.00	U
75-00-3	Chloroethane	1.00	U
75-35-4	1,1-Dichloroethene	1.00	U
67-64-1	Acetone	5.00	U
75-15-0	Carbon disulfide	1.90	
75-09-2	Methylene chloride	0.962	J
156-60-5	trans-1,2-Dichloroethene	1.00	U
75-34-3	1,1-Dichloroethane	1.00	U
156-59-2	cis-1,2-Dichloroethene	0.956	J
78-93-3	2-Butanone	5.00	U
74-97-5	Bromochloromethane	1.00	U
67-66-3	Chloroform	1.00	U
71-55-6	1,1,1-Trichloroethane	1.00	U
56-23-5	Carbon tetrachloride	1.00	U
71-43-2	Benzene	1.81	
107-06-2	1,2-Dichloroethane	1.00	U
79-01-6	Trichloroethene	1.00	U
78-87-5	1,2-Dichloropropane	1.00	U
75-27-4	Bromodichloromethane	1.00	U
108-10-1	4-Methyl-2-pentanone	5.00	U
108-88-3	Toluene	0.753	J
10061-01-5	cis-1,3-Dichloropropene	1.00	U
10061-02-6	trans-1,3-Dichloropropene	1.00	U
79-00-5	1,1,2-Trichloroethane	1.00	U
127-18-4	Tetrachloroethene	1.00	U
591-78-6	2-Hexanone	5.00	U
124-48-1	Dibromochloromethane	1.00	U
106-93-4	1,2-Dibromoethane	1.00	U
108-90-7	Chlorobenzene	1.00	U
100-41-4	Ethylbenzene	55.94	E
1330-20-7	m,p-Xylene	5.76	
95-47-6	o-Xylene	1.30	
100-42-5	Styrene	1.00	U
75-25-2	Bromoform	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane	1.00	U

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Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

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Client Smp ID: FIELDBLK
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 1948

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106-46-7	1,4-Dichlorobenzene	1.00	U
95-50-1	1,2-Dichlorobenzene	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane	1.00	U
1330-20-7	Xylenes (Total)	1.00	U
460-00-4	Bromofluorobenzene	4.10	

Data File: /chem/f50056.i/BF941101B56.b/CN050842B56.d
Report Date: 10-Nov-1994 10:49

CompuChem Environmental Corporation

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 650846
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: FIELDBLK
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 1948

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
74-87-3	Chloromethane	1.00	U
75-01-4	Vinyl chloride	1.00	U
74-83-9	Bromomethane	1.00	U
75-00-3	Chloroethane	1.00	U
75-35-4	1,1-Dichloroethene	1.00	U
67-64-1	Acetone	5.00	U
75-15-0	Carbon disulfide	1.00	U
75-09-2	Methylene chloride	2.03	
156-60-5	trans-1,2-Dichloroethene	1.00	U
75-34-3	1,1-Dichloroethane	1.00	U
156-59-2	cis-1,2-Dichloroethene	1.00	U
78-93-3	2-Butanone	5.00	U
74-97-5	Bromochloromethane	1.00	U
67-66-3	Chloroform	1.00	U
71-55-6	1,1,1-Trichloroethane	1.00	U
56-23-5	Carbon tetrachloride	1.00	U
71-43-2	Benzene	1.00	U
107-06-2	1,2-Dichloroethane	1.00	U
79-01-6	Trichloroethene	1.00	U
78-87-5	1,2-Dichloropropane	1.00	U
75-27-4	Bromodichloromethane	1.00	U
108-10-1	4-Methyl-2-pentanone	5.00	U
108-88-3	Toluene	1.00	U
10061-01-5	cis-1,3-Dichloropropene	1.00	U
10061-02-6	trans-1,3-Dichloropropene	1.00	U
79-00-5	1,1,2-Trichloroethane	1.00	U
127-18-4	Tetrachloroethene	1.00	U
591-78-6	2-Hexanone	5.00	U
124-48-1	Dibromochloromethane	1.00	U
106-93-4	1,2-Dibromoethane	1.00	U
108-90-7	Chlorobenzene	1.00	U
100-41-4	Ethylbenzene	1.00	U
1330-20-7	m,p-Xylene	1.00	U
95-47-6	o-Xylene	1.00	U
100-42-5	Styrene	1.00	U
75-25-2	Bromoform	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane	1.00	U

Data File: /chem/f50056.i/BF941101B56.b/CN050847B56.d
Report Date: 10-Nov-1994 10:49

CompuChem Environmental Corporation

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 650847
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: AC107
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 1948

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
541-73-1	1,3-Dichlorobenzene	1.00	U
106-46-7	1,4-Dichlorobenzene	1.00	U
95-50-1	1,2-Dichlorobenzene	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane	1.00	U
1330-20-7	Xylenes (Total)	0.604	J
460-00-4	Bromofluorobenzene	4.74	

Data File: /chem/f50056.i/BF94ll0lB56.b/CN050847B56.d
Report Date: 10-Nov-1994 10:49

CompuChem Environmental Corporation

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 650847
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: AC107
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 1948

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
74-87-3	Chloromethane	1.00	U
75-01-4	Vinyl chloride	1.00	U
74-83-9	Bromomethane	1.00	U
75-00-3	Chloroethane	1.00	U
75-35-4	1,1-Dichloroethene	1.00	U
67-64-1	Acetone	5.00	U
75-15-0	Carbon disulfide	1.00	U
75-09-2	Methylene chloride	1.05	J
156-60-5	trans-1,2-Dichloroethene	1.00	U
75-34-3	1,1-Dichloroethane	1.00	U
156-59-2	cis-1,2-Dichloroethene	1.00	U
78-93-3	2-Butanone	5.00	U
74-97-5	Bromochloromethane	1.00	U
67-66-3	Chloroform	1.00	U
71-55-6	1,1,1-Trichloroethane	1.00	U
56-23-5	Carbon tetrachloride	1.00	U
71-43-2	Benzene	1.00	U
107-06-2	1,2-Dichloroethane	1.00	U
79-01-6	Trichloroethene	1.00	U
78-87-5	1,2-Dichloropropane	1.00	U
75-27-4	Bromodichloromethane	1.00	U
108-10-1	4-Methyl-2-pentanone	5.00	U
108-88-3	Toluene	0.815	J
10061-01-5	cis-1,3-Dichloropropene	1.00	U
10061-02-6	trans-1,3-Dichloropropene	1.00	U
79-00-5	1,1,2-Trichloroethane	1.00	U
127-18-4	Tetrachloroethene	1.00	U
591-78-6	2-Hexanone	5.00	U
124-48-1	Dibromochloromethane	1.00	U
106-93-4	1,2-Dibromoethane	1.00	U
108-90-7	Chlorobenzene	1.00	U
100-41-4	Ethylbenzene	1.00	U
1330-20-7	m,p-Xylene	0.536	J
95-47-6	o-Xylene	1.00	U
100-42-5	Styrene	1.00	U
75-25-2	Bromoform	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane	1.00	U

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To	Mary McLeod	From	Don Tomec
Co.	APHA	Co.	CompuChem
Dept.		Phone #	
Fax #		Fax #	

Data File: /chem/f50056.i/BF941101B56.b/CN050847B56.d
Report Date: 04-Nov-1994 14:20

CompuChem Environmental Corporation

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 650847
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: AC107
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 1948

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
75-09-2	Methylene chloride	1.05	J
108-88-3	Toluene	0.815	J
1330-20-7	m,p-Xylene	0.536	J
1330-20-7	Xylenes (Total)	0.604	J
460-00-4	Bromofluorobenzene	4.74	

Data File: /chem/f50056.i/BF941101B56.b/CN050848B56.d
Report Date: 04-Nov-1994 14:23

CompuChem Environmental Corporation

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 650848
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: AC106
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 1948

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
75-15-0	Carbon disulifide	1.90	
75-09-2	Methylene chloride	0.962	J
156-59-2	cis-1,2-Dichloroethene	0.956	J
71-43-2	Benzene	1.81	
108-88-3	Toluene	0.753	J
100-41-4	Ethylbenzene	55.94	E
1330-20-7	m,p-Xylene	5.76	
95-47-6	o-Xylene	1.30	
1330-20-7	Xylenes (Total)	7.80	
460-00-4	Bromofluorobenzene	4.92	

Data File: /chem/f50056.i/BF941101B56.b/CN050846B56.d
Report Date: 04-Nov-1994 14:20

