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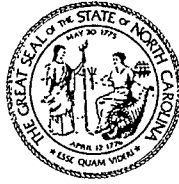


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State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Solid Waste Management
P.O. Box 27687 · Raleigh, North Carolina 27611-7687

James G. Martin, Governor
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June 2, 1992

Ms. Kathy Amoroso
EPA NC CERCLA Project Officer
EPA Region IV Waste Division
345 Courtland Street, NE
Atlanta, Georgia 30365

RE: Phase II, Screening Site Investigation
CP&L, Sutton Steam Electric Plant
Wilmington, New Hanover County, North Carolina
NCD 000 830 646

Dear Ms. Amoroso:

Enclosed herewith is the Phase II, Screening Site Investigation (SSI) Report by Greenhorne & O'Mara, Inc. for CP&L, Sutton Steam Electric Plant (NCD 000 830 646).

Based on the information gathered and presented in this report, and on the results of the data validation, we recommend that this site be assigned a Medium priority for an Expanded Site Investigation.

The following discussion of the analytical results from the Phase II, SSI sampling event for the subject site, reflects data validation.

A total of nine (9) environmental samples were collected to characterize the site. To characterize whether a release of contaminants has occurred, a limited subsurface and surficial investigation was conducted to obtain ground water, surface water, soil and sediment samples for laboratory analysis. The sampling locations are shown on Appendix A, Figure 2. These samples consisted of three (3) ground water sample, one (1) on-site drinking water well sample, three (3) composite soil samples and two (2) sediment samples.

Soils

A background surface soil sample (CLSS01) was collected at the site. No Purgable Organics, Base Neutral Acid Extractable (BNAs) or Pesticides/PCBs were reported in this sample. See Table 1 for the inorganic results.

A composite soil sample (CLSS02) was collected from three locations in the vicinity of the inactive fly-ash pond. No Purgable Organics, BNAs or Pesticides/PCBs were reported in this sample. See Table 1 for the inorganic results.

A composite soil sample (CLSS03) was collected from three locations in the vicinity of the old fly-ash pond. No Purgable Organics or BNAs were reported in this sample. 4,4'-DDD (3.7 ppb) was the only Pesticide/PCB reported in this sample. This concentration is considered significant. See Table 1 for the inorganic results.

An observed release to soils has been documented from the data gathered relative to the soil samples. It appears that there are releases of 4,4'-DDD, aluminum, arsenic, barium, beryllium, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, selenium, thallium, vanadium and zinc. The values reported for all inorganics, except selenium, were within naturally occurring concentrations for inorganics in soils in the Eastern United States. Arsenic, chromium and lead are known to be attributable to site activities.

Sediments

An upstream sediment sample (CLSED01) was collected at the site. No Purgable Organics, BNAs or Pesticides/PCBs were reported in this sample. Barium (45/0.47 ppm) and lead (19/U ppm) were the only inorganics reported in this sample. The first value given in parenthesis is for totals and the second is for TCLP. Barium and lead were reported within naturally occurring concentrations for barium and lead in soils in the Eastern United States.

A downstream sediment sample (CLSED02) was collected downstream of the site on the Cape Fear River. No Purgable Organics, BNAs or Pesticides/PCBs were reported in this sample. Arsenic (5.8/U ppm), barium (21/0.36 ppm) and lead (19/U ppm) were the only inorganics reported in a significant concentration in this sample. All inorganics reported in this sample were within naturally occurring concentrations for inorganics in soils in the Eastern United States.

An observed release to sediments has been documented from the data gathered relative to sediment samples. It appears that there are releases of arsenic. Arsenic is known to be attributable to site activities.

Ground Water

A background ground water (CLMW01) was collected from an existing monitoring well on-site. No Purgable Organics, BNAs or Pesticides/PCBs were detected in this sample. See Table 2 for the inorganic results.

A downgradient ground water sample (CLGW02) was collected from a temporary monitoring well, located at the edge of the inactive fly-ash pond. No Purgable Organics, BNAs or Pesticides/PCBs were reported in this sample. See Table 2 for the inorganic results.

A downgradient ground water sample (CLGW03) was collected from a temporary monitoring well, located at the edge of the old fly-ash pond near the aboveground storage tanks. No Purgable Organics or Pesticides/PCBs were reported in this sample. Diethylphthalate (U/1J ppb) was the only BNA reported in this sample. See Table 2 for the inorganic results.

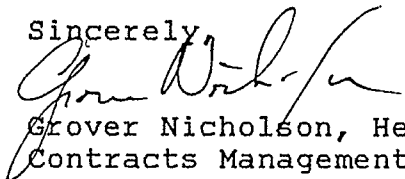
An on-site drinking water well sample (CLDW01) was collected from an on-site drinking water well located on the southern part of the site. No Purgable Organics, BNAs or Pesticides/PCBs were reported in this sample. See Table 2 for the inorganic results.

An observed release to groundwater has been documented from the data gathered relative to ground water samples. It appears that significant releases of aluminum, arsenic, barium, beryllium, calcium, chromium, copper, iron, lead, mercury, nickel, selenium, vanadium and zinc have occurred to the groundwater. As can be seen from Table 2, arsenic, barium, beryllium, chromium, iron, lead, nickel, selenium and thallium are greater than their respective North Carolina Maximum Contaminant Level (NCMCL) and/or Federal Maximum Contaminant Level (MCL). Arsenic, mercury, chromium and lead are known to be attributable to site activities.

Based on the information gathered and presented in this report, and on the results of the data validation, we recommend that this site be assigned a Medium priority for an Expanded Site Investigation. During the Expanded Site Investigation, we believe that the New Hanover County Municipal well and the nearby wetlands should be investigated to determine if any contaminants have migrated to these areas.

If you have any questions, please contact me at 919-733-2801.

Sincerely,


Grover Nicholson, Head
Contracts Management Branch

Enclosures

TABLE 1
CP&L, SUTTON STEAM ELECTRIC PLANT
NCD 000 830 646

INORGANICS	SOILS NATURAL RANGE (PPM)	CLSS01 (PPM)	CLSS02 (PPM)	CLSS03 (PPM)
ALUMINUM	0.7->10%	50U	2000	990
ANTIMONY	<1-8.8	8.8U	9.9U	9.2U
ARSENIC	<0.1-73	1U	40	0.22U
BARIUM	10-1500	0.42U	47	3U
BERYLLIUM	<1-7	0.22U	0.29	0.22U
CADMIUM	0.01-0.7	0.83U	0.94UJ	0.88U
CALCIUM	0.01-20%	30U	3100	4100
CHROMIUM	1-1000	1U	9.8	1.1U
COBALT	<0.3-70	1U	1.3	1.1U
COPPER	<1-700	0.83U	27	0.88U
IRON	0.01->10%	40	9900	650
LEAD	<10-300	1U	2.6	1.9
MAGNESIUM	0.005-5%	8.8U	190	140
MANGANESE	<2-7000	0.42U	82	1.8
MERCURY	0.01-3.4	1UJ	0.2UJ	0.1UJ
NICKEL	<3-700	2.3U	7	2.4U
POTASSIUM	0.005-3.7%	380U	430U	400U
SELENIUM	<0.1-3.9	0.21U	4	0.22U
SILVER	0.01-5	1U	1.2U	1.1U
SODIUM	0.05-5%	110U	200U	130U
THALLIUM	-	0.42U	0.48U	0.44U
VANADIUM	<7-500	0.83U	11	1.8J
ZINC	<5-2900	4U	11	5.2
CYANIDE	-	4.9U	5.3U	5.4U

NOTES:

- 1) NA - NOT ANALYZED
- 2) N - PRESENCE OF CONTAMINANT PRESUMED
- 3) J - CONCENTRATION ESTIMATED
- 4) U - NON-DETECT
- 5) B - CONTAMINANT FOUND IN ASSOCIATED BLANK

TABLE 2
CP&L, SUTTON STEAM ELECTRIC PLANT
NCD 000 830 646

INORGANICS	WATER NCMCL (PPB)	WATER MCL (PPB)	CLMW01 (PPB)	CLGW02 (PPB)	CLGW03 (PPB)	CLDW01 (PPB)
ALUMINUM	-	-	2700J	100000	240000J	NA
ANTIMONY	-	10/5	42UJ	42U	42UJ	NA
ARSENIC	50	-	1UJ	160	200J	U
BARIUM	1000	5000	50UJ	1900	660J	60
BERYLLIUM	-	1	1UJ	20J	1UJ	NA
CADMIUM	5	5	4UJ	4UJ	4UJ	U
CALCIUM	-	-	21000J	84000	99000J	NA
CHROMIUM	50	100	5UJ	220	150J	U
COBALT	-	-	5UJ	45	13J	NA
COPPER	1000	1300	4UJ	820	67J	NA
IRON	300	-	1600J	41000	92000J	NA
LEAD	50	50	2UJ	98	190J	U
MAGNESIUM	-	-	9000J	17000	4700J	NA
MANGANESE	50	-	890J	300	210J	NA
MERCURY	1.1	2	0.10UJ	0.55	0.91J	U
NICKEL	150	100	11UJ	190	50J	NA
POTASSIUM	-	-	4900J	20000	7600J	NA
SELENIUM	10	50	2UJ	110	43J	U
SILVER	50	-	5UJ	5U	5UJ	U
SODIUM	-	-	60000J	23000	4000UJ	NA
THALLIUM	-	2/1	2UJ	13	3UJ	NA
VANADIUM	-	-	4UJ	490	360J	NA
ZINC	5000	-	20UJ	240	92J	NA
CYANIDE	154	200	10U	10U	10U	NA

NOTES:

- 1) NA - NOT ANALYZED
- 2) N - PRESENCE OF CONTAMINANT PRESUMED
- 3) J - CONCENTRATION ESTIMATED
- 4) U - NON-DETECT
- 5) R - DATA UNUSABLE
- 6) B - CONTAMINANT FOUND IN THE ASSOCIATED BLANK
- 7) NCMCL - NORTH CAROLINA MAXIMUM CONTAMINANT LEVEL
- 8) MCL - FEDERAL MAXIMUM CONTAMINANT LEVEL

CERCLA

PHASE II
SCREENING SITE INVESTIGATION
FOR THE
CAROLINA POWER AND LIGHT COMPANY,
SUTTON STEAM ELECTRIC PLANT
WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA
NCD 000830646

Submitted to:

State of North Carolina
Department of Environment, Health,
and Natural Resources
Division of Solid Waste Management
Superfund Section
Raleigh, North Carolina

Prepared By:

Greenhorne & O'Mara, Inc.
9001 Edmonston Road
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December 1991
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EXECUTIVE SUMMARY

The Carolina Power and Light, Sutton Steam Electric Plant is located on State Route 1394, east of U.S. Highway 421, approximately 4 miles northwest of Wilmington, North Carolina in New Hanover County. The site is located on a relatively flat large (1200-acres) parcel of land adjacent to the Cape Fear River. The plant consists of an electric coal generation facility, two inactive fly-ash ponds and one active fly-ash pond.

The Sutton Steam Plant currently generates electrical energy by burning coal, supplemented by oil during periods of peak demand. Approximately 5,000 tons of coal is burned per day, which generates about 750 tons of coal fly-ash per day. The fly-ash has been disposed of on the site in three lagoons: the active fly-ash pond, the inactive fly-ash pond and the old fly-ash pond. Both the inactive and the old fly-ash pond are not currently used to dispose of waste, but the active fly-ash pond is still receiving fly-ash. The active fly-ash pond, covering 74.3 acres, was constructed in 1985 and has a one foot thick clay liner. The inactive pond is unlined and covers 68 acres of land. The old fly-ash pond is currently over grown with grass. An unknown amount of fly-ash has been disposed of in these lagoons.

There are two (2) 11-million gallon above-ground storage tanks on the site. One is used to store "White Liquor," and the other is used to store "Kraft Pulping Liquor." Additionally, a small drum storage area is located on the site. There are 24 monitoring wells installed at the site.

The site is located in the Atlantic Coastal Plain Physiographic Province in the southeastern portion of the state. The plant is situated on the Cape Fear River alluvial plain between the coastal dunes and the interior uplands, with local elevations ranging from 15 feet above sea level to sea level. Two aquifers are used in New Hanover County for potable water. The first aquifer, and the main source of drinking water in the area of the facility, is the water-table aquifer. The water-table aquifer consists of 30 feet of surficial deposits interconnected with the upper portion of the Peedee Formation. The second aquifer in the area is the lower portion of the Peedee Formation, generally below depths of 100 to 120 feet below the land surface.

Runoff originating from the site enters the Cape Fear River, which is approximately 700 feet from the site. The Cape Fear River enters the Atlantic Ocean more than 15 miles downstream.

The NUS Corporation conducted a Phase I Screening Site Investigation (SSI) June 30, 1989. Based on the available information, the NUS report recommended that a Phase II SSI be conducted on a medium-priority basis. Consequently, Greenhorne & O'Mara, Inc. (G&O), under contract with North Carolina Department of Environment Health, and Natural resources (NCDEHNR), conducted a Phase II SSI on June 27, 1991. A total of nine (9) environmental samples were collected at the site. Analytical results from the groundwater, sediment, and soils samples obtained indicated that significant releases of hazardous contaminants have occurred. The metals detected, including arsenic, cadmium, chromium, mercury, lead, and selenium, have been attributed to site activities. In addition, releases from the site may affect a nearby New Hanover County drinking water well

field, and fishing and sensitive environments located downstream. Therefore, G&O is recommending that the site proceed into the next stage of the pre-remedial process.

1.0 INTRODUCTION

1.1 OBJECTIVES

Greenhorne and O'Mara, Inc. (G&O) conducted a Phase II Screening Site Inspection (SSI) at the CP&L, Sutton Steam Electric Plant site located in Wilmington, New Hanover County, North Carolina. The overall objective of the Phase II SSI is to provide information to support the recommendation that a site should move onto the next stage of the pre-remedial process or be designated as "no further remedial action planned (NFRAP)" under the Federal Superfund program. Additional objectives of the Phase II SSI are the following:

- 0 Identify the types of contaminants present.
- 0 Assess whether a release of hazardous substances has occurred;
- 0 Search for evidence of actual human and environmental exposure to contaminants.
- 0 Determine the likelihood of the site scoring high enough on the HRS to be recommended for further pre-remedial action under the Federal Superfund program.

The SSI builds upon data obtained during the preliminary assessment (PA) and Phase I SSI stages to further characterize problems at or near the site and to support a management recommendation.

1.2 SCOPE OF WORK

The scope of work for the Phase II SSI includes the following tasks:

- 0 Reviewing both EPA and state file material.
- 0 Preparing an abbreviated site-specific sampling plan and Health and Safety Plan. This task included developing a site map to illustrate proposed sampling locations, the approximate number of samples, and the type of samples to be collected.
- 0 Conducting a site reconnaissance with the NCDEHNR to determine and flag actual sampling locations based on the sampling plan and existing field conditions, and the professional judgement of the NCDEHNR and the G&O sampling team. During the site reconnaissance, G&O also developed a site layout map to illustrate all of the important site features including location of buildings, access roads, and waste source areas, as well as site drainage.
- 0 Performing field sampling activities by collecting up to five (5) environmental media samples and three (3) QA/QC samples. The five environmental samples usually included two (2) groundwater samples (with a maximum well depth of 15 feet) and three (3) surface soil samples. The three (3) QA/QC samples included one (1) water duplicate, one (1) surface soil duplicate, and one (1) trip blank.

- 0 Analyzing laboratory data and presenting the data in four summary tables: volatile organic compounds, semi-volatile organic compounds, inorganic compounds, and pesticides/PCBs. Any releases that were observed were highlighted on the tables and discussed in the Phase II SSI report.
- 0 Preparing a Phase II SSI report that presents information gathered during the site visit, field observations, and laboratory data with respect to observed releases. Any existing data gaps will be discussed in the text. Greenhorne and O'Mara was not contracted to collect additional background information.

2.0 SITE CHARACTERIZATION

2.1 SITE BACKGROUND AND HISTORY

The Carolina Power and Light Company (CP&L), Sutton Steam Electric Plant generates electricity by burning coal. Peak demand for electricity is met by the use of a supplemental oil fired generator (Ref. 24 and 27). The date that the plant was built is unknown (Ref. 1 and 21). The cooling water pond and the inactive fly ash pond were constructed in June 1972 (Appendix A, Photo #3 & 6). It is unknown when the oldest fly ash pond was constructed (Appendix A, Photo #4). The new fly ash pond was constructed in September 1985 (Appendix A, Photo #1 & 2; Ref. 22).

CP&L submitted a RCRA Part A Permit application on November 18, 1980 as a precautionary measure (Ref. 21). At the time of the submittal, CP&L did not treat, dispose of, or store hazardous waste at the plant; however, the facility managers were unsure whether future activities would generate hazardous waste. The facility was subsequently classified as a large quantity generator. The NCDEHNR conducted a RCRA Interim Status Inspection of the facility on January 12, 1982 (Ref. 1, 20, and 24). The inspection revealed that the plant did not produce hazardous waste. As part of the inspection, three water samples were collected from the plant's basins and analyzed for pH, suspended solids, arsenic, barium, cadmium, chromium, lead, mercury, and selenium. The concentrations of the inorganic metals were below the tests detection limits (Ref. 24). On August 9, 1982, the classification of the facility under RCRA was changed to delete the facility as a generator and add it as a small quantity generator (Ref. 2). CP&L currently has an NPDES Permit (No. NC0001422) effective January 1, 1990 and expiring on December 31, 1994 for the discharge of wastewater to the Cape Fear River (Ref. 23). Based on readily available information, there have been no violations to date. The NUS Corporation conducted a off-site reconnaissance of the 1,200 acre plant on February 7, 1989. Due to the proximity of the site to the Cape Fear River and the potential to adversely affect fish and endangered species habitats downstream of the site, a medium-priority Phase II SSI was recommended. Therefore, on June 27, 1991, G&O staff conducted an on-site reconnaissance and carried out a sampling plan on the site.

2.2 SITE DESCRIPTION

2.2.1 Site Location

The CP&L, Sutton Steam Electric Plant is located approximately 4 miles northwest of the City of Wilmington, along the east bank of the Cape Fear River, approximately 3,000 feet downstream of the confluence with Indian Creek (Appendix A, Figure 1). The site is shown on the Castle Hayne and the Leland, North Carolina USGS Topographic Maps at latitude 34° 17' 0"N and longitude 077° 59' 0"W (Ref. 4).

2.2.2 Site Features

The site is located on a relatively flat large parcel of land adjacent to the Cape Fear River and includes an electric coal generation facility,

three fly ash ponds (one active, two inactive), a large cooling water pond, and sections of wooded, undeveloped land that can be accessed by a system of unimproved roads. The site is completely fenced and is inaccessible to the public (Ref. 16). The site is bounded on the west by the Cape Fear River and to the southeast by the CSX Railroad (formerly Seaboard Coast Line). A chemical manufacturing company is located adjacent to the site, on the northeast, just east of the CSX Railroad. Undeveloped wetland areas border the site to the north (Ref. 4).

The Sutton Steam Electric Plant generates electricity. Fly ash is a byproduct of the coal incineration and has historically been disposed of in lined and unlined diked ponds or lagoons located on the site (Ref. 8 and 17). There are two inactive and one active fly ash ponds located on the site. The active fly ash pond covers 74.3 acres and has a volume of approximately 2,158,000 cubic yards. It was constructed with a one foot thick clay liner in 1985. The inactive fly ash pond is unlined and has a volume of approximately 500,000 cubic yards and a surface area of 68 acres at an elevation of 15.5 feet (Ref. 22). The oldest (original) fly ash pond is located adjacent to the plant at the location of the two 11-million gallon AGSTs, was apparently graded flat and is currently grassed (Ref. 17).

A large cooling water pond, located just east of the Cape Fear River, was constructed in 1972 to provide cooling water to the coal generation facility. Water is supplied by the Cape Fear River. The pond is divided by a series of stone and soil diking systems, designed to create a circular flow around the perimeter of the pond to maximize cooling efficiency (Appendix A, Figure 2, Photo #6). A concrete canal system connects the ends of the cooling pond circuit to the coal generation plant (Appendix A, Figure 2, Photo #5).

A small drum storage area was observed to contain ten 55-gallon drums. The drums are stored in a recently constructed concrete containment basin. The drums reportedly contain various types of petroleum lubricating oils and cleaning/degreasing products. There were no signs of prior spills or leaks observed in this area during G&O's Phase II field reconnaissance (Ref. 17). There are two 11 million-gallon AGSTs in the southern portion of the site, one of which is currently used to store white liquor, a liquid used in the paper industry. The other AGST, used to store "Kraft Pulping Liquor," was observed to be empty. The two AGSTs are situated adjacent to each other and are surrounded by a dike to contain any spills. No clay or impermeable liner was observed. A pipe system extends from the AGSTs to a pier, located on the Cape Fear River, which is used to transfer product from barges.

There are 24 monitoring wells, constructed of 2-inch PVC pipe, located onsite. The plant receives its potable water and boiler water from four on-site wells, two of which are currently in service. In addition, there are three county wells just offsite (Ref. 17). A large cooling water pond with open channel supply and return was constructed just east of the Cape Fear River in 1972 (Ref. 17).

2.2.3 Waste Characteristics

The Sutton Steam Electric Plant currently burns coal at a rate of 5,000 tons/day to generate electricity. Fly ash, a byproduct of the coal

incineration, is generated at a rate of 750 tons/day (Ref. 16). The fly ash has historically been disposed of in lined and unlined ponds or lagoons (Ref. 16, 17 and 22). There are two inactive and one active fly ash ponds located on the site. The fly ash disposed of onsite contains heavy metals, including arsenic, mercury, chromium, and lead (Ref. 1, 16, and 20). There are two basins of unknown size and condition used for the disposal of oil contaminants, boiler blowdown, and flashtank overflow. Monitoring wells onsite are tested for various parameters, including chloride, solvents, arsenic, selenium, iron, and total dissolved solids (Ref. 17). No hazardous wastes or substances were listed on the facility's EPA RCRA Part A Permit application (Ref. 21). According to facility representatives, the solvents 2-butanone (MEK) and varsol are used for cleaning (Ref. 17). There have been no known PCB spills onsite. In addition to coal, the plant burns waste oils (Ref. 17).

3.0 ENVIRONMENTAL SETTING

3.1 TOPOGRAPHY

The topography of the site is relatively flat, as the site is situated between the Cape Fear and Northeast Cape Fear Rivers. The site slope is less than one percent to the west. The elevation of the site ranges from approximately 3 to 25 feet Mean Sea Level (Appendix A, Figure 3).

3.2 SURFACE WATER

3.2.1 Overland Drainage and Potentially Affected Surface Water Bodies

Runoff from the site drains to the west, into the Cape Fear River (Ref. 4). Cape Fear River flows for more than 15 miles before entering the Atlantic Ocean. The Cape Fear River is classified as a Class C fresh and tidal salt water. Class C waters are protected for fish and wildlife propagation, secondary recreation, agriculture, and other uses requiring waters of lower quality (Ref. 13). The mixing of salt and fresh water extends upstream along the Cape Fear River to the southern portion of Wilmington (Ref. 12). There are commercial fisheries along the Cape Fear River within 4 miles downstream of the site. The Cape Fear River is also used for recreational fishing (Ref. 11).

3.2.2 Climatology

The Wilmington area has a mean annual precipitation of approximately 54 inches, and the mean annual lake evaporation is approximately 42 inches (Ref. 5). Therefore, the net annual rainfall for this area is 12 inches. The 2-year, 24-hour rainfall depth is 4.5 inches (Ref. 14).

3.3 GROUNDWATER

3.3.1 Hydrogeology

The site is located in the Atlantic Coastal Plain Physiographic Province (Appendix A, Figure 4). The site is underlain, in ascending order, by the upper Black Creek Formation, the Peedee Formation, and surficial deposits (Ref. 3, 7, and 15). The Black Creek Formation consists of gray to black clay, lignitic, contains thin beds and laminae of fine-grained micaceous sand and thick lenses of cross-bedded sand. The formation has glauconitic, fossiliferous clayey sand lenses in the upper part (Ref. 15). The Peedee Formation consists of sand, clayey sand, and clay. It is greenish gray to olive black, massive, glauconitic, locally fossiliferous and calcareous. There are patches of sandy molluscan-mold limestone in the upper part of the formation (Ref. 15). The Peedee Formation has a fresh water sandstone aquifer with an average thickness of approximately 35 feet. The aquifer slopes from the northwest, where it is found at an elevation of approximately sea level, to Wrightsville Beach where the aquifer is approximately 190 feet below sea level. Underlying

beds of relatively impermeable clay, approximately 100 to 150 feet thick, separate the sandstone aquifer from the underlying salt water aquifers, but do not preclude salt water intrusion. Throughout most of the county, except along the Cape Fear River and Atlantic Ocean, the Peedee sandstone is a confined aquifer. Well data for this aquifer show yields above 400 gpm and the specific capacity greater than 30 gallons per minute per foot of drawdown (Ref. 3).

3.3.2 Aquifer Use

The surficial and the Peedee Formation aquifers are the two aquifers used in New Hanover County (Ref. 7). In the area of the site, the surficial aquifer is the main source of drinking water (Ref. 8). This aquifer is approximately 30 feet thick and is interconnected with the upper portion of the Peedee Formation. The depth to groundwater is approximately 10 feet (Ref. 3). Well depths average 55 feet below land surface (bls) in the area of the site (Ref. 8). CP&L has several on-site wells with depth of 53 and 30 feet bls that have yields of 480 and 1,100 gpm (Ref. 7). The Peedee Formation is generally not used for drinking water because of high chloride content resulting from salt water intrusion into the lower Peedee Formation (Ref. 7).

3.3.3 Soils

Soils in the immediate area of the power plant are classified as Urban Land soils (Ref. 6). The Urban Land soil designation is used for areas where the original soil has been extensively altered by development, thus changing or destroying the natural characteristics of the soil. These areas are typically covered by asphalt, concrete, buildings, or other impervious cover. The other soils on the site include: Lakeland sand, Kureb sand, and Dorovan soils. Lakeland sand soils are excessively drained soils with slopes ranging from 1 to 8 percent. The surface layer is consists of 2 inches of grayish brown sand and yellowish brown to brownish yellow sand up to a depth of 80 inches. The permeability of Lakeland sand is very rapid, greater than 20 inches/hour (1.4×10^{-2} cm/sec). Kureb sand, 1 to 8 percent slopes, is excessively drained. The surface sand is dark gray and approximately 3 inches thick. The subsoil, for approximately 23 inches, is light gray sand followed by brownish yellow to pale brown sand to a depth of approximately 89 inches. The permeability of Kureb sand is rapid; it ranges from 6.0 to 20 inches/hour (4.2×10^{-3} to 1.4×10^{-2} cm/sec). Dorovan soils are very poorly drained soil found in nearly level areas including bays and stream flood plains. These soils are typically flooded for extended periods. Dorovan soils are located in the western portion of the site adjacent to the cooling water pond. The surface layer of typically consists of a 4 inches thick layer of black muck that is very high in organic matter content. The subsurface, to a depth of approximately 64 inches, is black or very dark gray muck. The permeability of Dorovan soils is very slow, less than 0.06 inches/hour ($<4.2 \times 10^{-5}$ cm/sec) (Ref. 6).

3.4 WATER SUPPLY

Drinking water in the area of the site is provided from both surface water and groundwater sources. There are 92 CP&L employees who obtain drinking water from two on-site wells (Ref. 17). The closest off-site well is located within the 0.25-mile radius and is operated by New Hanover County (Ref. 4 and 30). The well water is blended with water from two other close by wells located within the 0.5 mile radius. These three wells serve 67 customers, mostly residential, along U.S. Route 421 (Ref. 30). Based on the pumping rates of the three county wells, 50 percent of the water supply for the 67 connections is obtained from one of the wells located within a distance of 0.25 to 0.5 miles from the site (Ref. 31). The other two wells contribute equally, or 25 percent each to the total system (Ref. 31). Therefore, because the contribution of a single well to the system is greater than 40 percent of the total, the population served by the system is apportioned to each well based on the well's relative contribution to the total blended system (Ref. 32). The number of people served by these three county wells was estimated to be 163 (67 connections or homes x 2.43 people/house) (Ref. 10 and 29). Therefore, for this system, 41 people (25 percent of 163) are assigned to the 0.0 to 0.25 mile radius and 122 people (75 percent of 163) are assigned to the 0.25 to 0.5 mile radius. The Town of Navassa has approximately 500 people who utilize groundwater (Ref. 9). The town's water supply well was assumed to be located within the town and within the 2-mile radius (Ref. 4, 9, and 29). The City of Wilmington obtains its drinking water from a surface water intake located approximately 22 miles northwest of the site; therefore, its water supply is unaffected by the site (Ref. 8 and 16). People residing in Wrightsboro obtain their drinking water from domestic wells (Ref. 8 and 16). The population using groundwater was estimated by measuring the area within each radius ring and multiplying by 383.2 people/square mile, the 1990 population density for Wrightsboro (Ref. 10 and 29). The remainder of the population in the county obtain drinking water from private wells (Ref. 8 and 16). The population utilizing private wells was estimated by multiplying the house count by the 1990 census number of people per house in New Hanover County (2.43 people/house), and by area measurements multiplied by the County population density of 382.7 people/square mile (Ref. 29).

The following is a breakdown of the estimated population believed to be relying on groundwater within a 4-mile radius of the CP&L Sutton Steam Plant site:

<u>Radius</u>	<u>Population/Radii</u>	<u>Cumulative Population</u>
onsite	92	92
1/4-mile	41	133
1/2-mile	122	255
1-mile	0	255
2-miles	566	821
3-miles	1,943	2,764
4-miles	3,951	6,715

3.5 POPULATION DISTRIBUTION

The total population within a 4-mile radius is approximately 13,110 (Ref. 29). Based on information gathered during the G&O field reconnaissance, the facility has 92 workers; therefore, the on-site population is 92. The population within each radius ring is listed below:

<u>Radius</u>	<u>County Population</u>	<u>Wilmington Population</u>	<u>Wrightsboro Population</u>	<u>Cumulative Population</u>
onsite	92	0	0	92
1/4-mile	41	0	0	133
1/2-mile	122	0	0	255
1-mile	0	0	0	255
2-mile	566	0	0	821
3-mile	338	1,463	1,605	4,227
4-mile	2,318	4,932	1,633	13,110

The New Hanover County population was determined by conducting a house count from the USGS topographic maps and multiplying by the 1990 census figure for number of persons/household (Ref. 10 and 29). The population of Wilmington and Wrightsboro were determined by calculating the land area for the two communities and multiplying by the corresponding 1990 census figure for persons/square mile (Ref. 29).

3.6 LAND USE

The site is located approximately 4 miles northwest of the City of Wilmington (Appendix A, Figures 1 and 3). The land use of the area surrounding the site is primarily undeveloped wetlands (Ref. 4). The nearest school is located within the corporate limits of the City of Wilmington, approximately 2.9 miles southeast of the site (Ref. 4). The nearest residence is located approximately 1.0 mile southwest of the site (Ref. 4).

3.7 SENSITIVE ENVIRONMENTS

The site contains numerous wetland areas from the Palustrine and Lacustrine systems. The following wetland are found on the site: Palustrine, scrub shrub, broad leaved deciduous, seasonally flooded (PSS1C); Palustrine, unconsolidated bottom, mud, intermittently exposed (PUB3G); Palustrine, unconsolidated bottom, mud, permanently flooded (PUB3H); Palustrine, emergent, persistent, saturated (PEM1B); and Lacustrine, littoral, unconsolidated shore, seasonally flooded, diked/impounded (L2USCh) (Ref. 33). There are approximately 500 acres of wetlands within 1 mile downstream of the site (Ref. 33). The downstream wetland that may be affected by runoff from the site are: Palustrine, forested deciduous, semipermanently flooded (PF06F); Palustrine, forested needle-leaved evergreen/broad-leaved deciduous, temporarily flooded (PF04/1A); Palustrine, scrub shrub, broad-leaved deciduous, seasonally tidal (PSS1R); Palustrine, scrub shrub, broad-leaved deciduous, temporarily

flooded (PSS1A); Palustrine, emergent, persistent, regularly flooded (PEM1M) (Ref. 33).

Endangered species that inhabit the areas around the site include: Bachman's warbler, red-cockaded woodpecker, Kemp' Ridley sea turtle, loggerhead turtle, shortnose sturgeon, manatee, and the rough-leaved loose strive plant (Ref. 12).

4.0 FIELD INVESTIGATION

4.1 DESCRIPTION OF SAMPLES AND SAMPLE LOCATIONS

A total of nine (9) environmental samples were collected to characterize the site. To determine whether a release of contaminants has occurred, limited subsurface and surficial investigation was recommended to obtain soil, groundwater, surface water, and sediment samples for laboratory analysis. The locations of the sampling points were originally proposed in an abbreviated sampling plan prepared by G&O; however, the NCDEHNR made the final recommendations during the sampling effort conducted on June 27, 1991. Therefore, the final sampling locations as shown in Appendix A, Figure 2 reflects the decision of the NCDEHNR staff.

To determine whether contaminants were released into the environment, three (3) groundwater and three (3) surface soil samples were obtained by G&O (see Photographs in Appendix A). A representative of the NCDEHNR collected two (2) sediment samples and one (1) groundwater sample. All the samples collected on the site were contained, preserved and held in accordance with the Standard Operating Procedures (SOP) (Ref. 28). The locations of these samples are illustrated in Appendix A, Figure 2, and are discussed below:

BACKGROUND MONITORING WELL SAMPLE (CLMW01) - A grab background groundwater sample was collected from existing monitoring well MW-11 (CP&L ID No. 11, State well construction Permit No. 64-0036-WM-0368) located northeast of the active fly ash pond. The well is constructed of 2-inch PVC pipe with a total depth of 50. The well is screened from a depth of 40 to 50 feet with 0.010 inch slotted PVC. The well log indicates that the well is installed in the surficial sand aquifer (Ref. 18). The bottom of the well was measured to be at a depth of approximately 49.2 feet bls and groundwater was encountered at a depth of 14.05 feet bls (Appendix A, Photo #7).

DOWNGRADIENT GROUNDWATER SAMPLE (CLGW02) - A grab groundwater sample was collected from a temporary monitoring well located near the western-most area of the inactive fly ash pond. The well was located approximately 10 feet southwest of the outlet stand pipe for the inactive pond. The boring for the well was advanced to a depth of 10 feet bls and groundwater was encountered at a depth of 7.5 bls. Approximately 3 inches of fly ash was encountered on the water surface (Appendix A, Photo # 8).

DOWNGRADIENT GROUNDWATER SAMPLE (CLGW03) - A grab groundwater sample was collected from a temporary monitoring well located inside the diked old fly ash pond, adjacent to the main plant building and the two 11 million gallon AGSTs. The well was located east of the two AGSTs, approximately 32 feet inside the southeast corner of the diked area. The boring was advanced to a depth of 3 feet bls and groundwater was encountered at a depth of 1.5 feet bls (Appendix A, Photo # 9).

BACKGROUND SURFACE SOIL SAMPLE (CLSS01) - A background surface soil sample was collected adjacent to existing monitoring well MW-11 (sample point CLMW01) northeast of the active fly ash pond (Appendix A, Photo # 7).

DOWNGRADIANT SURFACE SOIL SAMPLE (CLSS02) - A downgradient composite surface soil sample was collected from two locations within the inactive fly ash pond and one location within the active fly ash pond.

DOWNGRADIANT SURFACE SOIL SAMPLE (CLSS03) - A downgradient composite surface soil sample was collected from three locations within the site of the old (original) fly ash pond. The sample points were in the vicinity of the two large AGSTs (Appendix A, Photo # 10, 11, & 12).

BACKGROUND SEDIMENT SAMPLE (CLSED01) - A background sediment sample was collected from the left (east) bank of the Cape Fear River, northwest of the cooling water pond.

DOWNGRADIANT SEDIMENT SAMPLE (CLSED02) - A downgradient sediment sample was collected from the left (east) bank of the Cape Fear River, just west of the cooling water intake (return), west of the main plant building.

ONSITE, DOWNGRADIANT DOMESTIC WELL (CLDW01) - A groundwater sample was collected from the on-site drinking water well. The sample point was obtained from an external spigot located on the north face of the power plant building.

4.2 FIELD MEASUREMENTS

Field measurements collected for groundwater samples include pH, temperature, and conductivity. These values are listed in Table 2.

TABLE 1

FIELD MEASUREMENTS FOR GROUNDWATER SAMPLES

CP&L, SUTTON STEAM ELECTRIC PLANT

WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

<u>SAMPLE CODE</u>	<u>pH</u>	<u>TEMPERATURE (°C)</u>	<u>CONDUCTIVITY (umhos/cm)</u>
MW01	NA	18.8	0.540
GW02	7.0	20.7	0.495
GW03	NA	25.2	0.304

4.3 ANALYTICAL RESULTS

Upon completion of the sampling effort, samples collected by G&O were taken to Industrial and Environmental Analysts, Inc. (IEA) in Research Triangle Park, North Carolina for analysis (see Volume II). Level IV Routine Analytical Service (RAS) Contract Laboratory Program (CLP) data packages and associated narratives were assembled for this project by IEA.

At the request of EPA Region IV, the data were validated by the NUS Corporation in Tucker, Georgia. Samples collected by NCDEHNR were analyzed by the North Carolina State Laboratory of Public Health. The results of the sample analysis are summarized in Tables 2 & 3 (Appendix B) and discussed below:

DOWNGRADIANT GROUNDWATER (CLGW02) - A groundwater sample was collected from a hand augered well at the edge of the inactive fly-ash pond. No Volatile Organic Compounds (VOCs), Semi-volatile Organic Compounds (BNAs) or Pesticides/PCBs were reported in this sample. The following inorganics were reported in significant concentrations: aluminum (100000 ppb), arsenic (160 ppb), barium (1900 ppb), beryllium (20J ppb), calcium (84000 ppb), chromium (220 ppb), copper (820 ppb), iron (41000 ppb), lead (98 ppb), mercury (0.55 ppb), nickel (190 ppb), selenium (110 ppb), thallium (13 ppb), vanadium (490 ppb) and zinc (240 ppb). The concentrations of arsenic, barium, beryllium, chromium, iron, lead, nickel, selenium and thallium exceeded their respective North Carolina Maximum Contaminant Level (NCMCL) and/or Federal Maximum Contaminant Level (MCL).

DOWNGRADIANT GROUNDWATER (CLGW03) - A groundwater sample was collected from a hand augered well at the edge of the old fly-ash pond near the above-ground storage tanks. No VOCs, BNAs or Pesticides/PCBs were reported in significant concentrations in this sample. The following inorganics were reported in significant concentrations: aluminum (240000J ppb), arsenic (200J ppb), barium (660J ppb), chromium (150J ppb), copper (67J ppb), iron (92000J ppb), lead (190J ppb), mercury (0.91J ppb), nickel (50J ppb), selenium (43J ppb), vanadium (360J ppb) and zinc (92J ppb). The concentrations of arsenic, chromium, iron, lead and selenium exceeded their respective NCMCL and/or MCL.

INACTIVE FLY-ASH POND SURFACE SOIL COMPOSITE (CLSS02) - A surface soil composite sample was collected from three locations in the vicinity of the inactive fly-ash pond. No VOCs, BNAs or Pesticides/PCBs were reported in significant concentrations in this sample. The following inorganics were reported in significant concentrations: aluminum (2000 ppm), arsenic (40 ppm), barium (47 ppm), calcium (3100 ppm), chromium (9.8 ppm), cobalt (1.3 ppm), copper (27 ppm), iron (9900 ppm), lead (2.6 ppm), magnesium (190 ppm), manganese (82 ppm), nickel (7 ppm), selenium (4.0 ppm), vanadium (11 ppm) and zinc (11 ppm). All inorganics, except selenium, were reported within naturally occurring concentrations for inorganics in soils in the Eastern United States.

OLD FLY-ASH POND SURFACE SOIL COMPOSITE (CLSS03) - A surface soil composite was collected from three locations in the vicinity of the old fly-ash pond. No VOCs or BNAs were reported in significant concentrations in this sample. 4,4'-DDD (3.7 ppb) was the only Pesticide/PCB reported in significant concentrations

in this sample. The following inorganics were reported in significant concentrations: aluminum (990 ppm), calcium (4100 ppm), iron (650 ppm), lead (1.9 ppm), magnesium (140 ppm), manganese (1.8 ppm), vanadium (1.8J ppm) and zinc (5.2 ppm). All inorganics were reported within naturally occurring concentrations for inorganics in soils in the Eastern United States.

Note - The following samples were collected by NCDEHNR and analyzed at the State Laboratory of Public Health.

DOWNGRADIENT SEDIMENT SAMPLE (CLSED02) - A sediment sample was collected on the Cape Fear River downgradient of the site. No VOCs, BNAs or Pesticides/PCBs were reported in significant concentrations in this sample. Both total metals and TCLP analysis were run on this sample. Arsenic (5.8/U ppm) was the only inorganic reported in significant concentrations in this sample. The first value is for totals and the second is for TCLP. Arsenic was reported within naturally occurring concentrations for arsenic in soils in the Eastern United States.

ONSITE WELL (CLDW01) - A groundwater sample was collected on the southern part of the site. No VOCs, BNAs or Pesticides/PCBs were reported in this sample. Barium (60 ppb) was the only inorganic reported in this sample. Using CLMW01 as a background well, this value is not considered significant.

In summary, groundwater on the site appears to be contaminated with aluminum, arsenic, barium, beryllium, calcium, chromium, copper, iron, lead, mercury, nickel, selenium, vanadium and zinc. Soils from the inactive fly-ash pond appear to be contaminated with aluminum, arsenic, barium, beryllium, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, selenium, thallium, vanadium and zinc. Soils from the old fly-ash pond appear to be contaminated with 4,4'-DDD, aluminum, calcium, iron, lead, magnesium, manganese, vanadium and zinc. Sediments from the Cape Fear River downgradient of the site appear to be contaminated with arsenic. Arsenic, mercury, chromium and lead are attributable to site activities.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the information available at this time, it is believed that the site may pose a threat to human health and/or the environment. The analytical results of the sampling event at the subject site revealed environmental releases of hazardous contaminants at the following areas:

- o Groundwater in the vicinity of the inactive fly-ash pond is contaminated with significant levels of aluminum, arsenic, barium, beryllium, calcium, chromium, copper, iron, lead, mercury, nickel, selenium, thallium, vanadium and zinc. Arsenic, barium, beryllium, chromium, iron, lead, nickel, selenium and thallium exceeded their respective NCMCL and/or MCL.
- o Groundwater in the vicinity of the old fly-ash pond is contaminated with significant levels of aluminum, arsenic, barium, chromium, copper, iron, lead, mercury, nickel, selenium, vanadium and zinc. Arsenic, barium, chromium, iron, lead and selenium exceeded their respective NCMCL and/or MCL.
- o Soils from the inactive fly-ash pond are contaminated with aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, selenium, vanadium and zinc. All inorganics, except selenium, were within naturally occurring concentrations for inorganics in soils in the Eastern United States.
- o Soils from the old fly-ash pond are contaminated with 4,4'-DDD, aluminum, calcium, iron, magnesium, manganese, vanadium and zinc. All inorganics were within naturally occurring concentrations for inorganics in soils in the Eastern United States.
- o Sediment from the Cape Fear River downgradient of the site is contaminated with arsenic.

Due to the fact that these contaminants are attributable to site activities, G&O is recommending that this site proceed onto the next phase of the pre-remedial process. Over 6715 residents within a 4-mile radius of the site rely on groundwater for their potable water. In addition, the nearest well is within 1000 feet of the site. This well contributes to the New Hanover County municipal water supply and serves approximately 163 people. If the fly ash were to become airborne, on-site workers, as well as nearby wetlands associated with the Cape Fear River could be affected. Finally, contaminated surface water and sediments of the Cape Fear River may adversely impact fishing and recreational activities that occur along the river.

