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NAS WHITING FIELD
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DETECTION AND MONITORING PROGRAM REPORT FOR BATTERY SHOP SITE NAS WHITING FIELD FL

11/14/1985

GERAGHTY & MILLER, INC.

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DETECTION AND MONITORING PROGRAM, BATTERY SHOP SITE, NAS-WHITING FIELD

Prepared for
DEPARTMENT OF THE NAVY
Southern Division, Naval Facilities Engineering Command

November 14, 1985

Prepared by

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INTRODUCTION

On March 14, 1985, the U.S. Department of the Navy (Navy), and the State of Florida Department of Environmental Regulation (FDER) entered into a Consent Order regarding past waste disposal practices at the battery repair shop facility at the Naval Air Station Whiting Field (Figure 1). As a part of the Consent Order, Geraghty & Miller, Inc., (G&M) implemented a drilling and testing program for the Navy to evaluate impacts that disposal of waste fluids from the battery shop might have had on soils and ground waters.

Presented herein is a description of the work performed by G&M and the results of the first and second round of water-quality analyses collected from the monitor wells installed for this study.

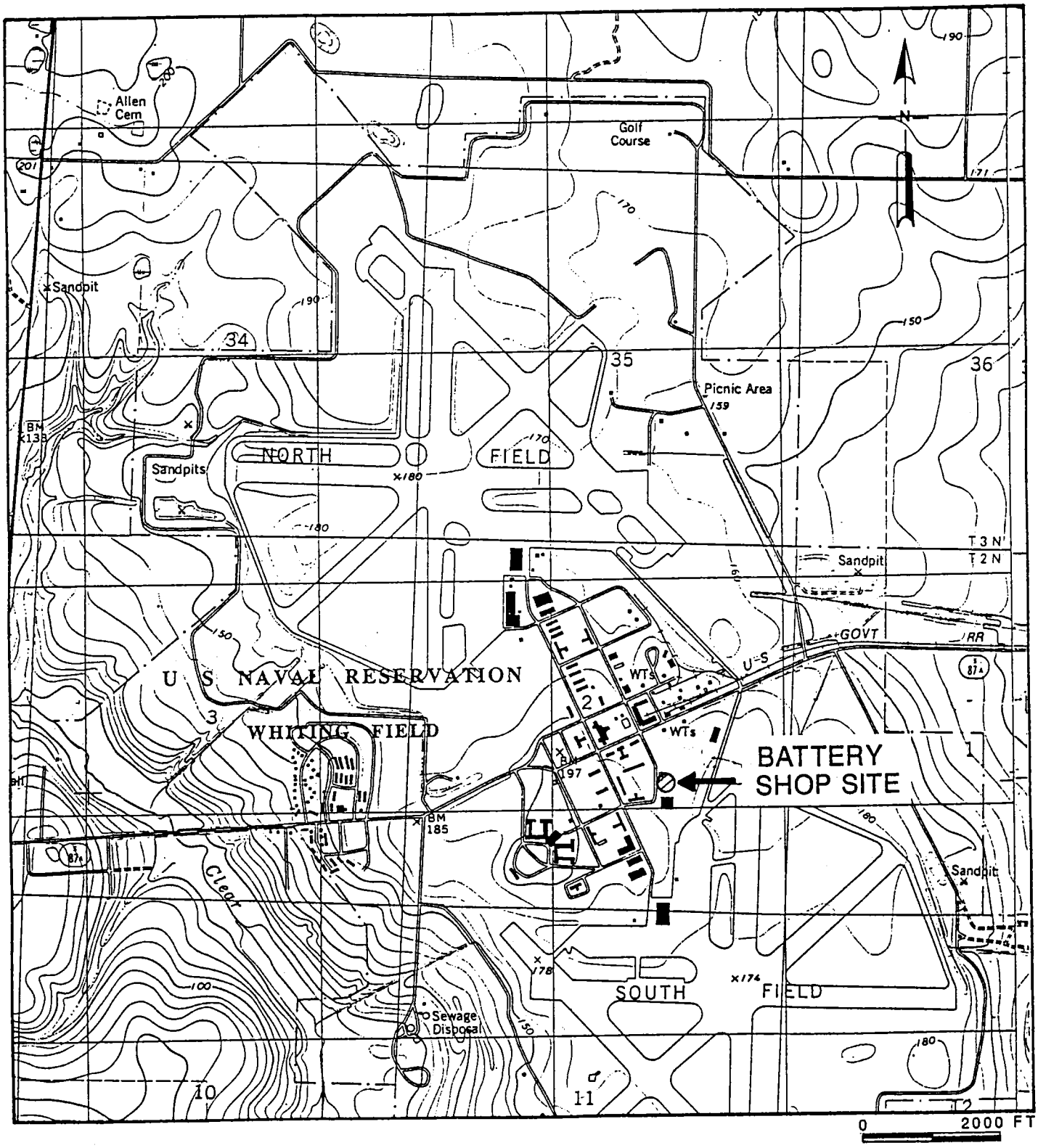

Figure 1. Location of Battery Shop Site at NAS Whiting Field.

BACKGROUND

The Naval Air Station (NAS) Whiting Field is a pilot training facility located 5 miles north of Milton, Florida. Wastes generated at Whiting Field have been disposed at a number of locations on base including a battery repair site as documented in the Initial Assessment Study that was previously performed under the Navy Assessment and Control of Installation Pollutants Program.

The battery shop (Building #1478) has been the site of waste acid or electrolyte solution disposal from 1967 until 1984. Waste solutions with sodium bicarbonate and tap water were poured down a sink which discharged to a dry well west of the building (Figure 2). The dry well consists of a section of 60-inch-diameter concrete culvert set vertically in the ground and filled with gravel. This disposal method has since been discontinued. This site is of particular concern because the dry well discharges to Class G-II ground waters (Chapter 17-3 Florida Administrative Code) and is located about 120 ft (feet) from the south production well (W-S2).

On February 9, 1984, the FDER conducted a hazardous waste compliance inspection at Whiting Field which included the battery shop. Shortly thereafter, the FDER issued Warning Notice NWHW 57-1011 to the Navy stating that "the battery electrolyte and/or wastes consisted of hazardous waste constituents and that the disposal of hazardous waste

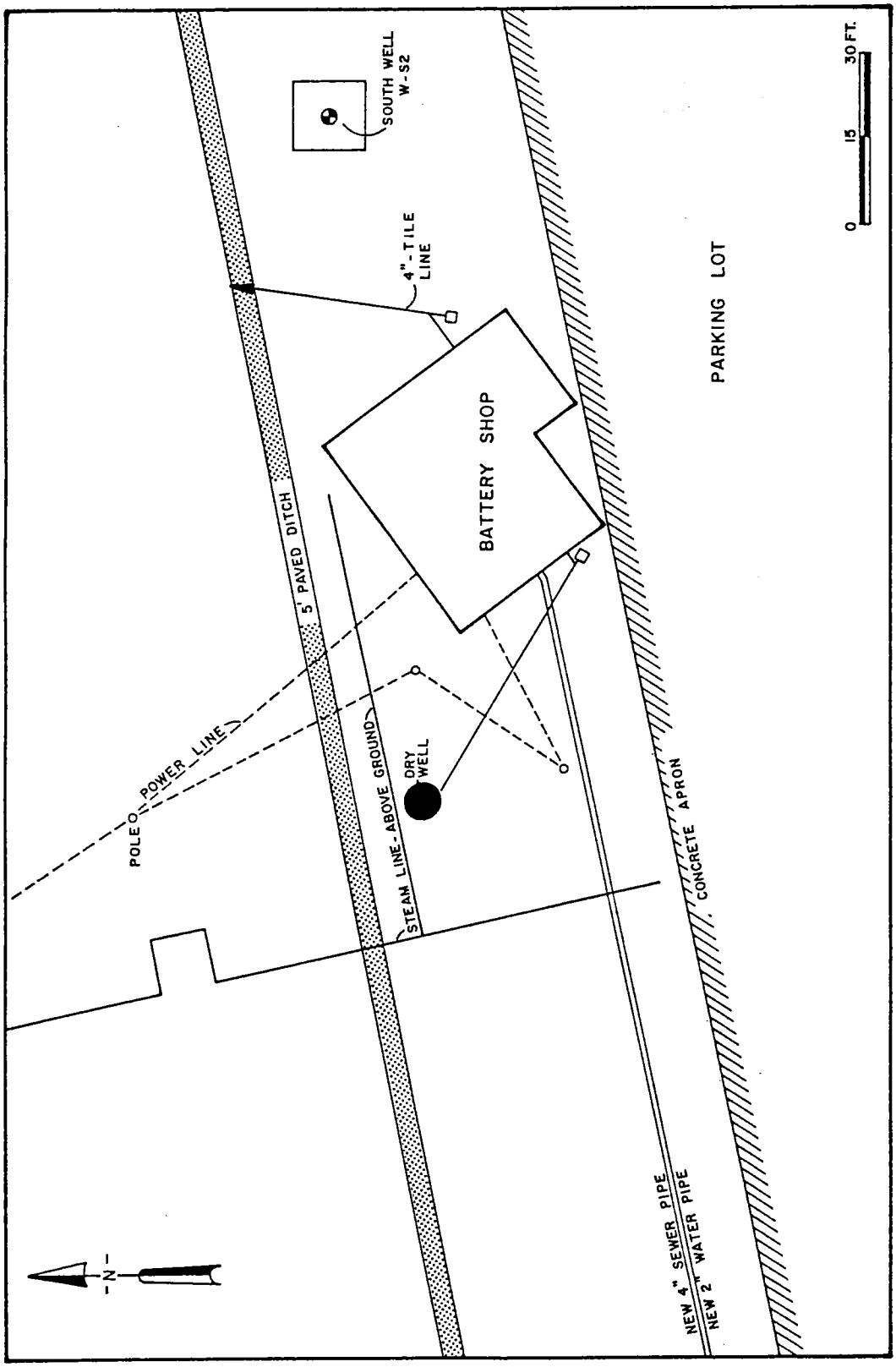

Figure 2. Site Plan of Battery Shop Area.

constituted violations of Florida Administrative Code Chapters 17-4 and 17-30, and Chapter 403, Florida Statutes."

On November 20, 1984, a meeting was held among representatives of the Navy, the FDER and G&M to discuss a program to detect potential contaminants which might be present in the soils and ground waters beneath the dry well. Specifically, the program was designed to determine if ground-water contamination had occurred in excess of FAC 17-3.402 (Minimum Criteria for Ground Water), and FAC 17-3.404 (Standards for Class G-I and G-II Ground Water) standards and criteria. Based on this meeting, G&M prepared for the Navy a document entitled "Proposed Monitoring Program for Battery Shop," dated January 1985. After submittal and review of the program by the FDER, minor modifications were amended and the program was approved in June 1985.

BASIC HYDROGEOLOGIC FRAMEWORK

Whiting Field is located on an upland area isolated on three sides by the erosion of the deep valleys of Clear Creek on the south and west, and Big Coldwater Creek on the east, both of which are tributary to Blackwater River to the south. Topographic relief from the highest part of Whiting Field to Blackwater River is almost 200 ft. The land surface elevation of the battery shop site is about 185 ft above mean sea level (msl).

The geologic sequence of layers underlying Whiting Field is illustrated in Figure 3, a composite geologic column constructed from published data and logs of well in the area. Of particular interest to this investigation are the uppermost sediments extending to a depth of about 350 ft which comprise the so-called sand and gravel aquifer. All three potable supply wells on the base tap deeper portions of this aquifer. The sand and gravel aquifer includes the upper Miocene coarse clastics, the Citronelle formation, and marine terrace deposits, three units which have similar hydraulic properties and sometimes are indistinguishable.

The aquifer consists of poorly-sorted, fine to coarse sands with gravel and lenses of clay. Lensatic zones within sands are sometimes cemented by iron oxide minerals. These lenses, known locally as "hardpan", have relatively low permeabilities, and along with clay lenses, cause perched water tables and artesian conditions to occur within the

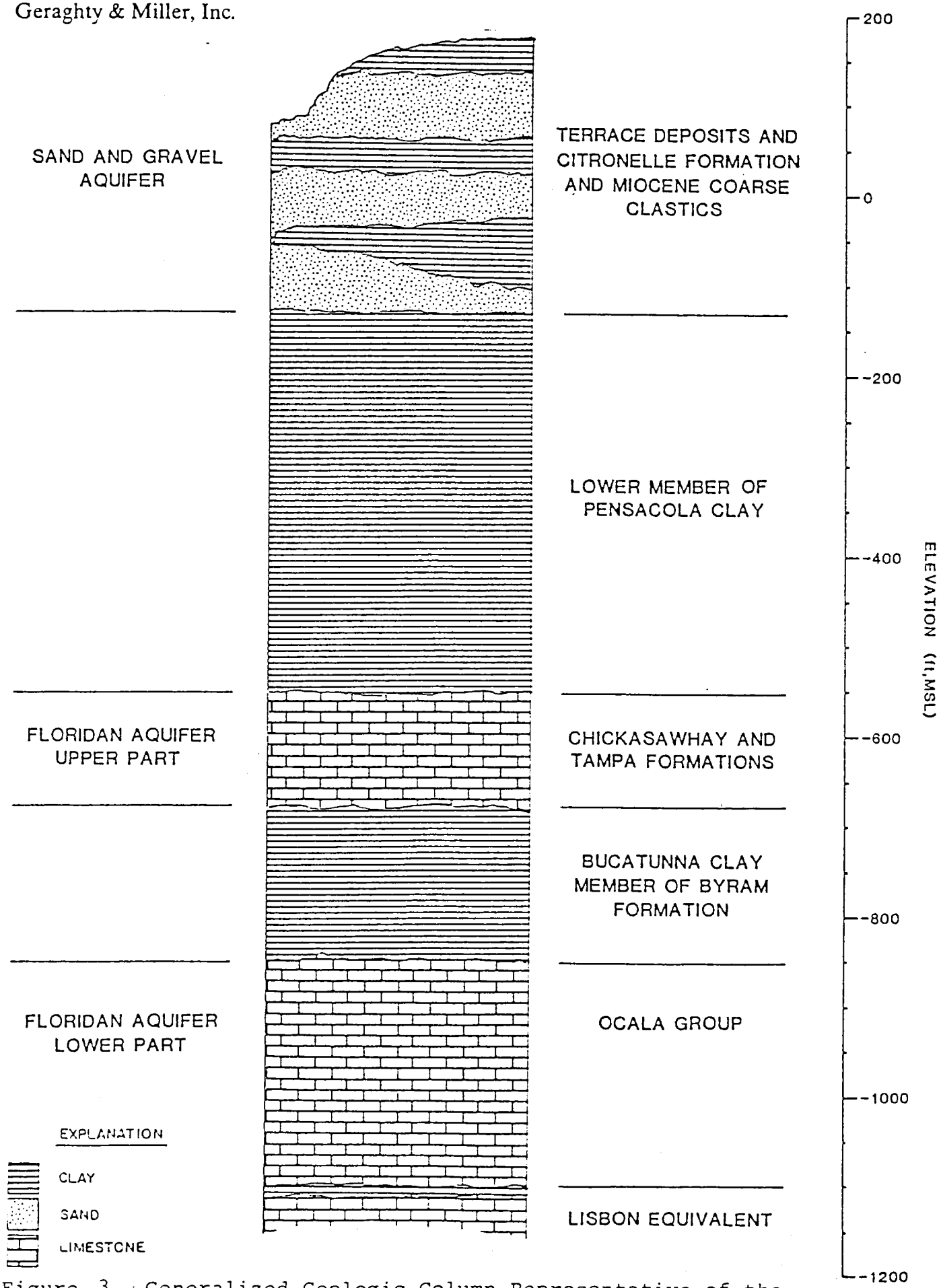

Figure 3. Generalized Geologic Column Representative of the Whiting Field Area.

aquifer. In the Whiting Field area, major clay lenses generally occur in the uppermost 30 ft and in the depth interval of approximately 110 to 170 ft (10 to 70 ft msl) (Figure 4).

Near the battery shop location, a "sandy clay" stratum in the depth interval from 155 to 173 ft (elevation 30 to 12 ft, msl) was reported on the driller's log of production well W-S2 (see Appendix A). The production well is screened below this stratum from a depths of 170 to 215 ft (15 to -30 ft, msl).

WORK PERFORMED/SITE INVESTIGATION

Soil Borings

In June 1985, G&M began the field investigative work at the battery shop site. Four soil-test borings were drilled at the locations shown in Figure 5. At each location, soil samples were collected at 5-foot intervals with either a Shelby tube or split-spoon sampler. Boring number GMW-1 was drilled adjacent to the dry well to a depth of 85 ft; borings GMW-2, GMW-3, and GMW-4 were drilled to 20 feet below land surface. These borings were abandoned by filling the boreholes with a neat cement pumped in from the bottom to land surface. During the drilling of all borings, a representative of G&M collected the soil samples and described the mineral and physical characteristics of the

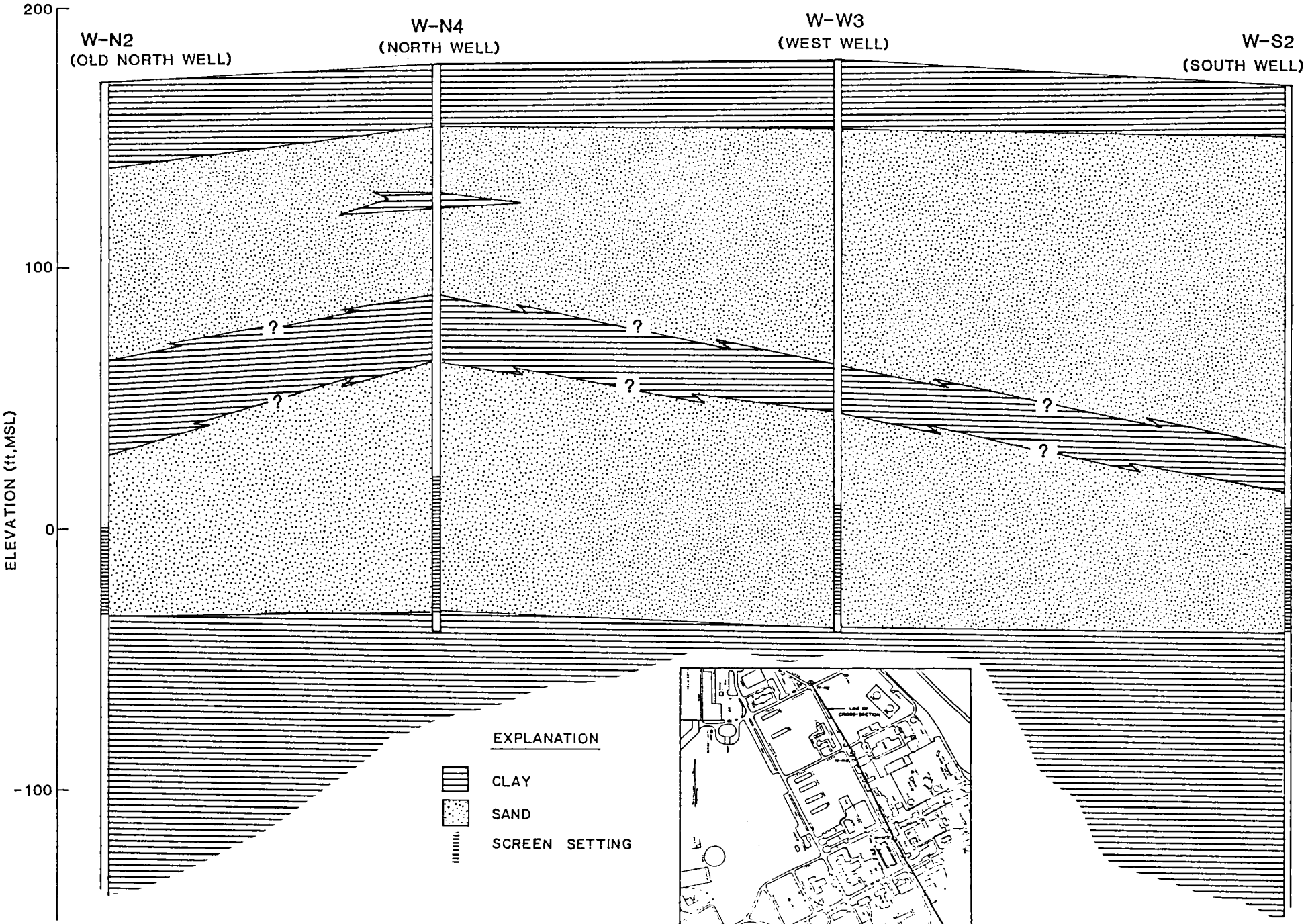

Figure 4. Generalized Schematic Diagram of Geologic Cross-Section at Whiting Field.