CompuChem Environmental Corporation

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 650846
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: FIELDBLK
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 1948

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
75-09-2	Methylene chloride	2.03	
460-00-4	Bromofluorobenzene	4.10	

Data File: /chem/f50056.i/BF941101B56.b/CN050842B56.d
Report Date: 04-Nov-1994 14:20

CompuChem Environmental Corporation

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 650842
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: TRIPBLK
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 2011

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
75-09-2	Methylene chloride	1.81	J
460-00-4	Bromofluorobenzene	5.20	

Data File: /chem/f50056.i/BF941101B56.b/CN050843B56.d
Report Date: 04-Nov-1994 14:20

CompuChem Environmental Corporation

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 650843
Sample Location:
Sample Date: 10/25/94
Sample Matrix: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info:

Client SDG: 0001L-29522
Client Smp ID: EQUIPBLK
Sample Point:
Date Received: 10/26/94
Quant Type: ISTD
Level: LOW
Operator: 1948

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
75-09-2	Methylene chloride	1.14	J
460-00-4	Bromofluorobenzene	4.37	

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To Mary McLeod	From Don Tomec
Co. ALPhA	Co. CompuChem
Dept.	Phone #
Fax #	Fax #

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

AC107DL

Lab Name: COMPUCHEM ENV. CORP. Contract: (10-92)REVS

Lab Code: COMPU Case No.: 29522 SAS No.: SDG No.:0001L

Matrix:(soil/water) WATER Lab Sample ID: 650849

Sample wt/vol: 1000 (g/mL) ML Lab File ID: GDR50849A08.D

Level: (low/med) LOW Date Received: 10/26/94

% Moisture _____ decanted: Y/N____ Date Extracted:10/31/94

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/08/94

Injection Volume: 1.0(uL) Dilution Factor: 120.0

GPC Cleanup: (Y/N) N pH:____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
121-14-2	2,4-Dinitrotoluene	600	U
84-66-2	Diethylphthalate	600	U
7005-72-3	4-Chlorophenyl-phenylether	600	U
86-73-7	Fluorene	600	U
100-01-6	4-Nitroaniline	2400	U
534-52-1	4,6-Dinitro-2-methylphenol	2400	U
86-30-6	N-Nitrosodiphenylamine (1)	600	U
101-55-3	4-Bromophenyl-phenylether	600	U
118-74-1	Hexachlorobenzene	600	U
87-86-5	Pentachlorophenol	2400	U
85-01-8	Phenanthrene	600	U
120-12-7	Anthracene	600	U
84-74-2	Di-n-butylphthalate	600	U
206-44-0	Fluoranthene	600	U
129-00-0	Pyrene	600	U
85-68-7	Butylbenzylphthalate	600	U
91-94-1	3,3'-Dichlorobenzidine	600	U
56-55-3	Benzo(a)anthracene	600	U
218-01-9	Chrysene	600	U
117-81-7	bis(2-Ethylhexyl)phthalate	600	U
117-84-0	Di-n-octylphthalate	600	U
205-99-2	Benzo(b)fluoranthene	600	U
207-08-9	Benzo(k)fluoranthene	600	U
50-32-8	Benzo(a)pyrene	600	U
193-39-5	Indeno(1,2,3-cd)pyrene	600	U
53-70-3	Dibenzo(a,h)anthracene	600	U
191-24-2	Benzo(g,h,i)perylene	600	U
120-32-1	4-Chloro-2-(phenylmethyl)phe	600	U
100-51-6	Benzyl Alcohol	600	U
65-85-0	Benzoic Acid	6000	D

(1) - Cannot be separated from Diphenylamine

(FYR, 1-3)

In April 1983, FDER published a detailed Environmental Groundwater Assessment report that discussed sampling results. The results revealed no contamination in the private, off-site wells. The investigation found only on-site indications of industrial impacts to the surficial aquifer. Contaminants detected on-site were ethylbenzene, xylene, naphthalene and benzene. No metals were detected in any of the wells. No contamination of the Floridan aquifer on-site or off-site was detected. There was no indication of any impact on the surficial aquifer beyond the property boundary. (ROD, 12)

Based on these results EPA concluded that the potential exists for off-site migration of contaminants via the surficial aquifer. Although the contaminant level detected in the ground water were low, EPA recommended that an Endangerment Assessment (EA) be performed to determine the hazard, if any, these contaminants pose to human health and the environment. (ROD, 17)

During 1986, an Endangerment Assessment (EA) evaluated the resources, populations and environments threatened, and the risk of human exposure. The most probable pathway for human exposure is via ground water movement of contamination in the surficial aquifer. Air and surface water run-off are not important pathways at the site. Drinking of contaminated water appears to be the most likely way for the contamination to affect humans; however, the area's primary drinking water source is the deeper Floridan aquifer. The EA concluded that off-site transport and exposure is expected to be minimal due to the ground water from the surficial aquifer being discharged into the swamp on Alpha property and the limited number of human receptors close to the site. (ROD, 17)

Initial Response

In March 1985, two consent orders were signed between FDER and Alpha Corporation. One

consent order dealt with penalties for permit and ground water violations. The other consent order required Alpha perform a Remedial Investigation, Endangerment Assessment and, if necessary, a Feasibility Study to carry out a Remedial Action. (ROD, 18)

A condition of this consent order required that investigations and studies be consistent with the Comprehensive Environmental Response, Compensation and Liability Act and implementing EPA federal regulations and guidance documents. Under this condition, EPA was to review and comment on all site-related reports and proposals. (ROD, 18)

III. DEVELOPMENT AND IMPLEMENTATION OF THE REMEDY AND OPERATION AND MAINTENANCE

Table 2. Chronology of Remedy Development and Implementation.

RI / FS complete	May 18,1988
ROD signature	May 18, 1988
Remedial Design complete	January 6, 1989
Enforcement document (CD, AOC, UAO)	Consent Decree signed May 17, 1989
Construction dates (start, finish)	September 1-15, 1989
Construction completion date	September 21, 1990
First Five-Year Review	May 16, 1994
Close Out Report	March 28, 1995
Deletion from NPL	June 28, 1995

Remedy Selection

The selected remedial alternative and the EPA's rationale for its selection are outlined in the Record of Decision signed May 18, 1988. The selected remedy placed a low permeability cap

over the unlined pond area to reduce the downward percolation of atmospheric precipitation through the unlined pond area. This action inhibits leachate production into the surficial aquifer. (ROD, 30) In addition, long-term monitoring of the surficial aquifer assures that the remedy remains effective and that contaminant levels in the ground water meet Applicable and Relevant or Appropriate Requirements (ARARs). (ICOR, 3), (ROD, 30)

The May 1988 ROD defined the contaminants of concern for the Alpha site and listed their corresponding maximum contaminant levels (MCLs) as defined in the proposed National Primary Drinking Water Regulation 1985. The stated MCLs are the enforceable standards against which water samples are judged for compliance with federal regulations. (ROD, 21, 25)

The first Five-Year Review completed on May 16, 1994 reexamined the stated MCLs in the ROD. One of the Five-Year review goals is to document changes in ARARs as applied to newly promulgated MCLs. By 1994, MCLs for the contaminants of concern had been modified. The changed MCLs were documented in the first Five-Year Review. (FYR, 1-15) Table 3 identifies the MCLs of the contaminants of concern as determined in the ROD (May 1988) and the subsequent first Five-Year Review (May 1994).

Table 3. MCLs for the Contaminants of Concern.

contaminant:	**ROD** *(May 1988)*	**FYR** *(May 1994)*
	MCL:	**MCL:**
ethylbenzene	0.680 mg/l	0.700 mg/l
styrene	0.140 mg/l	0.100 mg/l
xylene	0.440 mg/l	10.000 mg/l

Remedy Implementation

Cap construction over the unlined pond required two weeks and was completed on September 15,

1989. The remedial action involved removing water from the unlined Pond #3 and then filling with clean clay soil. The cap's construction included placement of a synthetic low permeability cover over the compacted fill material. Alpha placed layers of drainage material, filter fabric and topsoil over the synthetic liner. Then they installed perimetrical drainage swales about the cap and excavated two drainage ditches to accept run off from the swales. These drained south into the swamp. Alpha seeded the cap and drainage ditches to preclude any erosional damage caused by storms. (ICOR, 3).