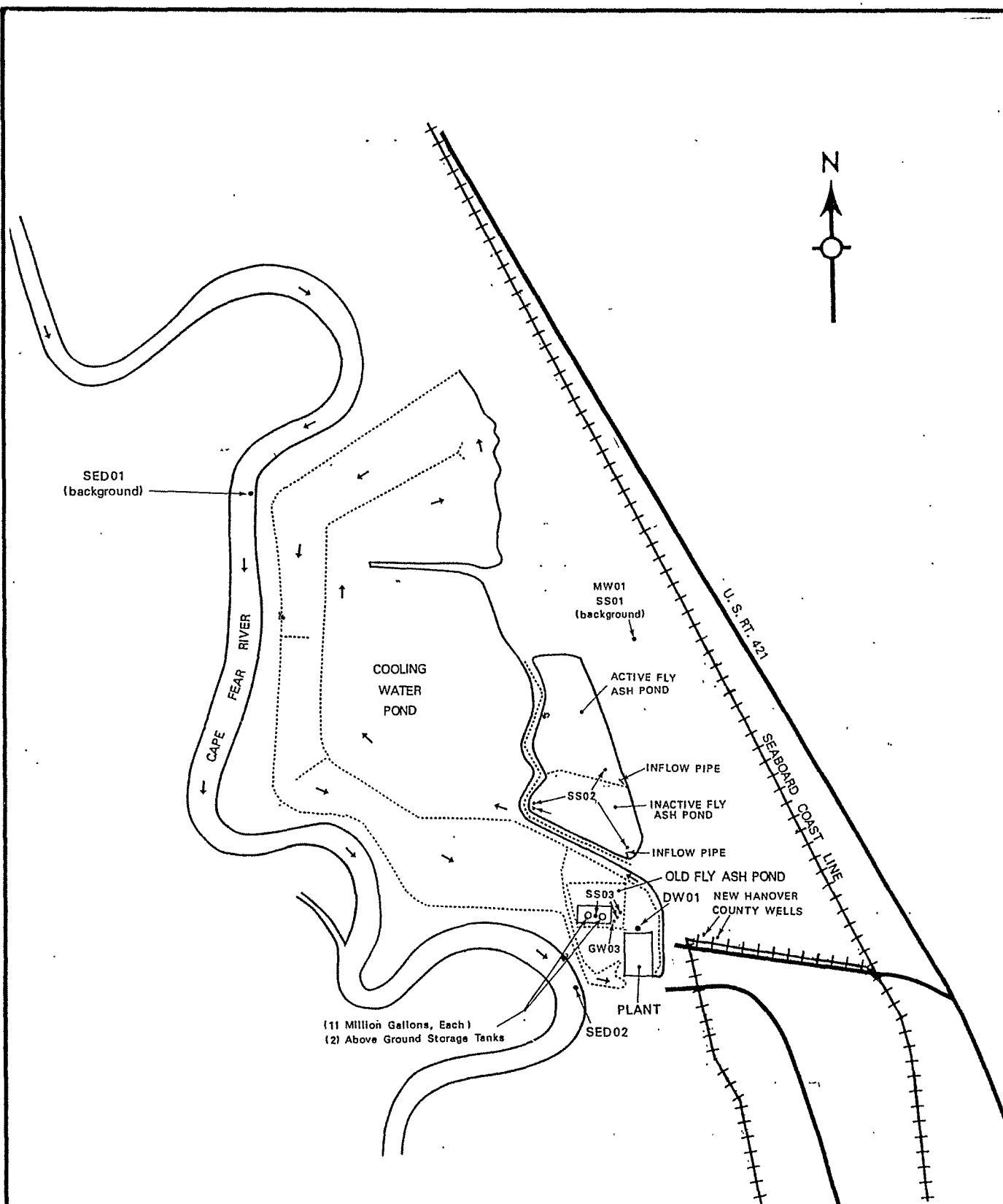
LIST OF REFERENCES FOR THE CAROLINA POWER AND LIGHT COMPANY,
SUTTON STEAM ELECTRIC PLANT SITE
EPA ID NUMBER - NCD 000830646

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APPENDIX A
MAPS , PHOTOGRAPHS, AND TABLES



CP & L SUTTON STEAM ELECTRIC PLANT WILMINGTON, NORTH CAROLINA

NOT TO SCALE

FIGURE 2

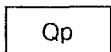


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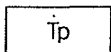
SITE LAYOUT AND SAMPLING POINTS
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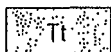
COASTAL PLAIN

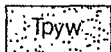
QUATERNARY

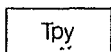
 **Qp** SURFICIAL DEPOSITS, UNDIVIDED — Sand, clay, gravel, and peat deposited in marine, fluvial, eolian, and lacustrine environments. Quaternary deposits not shown at altitudes greater than approximately 25 feet above mean sea level (Suffolk Scarp, in part)

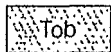
TERTIARY

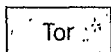
 **Tp** PINEHURST FORMATION — Sand, medium- to coarse-grained, cross-bedding and rhythmic bands of clayey sand common, unconsolidated


 **Tt** TERRACE DEPOSITS AND UPLAND SEDIMENT — Gravel, clayey sand, and sand, minor iron-oxide cemented sandstone

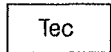
 **Tpyw** WACCAMAW FORMATION — Fossiliferous sand with silt and clay, bluish-gray to tan, loosely consolidated. Straddles Pleistocene-Pliocene boundary

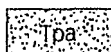
 **Tpy** YORKTOWN FORMATION AND DUPLIN FORMATION, UNDIVIDED
Yorktown Formation: Fossiliferous clay with varying amounts of fine-grained sand, bluish gray, shell material commonly concentrated in lenses; mainly in area north of Neuse River
Duplin Formation: Shelly, medium- to coarse-grained sand, sandy marl, and limestone, bluish gray; mainly in area south of Neuse River

 **Tob** BELGRADE FORMATION, UNDIVIDED
Pollocksville Member: Oyster-shell mounds in tan to orange sand matrix, indurated locally
Haywood Landing Member: Fossiliferous clayey sand, gray to brown. Members grade into each other laterally

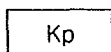
 **Tor** RIVER BEND FORMATION — Limestone, calcarenite overlain by and intercalated with indurated, sandy, molluscan-mold limestone

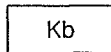
 **Tecs** CASTLE HAYNE FORMATION
Spring Garden Member: Molluscan-mold limestone, indurated, very sandy. Grades downward into a calcareous sand and laterally into Comfort Member

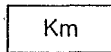
 **Tec** Comfort Member and New Hanover Member, undivided
Comfort Member: Bryozoan-echinoid skeletal limestone, locally dolomitized, solution cavities common
New Hanover Member: Phosphate-pebble conglomerate, micritic, thin; restricted to basal part of Castle Hayne Formation in southeastern counties

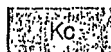
 **Tpa** BEAUFORT FORMATION, UNDIVIDED
Unnamed upper member: Sand and silty clay, glauconitic, fossiliferous, and locally calcareous
Jericho Run Member: Siliceous mudstone with sandstone lenses, thin bedded; basal phosphatic pebble conglomerate

CRETACEOUS

 **Kp** PEEDEE FORMATION — Sand, clayey sand, and clay, greenish gray to olive black, massive, glauconitic, locally fossiliferous and calcareous. Patches of sandy molluscan-mold limestone in upper part

 **Kb** BLACK CREEK FORMATION — Clay, gray to black, lignitic; contains thin beds and laminae of fine-grained micaceous sand and thick lenses of cross-bedded sand. Glauconitic, fossiliferous clayey sand lenses in upper part

 **Km** MIDDENDORF FORMATION — Sand, sandstone, and mudstone, gray to pale gray with an orange cast, mottled; clay balls and iron-cemented concretions common, beds laterally discontinuous, cross-bedding common

 **Ko** CAPE FEAR FORMATION — Sandstone and sandy mudstone, yellowish gray to bluish gray, mottled red to yellowish orange, indurated, graded and laterally continuous bedding, blocky clay, faint cross-bedding, feldspar and mica common

ANNOTATED LEGEND FOR THE GEOLOGIC MAP OF NORTH CAROLINA

CP&L, SUTTEN STEAM ELECTRIC PLANT



PHOTO #1 - Photo of the active fly-ash pond, looking from the southern corner toward the north.



PHOTO #2 - Photo of the active fly-ash pond in relation to the cooling pond.



PHOTO #3 - Photo of the inactive fly-ash pond, looking from the southwest corner toward the northeast.



PHOTO #4 - Photo of the old fly-ash pond, looking from the southern edge toward the north.



PHOTO #5 - Photo of the hot water discharge moat.

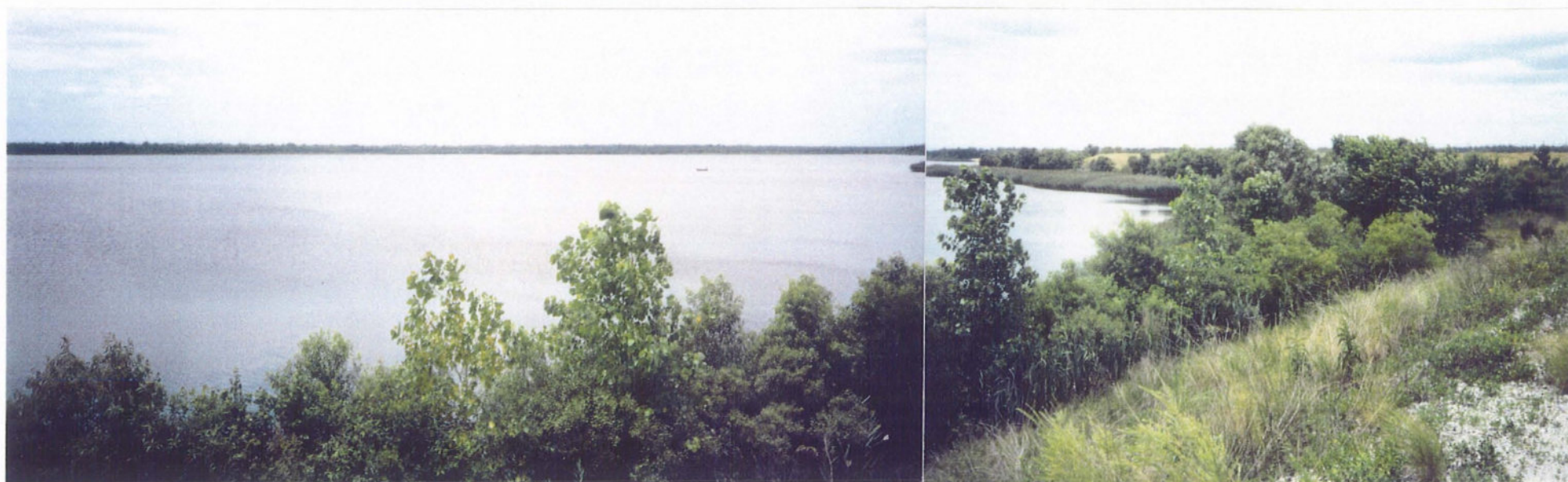


PHOTO #6 - Photo of the cooling pond, looking west from the western berm of the inactive fly-ash pond.



PHOTO #7 - Photo of the background groundwater (MW01), and the background surface soil sample (SS01).



PHOTO #8 - Photo of the overflow pipe to the old fly-ash pond at the southwest corner of the site. Approximate location of GW02.



PHOTO #9 - Photo of the GW03, located near the bottom edge of the old fly-ash pond.



PHOTO #10 - Discharge pipe to the active fly-ash pond. Location of one composite for soil sample SS03.



PHOTO #11 - One composite sample of SS03, located at the northwestern end of the old fly-ash pond.



PHOTO #12 - Location of one composite for soil sample SS03.

TABLE 2
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT
NCD000830646
SAMPLE IDENTIFICATION

			Background				Inactive Fly	
Sample Collection Information and Parameters			Monitoring Well	Downgradient Groundwater	Downgradient Groundwater	Trip Blank	Background Surface Soil	Ash Pond Surface Soil Composite
								Old Fly Ash Pond Surface Soil Composite
Date Collected			6/25/91	6/25/91	6/25/91	6/25/91	6/25/91	6/25/91
Laboratory			IEA	IEA	IEA	IEA	IEA	IEA
Well Water Depth (feet)			14.05	7.5	1.5	NA	NA	NA
G&O Sample ID No.			CLMW01	CLGW02	CLGW03	CLTB01	CLSS01	CLSS03
EPA Case No.			A3501	A3502	A3503	A3504	A3505	A3507
Case No.			1041-033	1041-033	1041-033	1041-033	1041-033	1041-033
Physical State	Waste Characteristics*	Category	Compounds Detected					
			VOLATILE ORGANICS					
			Matrix	Water	Water	Water	Water	Soil
			Level	Low	Low	Low	Low	Low
			% Moisture	100	100	100	100	4
			Concentration Units	ug/l	ug/l	ug/l	ug/l	ug/kg
Gas	A,D,G,I	OCC	chloromethane					
Gas	A,D,G,I	OCC	bromomethane					
Gas	A,D,G,I	OCC	vinyl chloride					
Gas	A,D,G,I	OCC	chloroethane					
Liquid	A,D,H,I	SOL	methylene chloride					
Liquid	E,H,I,A	SOL	acetone					
Liquid	A,H,I	SOL	carbon disulfide					
Liquid	A,D,G,I	SOL	1,1-dichloroethene					
Liquid	A,D,H,G	SOL	1,1-dichloroethane					
Liquid	A,D,G	SOL	1,2-dichloroethene (total)					
Liquid	A,D	SOL	chloroform					
Liquid	A,D,G	SOL	1,2-dichloroethane					
Liquid	A,E,G	SOL	2-butanone (MEK)					
Liquid	A,D	SOL	1,1,1-trichloroethane					

TABLE 2

SUMMARY OF CHEMICAL ANALYSES FOR

NCD000830646

SAMPLE IDENTIFICATION

Sample Collection Information and Parameters				Background				Inactive Fly Ash Pond		
				Monitoring Well	Downgradient Groundwater	Downgradient Groundwater	Trip Blank	Background Surface Soil	Ash Pond Surface Soil Composite	Old Fly Ash Pond Surface Soil Composite
Physical State	Waste Characteristics*	Category	VOLATILE ORGANICS (CONT.)							
Liquid	A,D	SOL	carbon tetrachloride							
Liquid	A,D,G	SOL	vinyl acetate							
Liquid	A,D	OCC	bromodichloromethane							
Liquid	A,D,G	SOL	1,2-dichloropropane							
Liquid	A,D,G	SOL	cis-1,3-dichloropropene							
Liquid	A,D,G,B	SOL	trichloroethene							
Liquid	A,D	OCC	dibromochloromethane							
Liquid	A,D	SOL	1,1,2-trichloroethane							
Liquid	A,G	SOL	benzene							
Liquid	A,D,G	SOL	trans-1,3-dichloropropene							
Liquid	A,D	SOL	bromoform							
Liquid	A,E,G	SOL	4-methyl-2-pentanone							
Liquid	A,E,G	SOL	2-hexanone							
Liquid	A,D	SOL	tetrachloroethene							
Liquid	A,G,E	SOL	toluene							
Liquid	A,D,E	SOL	1,1,2,2-tetrachloroethane							
Liquid	A,D,G	SOL	chlorobenzene							
Liquid	A,G	SOL	ethylbenzene							
Liquid	A,D,G	OCC	styrene							
Liquid	A,G	SOL	xylenes (total)							
			Tentatively Identified Compounds							

TABLE 2
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT
NCD000830646
SAMPLE IDENTIFICATION

Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters	Background				Inactive Fly		
				Monitoring Well	Downgradient Groundwater	Downgradient Groundwater	Trip Blank	Background Surface Soil	Ash Pond Surface Soil Composite	Old Fly Ash Pond Surface Soil Composite
			SEMIVOLATILE ORGANICS							
			Matrix	Water	Water	Water	Water	Soil	Soil	Soil
			Level	Low	Low	Low	NA	Low	Low	Low
			% Moisture	100	100	100	NA	4	13	11
			Concentration Units	ug/l	ug/l	ug/l	NA	ug/kg	ug/kg	ug/kg
					/RE	/RE				
S, thick	A,B,E	OCC	phenol				NA			
Liquid	A,D,B	OCC	bis(2-chloroethyl)ether				NA			
Liquid	A,D,B	OCC	2-chlorophenol				NA			
Liquid	A,D,H	SOL	1,3-dichlorobenzene				NA			
Solid	A,D,H	OCC	1,4-dichlorobenzene				NA			
Liquid	A,D,H	SOL	benzyl alcohol				NA			
Liquid	A,D,H	OCC	1,2-dichlorobenzene				NA			
Liquid	A,B	OCC	2-methylphenol				NA			
	A,D	OCC	bis(2-chloroisopropyl)ether				NA			
Liquid	A,B	OCC	4-methylphenol				NA			
	A	OCC	n-nitroso-di-n-dipropylamine				NA			
Solid	A,D	OCC	hexachloroethane				NA			
Liquid	A,D	OCC	nitrobenzene				NA			
Liquid	A,D	OCC	isophorone				NA			
Solid	A,D	OCC	2-nitrophenol				NA			
Solid	A,B	OCC	2,4-dimethylphenol				NA			
Solid	A	OCC	benzoic acid				NA			
	A,D	OCC	bis(2-chloroethoxy)methane				NA			
Liquid	A,D	OCC	2,4-dichlorophenol				NA			
Liquid	A,D	OCC	1,2,4-trichlorobenzene				NA			
Solid	A	OCC	naphthalene				NA			
Solid	A,D	OCC	4-chloroaniline				NA			
Liquid	A,D,B	OCC	hexachlorobutadiene				NA			

TABLE 2
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT
NCD000830646
SAMPLE IDENTIFICATION

Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters	Background Monitoring Well	Downgradient Groundwater	Downgradient Groundwater	Trip Blank	Inactive Fly Ash Pond		
								Background Surface Soil	Ash Pond Surface Soil Composite	Old Fly Ash Pond Surface Soil Composite
			SEMIVOLATILE ORGANICS (CONT.)							
Solid	A,D	OCC	4-chloro-3-methylphenol							NA
Liquid	A,D	OCC	2-methylnaphthalene							NA
Liquid	A,D,B	OCC	hexachlorocyclopentadiene							NA
Solid	A,D	OCC	2,4,6-trichlorophenol							NA
Solid	A,D	OCC	2,4,5-trichlorophenol							NA
Liquid	A,D	OCC	2-chloronaphthalene							NA
Solid	A,D	OCC	2-nitroaniline							NA
Liquid	A,D	OCC	dimethylphthalate							NA
Solid	A,D	OCC	acenaphthylene							NA
Solid	A,D	OCC	2,6-dinitrotoluene							NA
Solid	A,D	OCC	3-nitroaniline							NA
Solid	A,D	OCC	acenaphthene							NA
Solid	A,D,G	OCC	2,4-dinitrophenol							NA
Solid	A,D	OCC	4-nitrophenol							NA
Solid	A,D	OCC	dibenzofuran							NA
Solid	A,D	OCC	2,4-dinitrotoluene							NA
Liquid	A,D	OCC	diethylphthalate							NA
	A,D	OCC	4-chlorophenyl-Phenylether							NA
Solid	A,D	OCC	fluorene							NA
Solid	A,D,E	OCC	4-nitroaniline							NA
Solid	A,D	OCC	4,6-dinitro-2-methylphenol							NA
Solid	A,D	OCC	n-nitrosodiphenylamine							NA
Liquid	A,D	OCC	4-bromophenyl-phenylether							NA
Solid	A,D	OCC	hexachlorobenzene							NA
Solid	A,D	OCC	pentachlorophenol							NA
Solid	A,D	OCC	phenanthrene							NA

100R
-U/1J

TABLE 2
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT
NCD000830646
SAMPLE IDENTIFICATION

Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters	Background				Inactive Fly Ash Pond		
				Monitoring Well	Downgradient Groundwater	Downgradient Groundwater	Trip Blank	Background Surface Soil	Ash Pond Surface Soil Composite	Old Fly Ash Pond Surface Soil Composite
			SEMIVOLATILE ORGANICS (CONT.)							
Solid	A,D	OCC	anthracene				NA			
Solid	A,D	OCC	carbazole		100 U/2BJ	100R U/3BJ	NA			
Liquid	A,D	OCC	di-n-butylphthalate				NA			
Solid	A,D	OCC	fluoranthene				NA			
Solid	A,D	OCC	pyrene				NA			
Liquid	A,D	OCC	butylbenzylphthalate				NA			
	A,D	OCC	3,3-dichlorobenzidine				NA			
Solid	A,D	OCC	benzo[a]anthracene				NA			
Solid	A,D	OCC	chrysene		100 U/2BJ	100R U/1BJ	NA			
Liquid	A,D	OCC	bis(2-ethylhexyl)phthalate				NA			
Liquid	A,D	OCC	di-n-octylphthalate				NA			
Solid	A,D	OCC	benzo[b]fluoranthene				NA			
Solid	A,D	OCC	benzo[k]fluoranthene				NA			
Solid	A,D,K,L	OCC	benzo[a]pyrene				NA			
Solid	A,D	OCC	indeno[1,2,3-cd]pyrene				NA			
Solid	A,D	OCC	dibenz[a,h]anthracene				NA			
Solid	A,D	OCC	benzo[g,h,i]perylene				NA			
			Tentatively Identified Compounds		U/22JN	46JN/49JN	NA	17324JN	8610JN	16274JN
			Unknown (total)	161JN	U/38BJN	U/38BJ	NA	2200BJN	2000BJN	1200BJN
			2h-azepin-2-one,hexadydro	940JN			NA			
			halogenated ethane			47JN/15JN	NA			490JN
			hexadecanoic acid		U/4JN	U/4JN	NA			
			benzoic acid				NA	130JN		
			substituted benzene				NA	1900BJN	1400BJN	1800BJN
			octane, 3-methyl-				NA	470JN		440JN

TABLE 2
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT
NCD000830646
SAMPLE IDENTIFICATION

Physical State	Waste Characteristics*	Category	Sample Collection Information and Parameters PESTICIDES/PCBs Matrix Level % Moisture Concentration Units	Background				Inactive Fly		
				Monitoring Well	Downgradient Groundwater	Downgradient Groundwater	Trip Blank	Background Surface Soil	Ash Pond Surface Soil Composite	Old Fly Ash Pond Surface Soil Composite
				Water	Water	Water	NA	Soil	Soil	Soil
				Low	Low	Low	NA	Low	Low	Low
				100	100	100	NA	4	13	11
				ug/l	ug/l	ug/l	NA	ug/kg	ug/kg	ug/kg
Solid	A,D	PSD	alpha BHC				NA			
Solid	A,D	PSD	beta BHC				NA			
Solid	A,D	PSD	delta BHC				NA			
Solid	A,D	PSD	gamma BHC (Lindane)				NA			
Solid	A,D	PSD	Heptachlor				NA			
Solid	A,D	PSD	Aldrin				NA			
Solid	A,D	PSD	Heptachlor epoxide				NA			
Solid	A,D	PSD	Endosulfan I				NA			
Solid	A,D,E	PSD	Dieldrin				NA			
Solid	A,D	PSD	4,4'-DDE				NA	[3.4U]		(2.2U) ✓
Solid	A,D	PSD	Endrin				NA			
Solid	A,D	PSD	Endosulfan II				NA			
Solid	A,D	PSD	4,4'-DDD				NA	[3.4U]		(3.7U) ✓
Solid	A,D	PSD	Endosulfan sulfate				NA			
Solid	A,D	PSD	4,4'-DDT				NA	[3.4U]		[1.1U] ✓
Solid	A,D	PSD	Methoxychlor (Mariate)				NA			
Solid	A,D	PSD	Endrin ketone				NA			
Solid	A,D	PSD	alpha Chlordane				NA			
Solid	A,D	PSD	gamma Chlordane				NA			
Solid	A,D	PSD	Toxaphene				NA			

TABLE 2
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT
NCD000830646
SAMPLE IDENTIFICATION

				Background				Inactive Fly			
Sample Collection Information				Monitoring	Downgradient	Downgradient	Trip	Background	Ash Pond	Old Fly Ash	
and Parameters				Well	Groundwater	Groundwater	Blank	Surface	Surface Soil	Pond Surface	
								Soil	Composite	Soil Composite	
Physical	Waste										
State	Characteristics*	Category	PESTICIDES/PCBS (CONT.)								
Liquid	A,D	OCC	Aroclor 1016								NA
Liquid	A,D	OCC	Aroclor 1221								NA
Liquid	A,D	OCC	Aroclor 1232								NA
Liquid	A,D	OCC	Aroclor 1242								NA
Liquid	A,D	OCC	Aroclor 1248								NA
Liquid	A,D	OCC	Aroclor 1254								NA
Liquid	A,D	OCC	Aroclor 1260								NA

TABLE 2
CP&L, SUTTON STEAM ELECTRIC PLANT
NCD 000 830 646

INORGANICS	WATER NCMCL (PPB)	WATER MCL (PPB)	CLMW01 (PPB)	CLGW02 (PPB)	CLGW03 (PPB)
ALUMINUM	-	-	2700J	100000	240000J
ANTIMONY	-	10/5	42UJ	42U	42UJ
ARSENIC	50	-	1UJ	160	200J
BARIUM	1000	5000	50UJ	1900	660J
BERYLLIUM	-	1	1UJ	20J	1UJ
CADMIUM	5	5	4UJ	4UJ	4UJ
CALCIUM	-	-	21000J	84000	99000J
CHROMIUM	50	100	5UJ	220	150J
COBALT	-	-	5UJ	45	13J
COPPER	1000	1300	4UJ	820	67J
IRON	300	-	1600J	41000	92000J
LEAD	50	50	2UJ	98	190J
MAGNESIUM	-	-	9000J	17000	4700J
MANGANESE	50	-	890J	300	210J
MERCURY	1.1	2	0.10UJ	0.55	0.91J
NICKEL	150	100	11UJ	190	50J
POTASSIUM	-	-	4900J	20000	7600J
SELENIUM	10	50	2UJ	110	43J
SILVER	50	-	5UJ	5U	5UJ
SODIUM	-	-	60000J	23000	4000UJ
THALLIUM	-	2/1	2UJ	13	3UJ
VANADIUM	-	-	4UJ	490	360J
ZINC	5000	-	20UJ	240	92J
CYANIDE	154	200	10U	10U	10U

NOTES:

- 1) NA - NOT ANALYZED
- 2) N - PRESENCE OF CONTAMINANT PRESUMED
- 3) J - CONCENTRATION ESTIMATED
- 4) U - NON-DETECT
- 5) R - DATA UNUSABLE
- 6) B - CONTAMINANT FOUND IN THE ASSOCIATED BLANK
- 7) NCMCL - NORTH CAROLINA MAXIMUM CONTAMINANT LEVEL
- 8) MCL - FEDERAL MAXIMUM CONTAMINANT LEVEL

TABLE 2
CP&L, SUTTON STEAM ELECTRIC PLANT
NCD 000 830 646

INORGANICS	SOILS NATURAL RANGE (PPM)	CLSS01 (PPM)	CLSS02 (PPM)	CLSS03 (PPM)
ALUMINUM	0.7->10%	50U	2000	990
ANTIMONY	<1-8.8	8.8U	9.9U	9.2U
ARSENIC	<0.1-73	1U	40	0.22U
BARIUM	10-1500	0.42U	47	3U
BERYLLIUM	<1-7	0.22U	0.29	0.22U
CADMIUM	0.01-0.7	0.83U	0.94UJ	0.88U
CALCIUM	0.01-20%	30U	3100	4100
CHROMIUM	1-1000	1U	9.8	1.1U
COBALT	<0.3-70	1U	1.3	1.1U
COPPER	<1-700	0.83U	27	0.88U
IRON	0.01->10%	40	9900	650
LEAD	<10-300	1U	2.6	1.9
MAGNESIUM	0.005-5%	8.8U	190	140
MANGANESE	<2-7000	0.42U	82	1.8
MERCURY	0.01-3.4	1UJ	0.2UJ	0.1UJ
NICKEL	<3-700	2.3U	7	2.4U
POTASSIUM	0.005-3.7%	380U	430U	400U
SELENIUM	<0.1-3.9	0.21U	4	0.22U
SILVER	0.01-5	1U	1.2U	1.1U
SODIUM	0.05-5%	110U	200U	130U
THALLIUM	-	0.42U	0.48U	0.44U
VANADIUM	<7-500	0.83U	11	1.8J
ZINC	<5-2900	4U	11	5.2
CYANIDE	-	4.9U	5.3U	5.4U

NOTES:

- 1) NA - NOT ANALYZED
- 2) N - PRESENCE OF CONTAMINANT PRESUMED
- 3) J - CONCENTRATION ESTIMATED
- 4) U - NON-DETECT
- 5) B - CONTAMINANT FOUND IN ASSOCIATED BLANK

TABLE 3
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT SITE
NCD000830646

SAMPLE IDENTIFICATION

Analyzed at the North Carolina State Laboratory of Public Health

			Sample Collection Information and Parameters	Background Sediment	Downgradient Sediment	Onsite Well
			Date Collected	6/27/91	6/27/91	6/27/91
			Laboratory	State Lab	State Lab	State Lab
			G&O Sample ID No.	SED01	SED02	DW01
			NCDEHNR I.D. Nos.	16290	16289	16291
				14992	14991	14993
				912445	912444	14994
Physical	Waste					912446
						912447
State	Characteristics*	Category	Compounds Detected			
			VOLATILE ORGANICS			
			Matrix	Soil	Soil	Water
			Concentration Units	ug/kg	ug/kg	ug/l
Gas	A,D,G,I	OCC	chloromethane			
Gas	A,D,G,I	OCC	bromomethane			
Gas	A,D,G,I	OCC	vinyl chloride			
Gas	A,D,G,I	OCC	chloroethane			
Liquid	A,D,H,I	SOL	methylene chloride			1K,C
Liquid	E,H,I,A	SOL	acetone			
Liquid	A,H,I	SOL	carbon disulfide			
Liquid	A,D,G,I	SOL	1,1-dichloroethene			
Liquid	A,D,H,G	SOL	1,1-dichloroethane			
Liquid	A,D,G	SOL	1,2-dichloroethene (total)			
Liquid	A,D	SOL	chloroform			1K,T
Liquid	A,D,G	SOL	1,2-dichloroethane			
Liquid	A,E,G	SOL	2-butanone (MEK)			
Liquid	A,D	SOL	1,1,1-trichloroethane			

TABLE 3
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT SITE
NCD000830646

SAMPLE IDENTIFICATION

Analyzed at the North Carolina State Laboratory of Public Health

Sample Collection Information and Parameters	Background Sediment	Downgradient Sediment	Onsite Well
---	------------------------	--------------------------	----------------

Physical State	Waste Characteristics*	Category	VOLATILE ORGANICS (CONT.)
Liquid	A,D	SOL	carbon tetrachloride
Liquid	A,D,G	SOL	vinyl acetate
Liquid	A,D	OCC	bromodichloromethane
Liquid	A,D,G	SOL	1,2-dichloropropane
Liquid	A,D,G	SOL	cis-1,3-dichloropropene
Liquid	A,D,G,B	SOL	trichloroethene
Liquid	A,D	OCC	dibromochloromethane
Liquid	A,D	SOL	1,1,2-trichloroethane
Liquid	A,G	SOL	benzene
Liquid	A,D,G	SOL	trans-1,3-dichloropropene
Liquid	A,D	SOL	bromoform
Liquid	A,E,G	SOL	4-methyl-2-pentanone
Liquid	A,E,G	SOL	2-hexanone
Liquid	A,D	SOL	tetrachloroethene
Liquid	A,G,E	SOL	toluene
Liquid	A,D,E	SOL	1,1,2,2-tetrachloroethane
Liquid	A,D,G	SOL	chlorobenzene
Liquid	A,G	SOL	ethylbenzene
Liquid	A,D,G	OCC	styrene
Liquid	A,G	SOL	xylene (total)

TABLE 3
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT SITE
NCD000830646

SAMPLE IDENTIFICATION

Analyzed at the North Carolina State Laboratory of Public Health

State	Characteristics*	Category	Sample Collection Information and Parameters	Background Sediment	Downgradient Sediment	Onsite Well
			SEMIVOLATILE ORGANICS Matrix Concentration Units	Soil ug/kg	Soil ug/kg	Water ug/l
S,thick1	A,B,E	OCC	phenol			
Liquid	A,D,B	OCC	bis(2-chloroethyl)ether			
Liquid	A,D,B	OCC	2-chlorophenol			
Liquid	A,D,H	SOL	1,3-dichlorobenzene			
Solid	A,D,H	OCC	1,4-dichlorobenzene			
Liquid	A,D,H	SOL	benzyl alcohol			
Liquid	A,D,H	OCC	1,2-dichlorobenzene			
Liquid	A,B	OCC	2-methylphenol			
	A,D	OCC	bis(2-chloroisopropyl)ether			
Liquid	A,B	OCC	4-methylphenol			
	A	OCC	n-nitroso-di-n-dipropylamine			
Solid	A,D	OCC	hexachloroethane			
Liquid	A,D	OCC	nitrobenzene			
Liquid	A,D	OCC	isophorone			
Solid	A,D	OCC	2-nitrophenol			
Solid	A,B	OCC	2,4-dimethylphenol			
Solid	A	OCC	benzoic acid			
	A,D	OCC	bis(2-chloroethoxy)methane			
Liquid	A,D	OCC	2,4-dichlorophenol			
Liquid	A,D	OCC	1,2,4-trichlorobenzene			
Solid	A	OCC	naphthalene			
Solid	A,D	OCC	4-chloroaniline			
Liquid	A,D,B	OCC	hexachlorobutadiene			

TABLE 3
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT SITE
NCD000830646

SAMPLE IDENTIFICATION

Analyzed at the North Carolina State Laboratory of Public Health

			Sample Collection Information and Parameters	Background Sediment	Downgradient Sediment	Onsite Well
Physical	Waste					
State	Characteristics*	Category	SEMIVOLATILE ORGANICS (CONT.)			
Solid	A,D	OCC	4-chloro-3-methylphenol			
Liquid	A,D	OCC	2-methylnaphthalene			
Liquid	A,D,B	OCC	hexachlorocyclopentadiene			
Solid	A,D	OCC	2,4,6-trichlorophenol			
Solid	A,D	OCC	2,4,5-trichlorophenol			
Liquid	A,D	OCC	2-chloronaphthalene			
Solid	A,D	OCC	2-nitroaniline			
Liquid	A,D	OCC	dimethylphthalate			
Solid	A,D	OCC	acenaphthylene			
Solid	A,D	OCC	2,6-dinitrotoluene			
Solid	A,D	OCC	3-nitroaniline			
Solid	A,D	OCC	acenaphthene			
Solid	A,D,G	OCC	2,4-dinitrophenol			
Solid	A,D	OCC	4-nitrophenol			
Solid	A,D	OCC	dibenzofuran			
Solid	A,D	OCC	2,4-dinitrotoluene			
Liquid	A,D	OCC	diethylphthalate			
	A,D	OCC	4-chlorophenyl-Phenylether			
Solid	A,D	OCC	fluorene			
Solid	A,D,E	OCC	4-nitroaniline			
Solid	A,D	OCC	4,6-dinitro-2-methylphenol			
Solid	A,D	OCC	n-nitrosodiphenylamine			
Liquid	A,D	OCC	4-bromophenyl-phenylether			
Solid	A,D	OCC	hexachlorobenzene			
Solid	A,D	OCC	pentachlorophenol			
Solid	A,D	OCC	phenanthrene			

TABLE 3
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT SITE
NCD000830646

SAMPLE IDENTIFICATION

Analyzed at the North Carolina State Laboratory of Public Health

		Sample Collection Information and Parameters	Background Sediment	Downgradient Sediment	Onsite Well
Physical	Waste				
State	Characteristics*	Category	SEMIVOLATILE ORGANICS (CONT.)		
Solid	A,D	OCC	anthracene		
Liquid	A,D	OCC	di-n-butylphthalate		
Solid	A,D	OCC	fluoranthene		
Solid	A,D	OCC	pyrene		
Liquid	A,D	OCC	butylbenzylphthalate		
	A,D	OCC	3,3-dichlorobenzidine		
Solid	A,D	OCC	benzo[a]anthracene		
Solid	A,D	OCC	chrysene		
Liquid	A,D	OCC	bis(2-ethylhexyl)phthalate		
Liquid	A,D	OCC	di-n-octylphthalate		
Solid	A,D	OCC	benzo[b]fluoranthene		
Solid	A,D	OCC	benzo[k]fluoranthene		
Solid	A,D,K,L	OCC	benzo[a]pyrene		
Solid	A,D	OCC	indeno[1,2,3-cd]pyrene		
Solid	A,D	OCC	dibenz[a,h]anthracene		
Solid	A,D	OCC	benzo[g,h,i]perylene		

TABLE 3
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT SITE
NCD000830646

SAMPLE IDENTIFICATION
Analyzed at the North Carolina State Laboratory of Public Health

		Sample Collection Information and Parameters		Background Sediment	Downgradient Sediment	Onsite Well
		PESTICIDES/PCBs				
State	Characteristics*	Category	Matrix Concentration Units	Soil mg/kg	Soil mg/kg	Soil mg/l
Solid	A,D	PSD	alpha BHC	NA	NA	NA
Solid	A,D	PSD	beta BHC	NA	NA	NA
Solid	A,D	PSD	delta BHC	NA	NA	NA
Solid	A,D	PSD	gamma BHC (Lindane)	NA	NA	NA
Solid	A,D	PSD	Heptachlor	NA	NA	NA
Solid	A,D	PSD	Aldrin	NA	NA	NA
Solid	A,D	PSD	Heptachlor epoxide	NA	NA	NA
Solid	A,D	PSD	Endosulfan I	NA	NA	NA
Solid	A,D,E	PSD	Dieldrin	NA	NA	NA
Solid	A,D	PSD	4,4'-DDE	NA	NA	NA
Solid	A,D	PSD	Endrin	NA	NA	NA
Solid	A,D	PSD	Endosulfan II	NA	NA	NA
Solid	A,D	PSD	4,4'-DDD	NA	NA	NA
Solid	A,D	PSD	Endosulfan sulfate	NA	NA	NA
Solid	A,D	PSD	4,4'-DDT	NA	NA	NA
Solid	A,D	PSD	Methoxychlor (Mariate)	NA	NA	NA
Solid	A,D	PSD	Endrin ketone	NA	NA	NA
Solid	A,D	PSD	alpha Chlordane	NA	NA	NA
Solid	A,D	PSD	gamma Chlordane	NA	NA	NA
Solid	A,D	PSD	Toxaphene	NA	NA	NA

TABLE 3
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT SITE
NCD000830646

SAMPLE IDENTIFICATION

Analyzed at the North Carolina State Laboratory of Public Health

		Sample Collection Information and Parameters		Background Sediment	Downgradient Sediment	Onsite Well
Physical State	Waste Characteristics*	Category	PESTICIDES/PCBS (CONT.)			
Liquid	A,D	OCC	Aroclor 1016	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1221	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1232	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1242	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1248	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1254	NA	NA	NA
Liquid	A,D	OCC	Aroclor 1260	NA	NA	NA
Liquid	A,D	OCC	PCB	<0.0001	<0.0001	<0.0001

TABLE 3
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT SITE
NCD000830646

SAMPLE IDENTIFICATION

Analyzed at the North Carolina State Laboratory of Public Health

State	Characteristics*	Category	Sample Collection Information	Background	Downgradient	Onsite
			and Parameters	Sediment	Sediment	Well
			ANALYTE DETECTED			
			Matrix	Soil	Soil	
			Concentration Units	mg/kg+/mg/L++	mg/kg+/mg/L++	mg/L
Solid	A,D	MES	aluminum	NA	NA	NA
Solid	A,D	MES	antimony	NA	NA	NA
Solid	A,D	MES	arsenic	U/U	5.8/[0.02]*	U
Solid	A,D	MES	barium	45/0.47	21/0.36	0.06
Solid	A,D	MES	beryllium	NA	NA	NA
Solid	A,D	MES	cadmium	U/U	U/U	U
Solid	D	MES	calcium	NA	NA	NA
Solid	A,D	MES	chromium	U/U	U/U	U
Solid	A,D	MES	cobalt	NA	NA	NA
Solid	A,D	MES	copper	NA	NA	NA
Solid	A,D	MES	iron	NA	NA	NA
Solid	A,D	MES	lead	19/[0.50]	19/[0.50]	U
Solid	A,D	MES	magnesium	NA	NA	NA
Solid	A,D	MES	manganese	NA	NA	NA
Liquid	A,D	MES	mercury	U/U	<0.11/[0.02]	U
Solid	A,D	MES	nickel	NA	NA	NA
Solid	D	MES	potassium	NA	NA	NA
Solid	A,D	MES	selenium	U/U	U/U	NA
Solid	A,D	MES	silver	U/U	U/U	NA
Solid	D	MES	sodium	NA	NA	NA
Solid	A,D	MES	thallium			

TABLE 3
SUMMARY OF CHEMICAL ANALYSES FOR
CP&L, SUTTON STEAM ELECTRIC PLANT SITE
NCD000830646

SAMPLE IDENTIFICATION

Analyzed at the North Carolina State Laboratory of Public Health

			Sample Collection Information and Parameters	Background Sediment	Downgradient Sediment	Onsite Well
Physical State	Waste Characteristics*	Category	ANALYTE DETECTED (CONT.)			
Solid	A,D	MES	vanadium	NA	NA	NA
Solid	A,D	MES	zinc	NA	NA	NA
Solid	A	IOC	cyanide	NA	NA	NA

NA - Not Analyzed

* - Concentrations significant, considered to be a release

[] - Below CRDL

+ - Total inorganic metals

++ - Analyzed using Toxicity Characteristic Leaching Procedure (TCLP)

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

C - Possible laboratory contamination

T - Trihalomethane

COMPOUND QUALIFIERS	DEFINITION	INTERPRETATION
U	Indicates compound was analyzed for but not detected.	Compound was not detected at or above the CRDL.
J	Indicates an estimated value.	Compound value may be semi-quantitative.
UJ	Quantitation limit is estimated due to a quality control (QC) protocol.	Compound was not detected if value is at CRDL, e.g., 10U UJ. If a value is reported with a UJ above CRDL and it is <5x blank concentration (10x for common laboratory artifacts), the compound is detected but may be a laboratory artifact and not attributable to the sample.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides ≥ 10 ng/uL in the final extract shall be confirmed by GC/MS.	Compound was confirmed by GC/MS and is quantitative. Use pesticide/PCB listed value.
B	This flag is used when the compound is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.	Compound value may be semi-quantitative if it is <5x the blank concentration (<10x the blank concentrations for common laboratory artifacts: phthalates, methylene chloride, acetone, toluene, 2-butanone).

COMPOUND QUALIFIERS

DEFINITION

INTERPRETATION

E	This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for the specific analysis. This flag will <u>not</u> apply to pesticides/PCBs analyzed by GC/EC methods.	Compound value may be semi-quantitative. There should be another analysis with a D qualifier, which is to be used.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.	Alerts data user to a possible change in the CRDL. Data is quantitative.
A	This flag indicates that a TIC is a suspected aldol-condensation product.	Alerts data user of a laboratory artifact in the TICs only.
R	Results are unusable due to a major violation of QC protocol.	Compound value is not usable.
X	Cannot be confirmed by CLP protocols.	Compound may or may not be present.

ANALYTE QUALIFIERS

DEFINITION

INTERPRETATION

E	E	Estimated or not reported due to interference. See laboratory narrative.	Analyte or element was not detected, or value may be semiquantitative.
s	s	Analysis by Method of Standard Additions.	Value is quantitative.
R	N	Spike recoveries outside QC protocols, which indicates a possible matrix problem. Data may be biased high or low. See spike results and laboratory narrative.	Value may be quantitative or semi-quantitative.

* *	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be quantitative or semi-quantitative.
+ +	Correlation coefficient for standard additions is less than 0.995. See review and laboratory narrative.	Data value may be biased.
[] B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
UJ	DL is estimated because of a QC protocol. DL is possibly above or below CRDL.	Compound or element was not detected.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
U U	Compound was analyzed for but not detected.	Compound was not detected at or above the CRDL.
M	Duplicate injection precision not met.	Value may be semiquantitative.
W	Post-digestion spike for furnace AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semiquantitative.
R	Results are unusable due to a major violation of QC protocols.	Analyte value is not usable.

Waste Characteristics Identification*

A - Toxic	D - Persistent	G - Flammable	J - Explosive
B - Corrosive	E - Soluble	H - Ignitable	K - Reactive
C - Radioactive	F - Infectious	I - Highly Volatile	L - Incompatible

APPENDIX B
SITE INSPECTION FORM



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

I. IDENTIFICATION

01 STATE NC 02 SITE NUMBER D000830646

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) CP&L, Sutton Steam Electric Plant		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER U.S. Highway 421	
03 CITY Wilmington	04 STATE 05 ZIP CODE NC 28405	06 COUNTY Hanover	07 COUNTY CODE 08 CONG DIST
09 COORDINATES 34° 17' 0" N 077° 59' 0" W		10 TYPE OF OWNERSHIP (Check one) <input checked="" type="checkbox"/> A PRIVATE <input type="checkbox"/> B FEDERAL <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER <input type="checkbox"/> G. UNKNOWN	

III. INSPECTION INFORMATION

01 DATE OF INSPECTION 6 / 27 / 91 MONTH DAY YEAR	02 SITE STATUS <input checked="" type="checkbox"/> ACTIVE <input type="checkbox"/> INACTIVE	03 YEARS OF OPERATION BEGINNING YEAR ENDING YEAR X UNKNOWN
--	---	--

04 AGENCY PERFORMING INSPECTION (Check all that apply)

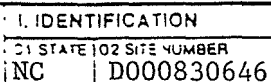
<input type="checkbox"/> A. EPA	<input type="checkbox"/> B. EPA CONTRACTOR	<input type="checkbox"/> C. MUNICIPAL	<input type="checkbox"/> D. MUNICIPAL CONTRACTOR
<input checked="" type="checkbox"/> E. STATE		<input checked="" type="checkbox"/> F. STATE CONTRACTOR	
Name of firm: Greenhorn & O'Mara, Inc. (G&O)		Specify:	

05 CHIEF INSPECTOR Jeff Tyburski	06 TITLE Environmental Geologist	07 ORGANIZATION G&O	08 TELEPHONE NO. 919 782-9088
09 OTHER INSPECTORS Jerry Johnson	10 TITLE Environmental Scientist	11 ORGANIZATION G&O	12 TELEPHONE NO. 919 782-9088
Chris Huff	Environmental Engineer	G&O	919 782-9088
Harvey Allen	Environmental Engineer	NCDEHNR	919 733-2801
			()
			()
13 SITE REPRESENTATIVES INTERVIEWED Donald Ennis	14 TITLE	15 ADDRESS Raleigh, NC	16 TELEPHONE NO. 919 546-7323
			()
			()
			()
			()
			()
			()

17 ACCESS GAINED BY (Check one) <input checked="" type="checkbox"/> PERMISSION <input type="checkbox"/> WARRANT	18 TIME OF INSPECTION 0900 hours	19 WEATHER CONDITIONS Fair
--	-------------------------------------	-------------------------------

IV. INFORMATION AVAILABLE FROM

01 CONTACT Harvey Allen	02 OF (Agency/Organization) NCDEHNR		03 TELEPHONE NO. 919 733-2801
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM Marie Fisher	05 AGENCY	06 ORGANIZATION G&O	07 TELEPHONE NO. (301) 982-2800
		08 DATE 12 / 9 / 91 MONTH DAY YEAR	



23 WASTE CHARACTERISTICS (check all that apply)

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

NO OF CRUMS - - - - -

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
OC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

[illegible]

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

FORM 2070-13(7-81)



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

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
NC D000830646

HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A GROUNDWATER CONTAMINATION 02 ☒ OBSERVED (DATE 6/27/91) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED 6715 (4-mile radius) 04 NARRATIVE DESCRIPTION

Groundwater onsite is contaminated with arsenic, barium, beryllium, chromium, copper, lead, mercury, nickel, selenium, vanadium and zinc.

01 ☐ B SURFACE WATER CONTAMINATION 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED 0 04 NARRATIVE DESCRIPTION

Sediments from the Cape Fear River are contaminated with arsenic and mercury.

01 ☐ C CONTAMINATION OF AIR 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

No air samples have been collected.

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

No fires have been reported

01 ☒ E DIRECT CONTACT 02 ☒ OBSERVED (DATE 6/27/91) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED 92 employees 04 NARRATIVE DESCRIPTION

Soils on-site are contaminated with arsenic, barium, beryllium, chromium, copper, lead, manganese, selenium, and zinc. Also 4,4-DDD.