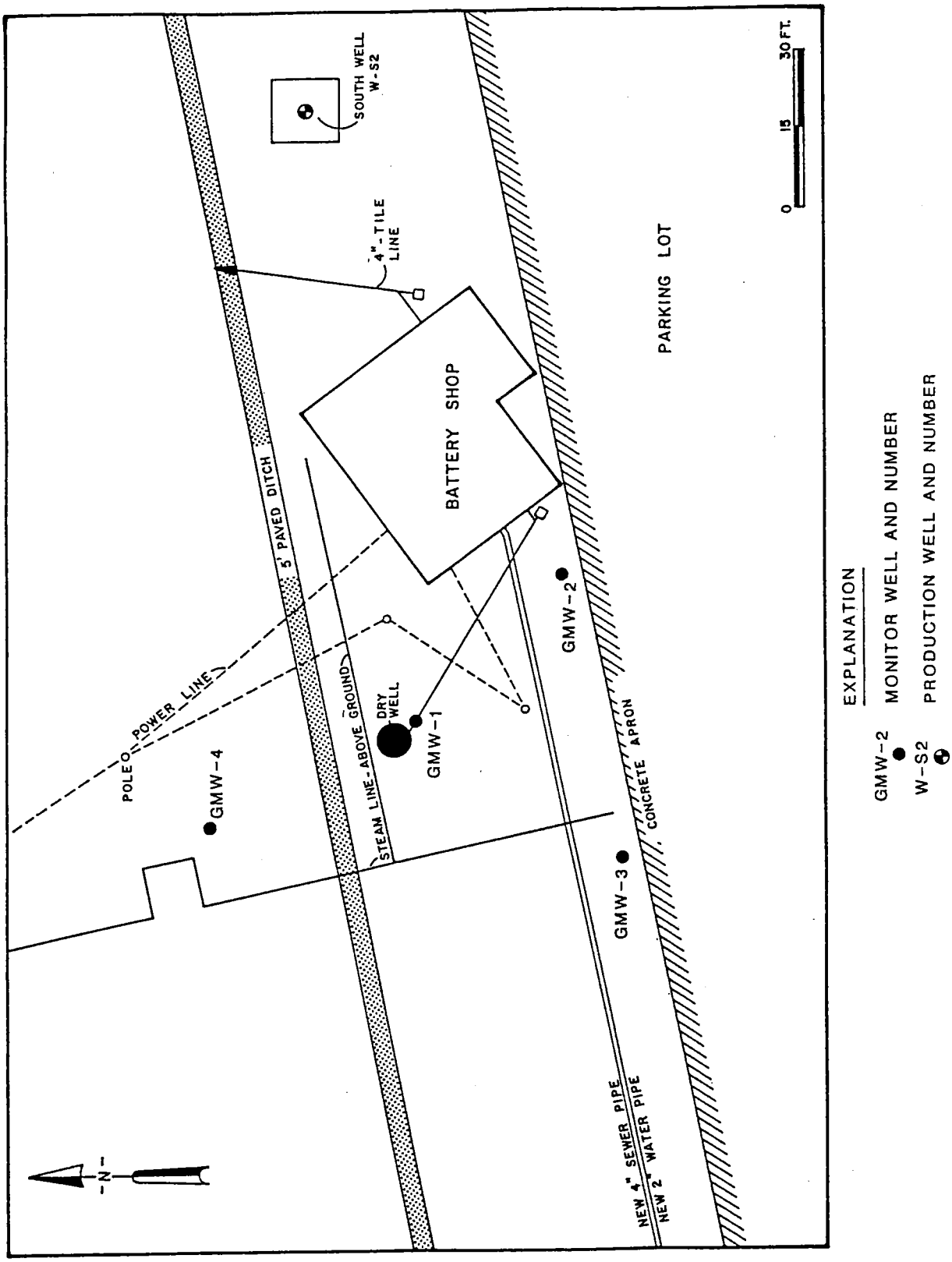

Figure 5. Locations of Borings and Monitor Wells Installed During This Investigation.

sediments encountered. Lithologic logs of the borings are presented in Appendix A.

Soil samples were submitted to a certified laboratory for analysis of pH, and total concentrations of arsenic, mercury, selenium, cadmium and lead; EP toxicity tests (40 CFR 261.24) were also performed on the same samples for the above-listed metals.

Monitor-Well Installation/Ground-Water Sampling

At each of the boring locations, a 4-inch-diameter monitor well was installed into the middle portion of the sand and gravel aquifer and presumably above a low permeability zone of clayey sediments reported from 155 ft to 173 ft in the drillers' log of Well WS-2. Monitor wells GMW-2, GMW-3, and GMW-4 were installed to total depths of 147 ft; GMW-1 was installed to a depth of 142 ft.

The wells were constructed by drilling a 10-inch-diameter borehole to the desired depth and inserting a 10-foot-long slotted PVC well screen with attached well casing. A graded sand pack (20/30 grade) was then tremied into the annular space to several feet above the top of the screen; a neat cement was then tremied to land surface. A formed-in-place concrete pad was then installed around the well at land surface with a steel security casing. Table 1 lists the construction details and surveyed elevations of both the top of the well casing and the ground surface.

Table 1. Well Construction Details
Battery Shop, Nas Whiting Field

Well Number	Land Surface Elevation (ft, msl*)	Top of Casing Elevation (ft, msl)	Total Depth (ft**)	Well Screen Interval (ft)	Sand Pack Interval (ft)
GMW-1	182.28	184.98	142	132-142	127-142
GMW-2	182.73	186.07	147	137-147	130-147
GMW-3	182.02	184.22	147	137-147	126-147
GMW-4	180.73	183.34	147	137-147	130-147
W-S2	181.84	182.92	234	170-215	150-220

* feet, above mean sea level.
** feet below land surface.

On August 10, 1985, water samples were collected from each of the four monitor wells for analysis of primary drinking-water parameters [FAC 17-22.104(1)], secondary drinking-water parameters [FAC 17-22.104(2)], EPA priority pollutants (Table II, Appendix D, 40 CFR 122), and aluminum. At the time of sampling, temperature, pH and specific conductance of the water was measured. All water-quality sampling was peformed in accordance with the FDER's "Supplement A to Standard Operating Procedures and Quality Assurance Manual, June, 1981."

On November 1, 1985, the four monitor wells were resampled for analysis of EPA priority pollutants. In addition, water samples were collected from the base supply well W-S2 and the water-treatment plant effluent. This last sample represents the finished water quality of the three on-site supply wells.

Yield Test

Since January 1985, well W-S2 had been inoperable while its pump was being repaired. On July 19, 1985, the pump was replaced and prepared for operation. A yield test (pumping test) was conducted on the south supply well (W-S2) to gain insight into the hydraulic properties of the aquifer system and to monitor for water-level responses in the newly installed monitor wells. From August 7-19, 1985, background water levels were measured in all wells. From August 19 to

25, 1985, well W-S2 was pumped at an average rate of 450 gpm (gallons per minute) to simulate routine pumping conditions. Water levels were measured in all wells before, during, and after the pump test by either an electric probe or water-level recorder.

DISCUSSION OF FINDINGS

Soils/Geology

Based on the soil samples collected at the site, the uppermost sediments to a depth of about 25 ft consist of clay with minor amounts of silt and fine sand. Underlying these surficial clayey sediments are fine to medium-grained sands with thin clay seams throughout which were found to occur to a depth of at least 150 ft during the drilling of the monitor wells. These permeable sands comprise a portion of the "sand and gravel aquifer" and were determined to be saturated below a depth of 120 ft.

The results of chemical analyses of the soil samples are presented in Appendix B. None of the sediment samples collected exceeded the maximum allowable concentrations of dissolved metals for characteristics of EP toxicity (40 CFR 261.24, Table 1). However, total concentrations of some metals (destructive analysis) were detected. At all boring locations, within the upper 25 feet of clayey sediments, concentrations of lead, arsenic, cadmium, and mercury were detected; no selenium was detected. Samples analyzed from the sandy interval of 30 to 85 ft in boring GMW-1 generally showed lesser concentrations of lead, arsenic, and mercury; cadmium and selenium were not detected.

Ground-Water Quality

The laboratory results of chemical analyses of water samples collected on August 10, 1985 from the monitor wells are presented in Appendix C, and on November 1, 1985 in Appendix D. Typical of the sand and gravel aquifer, the ground water was determined to be soft (total hardness 8 to 16 mg/l[milligrams per liter]), low in total dissolved solids (20 to 43 mg/l), acidic (pH 5.4 to 5.8), and contains elevated concentrations of iron and manganese.

No primary drinking-water standards were exceeded in the monitor wells except for benzene. The concentrations detected for the two sampling events are shown in Figure 6. In addition, initial sampling detected residual pesticides in wells GMW-1 (aldrin at 0.13 ug/l and heptachlor at 0.04 ug/l), and GMW-3 (g-BHC at 0.02 ug/l and heptachlor at 0.02 ug/l). Organic compounds were detected in well GMW-2 (2-nitrophenol at 80 ug/l), and well GMW-4 (2-nitrophenol at 410 ug/l and 2-4 dichlorophenol at 20 ug/l). However, upon resampling the wells, all these compounds were not detected.

The analyses of the one-time sampling of well W-S2 only detected trichloroethene at 4 ug/l; also, 7 ug/l trichloroethene was detected in the water-treatment effluent.

The initial analyses for dissolved aluminum in wells GMW-1 and GMW-3 were 15.4 mg/l and 4.3 mg/l, respectively;

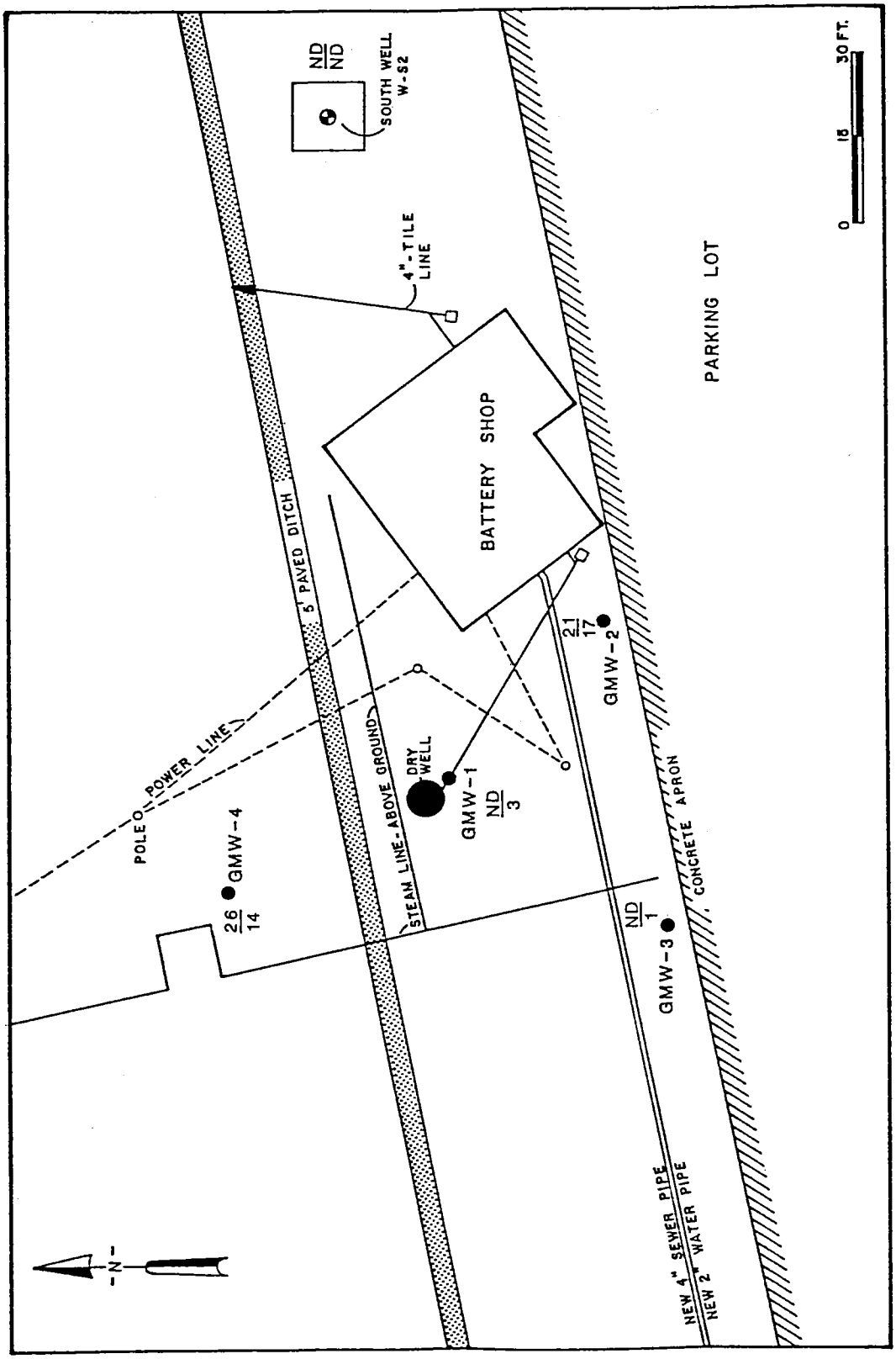

Figure 6. Concentrations of Benzene in Ground-Water Samples.

samples from the other two monitor wells were 0.20 and 0.27 mg/l. The relatively high values of aluminum found in the water collected from wells GMW-1 and GMW-3 are suspect due to the fact that dissolved aluminum rarely occurs above 1 mg/l in natural waters, even at the prevailing pH that was measured. It is believed that the water samples might have contained suspended colloidal clay; for instance, GMW-1 had a turbidity of 140 NTU and a color value of 400 color units. It is postulated that aluminum ions may have been stripped from the clay particles by the acid preservative in the sample bottles, resulting in the relatively high aluminum concentrations. Upon resampling the monitor wells, well W-S2, and the finished water supply of the base, aluminum concentrations were all below the detection limit of 1 mg/l.

Hydrologic Testing

Hydrographs of water levels in the monitor wells before, during, and after the yield test of well W-S2 are shown in Figure 7. Static water levels measured in the monitor wells (Figure 8) indicate a very slight ground-water gradient of only a few hundredths of a foot to the south.

The maximum drawdown in production well WS-2 was 30.25 ft after seven days of pumping. This indicates an estimated aquifer transmissivity of about 30,000 gpd/ft. In comparison, the following total drawdowns were recorded in the monitor wells: GMW-1, 1.41 ft; GMW-2, 1.29 ft; GMW-3, 1.39 ft; and GMW-4, 1.48 ft. The water-level drawdowns

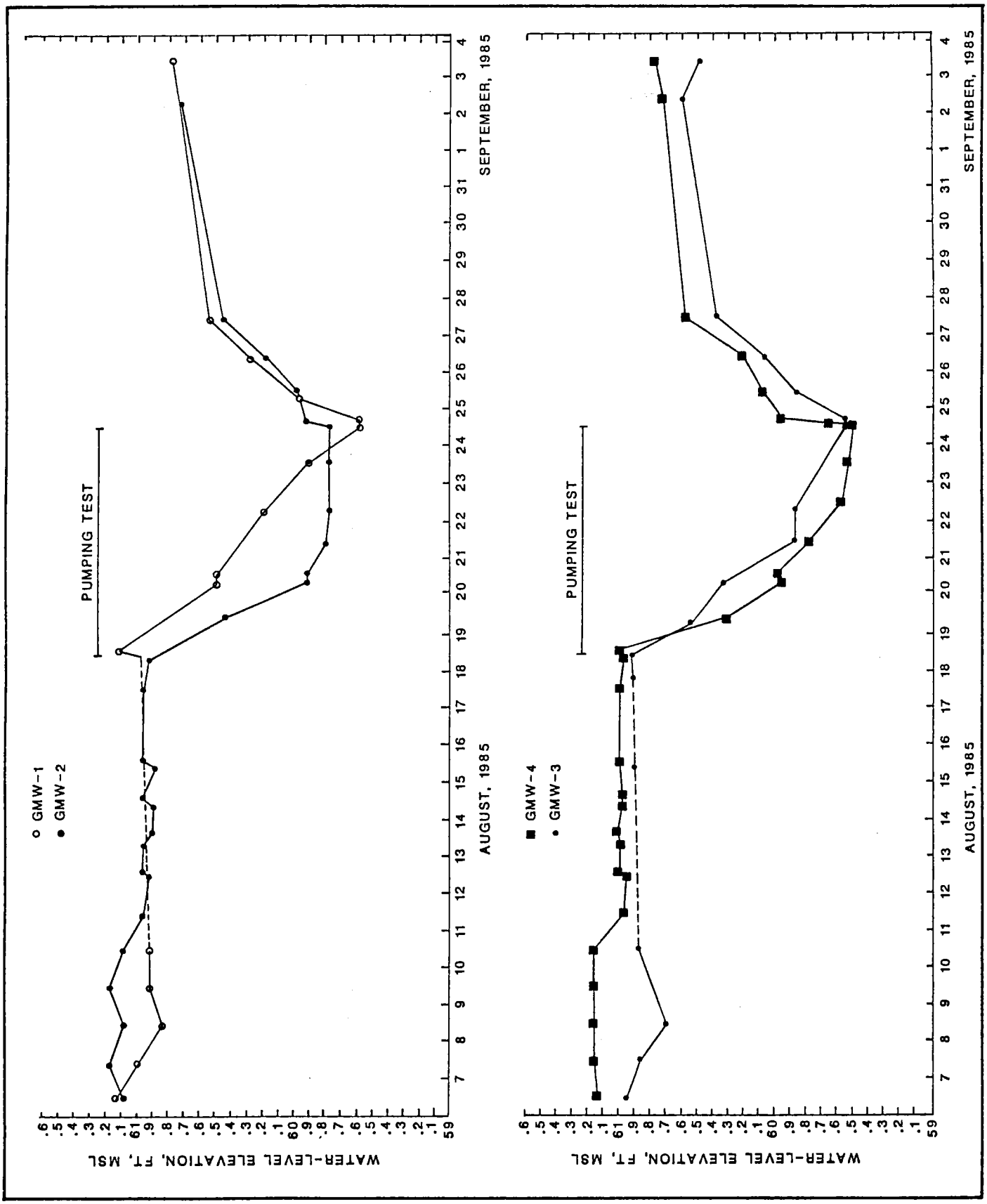

Figure 7. Hydrographs of Monitor Wells GMW-1, GMW-2, GMW-3, GMW-4.