A professional engineer, registered with the state of Florida, certified that the remedy was operational and functional during the final on-site inspection in October 1989. The Remedial Action Report (November 1, 1989) documented the successful completion of construction activities and explains any deviations from the approved design. (ICOR, 4)

Operation and Maintenance (O&M) Requirements

Operation and Maintenance (O&M) for the selected remedy at the Alpha site consist of cap maintenance and long-term ground and surface water monitoring. (ROD, 31) The O&M determines the structure's and the drainage control system's integrity. (ICOR, 7) These activities include weekly inspections of the cap and monitoring wells. Alpha must summarize and submit their findings to EPA, Region 4 in a semi-annual report. (ROD, 31)

EPA designed the monitoring plan to: 1). detect any significant changes in groundwater concentrations of ethylbenzene, styrene and xylene; 2). determine if the cap is allowing a significant amount of lateral migration of these contaminants in the surficial aquifer; 3). determine if there is any evidence of vertical migration to the deep aquifer, the Floridan; 4). determine if there is any evidence that the cap is not achieving the desired potential of vertical contaminant migration control; and 5). detect any possible degradation of the landfilled pond. (FYR, 1-4)

The ROD required quarterly surface water and ground water sampling. Sampling events are

overseen by EPA or an EPA oversight contractor, such as Dynamac Corporation, or FDER. Monitoring will be performed for 30 years following the completion of remedial construction, or until Alpha petitions for and receives from EPA & FDER, a reduction in the 30-year ground water monitoring requirement and/or in the frequency for ground water monitoring. (ICOR, 7).

O&M Activities

Groundwater monitoring for the surficial aquifer uses an established system of eight permanent wells (AC-106, AC- 107, AC-102, SP-2, SP-6, SP-7, SP-8 and SP-9). Well AC-105 monitors the deeper Floridan aquifer. In accordance with the ROD, all wells were sampled quarterly from RA construction completion (September 1989) until December 1990. Thereafter, only the two wells (AC-106 and AC-107) closest to the source area were sampled quarterly because the three contaminants were not detected in any of the other locations, including the Floridan aquifer. (FYRW, 8)

Shortly after the first Five-Year Review, EPA allowed Alpha to discontinue sampling until further notification. Currently, EPA continues to receive the semi-annual O&M reports documenting visual inspection of the cap and surrounding area.

Progress Since the Last Review

The site visit and field sampling for the first Five-Year Review occurred on July 13-14, 1993. The results of that sampling found all concentrations for the contaminants of concern (ethylbenzene, styrene and xylene) were below their respective MCLs. (FYR, 1-15) EPA signed the first Five-Year Review report on May 16, 1994. The report stated that the sampling frequency could be reduced or eliminated altogether. EPA deleted the site from the NPL on June 28, 1995. (FYR, 3-1).

This Five-Year Review accounted for five new data sets since the previous site visit. Sampling

events occurred in September 1993, December 1993, March 1994, June 1994, and November 1994. The November 1994 sampling event provides the most recent data for the present Five-Year Review.

IV. FIVE- YEAR REVIEW FINDINGS

Five-Year Review Process

Following EPA guidelines, Five-Year Reviews are mandatory for this site due to the fact that waste was left in place beneath the cover. This report addressed two main issues; 1). to confirm that the remedy as spelled out in the ROD remains protective of human health and the environment; and 2). to evaluate whether original cleanup levels remain protective of human health and the environment. (S & C, Attachment 1, page 2) Another purpose for this review was to provide the public an opportunity to review and comment on the appropriateness of the selected remedy. (page 7)

EPA visited Alpha Chemical on April 8, 1998. EPA, Region 4, Remedial Project Manager, Mr. Jamey Watt, conducted the on-site review with Alpha Chemical's Regulatory Affairs Coordinator, Mr. Martin McLeod. Concurrently, EPA published a "Public Notice" announcement in the local paper, "The Ledger". The announcement stated the purpose of the review and provided a current EPA address and phone number to place public comments. ("The Ledger", 04/08/98) EPA also verified the availability of current site information at the designated public repository, which is the Lakeland Library, 100 Lake Morton Drive, Lakeland, Florida, 33801. See Figure 6. Level 1 Five-Year Reviews do not require new field sampling at the time of the site visit. (S & C, Attachment 1, page 9)

Interviews

EPA Remedial Project Manager, Jamey Watt, interviewed Alpha Chemical representative Mr.

Figure 6. Public Notification of Five-Year Review.

ALPHA CHEMICAL SITE HAS 2ND FIVE YEAR REVIEW

The U.S. Environmental Protection Agency (EPA) Region 4 announces a Five-Year for the Alpha Chemical Site in Kathleen, Polk, Florida. Five-Year Reviews evaluate the protectiveness of cleanup actions taken at Superfund sites. The focus of this Five-Year Review will be to determine if the synthetic cap (cover) and drainage system continue to provide protection for human health and the environment.

The Alpha Chemical Superfund Site is located at the Alpha Resins Plant at 4620 North Galloway Road, three miles north of Lakeland, Florida. EPA representatives will be at the site on April 8, 1998, to conduct the Five-Year Review. This is the second such Five-Year Review. This review examines monitoring data, sampling locations, and the Operation & Maintenance Reports.

EPA will complete a report documenting observations and findings made during this site review and recommendations for further action. A copy of the report will be made available for review along with other administrative material at the:

Lakeland Public Library
100 Lake Morton Drive
Lakeland, Florida 33801

Contact: Jamey Watt, Remedial Project Manager, for additional information at 1-800-435-9234 or 404-562-8920.

Martin McLeod during the site visit on April 8, 1998. He verified that no major problems have occurred at the site during the second Five-Year Review period. Mr. McLeod explained the steps Alpha takes to maintain the cap as an effective remedial action. These steps include reseeding bare spot areas on the cap when necessary, controlling fire-ant mounds on the cap and keeping all monitoring wells accessible. EPA informed Alpha that two rounds of surface and ground water sampling will be required during the next (third) Five-Year Review period. Alpha agreed and is willing to collect samples upon EPA's notification. To date, EPA has not received any public comments in response to the newspaper announcement.

Site Visit

Mr. McLeod and Mr. Watt toured the facility and inspected the landfill cap, drainage swells and monitoring wells as part of the April 8, 1998 site visit. Monitoring wells are securely locked and remain in good physical condition. The identification markings on the well casings are clearly visible and correspond with the map locations. Areas around the drainage swales and discharge pipes showed no signs of deterioration due to erosion. (See Photos in Appendix A)

Remedial Action Objectives Review

EPA requested the Florida Department of Environmental Protection (FDEP) to identify state ARARs promulgated or modified since the last Five-Year Review which may have a bearing on the protectiveness of the remedy. Mr. George Hueler, with FDEP, reviewed the ARAR's listed in the ROD and in the first Five-Year Review. He commented that Chapter 17 of the Florida Administrative Code (FAC) has been reorganized as Chapter 62. The chapters relevant to this factor have not changed. Water Quality Standards, previously included in Chapter 17-3, now are listed in Chapter 62-520. Relevant standards are also listed in 62-550, -770, -785. The changes of interest applicable to Alpha Chemical are the addition of *secondary* MCL standards within the Florida Drinking Water Standards. Table 4 notes both standards where applicable.

Table 4. Current ARARs (MCLs) for the Contaminants of Concern.

contaminant:	**MCL:**
ethylbenzene	0.700 mg/l ***primary*** standard
	0.030 mg/l applicable ***secondary*** standard
styrene	0. 100 mg/l
xylene	10.000 mg/l ***primary*** standard
	0.020 mg/l applicable ***secondary*** standard

EPA reviewed the ARARs on a federal level. The current federal MCLs, as listed in the "Code of Federal Regulations; 40 CFR 141.61" (revised on July 1, 1997), correspond with the current FDEP *primary* standards. (FYR, 1-15)

Data Review

EPA reviewed sampling data beginning in November 1984 to present. The data is provided in Table 5. Alpha performed five more sampling events since the first Five-Year Review site visit. The most recent sampling event occurred in November 1994. All of the samples collected on that date indicated concentrations under current EPA / FDEP *primary* standards. However, in reviewing the past data, one instance in June 1994 revealed an ethylbenzene concentration of 1.2 mg/l in monitoring well AC- 106. The *primary* MCL is .7 mg/l. The follow-up sampling period in November 1994 revealed a decrease in ethylbenzene concentration to 0.056 mg/1, which is below the current Federal and State *primary* MCL, but still slightly higher than the State's *secondary* MCL of 0.030 mg/1. The enforceable standards are the *primary* standards which are found to be protective of human health and the environment. The *secondary* standards are also enforceable. They are more stringent due to their being based on organoleptic qualities (physical "comfort levels") such as taste, smell, etc.