01 ☒ F CONTAMINATION OF SOIL 02 ☒ OBSERVED (DATE 6/27/91) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

See Direct Contact

01 ☒ G DRINKING WATER CONTAMINATION 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

See Groundwater Contamination

01 ☒ H WORKER EXPOSURE/INJURY 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

See Direct Contact

01 ☒ I POPULATION EXPOSURE/INJURY 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

See Direct Contact



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
NC D00830646

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ DAMAGE TO FLORA 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NA

01 ☐ DAMAGE TO FAUNA 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (include names of species)

NA

01 ☐ CONTAMINATION OF FOOD CHAIN 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NA

01 ☐ UNSTABLE CONTAINMENT OF WASTES 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
(e.g., leaks, standing liquids, leaking drums)
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

01 ☐ DAMAGE TO OFFSITE PROPERTY 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NA

01 ☐ CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NA

01 ☐ ILLEGAL UNAUTHORIZED DUMPING 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NA

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: 6715

IV. COMMENTS

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

1. State File
2. Analytical Data



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

I. IDENTIFICATION

01 STATE | 02 SITE NUMBER
NC D00830646

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
<input checked="" type="checkbox"/> NPDES	NC0001422			
<input type="checkbox"/> UIC				
<input type="checkbox"/> AIR				
<input type="checkbox"/> RCRA	NCD00830646			
<input type="checkbox"/> RCRA INTERIM STATUS				
<input type="checkbox"/> SPCC PLAN				
<input type="checkbox"/> STATE (Specify)				
<input type="checkbox"/> LOCAL (Specify)				
<input type="checkbox"/> OTHER (Specify)				
<input type="checkbox"/> NONE				

III. SITE DESCRIPTION

01 STORAGE/ DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT (Check all that apply)	05 OTHER
<input checked="" type="checkbox"/> A SURFACE IMPOUNDMENT	74.3 acres + 68 acres		<input type="checkbox"/> A INCENERATION	<input type="checkbox"/> A BUILDINGS ON SITE
<input type="checkbox"/> B PILES			<input type="checkbox"/> B UNDERGROUND INJECTION	
<input type="checkbox"/> C DRUMS, ABOVE GROUND			<input type="checkbox"/> C CHEMICAL/PHYSICAL	
<input checked="" type="checkbox"/> D TANK, ABOVE GROUND	2.11 million gallon		<input type="checkbox"/> D BIOLOGICAL	
<input type="checkbox"/> E TANK, BELOW GROUND			<input type="checkbox"/> E WASTE OIL PROCESSING	
<input type="checkbox"/> F LANDFILL			<input type="checkbox"/> F SOLVENT RECOVERY	
<input type="checkbox"/> G LANDFARM			<input type="checkbox"/> G OTHER RECYCLING/RECOVERY	06 AREA OF SITE
<input type="checkbox"/> H OPEN DUMP			<input type="checkbox"/> H OTHER (Specify)	1200 (Ac/est)
<input type="checkbox"/> I OTHER (Specify)				

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A ADEQUATE, SECURE ☐ B MODERATE ☐ C INADEQUATE, POOR ☒ D INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC

unlined lagoons

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE ☒ YES ☐ NO

02 COMMENTS

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

1. State File
2. G&O Field Notes



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

I. IDENTIFICATION
01 STATE 02 SITE NUMBER
NC D000830646

II. DRINKING WATER SUPPLY

01 DRINKING SUPPLY (If applicable)		02 STATUS			03 DISTANCE TO SITE	
	SURFACE	WELL	ENDANGERED	AFFECTED	MONITORED	
COMMUNITY	A <input type="checkbox"/>	B <input checked="" type="checkbox"/>	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>	A on-site (mi)
NON-COMMUNITY	C <input type="checkbox"/>	D <input type="checkbox"/>	D <input type="checkbox"/>	E <input type="checkbox"/>	F <input type="checkbox"/>	B (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☒ A ONLY SOURCE FOR DRINKING
☐ B DRINKING
Other sources available:
COMMERCIAL, INDUSTRIAL, IRRIGATION
No other water sources available
☐ C COMMERCIAL, INDUSTRIAL, IRRIGATION
Other sources available:
☐ D NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 6,715		03 DISTANCE TO NEAREST DRINKING WATER WELL on-site (mi)			
04 DEPTH TO GROUNDWATER 1.5 (ft)	05 DIRECTION OF GROUNDWATER FLOW unknown	06 DEPTH TO AQUIFER OF CONCERN 1.5 (ft)	07 POTENTIAL YIELD OF AQUIFER unknown (gpd)	08 SOLE SOURCE AQUIFER <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	

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

10 RECHARGE AREA

☐ YES
☐ NO

COMMENTS

unknown

11 DISCHARGE AREA

☐ YES
☐ NO

COMMENTS

unknown

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

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

02 AFFECTED, POTENTIALLY AFFECTED BODIES OF WATER

NAME	AFFECTED	DISTANCE TO SITE
Cape Fear River	<input type="checkbox"/>	700 feet (mi)
	<input type="checkbox"/>	(mi)
	<input type="checkbox"/>	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE A 255 NO OF PERSONS	TWO (2) MILES OF SITE B 821 NO OF PERSONS	THREE (3) MILES OF SITE C 4227 NO OF PERSONS
--	---	--

02 DISTANCE TO NEAREST POPULATION

one (mi)

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

unknown

04 DISTANCE TO NEAREST OFF-SITE BUILDING

one (mi)

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



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

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
NC D00830646

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A 10^{-6} - 10^{-8} cm/sec ☐ B 10^{-4} - 10^{-6} cm/sec ☐ C 10^{-2} - 10^{-3} cm/sec ☐ D GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A IMPERMEABLE ☐ B RELATIVELY IMPERMEABLE ☐ C RELATIVELY PERMEABLE ☐ D VERY PERMEABLE
(Less than 10^{-10} cm/sec) 10^{-4} - 10^{-7} cm/sec 10^{-2} - 10^{-4} cm/sec Greater than 10^{-2} cm/sec

unknown

03 DEPTH TO BEDROCK

unknown (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE

unknown (ft)

05 SOIL pH

unknown

06 NET PRECIPITATION

12 (in)

07 ONE YEAR 24 HOUR RAINFALL

4.5 (in)

08 SLOPE
SITE SLOPE

0 %

DIRECTION OF SITE SLOPE
west

TERRAIN AVERAGE SLOPE
0 %

09 FLOOD POTENTIAL

SITE IS IN YEAR FLOODPLAIN

10

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE

OTHER

A on-site (mi)

B (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

on-site (mi)

ENDANGERED SPECIES.

13 LAND USE IN VICINITY

DISTANCE TO

COMMERCIAL/INDUSTRIAL

RESIDENTIAL AREAS, NATIONAL/STATE PARKS,
FORESTS, OR WILDLIFE RESERVES

AGRICULTURAL LANDS
PRIME AG LAND AG LAND

A (mi)

B (mi)

C (mi) D (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

topography of the site is relatively flat, as the site is situated between the Cape Fear and Northeast Cape Fear Rivers. The site slopes mildly to the west. The elevation of the site ranges from approximately 3 to 25 feet mean sea level.

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

1. State File
2. USGS Map
3. Field Notes



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

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

NC D000830646

II. SAMPLES TAKEN

01 SAMPLE TYPE	02 NUMBER OF SAMPLES TAKEN	03 SAMPLES SENT TO	04 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	3	IEA	12/91
Sediment SURFACE WATER	2	NCDEHNR - State Lab	12/91
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	3	IEA	12/91
VEGETATION			
OTHER domestic well	1	NCDEHNR - State Lab	12/91

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE <input checked="" type="checkbox"/> GROUND <input type="checkbox"/> AERIAL	02 IN CUSTODY OF <u>Greenhorne & O'Mara, Inc.</u> <small>Name of organization or individual</small>
03 MAPS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	04 LOCATION OF MAPS <u>Phase II SSI</u>

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references e.g. 1/2/91-95 sample analysis reports)

1. State File
2. Analytical Data



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

IDENTIFICATION
01 STATE NC 02 SITE NUMBER D000830646

I. CURRENT OWNER(S)				PARENT COMPANY (If applicable)			
01 NAME CP&B, Sutton Steam Electric Plant		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) U.S. Highway 421		04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE	
05 CITY Wilmington		06 STATE NC	07 ZIP CODE 28405	12 CITY		13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	12 CITY		13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	12 CITY		13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	12 CITY		13 STATE	14 ZIP CODE
II. PREVIOUS OWNER(S) (If most recent first)				IV. REALTY OWNER(S) (If applicable, list most recent first)			
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	05 CITY		06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	05 CITY		06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	05 CITY		06 STATE	07 ZIP CODE
V. SOURCES OF INFORMATION (Check specific references: e.g., state files, sample analysis, reports)							
1. State File							
2. G&O Field Notes							



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

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
NC D000830646

II. CURRENT OPERATOR (Provide # different from owner)

OPERATOR'S PARENT COMPANY (If applicable)

01 NAME: Same as owner
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:
08 YEARS OF OPERATION: unknown
09 NAME OF OWNER:
10 NAME:
11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):
13 SIC CODE:
14 CITY:
15 STATE:
16 ZIP CODE:
17 YEARS OF OPERATION:
18 NAME OF OWNER DURING THIS PERIOD:

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

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

01 NAME:
02 D+B NUMBER:
03 STREET ADDRESS (P.O. Box, RFD #, etc.):
04 SIC CODE:
05 CITY:
06 STATE:
07 ZIP CODE:
08 YEARS OF OPERATION:
09 NAME OF OWNER DURING THIS PERIOD:
10 NAME:
11 D+B NUMBER:
12 STREET ADDRESS (P.O. Box, RFD #, etc.):
13 SIC CODE:
14 CITY:
15 STATE:
16 ZIP CODE:
17 YEARS OF OPERATION:
18 NAME OF OWNER DURING THIS PERIOD:
19 NAME:
20 D+B NUMBER:
21 STREET ADDRESS (P.O. Box, RFD #, etc.):
22 SIC CODE:
23 CITY:
24 STATE:
25 ZIP CODE:
26 YEARS OF OPERATION:
27 NAME OF OWNER DURING THIS PERIOD:

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

1. State File



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

I. IDENTIFICATION
01 STATE 02 SITE NUMBER
NC D000830646

III. ON-SITE GENERATOR

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

II. OFF-SITE GENERATOR(S)

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

IV. TRANSPORTER(S)

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

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

1. State File



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

1. IDENTIFICATION
01 STATE 02 SITE NUMBER
NC D000830646

1. PAST RESPONSE ACTIVITIES

01 <input type="checkbox"/> A WATER SUPPLY CLOSED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> B TEMPORARY WATER SUPPLY PROVIDED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> C PERMANENT WATER SUPPLY PROVIDED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> D SPILLED MATERIAL REMOVED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> E CONTAMINATED SOIL REMOVED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> F WASTE REPACKAGED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> G WASTE DISPOSED ELSEWHERE 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> H ON SITE BURIAL 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> I IN SITU CHEMICAL TREATMENT 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> J IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> K IN SITU PHYSICAL TREATMENT 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> L ENCAPSULATION 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> M EMERGENCY WASTE TREATMENT 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> N CUTOFF WALLS 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> O EMERGENCY DIKING/SURFACE WATER DIVERSION 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> P CUTOFF TRENCHES/SUMP 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> Q SUBSURFACE CUTOFF WALL 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____

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

1. IDENTIFICATION

01 STATE 02 SITE NUMBER
NC D000830646

II PAST RESPONSE ACTIVITIES (Continued)

01 <input type="checkbox"/> R BARRIER WALLS CONSTRUCTED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> S CAPPING/COVERING 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> T BULK TANKAGE REPAIRED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> U GROUT CURTAIN CONSTRUCTED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> V BOTTOM SEALED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> W GAS CONTROL 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> X FIRE CONTROL 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> Y LEACHATE TREATMENT 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> Z AREA EVACUATED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> 1 ACCESS TO SITE RESTRICTED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> 2 POPULATION RELOCATED 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> 3 OTHER REMEDIAL ACTIVITIES 04 DESCRIPTION NA	02 DATE _____	03 AGENCY _____

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

1. State File



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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NC	D000830646

II. ENFORCEMENT INFORMATION

01 HAS REGULATORY/ENFORCEMENT ACTION BEEN TAKEN? ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

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

1. State File

APPENDIX C
ANALYTICAL DATA

DATA ANALYZED BY IEA

See Volume II

SOLID WASTE MANAGEMENT DIVISION
SUPERFUND SECTION

RECEIVED

OCT 6 1991

CERCLA

SUPERFUND SECTION

Chain of Custody Record

Hazardous Waste Materials

Location of Sampling: ☒ Generator ☐ Transporter
☐ Treatment Facility ☐ Storage Facility
☐ Disposal Facility ☐ Landfill
☐ Other: _____

Company's Name CPL, Sutter Steam ELEC. PLANT Telephone: _____

Address WILMINGTON, NC

Collector's Name _____ Telephone: 919 733-2801
signature

Date Sampled 6-27-91 Time Sampled _____

Type of Process Generating Waste _____

Field Information: _____

Field Sample No. 16289 16290 16291

Chain of Possession:

<u>Harvey Walker</u> signature	<u>Env. Engineer</u> title	<u>6/27/91 - 6/28/91</u> inclusive dates
<u>W.C. Walker</u> signature	<u>Chemist</u> title	<u>28 June-91</u> inclusive dates
_____ signature	_____ title	_____ inclusive dates

Results Reported:

<u>W.C. Walker</u> signature	<u>Chemist</u> title	<u>4 Oct 91</u> date
---------------------------------	-------------------------	-------------------------

Instructions: Complete all applicable information including signatures, and submit with analysis request forms.

SAMPLE ANALYSIS REQUEST

CERCLA

RECEIVED

Site Number 65D 000 830 646 Field Sample Number 16289 507 1991

Name of Site C & L Sutton Steam Elec PLANT Site Location WILMINGTON SUPERFUND SECTION

Collected By HARVEY ALLEN ID# 76 Date Collected 6-27-91 Time 10:20

Agency: Hazardous Waste Solid Waste ✓ Superfund

Sample Type

Environmental

Concentrate

Comments

 Ground water (1) Solid (5) SED - SOUTH
 Surface water (2) Liquid (6) INORGAN, 250 mL
 Soil (3) Sludge (7)
✓ Other (4) SEDIMENT Other (8)

TCLP Compounds

Inorganic Compounds

Results(mg/l)

✓ Arsenic	40.02
✓ Barium	0.36
✓ Cadmium	40.08
✓ Chromium	40.10
✓ Lead	40.50
✓ Mercury	40.02
✓ Selenium	40.02
✓ Silver	40.10

Organic Chemistry

Inorganic Chemistry

Parameter	Results(mg/l)
P&T:GC/MS	
Acid:B/N Ext.	
MTBE	

Parameter	Results(mg/l)(mg/kg)
✓ Arsenic	5.8
✓ Barium	21
✓ Cadmium	<16
Chloride	
✓ Chromium	<20
Copper	
Fluoride	
Iron	
✓ Lead	19
Manganese	
✓ Mercury	≤ 0.11
Nitrate	
✓ Selenium	<6.0
✓ Silver	<20

Organic Compounds

Results(mg/l)

benzene	
carbon tetrachloride	
chlordane	
chlorobenzene	
chloroform	
o-cresol	
m-cresol	
p-cresol	
cresol	
1,4-dichlorobenzene	
1,2-dichloroethane	
1,1-dichloroethylene	
2,4-dinitrotoluene	
heptachlor	
hexachlorobenzene	
hexachlorobutadiene	
hexachloroethane	
methyl ethyl ketone	
nitrobenzene	
pentachlorophenol	
pyridine	
tetrachloroethylene	
trichloroethylene	
2,4,5-trichlorophenol	
2,4,6-trichlorophenol	
vinyl chloride	
endrin	
lindane	
methoxychlor	
toxaphene	
2,4-D	
2,4,5-TP (Silvex)	

Radiochemistry

Parameter	Results (PCI/l)
Gross Alpha	
Gross Beta	

Microbiology

Parameter	Results (Col/100ml)

Sulfates	
Zinc	
pH	
Conductivity	
TDS	
TOC	

Date Received Reported by

Date Extracted Date Reported

Date Analyzed Lab Number

SAMPLE ANALYSIS REQUEST

CERCLA

RECEIVED

Site Number 65D 000 830 646 Field Sample Number 16290

Name of Site C.P. & L. Sutton Steam Elec. PLANT Site Location WILMINGTON, NC

Collected By HARVEY ALLEN ID# 76 Date Collected 6-27-91 Time 11:15

Agency: ☐ Hazardous Waste ☐ Solid Waste ☒ Superfund

Sample Type

Environmental Concentrate Comments

☐ Ground water (1) ☐ Solid (5) SED - NORTH
☐ Surface water (2) ☐ Liquid (6) INORGAN. 250 ML
☐ Soil (3) ☐ Sludge (7)
☒ Other (4) SEDIMENT Other (8)

TCLP Compounds

Inorganic Compounds	Results(mg/l)
<input checked="" type="checkbox"/> Arsenic	<u>40.02</u>
<input checked="" type="checkbox"/> Barium	<u>0.47</u>
<input checked="" type="checkbox"/> Cadmium	<u>40.08</u>
<input checked="" type="checkbox"/> Chromium	<u>40.10</u>
<input checked="" type="checkbox"/> Lead	<u>40.50</u>
<input checked="" type="checkbox"/> Mercury	<u>40.02</u>
<input checked="" type="checkbox"/> Selenium	<u>40.02</u>
<input checked="" type="checkbox"/> Silver	<u>40.10</u>

Organic Chemistry

Parameter	Results(mg/l)
P&T:GC/MS	
Acid:B/N Ext.	
MTBE	

Inorganic Chemistry

Parameter	Results(mg/l)(mg/kg)
<input checked="" type="checkbox"/> Arsenic	<u><4.6</u>
<input checked="" type="checkbox"/> Barium	<u>45</u>
<input checked="" type="checkbox"/> Cadmium	<u><16</u>
Chloride	
<input checked="" type="checkbox"/> Chromium	<u><20</u>
Copper	
Fluoride	
Iron	
<input checked="" type="checkbox"/> Lead	<u>19</u>
Manganese	
<input checked="" type="checkbox"/> Mercury	<u><0.1</u>
Nitrate	
<input checked="" type="checkbox"/> Selenium	<u><10.6</u>
<input checked="" type="checkbox"/> Silver	<u><20</u>
Sulfates	
Zinc	
pH	
Conductivity	
TDS	
TOC	

Radiochemistry

Parameter	Results (PCI/l)
Gross Alpha	
Gross Beta	

Microbiology

Parameter	Results (Col/100ml)

Organic Compounds	Results(mg/l)
benzene	
carbon tetrachloride	
chlordane	
chlorobenzene	
chloroform	
o-cresol	
m-cresol	
p-cresol	
cresol	
1,4-dichlorobenzene	
1,2-dichloroethane	
1,1-dichloroethylene	
2,4-dinitrotoluene	
heptachlor	
hexachlorobenzene	
hexachlorobutadiene	
hexachloroethane	
methyl ethyl ketone	
nitrobenzene	
pentachlorophenol	
pyridine	
tetrachloroethylene	
trichloroethylene	
2,4,5-trichlorophenol	
2,4,6-trichlorophenol	
vinyl chloride	
endrin	
lindane	
methoxychlor	
toxaphene	
2,4-D	
2,4,5-TP (Silvex)	

Date Received Reported by

Date Extracted Date Reported

Date Analyzed Lab Number

SAMPLE ANALYSIS REQUEST

CERCLA

Site Number 65D 000 830 646 Field Sample Number 16291

Name of Site CP & L, Sutton Steam Elec PLANT Site Location WILMINGTON, NC

Collected By HARVEY ALLEN ID# 76 Date Collected 6-27-91 Time 1230

Agency: Hazardous Waste Solid Waste ☒ Superfund

Sample Type

Environmental	Concentrate	Comments
<input checked="" type="checkbox"/> Ground water (1)	<u> </u> Solid (5) <u>DW-01</u>	
<u> </u> Surface water (2)	<u> </u> Liquid (6) <u>CUBES</u>	
<u> </u> Soil (3)	<u> </u> Sludge (7)	
<u> </u> Other (4)	<u> </u> Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
Arsenic	
Barium	
Cadmium	
Chloride	
Lead	
Mercury	
Selenium	
Silver	

RECEIVED

JUL 24 1991

SUPERFUND SECTION

Organic Chemistry		Inorganic Chemistry	
Parameter	Results(mg/l)	Parameter	Results(mg/l)(mg/kg)
P&T:GC/MS		<input checked="" type="checkbox"/> Arsenic	<u><0.01</u>
Acid:B/N Ext.		<input checked="" type="checkbox"/> Barium	<u>0.06</u>
MTBE		<input checked="" type="checkbox"/> Cadmium	<u><0.005</u>
		Chloride	
		<input checked="" type="checkbox"/> Chromium	<u><0.02</u>
		Copper	
		Fluoride	
		Iron	
		<input checked="" type="checkbox"/> Lead	<u><0.005</u>
		Manganese	
		<input checked="" type="checkbox"/> Mercury	<u><0.0002</u>
		Nitrate	
		<input checked="" type="checkbox"/> Selenium	<u><0.02</u>
		<input checked="" type="checkbox"/> Silver	<u><0.05</u>
		Sulfates	
		Zinc	
		pH	
		Conductivity	
		TDS	
		TOC	
Radiochemistry			
Parameter	Results (PCI/l)		
Gross Alpha			
Gross Beta			
Microbiology			
Parameter	Results (Col/100ml)		

Organic Compounds	Results(mg/l)
benzene	
carbon tetrachloride	
chlordane	
chlorobenzene	
chloroform	
o-cresol	
m-cresol	
p-cresol	
cresol	
1,4-dichlorobenzene	
1,2-dichloroethane	
1,1-dichloroethylene	
2,4-dinitrotoluene	
heptachlor	
hexachlorobenzene	
hexachlorobutadiene	
hexachloroethane	
methyl ethyl ketone	
nitrobenzene	
pentachlorophenol	
pyridine	
tetrachloroethylene	
trichloroethylene	
2,4,5-trichlorophenol	
2,4,6-trichlorophenol	
vinyl chloride	
endrin	
lindane	
methoxychlor	
toxaphene	
2,4-D	
2,4,5-TP (Silvex)	

Date Received Reported by ALC

Date Extracted Date Reported 22 JUL 1991

Date Analyzed Lab Number

SAMPLE ANALYSIS REQUEST

CERCLA

Site Number 65D 000 830 646 Field Sample Number 14991

Name of Site CP & L, Sutton Steam Elec. PLANT Site Location WILMINGTON, NC

Collected By HARVEY ALLEN ID# 76 Date Collected 6-27-91 Time 10:20

Agency: ☐ Hazardous Waste ☐ Solid Waste ☒ Superfund

Sample Type

Environmental	Concentrate	Comments
<input type="checkbox"/> Ground water (1)	<input type="checkbox"/> Solid (5)	<u>SED - SOUTH</u>
<input type="checkbox"/> Surface water (2)	<input type="checkbox"/> Liquid (6)	<u>VOA / BNA / PCB's</u>
<input type="checkbox"/> Soil (3)	<input type="checkbox"/> Sludge (7)	
<input checked="" type="checkbox"/> Other (4) <u>SEDIMENT</u>	<input type="checkbox"/> Other (8)	

TCLP Compounds

Inorganic Compounds	Results(mg/l)
Arsenic	
Barium	
Cadmium	
Chromium	
Lead	
Mercury	
Selenium	
Silver	

RECEIVED
SUPERFUND SECTION

Organic Chemistry		Inorganic Chemistry	
Parameter	Results(mg/l)	Parameter	Results(mg/l)(mg/kg)
<input checked="" type="checkbox"/> P&T:GC/MS		Arsenic	
<input checked="" type="checkbox"/> Acid:B/N Ext.		Barium	
MTBE		Cadmium	
<input checked="" type="checkbox"/> PCB'S	<u><0.0001</u>	Chloride	
		Chromium	
		Copper	
		Fluoride	
		Iron	
		Lead	
		Manganese	
		Mercury	
		Nitrate	
		Selenium	
		Silver	
		Sulfates	
		Zinc	
		pH	
		Conductivity	
		TDS	
		TOC	

Radiochemistry	
Parameter	Results (PCI/l)
Gross Alpha	
Gross Beta	

Microbiology	
Parameter	Results (Col/100ml)

Organic Compounds	Results(mg/l)
benzene	
carbon tetrachloride	
chlordane	
chlorobenzene	
chloroform	
o-cresol	
m-cresol	
p-cresol	
cresol	
1,4-dichlorobenzene	
1,2-dichloroethane	
1,1-dichloroethylene	
2,4-dinitrotoluene	
heptachlor	
hexachlorobenzene	
hexachlorobutadiene	
hexachloroethane	
methyl ethyl ketone	
nitrobenzene	
pentachlorophenol	
pyridine	
tetrachloroethylene	
trichloroethylene	
2,4,5-trichlorophenol	
2,4,6-trichlorophenol	
vinyl chloride	
endrin	
lindane	
methoxychlor	
toxaphene	
2,4-D	
2,4,5-TP (Silvex)	

Date Received 6/28/91 4PM Reported by PCB's BNA
Date Extracted 7-18-91 8-1-91 AA Date Reported 8-1-91
Date Analyzed 8-8-91 8-16-91 Lab Number 912444
DHIS 3191 (Revised 2/91) PCB's BNA
PTC 22 C17115

SAMPLE ANALYSIS REQUEST

CERCLA

Site Number 65D 000 830 646 Field Sample Number 14992
Name of Site CP & L, Sutton Steam Elec PLANT Site Location WILMINGTON, NC
Collected By HARVEY ALLEN ID# 76 Date Collected 6-27-91 Time 11:15

Agency: ☐ Hazardous Waste ☐ Solid Waste ☒ Superfund

Sample Type

Environmental

Concentrate

Comments

☐ Ground water (1) ☐ Solid (5) SED - NORTH
☐ Surface water (2) ☐ Liquid (6) VOA/BNA/PCB's
☐ Soil (3) ☐ Sludge (7) _____
☒ Other (4) SEDIMENT Other (8) _____

TCLP Compounds

Inorganic Compounds

Results(mg/l)

☐ Arsenic
☐ Barium
☐ Cadmium
☐ Chromium
☐ Lead
☐ Mercury
☐ Selenium
☐ Silver
RECEIVED
SUPERFUND SECTION

Organic Chemistry

Inorganic Chemistry

Parameter	Results(mg/l)
<input checked="" type="checkbox"/> P&T:GC/MS	
<input checked="" type="checkbox"/> Acid:B/N Ext.	
<input type="checkbox"/> MTBE	
<input checked="" type="checkbox"/> PCB'S	<u><0.0001</u>

Parameter	Results(mg/l)(mg/kg)
<input type="checkbox"/> Arsenic	
<input type="checkbox"/> Barium	
<input type="checkbox"/> Cadmium	
<input type="checkbox"/> Chloride	
<input type="checkbox"/> Chromium	
<input type="checkbox"/> Copper	
<input type="checkbox"/> Fluoride	
<input type="checkbox"/> Iron	
<input type="checkbox"/> Lead	
<input type="checkbox"/> Manganese	
<input type="checkbox"/> Mercury	
<input type="checkbox"/> Nitrate	
<input type="checkbox"/> Selenium	
<input type="checkbox"/> Silver	
<input type="checkbox"/> Sulfates	
<input type="checkbox"/> Zinc	
<input type="checkbox"/> pH	
<input type="checkbox"/> Conductivity	
<input type="checkbox"/> TDS	
<input type="checkbox"/> TOC	

Radiochemistry

Parameter	Results (PCI/I)
<input type="checkbox"/> Gross Alpha	
<input type="checkbox"/> Gross Beta	

Microbiology

Parameter	Results (Col/100ml)

Organic Compounds

Results(mg/l)

<input type="checkbox"/> benzene	
<input type="checkbox"/> carbon tetrachloride	
<input type="checkbox"/> chlordane	
<input type="checkbox"/> chlorobenzene	
<input type="checkbox"/> chloroform	
<input type="checkbox"/> o-cresol	
<input type="checkbox"/> m-cresol	
<input type="checkbox"/> p-cresol	
<input type="checkbox"/> cresol	
<input type="checkbox"/> 1,4-dichlorobenzene	
<input type="checkbox"/> 1,2-dichloroethane	
<input type="checkbox"/> 1,1-dichloroethylene	
<input type="checkbox"/> 2,4-dinitrotoluene	
<input type="checkbox"/> heptachlor	
<input type="checkbox"/> hexachlorobenzene	
<input type="checkbox"/> hexachlorobutadiene	
<input type="checkbox"/> hexachloroethane	
<input type="checkbox"/> methyl ethyl ketone	
<input type="checkbox"/> nitrobenzene	
<input type="checkbox"/> pentachlorophenol	
<input type="checkbox"/> pyridine	
<input type="checkbox"/> tetrachloroethylene	
<input type="checkbox"/> trichloroethylene	
<input type="checkbox"/> 2,4,5-trichlorophenol	
<input type="checkbox"/> 2,4,6-trichlorophenol	
<input type="checkbox"/> vinyl chloride	
<input type="checkbox"/> endrin	
<input type="checkbox"/> lindane	
<input type="checkbox"/> methoxychlor	
<input type="checkbox"/> toxaphene	
<input type="checkbox"/> 2,4-D	
<input type="checkbox"/> 2,4,5-TP (Silvex)	

Date Received 6/28/91 9 AM Reported by _____
Date Extracted 7-18-91 10:30 AM Date Reported _____
Date Analyzed 8-8-91 4 PM Lab Number 912445
DIHS 3191 (Revised 2/91)

PT 8-23-91 7:11 PM

CERCLA

Site Number 65D 000 830 646 Field Sample Number 14993

Name of Site CP & L Sutton Steam Elec PLANT Site Location WILMINGTON, NC

Collected By HARVEY ALLEN ID# 76 Date Collected 6-27-91 Time 12:30

Agency: Hazardous Waste Solid Waste ✓ Superfund

Sample Type

Environmental

Concentrate

Comments

✓ Ground water (1) Solid (5) DW-01 VOA
 Surface water (2) Liquid (6)
 Soil (3) Sludge (7)
 Other (4) Other (8)

TCLP Compounds

Inorganic Compounds Results(mg/l)

 Arsenic
 Barium
 Cadmium RECEIVED
 Chromium
 Lead
 Mercury
 Selenium SUPERFUND SECTION
 Silver

Organic Chemistry

Inorganic Chemistry

Parameter	Results(mg/l)
<u>✓</u> P&T:GC/MS	<u> </u>
<u> </u> Acid:B/N Ext.	<u> </u>
<u> </u> MTBE	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>

Parameter	Results(mg/l)(mg/kg)
<u> </u> Arsenic	<u> </u>
<u> </u> Barium	<u> </u>
<u> </u> Cadmium	<u> </u>
<u> </u> Chloride	<u> </u>
<u> </u> Chromium	<u> </u>
<u> </u> Copper	<u> </u>
<u> </u> Fluoride	<u> </u>
<u> </u> Iron	<u> </u>
<u> </u> Lead	<u> </u>
<u> </u> Manganese	<u> </u>
<u> </u> Mercury	<u> </u>
<u> </u> Nitrate	<u> </u>
<u> </u> Selenium	<u> </u>
<u> </u> Silver	<u> </u>
<u> </u> Sulfates	<u> </u>
<u> </u> Zinc	<u> </u>
<u> </u> pH	<u> </u>
<u> </u> Conductivity	<u> </u>
<u> </u> TDS	<u> </u>
<u> </u> TOC	<u> </u>

Radiochemistry

Parameter	Results (PCI/l)
<u> </u> Gross Alpha	<u> </u>
<u> </u> Gross Beta	<u> </u>

Microbiology

Parameter	Results (Col/100ml)
<u> </u>	<u> </u>
<u> </u>	<u> </u>

Organic Compounds Results(mg/l)

<u> </u> benzene	<u> </u>
<u> </u> carbon tetrachloride	<u> </u>
<u> </u> chlordane	<u> </u>
<u> </u> chlorobenzene	<u> </u>
<u> </u> chloroform	<u> </u>
<u> </u> o-cresol	<u> </u>
<u> </u> m-cresol	<u> </u>
<u> </u> p-cresol	<u> </u>
<u> </u> cresol	<u> </u>
<u> </u> 1,4-dichlorobenzene	<u> </u>
<u> </u> 1,2-dichloroethane	<u> </u>
<u> </u> 1,1-dichloroethylene	<u> </u>
<u> </u> 2,4-dinitrotoluene	<u> </u>
<u> </u> heptachlor	<u> </u>
<u> </u> hexachlorobenzene	<u> </u>
<u> </u> hexachlorobutadiene	<u> </u>
<u> </u> hexachloroethane	<u> </u>
<u> </u> methyl ethyl ketone	<u> </u>
<u> </u> nitrobenzene	<u> </u>
<u> </u> pentachlorophenol	<u> </u>
<u> </u> pyridine	<u> </u>
<u> </u> tetrachloroethylene	<u> </u>
<u> </u> trichloroethylene	<u> </u>
<u> </u> 2,4,5-trichlorophenol	<u> </u>
<u> </u> 2,4,6-trichlorophenol	<u> </u>
<u> </u> vinyl chloride	<u> </u>
<u> </u> endrin	<u> </u>
<u> </u> lindane	<u> </u>
<u> </u> methoxychlor	<u> </u>
<u> </u> toxaphene	<u> </u>
<u> </u> 2,4-D	<u> </u>
<u> </u> 2,4,5-TP (Silvex)	<u> </u>

Date Received 6/28/91 JPM Reported by

Date Extracted Date Reported

Date Analyzed VOC 8/20/91 JPM Lab Number 912446

SAMPLE ANALYSIS REQUEST

CERCLA

Site Number 65D 000 830 646 Field Sample Number 14994

Name of Site CP & L, Sutton Steam Elec PLANT Site Location WILMINGTON, NC

Collected By HARVEY ALLEN ID# 76 Date Collected 6-27-91 Time 12:30

Agency: Hazardous Waste Solid Waste ✓ Superfund

Sample Type

Environmental

Concentrate

Comments

✓ Ground water (1) Solid (5) DW-01
 Surface water (2) Liquid (6) 2L BNA's / PCB
 Soil (3) Sludge (7)
 Other (4) Other (8)

TCLP Compounds

Inorganic Compounds Results(mg/l)

 Arsenic
 Barium RECEIVED
 Cadmium
 Chromium 8.7 1991
 Lead
 Mercury SUPERFUND SECTION
 Selenium
 Silver

Organic Chemistry

Inorganic Chemistry

Parameter	Results(mg/l)
<u> </u> P&T:GC/MS	<u> </u>
<u>✓</u> <u>Acid:B/N Ext.</u>	<u> </u>
<u> </u> MTBE	<u> </u>
<u>✓</u> <u>PCB'S</u>	<u><0.0001</u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>

Parameter	Results(mg/l)(mg/kg)
<u> </u> Arsenic	<u> </u>
<u> </u> Barium	<u> </u>
<u> </u> Cadmium	<u> </u>
<u> </u> Chloride	<u> </u>
<u> </u> Chromium	<u> </u>
<u> </u> Copper	<u> </u>
<u> </u> Fluoride	<u> </u>
<u> </u> Iron	<u> </u>
<u> </u> Lead	<u> </u>
<u> </u> Manganese	<u> </u>
<u> </u> Mercury	<u> </u>
<u> </u> Nitrate	<u> </u>
<u> </u> Selenium	<u> </u>
<u> </u> Silver	<u> </u>
<u> </u> Sulfates	<u> </u>
<u> </u> Zinc	<u> </u>
<u> </u> pH	<u> </u>
<u> </u> Conductivity	<u> </u>
<u> </u> TDS	<u> </u>
<u> </u> TOC	<u> </u>

Radiochemistry

Parameter	Results (PCI/l)
<u> </u> Gross Alpha	<u> </u>
<u> </u> Gross Beta	<u> </u>

Microbiology

Parameter	Results (Col/100ml)
<u> </u>	<u> </u>
<u> </u>	<u> </u>

Organic Compounds Results(mg/l)

 benzene
 carbon tetrachloride
 chlordane
 chlorobenzene
 chloroform
 o-cresol
 m-cresol
 p-cresol
 cresol
 1,4-dichlorobenzene
 1,2-dichloroethane
 1,1-dichloroethylene
 2,4-dinitrotoluene
 heptachlor
 hexachlorobenzene
 hexachlorobutadiene
 hexachloroethane
 methyl ethyl ketone
 nitrobenzene
 pentachlorophenol
 pyridine
 tetrachloroethylene
 trichloroethylene
 2,4,5-trichlorophenol
 2,4,6-trichlorophenol
 vinyl chloride
 endrin
 lindane
 methoxychlor
 toxaphene
 2,4-D
 2,4,5-TP (Silvex)

Date Received 6/28/91 Reported by

Date Extracted 7-27-91 Date Reported

Date Analyzed 8-16-91 Lab Number 912447

SOLID WASTE MANAGEMENT DIVISION
SUPERFUND SECTION

CERCLA

Chain of Custody Record

Hazardous Waste Materials

Location of Sampling: ☒ Generator ☐ Transporter
☐ Treatment Facility ☐ Storage Facility
☐ Disposal Facility ☐ Landfill
☐ Other: _____

Company's Name CPL SUTTON STEAM ELECT. PLANT Telephone: RECEIVED

Address WILMINGTON, NC

Collector's Name _____ Telephone: 919 528-3801
signature

Date Sampled 6-27-91 Time Sampled _____

Type of Process Generating Waste _____

Field Information: _____

Field Sample No. 14990 14991 14992 14993 14994

Chain of Possession:

Harvey Allen
signature

Env. Engineer
title

6/24/91 - 6/28/91 (14990)
6/21/91 - 6/28/91
inclusive dates

Jona P. Medlin
signature

Chemist
title

6/28/91
inclusive dates

signature

title

inclusive dates

Results Reported:

John L. Neal
signature

Chemist
title

8-26-91
date

Instructions: Complete all applicable information including signatures, and submit with analysis request forms.

STATE LABORATORY OF PUBLIC HEALTH
DIVISION OF HEALTH SERVICES, N.C. DEPARTMENT OF HUMAN RESOURCES
P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

BASE/NEUTRAL AND ACID EXTRACTABLES COMPOUND	LAB NO	912444	912445	912447			
	FIELD #	14991	14992	14994			
	TYPE	(4)	(4)	(1)	()	()	()
	UNITS	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
nitrosodimethylamine	10/330	IL	IL	IL			
s(2-chloroethyl)ether							
2-chlorophenol							
phenol							
3-dichlorobenzene							
1,4-dichlorobenzene							
1,2-dichlorobenzene							
s(2-chloroisopropyl)ether							
hexachloroethane							
N-nitroso-di-n-propylamine							
nitrobenzene							
phosphorane							
2-nitrophenol							
2,4-dimethylphenol							
s(2-chloroethoxy)methane							
2,4-dichlorophenol							
1,2,4-trichlorobenzene							
phthalene							
hexachlorobutadiene							
4-chloro-m-cresol							
hexachlorocyclopentadiene							
4,6-trichlorophenol							
2-chloronaphthalene							
acenaphthylene							
dimethyl phthalate							
2,6-dinitrotoluene							
acenaphthene							
4-dinitrophenol	50/1650						
4-dinitrotoluene	10/330						
4-nitrophenol	50/1650						
fluorene	10/330						
4-chlorophenylphenylether							
diethyl phthalate							
4,6-dinitro-o-cresol	50/1650						
iphenylamine							
azobenzene							
4-bromophenylphenylether	10/330						
hexachlorobenzene	10/330						
pentachlorophenol	50/1650						
phenanthrene	10/330						
anthracene							
tributyl phthalate							
fluoranthene							

MDL

H₂O/SOIL

- D - Estimated value.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. MDL
- NA - Not analyzed.
- IL - Tentative identification.
- 2/ - On NRDC List of Priority Pollutants.

STATE LABORATORY OF PUBLIC HEALTH
DIVISION OF HEALTH SERVICES, N.C. DEPARTMENT OF HUMAN RESOURCES
P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

NEUTRAL AND ACID EXTRACTABLES COMPOUND	LAB NO	912444	912445	912447			
	FIELD #	14991	14992	14994			
	TYPE	(4)	(4)	(1)	()	()	()
	UNITS	µg µg/kg	µg µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
pyrene	10/330	u	u	u			
benzidine	50/1650						
butyl benzyl phthalate	10/330						
benz(a)anthracene	↓						
chrysene	↓						
3,3-dichlorobenzidine	50/1650						
bis(2-ethylhexyl)phthalate	10/330						
di-n-octyl phthalate	10/330						
benzo(b)fluoranthene	50/1650						
benzo(k)fluoranthene	↓						
benzo(a)pyrene	↓						
indeno(1,2,3-cd)pyrene	↓						
dibenzo(a,h)anthracene	↓	✓	✓	✓			
benzo(g,h,i)perylene	↓	✓	✓	✓			
aniline	50/1650	u	u	u			
benzoic acid	↓						
benzyl alcohol	↓						
4-chloroaniline	↓						
dibenzofuran	10/330						
2-methylnaphthalene	↓						
2-methylphenol	↓						
4-methylphenol	↓						
2-nitroaniline	50/1650						
3-nitroaniline	↓						
4-nitroaniline	↓	✓	✓	✓			
2,4,5-trichlorophenol	↓	✓	✓	✓			

MDL

H₂O/501L

J - Estimated value.

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

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

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

Not analyzed.

1/ - Tentative identification.

2/ - On NRDC List of Priority Pollutants.

N. C. DEPARTMENT OF ENVIRONMENT, HEALTH, & NATURAL RESOURCES
DIVISION OF LABORATORY SERVICES, ENVIRONMENTAL SCIENCES SECTION
P.O. BOX 28047 - 306 N. WILMINGTON ST, RALEIGH, N.C. 27611

Laboratory No. 912443

PURGEABLE COMPOUNDS

Date of Analysis 8/20/91

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	
✓Vinyl Chloride	
Bromomethane	
Chloroethane	
Trichlorofluoromethane	
✓1,1-Dichloroethylene	✓
Methylene Chloride	1K, C
tert-Butyl Methyl Ether	U
trans-1,2-Dichloroethylene	
Isopropyl ether	
1,1-Dichloroethane	
2,2-Dichloropropane	
cis-1,2-Dichloroethylene	
Chloroform	
(BCM) Bromochloromethane	
✓1,1,1-Trichloroethane	
1,1-Dichloropropene	
✓Carbon Tetrachloride	
✓Benzene	
✓1,2-Dichloroethane	
✓Trichloroethylene	
1,2-Dichloropropane	
Bromodichloromethane	
Dibromomethane	
Toluene	
1,1,2-Trichloroethane	
Tetrachloroethylene	
1,3-Dichloropropane	
Dibromochloromethane	
1,2-Dibromoethane (EDB)	
1-Chlorohexane	✓

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	
1,1,1,2-Tetrachloroethane	U
p-Xylene	
m-Xylene	1001
o-Xylene	
Styrene	SUPERFUND SECTION
Bromoform	
Isopropylbenzene	
1,1,2,2-Tetrachloroethane	
Bromobenzene	
n-Propylbenzene	
1,2,3-Trichloropropane	
2-Chlorotoluene	
1,3,5-Trimethylbenzene	
4-Chlorotoluene	
tert-Butyl Benzene	
Pentachloroethane	
1,2,4-Trimethylbenzene	
sec-Butyl Benzene	
p-Isopropyltoluene	
1,3-Dichlorobenzene	
✓1,4-Dichlorobenzene	
n-Butylbenzene	
1,2-Dichlorobenzene	
Bis (2-Chloroisopropyl) Ether	
1,2-Dibromo-3-Chloropropane	
1,2,4-Trichlorobenzene	
Hexachlorobutadiene	
Naphthalene	
1,2,3-Trichlorobenzene	✓

COMMENTS: Unidentified peaks present

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

C - Possible Lab contamination.

J - Estimated value.

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

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

U - Material was analyzed for but not detected.

NA - Not analyzed.

1/ - Tentative identification.

✓ - Regulated VOC

T - Trihalomethane

N.C. Dept. of Environment, Health, & Natural Resources
DEHNR 3068-0 (Rev. 1/91 Laboratory Services)

N. C. DEPARTMENT OF ENVIRONMENT, HEALTH, & NATURAL RESOURCES
DIVISION OF LABORATORY SERVICES, ENVIRONMENTAL SCIENCES SECTION
P.O. BOX 28047 - 306 N. WILMINGTON ST, RALEIGH, N.C. 27611

Laboratory No. 912446

PURGEABLE COMPOUNDS

Date of Analysis 8/20/91

COMPOUND	µg/l
Dichlorodifluoromethane	U
Chloromethane	U
✓Vinyl Chloride	U
Bromomethane	U
Chloroethane	U
Trichlorofluoromethane	U
✓1,1-Dichloroethylene	U
Methylene Chloride	1K, C
tert-Butyl Methyl Ether	U
trans-1,2-Dichloroethylene	U
Isopropyl ether	U
1,1-Dichloroethane	U
2,2-Dichloropropane	U
cis-1,2-Dichloroethylene	U
Chloroform	1K, T
(BCM) Bromochloromethane	U
✓1,1,1-Trichloroethane	U
1,1-Dichloropropene	U
✓Carbon Tetrachloride	U
✓Benzene	U
✓1,2-Dichloroethane	U
✓Trichloroethylene	U
1,2-Dichloropropane	U
Bromodichloromethane	U
Dibromomethane	U
Toluene	U
1,1,2-Trichloroethane	U
Tetrachloroethylene	U
1,3-Dichloropropane	U
Dibromochloromethane	U
1,2-Dibromoethane (EDB)	U
1-Chlorohexane	U
Ethyl ether	trace, C

COMPOUND	µg/l
Chlorobenzene	U
Ethylbenzene	U
1,1,1,2-Tetrachloroethane	U
p-Xylene	U
m-Xylene	U
o-Xylene	U
Styrene	U
Bromoform	U
Isopropylbenzene	U
1,1,2,2-Tetrachloroethane	U
Bromobenzene	U
n-Propylbenzene	U
1,2,3-Trichloropropane	U
2-Chlorotoluene	U
1,3,5-Trimethylbenzene	U
4-Chlorotoluene	U
tert-Butyl Benzene	U
Pentachloroethane	U
1,2,4-Trimethylbenzene	U
sec-Butyl Benzene	U
p-Isopropyltoluene	U
1,3-Dichlorobenzene	U
✓1,4-Dichlorobenzene	U
n-Butylbenzene	U
1,2-Dichlorobenzene	U
Bis (2-Chloroisopropyl) Ether	U
1,2-Dibromo-3-Chloropropane	U
1,2,4-Trichlorobenzene	U
Hexachlorobutadiene	U
Naphthalene	U
1,2,3-Trichlorobenzene	U

COMMENTS:

MDL - Minimum Detection Limit for water (EPA Method 502.2), is 1.0 µg/l.

C - Possible Lab contamination

J - Estimated value.

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

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

U - Material was analyzed for but not detected.

NA - Not analyzed.

1/ - Tentative identification.

✓ - Regulated VOC

T - Trihalomethane

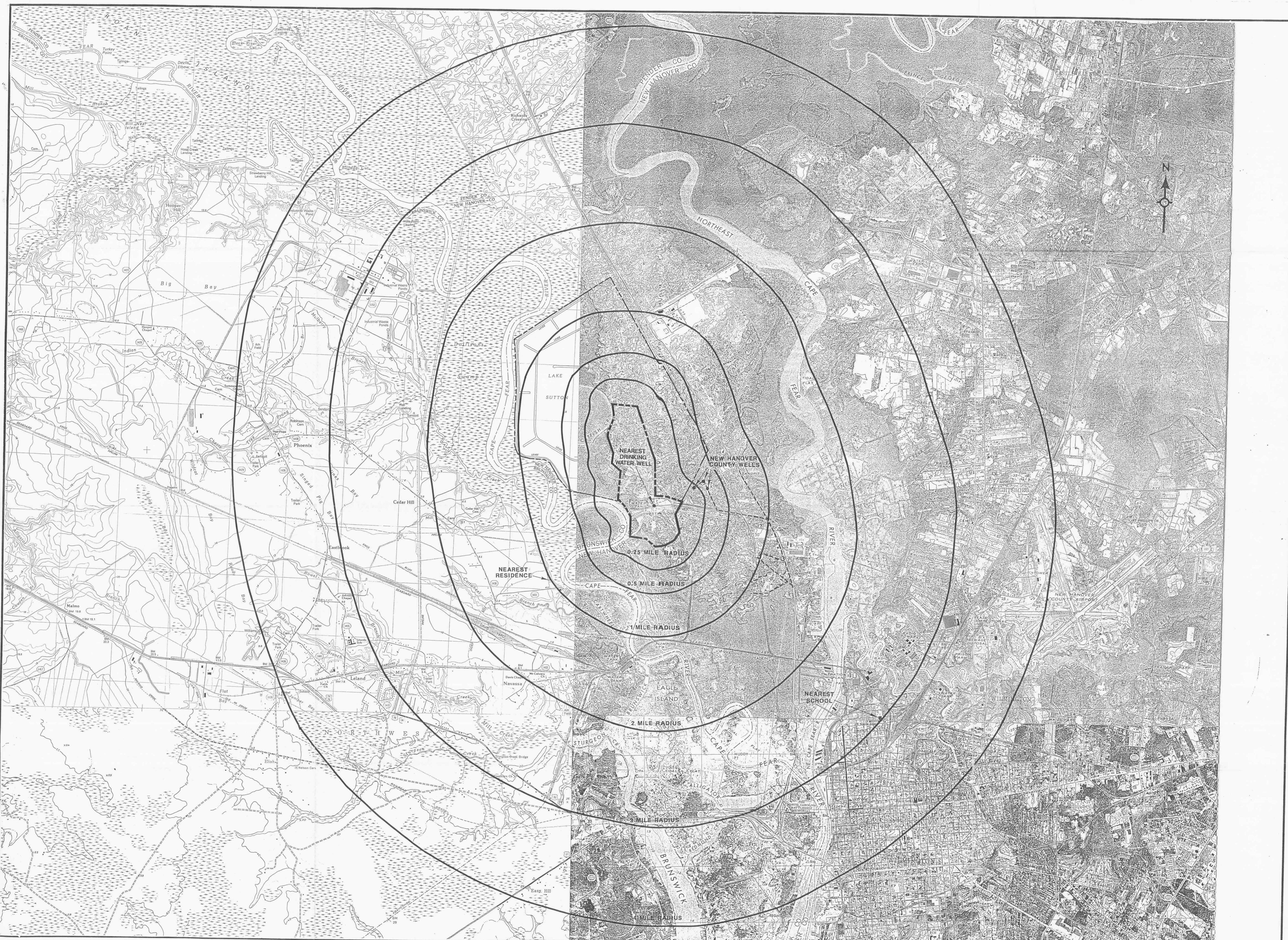
N.C. Dept. of Environment, Health, & Natural Resources
DEHNR 3068-0 (Rev. 1/91 Laboratory Services)

ORGANIC CHEMICAL ANALYSIS

- J - Estimated value.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
- Not analyzed.
- Tentative identification.
- 27 - On NRDC List of Priority Pollutants.
- C - SUSPECT LAB CONTAMINATION.