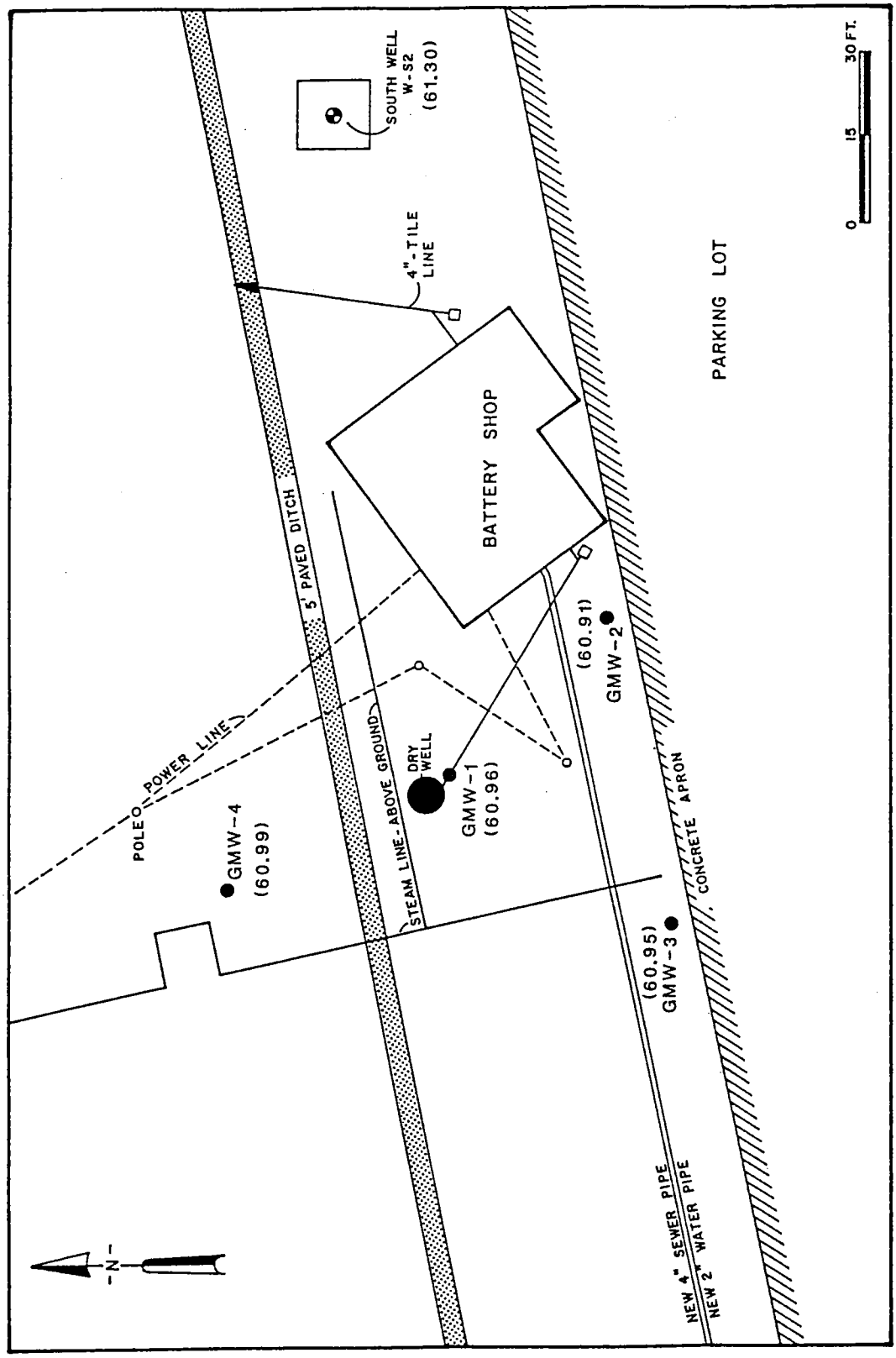

Figure 8. Static Ground-Water Levels on August 19, 1985.

measured in the monitor wells suggest that the zones tapped by the monitor wells (132 ft to 147 ft bls) and the production well W-S2 (170 ft to 215 ft) are hydraulically connected to some degree, although the flow between these zones would be impeded by the clayey sediments reported in the lithologic log of the production well.

CONCLUSIONS AND RECOMMENDATIONS

The results of the detection and monitoring program indicated that the ground-water quality and the soils in the vicinity of the battery shop has not been adversely impacted by metals or other chemicals believed to be associated with past discharges to the dry well. However, organic compounds, particularly benzene in monitor wells GMW-2 and GMW-4, are present in relatively low concentrations; the source of the benzene in the ground water is not known. Analyses from supply well W-S2 and the water-treatment plant effluent indicate the presence of low concentrations of trichloroethene, the source of which is also unknown. It should be noted, however, that a previous analysis of the water-treatment plant effluent, submitted to the FDER, did not detect any organic compounds ("Proposed Monitoring Program for Battery Shop, NAS Whiting Field, Florida," January 1985, Geraghty & Miller, Inc.).

The concentrations of benzene and trichloroethene exceed the State's drinking water standards of 1 ug/l and 3 ug/l, respectively [FAC 17-22.104(1)(g)]. Because of this, G&M recommends that a year-long water-quality monitoring program be initiated immediately for all four monitor wells, supply well W-S2 and the finished water supply of the base.

With regard to the trichloroethene detected in the finished water supply of the base, FAC 17-22.105(1)(g) states that:

> "If a sample analysis exceeding the MCL occurs, two additional samples shall be collected and confirmed by GC/MS within one month. If the average value of the three sample results exceeds the MCL, quarterly sampling will be required until two consecutive sample results do not exceed the MCL value."

These analyses will be performed in accordance with EPA Method 624.

With regard to the monitor wells and well W-S2, initially, samples should be collected and analyzed monthly for the first quarter. These samples should be analyzed by EPA Methods 624, 625, and 608 to include acid/base neutral extractable compounds, volatiles and pesticides. A decision would then be made whether or not to discontinue analyses of certain parameters for the remainder of the year on a quarterly basis. The chemical data collected during this one-year sampling and analysis program will be correlated and considered with the findings of the on-going Navy Assessment and Control of Installation Pollutants program which is designed to identify contamination of the entire Navy base resulting from past operations and to institute corrective measures, as needed.

APPENDIX A

Lithologic Logs of Soil-Test Borings
at the Battery Shop Site and
Driller's Log of Well W-S2

TABLE A-1. LITHOLOGIC LOG FOR BORING GMW-1

Description	Depth (ft)
Sand, fine grained, red-orange.....	0 - 1
Clay, minor amounts of silt and fine sand, red-orange (Shelby tube).....	1 - 5
Clay, minor amounts of silt and fine sand, red-orange (Shelby tube).....	5 - 10
Clay, minor amounts of silt and fine sand, red orange (Shelby tube).....	10 - 15
Clay, minor amounts of silt and fine sand, red orange (Shelby tube).....	15 - 20
Clay, minor amounts of silt and fine sand, red orange (Shelby tube).....	20 - 28
NOTE: The following samples were collected with a split-spoon sampler	
Sand, very fine to fine grained, tan	28 - 30
Sand, very fine to fine grained, tan	30 - 35
Sand, very fine to fine grained, tan	35 - 40
Sand, fine to medium grained, buff; clay seams, white to gray	40 - 45
Sand, fine to medium grained, buff; clay seams, white to gray	45 - 50
Sand, fine to medium grained, buff; clay seams, white to gray	50 - 55
Sand, medium grained, buff	55 - 60
Sand, medium to coarse grained, buff.....	60 - 65
Sand, medium grained; clay seams, buff to gray	65 - 70
Sand, medium grained; clay seams, buff to gray	70 - 75

Sand, medium grained; clay seams, buff to gray	75 - 80
Sand, medium grained; clay seams, buff to gray	80 - 85

TABLE A-2. LITHOLOGIC LOG FOR BORING GMW-2

Description	Depth (ft)
Clay, minor amounts of silt and very fine sand, red-orange (Shelby tube).....	0 - 5
Clay, minor amounts of silt and very fine sand, red-orange (Shelby tube).....	5 - 10
Clay, minor amounts of silt and very fine sand, red-orange (Shelby tube).....	10 - 15
Clay, minor amounts of silt and very fine sand, red-orange (Shelby tube).....	15 - 20

TABLE A-3. LITHOLOGIC LOG FOR BORING GMW-3

Description	Depth (ft)
Clay, minor amounts of silt and fine sand, red-orange, (Shelby tube).....	0 - 5
Clay, minor amounts of silt and fine sand, red-orange, (Shelby tube).....	5 - 10
Clay, minor amounts of silt and fine sand, red-orange, (Shelby tube).....	10 - 15
Clay, minor amounts of silt and fine sand, red-orange, (Shelby tube).....	15 - 20

TABLE A-4. LITHOLOGIC LOG FOR BORING GMW-4

Description	Depth (ft)
Clay, minor amounts of silt and very fine sand, red-orange (Shelby tube).....	0 - 5
Clay minor amounts of silt and very fine sand, red-orange (Shelby tube).....	5 - 10
Clay minor amounts of silt and very fine sand, red-orange (Shelby tube).....	10 - 15
Clay minor amounts of silt and very fine sand, red-orange (Shelby tube).....	15 - 20

TABLE A-5. LITHOLOGIC LOG OF NAS SOUTH SUPPLY WELL

Well designation: W-S2
Surface elevation: 181.5 ft msl

Depth (ft)	Description	Elevation (ft msl)
0 - 27	Red sandy clay	181 - 154
27 - 66	Sand and clay balls	154 - 115
66 - 88	Sand	115 - 93
88 - 110	Pack sand	93 - 71
110 - 121	Sand and clay balls	71 - 60
121 - 133	Fine pack sand	60 - 48
133 - 146	Pack sand	48 - 35
146 - 148	Clay	35 - 33
148 - 155	Loose sand and gravel	33 - 26
155 - 173	Soft sandy clay	26 - 8
173 - 197	Pack sand and soft streaks	8 - (-16)
197 - 215	Pack sand	(-16) - (-34)
215 - 245	Yellow clay	(-34) - (-64)
245 - 251	Rock	(-64) - (-70)
251 - 255	Clay	(-70) - (-74)
255 - 273	Red sandy clay	(-74) - (-92)
273 - 340	Sandy shale	(-92) - (-159)

APPENDIX B

Chemical Analyses of Soil Samples

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD
PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

To: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Florida 33618

Reports To Be Mailed To:
Ralph Moon

Lab I.D. # 85-1724
Date of Order: June 24, 1985
Date Completed: July 17, 1985
Sample Location: GMW -1-4

E.P. Toxicity

Pioneer I.D.	G & M I.D.	Feet	Arsenic	Mercury	Selenium	Cadmium	Lead
85-1724-1	GMW-1	0	<0.005	0.0010	<0.010	<0.01	<0.10
85-1724-2	GMW-1	5	<0.005	0.0008	<0.010	<0.01	<0.10
85-1724-3	GMW-1	10	<0.005	0.0007	<0.010	0.01	<0.10
85-1724-4	GMW-1	15	<0.005	0.0003	<0.010	<0.01	<0.10
85-1724-5	GMW-1	20	<0.005	<0.0001	<0.010	<0.01	<0.10
85-1724-6	GMW-1	25	0.008	<0.0001	<0.010	<0.01	<0.10
85-1724-7	GMW-1	30	<0.005	0.0001	<0.010	<0.01	<0.10
85-1724-8	GMW-1	35	<0.005	0.0002	<0.010	<0.01	<0.10
85-1724-9	GMW-1	40	<0.005	0.0004	<0.010	<0.01	<0.10
85-1724-10	GMW-1	45	<0.005	<0.0001	<0.010	<0.01	<0.10
85-1724-11	GMW-1	50	<0.005	0.0028	<0.010	<0.01	<0.10
85-1724-12	GMW-1	55	<0.005	0.0006	<0.010	<0.01	<0.10
85-1724-13	GMW-1	60	<0.005	<0.0001	<0.010	<0.01	<0.10
85-1724-14	GMW-1	65	<0.005	<0.0001	<0.010	<0.01	<0.10
85-1724-15	GMW-1	70	<0.005	<0.0001	<0.010	<0.01	<0.10
85-1724-16	GMW-1	75	<0.005	0.0006	<0.010	<0.01	<0.10
85-1724-17	GMW-1	80	<0.005	0.0006	<0.010	<0.01	<0.10
85-1724-18	GMW-1	85	<0.005	0.0008	<0.010	<0.01	<0.10
85-1724-19	GMW-2	5.0-7.0	<0.005	0.0005	<0.010	<0.01	<0.10
85-1724-20	GMW-2	10.0-12.5	<0.005	<0.0001	<0.010	<0.01	<0.10
85-1724-21	GMW-2	15.0-17.5	<0.005	0.0005	<0.010	<0.01	<0.10
85-1724-22	GMW-2	20.5-22.5	<0.005	0.0005	<0.010	<0.01	<0.10
85-1724-23	GMW-3	5.0-7.5	<0.005	0.0040	<0.010	<0.01	<0.10
85-1724-24	GMW-3	10.0-12.0	<0.005	0.0007	<0.010	<0.01	<0.10
85-1724-25	GMW-3	15.0-17.0	<0.005	0.0013	<0.010	<0.01	<0.10
85-1724-26	GMW-3	19.0-21.0	<0.005	0.0011	<0.010	<0.01	<0.10
85-1724-27	GMW-4	5.0-7.5	<0.005	0.0008	<0.010	<0.01	0.10
85-1724-28	GMW-4	10.0-12.0	<0.005	<0.0001	<0.010	<0.01	<0.10
85-1724-29	GMW-4	15.0-17.0	<0.005	0.0015	<0.010	<0.01	<0.10
85-1724-30	GMW-4	19.0-21.0	<0.005	0.0005	<0.010	<0.01	<0.10

Note: Results are reported in mg/l.
< = less than.

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD
PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

To: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Florida 33618

Reports To Be Mailed To:
Ralph Moon

Lab I.D. # 85-1724.1
Date of Order: June 24, 1985
Date Completed: August 15, 1985
Sample Location: T290WH1

Approved by W. E. Bowers
W. E. Bowers

Total Solids & Metals Analysis

Pioneer I.D.	G & M I.D.	Feet	Total Solids	Arsenic	Mercury	Selenium	Cadmium	Lead
85-1724-1	GMW-1	0	95.7	1.27	0.031	<0.02	0.17	24
85-1724-2	GMW-1	5	87.2	0.88	0.030	<0.02	0.29	7.90
85-1724-3	GMW-1	10	89.2	1.40	0.017	<0.02	0.18	6.73
85-1724-4	GMW-1	15	89.6	0.59	0.019	<0.02	<0.10	5.33
85-1724-5	GMW-1	20	91.0	0.74	0.011	<0.02	<0.10	2.00
85-1724-6	GMW-1	25	85.6	0.80	0.030	<0.02	<0.10	0.90
85-1724-7	GMW-1	30	83.9	<0.10	0.212	<0.02	<0.10	<0.10
85-1724-8	GMW-1	35	81.1	<0.10	0.070	<0.02	<0.10	<0.10
85-1724-9	GMW-1	40	85.6	<0.10	0.067	<0.02	<0.10	0.60
85-1724-10	GMW-1	45	---	---	---	---	---	---
85-1724-11	GMW-1	50	85.7	<0.10	0.005	<0.02	<0.10	<0.1
85-1724-12	GMW-1	55	82.3	<0.10	0.005	<0.02	<0.10	<0.1
85-1724-13	GMW-1	60	84.4	0.38	0.027	<0.02	<0.01	1.60
85-1724-14	GMW-1	65	85.5	0.39	0.013	<0.02	<0.01	<0.1
85-1724-15	GMW-1	70	82.4	0.41	0.012	<0.02	<0.10	<0.1
85-1724-16	GMW-1	75	83.5	0.24	0.018	<0.02	<0.10	1.80
85-1724-17	GMW-1	80	86.9	0.26	0.014	<0.02	<0.10	2.00
85-1724-18	GMW-1	85	88.5	0.26	0.020	<0.02	<0.10	1.72
85-1724-19	GMW-2	5.0-7.0	88.3	2.00	0.020	<0.02	0.55	11.50
85-1724-20	GMW-2	10.0-12.5	---	---	---	---	---	---
85-1724-21	GMW-2	15.0-17.5	90.5	1.99	<0.005	<0.02	0.34	7.10
85-1724-22	GMW-2	20.5-22.5	91.5	2.62	0.023	<0.02	0.17	4.32
85-1724-23	GMW-3	5.0-7.5	90.7	1.86	0.036	<0.02	0.45	10.9
85-1724-24	GMW-3	10.0-12.0	---	---	---	---	---	---
85-1724-25	GMW-3	15.0-17.0	91.0	1.14	<0.005	<0.02	0.33	6.53
85-1724-26	GMW-3	19.0-21.0	90.9	0.76	0.007	<0.02	0.17	7.20
85-1724-27	GMW-4	5.0-7.5	90.7	1.87	0.010	<0.02	0.48	11.7
85-1724-28	GMW-4	10.0-12.0	---	---	---	---	---	---
85-1724-29	GMW-4	15.0-17.0	91.6	1.35	0.023	<0.02	0.28	7.20
85-1724-30	GMW-4	19.0-21.0	91.7	1.00	0.005	<0.02	0.23	6.30

Note: Results are reported in mg/kg on dry basis. Total Solids reported in %
< = less than

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Florida 33618

Lab I.D. #85-1724

Date of Order: June 24, 1985
Sample Location: GMW 1-4

ATTENTION: Bill Valekaski

Report of Analysis

Pioneer I.D.	G & M I.D.	Feet	pH
85-1724-1	GMW-1	0	6.62
85-1724-2	GMW-1	5	6.41
85-1724-3	GMW-1	10	6.05
85-1724-4	GMW-1	15	5.74
85-1724-5	GMW-1	20	5.69
85-1724-6	GMW-1	25	5.54
85-1724-7	GMW-1	30	6.40
85-1724-8	GMW-1	35	7.05
85-1724-9	GMW-1	40	5.98
85-1724-10	GMW-1	45	7.98
85-1724-11	GMW-1	50	7.58
85-1724-12	GMW-1	55	7.27
85-1724-13	GMW-1	60	8.58
85-1724-14	GMW-1	65	8.27
85-1724-15	GMW-1	70	8.25
85-1724-16	GMW-1	75	7.63
85-1724-17	GMW-1	80	8.68
85-1724-18	GMW-1	85	8.25
85-1724-19	GMW-2	5.0-7.0	7.33
85-1724-20	GMW-2	10.0-12.5	7.33
85-1724-21	GMW-2	15.0-17.5	6.88
85-1724-22	GMW-2	20.5-22.5	7.52
85-1724-23	GMW-3	5.0-7.5	8.08
85-1724-24	GMW-3	10.0-12.0	6.55
85-1724-25	GMW-3	15.0-17.0	8.52
85-1724-26	GMW-3	19.0-21.0	6.09
85-1724-27	GMW-4	5.0-7.5	5.77
85-1724-28	GMW-4	10.0-12.0	6.34
85-1724-29	GMW-4	15.0-17.0	5.70
85-1724-30	GMW-4	19.0-21.0	5.55

Note: Results are reported in mg/l.
< = less than.