Overall, the contaminants of concern remain well below their designated MCLs. Styrene has been

Table 5. Contaminants of Concern Data Summary.

ETHYLBENZENE

	Nov 84	Nov 84 Dup	Aug 85	Jun 86	Jun 87	Sep 89	Dec 89	Mar 90	Jun 90	Sep 90	Dec 90	Mar 91	Jun 91	Sep 91	Dec 91	Mar 92	Jun 92
AC 102	98	*	*	*	72	5 U	11	12.9	5 U	5	4 J	*	*	*	*	*	*
AC 105	*	*	*	0.010 U	ND	5 U	*	5 U	*	5 U	*	*	*	*	*	*	*
AC 106	22,600	*	*	*	8,200	4,200	7,800	3,200	3,800	200 E (1000|	3900	4 J	65	1300 D	420	460 D	360
AC 107	2,640	5,850	28	*	400	13	6	1.4 J	8	2 U	18	2 J	2 J	160	260	97	10 U
SP 2	724	*	*	*	*	5 U	5 U	5 U	5 U	5 U	2 J	*	*	*	*	*	*
SP 6	*	*	ND	*	ND	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*
SP 7	*	*	104	*	ND	5 U	5 U	5 U	5 U	5 U	2 J	*	*	*	*	*	*
SP 8	*	*	ND	*	ND	5 U	5 U	5 U	5 U	5 U	1 J	*	*	*	*	*	*
SP 9	*	*	ND	*	ND	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*
CULVERT	*	*	*	*	ND	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*
SWAMP	*	*	*	*	*	*	5 U	*	5 U	5 U	5 U	*	*	*	*	*	*

STYRENE

	Nov 84	Nov 84 Dup	Aug 85	Jun 86	Jun 87	Sep 89	Dec 89	Mar 90	Jun 90	Sep 90	Dec 90	Mar 91	Jun 91	Sep 91	Dec 91	Mar 92	Jun 92
AC 102	ND	*	*	*	ND	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*
AC 105	*	*	*	0.010 U	ND	5 U	*	5 U	*	5 U	*	*	*	*	*	*	*
AC 106	ND	*	*	*	470	160 U	290 U	100 U	800	5 U (33 U)	100 U	5 U	5 U	5 U	25 U	42 U	20 U
AC 107	ND	ND	ND	*	ND	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U	17 U	10 U	10 U
SP 2	ND	*	*	*	*	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*
SP 6	*	*	ND	*	ND	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*
SP 7	*	*	ND	*	ND	5 U	5 U	5 U	5 U	5 U	2 J	*	*	*	*	*	*
SP 8	*	*	ND	*	ND	5 U	5 U	5 U	5 U	5 U	1 J	*	*	*	*	*	*
SP 9	*	*	ND	*	ND	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*
CULVERT	*	*	*	*	ND	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*
SWAMP	*	*	*	*	*	*	5 U	*	5 U	5 U	5 U	*	*	*	*	*	*

XYLENE

	Nov 84	Nov 84 Dup	Aug 85	Jun 86	Jun 87	Sep 89	Dec 89	Mar 90	Jun 90	Sep 90	Dec 90	Mar 91	Jun 91	Sep 91	Dec 91	Mar 92	Jun 92
AC 102	9	*	*	*	5	1 J	2 J	1.09 J	5 U	1 J	2 J	*	*	*	*	*	*
AC 105	*	*	*	*	ND	5 U	*	5 U	*	5 U	*	*	*	*	*	*	*
AC 106	610	*	*	*	ND	160 U	65 J	64.2 J	120 U	13 (8 D J)	55 J	5 U	3 J	22	9 J	8 D J	12 D J
AC 107	424	692	*	*	46	40	29	9.05	4 J	8	11	8	8	15	15 J	21	2 J
SP 2	- -	*	*	*	*	5 U	5 U	5 U	5 U	5 U	2 J	*	*	*	*	*	*
SP 6	*	*	*	*	ND	1 J	5 U	5 U	5 U	5 U	3 J	*	*	*	*	*	*
SP 7	*	*	*	*	ND	5 U	5 U	5 U	5 U	5 U	6	*	*	*	*	*	*
SP 8	*	*	*	*	ND	5 U	5 U	5 U	5 U	5 U	5	*	*	*	*	*	*
SP 9	*	*	*	*	ND	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*
CULVERT	*	*	*	*	ND	5 U	5 U	5 U	5 U	5 U	2 J	*	*	*	*	*	*
SWAMP	*	*	*	*	*	*	5 U	*	5 U	5 U	2 J	*	*	*	*	*	*

Units = UG/L
ND = Analyzed but Not Detected
* = Not Sampled at this Time
D = Identified at a Secondary Dilution Factor
J = Estimated Value
U = Compound Not Detected at Detection Limit
E = Identified Cocentration Exceeding the Calibration Range, Diluted & Re-Analyzed

ETHYLBEN

Sep 92	Dec 92	Mar 93	Jun 93	Sep 93	Dec 93	Mar 94	Jun 94	Nov 94	
*	*	*	1 J	*	*	*	*	*	AC 102
*	*	*	10 U	*	*	*	*	*	AC 105
77	690	340	27	130	29	16	1200	55.94 E	AC 106
24	10 U	12	1 J	3 J	10 U	2 J	10 U	1.00 U	AC 107
*	*	*	10 U	*	*	*	*	*	SP 2
*	*	*	10 U	*	*	*	*	*	SP 6
*	*	*	10 U	*	*	*	*	*	SP 7
*	*	*	10 U	*	*	*	*	*	SP 8
*	*	*	10 U	*	*	*	*	*	SP 9
*	*	*	10 U	*	*	*	*	*	CULVERT
*	*	*	10 U	*	*	*	*	*	SWAMP

STYRENE

Sep 92	Dec 92	Mar 93	Jul 93	Sep 93	Dec 93	Mar 94	Jun 94	Nov 94	
*	*	*	10 U	*	*	*	*	*	AC 102
*	*	*	10 U	*	*	*	*	*	AC 105
10 U	50 U	20 U	10 U	10 U	10 U	10 U	100 U	1.00 U	AC 106
10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.00 U	AC 107
*	*	*	10 U	*	*	*	*	*	SP 2
*	*	*	10 U	*	*	*	*	*	SP 6
*	*	*	10 U	*	*	*	*	*	SP 7
*	*	*	10 U	*	*	*	*	*	SP 8
*	*	*	10 U	*	*	*	*	*	SP 9
*	*	*	10 U	*	*	*	*	*	CULVERT
*	*	*	10 U	*	*	*	*	*	SWAMP

XYLENE

Sep 92	Dec 92	Mar 93	Jul 93	Sep 93	Dec 93	Mar 94	Jun 94	Nov 94	
*	*	*	10 U	*	*	*	*	*	AC 102
*	*	*	10 U	*	*	*	*	*	AC 105
2 J	5 J	7 J	14	8 J	8 J	7 J	100 J	7.8	AC 106
28	6 J	15	9 J	4 J	2 J	8 J	3 J	0.604	AC 107
*	*	*	10 U	*	*	*	*	*	SP 2
*	*	*	10 U	*	*	*	*	*	SP 6
*	*	*	10 U	*	*	*	*	*	SP 7
*	*	*	10 U	*	*	*	*	*	SP 8
*	*	*	10 U	*	*	*	*	*	SP 9
*	*	*	10 U	*	*	*	*	*	CULVERT
*	*	*	10 U	*	*	*	*	*	SWAMP

below current MCL's for the past seven years. All concentrations of xylene fall below the current *primary* standard of 10.000 mg/l. The State's *secondary* standard for xylene has been met in each sampling event since the first Five-Year Review. Ethylbenzene concentrations decreased as well, only at a more sporadic rate. The one-time exceedence of the *primary* standard of ethylbenzene in AC-106 in June 1994 is the only occurrence since September 1991, eleven sampling rounds earlier.

With all three contaminants, higher concentrations were determined in AC-106 as opposed to AC-107. This can be attributed to AC-106's closer proximity to the source area (Pond #3).

V. CONCLUSIONS

Appropriateness of Remedial Action Objectives

Based on the site visit and review of the sampling data, the remedial action appears to be performing satisfactorily. Results from the visual inspection of the cap and analysis of the current data justify the appropriateness of the selected remedy. The cap remains effective and reveals no signs of physical deterioration. The remedial action objectives as documented in the ROD and first Five-Year Review remain appropriate for protecting human health and the environment for the second Five-Year Review.