N.C. Division of Health Services

DHS 3068-0 (4/86 Laboratory)



LEGEND

- PROPERTY BOUNDARY
- NEW HANOVER COUNTY WATER SYSTEM
- SITE BOUNDARY
- NEW HANOVER COUNTY DRINKING WATER WELL



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CP & L, SUTTEN STEAM ELECTRIC PLANT
WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA
TOPOGRAPHIC MAP
NCD 000830646

SOURCE: USGS Topographic Maps: Leland, N.C., 1984, (contour interval 2'); Castle Hayne, N.C., 1970, (contour interval 5');
Winnabow, N.C., 1943, (contour interval 20'); N.C., 1970, (P.R. 1979), (contour interval 5')

DESIGN	1"=2000' SCALE	SCALE IN FEET 0 1000 2000'
DRAWN	FIGURE 3	
CHECKED	SHEET	
DATE	JOB No.	FILE No.

I/A

13SERB114

Bednarcik Direct AGO Cross Ex. 23
Docket No. E-2, Sub 1219A

Hart Exhibit 60
Docket No. E-2, Sub 1219



3/7/2011

DocumentID	NCD000830646
Site Name	CAROLINA P&L CO. SUTTON STEAM
DocumentType	Expanded SI
RptSegment	1
DocDate	12/30/1999
DocRcvd	12/30/1999
Box	SF114
AccessLevel	PUBLIC
Division	WASTE MANAGEMENT
Section	SUPERFUND
Program	SERB
DocCat	FACILITY
Description	

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NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT



JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

December 30, 1999

Ms. Jennifer Wendel
NC Site Management Section Chief
EPA Region IV Waste Division
61 Forsyth Street, SW 11th Floor
Atlanta, Georgia 30303

RE: Expanded Site Inspection Report
Carolina Power and Light Sutton Steam Electric Site
NCD 000 830 646
Wilmington, New Hanover County, North Carolina

Dear Ms. Wendel:

This letter confirms the transmittal of the attached Expanded Site Inspection (ESI) Report by the North Carolina Superfund Section for Carolina Power and Light (CP&L) Sutton Steam Electric Plant Site, NCD 000 830 646, Wilmington, New Hanover County, North Carolina.

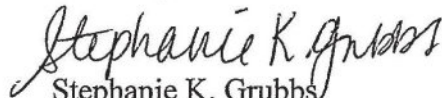
The CP&L Sutton Plant has been in operation since 1954, furnishing electricity for approximately 750,000 homes by using a coal-fired generating process. The waste stream of concern within this process is the fly ash that is produced from the burning of the coal. This fly ash is pumped to an active fly ash pond on the CP&L property. Prior to the use of the active lined pond, the inactive 68-acre pond and an area adjacent to the plant (the old dumping area) were both used for disposal. The size and quantity of fly ash within the old dumping area are unknown. During their respective operations, both the inactive and active fly ash ponds overflow into Lake Sutton that is adjacent to the plant and supplies water for the combustion and cooling processes. Lake Sutton is approximately 1,100 acres and frequently discharges into the Cape Fear River in accordance with a NPDES permit. There have been no Notices of Violation (NOVs) of this permit with the Department of Environment and Natural Resource, and therefore, no observed release has occurred within the Cape Fear River.

Ms. Wendel
December 30, 1999
page 2

Within a 1-mile radius of the site, numerous drinking water wells, including a community well, have been impacted with site contaminants. Inorganic compounds have been detected within several wells. The monitoring wells on and around the CP&L property have also been impacted.

Therefore, because of the number of drinking water wells that are contaminated and the potential for further release of contaminants to groundwater, the Carolina Power and Light Sutton Steam Plant should be considered for further federal action under CERCLA. If you have any questions, please contact me at (919) 733-2801 ext. 315.

Sincerely,

A handwritten signature in cursive script, reading "Stephanie K. Grubbs".

Stephanie K. Grubbs
Hydrogeologist
Special Remediation Branch
NC Superfund Section

enclosure

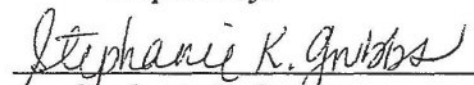
Expanded Site Inspection

*Carolina Power & Light
Sutton Steam Electric Plant
NCD 000 830 646
Wilmington, New Hanover County, North Carolina
Reference No. 0402580*

December 1999

*Superfund Section
Division of Waste Management
North Carolina Department of Environment
and Natural Resources*

Prepared by:


*Stephanie K. Grubbs
Hydrogeologist II*

Reviewed by:

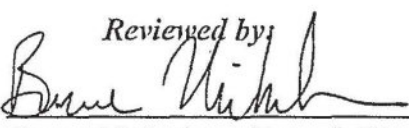

*Bruce Nicholson, Branch Head
Special Remediation Branch*

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Executive Summary

The Carolina Power and Light (CP&L) Sutton Steam Electric Plant is located in Wilmington, New Hanover County, North Carolina. The CP&L Sutton Plant has been in operation since 1954. The plant furnishes electricity for approximately 750,000 homes by using a coal-fired generating process. A maximum of approximately 90,000 tons of coal are stored on site and 5,000 tons of coal are burned a day to produce an estimated 700 megawatts of power. The coal is initially crushed and blown to the boiler units for combustion. The combustion process produces heat which is used to convert water to steam. This steam is used to turn the turbines, which run the generators that produce electricity. The waste stream of concern within this process is the fly ash that is produced from the burning of the coal. This fly ash is pumped to an active fly ash pond on the CP&L property. This active fly ash pond is approximately 74 acres and has been active since 1985. Prior to 1985, the inactive pond, 68 acres in size, was in use since the late 1950s. Prior to the 1950s, an area adjacent to the plant was used for disposing the fly ash. The size and quantity of fly ash within the old dumping area are unknown. Both the inactive pond and the old dumping area are unlined. During their respective operations, both the inactive and active fly ash ponds overflow into Lake Sutton that is adjacent to the plant and supplies water for the combustion and cooling processes. The lake is also stocked and is a fishery open to the public. Lake Sutton is approximately 1,100 acres and frequently discharges into the Cape Fear River in accordance with a NPDES permit. The brackish Cape Fear River is a fishery and is used for recreational and commercial fishing. The immediate vicinity of Cape Fear River is surrounded by wetlands, as is the majority of the 15-mile surface water pathway. Although the surface water pathway has many environmental targets, no observed release was documented within the surface water or sediments of the Cape Fear River during the 1999 ESI.

Within a 1-mile radius of the site, there are several drinking water wells. The New Hanover community well system, which consists of two wells is located approximately 0.25 mile from the Sutton Plant. Approximately 42 to 45 homes and 20 businesses use the well water from these wells. Several other business within the 1-mile radius of the Sutton Plant use groundwater for drinking. The Maola Dairy distribution center adjacent to the community wells uses groundwater for plant activities and for housekeeping activities, but the employees stated that they do not drink the water. Another business directly behind the fly ash lagoons, Ezzell Trucking Company, uses groundwater for drinking and plant operations. The owners of the company also rents a trailer that is located behind the office. Apparently, only one person rents and resides in the trailer owned by Mr. Ezzell and approximately 15 workers are employed at Ezzell Trucking. An observed release to groundwater has been documented within the community wells, the Maola well, the Ezzell well and the monitoring wells on site. The samples collected during the ESI indicated releases of several inorganics. No organics were detected within the groundwater samples. Beryllium at 0.62J ug/l, vanadium at 1.5J ug/l, and iron at 270 ug/l were detected within the New Hanover Community well. Approximately 300 people use this well for drinking water. The Ezzell Trucking Co. drinking water well contained iron (410 ug/l), selenium (5.8 ug/l), and thallium (4.2J ug/l) at concentrations greater than three times background. Only iron in was above the NC 2L Groundwater Standards. Fifteen workers at

Ezzell Trucking Co. and one resident use the Ezzell well for drinking water. The Maola drinking water well contained copper, but the levels were below the NC 2L Groundwater Standards. The workers at the Maola plant do not use the water for drinking, only housekeeping activities. Several monitoring wells contained inorganic compounds, arsenic, iron, lead, chromium, thallium, and beryllium, were detected three times above background.

For purposes of site prioritization relative to other sites, the groundwater pathway appears to be of great enough concern to consider further effort under CERCLA. The site priority is in large part due to the fact that the groundwater is the source of drinking water for the New Hanover County community wells, businesses and homes within the immediate vicinity of the CP&L property. Because of the number of people drinking from wells that contain site-related contaminants (albeit at low levels), the Carolina Power and Light Sutton Steam Electric Plant site must be considered for further federal action under CERCLA. It is important to note however that groundwater standards have not been exceeded in any sample except for iron in the Ezzell well. The Superfund Section may or may not recommend that the affected wells be closed pending health evaluations of these wells by the NC Occupational and Environmental Epidemiology Section.

1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), the Superfund Amendments and Reauthorization Act of 1986 (SARA), and a cooperative agreement with the United States Environmental Protection Agency (US EPA), Waste Management Division, Region IV, the North Carolina Superfund Section conducted an Expanded Site Inspection (ESI) at the Carolina Power and Light (CP&L), Sutton Steam Electric Plant in Wilmington, New Hanover County, North Carolina. The purpose of the ESI was to obtain the data necessary to assess the threat posed by the site to human health and the environment and to complete a Hazard Ranking System (HRS) score for the site to determine the need for further action under CERCLA/SARA or other authority. This investigation included reviewing existing files and sample data, conducting surface and subsurface soil sampling, surface water and sediment sampling from the surface water pathway, groundwater sampling, and potential source sampling under EPA Contract Laboratory Program (CLP) protocol, and collecting additional data needed to document HRS factors.

2.0 SITE DESCRIPTION

2.1 Location

The CP&L Sutton Steam Electric Plant site (site), NCD 000 830 646, is located approximately 4 miles northwest of the City of Wilmington, along the east bank of the Cape Fear River, approximately 3,000 feet downstream of the confluence with Indian Creek. The site coordinates are 34° 17'39" north latitude and 77° 59'12" west longitude (Reference 3, Figure 1). The property is owned by CP&L and the immediate vicinity of the site is rural, but within the 4-mile target radius along Highway 421 the area is mainly industrial. The 1,200-acre tract of land is located on State Road 1394 and is bordered by the Cape Fear River (Figure 2, Reference 4).

2.2 Site Description and Regulatory History

The CP&L Sutton Plant has been in operation since 1954 (Reference 5). The plant furnishes electricity for approximately 750,000 homes by using a coal-fired generating process (Reference 5). A maximum of approximately 90,000 tons of coal are stored on site and 5,000 tons of coal are burned a day to produce an estimated 700 megawatts of power (Reference 5). Fly ash is a by-product of coal incineration and historically has been disposed of into lined and unlined diked ponds located on site. The active fly ash pond is approximately 74 acres and has been active since 1985 (Reference 6). Prior to 1985, the inactive pond, 68 acres in size, was in use since the late 1950s (Reference 6). Prior to the 1950s, an area adjacent to the plant was used for disposing the fly ash (Reference 6). The size and quantity of fly ash within the old dumping area are unknown. Both the inactive pond and the old dumping area are unlined (Reference 6). In 1972, a large cooling lake, Lake Sutton, was constructed to provide cooling water for the coal generation facility (Reference 6). The water for the lake is supplied by the Cape Fear River (Reference 6). The lake is diked with stone and soil barriers, which was designed to maximize the path length and residence time in the lake and to maximize the cooling efficiency. A concrete canal system connects the ends of the cooling lake to the coal generation plant. During their respective operations, both the inactive and active fly ash ponds overflow into Lake Sutton that is adjacent to the plant and supplies water for the combustion and cooling processes (Reference 6).

Since the 1970s, CP&L had been discharging into the Cape Fear River and Lake Sutton under a National Pollutant Discharge Elimination System (NPDES) permits (Reference 7). The permits regulate and require frequent monitoring for flow, temperature, total residual chlorine,

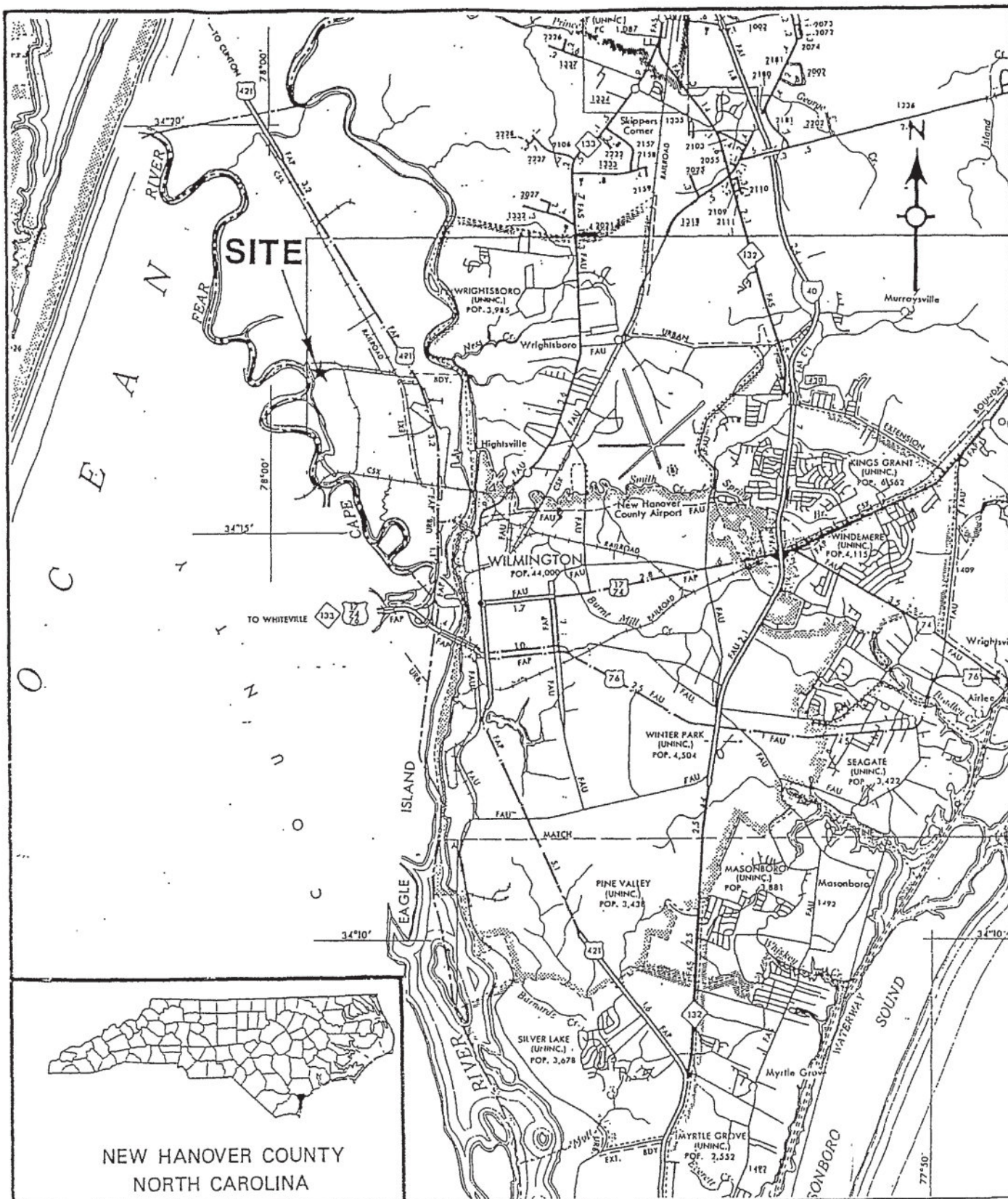


Figure No: 2

Title: Map of the Carolina Power & Light Property
and the Surrounding Area

North Carolina
Division of
Waste Management

Date: December 1999

Drawn By: S.Grubbs

Superfund Section

Site Name: CP&L Sutton Steam Electric

NCD 000 830 646

total copper, total selenium, total arsenic, total iron, total nitrogen, total phosphorus, acute toxicity, and pH in both the lake and the river (Reference 7).

During the 1992 Site Screening Phase II Report, the drum storage area at the plant was under investigation (Reference 8). This area contained ten 55-gallon drums that reportedly contained various petroleum lubricating oils and degreasing products (Reference 8). The drums were stored in concrete containment basin and no spills were observed around the drums (Reference 8). During the 1999 ESI, no spills or evidence of spills were observed in the drum storage location (Reference 6). The area was not of concern during this investigation. In addition to the drum storage area, two 11-million gallon above-ground storage tanks (ASTs) are located in the southern portion of the property adjacent to the plant and coal piles (Reference 6). CP&L currently leases these tanks to International Paper for storing various papermaking liquors. The ASTs stores various paper liquors, a liquid used in the paper industry, that CP&L leases out the space to International Paper (Reference 6). Both ASTs are surrounded by a dike to contain any spills (Reference 6). A pipe system extends from the ASTs to a pier, located along the Cape Fear River, which is used to transfer the liquor products from barges (Reference 6).

There is some history of groundwater contamination associated with the ponds. There are 12 well locations, each location has 2 permanent 2-inch PVC monitoring wells located on site (Figure 3, Reference 6). In 1984 The Division of Water Quality in Wilmington required these wells due to exceedances the NC Groundwater 2L Standards (Reference 9). In September 1987, CP&L received Notice of Non-Compliance due to exceedances of "the total dissolved solids limit and exceedances of the chloride concentration standard in monitoring wells at the plant (References 37). Corporate neighbor, KoSa (formerly Cape Industries) has sued CP&L over groundwater contamination issues (Reference 10). The Sutton plant has two on-site wells that supply water for plant operations but are not used for drinking. The closest drinking water wells are three New Hanover County wells and the establishments along Fredrickson Road, approximately 1/4 mile away from the site (Reference 4, Figure 1).

2.3 Operational History and Waste Characteristics

The CP&L Sutton Plant has been in operation since 1954 (Reference 5). The plant furnishes electricity for approximately 750,000 homes by using a coal-fired generating process (Reference 5). Coal is delivered to the plant by rail car and is stored on site. The coal is initially crushed and blown to the boiler units for combustion (Reference 5). The combustion process produces heat which is used to convert water to steam. This steam is used to turn the turbines which run the generators that produce electricity (Reference 5). The waste stream of concern within this process is the fly ash that is produced from the burning of the coal. Once the coal is burned most of the ash settles within the bottom of the furnace area, high pressure water is used to push the water from the furnace to the pipes that pump the water and the ash to the active fly ash pond on the property (Reference 6). The coal particles and ash that are airborne within the furnace flow out through ducts to be captured by the electrostatic precipitator (ESP) (Reference 5). The positively charged coal particles and ash are attracted to the negatively charged plates within the ESP. Once particles have accumulated, the ash is knocked off the plates and pumped away using high pressure water. This fly ash is also pumped to the active fly ash pond (Reference 6). The active pond wastewater then discharges directly to the Cape Fear River via a pipe and is then diluted by opening up the lake discharge pipe and flushing both the active pond wastewater and the lake water into the river simultaneously (Reference 6). This process had recently changed since the sampling event in July 1999. Previously, the active fly ash pond discharged into Sutton lake, which diluted the waste (Reference 6). The lake currents circulated the waste and water to the outfall and eventually discharged into the Cape Fear River. This

process was credited with causing the fish within the lake to have elevated tissue levels of selenium potentially affecting their reproduction (Reference 11). Therefore, to reduce selenium levels in the lake, the NC Division of Water Quality (DWQ) re-issued the NPDES permit to directly discharge the ash pond waste into the river (Reference 12). Both the lake and the river are fisheries and are monitored the NC Division of Marine Fisheries (Reference 12).

3.0 WASTE/SOURCE SAMPLING

3.1 Sample Locations

The Sutton Plant burns approximately 5,000 tons of coal a day to generate electricity (Reference 5). The main contaminant of concern is the fly and bottom ash that was disposed of into unlined lagoons on the CP&L property. Both the inactive pond and the former disposal area are unlined. Ashes differ in characteristics depending upon the chemical composition of the coal being burned, the extent to which the coal is prepared before it is burned, and the operating conditions of the boiler (Reference 13). But generally, more than 95 percent of ash is made up of silicon, aluminum, iron, and calcium in their oxide forms, with magnesium, potassium, sodium, and titanium representing the remaining major constituents (Reference 13). Potential trace constituents include antimony, arsenic, barium, cadmium, chromium, lead, mercury, selenium, strontium, zinc, and other metals (Reference 13). The plants inactive fly ash pond contains approximately 500,000 cubic yards of ash and a surface area of 68 acres at an elevation of 15.5 feet (Ref. 8). The old disposal area has an unknown quantity and size. The current active pond has a one foot thick clay liner that was constructed in 1985 (Reference 14). This pond can hold approximately 2,158,000 cubic yards and is 74 acres. The active fly ash pond is lined and is regulated under the NPDES permit issued by the DWQ and is, therefore, not under consideration during this investigation(Reference 14).

Source sampling of the inactive fly ash pond and the old dump area were completed during the investigation. Surface soil and subsurface soil samples were collected at each location. Three locations were sampled within each of the two source areas. Background soil samples, surface and subsurface, were collected near the entrance to the CP&L property.

3.2 Analytical Results

Analytical results from the surface and sub-surface soil samples collected by the NC Superfund Section during the ESI in July 1999, indicate the presence of the following contaminants (with their maximum concentrations in parenthesis): antimony (2.3J mg/kg), arsenic (92J mg/kg), barium (540J mg/kg), beryllium (6.3J mg/kg), cadmium (1.2J mg/kg), chromium (64J mg/kg), cobalt (18 mg/kg), copper (180J mg/kg), iron (16,000J mg/kg), lead (51J mg/kg), magnesium (1,400J mg/kg), manganese (85J mg/kg), nickel (93J mg/kg), potassium (3,200J mg/kg), selenium (95J mg/kg), silver (1.0J mg/kg), thallium (1.3J mg/kg), vanadium (170J mg/kg), zinc (560J mg/kg), toluene (5J ug/kg), naphthalene (240J ug/kg), dibenzofuran (64J ug/kg), fluoranthene (100J ug/kg), 2-methyl naphthalene (390J ug/kg), pyrene (76J ug/kg), and phenanthrene (180J ug/kg). Table 1 shows concentrations of each of the analytes present and the location for all the source samples collected by the Superfund Section in 1999. Figure 4 shows all the sample locations taken during the same sampling event in 1999.

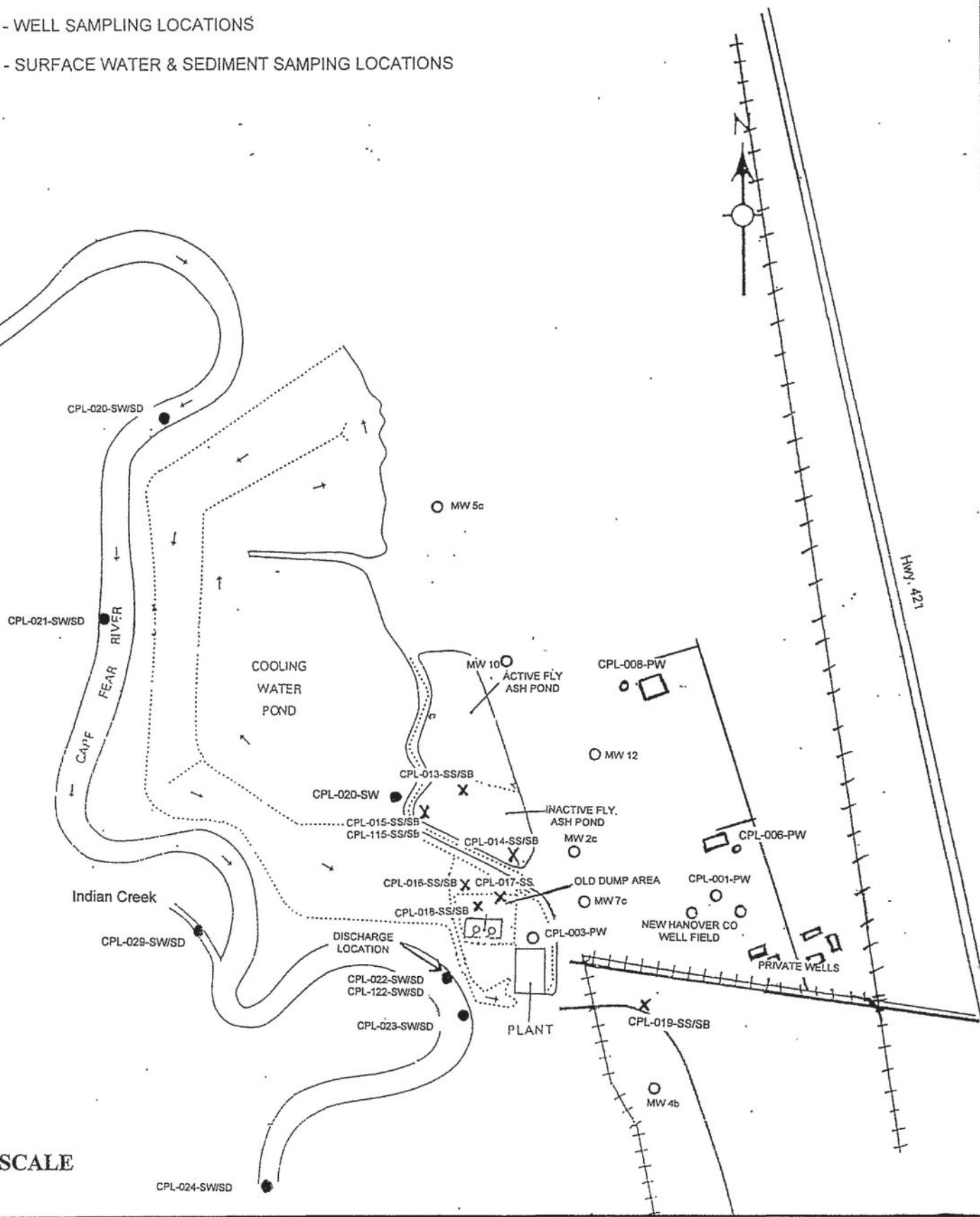
3.3 Conclusions

As shown above, the majority of the data analyzed from the laboratory was estimated values or "J'd" data (Appendix). Upon review the data were found to be usable where

X - SOIL SAMPLING LOCATIONS (SURFACE & SUBSURFACE)

O - WELL SAMPLING LOCATIONS

● - SURFACE WATER & SEDIMENT SAMPING LOCATIONS



NOT TO SCALE

Figure No: 4	Title: Sampling Location Map from the 1999 ESI Sampling Event		
North Carolina Division of Waste Management Superfund Section	Date: December 1999		Drawn By: S.Grubbs
	Site Name: CP&L Sutton Steam Electric		NCD 000 830 646

**Table 1. Summary of the Surface and Subsurface Soil Sample Data
from July 1999 ESI Sampling Event.**

Sample Description	CPL-013-SS	CPL-013-SB	CPL-014-SS	CPL-014-SB	CPL-015-SS	CPL-015-SB	CPL-115-SS	CPL-115-SB	CPL-016-SS	CPL-016-SB	CPL-017-SS	CPL-018-SS	CPL-018-SB	CPL-019-SS	CPL-019-SB
	Inactive fly ash pond	Inactive fly ash pond	Inactive fly ash pond	Inactive fly ash pond	Inactive fly ash pond	Inactive fly ash pond	Duplicate-Inactive fly ash pond	Duplicate-Inactive fly ash pond	Old fly ash dumping area	Old fly ash dumping area	Old fly ash dumping area	Old fly ash dumping area	Old fly ash dumping area	Background	Background
Contaminant															
Antimony (mg/kg)	2.3J										1.0J				
Arsenic	92J	5.4J	24J		9.7J		9.8J		14J	8.2J	17J	12.00	2.60		
Barium	540J	110J	89J	7.0J	60J	6.0J	57J	7.2J	200J	140J	260J	140	30.00	1	1.20
Beryllium	6.3J	0.57J	0.85J		0.57J		0.62J		1.8J	1.1J	2.5J	1.70	0.28J		
Cadmium	1.2J			0.11J			0.15J	0.10J							
Chromium	64J	12J	16J	1.8J	5.4J	1.9J	4.9J	2.2J	8.3J	4.4J	9.7J	7.60	2.0J	0.69J	1.1J
Cobalt	18.00	2.2J	2.5J		2.6J	0.54J	2.60	0.60J	4.8J	2.8J	7.0J	4.7J	0.84J		
Copper	180J	12J	26J	4.0J	37J	2.3J	40J	2.7J	18J	10J	23J	15.00	3.4J	1.1J	1.2J
Iron	16000J	3800J	2400J	460J	910J	830J	870J	1100J	5600J	3800J	4900J	4,500	1,600	60	440
Lead	51J	2.3J	5.2J	0.83J	2.5J	1.3J	2.1J	1.8J	6.5J	4.3J	9.4J	6.60	2	1	1.10
Magnesium	1400J	310J	320J		87J	180J	82J	290J	390J	260J	420J	620.00	290	15.00	21
Manganese	85J	16J	14J	1.8J	7.0J	8.8J	6.8J	13J	46J	32J	56J	28	10.00	1.4J	1.6J
Mercury															
Nickel	93J	5.9J	6.3J	0.98J	7.1J	1.6J	7.7J	2.2J	10J	5.3J	14J	9.4J	2.3J		
Potassium	3200J	940J	950J	69J	230J	110J	200J	130J	950J	560J	960J	800.00	220.00	18	30.00
Selenium	95J	2.5J	1.3J		0.63J		0.51J		2.1J	1.3J	2.1J	1.7J			
silver	1.0J			0.31J											
Thallium												1.3J			
Vanadium	170J	14J	24J	2.8J	10J	5.6J	10J	7.4J	34J	13J	42J	23	5.5J	0.93J	1.6J
Zinc	560J	15J	15J	3.8J	14J	4.5J	14J	5.3J	12J	9.4J	14J	11	4.6J	1.4J	3.1J
Toluene (ug/kg)										4J	5J				
Naphthalene (ug/kg)	240J														
Dibenzofuran	64J														
Fluoranthene	100J														
2-methylnaphthalene	390J											50J			
Pyrene	76J														
Phenanthrene	180J														

J - Estimated value

Blank Space - Material was analyzed for but not detected.

Shaded Spaces- Indicate the compounds were significantly above background

See Appendix for the complete analytical data set.

contaminants with concentrations 10 times the background level were found (Reference 15). Elevated levels of heavy metals and organics were detected in the surface and subsurface soil samples from the inactive fly ash pond and the old fly ash dumping area. Source material remains on site and the CP&L representatives have stated that a portion of the ash may be recycled by the Department of Transportation for road construction (Reference 6). Contaminated soil left on site in the ponds may continue to release to the soil and groundwater pathways.

4.0 GROUNDWATER PATHWAY

4.1 Hydrogeology

New Hanover County is located within the Southern Coastal Plain Province. The land surface is a plain which gently slopes eastward toward the Atlantic Ocean at a rate less than 3 feet per mile (Reference 16). The water bearing zones within the area are commonly separated by clay confining layers (Reference 16).

Groundwater wells within the area are usually at a depth of 15-50 feet (References 6, 17, 18). The wells in the area obtain water from the surficial aquifer. The New Hanover County community wells are approximately 55 feet deep and the former CP&L drinking water well, now used for production only, and monitoring wells are at depths ranging between 35 and 55 feet (Reference 17, 19). In the New Hanover County area, the average annual rainfall is 50 inches per year (Reference 20). The average annual lake evaporation in the area is 42 inches per year, which yields a net precipitation of 8 inches per year (Reference 21).

4.2 Groundwater Targets

There are several drinking water wells within a 1-mile radius of the site (Reference 24, 38). The New Hanover community well system, which consists of two wells, is located approximately 0.25 miles from the Sutton Plant (Reference 38, Figure 1). According to the New Hanover County Engineering Department, approximately 42 to 45 homes and 20 businesses use the well water (Reference 19). Using the number of homes and multiplying those by 2.43 persons-per-household (the population density for New Hanover County in the 1990 US Census), an estimated number of people consuming water from the New Hanover County community wells is 105 people. The wells pump between 160,000 to 170,000 gallons per day (Reference 19). The wells serve homes and businesses 1 mile south of the wells. These residences were connected to these wells due to contaminated drinking water near the Flemington Landfill (Reference 19). The water from the two active wells is treated due to chlorine and high pH (Reference 19). Once the water is treated it is then sent to the distribution system and to the homes and businesses (Reference 19). Several other business within the 1 mile radius of the Sutton Plant use groundwater. The Maola Dairy distribution center adjacent to the community wells its own well for plant activities and for housekeeping activities, but the employees stated that they do not drink the water (Reference 17). Another business directly behind the fly ash lagoons, Ezzell Trucking Company, uses groundwater for drinking and plant operations. The owners of the company also rents a trailer that is located behind the office (Reference 17, 22). Apparently, only one person rents and resides in the trailer owned by Mr. Ezzell and approximately 15 workers are employed at Ezzell Trucking (Reference 17). The Ezzell well has a filter and this was by-passed for sampling (Reference 17, 22).

The City of Wilmington obtains its drinking water from a surface water intake located on the Cape Fear River, upstream of the paper plant (Reference 39). The intake location is near Kings Bluff, NC. The cities of Leland and Navassa both purchase their water from the

Brunswick County sanitary district, which obtains water from the same surface water intake as the City of Wilmington (Reference 39). The remainder of the houses shown on the USGS topographic map, not provided with municipal water, use private wells to supply drinking water. These remainder of the houses were counted and multiplied by 2.43 persons-per-household (the population density for New Hanover County in the 1990 US Census) (Reference 23). Table 3 shows the total population which received drinking water from private and community wells within a 4-mile radius of the site (Reference 24). No wellhead protection areas exist in North Carolina (Reference 25).

4.3 Sample Locations

A complete trip report of the ESI can be found in reference 18 of this report. The ESI groundwater samples include the New Hanover County Community well (CPL-001-PW), Maola drinking water well (CPL-006-PW), Ezzell Trucking drinking water well (CPL-008-PW), CP&L's former drinking water well (CPL-003-PW, currently used for production purposes only), and six monitoring wells on and around the CP&L property (CPL-002-MW, CPL-004-MW, CPL-005-MW, CPL-007-MW, CPL-010-MW, and CPL-012-MW) (Reference 18). All the monitoring wells are labeled on Figure 3 and Figure 4 is a map of all the sample locations for the ESI.

Table 2. Population Using Groundwater as a Source of Potable Water Within 4 Miles of the Carolina Power and Light Sutton Steam Plant Site.

Distance Ring (miles)	Population served by Private Supply Wells	Population served by Community Wells	Cumulative Population using Groundwater
0.00 - 0.25	0	0	0
0.25 - 0.50	1	0	1
0.50 - 1.00	0	300	300
1.00 - 2.00	0	0	0
2.00 - 3.00	0	4,050	4,050
3.00 - 4.00	2,076	781	2,857
TOTAL			7,208

4.4 Analytical Results

Groundwater analytical results for the samples collected during the ESI are shown in Table 3, and they indicate releases of several inorganics. No organics were detected within the groundwater samples. Beryllium at 0.62J ug/l and iron at 270 ug/l were detected within the New Hanover Community well, CPL-001-PW (Reference 41). The iron level is below NC 2L Groundwater Standards. There is no NC 2L Standard for beryllium, although the federal maximum concentration limit is 4 ug/l (Reference 2, 26). The Ezzell Trucking drinking water well contained iron (410 ug/l), selenium (5.8 ug/l), and thallium (4.2J ug/l) at concentrations three times background. Iron is the only contaminant above the NC 2L Groundwater Standards, while selenium is below the NC 2L standard of 50 ug/l. The Maola drinking water well contained

**Table 3. Summary of the Groundwater Sample Data
from July 1999 Sampling Event.**

Water Concentrations in ug/kg

Sample Description	CPL-001-PW	CPL-002-MW	CPL-003-PW	CPL-004-MW	CPL-005-MW	CPL-006-PW	CPL-007-MW	CPL-008-PW	CPL-010-MW	CPL-012-MW	
	New Hanover County Community Well	CP&L MW #2c	CP&L Supply Wells	CP&L MW #4b	CP&L MW #5c Background well	Maola's Private Drinking Water Well	CP&L MW #7c	Ezzel Trucking's Private Drinking Water Well	CP&L MW #10	CP&L MW #12	NC 2L Standard
Contaminant											
Arsenic		83.0									50
Barium	18.0	55.0	29.0	40.0	79.0	74.0	82.0	30.0	130.0	29.0	2000
Beryllium	0.62J								0.41J		
Chromium											50
Cobalt					13J			4.4J	12J	6.6J	
Copper			11J			10J		3.9J			1000
Iron	270.0	2300.0		75.0	57.0		63.0	410.0	23J	620.0	300
Lead			42.0								15
Magnesium	440.0	5500.0	420.0	1000.0	3300.0	1600.0	6900.0	5700.0	3500.0	8200.0	
Manganese	16J	58J		49J	1900J	72J	570J	380J	340J	460J	50
Nickel											100
Selenium								5.8			50
Silver											18
Thallium		3.7J		4.8J			5J	4.2J	6J		
Vanadium	1.5J										
Zinc			7.5J	18J	8J	11J		19J	6.3J	10J	2100

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

Blank Space - Material was analyzed for but not detected.

Shaded Spaces- Indicate the compounds were significantly above background

copper but the levels were below the 2L NC Groundwater Standards (Reference 26). Table 3 is a summary of the groundwater results and Figure 3 and 4 shows the sampling locations for the wells. See the Appendix for the complete data set for the 1999 ESI investigation. Figure 3 contains a map of all the monitoring wells and reference 27 contains all the groundwater data from 1990 to present from these wells.

4.5 Conclusions

Groundwater within the immediate vicinity of the site is being used for drinking water. Several inorganic compounds were detected within both drinking and monitoring wells surrounding the site. The New Hanover County community well is very important with regard to human health. This well serves approximately 300 people south of the community well location and are served this water due to the fact that their private drinking water wells are contaminated. The groundwater pathway is of concern due to the number of groundwater well users within the area and the large source areas still on site.

5.0 SURFACE WATER PATHWAY

5.1 Hydrologic Setting

The site lies within the 100-year flood plain of the Cape Fear River (Reference 28). The probable point of entry (PPE) is where CP&L discharges waste via a pipe directly into the Cape Fear River. The entire 15-mile surface water pathway target distance limit (TDL) is on Cape Fear River. The estimated flow rate for the Cape Fear River is 10,581 cubic feet per second (cfs) at the CP&L property, the flow rate increases as downstream after the confluence of the Northeast Cape Fear River and the Brunswick River to 13,140 cfs (Reference 29).

5.2 Surface Water Targets

Figure 5 is a map of the 15-mile surface water pathway. The site borders the Cape Fear River and waste from the fly ash lagoons is discharged directly into the river. The Cape Fear River is a major fishery, both commercially and recreationally (Reference 30). It is classified under the Classifications and Water Quality Standards Assigned to the Waters of the Cape Fear River Basin by the Division of Environmental Management as a Class C (fresh) or SC (tidal) waters (Reference 31). Waters in these classes must be protected as "aquatic life propagation and survival, fishing, wildlife, and secondary recreation and agriculture" (Reference 31). Fish monitoring by CP&L occurs within Lake Sutton and within the Cape Fear River as dictated by the NPDES permit (Reference 12).

The Cape Fear River is also lined by wetlands for a majority of the 15-mile surface water pathway. Approximately 30 miles of wetland frontage line the Cape Fear River (Reference 32). The Cape Fear is also home to several threatened and endangered plant and animal species. See Figure 1 for locations of the threatened and endangered species and Reference 33 for a list of these species.

5.3 Sample Locations

A trip report summary for the 1999 ESI can be found in References 18. Samples were collected at the PPE or at the effluent discharge location. Sample CPL-022-SW/SD and duplicate sample CPL-122-SW/SD were collected at the PPE. Samples were also collected at downstream of the PPE. Sample CPL-023-SW/SD and CPL-024-SW/SD were collected

**Table 4. Summary of the Surface Water & Sediment Sample Data
from July 1999 Sampling Event.**

Water Concentrations in ug/kg and Sediment Concentrations in mg/kg

Sample Description	CPL-020-SW	CPL-020-SD	CPL-021-SW	CPL-021-SD	CPL-022-SW	CPL-022-SD	CPL-122-SW	CPL-122-SD	CPL-023-SW	CPL-023-SD	CPL-024-SW	CPL-024-SD	CPL-025-SW	CPL-029-SW	CPL-029-SD
Contaminant	Farthest upstream background sample	Farthest upstream background sample	Upstream background on Cape Fear River	Upstream background on Cape Fear River	PPE Sample	PPE Sample	Duplicate of PPE Sample	Duplicate of PPE Sample	Approximately 0.1 mile downstream of PPE	Approximately 0.1 mile downstream of PPE	Downstream of PPE	Downstream of PPE	Lake Sutton sample	Attribution sample from Indian Creek	Attribution sample from Indian Creek
Arsenic						6.6J		11.0							
Barium	30.0	36.0	28.0	130.0	24.0	120.0	25.0	130.0	26.0	120.0	27.0	120.0	79.0	26.0	200.0
Beryllium		0.26J		0.96J		1.6J		1.6J		0.84J		1.4J			
Chromium		7.6		28.0		49.0		48.0		22.0		38.0			41.0
Cobalt		7.6J		23J		35J		36.0		11J		32J			30.0
Copper	4.1J	4.3J	4.3J	18.0	5.0J	27.0	4.2J	28.0	4.3J	21.0	4.8J	24.0		6.4J	28.0
Iron	1,200.0	5,400.0	740.0	20,000.0	730.0	37,000.0	790.0	38,000.0	770.0	18,000.0	870.0	30,000.0	59.0	1,100.0	33,000.0
Lead		6.8		20.0		32.0		34.0		13.0		29.0			30.0
Magnesium	2,100.0	570.0	2,300.0	1,800.0	2,000.0	5,500.0		5,500.0	2,100.0	2,000.0	2,200.0	4,300.0	6,700.0	1,800.0	2,900.0
Manganese	140J	290.0	76J	530.0	62J	1,300.0	67J	1,400.0	70J	180.0	79J	1,300.0	560J	94J	990.0
Nickel		4.2J	3.3J	13J		24J		24J		9J		20J			22J
Selenium				2.3J						1.0J					
Silver						1.5J									
Thallium	4.5J							4.8J	4.4J		3.9J		3.7J		3.1J
Vanadium	7.3J	16J	5.9J	54.0	5.3J	100.0	5.7J	100.0	6.0J	64.0	6.4J	81.0		5.0J	92.0
Zinc	11J	25.0	20.0	100.0	10J	140.0	16J	140.0	13J	41.0	11J	120.0		15J	140.0

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

Blank Space - Material was analyzed for but not detected.

Shaded Spaces- Indicate the compounds were significantly above background

approximately 500 and 1000 feet, respectively, downstream of the PPE. An attribution sample, CPL-029-SW/SD was collected before the confluence of Indian Creek and the Cape Fear River. Upstream on Indian Creek is International Paper, a pulp and paper manufacturer. Two background samples were collected on the Cape Fear River due to the tidal influence of the river (Reference 34). Contaminants that are discharged into the river may be found upstream due to the high tidal influence of the rivers within the Cape Fear River Basin. River stage of the Cape Fear River was affected by ocean tides possibly as far as 50 to 75 miles upstream of Wilmington (Reference 34). The background samples were taken upstream of the PPE but downstream of International Paper. Figure 4 shows sample locations for the 1999 ESI sampling event.

5.4 Analytical Results

Table 4 is a summary of the surface water and sediment sample data for the 1999 ESI. Several inorganic compounds were detected within the sediments of the Cape Fear River. Although all of the contaminants found are either not three times the background (not an observed release), contaminants were also detected within the attribution samples, and/or contaminants are permissible due to the NPDES permit. A complete set of analytical data can be found in the Appendix of this report.

5.5 Conclusions

The analytical results from the surface water and sediment samples collected by the NC Superfund Section do not indicate an unregulated or unpermitted release to the surface water pathway. This pathway is not of concern in this investigation.

6.0 SOIL EXPOSURE AND AIR PATHWAY

6.1 Physical Conditions

The soil types located in the vicinity of the site are considered to be a Urban Land soils (Reference 40). The Urban Land designation is used for areas where the original soil has been extensively altered by development, thus changing or destroying the natural characteristics of the soil (Reference 40). The other soils on the site include Lakeland sand, Kureb sand, and Dorovan soils (Reference 40). The Lakeland sand and the Kureb sand are very well drained, while the Dorovan soils are poorly drained and are found in extensively flooded areas (Reference 40). The Lakeland Sand appear to be the soil type within the areas of the old fly ash pond. The Lakeland sand has very low organic matter, rapid permeability, low available water capacity, and the shrink-swell potential is low (Reference 40).

6.2 Soil and Air Targets

The areas of concern, the old and inactive fly ash ponds, are several hundreds of feet from the main plant and worker exposure is at a minimum. The site is fenced, although hunters have been known to trespass on the property during hunting season (Reference 6). The closest residence is the renter and workers at the Ezzel trucking company, approximately 0.25 mile from the CP&L property (Reference 4). No daycare facilities are located within 0.25 miles of the site. As shown in Table 6, according to Center for Geographic Information Analysis (CGIA), an estimated 11,610 people live within the four-mile target radius of the site (Reference 35).

The 7.5 USGS maps of Leland, Castle Hayne, Winnabow, and Wilmington were reviewed by NC Superfund personnel at the North Carolina Heritage Program for sensitive

environments. Numerous threatened and endangered plant and animal species are located within the 4-mile radius of the site (Figure 1 and Reference 33). Refer to Figure 1 for a complete list of the plants and animals and their locations within the 4-mile target distance radius.

6.3 Soil Sample Locations

Several surface and subsurface soil samples were collected by NC Superfund Section personnel during the 1999 ESI sampling event. Figure 4 shows the location for all the samples obtained by the NC Superfund Section. The object of these soil samples was to assess the surface and subsurface constituents of the fly ash lagoons. The samples were collected in the old fly ash dumping area and in the inactive fly ash pond. Three locations were sampled in the inactive fly ash pond, with both surface and subsurface soils collected in each location (Reference 18). Three locations were also sampled in the old fly ash dumping area (Reference 18). In two of these locations, surface and subsurface soils were collected and in the third location only a surface soil sample was collected (Reference 18). The background surface and subsurface soil samples were collected near the entrance to the CP&L property away from the ash ponds, the coal piles, and the power plant itself (Reference 18). Table 1 is a summary of the soil sampling during the ESI and a complete data set is located in the Appendix of this report.