Approved by W. F. Bowers
W. F. Bowers
President/Manager

APPENDIX C

Chemical Analyses of Water Samples
From Monitor Wells Collected on August 10, 1985

Table C-1. Water Quality Parameters Measured in the Field.

Constituent	Monitor Well Numbers			
	GMW-1	GMW-2	GMW-3	GMW-4
Specific Conductance (umhos/cm)*	55	45	50	<50
pH	5.8	5.6	5.6	5.4
Temperature ^{o}C	22	22	22	22

* micromhos per centimeter

Table C-2. Water-Quality Data, Well GMW-1.

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2217

PRIORITY POLLUTANTS ANALYSES

COVER SHEET FOR RESULTS

Client: Geraghty & Miller
13902 N. Dale Mabry Highway
Tampa, Fla. 33618

Collector: Bob Baker

Sample Site: GMW #1

Date and Time Collected: 8-10-85

Date and Time Samples Received: 8-12-85 8:20 am

Analysts: David Anthony, David Bowers & Nancy Funk

Date Analyses Started: 8-16-85 **Date Analyses Completed:** 9-13-85

Date Reported: 9-16-85

Laboratory I.D. No.: 81142

Table C-2 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2217

PRIORITY POLLUTANT ANALYSIS*

ACID EXTRACTABLES

GMW #1

		Reported in ppb	Detection Limit ppb
1A	2-Chlorophenol	BDL	15
2A	2,4-Dichlorophenol	BDL	10
3A	2,4-Dimethylphenol	BDL	5
4A	4,6-Dinitro-o-Cresol	BDL	50
5A	2,4-Dinitrophenol	BDL	30
6A	2-Nitrophenol	BDL	10
7A	4-Nitrophenol	BDL	20
8A	p-Chloro-m-Cresol	BDL	25
9A	Pentachlorophenol	BDL	30
10A	Phenol	BDL	5
11A	2,4,6-Trichlorophenol	BDL	20

*EPA Method 604 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater,** EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-2 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2217

PRIORITY POLLUTANT ANALYSIS*

BASE NEUTRAL EXTRACTABLES

GMW #1

		Reported in ppb	Detection Limit ppb			Reported in ppb	Det Lin ppb
1B	Acenaphthene	BDL	10	24B	Diethylphthalate	BDL	10
2B	Acenaphthylene	BDL	10	25B	Dimethylphthalate	BDL	10
3B	Anthracene	BDL	10	26B	Di-n-Butyl Phthalate	BDL	10
4B	Benzidine	BDL	10	27B	2,4-Dinitrotoluene	BDL	10
5B	Benzo(a)anthracene	BDL	10	28B	2,6-Dintrotoluene	BDL	10
6B	Benzo(a)pyrene	BDL	10	29B	Di-n-Octyl-Phthalate	BDL	10
7B	3,4-Benzofluoranthene	BDL	10	30B	1,2-Diphenylhydrazine	BDL	10
8B	Benzo(ghi)perylene	BDL	10	31B	Fluoranthene	BDL	10
9B	Benzo(k)fluoranthane	BDL	10	32B	Fluorene	BDL	10
10B	Bis(2-chloroethoxy)methane	BDL	10	33B	Hexachlorobenzene	BDL	10
11B	Bis(2-chloroethyl)ether	BDL	10	34B	Hexachlorobutadiene	BDL	10
12B	Bis(2-chloroisopropyl)ether	BDL	10	35B	Hexachlorocyclopentadiene	BDL	10
13B	Bis(2-ethylhexyl)phthalate	BDL	10	36B	Hexachloroethane	BDL	10
14B	4-Bromophenyl Phenyl Ether	BDL	10	37B	Indeno(1,2,3-cd)pyrene	BDL	10
15B	Butylbenzyl Phthalate	BDL	10	38B	Isophorone	BDL	10
16B	2-Chloronaphthalene	BDL	10	39B	Naphthalene	BDL	10
17B	4-Chlorophenyl Phenyl Ether	BDL	10	40B	Nitrobenzene	BDL	10
18B	Chrysene	BDL	10	41B	N-Nitrosodimethylamine	BDL	10
19B	Dibenzo(a,h)anthracene	BDL	25	42B	N-Nitrosodi-n-propylamine	BDL	10
20B	1,2-Dichlorobenzene	BDL	10	43B	N-Nitrosodiphenylamine	BDL	10
21B	1,3-Dichlorobenzene	BDL	10	44B	Phenanthrene	BDL	10
22B	1,4-Dichlorobenzene	BDL	10	45B	Pyrene	BDL	10
23B	3,3-Dichlorobenzidine	BDL	10	46B	1,2,4-Trichlorobenzene	BDL	10

*EPA Method 625 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater**, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limit

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-2 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2217

PRIORITY POLLUTANT ANALYSIS*

PESTICIDES

GMW #1

		Reported in ppb	Detection Limit ppb
1P	Aldrin	0.13	0.01
2P	a-BHC	BDL	0.01
3P	b-BHC	BDL	0.01
4P	g-BHC	BDL	0.01
5P	d-BHC	BDL	0.01
6P	Chlorodane	BDL	0.01
7P	4,4'-DDT	BDL	0.01
8P	4,4'-DDE	BDL	0.01
9P	4,4'-DDD	BDL	0.01
10P	Dieldrin	BDL	0.01
11P	a-Endosulfan I	BDL	0.01
12P	b-Endosulfan II	BDL	0.01
13P	Endosulfan Sulfate	BDL	0.01
14P	Endrin	BDL	0.01
15P	Endrin Aldehyde	BDL	0.07
16P	Heptachlor	BDL	0.03
17P	Heptachlor Epoxide	0.04	0.01
18P	PCB-1242	BDL	0.01
19P	PCB-1254	BDL	0.2
20P	PCB-1221	BDL	0.2
21P	PCB-1232	BDL	0.2
22P	PCB-1248	BDL	0.2
23P	PCB-1260	BDL	0.2
24P	PCB-1016	BDL	0.2
25P	Toxaphene	BDL	1

*EPA Method 608 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater**, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-2 Continued

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2217

PRIORITY POLLUTANT ANALYSIS*

VOLATILES

GMW #1

		Reported in ppb	Detection Limit ppb
1V	Acrolein	BDL	100
2V	Acrylonitrile	BDL	100
3V	Benzene	BDL	1
4V	Bis(chloromethyl)ether	BDL	5
5V	Bromoform	BDL	5
6V	Carbon Tetrachloride	BDL	3
7V	Chlorobenzene	BDL	1
8V	Chlorodibromomethane	BDL	5
9V	Chloroethane	BDL	5
10V	2-Chloroethylvinyl Ether	BDL	5
11V	Chloroform	BDL	5
12V	Dichlorobromomethane	BDL	5
13V	Dichlorodifluoromethane	BDL	5
14V	1,1-Dichloroethane	BDL	5
15V	1,2-Dichloroethane	BDL	3
16V	1,1-Dichloroethylene	BDL	5
17V	1,2-Dichloropropane	BDL	5
18V	1,2-Dichloropropylene	BDL	5
19V	Ethylbenzene	BDL	1
20V	Methyl Bromide	BDL	5
21V	Methyl Chloride	BDL	5
22V	Methylene Chloride	BDL	5
23V	1,1,2,2-Tetrachloroethane	BDL	5
24V	Tetrachloroethylene	BDL	3
25V	Toluene	BDL	1
26V	1,2-trans-Dichloroethylene	BDL	5
27V	1,1,1-Trichloroethane	BDL	5
28V	1,1,2-Trichloroethane	BDL	5
29V	Trichloroethylene	BDL	1
30V	Trichlorofluoromethane	BDL	5
31V	Vinyl Chloride	BDL	1

*EPA Method 624 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.**

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers

Table C-2 Continued

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2217

GMW #1
PRIORITY POLLUTANT ANALYSIS

Priority Pollutant Compound	Sample Identification Priority Pollutant Concentration, ppm
Metals, Cyanide and Phenols	
1M Antimony	0.11
2M Arsenic	< 0.001
3M Beryllium	< 0.01
4M Cadmium	0.003
5M Chromium	0.020
6M Copper	0.028
7M Lead	0.037
8M Mercury	< 0.0001
9M Nickel	< 0.0001
10M Selenium	< 0.001
11M Silver	< 0.001
12M Thallium	< 0.1
13M Zinc	0.36
14 Cyanide	< 0.005
15 Phenols	< 0.001

ppm = parts per million
< = less than

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-2 Continued

Client: Geraghty & Miller

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

I.D. # 85-2217

DRINKING WATER CHEMICAL ANALYSIS

System Name: _____ County: _____ Collector: Bob Baker

Address _____ System I.D. No. _____ DER District _____

Sample Site: GMW #1 Raw or Treated: _____ Temperature _____

Date and Time Collected: 8-10-85 Field Chlorine, mg/1: _____ Field pH: _____

Circle one: 40. Community public water system 41. Non-community public water system 42. Other public water system 43. Private water system

Circle one: 1. Compliance 2. Recheck 3. Other (indicate below parameters to be tested for items 2 or 3).

PRIMARY STANDARDS			SECONDARY STANDARDS			GENERAL	
PARAMETER	METHOD†	RESULT**	PARAMETER	METHOD†	RESULT**	PARAMETER	RESULT**
Arsenic as As		BDL	Chloride as Cl		4.3	Total Hardness as $CaCO_3$ (c)	12
Barium as Ba		0.110	Color*		400	Total Alkalinity as $CaCO_3$	12
Cadmium as Cd		0.003	Copper as Cu		0.028	N.C.H. as $CaCO_3$ (c)	0
Chromium as Cr		0.020	Corrosivity*		-3.98	Bicarbonate as HCO_3	14.5
Lead as Pb		0.037	Foaming Agents		BDL	Calcium as Ca	2.8
Mercury as Hg		BDL	H_2S		< 0.05	Magnesium as Mg	1.2
Selenium as Se		BDL	Iron as Fe		6.54	Carbon Dioxide as CO_2 (c)	20
Silver as Ag		BDL	Manganese as Mn		0.10	Bicarbonate as $CaCO_3$ (c)	12
Nitrate as N		0.57	Odor*		1	Carbonate as $CaCO_3$ (c)	0
Fluoride as F		0.27	pH*		5.80	Hydroxide as $CaCO_3$ (c)	0
Turbidity, * NTU		140	Sulfate as SO_4		BDL	Sodium as Na	2.8
			TDS		34		
Endrin		BDL	Zinc as Zn		0.360	pHs* (c)	9.78
Lindane		BDL	Conductivity		52	Stability Index* 2pHs-pH (c)	---
Methoxychlor		BDL	Aluminum		15.4	Saturation Index* pH-pHs (c)	-3.98
Toxaphene		BDL				INTERPRETATION: Stable	---
2, 4-D		BDL				Corrosive	Yes
2, 4-5 TP Silvex		BDL				Scale Forming	---
Trihalomethanes		< 5	DER reviewer:				
			Action required:				

Note: *All results in mg/liter except those denoted
†List of methods available on request

(c) = Calculated value
**BDL = Below detection limit, see reverse side

Date and Time Received: 8-12-85 8:20 am

Laboratory I.D. No.: 81142

Date Reported: _____

Remarks:

Analysts: _____

Approved by W. F. Bowers
W. F. Bowers
President/Man...

<= less than

Table C-3. Water-Quality Data, Well GMW-2.

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2218

PRIORITY POLLUTANTS ANALYSES

COVER SHEET FOR RESULTS

Client: Geraghty & Miller
13902 N. Dale Mabry Highway
Tampa, Florida 33618

Collector: Bob Baker

Sample Site: GMW #2

Date and Time Collected: 8-10-85

Date and Time Samples Received: 8-12-85 8:20 am

Analysts: David Anthony, Nancy Funk & David Bowers

Date Analyses Started: 8-16-85 **Date Analyses Completed:** 9-12-85

Date Reported: 9-16-85

Laboratory I.D. No.: 81142

Table C-3 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2218

PRIORITY POLLUTANT ANALYSIS*

ACID EXTRACTABLES

GMW #2

		Reported in ppb	Detection Limit ppb
1A	2-Chlorophenol	BDL	15
2A	2,4-Dichlorophenol	BDL	10
3A	2,4-Dimethylphenol	BDL	5
4A	4,6-Dinitro-o-Cresol	BDL	50
5A	2,4-Dinitrophenol	BDL	30
6A	2-Nitrophenol	80	10
7A	4-Nitrophenol	BDL	20
8A	p-Chloro-m-Cresol	BDL	25
9A	Pentachlorophenol	BDL	30
10A	Phenol	BDL	5
11A	2,4,6-Trichlorophenol	BDL	20

*EPA Method 604 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.**

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-3 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2218

PRIORITY POLLUTANT ANALYSIS*

BASE NEUTRAL EXTRACTABLES

GMW #2

		Reported in ppb	Detection Limit ppb			Reported in ppb	Det Lim ppb
1B	Acenaphthene	BDL	10	24B	Diethylphthalate	BDL	10
2B	Acenaphthylene	BDL	10	25B	Dimethylphthalate	BDL	10
3B	Anthracene	BDL	10	26B	Di-n-Butyl Phthalate	BDL	10
4B	Benzidine	BDL	10	27B	2,4-Dinitrotoluene	BDL	10
5B	Benzo(a)anthracene	BDL	10	28B	2,6-Dintrotoluene	BDL	10
6B	Benzo(a)pyrene	BDL	10	29B	Di-n-Octyl-Phthalate	BDL	10
7B	3,4-Benzofluoranthene	BDL	10	30B	1,2-Diphenylhydrazine	BDL	10
8B	Benzo(ghi)perylene	BDL	10	31B	Fluoranthene	BDL	10
9B	Benzo(k)fluoranthane	BDL	10	32B	Fluorene	BDL	10
10B	Bis(2-chloroethoxy)methane	BDL	10	33B	Hexachlorobenzene	BDL	10
11B	Bis(2-chloroethyl)ether	BDL	10	34B	Hexachlorobutadiene	BDL	10
12B	Bis(2-chloroisopropyl)ether	BDL	10	35B	Hexachlorocyclopentadiene	BDL	10
13B	Bis(2-ethylhexyl)phthalate	BDL	10	36B	Hexachloroethane	BDL	10
14B	4-Bromophenyl Phenyl Ether	BDL	10	37B	Indeno(1,2,3-cd)pyrene	BDL	10
15B	Butylbenzyl Phthalate	BDL	10	38B	Isophorone	BDL	10
16B	2-Chloronaphthalene	BDL	10	39B	Naphthalene	BDL	10
17B	4-Chlorophenyl Phenyl Ether	BDL	10	40B	Nitrobenzene	BDL	10
18B	Chrysene	BDL	10	41B	N-Nitrosodimethylamine	BDL	10
19B	Dibenzo(a,h)anthracene	BDL	25	42B	N-Nitrosodi-n-propylamine	BDL	10
20B	1,2-Dichlorobenzene	BDL	10	43B	N-Nitrosodiphenylamine	BDL	10
21B	1,3-Dichlorobenzene	BDL	10	44B	Phenanthrene	BDL	10
22B	1,4-Dichlorobenzene	BDL	10	45B	Pyrene	BDL	10
23B	3,3-Dichlorobenzidine	BDL	10	46B	1,2,4-Trichlorobenzene	BDL	10

*EPA Method 625 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.**

Notes: ppb - parts per billion
BDL - Below Detection Limit

Approved by W. F. Bowers
President/Manager

Table C-3 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2218

PRIORITY POLLUTANT ANALYSIS*

PESTICIDES
GMW #2

		Reported in ppb	Detection Limit ppb
1P	Aldrin	BDL	0.01
2P	a-BHC	BDL	0.01
3P	b-BHC	BDL	0.01
4P	g-BHC	BDL	0.01
5P	d-BHC	BDL	0.01
6P	Chlorodane	BDL	0.01
7P	4,4'-DDT	BDL	0.01
8P	4,4'-DDE	BDL	0.01
9P	4,4'-DDD	BDL	0.01
10P	Dieldrin	BDL	0.01
11P	a-Endosulfan I	BDL	0.01
12P	b-Endosulfan II	BDL	0.01
13P	Endosulfan Sulfate	BDL	0.01
14P	Endrin	BDL	0.07
15P	Endrin Aldehyde	BDL	0.03
16P	Heptachlor	BDL	0.01
17P	Heptachlor Epoxide	BDL	0.01
18P	PCB-1242	BDL	0.2
19P	PCB-1254	BDL	0.2
20P	PCB-1221	BDL	0.2
21P	PCB-1232	BDL	0.2
22P	PCB-1248	BDL	0.2
23P	PCB-1260	BDL	0.2
24P	PCB-1016	BDL	0.2
25P	Toxaphene	BDL	1

*EPA Method 608 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater**, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Sowers
President/Manager

Table C-3 Continued

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2218

PRIORITY POLLUTANT ANALYSIS*

VOLATILES
GMW #2

		Reported in ppb	Detection Limit ppb
1V	Acrolein	BDL	100
2V	Acrylonitrile	BDL	100
3V	Benzene	21	1
4V	Bis(chloromethyl)ether	BDL	5
5V	Bromoform	BDL	5
6V	Carbon Tetrachloride	BDL	3
7V	Chlorobenzene	BDL	1
8V	Chlorodibromomethane	BDL	5
9V	Chloroethane	BDL	5
10V	2-Chloroethylvinyl Ether	BDL	5
11V	Chloroform	BDL	5
12V	Dichlorobromomethane	BDL	5
13V	Dichlorodifluoromethane	BDL	5
14V	1,1-Dichloroethane	BDL	5
15V	1,2-Dichloroethane	BDL	3
16V	1,1-Dichloroethylene	BDL	5
17V	1,2-Dichloropropane	BDL	5
18V	1,2-Dichloropropylene	BDL	5
19V	Ethylbenzene	BDL	1
20V	Methyl Bromide	BDL	5
21V	Methyl Chloride	BDL	5
22V	Methylene Chloride	BDL	5
23V	1,1,2,2-Tetrachloroethane	BDL	5
24V	Tetrachloroethylene	BDL	3
25V	Toluene	BDL	1
26V	1,2-trans-Dichloroethylene	BDL	5
27V	1,1,1-Trichloroethane	BDL	5
28V	1,1,2-Trichloroethane	BDL	5
29V	Trichloroethylene	BDL	1
30V	Trichlorofluoromethane	BDL	5
31V	Vinyl Chloride	BDL	1

*EPA Method 624 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.**

Notes: ppb - parts per billion
BDL - Below Detection Limits

Table C-3 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2218

PRIORITY POLLUTANT ANALYSIS

GMW #2

Priority Pollutant Compound	Sample Identification Priority Pollutant Concentration ppm
Metals, Cyanide and Phenols	
1M Antimony	0.13
2M Arsenic	<0.001
3M Beryllium	<0.01
4M Cadmium	0.001
5M Chromium	0.002
6M Copper	0.025
7M Lead	0.018
8M Mercury	<0.0001
9M Nickel	<0.0001
10M Selenium	<0.001
11M Silver	<0.001
12M Thallium	0.1
13M Zinc	0.062
14 Cyanide	<0.005
15 Phenols	<0.001

< = less than

ppm = parts per million

Table C-3 Continued
Client: Geraghty & Miller

Pioneer LABORATORY, INC.