Achievement of Remedial Action Objectives

The inclusion of much lower *secondary* MCL standards based on physical "comfort levels" caused some exceedence in ethylbenzene concentrations. However, the *primary* standards determine protectiveness of human health and the environment. The five sampling events since the first Five-Year Review indicate all contaminant concentrations are below *primary* MCLs except for one isolated sample. The following sample at the same location was below the *primary* standard. The most recent sampling event indicated all *primary* MCL standards have been

achieved.

Whether the Remedy is Effective and Functioning as Designed

The ROD selected remedy remains effective and functioning as designed to contain contaminants and prevent access to contamination. Sampling results from around the capped source area indicate contamination levels below *primary* MCLs. Ethylbenzene concentrations in well AC-106 should be monitored closely.

Adequacy of O&M

O&M requirements remain adequate for the site. Alpha's on-time submittal of semi-annual O&M reports must continue.

VI. RECOMMENDATIONS

Alpha personnel appear to have a conscientious attitude in performing O&M activities at the site. EPA recommends the continued maintenance and monitoring of the cap. O&M reports should be submitted semi-annually according to the current procedure. Corrective actions such as those performed around the discharge pipe and the removal of fire ant mounds should be performed on an as-needed basis.

Based on results of the ground water samples collected, no significant levels of indicator contaminants were observed in the surficial aquifer surrounding the capped area. Alpha has expressed willingness to collect and analyze ground water samples from the monitoring wells as directed by EPA.

EPA suggests two sampling events to be performed before the next Five-Year Review. Monitoring wells AC-106 and AC-107, along with the deep aquifer well AC-105, should be

sampled at the mid-way point of the next Five-Year Review period (year 2000). The second sampling event should include all nine monitoring wells and correspond with the next statutory Five-Year Review site visit in April 2003. Officials from Alpha and FDEP are aware of these recommendations and do not have any objections.

VII. PROTECTIVENESS STATEMENT

This review revealed that the remedy operates and functions as designed and remains protective of human health and the environment.

VII. NEXT REVIEW

The next Five-Year Review will be completed by the end of year 2003. This review will analyze the semi-annual O&M reports as well as the two new recommended sampling data sets.

Works Cited

Five-Year Review (**FYR**). *"Alpha Chemical Site, Kathleen, Florida"*, February 1994. Prepared by Roy F. Weston, Inc. for the U.S. Environmental Protection Agency, Region 4, Atlanta, GA.

Five-Year Review Work Plan (**FYRW**). *"Work Plan: Five-Year Review Project Assistance: Alpha Chemical Site"*, July 1993. Prepared by Roy F. Weston, Inc. for the U.S. Environmental Protection Agency, Region 4, Atlanta, GA.

Interim Close Out Report (**ICOR**). *"Long-Term Response Action: Alpha Chemical Corporation Superfund Site, Kathleen, Polk County, Florida"*, September 1990. U.S. Environmental Protection Agency, Region 4, Atlanta, GA

Record of Decision (**ROD**). *"Alpha Chemical, FL"*, May 18, 1988. U.S. Environmental Protection Agency, Region 4, Atlanta, GA.

Structure and Components of Five-Year Reviews (**S&C**). *"Memorandum"*, May 23, 1991. U.S. Environmental Protection Agency, OSWER Directive 9355.7-02.

Appendix A:

Photographic Documentation

Photo 1. Panoramic View of Site Area (04/08/98).

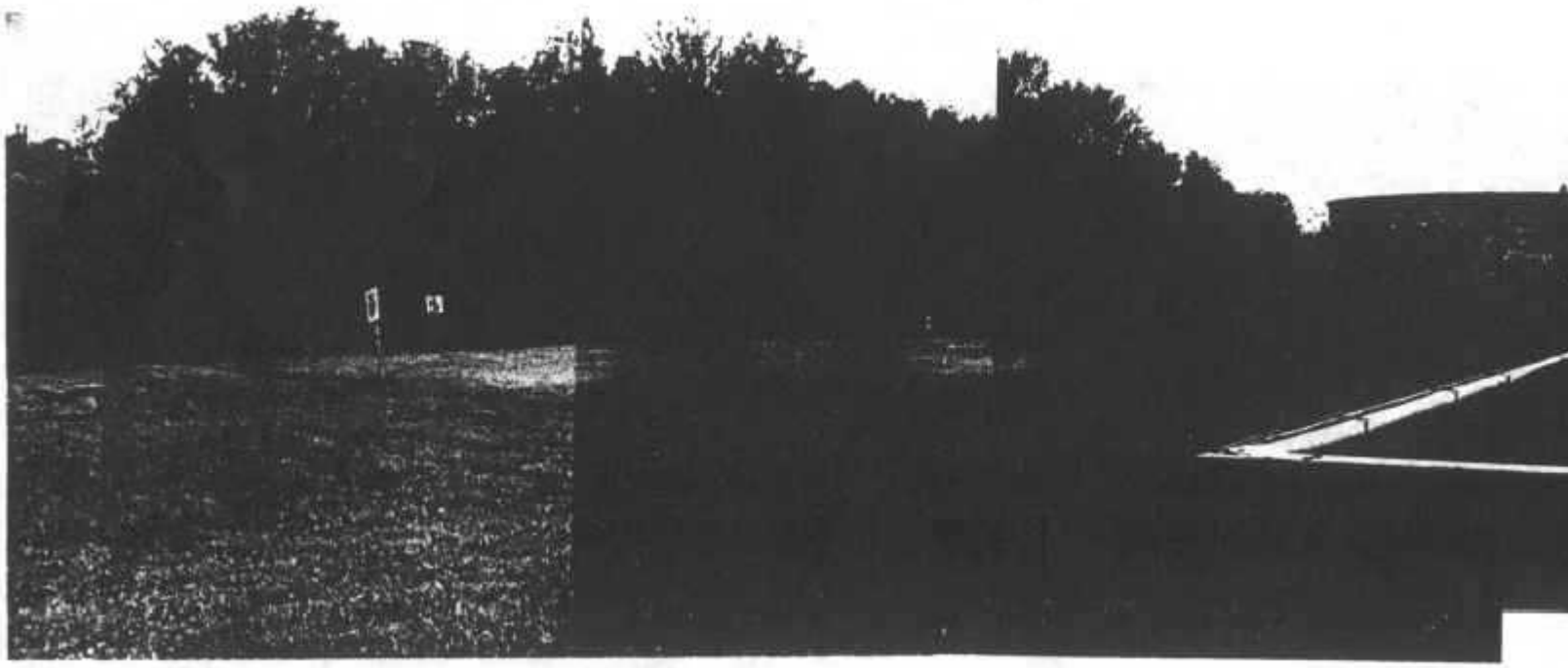

Photo 2. Warning Sign Posted at Perimeter of Area.

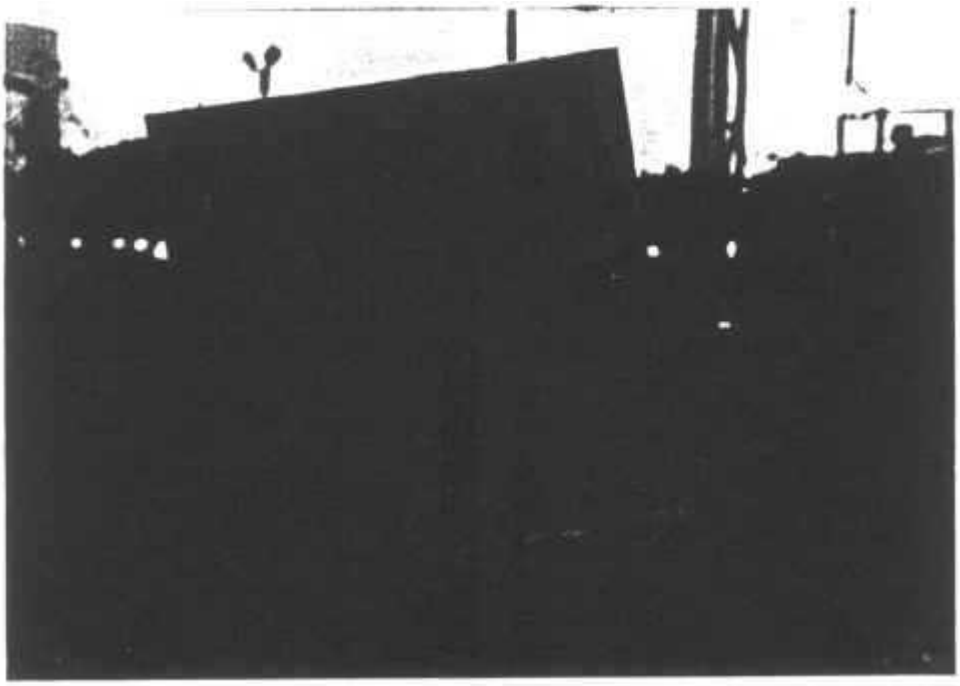

Photo 3. Non-Contact Cooling Water Pond.