Table 5: Population Estimate within 4-Miles of the CP&L Sutton Plant Site

Distance from the Site (miles)	Population per Ring	Cumulative Population
0.0 - 0.25 mi.	0	0
0.25 - 0.50 mi.	1	1
0.50 - 1.00 mi.	11	12
1.00 - 2.00 mi.	262	274
2.00 - 3.00 mi.	2,509	2,783
3.00 - 4.00 mi.	8,827	11,610

6.4 Analytical Results

Because the soils are the wastes in this investigation the soils data is largely discussed in Section 3 regarding waste source sampling. See Table 1 for a complete summary of the surface and subsurface soil data collected during the 1999 ESI. The Appendix contains all the analytical data for the 1999 ESI sampling event. The sources of most concern are the fly ash dumping area and the inactive fly ash pond. Analytical results indicate that surface soils from the inactive fly ash lagoon (CPL-013-SS) contain arsenic (92J mg/kg), barium (540J mg/kg), beryllium (6.3J mg/kg), cadmium (1.2J mg/kg), chromium (64J mg/kg), cobalt (18 mg/kg), iron (16,000J mg/kg), lead (51J mg/kg), magnesium (1,400J mg/kg), manganese (85J mg/kg), nickel (93J mg/kg), potassium (3,200J mg/kg), selenium (95J mg/kg), silver (1.0J mg/kg), vanadium (170J mg/kg), zinc (560J mg/kg), naphthalene (240J ug/kg), dibenzofuran (64J ug/kg), fluoranthene (100J ug/kg), 2-methyl naphthalene (390J ug/kg), pyrene (76J ug/kg), phenanthrene (180J ug/kg).

Subsurface soils (CPL-013-SB) from the inactive fly ash pond contain barium (110J mg/kg), beryllium (0.57J mg/kg), chromium (12J mg/kg), cobalt (2.2J mg/kg), copper (12J

mg/kg), magnesium (310J mg/kg), manganese (16J mg/kg), nickel (5.9J mg/kg), potassium (940J mg/kg), selenium (2.5J mg/kg), vanadium (14J mg/kg), and zinc (15J mg/kg).

Surface samples from the old fly ash dumping area contain (maximum values) of arsenic (17J mg/kg), barium (260J mg/kg), beryllium (2.5J mg/kg), chromium (9.7J mg/kg), cobalt (7.0J mg/kg), copper (23J mg/kg), iron (4900J mg/kg), lead (9.4J mg/kg), manganese (56J mg/kg), nickel (14J mg/kg), vanadium (42J mg/kg), zinc (14J mg/kg), toluene (5J ug/kg), and 2-methyl naphthalene (50J ug/kg).

The subsurface soil samples collected from the old dumping area contain (maximum values) of arsenic (8.2J mg/kg), barium (140J mg/kg), beryllium (1.1J mg/kg), chromium (4.4J mg/kg), cobalt (2.8J mg/kg), copper (10J mg/kg), iron (3,800J mg/kg), lead (4.3J mg/kg), magnesium (290 mg/kg), manganese (32J mg/kg), nickel (5.3J mg/kg), potassium (560J mg/kg), selenium (1.3J mg/kg), vanadium (13J mg/kg), zinc (9.4J mg/kg), toluene (4J ug/kg). As stated in Section 3.3, all data deemed valid was at least 10 times the background concentration.

From the surface soil sample results, levels of arsenic, beryllium, selenium, thallium, dibenzofuran, and 2-methyl naphthalene from the inactive fly ash pond are above the Soil Remediation Goals of NCDENR, Inactive Hazardous Sites Program, Guidelines for Assessment and Cleanup pursuant to N.C.G.S. 130A-310 (Reference 36).

6.5 Soil Exposure Pathway Conclusions

The analytical results indicates that an observed release of arsenic, barium, beryllium, cadmium, chromium, cobalt, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, vanadium, zinc, naphthalene, dibenzofuran, fluoranthene, 2-methyl naphthalene, pyrene, and phenanthrene in the surface soil samples on site. Although, site access is limited due to fencing of the property and "No Trespassing" signs posted, hunters and other trespassers have been able to access the property illegally (Reference 6).

7.0 SUMMARY AND CONCLUSIONS

For purposes of site prioritization relative to other sites, the groundwater pathway appears to be of great enough concern to consider further effort under CERCLA. The site priority is in large part due to the fact that the groundwater is the source of drinking water for the New Hanover County community wells, businesses and homes within the immediate vicinity of the CP&L property. Because of the number of people drinking from wells that contain site-related contaminants (albeit at low levels), the Carolina Power and Light Sutton Steam Electric Plant site must be considered for further federal action under CERCLA. It is important to note however that groundwater standards have not been exceeded in any sample except for iron in the Ezzell well. The Superfund Section may or may not recommend that the affected wells be closed pending health evaluations of these wells by the NC Occupational and Environmental Epidemiology Section.

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PHOTOGRAPH LOG
Carolina Power & Light Sutton Steam Electric Plant Site
Wilmington, New Hanover County, North Carolina

1. Photo of the drum storage area that was in question during the Screening Site Inspection in 1991.
2. Photo overlooking Lake Sutton from the CP&L tower. International Paper plant can be seen in the background of the photo along the Cape Fear River.
3. Photo of the two above ground storage tanks that are leased to International Paper to store black liquor.
4. Photo of the large fuel oil tanks owned and used by CP&L.
5. Photo of the Cape Fear River at the location of the intake for Lake Sutton.
- 6 & 7. Photo of sample location CPL-013-SS/SB at the tip of the inactive fly ash pond.
8. Photo of sample location CPL-015-SS/SB and the duplicate sample CPL-115-SS/SB within the inactive fly ash pond.
9. Photo of the sample location CPL-014-SS/SB within the inactive fly ash pond.
10. Photo of the New Hanover County Community well system off Frederickson Road. Sample CPL-001-PW was collected from these wells.
11. Photo of the CP&L Supply wells within the immediate vicinity of the plant.
12. Photo of Lake Sutton at the former discharge location for the inactive fly ash pond. Sample CPL-025-SW was collected at this location.
13. Photo of the sample location CPL-016-SS/SB in the old fly ash dumping area.
14. Photo of sample location CPL-016-SS/SB showing the high ash content of the sample within the old dumping area.
15. Photo of the background location CPL-019-SS/SB. Sample collected at the entrance of the CP&L property.
16. Photo of the discharge location for CP&L Lake Sutton, also the PPE for the 15-mile surface water pathway and sample location CPL-022-SW/SD and CPL-122-SW/SD.



Former lagoon located between parking lot and small building in background. View SE. 11-28-89.



Sample location 1. 8' well point installed in center of former lagoon area. View SE. 11-28-89.



Sample location 2. Background soil sample along fence south of lagoon. View E. 11-28-89.







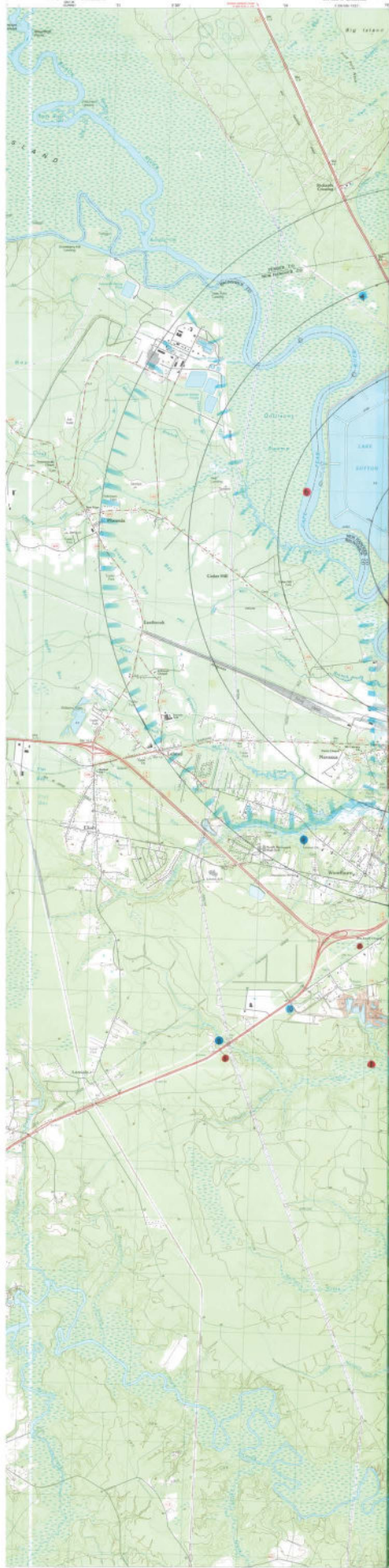




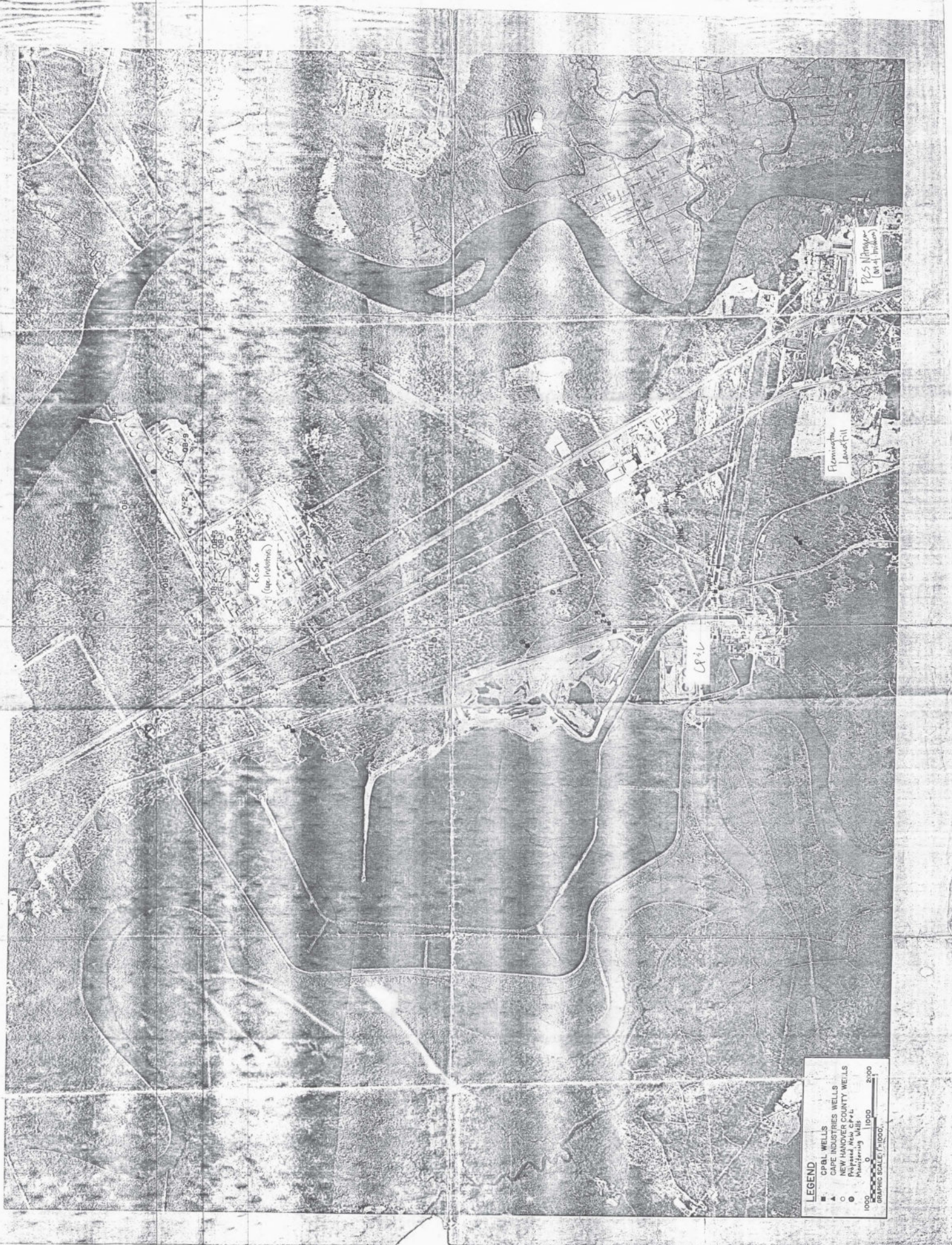








- FIGURE 1**
Cape Fear River Electric Plant
NC 280 530 440
- Public Water Supply System**
New River County (dark blue) (see legend)
City of Wilmington (light blue) (see legend)
Brunswick County (light green) (see legend)
- Community Water Systems**
1. Cape Fear River Electric Plant (see legend)
 2. Cape Fear River Electric Plant (see legend)
 3. Cape Fear River Electric Plant (see legend)
 4. Cape Fear River Electric Plant (see legend)
 5. Cape Fear River Electric Plant (see legend)
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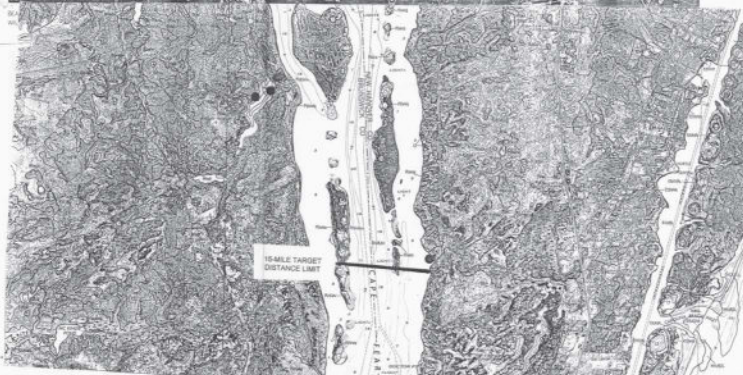
LEGEND

- CP&L WELLS
- ▲ CAPE INDUSTRIES WELLS
- NEW HANOVER COUNTY WELLS
- Proposed New CP&L
- Monitoring Wells

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GRAPHIC SCALE / 1"=1000'

NATIONAL WETLANDS INVENTORY
UNITED STATES DEPARTMENT OF THE INTERIOR

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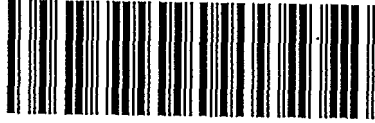


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Docket No. E-2, Sub 1219A

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Docket No. E-2, Sub 1219



3/7/2011

DocumentID NCD000830646

Site Name CAROLINA P&L CO. SUTTON STEAM

DocumentType SITE ASSESSMENT RPT

RptSegment 1

DocDate 5/25/2005

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Division WASTE MANAGEMENT

Section SUPERFUND

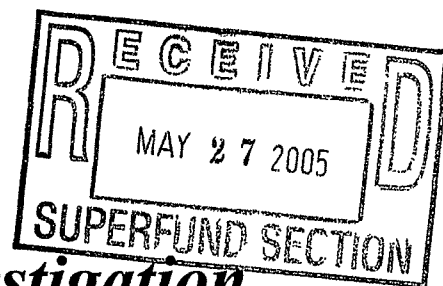
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REPORT



Phase II Remedial Investigation Report for the Former Ash Disposal Area

*L.V. Sutton Steam Electric Plant,
Wilmington, NC*

**Progress Energy Service Company, LLC.
Raleigh, North Carolina**

May 2005

BBL[®]
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

CERTIFICATION STATEMENT

REGISTERED SITE MANAGER CERTIFICATION STATEMENT (.0306(b)(1))

PROGRESS ENERGY CAROLINAS INC.
L.V. SUTTON STEAM ELECTRIC PLANT
WILMINGTON, NORTH CAROLINA
NCD 000 830 646

PHASE II REMEDIAL INVESTIGATION REPORT

"I certify under penalty of law that I am personally familiar with the information contained in this submittal, including any and all supporting documents accompanying this certification, and that the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete and complies with the Inactive Hazardous Sites Response Act G.S. 130A-310, et seq, and the voluntary remedial action program Rules 15A NCAC 13C .0300. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Gary R. Cameron, P.E.

Printed Name

Gary R. Cameron
Signature

6/9/05
Date

North Carolina

State

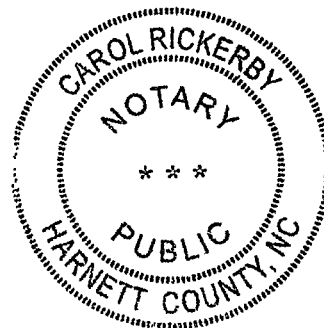
Wake

County

I, CAROL RICKERBY, a Notary Public of ^{HARNETT}~~said~~ County and State, do hereby
certify that GARY R. CAMERON did personally appear and sign before me
this the 9th day of June, 2005.

Carol Rickerby
Notary Public Signature

My commission expires: My Commission Expires 11-30-2009.



CERTIFICATION STATEMENT

REMEDIATING PARTY CERTIFICATION STATEMENT (.0306(b)(2))

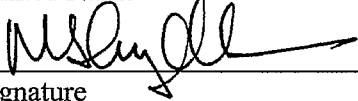
PROGRESS ENERGY CAROLINAS INC.
SUTTON STEAM PLANT
WILMINGTON, NORTH CAROLINA
NCD 000 830 646

PHASE II REMEDIAL INVESTIGATION REPORT

"I certify under penalty of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Michael Shawn Longfellow

Printed Name



Signature

5-16-05

Date

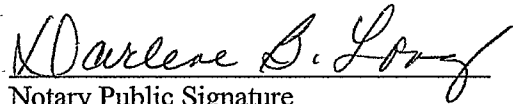
North Carolina

State

New Hanover

County

I, Marlene B. Long, a Notary Public of said ~~County~~ and State, do hereby
certify that M. S. Longfellow did personally appear and sign before me
this the 16 day of May, 2005.



Notary Public Signature

My commission expires: 1-22-06

REMEDIAL INVESTIGATION COMPLETION CERTIFICATION
15A NCAC 13C.0306(b)(5)(B)

Site Name L.V. SUTTON STEAM ELECTRIC PLANT Street Address 801 SUTTON STEAM PLANT RD.
County NEW HANOVER WILMINGTON, NC
Site ID No. NCD 000 830646

The remedial investigation, which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act G.S. 130A-310, et seq. and the voluntary remedial action program Rules 15A NCAC 13C .0300, and BLASLAND, BOUCK & LEE, INC. is in compliance with Rules .0305(b)(2) and .0305(b)(3), of this section. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.

[Signature]
RSM Signature

5/23/05
Date

GARY R. CAMERON,
RSM Name

BLASLAND, BOUCK & LEE, INC.
REC Name

3700 REGENCY PKWY/SUITE 140
Mailing Address

REC No. _____

CARY, NC 27511
City, State, ZIP

NORTH CAROLINA (Enter State)
WAKE COUNTY

I, CAROL RICKERBY, a Notary Public of HARNETT County and State, do hereby certify that GARY R. CAMERON did personally appear and sign before me this the 23 day of MAY, 2005.

[Signature]
Notary Public (signature)

My Commission Expires 11-30-2009.
My commission expires: _____

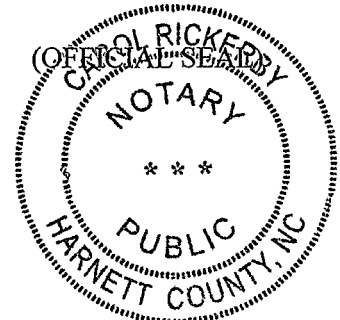


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- B Data Validation Reports and Laboratory Data

1. Introduction

This Phase II Remedial Investigation Report (Phase II RIR) addresses the Former Ash Disposal Area (FADA) at the Carolina Power & Light doing business as Progress Energy Carolina's (Progress Energy) L.V. Sutton Steam Electric Plant (the Site) located at 801 Sutton Steam Plant Road in Wilmington, North Carolina (NCD000830646). This Phase II RIR has been prepared pursuant to a voluntary Administrative Agreement (Docket Number 03-SF-217) signed by Progress Energy and the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Waste Management, Inactive Hazardous Sites Branch (effective date December 30, 2003). The work conducted under the Administrative Agreement is intended to meet the applicable requirements of North Carolina General Statute 130-310.9(c) (Statute); 15A North Carolina Administrative Code (NCAC) 13C .0300 Rules (Rules); and 15A NCAC 13C .0300, *Registered Environmental Consultant Program Rules and Implementation Guidance* (REC Guidance), dated August 2004. Blasland, Bouck, and Lee, Inc. (BBL) has been designated as the Registered Environmental Consultant (REC) for the project.

The Sutton Site is located along the east bank of the Cape Fear River near Wilmington, New Hanover County, North Carolina. The location of the Site is shown on a portion of the United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps for Castle Hayne and Leland, North Carolina, and is presented as **Figure 1-1**. The FADA was used between 1954 and 1972 for the placement of coal ash generated at the Site. A general site plan that includes the FADA is shown on **Figure 1-2**.

1.1 Background

BBL prepared a *Phase I Remedial Investigation Work Plan* (RIWP), which was submitted to the NCDENR in March 2004 (BBL, 2004a) to investigate the FADA. Field activities specified in the Phase I RIWP were conducted between May and July 2004. Phase I RI activities included:

- test pitting and soil boring advancement to delineate the FADA;
- soil boring advancement and sample collection;
- groundwater monitoring well and piezometer installation;
- groundwater sampling and analysis; and,
- surface-water and sediment sampling and analysis in the Cape Fear River.

In September 2004, BBL submitted to the NCDENR a *Phase I Remedial Investigation Report* (Phase I RIR) for the FADA that summarized the Phase I RI activities completed by BBL (BBL, 2004b). Based on the results of the Phase I RI, Progress Energy and BBL identified certain data gaps that needed to be addressed to complete the RI in accordance with the REC Guidance. Therefore, a Phase II RIWP was prepared to address the data gaps and was submitted to the NCDENR on January 25, 2005 (BBL, 2005). Field activities for the Phase II RI were conducted from January 25, 2005 to February 4, 2005. The scope of work for the Phase II RI included:

- background soil sampling;
- soil boring advancement to further delineate the FADA;
- soil boring advancement and sampling for petroleum hydrocarbons;
- groundwater monitoring well and temporary piezometer installation; and,
- groundwater sampling and analysis.

1.2 Purpose and Objectives

The purpose of the Phase II RI was to collect the data necessary to complete the RI for the FADA. To accomplish this, the Phase II RI was designed to achieve the following objectives:

- **Collection of Background Soil Samples** – Background soil samples were collected to evaluate natural metal concentrations near the FADA.
- **Additional Delineation of Ash within the FADA** - Additional soil borings were advanced to further characterize the horizontal and vertical extent of the coal ash within the heavily vegetated area located on the northern portion of the FADA.
- **Additional Delineation of Petroleum Hydrocarbons in the FADA** – A thin discontinuous layer (generally < 1-inch) of petroleum hydrocarbons were observed in three areas within the FADA during test pitting and soil boring advancement activities conducted as part of the Phase I RI. Analytical results for the Phase I RI soil samples indicated that the material is consistent with a heavy petroleum hydrocarbon material, such as No. 6 fuel oil. Additional Phase II RI soil samples were collected in each of the three areas to delineate the petroleum hydrocarbons at each area.
- **Evaluation of Groundwater and Movement in the FADA** – Additional groundwater elevation data along the western, southern, and central portions of the FADA were needed to confirm overall groundwater flow in and around the FADA.
- **Horizontal and Vertical Delineation of Arsenic in Groundwater Proximate to the FADA** - Shallow groundwater appears to have been impacted with arsenic above the groundwater remediation goal (RG) of 10 micrograms per liter (µg/L) based on samples collected from three shallow monitoring wells (MW-13, MW-14, and MW-15) installed during the Phase I RI. Therefore, one additional shallow and four deep monitoring wells were installed to delineate arsenic in groundwater horizontally and vertically in accordance with the REC Guidance.

1.3 Report Organization

Following this introduction, **Section 2** provides the details of the Phase II RI activities. **Section 3** discusses the Phase II RI results. **Section 4** presents the conclusions and recommendations based on the results of the Phase II RI. **Section 5** presents the required certification documents and **Section 6** presents the references used to prepare this Phase II RIR.

2. Phase II RI Activities

This section presents details regarding the data collected during the Phase II RI. Information is presented regarding the number and location of soil samples, soil borings, temporary piezometers, permanent groundwater monitoring wells, groundwater samples, laboratory analytical methods, and any variances from the Phase II RIWP. All site activities were conducted in accordance with the REC Guidance (NCDENR, 2004) and the U.S. Environmental Protection Agency (USEPA) Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM) (USEPA, 2001).

2.1 Soil Investigation

The following soil sampling activities were conducted as part of the Phase II RI.

2.1.1 Collection of Background Soil Samples

Five background soil samples (SF-2 through SF-6) were collected as required per the REC Guidance and in accordance with the procedures contained in the EISOPQAM. Background soil sample locations are depicted on **Figure 2-1**. Background soil samples were collected from 0.5 to 1.0 feet below ground surface (ft bgs) using a stainless steel hand trowel. Field equipment was decontaminated prior to and after each sample in accordance with EISOPQAM procedures. Background soil samples were analyzed for Hazardous Substance List (HSL) metals by USEPA Methods 6010B and 7470A (for mercury only). The HSL metals include:

- antimony;
- arsenic;
- beryllium;
- cadmium;
- chromium;
- copper;
- lead;
- manganese;
- mercury;
- nickel;
- selenium;
- silver;
- thallium; and
- zinc

Background soil samples were collected and stored separately from all other samples, placed on ice, and maintained under full chain-of-custody procedures. Samples were then transported directly to CompuChem Laboratory in Cary, North Carolina (CompuChem) (NC Certification No. 79).

Quality assurance/quality control (QA/QC) samples were also submitted to CompuChem for analysis along with the samples collected in the field in accordance with the REC Guidance.

2.1.2 Additional Ash Delineation

As part of the Phase I RI, 19 hand-auger borings and 20 test pits were advanced to facilitate delineation of the FADA (see **Figure 2-2**). Based on the Phase I RI delineation activities, three distinct units were identified above the water table as follows:

- **Ash Unit** – The ash unit consists of a distinctive layer of dark to light grey colloids that are typically laminated in appearance.
- **Definable Ash Unit and Sand** – This unit consists of a definable ash layer as described above combined with a grey sand and ash mixture that may be present above or below the ash layer.
- **Sand and Ash Mixture** – This unit consists of medium grey sand mixed with ash material between sand grains with no definable ash layer present.

To further characterize these units, BBL advanced two soil borings (SB-19 and SB-20) using a stainless steel hand auger within the heavily vegetated area located on the northern portion of the FADA. Field equipment was decontaminated prior to and after borehole advancement in accordance with EISOPQAM procedures. All boreholes were backfilled with native materials upon completion. **Figure 2-2** depicts the locations of all soil borings advanced within the FADA.

2.1.3 Additional Delineation of Petroleum Hydrocarbons

Petroleum hydrocarbons were observed in three areas (TP-1, TP-12, and TP-16/20) within the FADA during the Phase I RI; therefore, additional soil sampling was conducted to delineate these areas as part of the Phase II RI.

Each proposed soil boring location was staked in the field by the BBL field scientist. Final soil borings were surveyed by a North Carolina-licensed surveyor. Each of the three identified areas are described below.

Test Pit TP-1 Area

Four soil borings (SF-7 through SF-10) were advanced 20 feet north, south, east and west of former test pit TP-1 to delineate the horizontal and vertical extent of petroleum hydrocarbon impacted soil observed during the Phase I RI. No petroleum hydrocarbons were visually observed during borehole advancement.

Test Pit TP-12 Area

Four soil borings (SB-21, SB-23, SB-25, and SB-27) were advanced 20 feet north south, east, and west of former test pit TP-12 to delineate the horizontal and vertical extent of petroleum hydrocarbons observed during the Phase I RI field activities. Based on field observations, four additional soil borings (SB-22, SB-24, SB-26, and SB-28) were advanced 20 feet north south, east, and west of the initial soil borings to ensure the area proximate to TP-12 was adequately delineated.

Test Pits TP-16/20 Area

Four soil borings (SB-29, SB-30, SB-31, and SB-32) were advanced proximate to former test pit locations TP-16 and TP-20 to delineate the horizontal and vertical extent of petroleum hydrocarbons observed during the Phase I RI. No petroleum hydrocarbons were visually observed during borehole advancement.

Soil boring and test pit locations are depicted on **Figure 2-3**.

Field equipment was decontaminated prior to and after borehole advancement in accordance with EISOPQAM procedures. Soil borings were advanced using a stainless steel hand auger until the water table or apparent petroleum hydrocarbon impacted soils were visually observed. Continuous soil samples were collected during borehole advancement and screened for organics using an organic vapor analyzer equipped with a photo-ionization detector (PID).

Upon completion of the petroleum hydrocarbon delineation at each test pit area, representative soil samples were collected based on field observations and PID readings. All soil samples were submitted to Severn Trent Laboratory (STL) (NC Certification No. 314) in Pensacola, Florida and analyzed for extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH) using Massachusetts Department of Environmental Protection (MADEP) methodology. QA/QC samples were submitted to STL for analysis along with the samples collected in the field in accordance with the REC Guidance.

2.2 Groundwater Investigation

2.2.1 Evaluation of Groundwater and Movement in the FADA

Based on the Phase I RI results, groundwater flow in the FADA appeared to converge toward the central portion of the FADA from the discharge canal to the north and Lake Sutton to the west. This groundwater flow pattern appeared to limit potential impacts to these surface-water bodies; however, additional groundwater flow data along the western, southern, and central portions of the FADA were needed to confirm overall groundwater movement proximate to the FADA. The additional data collected to confirm overall groundwater flow within the FADA are described below.

2.2.2 Temporary Piezometer Installation

BBL advanced six temporary shallow piezometers (PZ-11 through PZ-16) to facilitate the determination of shallow groundwater flow direction in and around the FADA. All piezometers were hand driven and were constructed with 1-inch-diameter flush-joint threaded schedule 80 polyvinyl chloride (PVC) riser with an appropriate length of 0.010-inch slotted PVC well screen. All temporary piezometers were completed above grade with an approximately 2-foot PVC riser stick-up. After each piezometer was installed, BBL conducted a preliminary survey of the temporary piezometers to calculate groundwater elevations at each location in order to construct a shallow potentiometric surface map for the FADA. These data, along with groundwater elevations collected from an existing piezometer (PZ-10) and shallow monitoring wells (MW-13 through 15), enabled BBL to prepare a potentiometric surface map in the field that was used to properly locate the monitoring well cluster (MW-20/20D) to assess the groundwater quality downgradient of the FADA. The locations of the temporary piezometers and monitoring wells are depicted on **Figure 2-4**.

Upon completion of the Phase II RI field activities, the temporary piezometers were manually removed, backfilled, and combined with other investigation-derived waste (IDW) generated during the Phase II RI.

2.2.3 Permanent Monitoring Well Installation

Four permanent monitoring wells (MW-13, MW-14, MW-15, and MW-16) were installed around the FADA to assess shallow groundwater quality as part of the Phase I RI. One of the wells (MW-16) was installed to assess background groundwater quality conditions near the FADA. The locations of the monitoring wells installed during the Phase I RI are depicted on **Figure 2-4**.

As part of the Phase II RI, one new shallow monitoring well (MW-20) and four deep monitoring wells (MW-13D, MW-15D, MW-16D, and MW-20D) were installed by a North Carolina-licensed well driller in accordance to EISOPQAM procedures to assess the horizontal and vertical groundwater quality in and around the FADA. The locations of the new monitoring wells are shown on **Figure 2-4**. The shallow monitoring well (MW-20) was installed using 4.25-inch-inner-diameter hollow-stem augers. All deep monitoring wells were installed utilizing mud-rotary drilling methods. Soil samples were collected at 5-foot intervals during borehole advancement using 2-inch-diameter, 2-foot-long split-spoon samplers. Each sample was screened with a Photo Ionization Detector (PID) and the results were recorded in the site logbook. Well construction details are provided in **Table 2-1**.

MW-20 was constructed of 2-inch-diameter flush-joint threaded schedule 40 PVC riser with a 10-foot length of 0.010-inch slotted PVC well screen. The screened interval was positioned so that it intersected the water table at the time of construction. The deep monitoring wells (MW-13D, MW-15D, MW-16D, and MW-20D) were constructed of 2-inch-diameter flush-joint threaded schedule 40 PVC riser with a 5-foot length of 0.010-inch slotted PVC well screen. A sand pack was placed from the boring terminus to two-feet above the top of the screened interval. A hydrated bentonite pellet seal (minimum of 2 feet) was placed on top of the filter pack. Grout was then pumped by the tremie method into the annular space around the casing to the ground surface. After a 24-hour period, the wells were completed by installing a surface pad and an above-grade protective steel casing. Following another 24-hour period, the wells were developed in accordance with the EISOPQAM procedures. Well construction records and boring logs are included in **Appendix A**. A generalized geologic cross-section across the FADA is provided as **Figure 2-5**. Additional FADA cross-sections are provided in the Phase I RIR (BBL, 2004b).

2.2.4 Groundwater Sampling and Analysis

As part of the Phase I RI, shallow monitoring wells MW-13, MW-14, MW-15, and MW-16 were sampled to assess the shallow groundwater quality within and around the FADA. The analysis of these samples resulted in the following:

- Five HSL metals (arsenic, chromium, copper, thallium, zinc) were detected in groundwater samples above the method detection limit (MDL) from the FADA wells; however, all metal concentrations were well below their respective RGs, with the exception of arsenic. Arsenic was detected at concentrations above the groundwater RG (10 µg/L) in groundwater samples collected from monitoring wells MW-13 (70.6 µg/L), MW-14 (10.9 µg/L), and MW-15 (41.3 µg/L). Arsenic was detected below the RG at 3.5 µg/L in the sample collected from background well MW-16.
- No target compound list (TCL) volatile organic compounds (VOCs) or semivolatile organic compounds (SVOCs) exceeded available RGs in groundwater samples from the FADA. Therefore, these parameters were not included in the Phase II RI analytical program.

2.2.4.1 Phase II RI Groundwater Sampling and Analysis Program

The Phase II RI parameter list was focused on the five HSL metals listed above and a select list of geochemical parameters.

One synoptic round of groundwater-level measurements was collected during the Phase II RI from all FADA permanent monitoring wells, permanent piezometer PZ-10, and all temporary piezometers. The measurements were made with a properly decontaminated electronic water-level probe. Depth-to-water measurements were measured from the surveyed top of inner casing to the nearest 0.01 foot and recorded in the site logbook.

All FADA monitoring wells were sampled utilizing low-flow purging and sampling methods. This involves the use of a peristaltic pump equipped with dedicated silicone and Teflon®-lined polyethylene (PE) tubing. The PE tubing was positioned in the well such that the intake was situated at the middle of the well screen. The purge rate (ranging from 200 to 300 milliliters per minute) was adjusted such that the water level within the wells was not lowered by more than 0.3 foot. The water level within the well was monitored throughout the duration of the purge. Additionally, field parameters (pH, temperature, specific conductivity, dissolved oxygen [DO], oxidation-reduction potential [ORP], and turbidity) were monitored continuously using a Hydro-Lab® water-quality meter with a flow-through-cell assembly. BBL personnel recorded all field parameters, as well as the color of the purge water, and the presence or absence of a sheen and odor throughout the duration of the purge. Each monitoring well was purged until three consecutive field measurements (taken at 5-minute intervals) of pH, specific conductivity, DO, and ORP stabilize to within 1 standard unit, 3%, 10%, and 10 millivolts, respectively. Additionally, purging continued until turbidity readings were below 10 nephelometric turbidity units (NTU). The locations of the monitoring wells are depicted on **Figure 2-4**.

Groundwater samples were collected from the Teflon®-lined PE tubing upon field parameter stabilization, placed in coolers on ice, and maintained under full chain-of-custody procedures. Samples were shipped via overnight delivery to CompuChem for the following:

- Site-specific HSL metals (arsenic, chromium, copper, thallium, zinc) via USEPA SW-846 Method 6010B/3030C preparation.

In addition, samples were analyzed for several geochemical indicator parameters as follows:

- calcium using USEPA Method 6010B;
- sulfate using USEPA Method 375.4;
- chloride using USEPA Method 325.2; and
- total organic carbon (TOC) using USEPA Method 415.1.

QA/QC samples were shipped via overnight delivery to CompuChem for analysis along with the samples collected in the field.

2.2.4.2 Groundwater Microbiological Community Data

The measurement of the biological activity of iron-reducing bacteria in groundwater was conducted during the Phase II RI groundwater sampling event to determine whether microbial populations that could support iron reduction were present in the aquifer. Reduction of iron-containing minerals associated with aquifer sediments could facilitate the release of sorbed arsenic into groundwater (Nagorski and Moore, 1999; Dowling et al., 2002). Microbial population field test kits (Iron Related Bacteria Test – IRB-BART™, and Heterotrophic Aerobic Bacteria Biological Activity Reactivity Test – HAB-BART™) manufactured by Droycon Bioconcepts, Inc., Regina, SK, Canada were used to evaluate the presence of iron-utilizing bacteria and/or aerobic bacteria. A

small amount of groundwater sampled from each monitoring well was added to a dedicated test vial that contained a microbial growth substrate specific to the bacteria family of interest. The vials were observed for approximately one week to determine whether or not bacteria grew in each sample.

2.3 Phase II RI Work Plan Variances

Two variances occurred during the Phase II RI field program. First, BBL collected the five above-referenced IRB and HRB- BART™ groundwater samples to evaluate the biological activity in the FADA. Second, four additional soil borings were advanced around TP-12 based on field observations during soil sample collection to evaluate the presence of petroleum hydrocarbons in the FADA. All other field activities were consistent with the Phase II RIWP.

2.4 Investigation-Derived Waste

Investigation-Derived Waste (IDW) (e.g., drill/soil cuttings, well development/purge water, decontamination fluids) generated as part of the Phase II RI activities were containerized in properly labeled 55-gallon United Nations-approved steel drums and staged at the Site. This material was managed in accordance with the REC and EISOPQAM guidance.

3. Phase II RI Results

This section presents the results of the soil and groundwater investigation conducted as part of the Phase II RI. Laboratory reports of the results for the samples collected during the Phase II RI are presented in **Appendix B**.

3.1 Soil Investigation Results

3.1.1 Additional Ash Delineation

BBL advanced two soil borings (SB-19 and SB-20) using a stainless steel hand auger to further characterize the horizontal and vertical extent of the coal ash within the heavily vegetated area located on the northern portion of the FADA. The findings are as follows:

- SB-19 (0 – 4 ft bgs): An ash unit was observed from 0.2 to 2.0 ft bgs transitioning to a definable ash and sand unit (i.e. interbedded ash layers and grey sand) to 2.5 ft bgs. Medium-grained, brown sand was present from 2.5 ft bgs to the terminal boring depth of 4 ft bgs.
- SB-20 (0 – 7 ft bgs): A definable ash unit and sand was observed from 0.2 to 2.0 ft bgs transitioning into a distinct ash unit to 4.0 ft bgs. From 4.0 to 5.5 ft bgs was a definable ash and sand unit, which was underlain by a definable ash unit to 6.0 ft bgs. The ash unit transitioned to a definable ash and sand unit from 6.0 to 6.5 ft bgs. Medium-grained, brown sand was present from 6.5 ft bgs to the terminal boring depth of 7 ft bgs.

Figure 2-2 depicts the spatial distribution of the three distinct units observed within the FADA based on the delineation data collected during the Phase I and Phase II RI. Soil boring descriptions are presented in **Table 3-1**. As shown on **Figure 2-2**, RI test pitting and soil boring data indicate that there is an area in the central portion of the FADA that is composed primarily of a definable ash and sand unit, which is surrounded by a sand and ash mixture. The definable ash and sand unit identified on **Figure 2-2** appears to correspond to a former topographic depression in the FADA based on a review of historical topographic maps of the site.

3.1.2 Petroleum Hydrocarbon Soil Sampling Results

Sixteen soil borings were advanced proximate to test pits TP-1, TP-12, TP-16/20 to delineate the horizontal and vertical extent of petroleum hydrocarbons in the FADA. BBL collected four soil samples around each test pit within the FADA for EPH and VPH analyses by the MADEP Method. Soil analytical results are summarized in **Table 3-2** and depicted on **Figure 2-3**. Soil sampling results are summarized below.

Test Pit TP-1 Area Results

Analytical results for all EPH and VPH soil samples were below the Maximum Soil Contaminant Concentrations (MSCC) soil-to-groundwater criteria with the exception of C11-C22 (EPH) aromatics (soil-to-groundwater limit of 34 milligrams per kilogram [mg/kg]) in two soil samples. The C11-C22 aromatics (EPH) concentration in the soil sample from SF-7 (0.5 – 1.0 ft bgs) was reported as 120 mg/kg. The J-qualified (estimated) C11-C22 aromatic (EPH) concentration in the duplicate soil sample of SF-9 (SF-91) (44 mg/kg) location slightly exceeded the MSCC. It should be noted that the parent soil sample collected from SF-9 (estimated concentration of 33 mg/kg) was below the MSCC soil-to-groundwater criteria for EPH C11-C22.

Test Pit TP-12 Area Results

The four soil samples (SB-22,-24,-26, and -28) collected proximate to test pit TP-12 were all below the EPH and VPH MSCC soil-to-groundwater criteria.

Test Pits TP-16/20 Area Results

The four soil samples (SB-29,-30,-31, and -32) collected proximate to test pits TP-16 and TP-20 were all below the EPH and VPH MSCC soil-to-groundwater criteria. Laboratory data are provided in **Appendix B**.

3.1.3 Background Metals Soil Sampling Results

Five background soil samples (SF-2 through SF-6) were collected at the Site at the locations shown on **Figure 2-1**. Analytical results indicate that six metals (antimony, cadmium, mercury, selenium, silver and thallium) were not detected above their respective detection limits in any of the background soil samples. Eight metals (arsenic, beryllium, chromium, copper, lead, manganese, nickel, and zinc) were detected in background concentrations ranging from 0.01 mg/kg for beryllium to 2.5 mg/kg for zinc. Complete analytical results for background soil samples are provided in **Table 3-3**. Laboratory data are provided in **Appendix B**.

3.2 Groundwater Investigation Results

3.2.1 Evaluation of Groundwater and Movement in the FADA

Shallow groundwater measurements collected from six temporary piezometers, permanent piezometer PZ-10 and five permanent monitoring wells ranged from 0.90 ft bgs at PZ-16 to 3.33 ft bgs at PZ-15 on February 4, 2005. Deep groundwater measurements collected from four permanent groundwater monitoring wells ranged from 0.53 ft bgs at MW-15D to 4.97 ft bgs at MW-20D. Depth-to-groundwater measurements from the February 2005 monitoring event were converted to groundwater elevations and were used to create potentiometric surface maps for wells screened near the water table (shallow groundwater) and toward the base of the surficial aquifer unit (deep groundwater). Potentiometric surface maps for shallow and deep groundwater for the February 2005 monitoring event are presented as **Figures 3-1** and **3-2**. As shown, groundwater within the FADA generally flows to the south and southwest. A summary of the site survey data is provided in **Table 3-4**. Groundwater elevation data are provided in **Table 2-1**. Historical groundwater elevation data are provided in **Table 3-5**. Lastly, **Figure 2-5** presents a geologic cross-section that illustrates the subsurface conditions along the groundwater flow path within the FADA.

3.2.2 Groundwater Elevation and Gradient Data

The horizontal component of the hydraulic gradient in the shallow and deep groundwater was determined for the Site using the February 4, 2005 groundwater elevation data presented in **Table 2-1**. The average horizontal gradient in the shallow groundwater is approximately 0.0025 foot per foot (ft/ft) towards the south and southwest. The average horizontal gradient in the deep groundwater is approximately 0.0034 (ft/ft) towards the southwest. Historical groundwater elevation data are presented in **Table 3-5**.

To evaluate the potential interaction of groundwater flow between different levels of the surficial aquifer, the vertical component of the hydraulic gradient between the shallow and deep groundwater wells was also evaluated by comparing groundwater elevations from clustered wells MW-13 (shallow well) and MW-13D

(deep well), MW-15 (shallow well) and MW-15D (deep well), MW-16 (shallow well) and MW-16D (deep well), and MW-20 (shallow well) and MW-20D (deep well). The calculated vertical gradients for each well cluster are 0.0011 ft/ft (upward), 0.0011 ft/ft (downward), 0.0029 ft/ft (downward), and 0.0005 (downward), respectively.

3.2.3 Groundwater Flow Data

The average linear groundwater velocity, or seepage velocity, (v) for the FADA can be estimated from the following relation between hydraulic conductivity (K), hydraulic gradient (i), and effective porosity (η):

$$v = K \times i / \eta$$

Heath (1989) estimated an average transmissivity (T) value of 11,000 square feet per day (ft²/day) for the surficial sand aquifer. Assuming an aquifer thickness of 48 feet based on the boring logs for the deep wells, a typical hydraulic conductivity (K) value of 229 feet/day (ft/day) was calculated for the FADA. An average horizontal hydraulic gradient of 0.00295 ft/ft was used for (i). An effective porosity (η) of 0.30 for fine sand was assumed. Based on these values, the average linear groundwater velocity (v) in the FADA was approximately 242.6 feet/year.

3.2.4 Groundwater Sampling Results

Field Parameter Data – Shallow Groundwater

Stabilized field parameter data for the February 2005 monitoring period are presented in **Table 3-6**. Values of pH ranged from 7.85 (MW-20) to 9.65 (MW-14) std. units. These values indicate that shallow groundwater within the FADA is neutral to slightly basic. Specific conductivity ranged from 180 (MW-16) to 585 (MW-13) microseimens per centimeter (μ S/cm). DO values range from 0.28 (MW-20) to 0.51 (MW-16) milligrams per liter (mg/L). ORP ranged from 45 (MW-20) to 143 (MW-15) millivolts (mV). These data indicate that oxidizing to slightly reducing conditions are present in shallow groundwater within the FADA. Stabilized groundwater turbidity results were nine Nephelometric Turbidity Units (NTUs) or less within all shallow wells.

Field Parameter Data – Deep Groundwater

Stabilized field parameter data for the February 2005 monitoring period are presented in **Table 3-6**. Values of pH ranged from 6.68 (MW-16D) to 8.66 (MW-15) std. units. These values indicate that deep groundwater within the FADA is neutral to slightly basic. Specific conductivity ranged from 498 (MW-15D) to 898 (MW-13D) μ S/cm. DO values range from 0.28 (MW-20) to 0.51 (MW-16) mg/L. ORP ranged from 127 (MW-20D) to 252 (MW-16D) mV. These data indicate that oxidizing to slightly reducing conditions are present in shallow groundwater within the FADA. Stabilized groundwater turbidity results were seven NTUs or less within all deep wells.

HSL Metal Results

Groundwater samples from the five shallow and four deep FADA monitoring wells were analyzed for site-specific HSL metals (arsenic, chromium, copper, thallium, and zinc) to evaluate site groundwater quality. Four of the five HSL metals were detected in groundwater samples from the FADA wells; however, all metal concentrations were well below their respective RGs with the exception of arsenic. Arsenic was detected at concentrations above the RG (10 μ g/L) in groundwater samples collected from shallow monitoring wells MW-13 (99.1 μ g/L) and MW-15 (44 μ g/L) only. HSL metals results are presented in **Table 3-7** and depicted on **Figure 3-3**. Historical groundwater analytical results are presented in **Table 3-8**.

Geochemistry Data

Coal ash leachate typically contains calcium, chloride, sulfate, and total organic carbon which form its primary constituents (Conn, et al., 1999; Murarka, et al., 2002). Therefore, groundwater samples were collected for analysis of calcium, chloride, sulfate, and TOC as potential indicator compounds to evaluate whether or not leachate from coal ash may be affecting groundwater proximate to the FADA. **Table 3-7** presents the results of these geochemical parameters.

Calcium concentrations in groundwater samples collected from background wells MW-16 (shallow groundwater) and MW-16D (deep groundwater) were 5.39 and 33.7 mg/L, respectively. Calcium concentrations ranged from 34.1 (MW-14) to 125 (MW-13) mg/L in shallow groundwater, and 35.9 (MW-16D) to 84.4 (MW-13D) mg/L in deep groundwater. Calcium concentrations were greater in shallow groundwater samples with the exception of the sample from MW-16 which was less than the MW-16D deep groundwater sample.