I.D. # 85-2218

11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

DRINKING WATER CHEMICAL ANALYSIS

System Name: _____ County: _____ Collector: Bob Baker

Address _____ System I.D. No. _____ DER District _____

Sample Site: GMW #2 Raw or Treated: _____ Temperature _____

Date and Time Collected: 8-10-85 Field Chlorine, mg/1: _____ Field pH: _____

Circle one: 40. Community public water system 41. Non-community public water system 42. Other public water system 43. Private water system

Circle one: 1. Compliance 2. Recheck 3. Other (indicate below parameters to be tested for items 2 or 3).

PRIMARY STANDARDS			SECONDARY STANDARDS			GENERAL	
PARAMETER	METHOD†	RESULT**	PARAMETER	METHOD†	RESULT**	PARAMETER	RESULT**
Arsenic as As		0.003	Chloride as Cl		4.5	Total Hardness as $CaCO_3$ (c)	8
Barium as Ba		BDL	Color*	C.U.	10	Total Alkalinity as $CaCO_3$	8
Cadmium as Cd		BDL	Copper as Cu		0.025	N.C.H. as $CaCO_3$ (c)	0
Chromium as Cr		BDL	Corrosivity*	L.S.I.	-4.59	Bicarbonate as HCO_3	9.76
Lead as Pb		0.018	Foaming Agents		BDL	Calcium as Ca	1.40
Mercury as Hg		BDL	H_2S		<0.05	Magnesium as Mg	1.04
Selenium as Se		BDL	Iron as Fe		0.46	Carbon Dioxide as CO_2 (c)	17
Silver as Ag		BDL	Manganese as Mn		0.068	Bicarbonate as $CaCO_3$ (c)	8
Nitrate as N		0.20	Odor*	TON	1	Carbonate as $CaCO_3$ (c)	0
Fluoride as F		0.27	pH*		5.67	Hydroxide as $CaCO_3$ (c)	0
Turbidity, * NTU		8.0	Sulfate as SO_4		BDL	Sodium as Na	2.9
			TDS		20		
Endrin		BDL	Zinc as Zn		0.062	pHs* (c)	10.26
Lindane		BDL	Conductivity		36	Stability Index* 2pHs-pH (c)	---
Methoxychlor		BDL	Aluminum		0.2	Saturation Index* pH-pHs (c)	-4.59
Toxaphene		BDL				INTERPRETATION: Stable	---
2, 4-D		BDL				Corrosive	Yes
2, 4-5 TP Silvex		BDL				Scale Forming	---
Trihalomethanes		<5	DER reviewer:				
			Action required:				

Note: *All results in mg/liter except those denoted
†List of methods available on request

(c) = Calculated value
**BDL = Below detection limit, see reverse side

Date and Time Received: 8-12-85 8:20 am

Laboratory I.D. No.: 81142

Date Reported: 9-16-85

Remarks:

Analysts: _____

<= less than

FORM #108 — METRO PRINTING, INC., HUNTSVILLE, AL 35801

Table C-4. Water-Quality Data, Well GMW-3

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2219

PRIORITY POLLUTANTS ANALYSES

COVER SHEET FOR RESULTS

Client: Geraghty & Miller
13902 N. Dale Mabry Highway
Tampa, Florida 33618

Collector: Bob Baker

Sample Site: GMW #3

Date and Time Collected: 8-10-85

Date and Time Samples Received: 8-12-85 8:20 am

Analysts: David Anthony, Nancy Funk, & David Bowers

Date Analyses Started: 8-16-85 **Date Analyses Completed:** 9-12-85

Date Reported: 9-16-85

Laboratory I.D. No.: 81142

Table C-4 Continued

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2219

PRIORITY POLLUTANT ANALYSIS*

ACID EXTRACTABLES

GMW #3

		Reported in ppb	Detection Limit ppb
1A	2-Chlorophenol	BDL	15
2A	2,4-Dichlorophenol	BDL	10
3A	2,4-Dimethylphenol	BDL	5
4A	4,6-Dinitro-o-Cresol	BDL	50
5A	2,4-Dinitrophenol	BDL	30
6A	2-Nitrophenol	BDL	10
7A	4-Nitrophenol	BDL	20
8A	p-Chloro-m-Cresol	BDL	25
9A	Pentachlorophenol	BDL	30
10A	Phenol	BDL	5
11A	2,4,6-Trichlorophenol	BDL	20

*EPA Method 604 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater**, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-4 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2219

PRIORITY POLLUTANT ANALYSIS*

BASE NEUTRAL EXTRACTABLES

GMW #3

		Reported in ppb	Detection Limit ppb			Reported in ppb	Det. Limi ppb
1B	Acenaphthene	BDL	10	24B	Diethylphthalate	BDL	10
2B	Acenaphthylene	BDL	10	25B	Dimethylphthalate	BDL	10
3B	Anthracene	BDL	10	26B	Di-n-Butyl Phthalate	BDL	10
4B	Benzidine	BDL	10	27B	2,4-Dinitrotoluene	BDL	10
5B	Benzo(a)anthracene	BDL	10	28B	2,6-Dintrotoluene	BDL	10
6B	Benzo(a)pyrene	BDL	10	29B	Di-n-Octyl-Phthalate	BDL	10
7B	3,4-Benzofluoranthene	BDL	10	30B	1,2-Diphenylhydrazine	BDL	10
8B	Benzo(ghi)perylene	BDL	10	31B	Fluoranthene	BDL	10
9B	Benzo(k)fluoranthane	BDL	10	32B	Fluorene	BDL	10
10B	Bis(2-chloroethoxy)methane	BDL	10	33B	Hexachlorobenzene	BDL	10
11B	Bis(2-chloroethyl)ether	BDL	10	34B	Hexachlorobutadiene	BDL	10
12B	Bis(2-chloroisopropyl)ether	BDL	10	35B	Hexachlorocyclopentadiene	BDL	10
13B	Bis(2-ethylhexyl)phthalate	BDL	10	36B	Hexachloroethane	BDL	10
14B	4-Bromophenyl Phenyl Ether	BDL	10	37B	Indeno(1,2,3-cd)pyrene	BDL	10
15B	Butylbenzyl Phthalate	BDL	10	38B	Isophorone	BDL	10
16B	2-Chloronaphthalene	BDL	10	39B	Naphthalene	BDL	10
17B	4-Chlorophenyl Phenyl Ether	BDL	10	40B	Nitrobenzene	BDL	10
18B	Chrysene	BDL	10	41B	N-Nitrosodimethylamine	BDL	10
19B	Dibenzo(a,h)anthracene	BDL	25	42B	N-Nitrosodi-n-propylamine	BDL	10
20B	1,2-Dichlorobenzene	BDL	10	43B	N-Nitrosodiphenylamine	BDL	10
21B	1,3-Dichlorobenzene	BDL	10	44B	Phenanthrene	BDL	10
22B	1,4-Dichlorobenzene	BDL	10	45B	Pyrene	BDL	10
23B	3,3-Dichlorobenzidine	BDL	10	46B	1,2,4-Trichlorobenzene	BDL	10

*EPA Method 625 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.**

Notes: ppb - parts per billion
BDL - Below Detection Limit

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-4 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2219

PRIORITY POLLUTANT ANALYSIS*

VOLATILES
GMW #3

		Reported in ppb	Detection Limit ppb
1V	Acrolein	BDL	100
2V	Acrylonitrile	BDL	100
3V	Benzene	BDL	1
4V	Bis(chloromethyl)ether	BDL	5
5V	Bromoform	BDL	5
6V	Carbon Tetrachloride	BDL	3
7V	Chlorobenzene	BDL	1
8V	Chlorodibromomethane	BDL	5
9V	Chloroethane	BDL	5
10V	2-Chloroethylvinyl Ether	BDL	5
11V	Chloroform	BDL	5
12V	Dichlorobromomethane	BDL	5
13V	Dichlorodifluoromethane	BDL	5
14V	1,1-Dichloroethane	BDL	5
15V	1,2-Dichloroethane	BDL	3
16V	1,1-Dichloroethylene	BDL	5
17V	1,2-Dichloropropane	BDL	5
18V	1,2-Dichloropropylene	BDL	5
19V	Ethylbenzene	BDL	1
20V	Methyl Bromide	BDL	5
21V	Methyl Chloride	BDL	5
22V	Methylene Chloride	BDL	5
23V	1,1,2,2-Tetrachloroethane	BDL	5
24V	Tetrachloroethylene	BDL	3
25V	Toluene	BDL	1
26V	1,2-trans-Dichloroethylene	BDL	5
27V	1,1,1-Trichloroethane	BDL	5
28V	1,1,2-Trichloroethane	BDL	5
29V	Trichloroethylene	BDL	1
30V	Trichlorofluoromethane	BDL	5
31V	Vinyl Chloride	BDL	1

*EPA Method 624 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater**, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-4 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2219

PRIORITY POLLUTANT ANALYSIS*

PESTICIDES

GMW #3

		Reported in ppb	Detection Limit ppb
1P	Aldrin	BDL	0.01
2P	a-BHC	BDL	0.01
3P	b-BHC	BDL	0.01
4P	g-BHC	0.02	0.01
5P	d-BHC	BDL	0.01
6P	Chlorodane	BDL	0.01
7P	4,4'-DDT	BDL	0.01
8P	4,4'-DDE	BDL	0.01
9P	4,4'-DDD	BDL	0.01
10P	Dieldrin	BDL	0.01
11P	a-Endosulfan I	BDL	0.01
12P	b-Endosulfan II	BDL	0.01
13P	Endosulfan Sulfate	BDL	0.01
14P	Endrin	BDL	0.07
15P	Endrin Aldehyde	BDL	0.03
16P	Heptachlor	0.02	0.01
17P	Heptachlor Epoxide	BDL	0.01
18P	PCB-1242	BDL	0.2
19P	PCB-1254	BDL	0.2
20P	PCB-1221	BDL	0.2
21P	PCB-1232	BDL	0.2
22P	PCB-1248	BDL	0.2
23P	PCB-1260	BDL	0.2
24P	PCB-1016	BDL	0.2
25P	Toxaphene	BDL	1

*EPA Method 608 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater**, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by [illegible]
Laboratory Manager

Client: Geraghty & Miller

Table C-4 Continued

Lab I.D. 85-2219

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

PRIORITY POLLUTANT ANALYSIS

GMW #3

Priority Pollutant Compound	Sample Identification Priority Pollutant Concentration ppm
Metals, Cyanide and Phenols	
1M Antimony	0.17
2M Arsenic	<0.0001
3M Beryllium	< 0.01
4M Cadmium	< 0.001
5M Chromium	0.005
6M Copper	0.032
7M Lead	0.036
8M Mercury	< 0.0001
9M Nickel	< 0.0001
10M Selenium	< 0.001
11M Silver	< 0.001
12M Thallium	< 0.1
13M Zinc	0.052
14 Cyanide	< 0.001
15 Phenols	< 0.001

ppm = parts per million

< = less than

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Client: Geraghty & Miller
Table C-4 Continued

PROJECT LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

I.D. # 85-2219

DRINKING WATER CHEMICAL ANALYSIS

System Name: _____ County: _____ Collector: Bob Baker

Address _____ System I.D. No. _____ DER District _____

Sample Site: GMW #3 Raw or Treated: _____ Temperature _____

Date and Time Collected: 8-10-85 Field Chlorine, mg/1: _____ Field pH: _____

Circle one: 40. Community public water system 41. Non-community public water system 42. Other public water system 43. Private water system

Circle one: 1. Compliance 2. Recheck 3. Other (indicate below parameters to be tested for items 2 or 3).

PRIMARY STANDARDS			SECONDARY STANDARDS			GENERAL	
PARAMETER	METHOD†	RESULT**	PARAMETER	METHOD†	RESULT**	PARAMETER	RESULT**
Arsenic as As		BDL	Chloride as Cl		7.0	Total Hardness as $CaCO_3$ (c)	10
Barium as Ba		BDL	Color*	C.U.	50	Total Alkalinity as $CaCO_3$	18
Cadmium as Cd		BDL	Copper as Cu		0.032	N.C.H. as $CaCO_3$ (c)	0
Chromium as Cr		BDL	Corrosivity*	L.S.I.	-3.86	Bicarbonate as HCO_3	22
Lead as Pb		0.036	Foaming Agents		BDL	Calcium as Ca	1.6
Mercury as Hg		BDL	H_2S		< 0.05	Magnesium as Mg	1.4
Selenium as Se		BDL	Iron as Fe		1.89	Carbon Dioxide as CO_2 (c)	22
Silver as Ag		BDL	Manganese as Mn		0.087	Bicarbonate as $CaCO_3$ (c)	18
Nitrate as N		0.48	Odor*	TON	1	Carbonate as $CaCO_3$ (c)	0
Fluoride as F		0.36	pH*		5.99	Hydroxide as $CaCO_3$ (c)	0
Turbidity, * NTU		76	Sulfate as SO_4		BDL	Sodium as Na	7.3
			TDS		43		
Endrin		BDL	Zinc as Zn		0.052	pHs* (c)	9.85
Lindane		BDL	Conductivity		64	Stability Index* 2pHs-pH (c)	---
Methoxychlor		BDL	Aluminum		4.3	Saturation Index* pH-pHs (c)	-3.86
Toxaphene		BDL				INTERPRETATION: Stable	---
2, 4-D		BDL				Corrosive	Yes
2, 4-5 TP Silvex		BDL				Scale Forming	---
Trihalomethanes		< 5	DER reviewer:				
			Action required:				

Note: *All results in mg/liter except those denoted
†List of methods available on request

(c) = Calculated value
**BDL = Below detection limit, see reverse side

Date and Time Received: 8-12-85 8:20 am

Laboratory I.D. No.: 81142

Date Reported: _____

Remarks: < = less than

Analysts: _____

Approved by: W. F. Bowers
W. F. Bowers
President/Manager

FORM #108 — METRO PRINTING, INC., HUNTSVILLE, AL 35801

Table C-5. Water-Quality Data, Well GMW-4

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2220

PRIORITY POLLUTANTS ANALYSES

COVER SHEET FOR RESULTS

Client: Geraghty & Miller
13920 N. Dale Mabry Highway
Tampa, Florida 33618

Collector: Bob Baker

Sample Site: GMW #4

Date and Time Collected: 8-10-85

Date and Time Samples Received: 8-12-85 8:20 am

Analysts: David Anthony, David Bowers, & Nancy Funk

Date Analyses Started: 8-16-85 **Date Analyses Completed:** 9-12-85

Date Reported: 9-16-85

Laboratory I.D. No.: 81142

Table C-5 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2220

PRIORITY POLLUTANT ANALYSIS*

ACID EXTRACTABLES

GMW #4

		Reported in ppb	Detection Limit ppb
1A	2-Chlorophenol	BDL	15
2A	2,4-Dichlorophenol	20	10
3A	2,4-Dimethylphenol	BDL	5
4A	4,6-Dinitro-o-Cresol	BDL	50
5A	2,4-Dinitrophenol	BDL	30
6A	2-Nitrophenol	BDL	10
7A	4-Nitrophenol	410	20
8A	p-Chloro-m-Cresol	BDL	25
9A	Pentachlorophenol	BDL	30
10A	Phenol	BDL	5
11A	2,4,6-Trichlorophenol	BDL	20

*EPA Method 604 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater**, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-5 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2220

PRIORITY POLLUTANT ANALYSIS*

BASE NEUTRAL EXTRACTABLES

GMW #4

		Reported in ppb	Detection Limit ppb			Reported in ppb	De Lir ppl
1B	Acenaphthene	BDL	10	24B	Diethylphthalate	BDL	10
2B	Acenaphthylene	BDL	10	25B	Dimethylphthalate	BDL	10
3B	Anthracene	BDL	10	26B	Di-n-Butyl Phthalate	BDL	10
4B	Benzidine	BDL	10	27B	2,4-Dinitrotoluene	BDL	10
5B	Benzo(a)anthracene	BDL	10	28B	2,6-Dintrotoluene	BDL	10
6B	Benzo(a)pyrene	BDL	10	29B	Di-n-Octyl-Phthalate	BDL	10
7B	3,4-Benzofluoranthene	BDL	10	30B	1,2-Diphenylhydrazine	BDL	10
8B	Benzo(ghi)perylene	BDL	10	31B	Fluoranthene	BDL	10
9B	Benzo(k)fluoranthane	BDL	10	32B	Fluorene	BDL	10
10B	Bis(2-chloroethoxy)methane	BDL	10	33B	Hexachlorobenzene	BDL	10
11B	Bis(2-chloroethyl)ether	BDL	10	34B	Hexachlorobutadiene	BDL	10
12B	Bis(2-chloroisopropyl)ether	BDL	10	35B	Hexachlorocyclopentadiene	BDL	10
13B	Bis(2-ethylhexyl)phthalate	BDL	10	36B	Hexachloroethane	BDL	10
14B	4-Bromophenyl Phenyl Ether	BDL	10	37B	Indeno(1,2,3-cd)pyrene	BDL	10
15B	Butylbenzyl Phthalate	BDL	10	38B	Isophorone	BDL	10
16B	2-Chloronaphthalene	BDL	10	39B	Naphthalene	BDL	10
17B	4-Chlorophenyl Phenyl Ether	BDL	10	40B	Nitrobenzene	BDL	10
18B	Chrysene	BDL	10	41B	N-Nitrosodimethylamine	BDL	10
19B	Dibenzo(a,h)anthracene	BDL	25	42B	N-Nitrosodi-n-propylamine	BDL	10
20B	1,2-Dichlorobenzene	BDL	10	43B	N-Nitrosodiphenylamine	BDL	10
21B	1,3-Dichlorobenzene	BDL	10	44B	Phenanthrene	BDL	10
22B	1,4-Dichlorobenzene	BDL	10	45B	Pyrene	BDL	10
23B	3,3-Dichlorobenzidine	BDL	10	46B	1,2,4-Trichlorobenzene	BDL	10