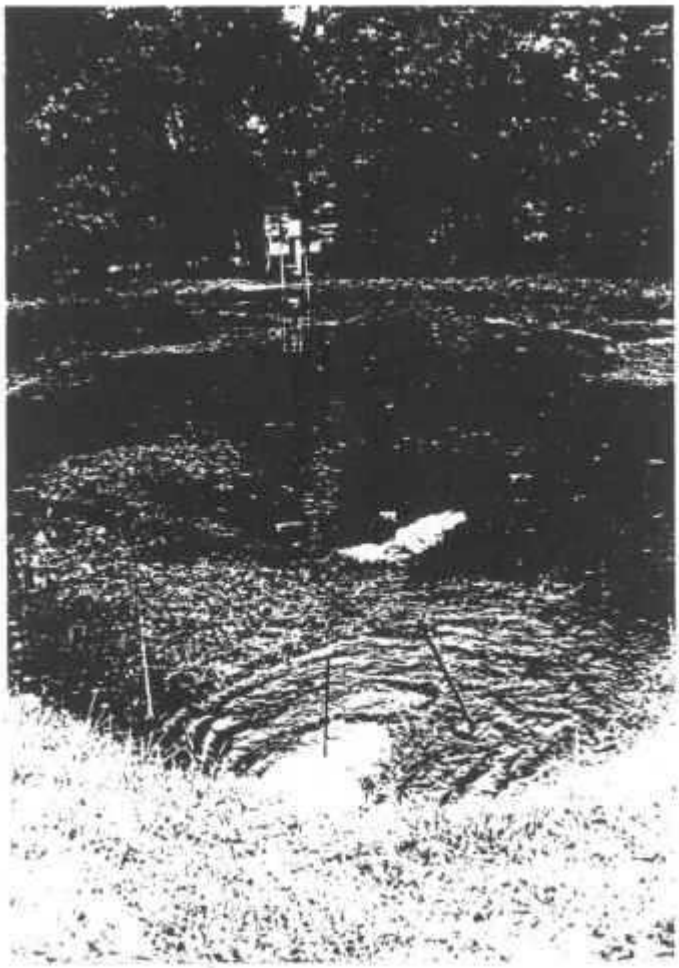

Photo 4. View of Site Area Looking Towards Plant.

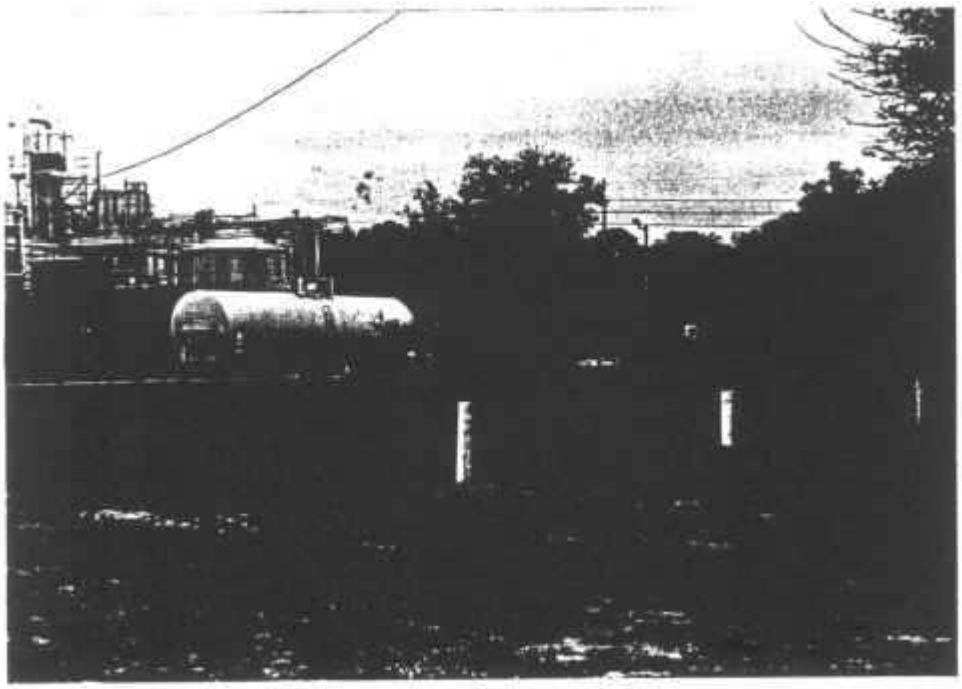

Photo 5. Drainage Pipe from Capped Area.

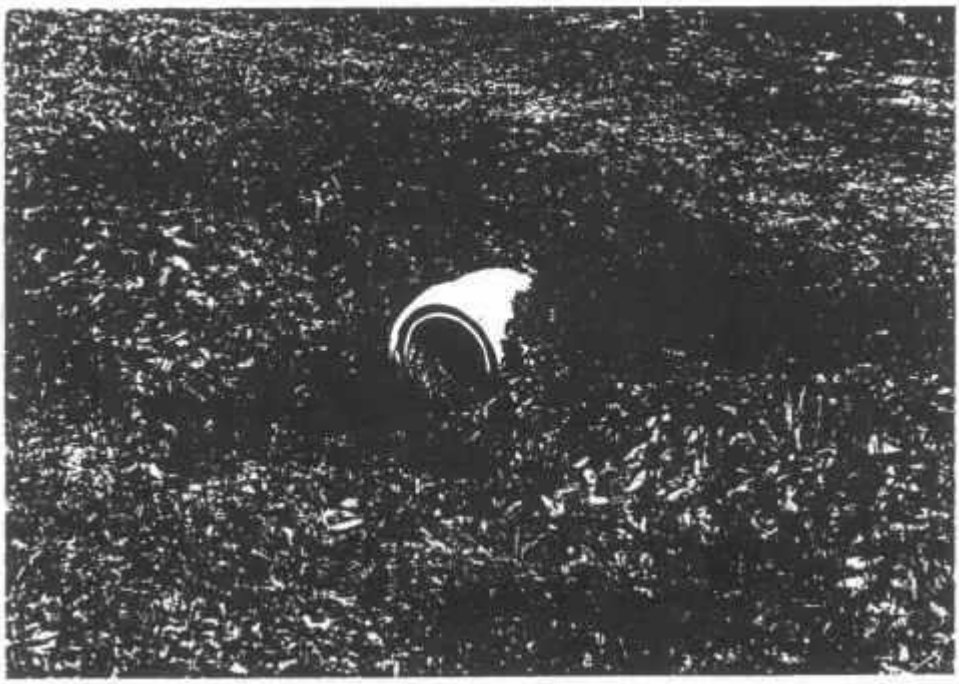

Photo 6. Monitoring Wells.

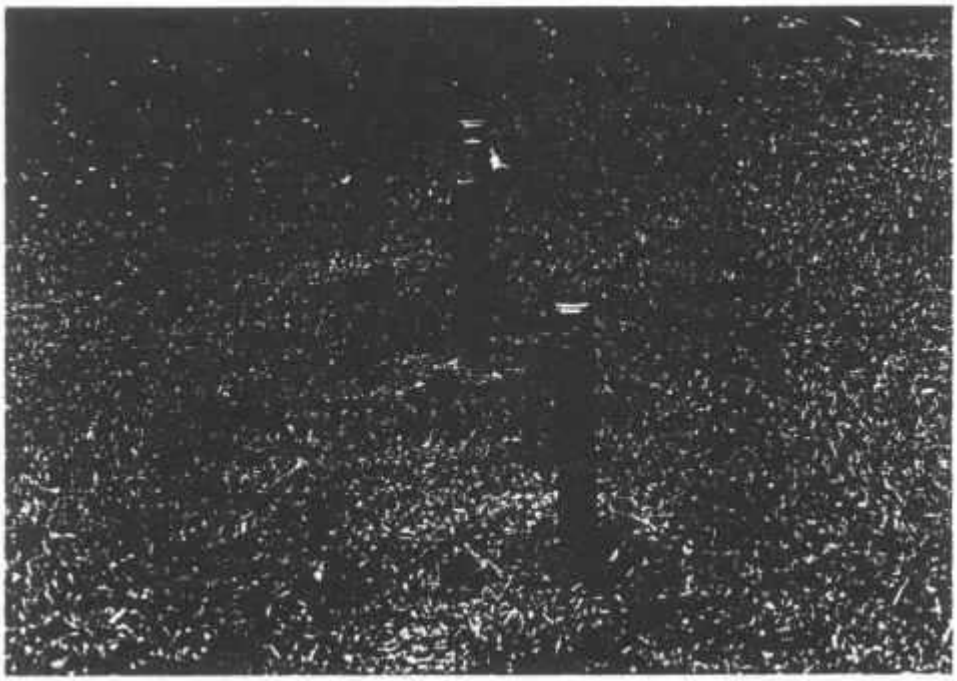

Photo 7. Another Monitoring Well.