Chloride concentrations in the groundwater samples collected from background wells MW-16 and MW-16D were 21.4 and 76.4 mg/L, respectively. Chloride concentrations ranged from 2.35 (MW-20) to 46.2 (MW-14) mg/L in shallow groundwater. Chloride concentrations in deep groundwater samples ranged from 54.7 (MW-15D) to 154 (MW-13D) mg/L. Overall, chloride concentrations were greater in groundwater samples from deep monitoring wells.

Sulfate concentrations in the groundwater samples collected from background wells MW-16 and MW-16D were 25.2 and 128 mg/L, respectively. Sulfate concentrations ranged from 8.82 (MW-13) to 44.7 (MW-20) mg/L in shallow groundwater samples, and 74.5 (MW-15D) to 141 (MW-13D) mg/L in deep groundwater samples. Sulfate concentrations were greater in the samples collected from deep monitoring wells.

Groundwater concentrations of TOC in background wells MW-16 and MW-16D were 6.63 and 3.41 (estimated value) mg/L, respectively. TOC concentrations ranged from non-detect at (MW-13) to 14.0 mg/L (MW-14) in shallow groundwater, and 3.99 (MW-15D) to 9.28 (MW-13D) mg/L in deep groundwater. TOC concentrations were greater in shallow groundwater samples from MW-15 and MW-16 compared to MW-15D and MW-16D. TOC concentrations were greater in samples from MW-13D and MW-20D compared to MW-13 and MW-20.

Groundwater Microbiological Community Results

Heterotrophic aerobic bacteria were identified in groundwater samples collected at all sampled monitoring wells (**Table 3-9**). These results indicate that sufficient nutrients, energy sources, and oxidizing conditions exist to support the growth of these aerobic bacteria in groundwater in the vicinity of the FADA. Mixed heterotrophic iron-related bacteria (*Pseudomonads* and *Enterics*) were identified in groundwater samples collected at monitoring wells MW-13D, MW-15D, and MW-20. Mixed anaerobic bacteria including iron-related bacteria were identified in groundwater samples collected at monitoring wells MW-16D and MW-20D. The presence of mixed heterotrophic and anaerobic iron-related bacteria indicates that under proper geochemical and nutrient conditions, reduction of iron can occur.

Mixed heterotrophic aerobic and mixed anaerobic bacterial communities were observed for groundwater samples collected from MW-16D and MW-20D. The potential for the co-existence of aerobic and anaerobic bacteria in site groundwater is supported by ORP values that indicate mildly oxidizing to mildly reducing conditions.

3.2.4.1 Hydrophobic Sorption and COC Retardation

Sorption refers to the chemical transport process whereby chemicals, such as metals dissolved in groundwater, partition preferentially to solid phase aquifer materials. The quantity of chemicals that can partition to solid phase materials is directly proportional to the affinity of the dissolved chemical to sorb to the solid phase material. For metals, this affinity is described by the soil-water partition coefficient (K_d). The result of this process is that some quantity of the chemical mass is removed from groundwater during transport, and the rate of constituent, in this case arsenic, migration in groundwater can be less than the average linear groundwater velocity. Sorption is, therefore, a natural physical groundwater attenuation process that results in the retardation of arsenic relative to the average linear groundwater velocity.

To evaluate the role that sorption plays in the rate of arsenic movement relative to the average linear groundwater velocity in FADA soils, a site specific retardation factor for arsenic was estimated based on the following equation (Freeze and Cherry, 1979).

$$R_c = 1 + [\rho_b \times K_d / n]$$

where R_c is the retardation factor for a specific chemical (c), ρ_b is the bulk density of the soil, K_d is the chemical-specific soil-water partition coefficient, and n is the effective soil porosity. The assumed aquifer bulk density is 1.65 gm/cm^3 and the assumed effective soil porosity is 0.30 (Freeze and Cherry, 1979). A K_d value of 29 mg/g for arsenic was obtained from the Risk Assessment Information System Toxicity and Chemical-Specific Factors Data Base (http://risk.lsd.ornl.gov/cgi-bin/tox/TOX_select?select=csf). The following table presents the site-specific retardation factor for arsenic based on this equation:

Site COC	K_d (ml/g)	R_c	v_c (ft/yr)
Arsenic	29	160.5	1.5

As shown, site-specific the retardation factor for arsenic was calculated to be 160.5 indicating relatively high retardation. The velocity of arsenic transport in groundwater is related to the velocity of groundwater by the following equation:

$$v_c = v_{gw} / R_c$$

where v_c is COC velocity, in this case arsenic and v_{gw} is groundwater velocity. As shown, based on the maximum estimated groundwater velocity (242.6 ft/yr), arsenic velocity in groundwater is approximately 1.5 ft/yr . This indicates that arsenic is significantly less mobile in groundwater relative to the overall groundwater velocity at the site.

It should be noted that K_d values for arsenic can vary several orders of magnitude depending upon local soil type and soil organic content. The value shown is "typical" and may not be fully representative of actual site conditions. Ideally, for solute transport modeling efforts, site-specific K_d information is developed for the range of aqueous and geological conditions of the system to be modeled. However, the retardation data provided above appear to be reflective of site conditions based on the limited distribution of arsenic observed in groundwater proximate to the FADA.

3.3 Quality Assurance/Quality Control Data

QA/QC samples were collected during Phase II RI field activities, including duplicates for each media sampled, matrix spike/matrix spike duplicate (MS/MSD) samples, and field equipment (rinsate) blanks. Duplicate sample results are shown in brackets in **Tables 3-2, 3-3 and 3-7**. **Table 3-10** presents the analytical results for equipment blank and VOC trip blank samples. Overall, duplicate samples results compare well to their corresponding samples. Equipment blank results indicated very low levels of antimony and zinc which are often detected as laboratory artifacts and are not consistent with the constituents of concern at the Site. Therefore, these constituents do not appear to be site related. An estimated concentration of C9-C10 VPH (4.9 JB µg/L) was detected in the trip blank sample for the soil samples collected within the FADA. BBL contacted STL in Pensacola, Florida to discuss the results of the trip blank water sample. According to STL, the cause of the low level detection was due to laboratory cross-contamination during the analysis of the trip blank water sample.

3.4 Data Validation

Analytical data generated for the Phase II RI were evaluated by a BBL data validation specialist to determine the acceptability of the data generated by the analytical laboratory. A data validation/review was completed on the level III data packages submitted by the laboratory for each sample delivery group in accordance with the Quality Assurance Project Plan (QAPP) (BBL, 2004c) included as part of the Phase I RIWP. Data validation/review was conducted in accordance to the *Contract Laboratory Program National Functional Guidelines for Inorganic and Organic Data Review*. The data validation reports are included with the laboratory data in **Appendix B**. Several EPH sample results were recorded as estimated values due to the surrogate recoveries associated with the EPH analysis were determined to be outside the laboratory control limits. A "U" qualifier was given to all EPH soil samples exhibiting concentrations less than the blank action level associated with the trip blank water sample analyses. Overall, the data validation reports found the data acceptable and usable. None of the data within the data set were rejected due to any deviation cited in the data validation reports.

4. Conclusions and Recommendations

4.1 Conclusions

The following conclusions have been developed based on the results of the Phase I and II RI.

- The FADA has been adequately delineated horizontally and vertically based on the test pit and hand auger boring data collected as part of the Phase I and Phase II RI. Three related ash units have been identified within the FADA: a definable ash layer, definable ash layers interbedded with a sand and ash mixture, and a sand and ash mixture with no definable ash layer present. The additional Phase II RI data, combined with the Phase I RI data, indicate that an east-west channel-like feature appears to be present in the central portion of the FADA. This feature corresponds to a topographic low feature present on historical topographic maps for the area.
- The petroleum hydrocarbon material observed in soil at three former test pit areas (TP-1, TP-12, and TP-16/20) within the FADA appear to be discontinuous localized areas of a heavy residual petroleum hydrocarbon compound such as No. 6 fuel oil. This is consistent with historical records that indicate a possible release from one of the ASTs overlying the FADA. All soil samples collected proximate to the three former test pit areas were below EPH/VPH soil-to-groundwater standards with exception of two surface soil samples proximate to TP-1 which contained J-qualified (estimated) values above the soil-to-groundwater standard for C11-C22 aromatic hydrocarbons. Overall, there does not appear to be a significant impact to groundwater related to the residual hydrocarbons observed in soil. No light non-aqueous phase liquids have been detected in FADA monitoring wells, the permanent piezometer, or the six temporary piezometers. A possible explanation for this is that heavier petroleum hydrocarbons such as No. 6 fuel oil typically have low solubility limits in groundwater and are hydrophobic (i.e. they do not readily partition into groundwater) (Fetter, 1994; Murphy and Morrison, 2002).
- Based on the additional data collected during the Phase II RI, groundwater flow in the FADA appears to flow toward the south-southwest.
- All target HSL metals were below their respective RGs in groundwater samples collected from the nine FADA monitoring wells with the exception of arsenic, which was present in two shallow monitoring wells (MW-13 and MW-15). Arsenic was not detected in groundwater samples from any of the deep monitoring wells, or the sample from the downgradient shallow well (MW-20). Groundwater data collected in the FADA indicate that arsenic in groundwater is likely limited to localized areas within the FADA where coal ash leachate is proximate to well screens. This finding is consistent with the retardation calculations for arsenic which indicate that arsenic has very low mobility in groundwater (1.5 ft/yr) relative to the overall groundwater flow rate (242.6 ft/yr) in the FADA. In addition, the lack of arsenic in groundwater sampled at the deep FADA wells indicates that arsenic likely is not being transported from the FADA into the deeper portion of the aquifer.
- pH values above 9.0 were measured in shallow groundwater samples from MW-13, MW-14, and MW-15, possibly indicating that coal ash leachate from the FADA is creating more basic conditions in shallow groundwater. With the exception of groundwater at MW-15D, calcium concentrations were above background at all sampling locations. Chloride concentrations were above background in groundwater samples collected at MW-13D, MW-14, and MW-15D. Sulfate was above background concentration only at MW-20 while TOC concentrations were above background at MW-13D, MW-14,

MW-15, and MW-20D. These results indicate that leachate from the FADA may be contributing calcium and TOC to groundwater in the vicinity of the FADA. However, there was no clear indication of contributions of chloride or sulfate to groundwater from the FADA.

- The BART test results indicate that groundwater microbial populations included aerobic bacteria at all sampled locations. Iron reducing bacteria were observed only at upgradient well MW-16 and downgradient well MW-20D. These results are consistent with ORP values that indicated groundwater in the vicinity of the FADA was slightly aerobic to mildly reducing. These geochemical conditions shed some insight on the potential for arsenic transport in groundwater in the vicinity of the FADA. Arsenic concentrations above 2L standards were observed in shallow groundwater at two locations. At both locations, the monitoring well may have been partially screened across ash-containing layers. The observed lack of arsenic at other shallow groundwater sampling locations and in the deeper portion of the aquifer may be due to adsorption of dissolved arsenic from coal ash leachate onto mineral surfaces in the aquifer matrix. Arsenic typically is less mobile under aerobic or mildly reducing conditions, such as those observed for groundwater in the vicinity of the FADA, and sorption of arsenic is favorable under these geochemical conditions (Kneebone et al., 2002; Dowling et al, 2002). Under more reducing conditions, arsenic may be released to groundwater due to reduction of iron- and manganese oxides and release of sorbed or co-precipitated arsenic (Dowling et al., 2002). However, the more strongly reducing conditions required for these reduction reactions to occur were not observed in groundwater in the vicinity of the FADA. These results indicate that impacts from the FADA are localized and that mobility of arsenic in groundwater in the vicinity of the FADA is limited.
- Based on the above findings, arsenic impacts in groundwater within the FADA have been adequately delineated.

4.2 Recommendations

Sufficient RI data have been collected to address the soil and groundwater conditions within the FADA; therefore, BBL and Progress Energy have determined that the RI process is complete. BBL recommends that a focused remedial action plan (RAP) should be prepared and submitted to the NCDENR as required under Section .0306 (1) and applicable portions of Appendix A of the REC Guidance to address the limited arsenic impacts detected in shallow groundwater within the FADA. The RAP will likely consist of a combination groundwater monitoring, and the use of institutional controls to address the limited groundwater impacts in the FADA.

5. Certifications

Progress Energy (the Remediating party) and the Registered Site Manager (RSM) have completed the proper certification forms for the Phase II RI Report. RI Completion Certification forms (Form G-II) required under 15A NCAC 13C.0306(b)(5)(B) are provided at the front of this document. Each of these statements has been properly notarized, as required under the REC program regulations.

6. References

- Blasland, Bouck & Lee, Inc. 2004a. Phase I Remedial Investigation Work Plan for the Former Ash Disposal Area, L.V. Sutton Steam Plant, Wilmington, NC. Prepared for Progress Energy Carolinas, Inc. (March 2004).
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Tables

Table 2-1
Well and Piezometer Construction Details and Water Elevation Data (February, 2005)
Phase II Remedial Investigation - Former Ash Disposal Area
Progress Energy - L.V. Sutton Steam Electric Plant
Wilmington, North Carolina

Well Designation	Completion Date	Well Diameter (inches)	Screen Interval (ft bgs)	Total Boring Depth (ft bgs)	TOC/Meas. Pt. Elevation ¹ (ft msl)	Depth to Water (ft btoc)	Water Level Elevation (ft msl)	Groundwater Unit Depth
Permanent Monitoring Wells								
MW-13	5/25/04	2	3 - 13	13.0	18.21	7.89	10.32	Shallow
MW-13D	1/28/05	2	33 - 38	38.0	18.16	7.81	10.35	Deep
MW-14	5/25/04	2	1 - 11	11.0	14.15	4.23	9.92	Shallow
MW-15	5/25/04	2	1 - 11	11.0	11.47	3.35	8.12	Shallow
MW-15D	1/31/05	2	40 - 45	45.0	11.21	3.13	8.08	Deep
MW-16	6/7/04	2	2 - 12	12.0	16.91	6.75	10.16	Shallow
MW-16D	1/27/05	2	42 - 47	47.0	16.43	6.38	10.05	Deep
MW-20	2/2/05	2	4 - 14	14.0	13.70	7.92	5.78	Shallow
MW-20D	2/2/05	2	43 - 48	48.0	13.66	7.90	5.76	Deep
Permanent Piezometer								
PZ-10	5/25/04	2	1 - 11	11.0	12.82	3.43	9.39	Shallow
Temporary Piezometers (Abandoned)								
PZ-11	1/25/05	1	1-6	6.0	18.31	7.98	10.33	Shallow
PZ-12	1/25/05	1	1-6	6.0	15.90	7.14	8.76	Shallow
PZ-13	1/25/05	1	1-6	6.0	16.72	6.54	10.18	Shallow
PZ-14	1/25/05	1	1-6	6.0	15.80	4.23	11.57	Shallow
PZ-15	1/25/05	1	1-6	6.0	15.30	8.58	6.72	Shallow
PZ-16	1/25/05	1	1-6	6.0	9.97	2.86	7.11	Shallow

Notes:

1. Surveyed elevations based on TWT surveys conducted June 2004 and February 2005.

ft bgs = feet below ground surface.

ft msl = feet above mean sea level.

ft btoc = Feet below top of casing.

TOC = Top of casing.

Water level measurements taken on February 4, 2005.

Table 3-1
Test Pit and Soil Boring Descriptions for the Former Ash Disposal Area
Progress Energy L.V. Sutton Electric Steam Plant
Wilmington, North Carolina

Location ID.	Date	Maximum Depth (ft bgs)	Depth Interval (ft bgs)	Lithologic Description	USCS Classification ¹	ASH Layer	Comments
Test Pit ID.							
TP-1	5/24/2004	1.8	(0.0-0.8)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.8-1.1)	SAND, black, medium grained, trace organics, roots, moist, trace oil substance visible.	SM		Petroleum staining observed.
			(1.1-1.8)	SAND, gray, medium grained, wet.	SM		
TP-2	5/24/2004	2.6	(0.0-0.2)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.2-2.6)	CLAYEY SAND, black to brown, trace organics, wet.	SC		
TP-3	5/24/2004	6.2	(0.0-0.4)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.4-1.5)	ASH, dark gray, silty, laminated.			
			(1.5-1.55)	SAND, light gray, fine grained.	SM		
			(1.55-2.05)	ASH, dark gray, silty, laminated.			
			(2.05-2.6)	SAND, dark gray, medium grained.	SM		
			(2.6-6.2)	ASH and SAND, dark gray, silt to fine grained, laminated.			Sample collected for laboratory analysis at 4 ft bgs.
TP-4	5/25/2004	4	(0.0-0.9)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.9-1.5)	SAND with trace ASH, brown, silt to medium grained.			
			(1.5-1.6)	SAND, light gray, medium grained.	SM		
			(1.6-1.9)	ASH, dark gray, silty.			
			(1.9-4)	SAND and ASH, dark gray, silt to fine grained.			
TP-5	5/25/2004	2.6	(0.0-0.3)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.3-1)	SAND, brown to tan, medium grained, wet.	SM		
			(1-1.8)	SAND, dark brown to black, fine to medium grained, wet.	SM		
			(1.8-2.6)	SAND, black, fine to medium grained.	SM		
TP-6	5/25/2004	4.6	(0.0-0.2)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.2-1.7)	ASH, dark gray, silty, trace organics.			
			(1.7-2.1)	SAND, dark gray to brown to gray, medium grained, visible roots.	SM		
			(2.1-4.6)	SAND and ASH, gray, silt to medium grained.			
TP-7	5/25/2004	7.0	(0.0-0.2)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.2-1.2)	SAND, dark gray, fine to medium grained.	SM		
			(1.2-3.3)	SAND, dark brown, medium grained.	SM		
			(3.3-3.5)	SAND, tan, medium grained, wet.	SM		
			(3.5-4.8)	SAND and ASH, fine to medium grained, laminated.			
			(4.8-7.0)	SAND, dark brown, medium grained, high organic content, roots.	SM		Perched groundwater at base of the SAND layer.
TP-8	5/25/2004	4.0	(0.0-0.3)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.3-0.9)	SAND, dark gray, fine to medium grained.	SM		
			(0.9-2.0)	SAND, brown to dark gray, medium grained.	SM		
			(2.0-4.0)	SAND, light gray, medium to coarse grained.	SM		Excavation unstable, undercaving

Table 3-1
Test Pit and Soil Boring Descriptions for the Former Ash Disposal Area
Progress Energy L.V. Sutton Electric Steam Plant
Wilmington, North Carolina

Location ID.	Date	Maximum Depth (ft bgs)	Depth Interval (ft bgs)	Lithologic Description	USCS Classification ¹	ASH Layer	Comments
Test Pit ID.							
TP-9	5/25/2004	4.0	(0.0-0.2)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		Excavation unstable, undercaving of lower SAND units.
			(0.2-1.2)	SAND, dark gray, medium grained, organics, roots.	SM		
			(1.2-2.9)	SAND, light brown to gray, medium grained, roots.	SM		
			(2.9-4.0)	SAND, light gray, medium to coarse grained.	SM		
TP-10	5/25/2004	7.4	(0.0-0.4)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		Groundwater observed at 6.9 ft bgs. Overlying ash layer appears to retard groundwater in this area.
			(0.4-2.6)	SAND and ASH, gray, silt to medium grained.			
			(2.6-3.4)	SAND, brown, medium grained, moist.	SM		
			(3.4-6.9)	SAND and ASH, silt to medium grained, laminated, moist.			
TP-11	5/26/2004	6.2	(6.9-7.4)	SAND, dark gray, medium to coarse grained, organics, roots, wet.	SM		Groundwater observed at approximately 5 ft bgs Sample collected for laboratory analysis at 5 ft bgs.
			(0.0-0.4)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	SM		
			(0.4-1.0)	SAND, light brown to dark brown, fine to medium grained.	SM		
			(1.0-2.6)	SAND and ASH, dark brown to black, silt to medium grained.			
TP-12	5/26/2004	8.6	(2.6-3.5)	SAND and ASH, dark gray to black, silt to fine grained.			Groundwater observed at approximately 8.4 ft bgs Sample collected for laboratory analysis at 5 ft bgs.
			(3.5-6.2)	SAND and ASH, silt to fine grained, laminated.			
			(0.0-0.4)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.4-1.8)	SAND and ASH, black, silt to fine grained.			
TP-13	5/26/2004	3.8	(1.8-3.9)	SAND, light brown to black, medium grained.	SM		Excavation unstable, undercaving.
			(3.9-4.6)	SAND, black, medium grained, trace organics and roots, moist.	SM		
			(4.6-8.6)	SAND and ASH, black and gray, fine grained, laminated.			
			(0.0-0.4)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
TP-14	5/26/2004	5.0	(0.4-1.2)	SAND, light to dark brown, medium grained.	SM		Groundwater observed at approximately 4 ft bgs.
			(1.2-1.6)	SAND, gray to black, medium grained.	SM		
			(1.6-3.8)	SAND, light brown to orange-brown, medium grained.	SM		
			(0.0-1.1)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	SM		
TP-15	5/26/2004	7.0	(1.1-5.0)	SAND, orange-brown, fine to medium grained.	SM		Groundwater observed at approximately 4 ft bgs.
			(0.0-0.9)	SAND, gray, medium grained, organics, roots.	SM		
			(0.9-3.5)	SAND, light to dark brown, medium grained.	SM		
			(3.5-7.0)	ASH, gray, silty.			
TP-16	5/26/2004	4.5	(0.0-1.5)	SAND, gray, medium grained, organics, roots.	SM		Groundwater observed at approximately 4 ft bgs. Ash beds truncate at the south end of test pit, returning to SAND, orange-brown, medium grain at 2.8 ft bgs. Petroleum staining observed at 2.8 ft bgs. Sample collected for DRO and TN EPH laboratory analysis.
			(1.5-2.8)	SAND, dark brown, medium grained.	SM		
			(2.8-3.0)	SAND, black, medium grained, moist.	SM		
			(3.0-4.5)	SAND and ASH, gray to black, fine grained, laminated.			
TP-17	5/26/2004	5.0	(0.0-0.1)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.1-5)	SAND, light brown to gray, medium grained.	SM		

Table 3-1
Test Pit and Soil Boring Descriptions for the Former Ash Disposal Area
Progress Energy L.V. Sutton Electric Steam Plant
Wilmington, North Carolina

Location ID.	Date	Maximum Depth (ft bgs)	Depth Interval (ft bgs)	Lithologic Description	USCS Classification ¹	ASH Layer	Comments
Test Pit ID.							
TP-18	5/26/2004	5.5	(0.0-0.4)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		SAND, grey, medium grained, truncates at western edge. ASH layers and petroleum stained SAND truncates on the western edge to SAND, light brown to orange-brown.
			(0.4-1.9)	SAND, brown to gray, medium grained.	SM		
			(1.9-3.8)	SAND, light brown to black, medium grained.	SM		
			(3.8-4)	SAND, black, medium grained, moist.	SM		
			(4-4.8)	SAND and ASH, gray and black, silt to fine grained, laminated.			
			(4.8-5.5)	SAND, orange-brown, medium grained.	SM		
TP-19	5/26/2004	6.0	(0.0-0.6)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.6-1.2)	SAND, brown, gray to black, medium grained, visible cross bedding.	SM		
			(1.2-1.8)	SAND, light gray to white, medium grained.	SM		
			(1.8-6)	SAND, orange-brown to gray to black, medium grained, visible cross bedding.	SM		
TP-20	5/26/2004	5.0	(0.0-0.4)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		Groundwater observed at approximately 4.5 ft bgs.
			(0.4-2.3)	SAND, dark brown to gray, medium grained.	SM		Visible petroleum sheen observed in groundwater.
			(2.3-3.1)	SAND and ASH, black, silt to fine grained.			
			(3.1-3.3)	SAND, black, medium grained, moist.	SM		Petroleum staining observed.
			(3.3-5)	SAND and ASH, black and gray, laminated.			
Soil Boring ID.							
SB-1	5/27/2004	4.0	(0.0-0.6)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.6-1.0)	SAND, gray, fine to medium grained.	SM		
			(1.0-2.6)	SAND, light brown to orange-brown, medium grained.	SM		
			(2.6-3.0)	SAND, dark brown, medium grained.	SM		
			(3.0-4.0)	SAND, black, medium grained.	SM		
SB-2	5/27/2004	6	(0.0-0.6)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.6-1.0)	SAND, gray to black, medium fine grained.	SM		
			(1.0-2.0)	SAND, black to brown, fine to medium grained.	SM		
			(2.0-4.0)	SAND and ASH, gray to brown, silt to fine grained, moist.			
			(4.0-4.25)	SAND and ASH, gray to white, medium grained.			
			(4.25-5.5)	SAND, gray to white, medium grained.	SM		
			(5.5-6.0)	ASH, gray, silty, wet, no odor.			
SB-3	5/27/2004	3.2	(0.0-0.3)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.3-2.0)	SAND, brown, medium grained.	SM		
			(2.0-3.0)	SAND, light brown to gray, medium grained.	SM		
			(3.0-3.2)	SAND, black, medium grained.	SM		
SB-4	5/27/2004	3	(0.0-0.6)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.6-1.0)	SAND, brown, medium grained, trace organics.	SM		
			(1.0-2.5)	SAND, light brown to gray, medium grained, trace fine gravel.	SM		
			(2.5-3.0)	SAND, orange-brown, medium grained.	SM		
SB-5	5/27/2004	3.9	(0.0-0.6)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt		
			(0.6-3.0)	SAND, white to gray, medium grained.	SM		
			(3.0-3.9)	SAND, dark brown to black, fine to medium grained, wet.	SM		

Table 3-1
Test Pit and Soil Boring Descriptions for the Former Ash Disposal Area
Progress Energy L.V. Sutton Electric Steam Plant
Wilmington, North Carolina

Location ID.	Date	Maximum Depth (ft bgs)	Depth Interval (ft bgs)	Lithologic Description	USCS Classification ¹	Comments
Test Pit ID.						
SB-6	5/27/2004	5	(0.0-0.6)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt	
			(0.6-2.0)	SAND, brown, medium grained.	SM	
			(2.0-4.5)	SAND, black, medium grained, moist.	SM	Petroleum staining observed.
			(4.5-5)	ASH, black, silty.		Petroleum staining observed.
SB-7	5/27/2004	4.5	(0.0-0.5)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt	
			(0.5-1.0)	SAND and ASH, black, silt to fine grained.		
			(1.0-1.7)	SAND and ASH, black and gray, silt to fine grained, laminated.		
			(1.7-2.0)	SAND, light gray to brown, medium grained.	SM	
			(2.0-4.5)	SAND, light gray, medium grained.	SM	
SB-8	5/27/2004	5.2	(0.0-0.4)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt	
			(0.4-0.8)	SAND and ASH, black, silt to fine grained.		
			(0.8-1.5)	SAND and ASH, black and gray, fine grained, laminated.		
			(1.5-2.5)	ASH, gray, silty.		
			(2.5-3.2)	SAND and ASH, black and gray, silt to fine grained, laminated.		
			(3.2-4.8)	SAND and ASH, black, silt to fine grained.		
SB-9	5/27/2004	4.5	(4.8-5.2)	SAND, brown to orange-brown, medium grained.	SM	
			(0.0-0.6)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt	
			(0.6-1.0)	SAND, light brown, fine to medium grained.	SM	
			(1.0-1.5)	SAND, light to dark brown, medium grained.	SM	
			(1.5-3.5)	SAND and ASH, black and gray, silt to fine grained.		
			(3.5-4.0)	ASH, black, silty.		
SB-10	6/9/2004	4.0	(4.0-4.5)	SAND, dark brown, medium grained.	SM	
			(0.0-0.4)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt	
			(0.4-2.3)	SAND, dark brown to gray, medium grained.	SM	
			(2.3-3.1)	SAND and ASH, black, silt to fine grained.		
			(3.1-3.5)	SAND, black, medium grained, moist.	SM	Visible petroleum sheen observed in groundwater.
SB-11	6/9/2004	4.5	(3.5-4.0)	SAND, dark gray to black, silt to fine grained, wet.	SM	Soil sample collected for laboratory analysis.
			(0.0-0.4)	Topsoil, brown Sand with Clay and organic matter, roots, moist.	Pt	
			(0.4-1.8)	SAND and ASH, black, silt to fine grained.		
			(1.8-3.9)	SAND, light brown to black, medium grained.	SM	Visible petroleum sheen observed in groundwater.
SB-12	6/9/2004	4.0	(4.0-4.5)	SAND, dark gray to black, fine grained, wet.	SM	Soil sample collected for laboratory analysis.
			(0.0-2.0)	SAND, light brown to light gray, fine to medium grained.	SM	
			(2.0-4.0)	SAND and ASH, light gray, fine grained with trace silts, wet.		
SB-13	6/9/2004	4.0	(0.0-1.5)	SAND, brown to light brown, fine grained.	SM	
			(1.5-2.0)	SAND and ASH, gray, silt to fine grained, damp.		
			(2.0-4.0)	SAND, light brown to brown, fine to medium grained.	SM	
SB-14	6/9/2004	4.0	(0.0-1.0)	SAND, dark gray, fine to medium grained with trace silts.	SM	
			(1.0-4.0)	SAND, light brown to tan, fine to medium grained, damp to wet.	SM	
SB-15	6/9/2004	4.2	(0.0-4.2)	SAND, light brown, fine to medium grained, loose, damp to wet.	SM	
SB-16	6/9/2004	4.0	(0.0-3.5)	SAND and ASH, light gray to gray, silt to fine grained, wet.		
			(3.5-4.0)	SAND, brown, fine to medium grained, trace fine gravel, wet.	SM	
SB-17	6/9/2004	4.0	(0.0-4.2)	SAND and ASH, gray, mottled brown, silt to fine grained.		
SB-18	6/9/2004	4.0	(0.0-1.5)	SAND and ASH, gray, silt to fine grained.		
			(1.5-4.0)	SAND, light gray, fine to medium grained, trace coarse grains.	SM	

Table 3-1
Test Pit and Soil Boring Descriptions for the Former Ash Disposal Area
Progress Energy L.V. Sutton Electric Steam Plant
Wilmington, North Carolina

Location ID.	Date	Maximum Depth (ft bgs)	Depth Interval (ft bgs)	Lithologic Description	USCS Classification ¹	ASH Layer	Comments
Test Pit ID.							
SB-19	1/25/2005	4.0	(0.0-0.2)	Topsoil, brown organic leaf litter.	Pt		
			(0.2-2.0)	ASH, light to dark gray, trace fine grained sand.			
			(2.0-2.5)	SAND and ASH, dark gray to black, fine to medium grained, wet.			
			(2.5-3.0)	SAND, dark brown, fine to medium grained, wet.	SM		
			(3.0-4.0)	SAND, brown, fine to medium grained, wet.	SM		
SB-20	1/25/2005	7.0	(0.0-0.2)	Topsoil, brown organic leaf litter.	Pt		
			(0.2-1.0)	SAND, gray, medium grained, trace ash.	SM		
			(1.0-2.0)	SAND and ASH, dark gray to black, fine to medium grained, moist.			
			(2.0-3.0)	ASH, light to dark gray, trace fine grained sand.			
			(3.0-4.0)	ASH, light to dark gray, trace fine grained sand, wet.			
			(4.0-4.5)	SAND and ASH, gray, fine grained, wet.			
			(4.5-5.0)	SAND and ASH, gray, medium to coarse grained, wet.			
			(5.0-5.5)	SAND and ASH, gray, fine grained, wet.			
			(5.5-6.0)	ASH, light gray, trace fine grained sand, wet.			
			(6.0-6.5)	SAND and ASH, gray, medium grained, wet.			
(6.5-7.0)	SAND, brown, medium grained, wet.	SM					
Surface Soil ID.							
SF-1	6/9/2004	1.2	(0.0-1.2)	SAND, dark brown to black, fine to medium grained, damp to wet.	SM		Surface soil sample collected at 0.8'-1.2', Petroleum staining observed.
SF-2	1/25/2005	1.0	(0.5-1.0)	SAND, brown to orange-brown, fine to medium grained.	SM		Background surface soil sample collected at 0.5'-1.0'.
SF-3	1/25/2005	1.0	(0.5-1.0)	SAND, gray to light gray, fine to medium grained, loose.	SM		Background surface soil sample collected at 0.5'-1.0'.
SF-4	1/25/2005	1.0	(0.5-1.0)	SAND, gray, fine to medium grained, loose.	SM		Background surface soil sample collected at 0.5'-1.0'.
SF-5	1/25/2005	1.0	(0.5-1.0)	SAND, brown to light brown, fine to medium grained.	SM		Background surface soil sample collected at 0.5'-1.0'.
SF-6	1/25/2005	1.0	(0.5-1.0)	SAND, brown to orange-brown, fine to medium grained.	SM		Background surface soil sample collected at 0.5'-1.0'.
SF-7	1/26/2005	1.0	(0.5-1.0)	SAND, brown, fine to medium grained, wet.	SM		Surface soil sample collected at 0.5'-1.0'.
SF-8	1/26/2005	1.0	(0.5-1.0)	SAND, brown, fine to medium grained, wet.	SM		Surface soil sample collected at 0.5'-1.0'.
SF-9	1/26/2005	1.0	(0.5-1.0)	SAND, brown, fine to medium grained, wet.	SM		Surface soil sample collected at 0.5'-1.0'.
SF-10	1/26/2005	1.0	(0.5-1.0)	SAND, brown, fine to medium grained, wet.	SM		Surface soil sample collected at 0.5'-1.0'.

Notes:



 - Indicates ash was observed during test pitting or hand augering.
 - Indicates a sand and ash mix was observed during test pitting or hand augering.
TP: "Test Pits" performed with a backhoe.
SB: "Soil borings" advanced with a 2-inch stainless steel hand auger.
SF: Surface soil sample.
USCS: Unified Soil Classification System.
1. Based on field observation.

Table 3-2
Summary of Analytes Detected in Soil
Phase II Remedial Investigation - Former Ash Disposal Area
Progress Energy - L.V. Sutton Steam Electric Plant
Wilmington, North Carolina

Sample ID: Sample Depth(ft bgs): Date Collected:	MSCC Residential Criteria	MSCC Soil-to Groundwater Criteria	Units	SB-22 (4.0-4.5) 4.0 - 4.5 01/26/05	SB-24 (4.0-4.5) 4.0 - 4.5 01/26/05	SB-26 (4.5-5.0) 4.5 - 5.0 01/26/05	SB-28 (4.0-4.5) 4.0 - 4.5 01/26/05	SB-29 (3.5-4.0) 3.5 - 4.0 01/27/05	SB-30 (2.5-3.0) 2.5 - 3.0 01/27/05	SB-31 (2.5-3.0) 2.5 - 3.0 01/27/05	SB-32 (3.5-4.0) 3.5 - 4.0 01/27/05	SF-7 (0.5-1.0) 0.5 - 1.0 01/26/05	SF-8 (0.5-1.0) 0.5 - 1.0 01/26/05	SF-9 (0.5-1.0) 0.5 - 1.0 01/26/05	SF-10 (0.5-1.0) 0.5 - 1.0 01/26/05
MADEP - EPH/VPH*															
C9-C18 Aliphatic Hydrocarbons (EPH)	9,386	3255	mg/kg	4 U	1.8 U	2.1 U	22	2.1 U [2.3 U]	1.8 U	2.1 U	2.2 U	51 J	4.4 U	9 J [13]	18 J
C11-C22 Aromatic Hydrocarbons (EPH)	469	34	mg/kg	9.2	5.9 J	5.9 J	26	7.1 J [3.3 J]	3.5 J	1.9 J	2.8 J	120 J	24 J	33 J [44 J]	20 J
C19-C36 Aliphatic Hydrocarbons (EPH)	93,860	considered immobile	mg/kg	28	59	12	99	20 [17]	6.4	3.5 U	4.6 U	280 J	49	82 J [98]	120 J
C5-C8 Aliphatic Hydrocarbons (VPH)	939	72	mg/kg	10	9.6	9.2	9.1	8.7 [9.2]	9.6	8.2	9.9	9.9	4.5	8.5 [10]	8.9
C9-C10 Aromatic Hydrocarbons (VPH)	469	34	mg/kg	1.6 U	1.6 U	2.8	2.3 J	16 [0.98 U]	1.1 U	0.87 U	1.4 U	6.9	1.5 U	2.2 J [5.6]	4.3
C9-C12 Aliphatic Hydrocarbons (VPH)	9,386	3255	mg/kg	5.2	5	4.8	4.7	4.5 [4.8]	5	4.3	5.1	5.1	2.4	4.4 [1.8 J]	4.6

Notes:

* VPH samples were collected as an unmixed grab sample.

MADEP-EPH: Massachusetts Department of Environmental Protection Extractable Petroleum Hydrocarbon Method.

MADEP-VPH: Massachusetts Department of Environmental Protection Volatile Petroleum Hydrocarbon Method.

MSCC: Maximum Soil Contaminant Concentration, NCDENR 2001.

Bolded and shaded values indicate that the constituent exceeded the MSCC Soil-to-Groundwater Criteria.

mg/kg: milligrams per kilogram.

ft bgs: feet below ground surface.

SB: Soil Boring Sample.

SF: Surface Soil Sample.

NA: Not analyzed.

[]: Bracketed values are duplicate sample results.

Laboratory Qualifiers:

U: This flag indicates the analyte was analyzed for but not detected.

J: This flag indicates an estimated value.

Table 3-3
Summary of Analytes Detected in Background Soil
Phase II Remedial Investigation - Former Ash Disposal Area
Progress Energy - L.V. Sutton Steam Electric Plant
Wilmington, North Carolina

Sample ID:		RGs	SF-2 (0.5-1.0)	SF-3 (0.5-1.0)	SF-4 (0.5-1.0)	SF-5 (0.5-1.0)	SF-6 (0.5-1.0)
Sample Depth (ft bgs):			0.5 - 1.0	0.5 - 1.0	0.5 - 1.0	0.5 - 1.0	0.5 - 1.0
Date Collected:	Units		01/25/05	01/25/05	01/25/05	01/25/05	01/25/05
HSL Metals by USEPA Method 6010 / 7470A (Hg only)							
Antimony	mg/kg	6.2	0.2 U	0.21 U [0.2 U]	0.21 U	0.2 U	0.22 U
Arsenic	mg/kg	4.4	0.26 B	0.21 U [0.2 U]	0.21 U	0.38 B	0.43 B
Beryllium	mg/kg	30	0.02 B	0.01 U [0.01 U]	0.01 B	0.01 U	0.02 B
Cadmium	mg/kg	7.4	0.03 U	0.03 U [0.03 U]	0.03 U	0.03 U	0.03 U
Chromium	mg/kg	24000	1.8	0.06 U [0.06 U]	0.07 B	0.78 B	0.93 B
Copper	mg/kg	580	0.44 B	0.25 B [0.14 B]	0.19 B	0.27 B	0.31 B
Lead	mg/kg	400	2.4	0.42 [0.42]	0.84	2.3	1.7
Manganese	mg/kg	360	2.2	0.39 B [0.37B]	0.66 B	1.3	1.5
Mercury	mg/kg	4.6	0.016 U	0.015 U [0.015 U]	0.017 U	0.016 U	0.018 U
Nickel	mg/kg	320	0.36 B	0.08 U [0.08 U]	0.24 B	0.08 U	0.17 B
Selenium	mg/kg	78	0.26 U	0.27 U [0.26 U]	0.27 U	0.26 U	0.29 U
Silver	mg/kg	78	0.08 U	0.08 U [0.08 U]	0.08 U	0.08 U	0.09 U
Thallium	mg/kg	1.04	0.29 U	0.3 U [0.29U]	0.3 U	0.29 U	0.32 U
Zinc	mg/kg	4600	2.5	0.85 U [1.1 U]	0.87 U	1.5 B	1.4 B

Notes:

mg/kg: milligrams per kilogram.

RGs: Soil Remediation Goals, Inactive Hazardous Sites Branch, updated August 2003.

HSL: Hazardous Substance List.

[]: Bracketed values are duplicate sample results.

SF: Surface soil sample.

ft bgs: feet below ground surface.

Laboratory Qualifiers:

U: This flag indicates the analyte was analyzed for but not detected.

B: The analyte was less than the contract required detection limit, but greater than or equal to the instrument detection limit.

Table 3-4
Site Survey Data
Phase II Remedial Investigation - Former Ash Disposal Area
Progress Energy - L.V. Sutton Steam Electric Plant
Wilmington, North Carolina

Well Designation	Northing	Easting	Ground ¹ Elevation (ft msl)	Top of Casing Elevation (ft msl)
Permanent Monitoring Wells				
MW-13	197948.14	2305008.16	15.09	18.21
MW-13D	197965.38	2305017.45	15.53	18.16
MW-14	197252.17	2306178.43	10.96	14.15
MW-15	196475.65	2306044.01	8.53	11.47
MW-15D	196476.98	2306061.06	8.61	11.21
MW-16	196975.93	2306753.16	14.11	16.91
MW-16D	196962.70	2306758.11	14.00	16.43
MW-20	196257.98	2305318.10	10.78	13.70
MW-20D	196256.89	2305326.09	10.73	13.66
Permanent Piezometer				
PZ-10	196897.50	2306271.49	10.15	12.82
Temporary Piezometers				
PZ-11	197824.56	2305109.88	15.76	18.31
PZ-12	197004.43	2305068.36	11.17	15.90
PZ-13	197188.14	2305495.92	11.21	16.72
PZ-14	196911.31	2305327.01	10.58	15.80
PZ-15	196508.86	2305223.83	10.05	15.30
PZ-16	196384.40	2305681.97	8.01	9.97
Surface Water and Sediment Sample Locations				
SW-1/SD-1	196378.52	2302994.45	-1.00	NA
SW-2/SD-2	193800.36	2304984.17	-1.00	NA

Notes:

Surveyed elevations based on TWT survey conducted in June 2004 and February 2005.

ft msl = feet above mean sea level.

NA = Not applicable.

1. SW-1/SW-2 elevation is feet below mean sea level.

Table 3-5
Historical Groundwater Elevation Data
Phase II Remedial Investigation - Former Ash Disposal Area
Progress Energy - L.V. Sutton Steam Electric Plant
Wilmington, North Carolina

Well Designation	Date	Top of Casing Elevation (ft amsl)	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
Permanent Monitoring Wells				
MW-13	6/04	18.21	8.96	9.25
	2/04	18.21	7.89	10.32
MW-13D	2/04	18.16	7.81	10.35
MW-14	6/04	14.15	5.16	8.99
	2/04	14.15	4.23	9.92
MW-15	6/04	11.47	2.94	8.53
	2/04	11.47	3.35	8.12
MW-15D	2/04	11.21	3.13	8.08
MW-16	6/04	16.91	7.60	9.31
	2/04	16.91	6.75	10.16
MW-16D	2/04	16.43	6.38	10.05
MW-20	2/04	13.70	7.92	5.78
MW-20D	2/04	13.66	7.90	5.76
Permanent Piezometer				
PZ-10	6/04	12.82	4.31	8.51
	2/04	12.82	3.43	9.39

Notes:

ft amsl = feet above mean sea level.

ft msl = feet mean sea level.

ft btoc = feet below top of casing.

D denotes deep groundwater monitoring well.

Table 3-6
Stabilized Field Parameter Measurements - February 2005
Phase II Remedial Investigation - Former Ash Disposal Area
Progress Energy - L.V. Sutton Steam Electric Plant
Wilmington, North Carolina

Sample Designation	pH (Std. Units)	Specific Conductivity (μS/cm)	Temperature (°F)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTUs)
MW-13	9.18	585	61.0	0.40	94	5.0
MW-13D	8.30	898	66.0	0.32	158	7.0
MW-14	9.65	360	52.0	0.40	110	9.0
MW-15	9.13	296	57.0	0.31	143	9.0
MW-15D	8.66	498	65.0	0.29	175	1.0
MW-16	8.45	180	60.0	0.51	107	9.0
MW-16D	6.68	528	68.0	0.31	252	0.0
MW-20	7.85	326	63.1	0.28	45	4.0
MW-20D	7.80	561	62.7	0.55	127	5.0

Notes:

Field parameter measurement collected utilizing an Horiba U-22 water quality meter.

ORP = Oxidation-reduction potential.

uS = Microsiemens.

°F = Degrees Fahrenheit.

mg/L = Milligrams per liter.

mV = Millivolts.

NTU = Nephelometric turbidity units.

Table 3-7
Summary of Analytes Detected in Groundwater
Phase II Remedial Investigation - Former Ash Disposal Area
Progress Energy- L.V. Sutton Steam Electric Plant
Wilmington, North Carolina

Sample ID: Date Collected:	RGs	Units	MW-13 02/02/05	MW-13D 02/02/05	MW-14 02/02/05	MW-15 02/02/05	MW-15D 02/02/05	MW-16 02/02/05	MW-16D 02/02/05	MW-20 02/04/05	MW-20D 02/04/05
HSL Metals by USEPA Method 6010B											
Arsenic	10	ug/L	99.1 [103]	3.6 U	9.6 B	44	3.6 U	3.6 U	4.3 B	3.6 U [3.6 U]	3.6 U
Chromium	50	ug/L	0.9 UJ [0.9 UJ]	0.9 UJ	0.9 UJ	0.9 UJ	0.9 UJ	0.9 UJ	0.9 UJ	0.9 UJ [0.9 UJ]	0.9 UJ
Copper	1000	ug/L	0.55 B [0.5 U]	0.5 U	0.59 B	0.5 U	0.5 U	0.65 B	0.5 U	0.59 B [0.91 B]	1.1 B
Thallium	NL	ug/L	10 UJ [6.2 UJ]	10 UJ	6.2 UJ	10 UJ	6.2 UJ	6.9 UJ	8 UJ	6.2 UJ [6.2 UJ]	6.2 UJ
Zinc	2100	ug/L	20 U [20 U]	20 U	20 U	20 U	20 U	23 U	35.3 U	24.3 U [26.2 U]	21.9 U
Geochemical Parameters											
Calcium	NL	mg/L	125 [129]	84.4	34.1	63.4	35.9	5.39	33.7	79.9 [84.2]	65.3
Chloride	NL	mg/L	3.11 [3.14]	154	46.2	2.84	54.7	21.4	76.4	2.35 [2.08]	68.7
Sulfate	NL	mg/L	8.82 [8.0]	141	9.87	16.8	74.5	25.2	128	44.7 [43.5]	96.8
Total Organic Carbon	NL	mg/L	5 U [2.91 J]	9.28	14	13.7	3.99 J	6.63	3.41 J	5.27 [5.51]	9.08

Notes:

ug/L: micrograms per liter.

mg/L: milligrams per liter.

RGs: Remediation Goals based on NCAC 2L Groundwater Standards.

HSL: Hazardous Substance List.

[]: Bracketed values are duplicate sample results.

NL: No established RG.

Shaded and bolded values indicate that the constituent exceeded the groundwater RGs.

Organic Laboratory Qualifiers:

U: This flag indicates the analyte was analyzed for but not detected.

J: This flag indicates an estimated value.

Inorganic Laboratory Qualifiers:

UJ: This flag indicates the analyte was not detected and the detection limit is an estimated value.

U: This flag indicates the analyte was analyzed for but not detected.

B: The analyte was less than the contract required detection limit, but greater than or equal to the instrument detection limit.

J: This flag indicates an estimated value.