*EPA Method 625 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater**, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limit

Approved by _____
W. F. Bowers
President/Manager

Table C-5 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2220

PRIORITY POLLUTANT ANALYSIS*

PESTICIDES

GMW #4

		Reported in ppb	Detection Limit ppb
1P	Aldrin	BDL	0.01
2P	a-BHC	BDL	0.01
3P	b-BHC	BDL	0.01
4P	g-BHC	BDL	0.01
5P	d-BHC	BDL	0.01
6P	Chlorodane	BDL	0.01
7P	4,4'-DDT	BDL	0.01
8P	4,4'-DDE	BDL	0.01
9P	4,4'-DDD	BDL	0.01
10P	Dieldrin	BDL	0.01
11P	a-Endosulfan I	BDL	0.01
12P	b-Endosulfan II	BDL	0.01
13P	Endosulfan Sulfate	BDL	0.01
14P	Endrin	BDL	0.07
15P	Endrin Aldehyde	BDL	0.03
16P	Heptachlor	BDL	0.01
17P	Heptachlor Epoxide	BDL	0.01
18P	PCB-1242	BDL	0.2
19P	PCB-1254	BDL	0.2
20P	PCB-1221	BDL	0.2
21P	PCB-1232	BDL	0.2
22P	PCB-1248	BDL	0.2
23P	PCB-1260	BDL	0.2
24P	PCB-1016	BDL	0.2
25P	Toxaphene	BDL	1

*EPA Method 608 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater**, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-5 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Lab I.D. 85-2220

PRIORITY POLLUTANT ANALYSIS*

VOLATILES
GMW #4

		Reported in ppb	Detection Limit ppb
1V	Acrolein	BDL	100
2V	Acrylonitrile	BDL	100
3V	Benzene	26	1
4V	Bis(chloromethyl)ether	BDL	5
5V	Bromoform	BDL	5
6V	Carbon Tetrachloride	BDL	3
7V	Chlorobenzene	BDL	1
8V	Chlorodibromomethane	BDL	5
9V	Chloroethane	BDL	5
10V	2-Chloroethylvinyl Ether	BDL	5
11V	Chloroform	BDL	5
12V	Dichlorobromomethane	BDL	5
13V	Dichlorodifluoromethane	BDL	5
14V	1,1-Dichloroethane	BDL	5
15V	1,2-Dichloroethane	BDL	3
16V	1,1-Dichloroethylene	BDL	5
17V	1,2-Dichloropropane	BDL	5
18V	1,2-Dichloropropylene	BDL	5
19V	Ethylbenzene	BDL	1
20V	Methyl Bromide	BDL	5
21V	Methyl Chloride	BDL	5
22V	Methylene Chloride	BDL	5
23V	1,1,2,2-Tetrachloroethane	BDL	5
24V	Tetrachloroethylene	BDL	3
25V	Toluene	BDL	1
26V	1,2-trans-Dichloroethylene	BDL	5
27V	1,1,1-Trichloroethane	BDL	5
28V	1,1,2-Trichloroethane	BDL	5
29V	Trichloroethylene	BDL	1
30V	Trichlorofluoromethane	BDL	5
31V	Vinyl Chloride	BDL	1

*EPA Method 624 - Reference: **Method for Organic Chemical Analysis of Municipal and Industrial Wastewater**, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Client: Geraghty & Miller, Inc.
Table C-5 Continued

Lab I.D. 85-22

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD
PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

PRIORITY POLLUTANT ANALYSIS

Priority Pollutant Compound	GMW #4 Sample Identification Priority Pollutant Concentration ppm
Metals, Cyanide and Phenols	
1M Antimony	0.11
2M Arsenic	0.002
3M Beryllium	<0.01
4M Cadmium	< 0.001
5M Chromium	0.004
6M Copper	0.033
7M Lead	0.006
8M Mercury	<0.0001
9M Nickel	< 0.001
10M Selenium	< 0.001
11M Silver	< 0.001
12M Thallium	< 0.1
13M Zinc	0.064
14 Cyanide	< 0.005
15 Phenols	< 0.001

ppm = parts per million

< = less than

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table C-5 Continued
Client: Geraghty & Miller

Pioneer LABORATORY, INC.

I.D. # 85-2220

11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

DRINKING WATER CHEMICAL ANALYSIS

System Name: _____ County: _____ Collector: Bob Baker

Address _____ System I.D. No. _____ DER District _____

Sample Site: GMW #4 Raw or Treated: _____ Temperature _____

Date and Time Collected: 8-10-85 Field Chlorine, mg/1: _____ Field pH: _____

Circle one: 40. Community public water system 41. Non-community public water system 42. Other public water system 43. Private water system

Circle one: 1. Compliance 2. Recheck 3. Other (indicate below parameters to be tested for items 2 or 3).

PRIMARY STANDARDS			SECONDARY STANDARDS			GENERAL	
PARAMETER	METHOD†	RESULT**	PARAMETER	METHOD†	RESULT**	PARAMETER	RESULT**
Arsenic as As		0.002	Chloride as Cl		6	Total Hardness as $CaCO_3$ (c)	16
Barium as Ba		0.033	Color*	C.U.	30	Total Alkalinity as $CaCO_3$	16
Cadmium as Cd		BDL	Copper as Cu		0.033	N.C.H. as $CaCO_3$ (c)	0
Chromium as Cr		BDL	Corrosivity*	L.S.I.	-2.90	Bicarbonate as HCO_3	19.5
Lead as Pb		BDL	Foaming Agents		BDL	Calcium as Ca	5.6
Mercury as Hg		BDL	H_2S		< 0.05	Magnesium as Mg	0.48
Selenium as Se		BDL	Iron as Fe		0.338	Carbon Dioxide as CO_2 (c)	24
Silver as Ag		BDL	Manganese as Mn		0.18	Bicarbonate as $CaCO_3$ (c)	16
Nitrate as N		0.50	Odor*	TON	1	Carbonate as $CaCO_3$ (c)	0
Fluoride as F		0.27	pH*		6.05	Hydroxide as $CaCO_3$ (c)	0
Turbidity, * NTU		20	Sulfate as SO_4		1	Sodium as Na	4.1
			TDS		37		
Endrin		BDL	Zinc as Zn		0.064	pHs* (c)	8.95
Lindane		BDL	Conductivity		68	Stability Index* 2pHs-pH (c)	----
Methoxychlor		BDL	Aluminum		0.27	Saturation Index* pH-pHs (c)	-2.90
Toxaphene		BDL				INTERPRETATION: Stable	----
2, 4-D		BDL				Corrosive	Yes
2, 4-5 TP Silvex		BDL				Scale Forming	----
Trihalomethanes		< 5	DER reviewer:				
			Action required:				

Note: *All results in mg/liter except those denoted
†List of methods available on request

(c) = Calculated value
**BDL = Below detection limit, see reverse side

Date and Time Received: 8-12-85 8:20 am

Laboratory I.D. No.: 81142

Date Reported: 9-16-85

Remarks:

Analysts: _____

<= less than

Approved by: _____
President/Manager

FORM #108 — METRO PRINTING, INC., HUNTSVILLE, AL 35801

APPENDIX D

Chemical Analyses of Water Samples
Collected on November 1, 1985

Table D-1. Water-Quality Data, Well GMW 1

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Florida 33618

Lab I.D.: 85-3186-5
Date: Nov. 1, 1985

PRIORITY POLLUTANTS ANALYSES

COVER SHEET FOR RESULTS

Collector:	Bob Baker
Sample Site:	GMW 1 Whiting Field
Date and Time Collected:	November 1, 1985 11:30 a.m.
Date and Time Samples Received:	November 1, 1985 2:30 p.m.
Analysts:	Nancy Funk, David Bowers and Peggy Gaskill
Date Analyses Started:	November 4, 1985
Date Reported:	November 13, 1985

Laboratory I.D. No.: 81142

Table D-1 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-5
Sample ID. GMW 1

PRIORITY POLLUTANT ANALYSIS*

ACID EXTRACTABLES

GMW #1

		Reported in ppb	Detection Limit (ppb)
1A	2-Chlorophenol	BDL	15
2A	2,4-Dichlorophenol	BDL	10
3A	2,4-Dimethylphenol	BDL	5
4A	4,6-Dinitro-o-Cresol	BDL	50
5A	2,4-Dinitrophenol	BDL	30
6A	2-Nitrophenol	BDL	10
7A	4-Nitrophenol	BDL	20
8A	p-Chloro-m-Cresol	BDL	25
9A	Pentachlorophenol	BDL	30
10A	Phenol	BDL	5
11A	2,4,6-Trichlorophenol	BDL	20

*EPA Method 604 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600 4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-1 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-5
Sample I.D. GMW 1

PRIORITY POLLUTANT ANALYSIS*

BASE NEUTRAL EXTRACTABLES

		GMW #1 Reported in ppb	Detection Limit ppb			Reported in ppb	Det. Limi ppb
3	Acenaphthene	BDL	10	24B	Diethylphthalate	BDL	10
2B	Acenaphthylene	BDL	10	25B	Dimethylphthalate	BDL	10
3B	Anthracene	BDL	10	26B	Di-n-Butyl Phthalate	BDL	10
B	Benzidine	BDL	10	27B	2,4-Dinitrotoluene	BDL	10
3	Benzo(a)anthracene	BDL	10	28B	2,6-Dintrotoluene	BDL	10
6B	Benzo(a)pyrene	BDL	10	29B	Di-n-Octyl-Phthalate	BDL	10
3	3,4-Benzofluoranthene	BDL	10	30B	1,2-Diphenylhydrazine	BDL	10
B	Benzo(ghi)perylene	BDL	10	31B	Fluoranthene	BDL	10
9B	Benzo(k)fluoranthane	BDL	10	32B	Fluorene	BDL	10
10B	Bis(2-chloroethoxy)methane	BDL	10	33B	Hexachlorobenzene	BDL	10
1B	Bis(2-chloroethyl)ether	BDL	10	34B	Hexachlorobutadiene	BDL	10
12B	Bis(2-chloroisopropyl)ether	BDL	10	35B	Hexachlorocyclopentadiene	BDL	10
13B	Bis(2-ethylhexyl)phthalate	BDL	10	36B	Hexachloroethane	BDL	10
4B	4-Bromophenyl Phenyl Ether	BDL	10	37B	Indeno(1,2,3-cd)pyrene	BDL	10
5B	Butylbenzyl Phthalate	BDL	10	38B	Isophorone	BDL	10
16B	2-Chloronaphthalene	BDL	10	39B	Naphthalene	BDL	10
7B	4-Chlorophenyl Phenyl Other	BDL	10	40B	Nitrobenzene	BDL	10
8B	Chrysene	BDL	10	41B	N-Nitrosodimethylamine	BDL	10
19B	Dibenzo(a,h)anthracene	BDL	25	42B	N-Nitrosodi-n-propylamine	BDL	10
20B	1,2-Dichlorobenzene	BDL	10	43B	N-Nitrosodiphenylamine	BDL	10
1B	1,3-Dichlorobenzene	BDL	10	44B	Phenanthrene	BDL	10
22B	1,4-Dichlorobenzene	BDL	10	45B	Pyrene	BDL	10
23B	3,3-Dichlorobenzidine	BDL	10	46B	1,2,4-Trichlorobenzene	BDL	10

*EPA Method 625 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limit

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-1 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-5
Sample I.D.: GMW 1

PRIORITY POLLUTANT ANALYSIS*
VOLATILES
GMW #1

		Reported in ppb	Detection Limit (ppb)
1V	Acrolein	BDL	100
2V	Acrylonitrile	BDL	100
3V	Benzene	3	1
4V	Bis(chloromethyl)ether	BDL	5
5V	Bromoform	BDL	5
6V	Carbon Tetrachloride	BDL	3
7V	Chlorobenzene	BDL	1
8V	Chlorodibromomethane	BDL	5
9V	Chloroethane	BDL	5
10V	2-Chloroethylvinyl Ether	BDL	5
11V	Chloroform	BDL	5
12V	Dichlorobromomethane	BDL	5
13V	Dichlorodifluoromethane	BDL	5
14V	1,1-Dichloroethane	BDL	5
15V	1,2-Dichloroethane	BDL	3
16V	1,1-Dichloroethylene	BDL	5
17V	1,2-Dichloropropane	BDL	5
18V	1,2-Dichloropropylene	BDL	5
19V	Ethylbenzene	BDL	1
20V	Methyl Bromide	BDL	5
21V	Methyl Chloride	BDL	5
22V	Methylene Chloride	BDL	5
23V	1,1,2,2-Tetrachloroethane	BDL	5
24V	Tetrachloroethylene	BDL	3
25V	Toluene	BDL	1
26V	1,2-trans-Dichloroethylene	BDL	5
27V	1,1,1-Trichloroethane	BDL	5
28V	1,1,2-Trichloroethane	BDL	5
29V	Trichloroethylene	BDL	1
30V	Trichlorofluoromethane	BDL	5
31V	Vinyl Chloride	BDL	1

*EPA Method 624 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-1 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-5
Sample I.D. GMW 1

PRIORITY POLLUTANT ANALYSIS*

PESTICIDES

GMW #1

		Reported in ppb	Detection Limit (ppb)
1P	Aldrin	BDL	0.01
2P	a-BHC	BDL	0.01
3P	b-BHC	BDL	0.01
4P	g-BHC	BDL	0.01
5P	d-BHC	BDL	0.01
6P	Chlorodane	BDL	0.01
7P	4,4'-DDT	BDL	0.01
8P	4,4'-DDE	BDL	0.01
9P	4,4'-DDD	BDL	0.01
10P	Dieldrin	BDL	0.01
11P	a-Endosulfan I	BDL	0.01
12P	b-Endosulfan II	BDL	0.01
13P	Endosulfan Sulfate	BDL	0.01
14P	Endrin	BDL	0.07
15P	Endrin Aldehyde	BDL	0.03
16P	Heptachlor	BDL	0.01
17P	Heptachlor Epoxide	BDL	0.01
18P	PCB-1242	BDL	0.2
19P	PCB-1254	BDL	0.2
20P	PCB-1221	BDL	0.2
21P	PCB-1232	BDL	0.2
22P	PCB-1248	BDL	0.2
23P	PCB-1260	BDL	0.2
24P	PCB-1016	BDL	0.2
25P	Toxaphene	BDL	1

*EPA Method 608 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
President/Manager

Table D-1 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Fla. 33618

Lab I.D. #85-3186-5
Date: Nov.1, 1985
Sample I.D. GMW 1

Priority Pollutant Analysis

GMW #1

Priority Pollutant Compound	Sample Identification Priority Pollutant Concentration (in ppm)
Metals, Cyanide, & Phenols	
1M Antimony	<0.05
2M Arsenic	<0.001
3M Beryllium	<0.01
4M Cadmium	<0.01
5M Chromium	<0.01
6M Copper	<0.01
7M Lead	<0.1
8M Mercury	0.0004 [illegible]
9M Nickel	<0.05
10M Selenium	<0.001
11M Silver	<0.0001
12M Thallium	<0.1
13M Zinc	0.20 [illegible] (5)
14 Cyanide	<0.005
15 Phenols	<0.001
16 Aluminum	<1

Note: ppm = parts per million
< = less than

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-2 Water-Quality Data, Well GMW #2

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Florida 33618

Lab I.D.: 85-3186-2
Date: Nov. 1, 1985

PRIORITY POLLUTANTS ANALYSES

COVER SHEET FOR RESULTS

Collector:	Bob Baker
Sample Site:	GMW 2 Whiting Field
Date and Time Collected:	November 1, 1985 12:30 p.m.
Date and Time Samples Received:	November 1, 1985 2:30 p.m.
Analysts:	Nancy Funk, David Bowers and Peggy Gaskill
Date Analyses Started:	November 4, 1985
Date Reported:	November 13, 1985

Laboratory I.D. No.: 81142

Table D-2 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-2
Sample ID. GMW 2

PRIORITY POLLUTANT ANALYSIS*

ACID EXTRACTABLES

GMW #2

		Reported in ppb	Detection Limit (ppb)
1A	2-Chlorophenol	BDL	15
2A	2,4-Dichlorophenol	BDL	10
3A	2,4-Dimethylphenol	BDL	5
4A	4,6-Dinitro-o-Cresol	BDL	50
5A	2,4-Dinitrophenol	BDL	30
6A	2-Nitrophenol	BDL	10
7A	4-Nitrophenol	BDL	20
8A	p-Chloro-m-Cresol	BDL	25
9A	Pentachlorophenol	BDL	30
10A	Phenol	BDL	5
11A	2,4,6-Trichlorophenol	BDL	20

*EPA Method 604 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600 4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-2 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-2
Sample I.D. GMW 2

PRIORITY POLLUTANT ANALYSIS*

BASE NEUTRAL EXTRACTABLES

GMW #2

		Reported in ppb	Detection Limit ppb			Reported in ppb	Det. Limit ppb
1B	Acenaphthene	BDL	10	24B	Diethylphthalate	BDL	10
2B	Acenaphthylene	BDL	10	25B	Dimethylphthalate	BDL	10
3B	Anthracene	BDL	10	26B	Di-n-Butyl Phthalate	BDL	10
4B	Benzidine	BDL	10	27B	2,4-Dinitrotoluene	BDL	10
5B	Benzo(a)anthracene	BDL	10	28B	2,6-Dintrotoluene	BDL	10
6B	Benzo(a)pyrene	BDL	10	29B	Di-n-Octyl-Phthalate	BDL	10
7B	3,4-Benzofluoranthene	BDL	10	30B	1,2-Diphenylhydrazine	BDL	10
8B	Benzo(ghi)perylene	BDL	10	31B	Fluoranthene	BDL	10
9B	Benzo(k)fluoranthane	BDL	10	32B	Fluorene	BDL	10
10B	Bis(2-chloroethoxy)methane	BDL	10	33B	Hexachlorobenzene	BDL	10
11B	Bis(2-chloroethyl)ether	BDL	10	34B	Hexachlorobutadiene	BDL	10
12B	Bis(2-chloroisopropyl)ether	BDL	10	35B	Hexachlorocyclopentadiene	BDL	10
13B	Bis(2-ethylhexyl)phthalate	BDL	10	36B	Hexachloroethane	BDL	10
14B	4-Bromophenyl Phenyl Ether	BDL	10	37B	Indeno(1,2,3-cd)pyrene	BDL	10
15B	Butylbenzyl Phthalate	BDL	10	38B	Isophorone	BDL	10
16B	2-Chloronaphthalene	BDL	10	39B	Naphthalene	BDL	10
17B	4-Chlorophenyl Phenyl Other	BDL	10	40B	Nitrobenzene	BDL	10
18B	Chrysene	BDL	10	41B	N-Nitrosodimethylamine	BDL	10
19B	Dibenzo(a,h)anthracene	BDL	25	42B	N-Nitrosodi-n-propylamine	BDL	10
20B	1,2-Dichlorobenzene	BDL	10	43B	N-Nitrosodiphenylamine	BDL	10
21B	1,3-Dichlorobenzene	BDL	10	44B	Phenanthrene	BDL	10
22B	1,4-Dichlorobenzene	BDL	10	45B	Pyrene	BDL	10
23B	3,3-Dichlorobenzidine	BDL	10	46B	1,2,4-Trichlorobenzene	BDL	10