Appendix B:

Data Tables

XYLENE

	Nov '84	Nov '84 Duplicate	Aug '85	Jun '86	Jun '87	Sep '89	Dec '89	Mar '90	Jun '90	Sep '90	Dec '90	Mar '91	Jun '91	Sep '91	Dec '91	Mar '92	Jun '92	Sep '92	Dec '92	
AC 102	9	*	*	*	5	1 J	2 J	1.09 J	5 U	1 J	2 J	*	*	*	*	*	*	*	*	AC 102
AC 105	*	*	*	*	–	5 U	*	5 U	*	5 U	*	*	*	*	*	*	*	*	*	AC 105
AC 106	610	*	*	*	–	160 U	65 J	64.2 J	120 U	13	55 J	5 U	3 J	22	9 J	8D J	12 DJ	2 J	5 J	AC 106
AC 107	424	692	*	*	46	40	29	9.05	4 J	8 DJ 8	11	8	8	15	15 J	21	2J	28	6 J	AC 107
SP-2	–	*	*	*	*	5 U	5 U	5 U	5 U	5 U	2 J	*	*	*	*	*	*	*	*	SP-2
SP 6	*	*	*	*	–	1 J	5 U	5 U	5 U	5 U	3 J	*	*	*	*	*	*	*	*	SP 6
SP-7	*	*	*	*	–	5 U	5 U	5 U	5 U	5 U	6	*	*	*	*	*	*	*	*	SP-7
SP-8	*	*	*	*	–	5 U	5 U	5 U	5 U	5 U	5	*	*	*	*	*	*	*	*	SP-8
SP-9	*	*	*	*	–	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*	*	*	SP-9
Culvert	*	*	*	*	–	5 U	5 U	5 U	5 U	5 U	2 J	*	*	*	*	*	*	*	*	Culvert
Swamp	*	*	*	*	*	*	5 U	*	5 U	5 U	2 J	*	*	*	*	*	*	*	*	Swamp

UNITS - UG/L
– = ANALYZED BUT NOT DETECTED
* = NOT SAMPLED OR ANALYZED AT THIS TIME
D = IDENTIFIED AT A SECONDARY DILUTION FACTOR

J = AN ESTIMATED VALUE
U = COMPOUNDS WAS NOT DETECTED AT DETECTION LIMIT
E = IDENTIFIED CONCENTRATION EXCEEDING THE CALIBRATION RANGE, DILUTED & RE-ANALYZED

XYLENE (cont.)

	Mar 93	Jul 93	Sep 93	Dec 93	Mar 93	Jun 94	
AC 102	*	10U	*	*	*	*	**AC 102**
AC 105	*	10U	*	*	*	*	**AC 105**
AC 106	7 J	14	8J	8J	7J	100 U	**AC 106**
AC 107	15	9J	4J	2J	8J	3J	**AC 107**
SP-2	*	10U	*	*	*	*	**SP-2**
SP-6	*	10U	*	*	*	*	**SP-6**
SP-7	*	10U	*	*	*	*	**SP-7**
SP-8	*	10U	*	*	*	*	**SP-8**
SP-9	*	10U	*	*	*	*	**SP-9**
Culvert	*	10U	*	*	*	*	**Culvert**
Swamp	*	10U	*	*	*	*	**Swamp**

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Styrene

	Nov 84	Nov 81 DUPLICATE	Aug 85	Jun 86	Jun 87	Sep 89	Dec 89	Mar 90	Jun 90	Sep 90	Dec 90	Mar 91	Jun 91	Sep 91	Dec 91	Mar 92	Jun 92	Sep 92	Dec 92	
AC 102	--	*	*	*	--	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*	*	*	**AC 102**
AC 105	*	*	*	.010 U	--	5 U	*	5 U	*	5 U	*	*	*	*	*	*	*	*	*	**AC 105**
AC 106	--	*	*	*	470	160 U	290 U	100 U	800	5 U 33 U	100 U	5 U	5 U	5 U	25 U	42 U	20 U	10 U	50 U	**AC 106**
AC 107	--	--	--	*	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U	17 U	10 U	10 U	10 U	10 U	**AC 107**
SP-2	--	*	*	*	*	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*	*	*	**SP-2**
SP 6	*	*	--	*	--	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*	*	*	**SP-6**
SP-7	*	*	--	*	--	5 U	5 U	5 U	5 U	5 U	2 J	*	*	*	*	*	*	*	*	**SP-7**
SP-8	*	*	--	*	--	5 U	5 U	5 U	5 U	5 U	1 J	*	*	*	*	*	*	*	*	**SP-8**
SP-9	*	*	--	*	--	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*	*	*	**SP-9**
Culvert	*	*	*	*	--	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*	*	*	**Culvert**
Swamp	*	*	*	*	*	*	5 U	*	5 U	5 U	5 U	*	*	*	*	*	*	*	*	**Swamp**

UNITS-UG/L
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* = NOT SAMPLED OR ANALYZED AT THIS TIME
D = IDENTIFIED AT A SECONDARY DILUTION FACTOR

J = AN ESTIMATED VALUE
U = COMPOUNDS WAS NOT DETECTED AT DETECTION LIMIT
E = IDENTIFIED CONCENTRATION EXCEEDING THE CALIBRATION RANGE, DILUTED & RE-ANALYZED

Styrene (cont.)

	Mar 93	Jul 93	Sep 93	Dec 93	Mar 93	Jun 94	
AC 102	*	10U	*	*	*	*	**AC 102**
AC 105	*	10 U	*	*	*	*	**AC 105**
AC 106	20 U	10 U	10 U	10 U	10U	100U	**AC 106**
AC 107	10 U	10 U	10 U	10 U	10U	10U	**AC 107**
SP-2	*	10 U	*	*	*	*	**SP-2**
SP-6	*	10 U	*	*	*	*	**SP-6**
SP-7	*	10 U	*	*	*	*	**SP-7**
SP-8	*	10 U	*	*	*	*	**SP-8**
SP-9	*	10 U	*	*	*	*	**SP-9**
Culvert	*	10 U	*	*	*	*	**Culvert**
Swamp	*	10 U	*	*	*	*	**Swamp**

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ETHYLBENZENE

	Nov 84	Nov 84 Duplicate	Aug 85	Jun 86	Jun 87	Sep 89	Dec 89	Mar 90	Jun 90	Sep 90	Dec 90	Mar 91	Jun 91	Sep 91	Dec 91	Mar 92	Jun 92	Sep 92	Dec 92	
AC 102	98	*	*	*	72	5 U	11	12.9	5 U	5	4 J	*	*	*	*	*	*	*	*	**AC 102**
AC 105	*	*	*	.010 U	--	5 U	*	5 U	*	5 U	*	*	*	*	*	*	*	*	*	**AC 105**
AC 106	22,600	*	*	*	6,200	4,200	7,800	3,200	3,800	1200 E 1000 D	3900	4 J	65	1300D	420	460 D	360	77	690	**AC 106**
AC 107	2,640	5,850	28	*	400	13	6	1.4 J	8	2 U	18	2 J	2 J	160	260	97	10 U	24	10 U	**AC 107**
SP-2	724	*	*	*	*	5 U	5 U	5 U	5 U	5 U	2 J	*	*	*	*	*	*	*	*	**SP-2**
SP 6	*	*	--	*	--	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*	*	*	**SP-6**
SP-7	*	*	104	*	--	5 U	5 U	5 U	5 U	5 U	2 J	*	*	*	*	*	*	*	*	**SP-7**
SP-8	*	*	--	*	--	5 U	5 U	5 U	5 U	5 U	1 J	*	*	*	*	*	*	*	*	**SP-8**
SP-9	*	*	--	*	--	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*	*	*	**SP-9**
Culvert	*	*	*	*	--	5 U	5 U	5 U	5 U	5 U	5 U	*	*	*	*	*	*	*	*	**Culvert**
Swamp	*	*	*	*	*	*	5 U	*	5 U	5 U	5 U	*	*	*	*	*	*	*	*	**Swamp**

UNITS-UG/L
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E = IDENTIFIED CONCENTRATION EXCEEDING THE CALIBRATION RANGE, DILUTED & RE-ANALYZED

ETHYLBENZENE (cont.)