Table 3-8
Summary of Historical Analytes Detected in Groundwater
Phase II Remedial Investigation - Former Ash Disposal Area
Progress Energy- L.V. Sutton Steam Electric Plant
Wilmington, North Carolina

Sample ID: Date Collected:	RGs	MW-13 06/21/04	MW-13 02/02/05	MW-13D 02/02/05	MW-14 06/21/04	MW-14 02/02/05	MW-15 06/21/04	MW-15 02/02/05	MW-15D 02/02/05	MW-16 06/21/04	MW-16D 02/02/05	MW-20 02/02/05	MW-20D 02/02/05
Volatile Organic Compounds by USEPA Method 8260													
2-Hexanone	--	2.5 U	NS	NS	0.5 J	NS	2.5 U [0.53 J]	NS	NS	2.5 U	NS	NS	NS
Acetone	700	3.3	NS	NS	6.6	NS	5.5 [6.2]	NS	NS	2.5 U	NS	NS	NS
Methylene Chloride	5	0.26 J	NS	NS	0.25 J	NS	0.24 J [0.13 J]	NS	NS	0.19 J	NS	NS	NS
Toluene	1000	0.39 J	NS	NS	0.38 J	NS	0.56 [0.56]	NS	NS	0.26 J	NS	NS	NS
Semi-Volatile Organic Compounds by USEPA Method 8270													
None Detected	--	--	NS	NS	--	NS	--	NS	NS	--	NS	NS	NS
HSL Metals by USEPA Method 6010													
Antimony	--	1.9 U*	NS	NS	1.9 U*	NS	1.9 U* [2.1 B*]	NS	NS	2.8 B*	NS	NS	NS
Arsenic	10	70.6 *	99.1 [103]	3.6 U	10.9 *	9.6 B	41.3 * [44.1*]	44	3.6 U	3.5 B*	4.3 B	3.6 U [3.6 U]	3.6 U
Chromium	50	0.8 U*	0.9 UJ [0.9 UJ]	0.9 UJ	1.1 B*	0.9 UJ	0.8 U* [2.4 B*]	0.9 UJ	0.9 UJ	0.8 U*	0.9 UJ	0.9 UJ [0.9 UJ]	0.9 UJ
Copper	1000	1.3 U*	0.55 B [0.5 U]	0.5 U	1.3 U*	0.59 B	1.4 B* [1.3 U*]	0.5 U	0.5 U	1.4 B*	0.5 U	0.59 B [0.91 B]	1.1 B
Nickel	100	0.7 U*	NS	NS	0.72 B*	NS	0.7 U* [0.70 U]	NS	NS	0.93 B*	NS	NS	NS
Thallium	--	3.2 UN*	10 UJ [6.2 UJ]	10 UJ	3.2 UN*	6.2 UJ	3.2 UN* [3.2 U]	10 UJ	6.2 UJ	4.7 BN*	8 UJ	6.2 UJ [6.2 UJ]	6.2 UJ
Zinc	2100	10.2 B*	20 U [20 U]	20 U	11.2 B*	20 U	11.7 B* [11.7 B*]	20 U	20 U	11.6 B*	35.3 U	24.3 U [26.2 U]	21.9 U

Notes:

All concentrations in micrograms per liter (ug/L).

RGs: Remediation Goals based on NCAC 2L Groundwater Standards.

HSL: Hazardous Substance List.

Bold values Indicates that the constituent was detected.

Shaded values indicates that the constituent exceeded the RGs.

Organic Laboratory Qualifiers:

U: This flag indicates the analyte was analyzed for but not detected.

J: This flag Indicates an estimated value.

Inorganic Laboratory Qualifiers:

UJ: This flag indicates that the analyte was not detected and the detection limit is an estimated value.

U: This flag indicates the analyte was analyzed for but not detected.

B: The analyte was less than the contract required detection limit, but greater than or equal to the instrument detection limit.

N: This flag Indicates the sample spike recovery is outside of control limits.

*: This flag is used for duplicate analysis when the sample and the sample duplicate results are not within the control limits.

Table 3-9
Microbiological Community Data - February 2005
Phase II Remedial Investigation - Former Ash Disposal Area
Progress Energy - L.V. Sutton Steam Electric Plant
Wilmington, North Carolina

Sample Designation	Sample Date	Present or Absent	Dominant Bacteria
Heterotrophic Aerobic Bacteria (HAB) Results¹			
MW-13D	2/2/05	Present	Aerobic
MW-15D	2/2/05	Present	Aerobic
MW-16D	2/2/05	Present	Aerobic
MW-20	2/4/05	Present	Aerobic
MW-20D	2/4/05	Present	Aerobic
Iron Related Bacteria (IRB) Results¹			
MW-13D	2/2/05	Present	Pseudomonads & Enterics
MW-15D	2/2/05	Present	Pseudomonads & Enterics
MW-16D	2/2/05	Present	IRB
MW-20	2/4/05	Present	Pseudomonads & Enterics
MW-20D	2/4/05	Present	IRB

Notes:

Aerobic: Characterized by the presence of free oxygen.

IRB: Iron Related Bacteria.

1. All samples collected per manufacturer specifications.

Table 3-10
Summary of Quality Assurance and Quality Control Analytical Results
Phase II Remedial Investigation - Former Ash Disposal Area
Progress Energy - L.V. Sutton Steam Electric Plant
Wilmington, North Carolina

Sample ID: Date Collected:	Units	EB-012505 01/25/05	EB-012605 01/26/05	EB-020205 02/02/05	TB-012705 01/27/05
HSL Metals by USEPA Method 6010					
Antimony	ug/L	13	NA	NA	NA
Copper	ug/L	1.4 B	NA	0.5 U	NA
Lead	ug/L	1.6 B	NA	NA	NA
Manganese	ug/L	0.24 B	NA	NA	NA
Zinc	ug/L	20.6	NA	13 B	NA
MADEP-VPH/EPH					
C11-C22 Aromatic Hydrocarbons (EPH)	ug/L	NA	49 J	NA	NA
C19-C36 Aliphatic Hydrocarbons (EPH)	ug/L	NA	68 B	NA	NA
C9-C18 Aliphatic Hydrocarbons (EPH)	ug/L	NA	21 JB	NA	NA
C9-C10 Aromatic Hydrocarbons (VPH)	ug/L	NA	5.8 JB	NA	4.9 JB

Notes:

MADEP-EPH: Massachusetts Department of Environmental Protection Extractable Petroleum Hydrocarbon Method.

MADEP-VPH: Massachusetts Department of Environmental Protection Volatile Petroleum Hydrocarbon Method.

HSL: Hazardous Substance List.

NA: Not analyzed for constituent.

EB: Equipment Rinsate Blank.

TB: VOC Trip Blank.

Organic Laboratory Qualifiers:

J: This flag indicates an estimated value.

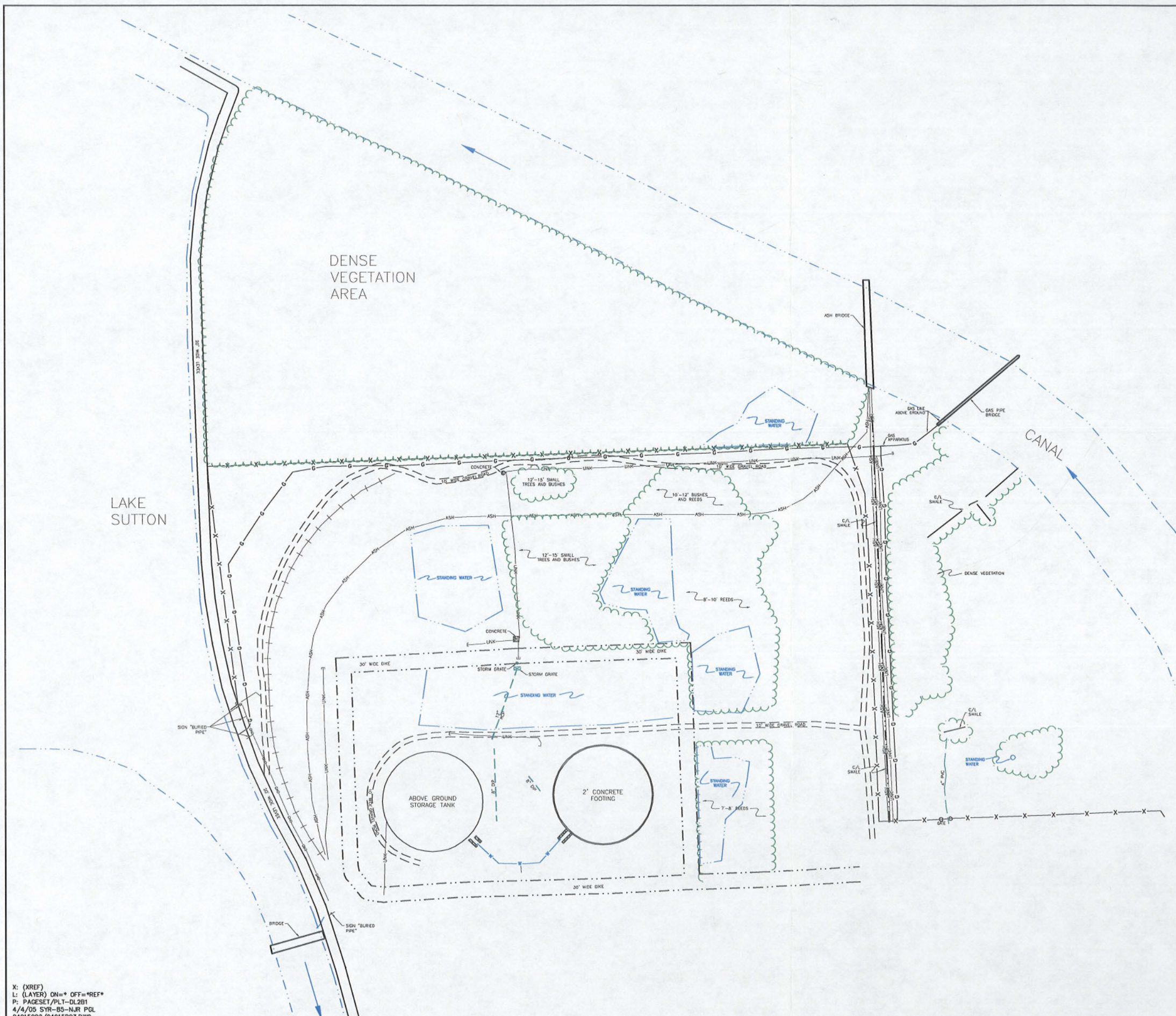
B: The analyte was found in the associated method blank.

Inorganic Laboratory Qualifiers:

U: This flag indicates the analyte was analyzed for but not detected.

B: The analyte was less than the contract required detection limit, but greater than or equal to the instrument detection limit.

Figures

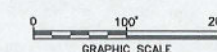


LINE LEGEND

— X — X — X — X —	FENCE LINE
— G — G —	GAS LINE
— ASH — ASH — ASH —	ASH LINE
— GND — GND — GND —	GROUND WIRE LINE
— W — W —	UNDERGROUND ELECTRIC
— W — W —	WATER LINE
— — — — —	DIKE LINE
— — — — —	STANDING WATER
— — — — —	STORM PIPE
— + + + + +	RAILROAD TRACK (C/L)
— — — — —	TREE/VEGETATION LINE
— — — — —	UNKNOWN LINE
— — — — —	GRAVEL ROAD

NOTE:

1. SOURCE: SURVEY PROVIDED BY 'TAYLOR, WISEMAN & TAYLOR', 3500 Regency Parkway, Suite H, Cary N.C., 919-297-0085, (PROJECT NO. 70488.0005) DATED JUNE 23, 2004. REVISIONS MADE ON JULY 7, 2004 AND FEB. 23, 2005.



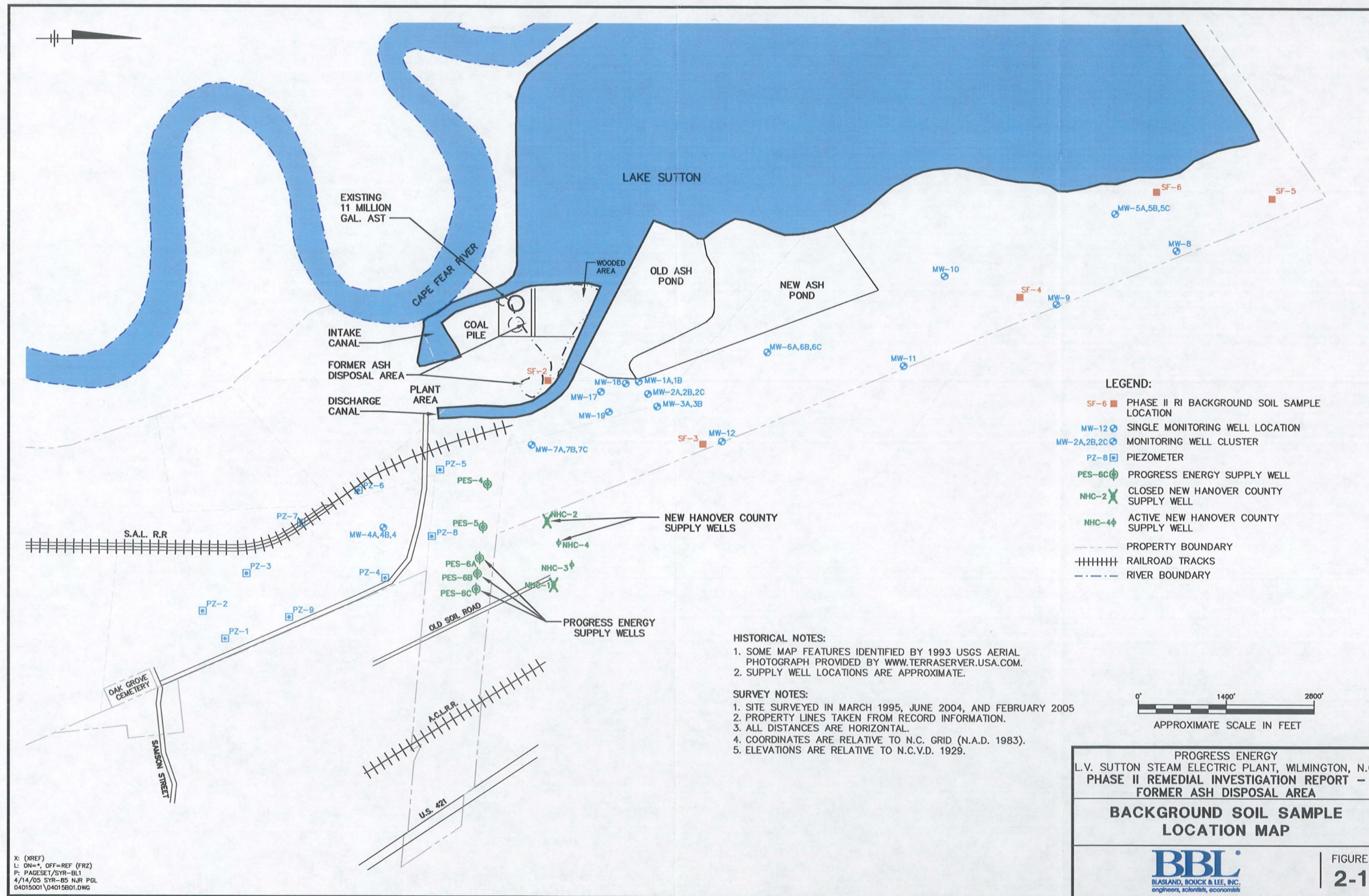
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L.V. SUTTON STEAM ELECTRIC PLANT, WILMINGTON, N.C.
PHASE II REMEDIAL INVESTIGATION REPORT

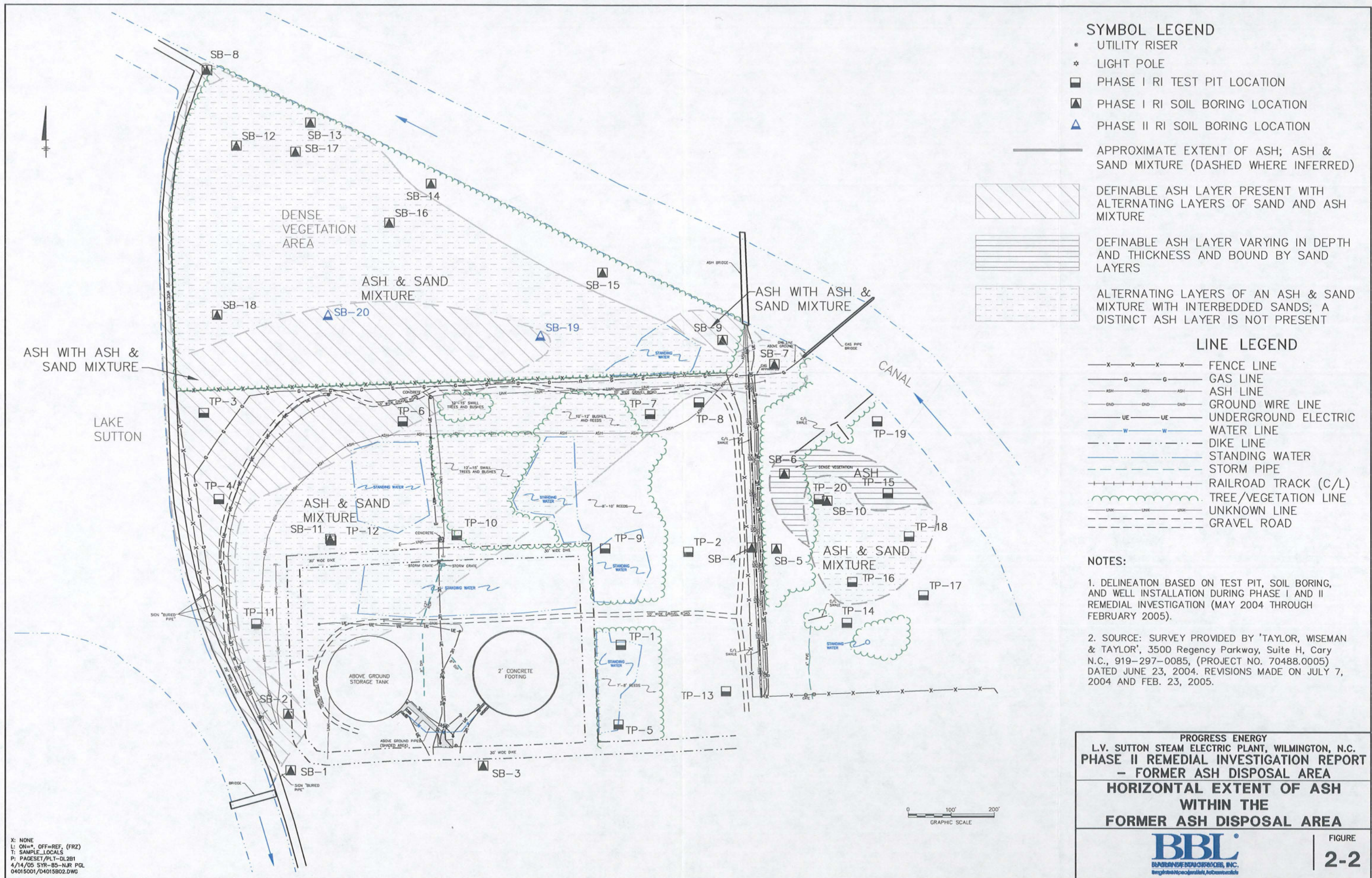
SITE PLAN

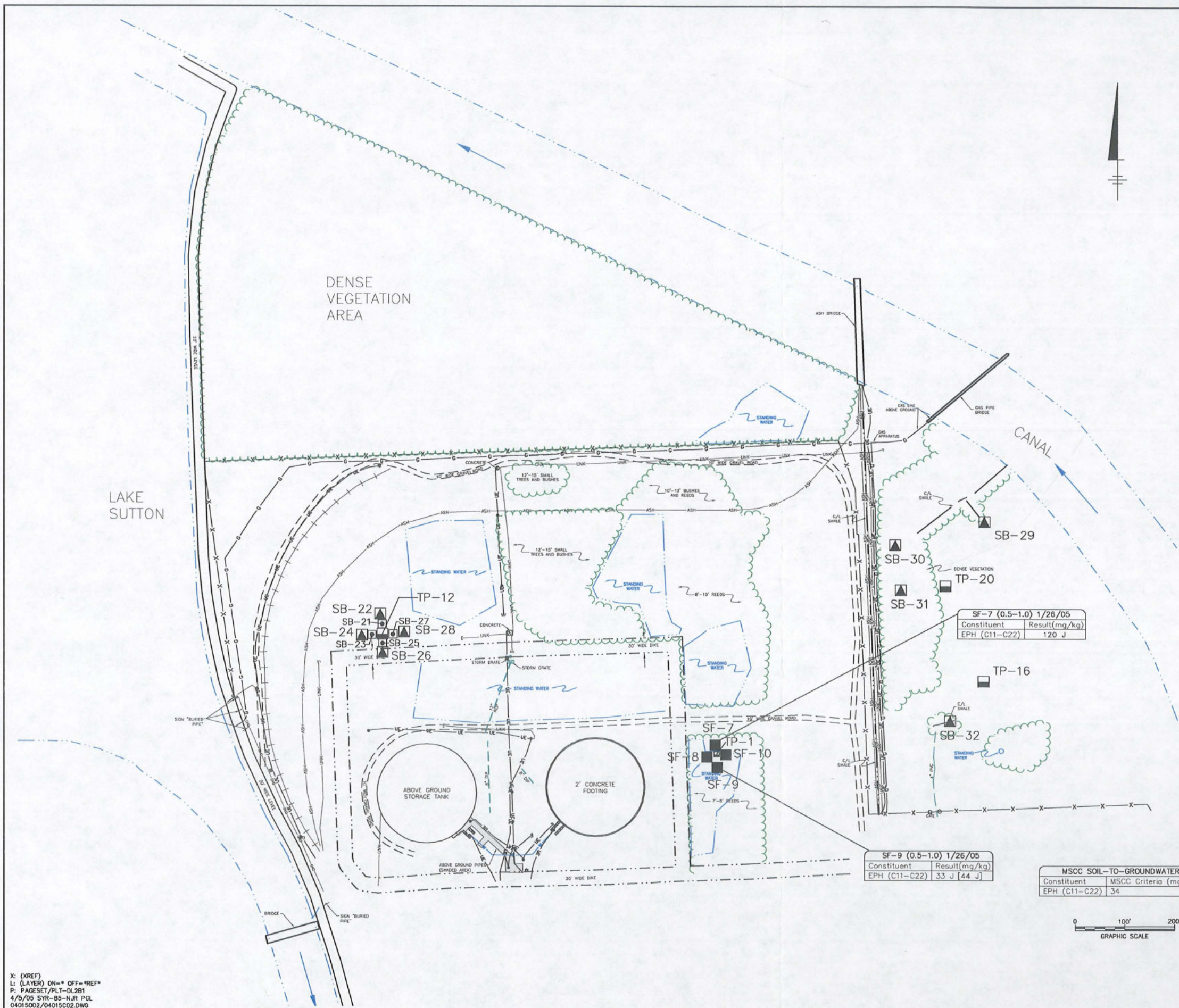
BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
1-2

X: (XREF)
L: (LAYER) ON= OFF=REF*
P: PAGESET/PLT-DL281
4/4/05 SYR-B5-NJR PGL
04015002/04015803.DWG







SYMBOL LEGEND

- PHASE I RI TEST PIT LOCATION WHERE PETROLEUM HYDROCARBONS WERE OBSERVED
- PHASE II RI SOIL BORING LOCATION
- ▲ PHASE II RI BORING LOCATION WITH SOIL SAMPLE
- PHASE II RI SURFACE SOIL SAMPLE LOCATION
- * UTILITY RISER
- ☆ LIGHT POLE

LINE LEGEND

- X—X—X—X— FENCE LINE
- G—G—G—G— GAS LINE
- ASH—ASH—ASH—ASH— ASH LINE
- GND—GND—GND—GND— GROUND WIRE LINE
- UE—UE—UE—UE— UNDERGROUND ELECTRIC
- W—W—W—W— WATER LINE
- DIKE—DIKE—DIKE—DIKE— DIKE LINE
- STANDING WATER—STANDING WATER— STANDING WATER
- STORM PIPE—STORM PIPE—STORM PIPE— STORM PIPE
- RAILROAD TRACK (C/L)—RAILROAD TRACK (C/L)— RAILROAD TRACK (C/L)
- TREE/VEGETATION LINE—TREE/VEGETATION LINE— TREE/VEGETATION LINE
- UNKNOWN LINE—UNKNOWN LINE— UNKNOWN LINE
- GRAVEL ROAD—GRAVEL ROAD—GRAVEL ROAD

NOTES:

1. SOURCE: SURVEY PROVIDED BY 'TAYLOR, WISEMAN & TAYLOR', 3500 Regency Parkway, Suite H, Cary N.C., 919-297-0085, (PROJECT NO. 70488.0005) DATED JUNE 23, 2004. REVISIONS MADE ON JULY 7, 2004 AND FEB. 23, 2005.
2. J = ESTIMATED VALUE.
3. OTHER CONSTITUENTS WERE NOT IDENTIFIED IN SOIL AT CONCENTRATIONS GREATER THAN MSCCs.
4. [] = BRACKETED VALUE IS A DUPLICATE RESULT.
5. EPH = EXTRACTABLE PETROLEUM HYDROCARBON BY MADEP METHOD.
6. MADEP = MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION.
7. MSCC = MAXIMUM SOIL CONTAMINANT CONCENTRATION, NCDENR 2001.
8. mg/kg = MILLIGRAM PER KILOGRAM.
9. BOLDED VALUES INDICATE THAT THE CONSTITUENT EXCEEDED THE MSCC SOIL-TO-GROUNDWATER CRITERIA.

PROGRESS ENERGY
L.V. SUTTON STEAM ELECTRIC PLANT, WILMINGTON, N.C.
PHASE II REMEDIAL INVESTIGATION REPORT

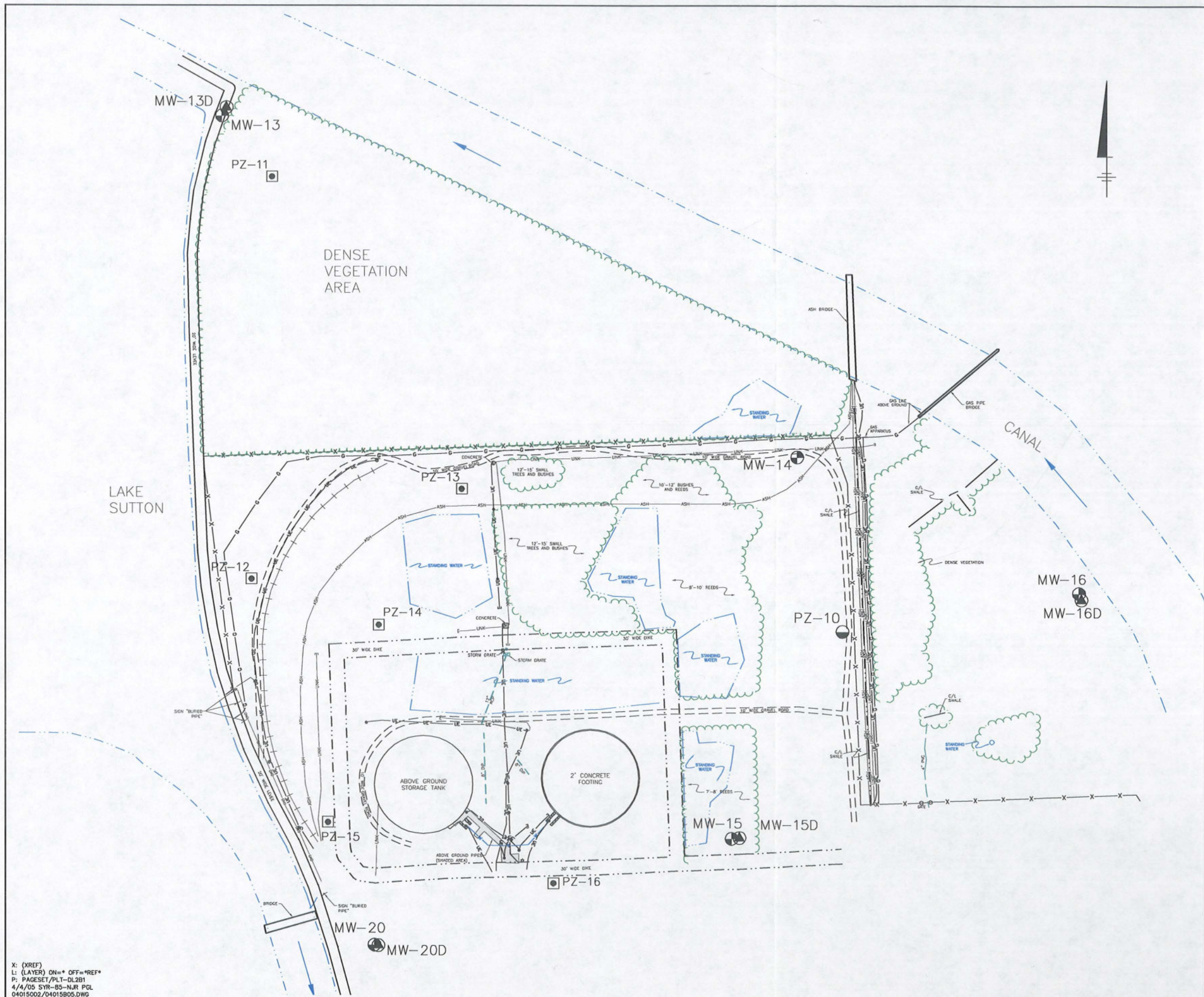
**SOIL BORING LOCATIONS AND
RESULTS - FORMER ASH DISPOSAL
AREA**

BBL
BUREAU OF BOREAL LOGGING, INC.
Burlington, North Carolina

FIGURE

2-3

X: (XREF)
L: (LAYER) ON= OFF=REF
P: PAGESET/PLT-DL2B1
4/5/05 SYR-B5-NJR PGL
04015002/04015002.DWG



SYMBOL LEGEND

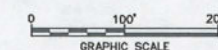
- ⊙ EXISTING DEEP MONITORING WELL
- ⊕ EXISTING SHALLOW MONITORING WELL
- ◻ TEMPORARY PIEZOMETER (1-INCH)
- PERMANENT PIEZOMETER
- * UTILITY RISER
- ☆ LIGHT POLE

LINE LEGEND

- X—X—X—X— FENCE LINE
- G—G—G—G— GAS LINE
- ASH—ASH—ASH—ASH— ASH LINE
- GND—GND—GND—GND— GROUND WIRE LINE
- UE—UE—UE—UE— UNDERGROUND ELECTRIC
- W—W—W—W— WATER LINE
- DIKE LINE
- STANDING WATER
- STORM PIPE
- RAILROAD TRACK (C/L)
- TREE/VEGETATION LINE
- UNKNOWN LINE
- GRAVEL ROAD

NOTE:

1. SOURCE: SURVEY PROVIDED BY 'TAYLOR, WISEMAN & TAYLOR', 3500 Regency Parkway, Suite H, Cary N.C., 919-297-0085, (PROJECT NO. 70488.0005) DATED JUNE 23, 2004. REVISIONS MADE ON JULY 7, 2004 AND FEB. 23, 2005.



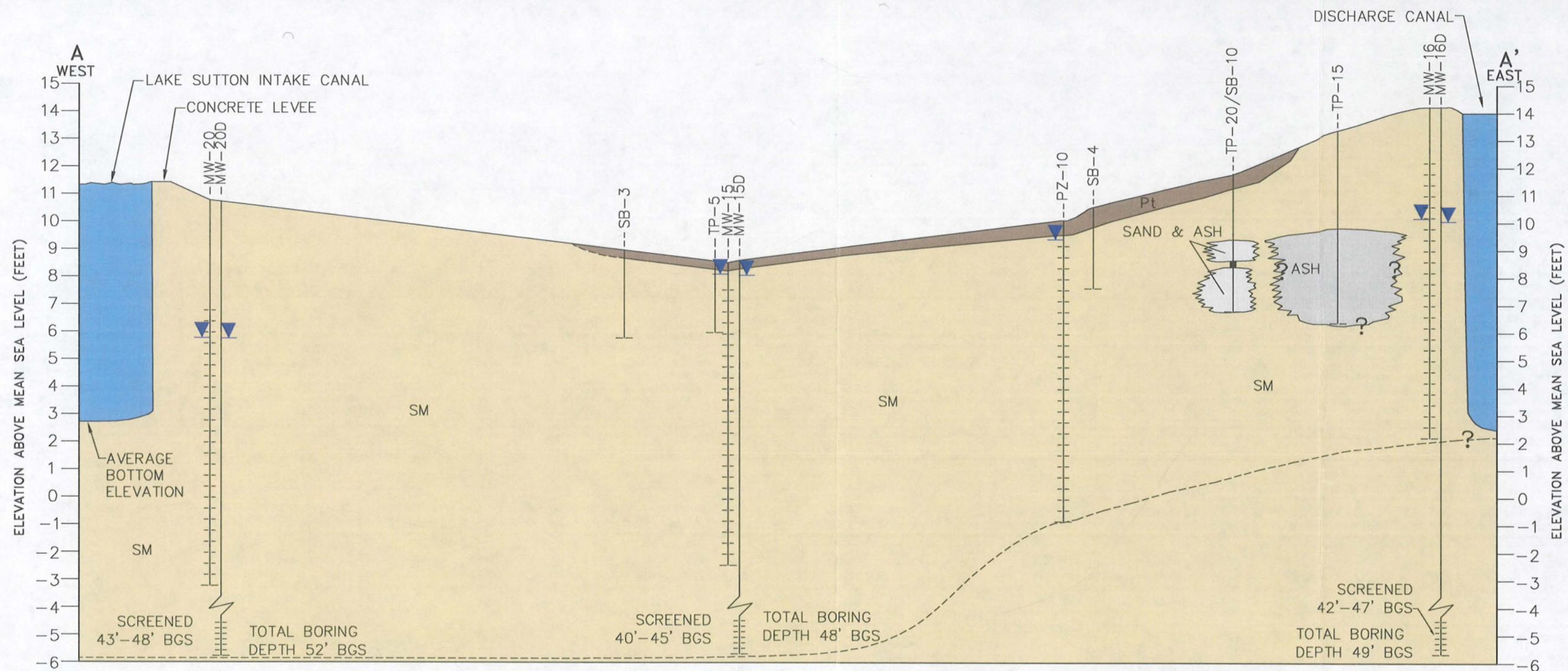
PROGRESS ENERGY
L.V. SUTTON STEAM ELECTRIC PLANT, WILMINGTON, N.C.
PHASE II REMEDIAL INVESTIGATION REPORT

TEMPORARY PIEZOMETER, PERMANENT
PIEZOMETER, AND PERMANENT
MONITORING WELL LOCATION MAP

BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
2-4

X: (XREF)
L: (LAYER) ON=* OFF=*REF*
P: PAGESET/PLT-DL2B1
4/4/05 SYR-85-NJR PGL
04015002/04015B05.DWG

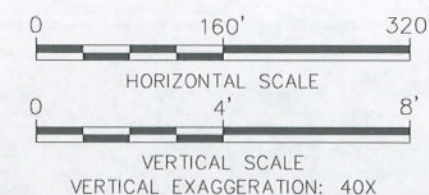
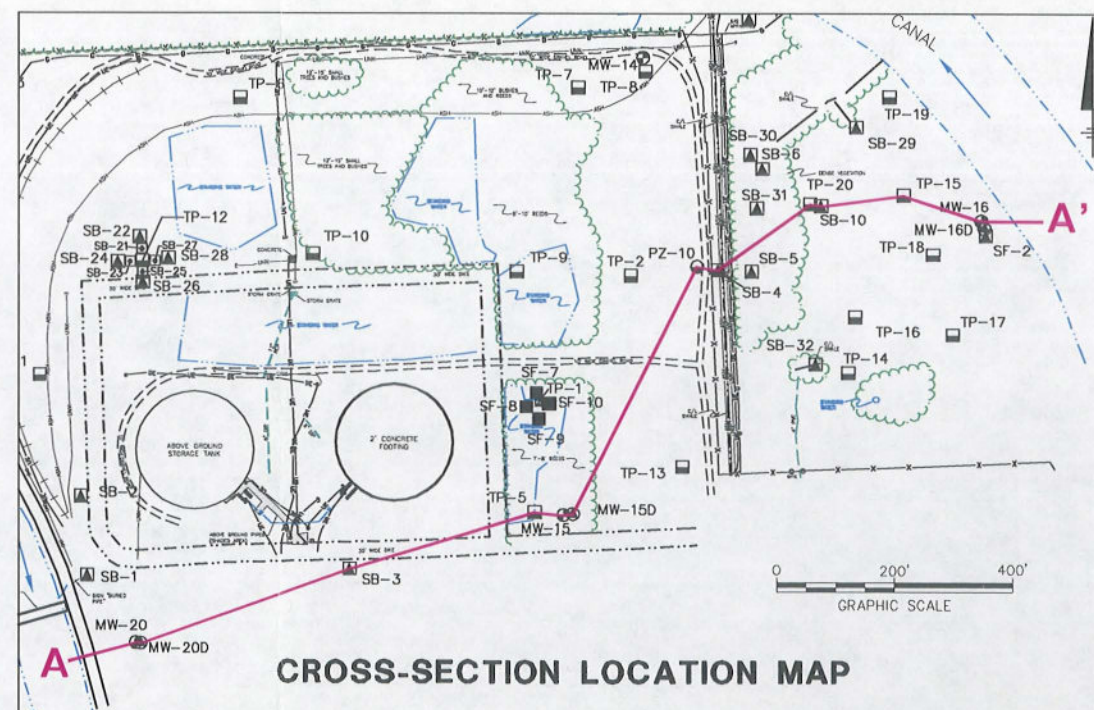


LEGEND:

- (SM) SILTY SANDS, SOME FINE TO COARSE
- SAND AND ASH MIXTURE
- ASH, GRAY, SILT TO CLAY SIZED PARTICLES
- (Pt) SOILS WITH HIGH ORGANIC CONTENT
- PETROLEUM-IMPACTED SOIL OBSERVED DURING PHASE I RI
- STATIC DEPTH-TO-WATER (GROUNDWATER ELEVATIONS BASED ON FEBRUARY 4, 2005 GAUGING EVENT)
- VERTICAL SCALE NOT ADJUSTED FOR DEEP MONITORING WELLS
- SCREENED INTERVAL (BGS)

NOTES:

1. DASHED WHERE INFERRED.
2. SURVEY DATA PROVIDED BY TAYLOR, WISEMAN & TAYLOR (PROJECT NO. 70488.0005) DATED JUNE 23, 2004. REVISIONS MADE ON JULY 7, 2004 AND FEBRUARY 23, 2005.
3. BGS = BELOW GROUND SURFACE

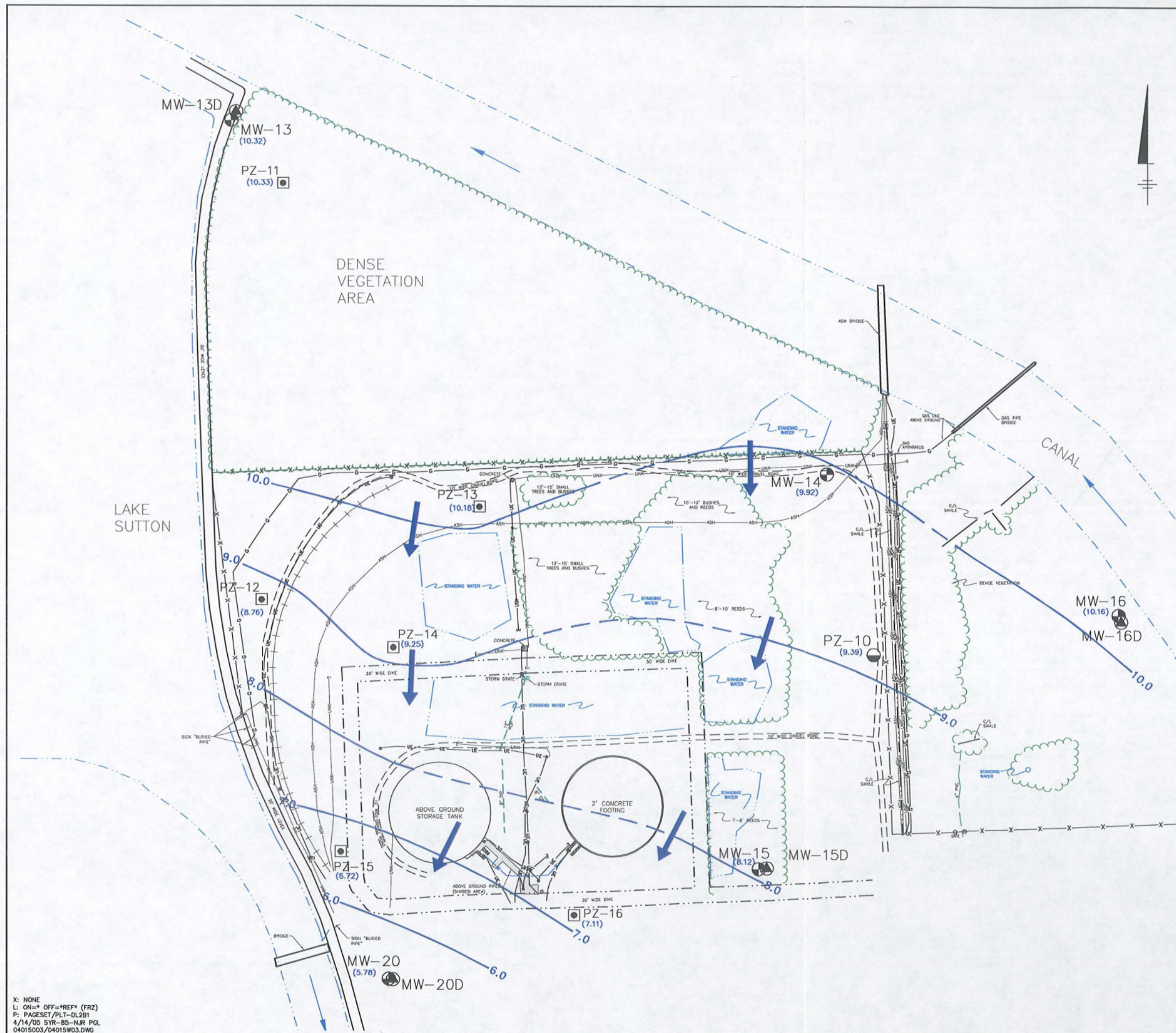


PROGRESS ENERGY
L.V. SUTTON STEAM ELECTRIC PLANT, WILMINGTON, N.C.
PHASE II REMEDIAL INVESTIGATION REPORT

GEOLOGIC CROSS-SECTION A - A'

BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
2-5



SYMBOL LEGEND

- ⊙ EXISTING DEEP MONITORING WELL
- ⊕ EXISTING SHALLOW MONITORING WELL
- ⊠ TEMPORARY PIEZOMETER (1-INCH)
- PERMANENT PIEZOMETER
- UTILITY RISER
- ☆ LIGHT POLE
- (9.39) GROUNDWATER ELEVATION

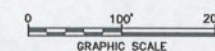
- 9.0 — GROUNDWATER ELEVATION CONTOUR LINE (DASHED WHERE INFERRED). CONTOUR INTERVAL = 1.0 FT.
- ← DIRECTION OF GROUNDWATER FLOW

LINE LEGEND

- X—X—X—X— FENCE LINE
- G—G—G—G— GAS LINE
- ASH—ASH—ASH—ASH— ASH LINE
- CND—CND—CND—CND— GROUND WIRE LINE
- UE—UE—UE—UE— UNDERGROUND ELECTRIC
- W—W—W—W— WATER LINE
- DIKE—DIKE—DIKE—DIKE— DIKE LINE
- STANDING WATER—STANDING WATER— STANDING WATER
- STORM PIPE—STORM PIPE— STORM PIPE
- RAILROAD TRACK (C/L)—RAILROAD TRACK (C/L)— RAILROAD TRACK (C/L)
- TREE/VEGETATION LINE—TREE/VEGETATION LINE— TREE/VEGETATION LINE
- UNKNOWN LINE—UNKNOWN LINE— UNKNOWN LINE
- GRAVEL ROAD—GRAVEL ROAD— GRAVEL ROAD

NOTE:

1. SOURCE: SURVEY PROVIDED BY 'TAYLOR, WISEMAN & TAYLOR', 3500 Regency Parkway, Suite H, Cary N.C., 919-297-0085, (PROJECT NO. 70488.0005) DATED JUNE 23, 2004. REVISIONS MADE ON JULY 7, 2004 AND FEB. 23, 2005.



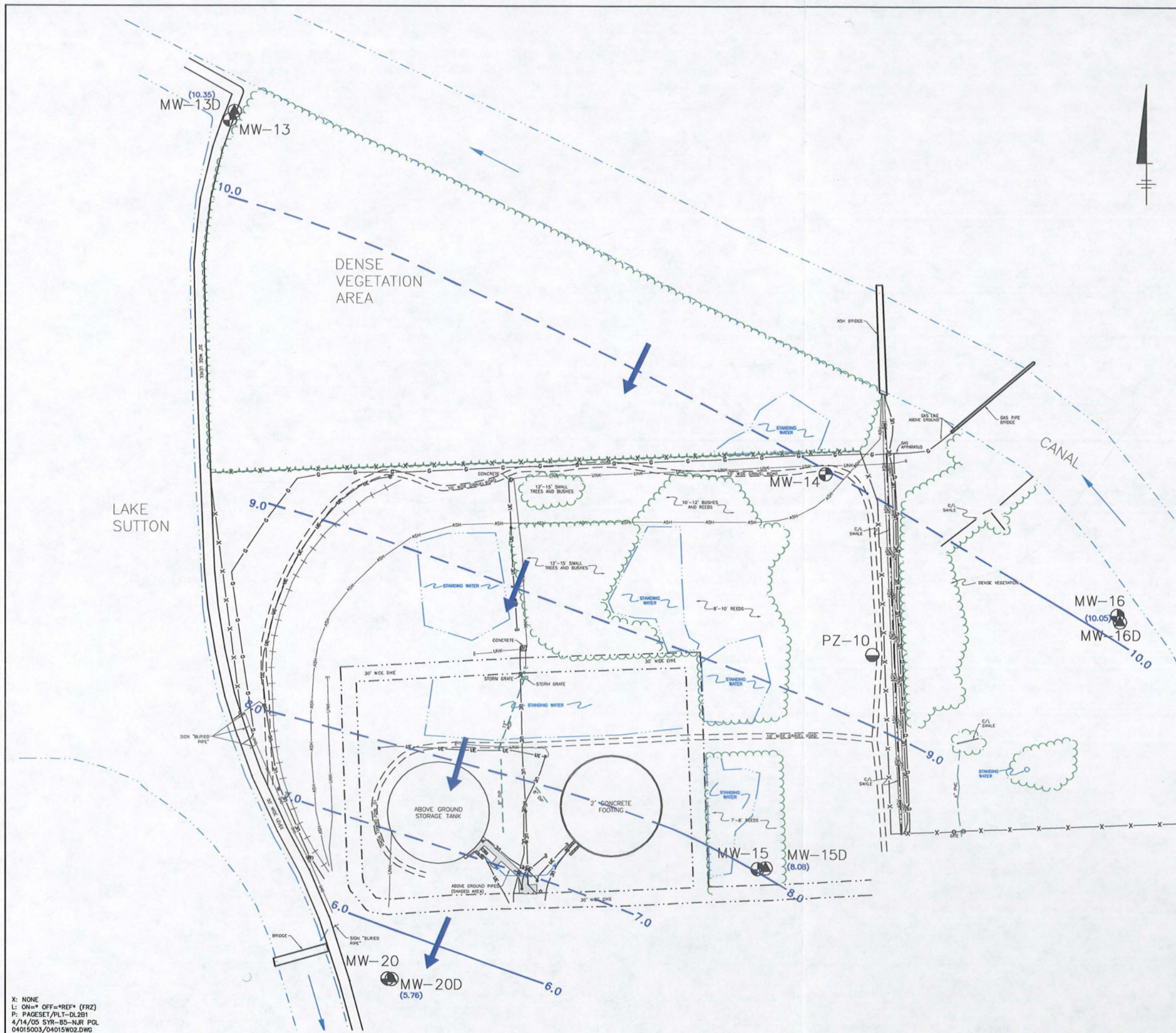
PROGRESS ENERGY
L.V. SUTTON STEAM ELECTRIC PLANT, WILMINGTON, N.C.
PHASE II REMEDIAL INVESTIGATION REPORT

SHALLOW GROUNDWATER
POTENTIOMETRIC SURFACE MAP -
FORMER ASH DISPOSAL AREA -
FEBRUARY 4, 2005

BBL
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engineers, scientists, economists

FIGURE
3-1

X: NONE
L: ON= OFF=REF* (FRZ)
P: PAGESET/PLT-DL2B1
4/14/05 SYR-85-NJR PGL
04015003/04015W03.DWG



SYMBOL LEGEND

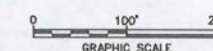
- ⊙ EXISTING DEEP MONITORING WELL
- ⊕ EXISTING SHALLOW MONITORING WELL
- PERMANENT PIEZOMETER
- UTILITY RISER
- ☆ LIGHT POLE
- (8.08) GROUNDWATER ELEVATION
- 9.0 — GROUNDWATER ELEVATION CONTOUR LINE (DASHED WHERE INFERRED). CONTOUR INTERVAL = 1.0 FT.
- ← DIRECTION OF GROUNDWATER FLOW

LINE LEGEND

- X—X—X—X— FENCE LINE
- G—G—G—G— GAS LINE
- ASH—ASH—ASH—ASH— ASH LINE
- GND—GND—GND—GND— GROUND WIRE LINE
- UE—UE—UE—UE— UNDERGROUND ELECTRIC
- W—W—W—W— WATER LINE
- DIKE LINE
- STANDING WATER
- STORM PIPE
- RAILROAD TRACK (C/L)
- TREE/VEGETATION LINE
- UNKNOWN LINE
- GRAVEL ROAD

NOTE:

1. SOURCE: SURVEY PROVIDED BY 'TAYLOR, WISEMAN & TAYLOR', 3500 Regency Parkway, Suite H, Cary N.C., 919-297-0085, (PROJECT NO. 70488.0005) DATED JUNE 23, 2004. REVISIONS MADE ON JULY 7, 2004 AND FEB. 23, 2005.