*EPA Method 625 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limit

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-2 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-2
Sample I.D. GMW 2

PRIORITY POLLUTANT ANALYSIS*

PESTICIDES
GMW #2

		Reported in ppb	Detection Limit (ppb)
1P	Aldrin	BDL	0.01
2P	a-BHC	BDL	0.01
3P	b-BHC	BDL	0.01
4P	g-BHC	BDL	0.01
5P	d-BHC	BDL	0.01
6P	Chlorodane	BDL	0.01
7P	4,4'-DDT	BDL	0.01
8P	4,4'-DDE	BDL	0.01
9P	4,4'-DDD	BDL	0.01
10P	Dieldrin	BDL	0.01
11P	a-Endosulfan I	BDL	0.01
12P	b-Endosulfan II	BDL	0.01
13P	Endosulfan Sulfate	BDL	0.01
14P	Endrin	BDL	0.07
15P	Endrin Aldehyde	BDL	0.03
16P	Heptachlor	BDL	0.01
17P	Heptachlor Epoxide	BDL	0.01
18P	PCB-1242	BDL	0.2
19P	PCB-1254	BDL	0.2
20P	PCB-1221	BDL	0.2
21P	PCB-1232	BDL	0.2
22P	PCB-1248	BDL	0.2
23P	PCB-1260	BDL	0.2
24P	PCB-1016	BDL	0.2
25P	Toxaphene	BDL	1

*EPA Method 608 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by _____
W. F. Bowers
President/Manager

Table D-2 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-2
Sample I.D.: GMW 2

PRIORITY POLLUTANT ANALYSIS*
VOLATILES
GMW #2

		Reported in ppb	Detection Limit (ppb)
1V	Acrolein	BDL	100
2V	Acrylonitrile	BDL	100
3V	Benzene	17	1
4V	Bis(chloromethyl)ether	BDL	5
5V	Bromoform	BDL	5
6V	Carbon Tetrachloride	BDL	3
7V	Chlorobenzene	BDL	1
8V	Chlorodibromomethane	BDL	5
9V	Chloroethane	BDL	5
10V	2-Chloroethylvinyl Ether	BDL	5
11V	Chloroform	BDL	5
12V	Dichlorobromomethane	BDL	5
13V	Dichlorodifluoromethane	BDL	5
14V	1,1-Dichloroethane	BDL	5
15V	1,2-Dichloroethane	BDL	3
16V	1,1-Dichloroethylene	BDL	5
17V	1,2-Dichloropropane	BDL	5
18V	1,2-Dichloropropylene	BDL	5
19V	Ethylbenzene	BDL	1
20V	Methyl Bromide	BDL	5
21V	Methyl Chloride	BDL	5
22V	Methylene Chloride	BDL	5
23V	1,1,2,2-Tetrachloroethane	BDL	5
24V	Tetrachloroethylene	BDL	3
25V	Toluene	BDL	1
26V	1,2-trans-Dichloroethylene	BDL	5
27V	1,1,1-Trichloroethane	BDL	5
28V	1,1,2-Trichloroethane	BDL	5
29V	Trichloroethylene	BDL	1
30V	Trichlorofluoromethane	BDL	5
31V	Vinyl Chloride	BDL	1

*EPA Method 624 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-2 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Fla. 33618

Lab I.D. #85-3186-2
Date: Nov.1, 1985
Sample I.D. GMW 2

Priority Pollutant Analysis

GMW #2

Priority Pollutant Compound	Sample Identification Priority Pollutant Concentration (in ppm)
Metals, Cyanide, & Phenols	
1M Antimony	<0.05
2M Arsenic	<0.001
3M Beryllium	<0.01
4M Cadmium	<0.01
5M Chromium	<0.01
6M Copper	<0.01
7M Lead	<0.1
8M Mercury	<0.0001
9M Nickel	<0.05
10M Selenium	<0.001
11M Silver	<0.0001
12M Thallium	<0.10
13M Zinc	<0.10
14 Cyanide	<0.005
15 Phenols	<0.001
16 Aluminum	<1

Note: ppm = parts per million
< = less than

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-3 Water-Quality Data, Well GMW-3

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Florida 33618

Lab I.D.: 85-3186-4
Date: Nov. 1, 1985

PRIORITY POLLUTANTS ANALYSES

COVER SHEET FOR RESULTS

Collector:	Bob Baker
Sample Site:	GMW 3 Whiting Field
Date and Time Collected:	November 1, 1985 10:30 a.m.
Date and Time Samples Received:	November 1, 1985 2:30 p.m.
Analysts:	Nancy Funk, David Bowers and Peggy Gaskill
Date Analyses Started:	November 4, 1985
Date Reported:	November 13, 1985

Laboratory I.D. No.: 81142

Table D-3 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-4
Sample ID. GMW 3

PRIORITY POLLUTANT ANALYSIS*

ACID EXTRACTABLES

GMW #3

		Reported in ppb	Detection Limit (ppb)
1A	2-Chlorophenol	BDL	15
2A	2,4-Dichlorophenol	BDL	10
3A	2,4-Dimethylphenol	BDL	5
4A	4,6-Dinitro-o-Cresol	BDL	50
5A	2,4-Dinitrophenol	BDL	30
6A	2-Nitrophenol	BDL	10
7A	4-Nitrophenol	BDL	20
8A	p-Chloro-m-Cresol	BDL	25
9A	Pentachlorophenol	BDL	30
10A	Phenol	BDL	5
11A	2,4,6-Trichlorophenol	BDL	20

*EPA Method 604 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600 4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-3 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-4
Sample I.D. GMW 3

PRIORITY POLLUTANT ANALYSIS*

BASE NEUTRAL EXTRACTABLES

GMW #3

		Reported in ppb	Detection Limit ppb			Reported in ppb	Det. Limit ppb
3	Acenaphthene	BDL	10	24B	Diethylphthalate	BDL	10
2B	Acenaphthylene	BDL	10	25B	Dimethylphthalate	BDL	10
3B	Anthracene	BDL	10	26B	Di-n-Butyl Phthalate	BDL	10
3	Benzidine	BDL	10	27B	2,4-Dinitrotoluene	BDL	10
5B	Benzo(a)anthracene	BDL	10	28B	2,6-Dintrotoluene	BDL	10
6B	Benzo(a)pyrene	BDL	10	29B	Di-n-Octyl-Phthalate	BDL	10
3	3,4-Benzofluoranthene	BDL	10	30B	1,2-Diphenylhydrazine	BDL	10
3	Benzo(ghi)perylene	BDL	10	31B	Fluoranthene	BDL	10
9B	Benzo(k)fluoranthane	BDL	10	32B	Fluorene	BDL	10
0B	Bis(2-chloroethoxy)methane	BDL	10	33B	Hexachlorobenzene	BDL	10
1B	Bis(2-chloroethyl)ether	BDL	10	34B	Hexachlorobutadiene	BDL	10
12B	Bis(2-chloroisopropyl)ether	BDL	10	35B	Hexachlorocyclopentadiene	BDL	10
13B	Bis(2-ethylhexyl)phthalate	BDL	10	36B	Hexachloroethane	BDL	10
4B	4-Bromophenyl Phenyl Ether	BDL	10	37B	Indeno(1,2,3-cd)pyrene	BDL	10
5B	Butylbenzyl Phthalate	BDL	10	38B	Isophorone	BDL	10
16B	2-Chloronaphthalene	BDL	10	39B	Naphthalene	BDL	10
7B	4-Chlorophenyl Phenyl Other	BDL	10	40B	Nitrobenzene	BDL	10
3B	Chrysene	BDL	10	41B	N-Nitrosodimethylamine	BDL	10
19B	Dibenzo(a,h)anthracene	BDL	25	42B	N-Nitrosodi-n-propylamine	BDL	10
0B	1,2-Dichlorobenzene	BDL	10	43B	N-Nitrosodiphenylamine	BDL	10
1B	1,3-Dichlorobenzene	BDL	10	44B	Phenanthrene	BDL	10
22B	1,4-Dichlorobenzene	BDL	10	45B	Pyrene	BDL	10
23B	3,3-Dichlorobenzidine	BDL	10	46B	1,2,4-Trichlorobenzene	BDL	10

*EPA Method 625 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limit

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-3 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-4
Sample I.D. GMW 3

PRIORITY POLLUTANT ANALYSIS*

PESTICIDES

GMW #3

		Reported in ppb	Detection Limit (ppb)
1P	Aldrin	BDL	0.01
2P	a-BHC	BDL	0.01
3P	b-BHC	BDL	0.01
4P	g-BHC	BDL	0.01
5P	d-BHC	BDL	0.01
6P	Chlorodane	BDL	0.01
7P	4,4'-DDT	BDL	0.01
8P	4,4'-DDE	BDL	0.01
9P	4,4'-DDD	BDL	0.01
10P	Dieldrin	BDL	0.01
11P	a-Endosulfan I	BDL	0.01
12P	b-Endosulfan II	BDL	0.01
13P	Endosulfan Sulfate	BDL	0.01
14P	Endrin	BDL	0.07
15P	Endrin Aldehyde	BDL	0.03
16P	Heptachlor	BDL	0.01
17P	Heptachlor Epoxide	BDL	0.01
18P	PCB-1242	BDL	0.2
19P	PCB-1254	BDL	0.2
20P	PCB-1221	BDL	0.2
21P	PCB-1232	BDL	0.2
22P	PCB-1248	BDL	0.2
23P	PCB-1260	BDL	0.2
24P	PCB-1016	BDL	0.2
25P	Toxaphene	BDL	1

*EPA Method 608 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-3 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-4
Sample I.D.: GMW 3

PRIORITY POLLUTANT ANALYSIS*
VOLATILES
GMW #3

		Reported in ppb	Detection Limit (ppb)
1V	Acrolein	BDL	100
2V	Acrylonitrile	BDL	100
3V	Benzene	1	1
4V	Bis(chloromethyl)ether	BDL	5
5V	Bromoform	BDL	5
6V	Carbon Tetrachloride	BDL	3
7V	Chlorobenzene	BDL	1
8V	Chlorodibromomethane	BDL	5
9V	Chloroethane	BDL	5
10V	2-Chloroethylvinyl Ether	BDL	5
11V	Chloroform	BDL	5
12V	Dichlorobromomethane	BDL	5
13V	Dichlorodifluoromethane	BDL	5
14V	1,1-Dichloroethane	BDL	5
15V	1,2-Dichloroethane	BDL	3
16V	1,1-Dichloroethylene	BDL	5
17V	1,2-Dichloropropane	BDL	5
18V	1,2-Dichloropropylene	BDL	5
19V	Ethylbenzene	BDL	1
20V	Methyl Bromide	BDL	5
21V	Methyl Chloride	BDL	5
22V	Methylene Chloride	BDL	5
23V	1,1,2,2-Tetrachloroethane	BDL	5
24V	Tetrachloroethylene	BDL	3
25V	Toluene	BDL	1
26V	1,2-trans-Dichloroethylene	BDL	5
27V	1,1,1-Trichloroethane	BDL	5
28V	1,1,2-Trichloroethane	BDL	5
29V	Trichloroethylene	BDL	1
30V	Trichlorofluoromethane	BDL	5
31V	Vinyl Chloride	BDL	1

*EPA Method 624 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-3 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Fla. 33618

Lab I.D. #85-3186-4
Date: Nov.1, 1985
Sample I.D. GMW 3

Priority Pollutant Analysis

GMW #3

Priority Pollutant Compound	Sample Identification Priority Pollutant Concentration (in ppm)
Metals, Cyanide, & Phenols	
1M Antimony	<0.05
2M Arsenic	<0.001
3M Beryllium	<0.01
4M Cadmium	<0.01
5M Chromium	<0.01
6M Copper	<0.01
7M Lead	<0.1
8M Mercury	0.002 no std. given
9M Nickel	<0.05
10M Selenium	<0.001
11M Silver	<0.0001
12M Thallium	<0.1
13M Zinc	0.10 give as zn(5)
14 Cyanide	<0.005
15 Phenols	<0.001
16 Aluminum	<1

Note: ppm = parts per million
< = less than

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-4 Water-Quality Data, Well GMW-4

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Florida 33618

Lab I.D.: 85-3186-6
Date: Nov. 1, 1985

PRIORITY POLLUTANTS ANALYSES

COVER SHEET FOR RESULTS

Collector:	Bob Baker
Sample Site:	GMW 4 Whiting Field
Date and Time Collected:	November 1, 1985 1:35 p.m.
Date and Time Samples Received:	November 1, 1985 2:30 p.m.
Analysts:	Nancy Funk, David Bowers and Peggy Gaskill
Date Analyses Started:	November 4, 1985
Date Reported:	November 13, 1985

Laboratory I.D. No.: 81142

Table D-4 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-6
Sample ID. GMW 4

PRIORITY POLLUTANT ANALYSIS*

ACID EXTRACTABLES
GMW #4

		Reported in ppb	Detection Limit (ppb)
1A	2-Chlorophenol	BDL	15
2A	2,4-Dichlorophenol	BDL	10
3A	2,4-Dimethylphenol	BDL	5
4A	4,6-Dinitro-o-Cresol	BDL	50
5A	2,4-Dinitrophenol	BDL	30
6A	2-Nitrophenol	BDL	10
7A	4-Nitrophenol	BDL	20
8A	p-Chloro-m-Cresol	BDL	25
9A	Pentachlorophenol	BDL	30
10A	Phenol	BDL	5
11A	2,4,6-Trichlorophenol	BDL	20

*EPA Method 604 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600 4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
President/Manager

Table D-4 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-6
Sample I.D. GMW 4

PRIORITY POLLUTANT ANALYSIS*

BASE NEUTRAL EXTRACTABLES

		GMW #4 Reported in ppb	Detection Limit ppb			Reported in ppb	Det. Limit ppb
1B	Acenaphthene	BDL	10	24B	Diethylphthalate	BDL	10
2P	Acenaphthylene	BDL	10	25B	Dimethylphthalate	BDL	10
3	Anthracene	BDL	10	26B	Di-n-Butyl Phthalate	BDL	10
4B	Benzidine	BDL	10	27B	2,4-Dinitrotoluene	BDL	10
5B	Benzo(a)anthracene	BDL	10	28B	2,6-Dintrotoluene	BDL	10
6	Benzo(a)pyrene	BDL	10	29B	Di-n-Octyl-Phthalate	BDL	10
7L	3,4-Benzofluoranthene	BDL	10	30B	1,2-Diphenylhydrazine	BDL	10
8B	Benzo(ghi)perylene	BDL	10	31B	Fluoranthene	BDL	10
9	Benzo(k)fluoranthane	BDL	10	32B	Fluorene	BDL	10
10	Bis(2-chloroethoxy)methane	BDL	10	33B	Hexachlorobenzene	BDL	10
11B	Bis(2-chloroethyl)ether	BDL	10	34B	Hexachlorobutadiene	BDL	10
12B	Bis(2-chloroisopropyl)ether	BDL	10	35B	Hexachlorocyclopentadiene	BDL	10
13	Bis(2-ethylhexyl)phthalate	BDL	10	36B	Hexachloroethane	BDL	10
14B	4-Bromophenyl Phenyl Ether	BDL	10	37B	Indeno(1,2,3-cd)pyrene	BDL	10
15B	Butylbenzyl Phthalate	BDL	10	38B	Isophorone	BDL	10
16	2-Chloronaphthalene	BDL	10	39B	Naphthalene	BDL	10
17	4-Chlorophenyl Phenyl Other	BDL	10	40B	Nitrobenzene	BDL	10
18B	Chrysene	BDL	10	41B	N-Nitrosodimethylamine	BDL	10
19	Dibenzo(a,h)anthracene	BDL	25	42B	N-Nitrosodi-n-propylamine	BDL	10
20	1,2-Dichlorobenzene	BDL	10	43B	N-Nitrosodiphenylamine	BDL	10
21B	1,3-Dichlorobenzene	BDL	10	44B	Phenanthrene	BDL	10
22B	1,4-Dichlorobenzene	BDL	10	45B	Pyrene	BDL	10
23	3,3-Dichlorobenzidine	BDL	10	46B	1,2,4-Trichlorobenzene	BDL	10

*EPA Method 625 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limit

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-4 Continued

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-6
Sample I.D.: GMW 4

PRIORITY POLLUTANT ANALYSIS*
VOLATILES
GMW #4

		Reported in ppb	Detection Limit (ppb)
1V	Acrolein	BDL	100
2V	Acrylonitrile	BDL	100
3V	Benzene	14	1
4V	Bis(chloromethyl)ether	BDL	5
5V	Bromoform	BDL	5
6V	Carbon Tetrachloride	BDL	3
7V	Chlorobenzene	BDL	1
8V	Chlorodibromomethane	BDL	5
9V	Chloroethane	BDL	5
10V	2-Chloroethylvinyl Ether	BDL	5
11V	Chloroform	BDL	5
12V	Dichlorobromomethane	BDL	5
13V	Dichlorodifluoromethane	BDL	5
14V	1,1-Dichloroethane	BDL	5
15V	1,2-Dichloroethane	BDL	3
16V	1,1-Dichloroethylene	BDL	5
17V	1,2-Dichloropropane	BDL	5
18V	1,2-Dichloropropylene	BDL	5
19V	Ethylbenzene	BDL	1
20V	Methyl Bromide	BDL	5
21V	Methyl Chloride	BDL	Methyl Bromide
21V	Methyl Chloride	BDL	5
22V	Methylene Chloride	BDL	5
23V	1,1,2,2-Tetrachloroethane	BDL	5
24V	Tetrachloroethylene	BDL	3
25V	Toluene	BDL	1
26V	1,2-trans-Dichloroethylene	BDL	5
27V	1,1,1-Trichloroethane	BDL	5
28V	1,1,2-Trichloroethane	BDL	5
29V	Trichloroethylene	BDL	1
30V	Trichlorofluoromethane	BDL	5
31V	Vinyl Chloride	BDL	1