	Mar 93	Jul 93	Sep 93	Dec 93	Mar 93	Jun 94	
AC 102	*	1J	*	*	*	*	**AC 102**
AC 105	*	10U	*	*	*	*	**AC 105**
AC 106	340	27	130	29	16	1200	**AC 106**
AC 107	12	1J	3J	10U	2J	10U	**AC 107**
SP-2	*	10U	*	*	*	*	**SP-2**
SP-6	*	10U	*	*	*	*	**SP-6**
SP-7	*	10U	*	*	*	*	**SP-7**
SP-8	*	10U	*	*	*	*	**SP-8**
SP-9	*	10U	*	*	*	*	**SP-9**
Culvert	*	10U	*	*	*	*	**Culvert**
Swamp	*	10U	*	*	*	*	**Swamp**

UNITS-UG/L
-- = ANALYZED BUT NOT DETECTED
* = NOT SAMPLED OR ANALYZED AT THIS TIME
D = IDENTIFIED AT A SECONDARY DILUTION FACTOR

J = AN ESTIMATED VALUE
U = COMPOUNDS WAS NOT DETECTED AT DETECTION LIMIT
E = IDENTIFIED CONCENTRATION EXCEEDING THE CALIBRATION RANGE, DILUTED & RE-ANALYZED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AC106

Lab Name: COMPUCHEM ENV. CORP. Contract: (10-92)REVS

Lab Code: COMPU Case No.: 29522 SAS No.: SDG No.: 0001L

Matrix: (soil/water) WATER Lab Sample ID: 650853

Sample wt/vol: 1000 (g/mL) ML Lab File ID: GR050853A08.D

Level: (low/med) LOW Date Received: 10/26/94

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 10/31/94

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/03/94

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	5	U
621-64-7	N-Nitroso-di-n-propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	1	J
51-28-5	2,4-Dinitrophenol	20	U
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	0.7	J

Post-it™ brand fax transmittal memo 7671 # of pages ▸ 6
To Mary McLeod From Don Tomec
Co. ATPHA Co. CompuChem
Dept. Phone #
Fax # Fax #

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: AC106

Lab Name: COMPUCHEM ENV. CORP. Contract: (10-92)REVS

Lab Code: COMPU Case No.: 29522 SAS No.: SDG No.: 0001L

Matrix: (soil/water) WATER Lab Sample ID: 650853

Sample wt/vol: 1000 (g/mL) ML Lab File ID: GR050853A08.D

Level: (low/med) LOW Date Received: 10/26/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/31/94

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/03/94

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	0.9	J
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	0.9	J
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	0.8	JB
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	2	JB
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenzo(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U
120-32-1	4-Chloro-2-(phenylmethyl)phe	5	U
100-51-6	Benzyl Alcohol	5	U
65-85-0	Benzoic Acid	3	J

(1) - Cannot be separated from Diphenylamine

1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

AC107

Lab Name: COMPUCHEM ENV. CORP. Contract: (10-92)REVS

Lab Code: COMPU Case No.: 29522 SAS No.: SDG No.: 0001L

Matrix: (soil/water) WATER Lab Sample ID: 650849

Sample wt/vol: 1000 (g/mL) ML Lab File ID: GR050849A08.D

Level: (low/med) LOW Date Received: 10/26/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/31/94

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/03/94

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	5	U
111-44-4	bis(2-Chloroethyl)ether	5	U
95-57-8	2-Chlorophenol	5	U
95-48-7	2-Methylphenol	5	U
108-60-1	2,2'-oxybis(1-Chloropropane)	5	U
106-44-5	4-Methylphenol	3	J
621-64-7	N-Nitroso-di-n-propylamine	5	U
67-72-1	Hexachloroethane	5	U
98-95-3	Nitrobenzene	5	U
78-59-1	Isophorone	5	U
88-75-5	2-Nitrophenol	5	U
105-67-9	2,4-Dimethylphenol	5	U
111-91-1	bis(2-Chloroethoxy)methane	5	U
120-83-2	2,4-Dichlorophenol	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
91-20-3	Naphthalene	5	U
106-47-8	4-Chloroaniline	5	U
87-68-3	Hexachlorobutadiene	5	U
59-50-7	4-Chloro-3-methylphenol	5	U
91-57-6	2-Methylnaphthalene	5	U
77-47-4	Hexachlorocyclopentadiene	5	U
88-06-2	2,4,6-Trichlorophenol	5	U
95-95-4	2,4,5-Trichlorophenol	20	U
91-58-7	2-Chloronaphthalene	5	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	5	U
208-96-8	Acenaphthylene	5	U
606-20-2	2,6-Dinitrotoluene	5	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	1	J
51-28-5	2,4-Dinitrophenol	20	U
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	1	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AC107

Lab Name: COMPUCHEM ENV. CORP. Contract: (10-92)REVS

Lab Code: COMPU Case No.: 29522 SAS No.: SDG No.: 0001L

Matrix: (soil/water) WATER Lab Sample ID: 650849

Sample wt/vol: 1000 (g/mL) ML Lab File ID: GR050849A08.D

Level: (low/med) LOW Date Received: 10/26/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 10/31/94

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/03/94

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	2	J
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	0.5	JB
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	JB
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenzo(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U
120-32-1	4-Chloro-2-(phenylmethyl)phe	5	U
100-51-6	Benzyl Alcohol	3	J
65-85-0	Benzoic Acid	3700	E

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AC107DL

Lab Name: COMPUCHEM ENV. CORP. Contract: (10-92)REVS

Lab Code: COMPU Case No.: 29522 SAS No.: SDG No.: 0001L

Matrix: (soil/water) WATER Lab Sample ID: 650849

Sample wt/vol: 1000 (g/mL) ML Lab File ID: GDR50849A08.D

Level: (low/med) LOW Date Received: 10/26/94

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/31/94

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/08/94

Injection Volume: 1.0(uL) Dilution Factor: 120.0

GPC Cleanup: (Y/N) N pH:____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	600	U
111-44-4	bis(2-Chloroethyl)ether	600	U
95-57-8	2-Chlorophenol	600	U
95-48-7	2-Methylphenol	600	U
108-60-1	2,2'-oxybis(1-Chloropropane)	600	U
106-44-5	4-Methylphenol	600	U
621-64-7	N-Nitroso-di-n-propylamine	600	U
67-72-1	Hexachloroethane	600	U
98-95-3	Nitrobenzene	600	U
78-59-1	Isophorone	600	U
88-75-5	2-Nitrophenol	600	U
105-67-9	2,4-Dimethylphenol	600	U
111-91-1	bis(2-Chloroethoxy)methane	600	U
120-83-2	2,4-Dichlorophenol	600	U
120-82-1	1,2,4-Trichlorobenzene	600	U
91-20-3	Naphthalene	600	U
106-47-8	4-Chloroaniline	600	U
87-68-3	Hexachlorobutadiene	600	U
59-50-7	4-Chloro-3-methylphenol	600	U
91-57-6	2-Methylnaphthalene	600	U
77-47-4	Hexachlorocyclopentadiene	600	U
88-06-2	2,4,6-Trichlorophenol	600	U
95-95-4	2,4,5-Trichlorophenol	2400	U
91-58-7	2-Chloronaphthalene	600	U
88-74-4	2-Nitroaniline	2400	U
131-11-3	Dimethylphthalate	600	U
208-96-8	Acenaphthylene	600	U
606-20-2	2,6-Dinitrotoluene	600	U
99-09-2	3-Nitroaniline	2400	U
83-32-9	Acenaphthene	600	U
51-28-5	2,4-Dinitrophenol	2400	U
100-02-7	4-Nitrophenol	2400	U
132-64-9	Dibenzofuran	600	U