*EPA Method 624 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowen
W. F. B[illegible]
President/Manager

Table D-4 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-6
Sample I.D. GMW 4

PRIORITY POLLUTANT ANALYSIS*

PESTICIDES

GMW #4

		Reported in ppb	Detection Limit (ppb)
1P	Aldrin	BDL	0.01
2P	a-BHC	BDL	0.01
3P	b-BHC	BDL	0.01
4P	g-BHC	BDL	0.01
5P	d-BHC	BDL	0.01
6P	Chlorodane	BDL	0.01
7P	4,4'-DDT	BDL	0.01
8P	4,4'-DDE	BDL	0.01
9P	4,4'-DDD	BDL	0.01
10P	Dieldrin	BDL	0.01
11P	a-Endosulfan I	BDL	0.01
12P	b-Endosulfan II	BDL	0.01
13P	Endosulfan Sulfate	BDL	0.01
14P	Endrin	BDL	0.07
15P	Endrin Aldehyde	BDL	0.03
16P	Heptachlor	BDL	0.01
17P	Heptachlor Epoxide	BDL	0.01
18P	PCB-1242	BDL	0.2
19P	PCB-1254	BDL	0.2
20P	PCB-1221	BDL	0.2
21P	PCB-1232	BDL	0.2
22P	PCB-1248	BDL	0.2
23P	PCB-1260	BDL	0.2
24P	PCB-1016	BDL	0.2
25P	Toxaphene	BDL	1

*EPA Method 608 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-4 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Fla. 33618

Lab I.D. #85-3186-6
Date: Nov.1, 1985
Sample I.D. GMW 4

Priority Pollutant Analysis

GMW #4

Priority Pollutant Compound	Sample Identification Priority Pollutant Concentration (in ppm)
Metals, Cyanide, & Phenols	
1M Antimony	<0.05
2M Arsenic	<0.001
3M Beryllium	<0.01
4M Cadmium	<0.01
5M Chromium	<0.01
6M Copper	<0.01
7M Lead	<0.1
8M Mercury	0.01
9M Nickel	<0.05
10M Selenium	<0.001
11M Silver	<0.0001
12M Thallium	<0.1
13M Zinc	0.13
14 Cyanide	<0.005
15 Phenols	<0.001
16 Aluminum	<1

Note: ppm = parts per million
< = less than

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-5 Water-Quality Data, South Supply Well W-S2

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Florida 33618

Lab I.D.: 85-3186-3
Date: Nov. 1, 1985

PRIORITY POLLUTANTS ANALYSES

COVER SHEET FOR RESULTS

Collector:	Bob Baker
Sample Site:	WS 2 Whiting Field
Date and Time Collected:	November 1, 1985 11:10 a.m.
Date and Time Samples Received:	November 1, 1985 2:30 p.m.
Analysts:	Nancy Funk, David Bowers and Peggy Gaskill
Date Analyses Started:	November 4, 1985
Date Reported:	November 13, 1985

Laboratory I.D. No.: 81142

Table D-5 Continued

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-3
Sample ID. WS 2

PRIORITY POLLUTANT ANALYSIS*

ACID EXTRACTABLES

South Supply Well W-S2

		Reported in ppb	Detection Limit (ppb)
1A	2-Chlorophenol	BDL	15
2A	2,4-Dichlorophenol	BDL	10
3A	2,4-Dimethylphenol	BDL	5
4A	4,6-Dinitro-o-Cresol	BDL	50
5A	2,4-Dinitrophenol	BDL	30
6A	2-Nitrophenol	BDL	10
7A	4-Nitrophenol	BDL	20
8A	p-Chloro-m-Cresol	BDL	25
9A	Pentachlorophenol	BDL	30
10A	Phenol	BDL	5
11A	2,4,6-Trichlorophenol	BDL	20

*EPA Method 604 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600 4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-5 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-3
Sample I.D. WS 2

PRIORITY POLLUTANT ANALYSIS*

BASE NEUTRAL EXTRACTABLES

South Supply Well W-S2

		Reported in ppb	Detection Limit ppb			Reported in ppb	Det. Limit ppb
1B	Acenaphthene	BDL	10	24B	Diethylphthalate	BDL	10
2B	Acenaphthylene	BDL	10	25B	Dimethylphthalate	BDL	10
3B	Anthracene	BDL	10	26B	Di-n-Butyl Phthalate	BDL	10
4B	Benzidine	BDL	10	27B	2,4-Dinitrotoluene	BDL	10
5B	Benzo(a)anthracene	BDL	10	28B	2,6-Dintrotoluene	BDL	10
6B	Benzo(a)pyrene	BDL	10	29B	Di-n-Octyl-Phthalate	BDL	10
7B	3,4-Benzofluoranthene	BDL	10	30B	1,2-Diphenylhydrazine	BDL	10
8B	Benzo(ghi)perylene	BDL	10	31B	Fluoranthene	BDL	10
9B	Benzo(k)fluoranthane	BDL	10	32B	Fluorene	BDL	10
10B	Bis(2-chloroethoxy)methane	BDL	10	33B	Hexachlorobenzene	BDL	10
11B	Bis(2-chloroethyl)ether	BDL	10	34B	Hexachlorobutadiene	BDL	10
12B	Bis(2-chloroisopropyl)ether	BDL	10	35B	Hexachlorocyclopentadiene	BDL	10
13B	Bis(2-ethylhexyl)phthalate	BDL	10	36B	Hexachloroethane	BDL	10
14B	4-Bromophenyl Phenyl Ether	BDL	10	37B	Indeno(1,2,3-cd)pyrene	BDL	10
15B	Butylbenzyl Phthalate	BDL	10	38B	Isophorone	BDL	10
16B	2-Chloronaphthalene	BDL	10	39B	Naphthalene	BDL	10
17B	4-Chlorophenyl Phenyl Other	BDL	10	40B	Nitrobenzene	BDL	10
18B	Chrysene	BDL	10	41B	N-Nitrosodimethylamine	BDL	10
19B	Dibenzo(a,h)anthracene	BDL	25	42B	N-Nitrosodi-n-propylamine	BDL	10
20B	1,2-Dichlorobenzene	BDL	10	43B	N-Nitrosodiphenylamine	BDL	10
21B	1,3-Dichlorobenzene	BDL	10	44B	Phenanthrene	BDL	10
22B	1,4-Dichlorobenzene	BDL	10	45B	Pyrene	BDL	10
23B	3,3-Dichlorobenzidine	BDL	10	46B	1,2,4-Trichlorobenzene	BDL	10

*EPA Method 625 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limit

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-5 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-3
Sample I.D. WS 2

PRIORITY POLLUTANT ANALYSIS*

PESTICIDES

South Supply Well W-S2

		Reported in ppb	Detection Limit (ppb)
1P	Aldrin	BDL	0.01
2P	a-BHC	BDL	0.01
3P	b-BHC	BDL	0.01
4P	g-BHC	BDL	0.01
5P	d-BHC	BDL	0.01
6P	Chlorodane	BDL	0.01
7P	4,4'-DDT	BDL	0.01
8P	4,4'-DDE	BDL	0.01
9P	4,4'-DDD	BDL	0.01
10P	Dieldrin	BDL	0.01
11P	a-Endosulfan I	BDL	0.01
12P	b-Endosulfan II	BDL	0.01
13P	Endosulfan Sulfate	BDL	0.01
14P	Endrin	BDL	0.07
15P	Endrin Aldehyde	BDL	0.03
16P	Heptachlor	BDL	0.01
17P	Heptachlor Epoxide	BDL	0.01
18P	PCB-1242	BDL	0.2
19P	PCB-1254	BDL	0.2
20P	PCB-1221	BDL	0.2
21P	PCB-1232	BDL	0.2
22P	PCB-1248	BDL	0.2
23P	PCB-1260	BDL	0.2
24P	PCB-1016	BDL	0.2
25P	Toxaphene	BDL	1

*EPA Method 608 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-5 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-3
Sample I.D.: WS 2

PRIORITY POLLUTANT ANALYSIS*
VOLATILES
South Supply Well W-S2

		Reported in ppb	Detection Limit (ppb)
1V	Acrolein	BDL	100
2V	Acrylonitrile	BDL	100
3V	Benzene	BDL	1
4V	Bis(chloromethyl)ether	BDL	5
5V	Bromoform	BDL	5
6V	Carbon Tetrachloride	BDL	3
7V	Chlorobenzene	BDL	1
8V	Chlorodibromomethane	BDL	5
9V	Chloroethane	BDL	5
10V	2-Chloroethylvinyl Ether	BDL	5
11V	Chloroform	BDL	5
12V	Dichlorobromomethane	BDL	5
13V	Dichlorodifluoromethane	BDL	5
14V	1,1-Dichloroethane	BDL	5
15V	1,2-Dichloroethane	BDL	3
16V	1,1-Dichloroethylene	BDL	5
17V	1,2-Dichloropropane	BDL	5
18V	1,2-Dichloropropylene	BDL	5
19V	Ethylbenzene	BDL	1
20V	Methyl Bromide	BDL	5
21V	Methyl Chloride	BDL	5
22V	Methylene Chloride	BDL	5
23V	1,1,2,2-Tetrachloroethane	BDL	5
24V	Tetrachloroethylene	BDL	3
25V	Toluene	BDL	1
26V	1,2-trans-Dichloroethylene	BDL	5
27V	1,1,1-Trichloroethane	BDL	5
28V	1,1,2-Trichloroethane	BDL	5
29V	Trichloroethylene	4	1
30V	Trichlorofluoromethane	BDL	5
31V	Vinyl Chloride	BDL	1

*EPA Method 624 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-5 Continued

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Fla. 33618

Lab I.D. #85-3186-3
Date: Nov.1, 1985
Sample I.D. WS 2

Priority Pollutant Analysis

South Supply Well W-S2

Priority Pollutant Compound	Sample Identification Priority Pollutant Concentration (in ppm)
Metals, Cyanide, & Phenols	
1M Antimony	<0.05
2M Arsenic	<0.001
3M Beryllium	<0.01
4M Cadmium	<0.01
5M Chromium	<0.01
6M Copper	<0.01
7M Lead	<0.1
8M Mercury	0.003
9M Nickel	<0.05
10M Selenium	<0.001
11M Silver	<0.0001
12M Thallium	<0.1
13M Zinc	0.02
14 Cyanide	<0.005
15 Phenols	<0.001
16 Aluminum	<1

Note: ppm = parts per million
< = less than

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-6 Water-Quality Data, Finished Water Supply

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Florida 33618

Lab I.D.: 85-3186-1
Date: Nov. 1, 1985

PRIORITY POLLUTANTS ANALYSES

COVER SHEET FOR RESULTS

Collector: Bob Baker

Sample Site: ATS Whiting Field

Date and Time Collected: November 1, 1985 1:10 p.m.

Date and Time Samples Received: November 1, 1985 2:30 p.m.

Analysts: Nancy Funk, David Bowers and Peggy Gaskill

Date Analyses Started: November 4, 1985

Date Reported: November 13, 1985

Laboratory I.D. No.: 81142

Table D-6 Continued

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-1
Sample ID. ATS
Whiting Field

PRIORITY POLLUTANT ANALYSIS*

ACID EXTRACTABLES

Finished Water Supply

		Reported in ppb	Detection Limit (ppb)
1A	2-Chlorophenol	BDL	15
2A	2,4-Dichlorophenol	BDL	10
3A	2,4-Dimethylphenol	BDL	5
4A	4,6-Dinitro-o-Cresol	BDL	50
5A	2,4-Dinitrophenol	BDL	30
6A	2-Nitrophenol	BDL	10
7A	4-Nitrophenol	BDL	20
8A	p-Chloro-m-Cresol	BDL	25
9A	Pentachlorophenol	BDL	30
10A	Phenol	BDL	5
11A	2,4,6-Trichlorophenol	BDL	20

*EPA Method 604 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600 4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-6 Continued

Pioneer
PLI LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-1
Sample I.D. ATS Whiting Field

PRIORITY POLLUTANT ANALYSIS*

BASE NEUTRAL EXTRACTABLES

Finished Water Supply

		Reported in ppb	Detection Limit ppb			Reported in ppb	Det. Limit ppb
1B	Acenaphthene	BDL	10	24B	Diethylphthalate	BDL	10
2B	Acenaphthylene	BDL	10	25B	Dimethylphthalate	BDL	10
[illegible]	Anthracene	BDL	10	26B	Di-n-Butyl Phthalate	BDL	10
4B	Benzidine	BDL	10	27B	2,4-Dinitrotoluene	BDL	10
5B	Benzo(a)anthracene	BDL	10	28B	2,6-Dintrotoluene	BDL	10
[illegible]	Benzo(a)pyrene	BDL	10	29B	Di-n-Octyl-Phthalate	BDL	10
[illegible]	3,4-Benzofluoranthene	BDL	10	30B	1,2-Diphenylhydrazine	BDL	10
8B	Benzo(ghi)perylene	BDL	10	31B	Fluoranthene	BDL	10
9B	Benzo(k)fluoranthane	BDL	10	32B	Fluorene	BDL	10
[illegible]B	Bis(2-chloroethoxy)methane	BDL	10	33B	Hexachlorobenzene	BDL	10
11B	Bis(2-chloroethyl)ether	BDL	10	34B	Hexachlorobutadiene	BDL	10
12B	Bis(2-chloroisopropyl)ether	BDL	10	35B	Hexachlorocyclopentadiene	BDL	10
[illegible]B	Bis(2-ethylhexyl)phthalate	BDL	10	36B	Hexachloroethane	BDL	10
14B	4-Bromophenyl Phenyl Ether	BDL	10	37B	Indeno(1,2,3-cd)pyrene	BDL	10
15B	Butylbenzyl Phthalate	BDL	10	38B	Isophorone	BDL	10
[illegible]B	2-Chloronaphthalene	BDL	10	39B	Naphthalene	BDL	10
[illegible]B	4-Chlorophenyl Phenyl Other	BDL	10	40B	Nitrobenzene	BDL	10
18B	Chrysene	BDL	10	41B	N-Nitrosodimethylamine	BDL	10
19B	Dibenzo(a,h)anthracene	BDL	25	42B	N-Nitrosodi-n-propylamine	BDL	10
[illegible]B	1,2-Dichlorobenzene	BDL	10	43B	N-Nitrosodiphenylamine	BDL	10
21B	1,3-Dichlorobenzene	BDL	10	44B	Phenanthrene	BDL	10
22B	1,4-Dichlorobenzene	BDL	10	45B	Pyrene	BDL	10
[illegible]B	3,3-Dichlorobenzidine	BDL	10	46B	1,2,4-Trichlorobenzene	BDL	10

*EPA Method 625 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limit

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-6 Continued

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-1
Sample I.D. ATS
Whiting Field

PRIORITY POLLUTANT ANALYSIS*

PESTICIDES

Finished Water Supply

		Reported in ppb	Detection Limit (ppb)
1P	Aldrin	BDL	0.01
2P	a-BHC	BDL	0.01
3P	b-BHC	BDL	0.01
4P	g-BHC	BDL	0.01
5P	d-BHC	BDL	0.01
6P	Chlorodane	BDL	0.01
7P	4,4'-DDT	BDL	0.01
8P	4,4'-DDE	BDL	0.01
9P	4,4'-DDD	BDL	0.01
10P	Dieldrin	BDL	0.01
11P	a-Endosulfan I	BDL	0.01
12P	b-Endosulfan II	BDL	0.01
13P	Endosulfan Sulfate	BDL	0.01
14P	Endrin	BDL	0.07
15P	Endrin Aldehyde	BDL	0.03
16P	Heptachlor	BDL	0.01
17P	Heptachlor Epoxide	BDL	0.01
18P	PCB-1242	BDL	0.2
19P	PCB-1254	BDL	0.2
20P	PCB-1221	BDL	0.2
21P	PCB-1232	BDL	0.2
22P	PCB-1248	BDL	0.2
23P	PCB-1260	BDL	0.2
24P	PCB-1016	BDL	0.2
25P	Toxaphene	BDL	1

*EPA Method 608 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
W. F. Bowers
President/Manager

Table D-6 Continued

Pioneer LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, FL 33618

Lab I.D. #85-3186-1
Sample I.D.: ATS
Whiting Field

PRIORITY POLLUTANT ANALYSIS*
VOLATILES
Finished Water Supply

		Reported in ppb	Detection Limit (ppb)
1V	Acrolein	BDL	100
2V	Acrylonitrile	BDL	100
3V	Benzene	BDL	1
4V	Bis(chloromethyl)ether	BDL	5
5V	Bromoform	BDL	5
6V	Carbon Tetrachloride	BDL	3
7V	Chlorobenzene	BDL	1
8V	Chlorodibromomethane	BDL	5
9V	Chloroethane	BDL	5
10V	2-Chloroethylvinyl Ether	BDL	5
11V	Chloroform	BDL	5
12V	Dichlorobromomethane	BDL	5
13V	Dichlorodifluoromethane	BDL	5
14V	1,1-Dichloroethane	BDL	5
15V	1,2-Dichloroethane	BDL	3
16V	1,1-Dichloroethylene	BDL	5
17V	1,2-Dichloropropane	BDL	5
18V	1,2-Dichloropropylene	BDL	5
19V	Ethylbenzene	BDL	1
20V	Methyl Bromide	BDL	5
21V	Methyl Chloride	BDL	5
22V	Methylene Chloride	BDL	5
23V	1,1,2,2-Tetrachloroethane	BDL	5
24V	Tetrachloroethylene	BDL	3
25V	Toluene	BDL	1
26V	1,2-trans-Dichloroethylene	BDL	5
27V	1,1,1-Trichloroethane	BDL	5
28V	1,1,2-Trichloroethane	BDL	5
29V	Trichloroethylene	7	1
30V	Trichlorofluoromethane	BDL	5
31V	Vinyl Chloride	BDL	1

*EPA Method 624 - Reference: Method for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.

Notes: ppb - parts per billion
BDL - Below Detection Limits

Approved by W. F. Bowers
President/Manager

Table D-6 Continued

Pioneer
PL LABORATORY, INC.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

TO: Geraghty & Miller
13902 North Dale Mabry Highway
Tampa, Fla. 33618

Lab I.D. #85-3186-1
Date: Nov.1, 1985
Sample I.D. ATS

Priority Pollutant Analysis

Finished Water Supply

Priority Pollutant Compound	Sample Identification Priority Pollutant Concentration (in ppm)
Metals, Cyanide, & Phenols	
1M Antimony	<0.05
2M Arsenic	<0.001
3M Beryllium	<0.01
4M Cadmium	<0.01
5M Chromium	<0.05
6M Copper	0.11
7M Lead	<0.10
8M Mercury	<0.0001
9M Nickel	<0.05
10M Selenium	<0.001
11M Silver	<0.0001
12M Thallium	<0.1
13M Zinc	0.02
14 Cyanide	<0.005
15 Phenols	<0.001
16 Aluminum	<1

Note: ppm = parts per million
< = less than

Approved by W. F. Bowers
W. F. Bowers
President/Manager