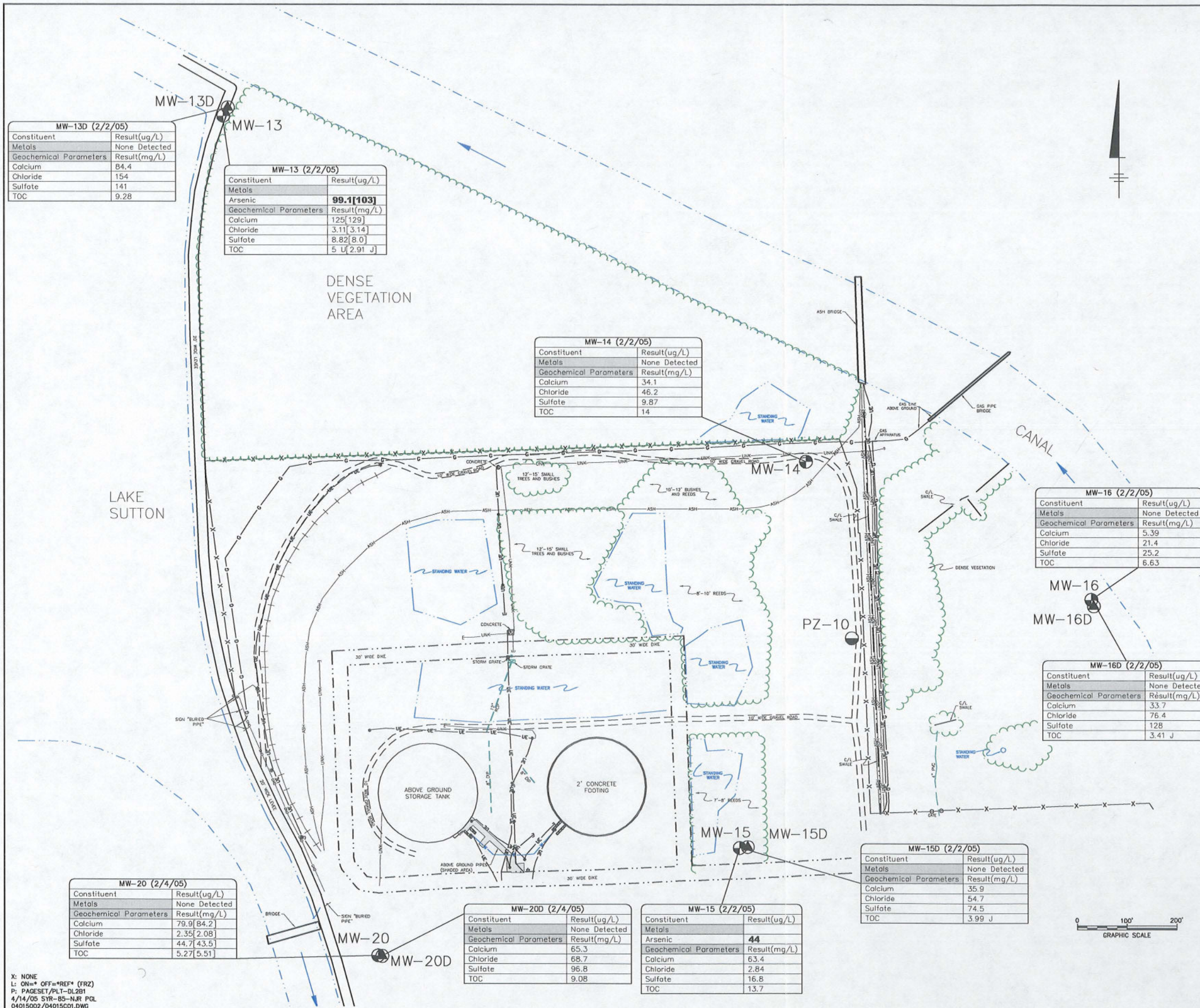
PROGRESS ENERGY
L.V. SUTTON STEAM ELECTRIC PLANT, WILMINGTON, N.C.
PHASE II REMEDIAL INVESTIGATION REPORT

DEEP GROUNDWATER POTENTIOMETRIC
SURFACE MAP - FORMER ASH
DISPOSAL AREA - FEBRUARY 4, 2005

BBL
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engineers, scientists, economists

FIGURE
3-2

X: NONE
L: ON= OFF=REF* (FRZ)
P: PAGESET/PLT-DL2B1
4/14/05 SYR-B5-NJR PGL
04015003/04015W02.DWG



SYMBOL LEGEND

- EXISTING DEEP MONITORING WELL
- EXISTING SHALLOW MONITORING WELL
- PERMANENT PIEZOMETER
- UTILITY RISER
- LIGHT POLE

LINE LEGEND

- FENCE LINE
- GAS LINE
- ASH LINE
- GROUND WIRE LINE
- UNDERGROUND ELECTRIC
- WATER LINE
- DIKE LINE
- STANDING WATER
- STORM PIPE
- RAILROAD TRACK (C/L)
- TREE/VEGETATION LINE
- UNKNOWN LINE
- GRAVEL ROAD

NOTE:

- SOURCE: SURVEY PROVIDED BY 'TAYLOR, WISEMAN & TAYLOR', 3500 Regency Parkway, Suite H, Cary N.C., 919-297-0085, (PROJECT NO. 70488.0005) DATED JUNE 23, 2004. REVISIONS MADE ON JULY 7, 2004 AND FEB. 23, 2005.
- J = ESTIMATED VALUE.
- U = ANALYTE WAS ANALYZED FOR BUT NOT DETECTED.
- [] = REPRESENTS A DUPLICATE SAMPLE.
- BOLD RESULTS EXCEED 2L GROUNDWATER STANDARDS.
- TOC = TOTAL ORGANIC CARBON.
- mg/L = MILLIGRAMS PER LITER.
- ug/L = MICROGRAMS PER LITER.
- OTHER METALS CONSTITUENTS WERE NOT IDENTIFIED IN GROUNDWATER AT CONCENTRATIONS GREATER THAN REMEDIATION GOALS.

PROGRESS ENERGY L.V. SUTTON STEAM ELECTRIC PLANT, WILMINGTON, N.C. PHASE II REMEDIAL INVESTIGATION REPORT

GROUNDWATER QUALITY RESULTS

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FIGURE
3-3

Appendix A

Soil Boring Logs and Well Construction Records

Well/Boring ID: MW-13D (FADA)

Client: Progress Energy Carolinas Inc.

Location: Progress Energy L.V. Sutton Steam
Electric Plant
Wilmington, NC

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engineers, scientists, economists

Depth measured from top of casing*

Client:
Progress Energy Carolinas Inc.

Site Location:
Progress Energy
L.V. Sutton Steam
Electric Plant

Well/Boring ID: MW-13D (FADA)

Borehole Depth: 42 ft bgs

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Iron Staining	Geologic Column	Stratigraphic Description	Well/Boring Construction
25	-10			1.0'	4 11 20 20	31	0.0			SAND (SM), tan, fine to medium grained, dense, wet, no odor.	
30	-15			1.0'	8 10 12 13	22	0.0			SAND (SM), tan, fine to medium grained, medium dense, wet, no odor.	Bentonite chips (31.0' - 27.0')
35	-20			1.0'	9 6 4 6	10	0.0			SAND (SM), tan to light gray, fine to medium grained, medium dense, wet, no odor.	Well Gravel Pack No. 1 (42.0' - 31.0')
40	-25			2.0'	3 2 4 4	6	0.0			clayey SAND (SC), brown, mottled orange, low plasticity, medium dense, wet, no odor.	2-inch 0.010 slot PVC screen (38.0' - 33.0')
										clayey SAND (SC), gray, low plasticity, medium dense, wet, no odor.	
										CLAY (CL) observed on roller bit upon completion of drilling activities.	

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Remarks:
NA: Not Applicable
ft bgs: feet below ground surface
PID: Photoionization Detector

Water Level Data

Date	Depth	Elev.
2/4/05	7.81	10.35

Depth measured from top of casing*

WELL CONSTRUCTION RECORD

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) ARNOLD CHAPEL

CERTIFICATION # 2487

WELL CONTRACTOR COMPANY NAME PARRATT-WOLFF, INC.

PHONE # (919) 644-2814

STATE WELL CONSTRUCTION PERMIT#
(if applicable)

ASSOCIATED WQ PERMIT#
(if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____

2. WELL LOCATION:

Nearest Town: WILMINGTON County NEW HANOVER
801 SUTTON STEAM PLANT ROAD
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
☐ Ridge ☐ Slope ☐ Valley ☐ Flat
(check appropriate box)

Latitude/longitude of well location
N34 16.99'W77 58.98'

(degrees/minutes/seconds)

Latitude/longitude source: ☐ GPS ☒ Topographic map
(check box)

3. OWNER: PROGRESS ENERGY

Address 801 SUTTON STEAM PLANT ROAD

(Street or Route No.)

WILMINGTON NC 28401
City or Town State Zip Code

()-
Area code- Phone number

4. DATE DRILLED 1/27-1/28/05

5. TOTAL DEPTH: 43.0'

6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒

7. STATIC WATER LEVEL Below Top of Casing: 5.0 FT.
(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 0 FT. Above Land Surface*

*Top of casing terminated at/or below land surface requires a
variance in accordance with 15A NCAC 2C .0118.

9. YIELD (gpm): N/A METHOD OF TEST N/A

10. WATER ZONES (depth): N/A

DEPTH

From To

0 14.0'

DRILLING LOG

Formation Description

Black/brown, moist, medium
dense, fine/coarse SAND;
trace fine/coarse gravel

LOCATION SKETCH

Show direction and distance in miles from at least
two State Roads or County Roads. Include the road
numbers and common road names.

11. DISINFECTION: Type N/A Amount N/A

12. CASING: Wall Thickness
or Weight/Ft. Material
From 0 To 33.5 Ft. 2" SCH 40 PVC
From To Ft.
From To Ft.

13. GROUT: Depth Material Method
From 0 To 27 Ft. PORTLAND TREMIE
From 27 To 30 Ft. BENTONITE TREMIE

14. SCREEN: Depth Diameter Slot Size Material
From 33.5 To 38.5 Ft. 2 in. .010 in. PVC
From To Ft. in. in.

15. SAND/GRAVEL PACK:

Depth Size Material
From 30 To 43 Ft. #1 SAND
From To Ft.

16. REMARKS: MW-13D SEE MAP ON BACK

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL
CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Arnold H. Chapel

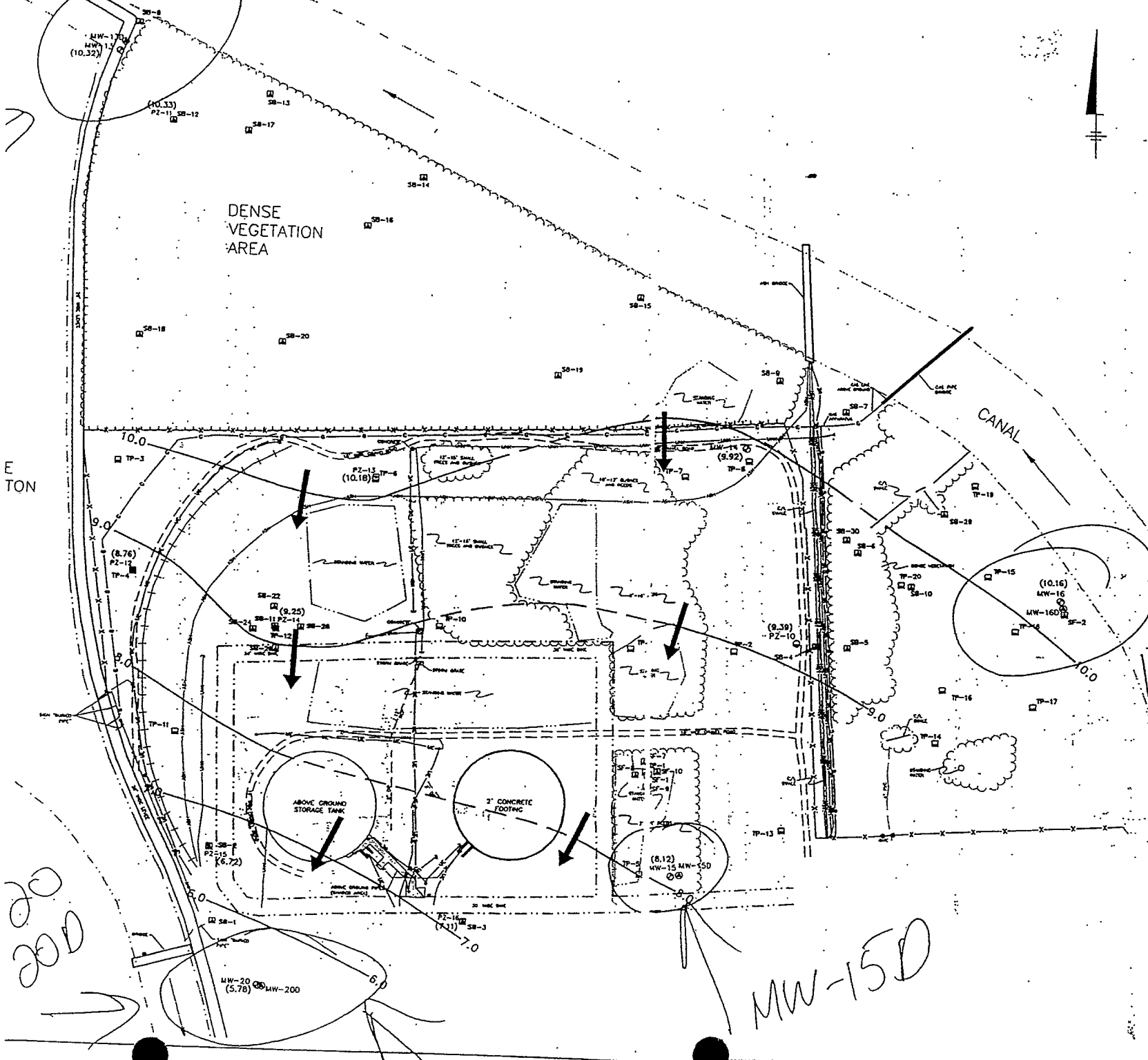
SIGNATURE OF PERSON CONSTRUCTING THE WELL

2/18/05

DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC
27699-1636 Phone No. (919) 733-3221, within 30 days.

GW-1 REV. 07/2001



SYMBOL LEGEND

- EXISTING DEEP MONITORING WELL
- EXISTING SHALLOW MONITORING WELL
- TEMPORARY PIEZOMETER (1-IN)
- PERMANENT PIEZOMETER
- UTILITY RISER
- ◇ LIGHT POLE
- EXISTING TEST PIT
- EXISTING SOIL BORINGS

GROUNDWATER ELEVATION (FEB. 2005) DASHED WHERE NO DATA
 GROUNDWATER ELEVATION (FEB. 2005) DASHED WHERE NO DATA
 DIRECTION OF GROUNDWATER FLOW (FEB. 2005)

LINE LEGEND

- FENCE LINE
- GAS LINE
- ASH LINE
- GROUND WIRE LINE
- UNDERGROUND ELECTRIC
- WATER LINE
- DIKE LINE
- STANDING WATER
- STORM PIPE
- RAILROAD TRACK (C/A)
- TREE/VEGETATION LINE
- UNKNOWN LINE
- GRAVEL ROAD

NOTE:

1. SOURCE: SURVEY PROVIDED BY TAYLOR, WISEMAN & TAYLOR, 3500 Regency Parkway, Suite K, Cary, N.C. 919-297-0085, (PROJECT NO. 70488.0005) DATED JULY 13, 2004. SURVEY DATA COLLECTED ON JUNE 23, 2004.

0 100' 200'
 GRAPHIC SCALE

PROGRESS ENERGY
 L.V. SUTTON STEAM ELECTRIC PLANT, W
 PHASE II REMEDIAL INVESTIGATION

SHALLOW GROUNDWATER POTENTIAL
 SURFACE MAP - FORMER ASH
 AREA - FEBRUARY 4, 2005

BBL
 BULLAND, BOUCK & LEE, INC.
 CONSULTING ENGINEERS

Date Start/Finish: 1/31/05
Drilling Company: Parratt Wolfe
Driller's Name: Arnold Chapel
Drilling Method: Mud Rotary
Bit Size: 5.87-inch roller-bit
Auger Size:
Rig Type: B-61 Mobile Rig
Sampling Method: 24-inch splitspoon

Northing: 196476.98
Easting: 2306061.06
Casing Elevation: 11.21

Borehole Depth: 48 ft bgs
Surface Elevation: 8.61

Logged by: Brian Lovgren

Well/Boring ID: MW-15D (FADA)

Client: Progress Energy Carolinas Inc.

Location: Progress Energy L.V. Sutton Steam Electric Plant
 Wilmington, NC

DEPTH	ELEVATION	Samp. Interval (ft bgs)	Recovery (inches)	Blows / 6 Inches	N - Value	PID (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
10									
0								Topsoil, high organic content, slightly damp to damp, no odor.	protective above ground steel casing (+2.6'-0.0')
								SAND (SM), gray, fine to medium grained, loose, moist to wet, no odor.	Cement pad (2'x2')
								SAND (SM), gray, fine to medium grained, loose, wet, no odor.	2-inch SCH 40 PVC riser (40.0' - +2.5')
5		2.0'	5	6	0.0			SAND (SM), light gray, mottled white, fine to medium grained, loose, wet, no odor.	Bentonite grout (35.5' - 0.0')
-5			2					SAND (SM), dark brown, fine grained, loose, wet, no odor.	
0		2.0'	4	7	0.0			SAND (SM), tan, fine grained, loose, wet, no odor.	6-inch nominal borehole (45.0'-0.0')
-10			3						
		1.0'	1	2	0.0			SAND (SM), tan, fine to medium grained, very loose, wet, no odor.	
-15			2						
		1.2'	9	25	0.0			SAND (SM), tan, fine to medium grained, medium dense, wet, no odor.	
-10			12						
-20			13						
		0.8'	4	6	0.0			SAND (SM), tan, fine to coarse grained, loose, wet, no odor.	2-inch SCH 40 PVC riser (40.0' - +2.5')
-15			3						
			3						

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BLASLAND, BOUCK & LEE, INC.
 engineers, scientists, economists

Remarks:
 NA: Not Applicable
 ft bgs: feet below ground surface
 PID: Photoionization Detector
 NR: No Recovery

Water Level Data

Date	Depth	Elev.
2/4/05	3.13	8.08

Depth measured from top of casing*

Client:
Progress Energy Carolinas Inc.

Well/Boring ID: MW-15D (FADA)

Site Location:
Progress Energy
L.V. Sutton Steam
Electric Plant

Borehole Depth: 48 ft bgs

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Iron Staining	Geologic Column	Stratigraphic Description	Well/Boring Construction
25											
-20				0.8'	3 3 3 4	6	0.0				Bentonite grout (35.5' - 0.0')
-30											6-inch nominal borehole (45.0'-0.0')
-25				1.0'	5 8 11 13	19	0.0			SAND (SM), tan, fine to coarse grained, medium dense, wet, no odor.	
-35											
-30				1.0'	10 11 14 15	15	0.0			SAND (SM), brown, mottled orange, fine to coarse grained, medium dense, wet, no odor.	Bentonite chips (38.0'-35.5')
-40										SAND (SM), brown, fine to coarse grained, medium dense, wet, no odor.	Well Gravel Pack No. 2 (45.0' - 38.0')
-35				1.2'	3 2 4 3	6	0.0			SAND (SM), brown, mottled orange, fine to coarse grained, loose, wet, no odor.	2-inch 0.010 slot PVC screen (45.0' - 40.0')
-45				1.2'	24 45 34 NR	79	0.0			SAND (SM), dark gray, silt to fine fine grained, very dense, wet, no odor.	1.5-inch nominal borehole (48.0'-45.0')
											Natural Collapse

BBL[®]
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

Remarks:
NA: Not Applicable
ft bgs: feet below ground surface
PID: Photoionization Detector
NR: No Recovery

Water Level Data

Date	Depth	Elev.
2/4/05	3.13	8.08
Depth measured from top of casing*		

WELL CONSTRUCTION RECORD

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) ARNOLD CHAPEL CERTIFICATION # 2487

WELL CONTRACTOR COMPANY NAME PARRATT-WOLFF, INC. PHONE # (919) 644-2814

STATE WELL CONSTRUCTION PERMIT# _____ ASSOCIATED WQ PERMIT# _____
(if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____

2. WELL LOCATION:

Nearest Town: WILMINGTON County NEW HANOVER

801 SUTTON STEAM PLANT ROAD

(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

3. OWNER: PROGRESS ENERGY

Address 801 SUTTON STEAM PLANT ROAD

(Street or Route No.)

WILMINGTON NC 28401

City or Town State Zip Code

() - _____

Area code- Phone number

4. DATE DRILLED 1/31/05

5. TOTAL DEPTH: 47.5'

6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒

7. STATIC WATER LEVEL Below Top of Casing: 2.0 FT.

(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 0 FT. Above Land Surface*

*Top of casing terminated at/or below land surface requires a
variance in accordance with 15A NCAC 2C .0118.

9. YIELD (gpm): N/A METHOD OF TEST N/A

10. WATER ZONES (depth): N/A

Topographic/Land setting

☐ Ridge ☐ Slope ☐ Valley ☐ Flat

(check appropriate box)

Latitude/longitude of well location

N34 16.99/W77 58.98'

(degrees/minutes/seconds)

Latitude/longitude source: ☐ GPS ☒ Topographic map

(check box)

DEPTH

From To

DRILLING LOG

Formation Description

0 13.0'

White/brown/gray, wet, very

loose/dense, fine/coarse

SAND; trace silt

13.0 47.5

Green/gray, moist, hard SILT

and fine SAND; trace clay

LOCATION SKETCH

Show direction and distance in miles from at least
two State Roads or County Roads. Include the road
numbers and common road names.

11. DISINFECTION: Type N/A Amount N/A

12. CASING: Wall Thickness

From	To	Depth	Diameter	or Weight/Ft.	Material
From <u>0</u>	To <u>40</u>	Ft. <u>2"</u>	<u>SCH 40</u>	<u>PVC</u>	
From _____	To _____	Ft. _____	_____	_____	
From _____	To _____	Ft. _____	_____	_____	

13. GROUT: Depth Material Method

From 0 To 35.5 Ft. PORTLAND TREMIE

From 35.5 To 37.5 Ft. BENTONITE TREMIE

14. SCREEN: Depth Diameter Slot Size Material

From 40 To 45 Ft. 2 in. .010 in. PVC

From _____ To _____ Ft. _____ in. _____ in. _____

15. SAND/GRAVEL PACK:

From _____ To _____ Depth _____ Size _____ Material _____

From 37.5 To 47.5 Ft. #1 SAND

From _____ To _____ Ft. _____

16. REMARKS: MW-15D SEE MAP ON BACK

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL
CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

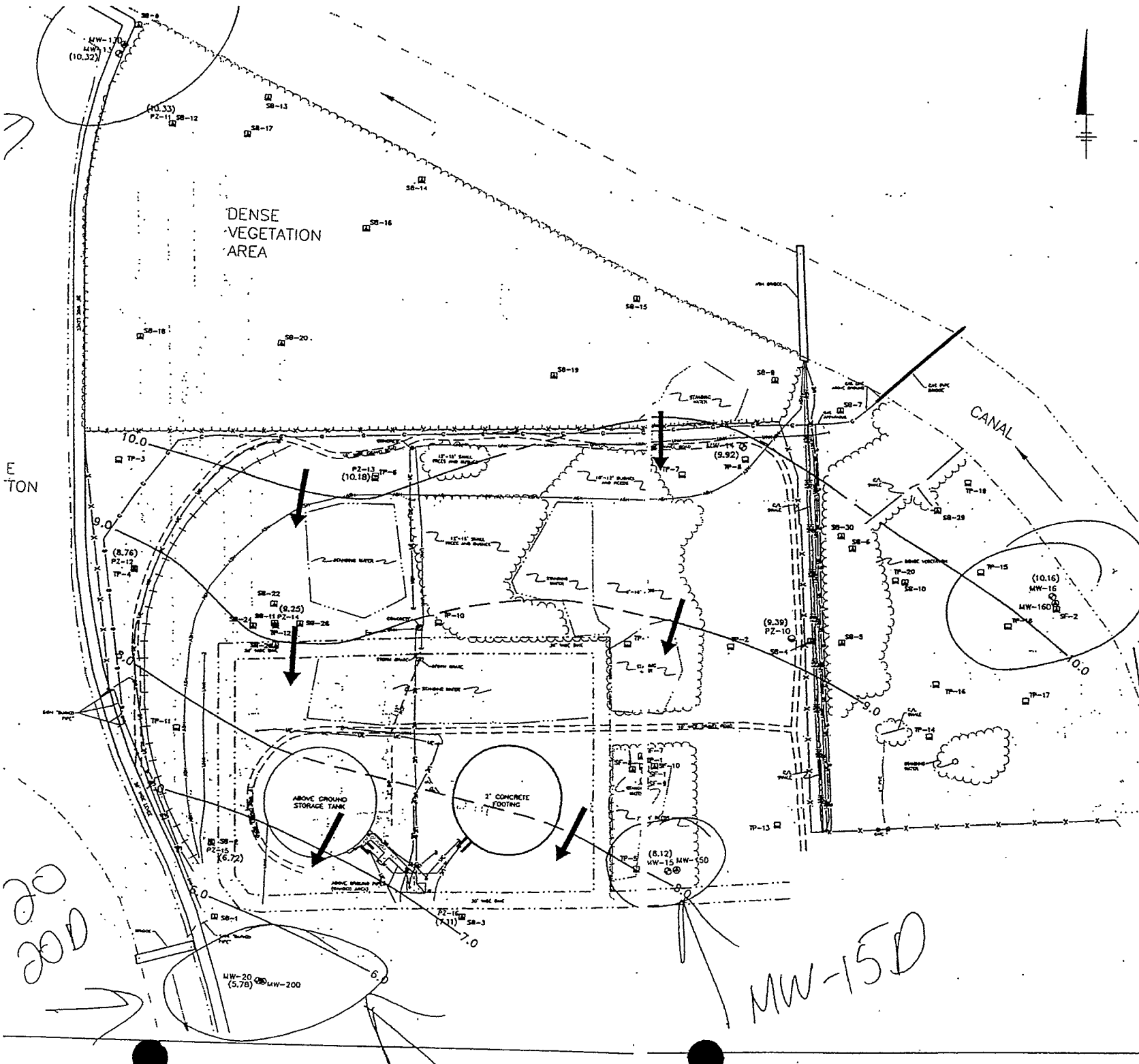
Arnold Chapel

SIGNATURE OF PERSON CONSTRUCTING THE WELL

2/18/05

DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC
27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001



SYMBOL LEGEND

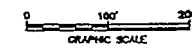
- EXISTING DEEP MONITORING WELL
- EXISTING SHALLOW MONITORING
- TEMPORARY PIEZOMETER (1-W)
- PERMANENT PIEZOMETER
- UTILITY RISER
- ☆ LIGHT POLE
- EXISTING TEST PIT
- EXISTING SOIL BORINGS

(9.39) GROUNDWATER ELEVATION (FEB. 2005) DASHED WHERE NO CONTOUR INTERVAL = 1.0 FT.
 9.0 ——— GROUNDWATER ELEVATION CONTOUR (FEB. 2005)
 ← DIRECTION OF GROUNDWATER FLOW (FEB. 2005)

LINE LEGEND

- X-X- FENCE LINE
- C- GAS LINE
- ASH- ASH LINE
- GWL- GROUND WIRE LINE
- UE- UNDERGROUND ELECTRIC
- W- WATER LINE
- DWE- DWE LINE
- SW- STANDING WATER
- SP- STORM PIPE
- RAIL- RAILROAD TRACK (C/L)
- TV- TREE/VEGETATION LINE
- UNK- UNKNOWN LINE
- GRV- GRAVEL ROAD

NOTE:
 1. SOURCE: SURVEY PROVIDED BY TAYLOR, WISDOM & TAYLOR, 3500 Regency Parkway, Suite H, Cary, N.C. 919-297-0085, (PROJECT NO. 70488.0005) DATED JULY 13, 2004. SURVEY DATA COLLECTED ON JUNE 23, 2004.



PROGRESS ENERGY
 L.V. SUTTON STEAM ELECTRIC PLANT, W
 PHASE II REMEDIAL INVESTIGATION

SHALLOW GROUNDWATER POTENTIAL
 SURFACE MAP - FORMER AS
 AREA - FEBRUARY 4, 2004

BBL
 BLASLAND, BOUCK & LEE, INC.
 ENGINEERS, SCIENTISTS, ECONOMISTS

Date Start/Finish: 1/26/05
Drilling Company: Parratt Wolfe
Driller's Name: Arnold Chapel
Drilling Method: Mud Rotary
Bit Size: 5.87-inch roller-bit
Auger Size:
Rig Type: B-61 Mobile Rig
Sampling Method: 24-inch splitspoon

Northing: 196962.70
Easting: 2306758.11
Casing Elevation: 16.43
Borehole Depth: 47 ft bgs
Surface Elevation: 14.00
Logged by: Brian Lovgren

Well/Boring ID: MW-16D (FADA)
Client: Progress Energy Carolinas Inc.
Location: Progress Energy L.V. Sutton Steam Electric Plant
 Wilmington, NC

DEPTH	ELEVATION	Samp. Interval (ft bgs)	Recovery (inches)	Blows / 6 inches	N - Value	PID (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
15									
0								SAND (SM), brown, fine grained, very loose, trace organics, dry, no odor.	protective above ground steel casing (+2.43'-0.0')
						2.9			Cement pad (2'x2')
						0.0		SAND (SM), white, mottled tan, fine, very loose, dry, no odor.	2-inch SCH 40 PVC riser (42.0' - +2.5')
10		2.0'	1 2 2 1	4	0.0			SAND (SM), white, mottled tan, fine, very loose, wet, no odor.	Bentonite grout (36.0 - 0.0')
5		2.0'	1 6 6 7	12	0.0			SAND (SM), light gray, mottled white, fine to medium grained, medium dense, wet, no odor.	
5									6-inch nominal borehole (47.0'-0.0')
10		1.0'	4 10 16 13	26	0.0				
15		1.0'	5 5 4 4	9	0.0			SAND (SM), tan, fine, loose, wet, no odor.	
20		1.2'	5 5 4	9	0.0			SAND (SM), tan, fine to coarse grained, loose, wet, no odor.	
-10									

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BLASLAND, BOUCK & LEE, INC.
 engineers, scientists, economists

Remarks:
 NA: Not Applicable
 ft bgs: feet below ground surface
 PID: Photoionization Detector

Water Level Data

Date	Depth	Elev.
2/4/05	6.38	10.05

Depth measured from top of casing*

Client:

Progress Energy Carolinas Inc.

Well/Boring ID: MW-16D (FADA)

Site Location:

Progress Energy
L.V. Sutton Steam
Electric Plant

Borehole Depth: 47 ft bgs

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Iron Staining	Geologic Column	Stratigraphic Description	Well/Boring Construction
-25					8						
-15				1.0'	2 1 2 2	3	0.0				
-30											
-20				1.0'	2 2 3 2	5	0.0				
-35											
-25				1.0'	1 2 3 3	5	0.0			SAND (SM), tan, mottled orange, fine to coarse grained, loose, wet, no odor.	Bentonite chips (40.0'-36.0')
-40											
-30				1.0'	9 11 8 6	19	0.0				Well Gravel Pack No. 2 (47.0' - 40.0')
-45											2-inch 0.010 slot PVC screen (47.0' - 42.0')
				1.5'	10 19 16 24	35	0.0			SAND (SM), gray, fine, dense, wet, no odor.	1.5-inch nominal borehole (49.0' - 47.0')
-35										Boring terminated at 49.0 ft bls	Natural Collapse

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engineers, scientists, economists

Remarks:

NA: Not Applicable
ft bgs: feet below ground surface
PID: Photoionization Detector

Water Level Data

Date	Depth	Elev.
2/4/05	6.38	10.05

Depth measured from top of casing*

WELL CONSTRUCTION RECORD

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) ARNOLD CHAPEL CERTIFICATION # 2487

WELL CONTRACTOR COMPANY NAME PARRATT-WOLFF, INC. PHONE # (919) 644-2814

STATE WELL CONSTRUCTION PERMIT# _____ ASSOCIATED WQ PERMIT# _____
(if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____

2. WELL LOCATION:

Nearest Town: WILMINGTON County NEW HANOVER

801 SUTTON STEAM PLANT ROAD

(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

3. OWNER: PROGRESS ENERGY

Address 801 SUTTON STEAM PLANT ROAD

(Street or Route No.)

WILMINGTON NC 28401

City or Town State Zip Code

() -
Area code- Phone number

4. DATE DRILLED 1/26-1/27/05

5. TOTAL DEPTH: 50.5'

6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒

7. STATIC WATER LEVEL Below Top of Casing: 4.5 FT.

(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 0 FT. Above Land Surface*

*Top of casing terminated at/or below land surface requires a
variance in accordance with 15A NCAC 2C .0118.

9. YIELD (gpm): N/A METHOD OF TEST N/A

10. WATER ZONES (depth): N/A

11. DISINFECTION: Type N/A Amount N/A

12. CASING: Wall Thickness
From 0 To 42 Ft. 2" SCH 40 Material PVC
From _____ To _____ Ft. _____
From _____ To _____ Ft. _____

13. GROUT: Depth Material Method
From 0 To 36 Ft. PORTLAND TREMIE
From 36 To 40 Ft. BENTONITE TREMIE

14. SCREEN: Depth Diameter Slot Size Material
From 42 To 47 Ft. 2 in. .010 in. PVC
From _____ To _____ Ft. _____ in. _____ in. _____

15. SAND/GRAVEL PACK:
Depth Size Material
From 40 To 50.5 Ft. #1 SAND
From _____ To _____ Ft. _____

16. REMARKS: MW-16D SEE MAP ON BACK

Topographic/Land setting
☐ Ridge ☐ Slope ☐ Valley ☐ Flat
(check appropriate box)

Latitude/longitude of well location

N34 16.99'W77 58.98'

(degrees/minutes/seconds)

Latitude/longitude source: ☐ GPS ☒ Topographic map
(check box)

DEPTH DRILLING LOG
From To Formation Description

0 16.0'

White/brown/gray, wet, loose/
medium dense, fine/coarse
SAND; some fine gravel;
trace silt

16.0 49.0

Green, wet, very dense fine/
medium SAND; trace silt

LOCATION SKETCH

Show direction and distance in miles from at least
two State Roads or County Roads. Include the road
numbers and common road names.

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL
CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

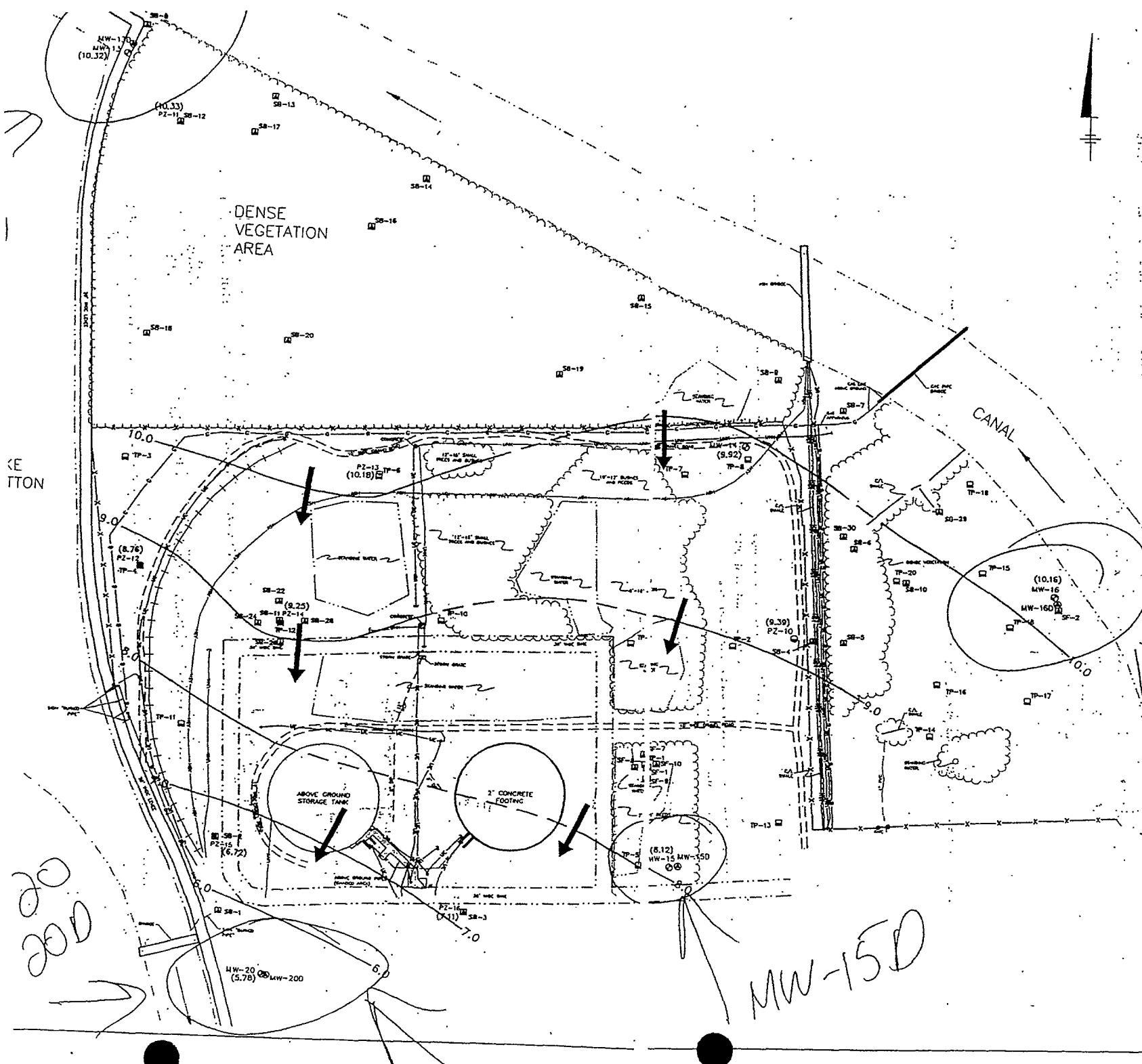
Arnold H. Chapel

SIGNATURE OF PERSON CONSTRUCTING THE WELL

2/18/05

DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC
27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001



SYMBOL LEGEND

- EXISTING DEEP MONITORING
- EXISTING SHALLOW MONITORING
- TEMPORARY PIEZOMETER (1-)
- PERMANENT PIEZOMETER
- UTILITY RISER
- ☆ LIGHT POLE
- EXISTING TEST PIT
- EXISTING SOIL BORINGS

(9.39) GROUNDWATER ELEVATION (F)
 9.0 — GROUNDWATER ELEVATION CO
 (FEB. 2005) (DASHED WHERE
 CONTOUR INTERVAL = 1.0 FT.)
 ← DIRECTION OF GROUNDWATER
 (FEB. 2005)

LINE LEGEND

- FENCE LINE
- GAS LINE
- ASH LINE
- GROUND WIRE LINE
- UNDERGROUND ELECTRIC
- WATER LINE
- DRINK LINE
- STANDING WATER
- STORM PIPE
- RAILROAD TRACK (C/L)
- TREE/VEGETATION LINE
- UNKNOWN LINE
- GRAVEL ROAD

NOTE:

1. SOURCE: SURVEY PROVIDED BY TAYLOR,
 WISEMAN & TAYLOR, 3500 Regency
 Parkway, Suite H, Cary N.C.
 919-297-0085, (PROJECT NO. 70488.0005)
 DATED JULY 13, 2004. SURVEY DATA
 COLLECTED ON JUNE 23, 2004.

0 100' 200'
 GRAPHIC SCALE

PROGRESS ENERGY
 L.V. SUTTON STEAM ELECTRIC PLANT, W
 PHASE II. REMEDIAL INVESTIGA

SHALLOW GROUNDWATER POTI
 SURFACE MAP - FORMER ASH
 AREA - FEBRUARY 4, 2

BBL
 BUCK & LEE, INC.
 scientific, economic

Date Start/Finish: 2/2/05
Drilling Company: Parratt Wolffe
Driller's Name: Arnold Chapel
Drilling Method: HSA
Bit Size: NA
Auger Size: 3.25-inch (ID)
Rig Type: B-61 Mobile Rig
Sampling Method:

Northing: 196257.98
Easting: 2305318.10
Casing Elevation: 13.70

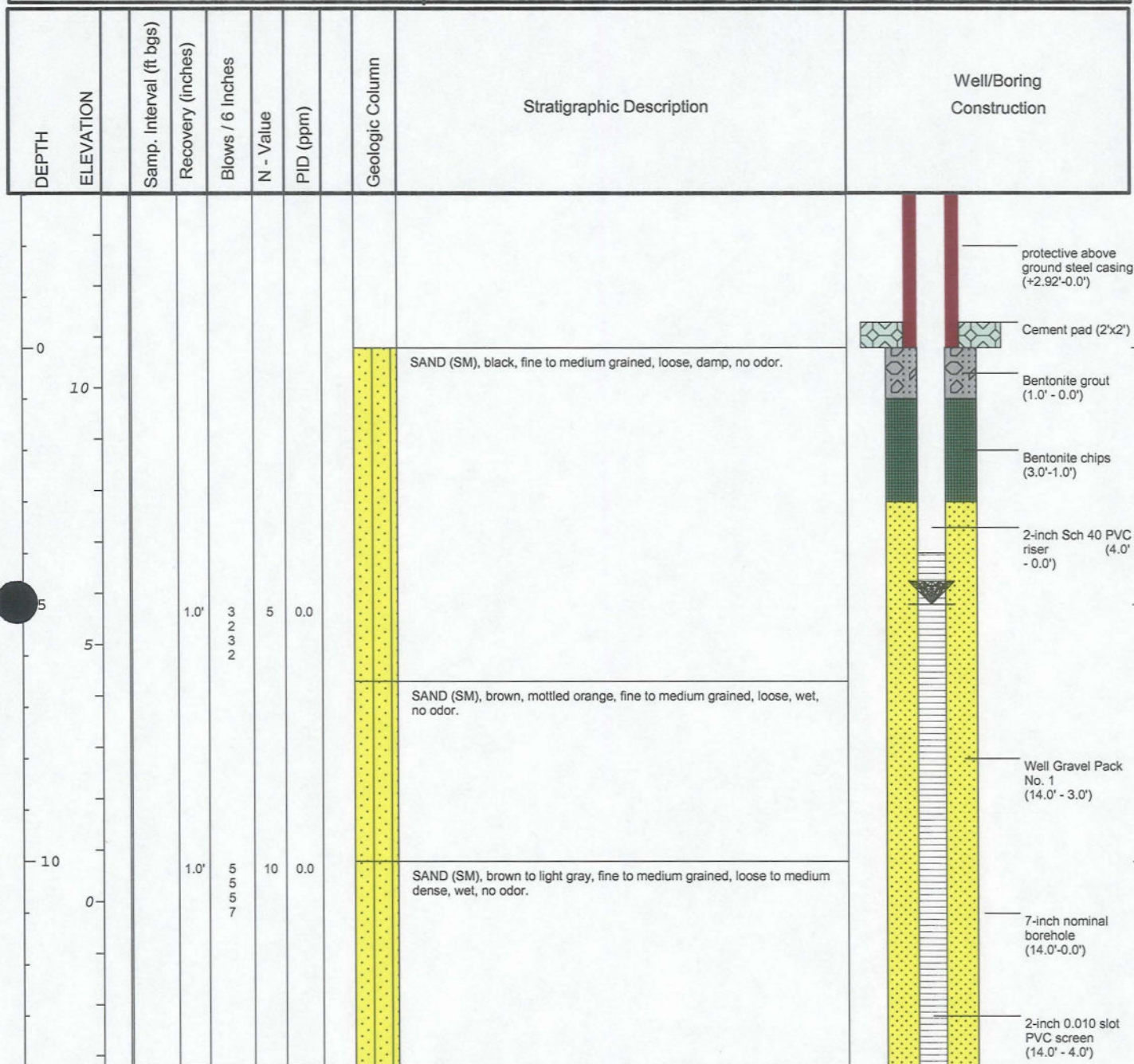
Borehole Depth: 14 ft bgs
Surface Elevation: 10.78

Logged by: Brian Lovgren

Well/Boring ID: MW-20 (FADA)

Client: Progress Energy Carolinas Inc.

Location: Progress Energy L.V. Sutton Steam Electric Plant
 Wilmington, NC



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 engineers, scientists, economists

Remarks:
 HSA: Hollow-Stem Auger
 NA: Not Applicable
 ft bgs: feet below ground surface
 PID: Photoionization Detector

Water Level Data		
Date	Depth	Elev.
2/4/05	7.92	5.78
Depth measured from top of casing*		

WELL CONSTRUCTION RECORD

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) ARNOLD CHAPEL CERTIFICATION # 2487

WELL CONTRACTOR COMPANY NAME PARRATT-WOLFF, INC. PHONE # (919) 644-2814

STATE WELL CONSTRUCTION PERMIT# _____ ASSOCIATED WQ PERMIT# _____
(if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____

2. WELL LOCATION:

Nearest Town: WILMINGTON County NEW HANOVER
801 SUTTON STEAM PLANT ROAD
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
☐ Ridge ☐ Slope ☐ Valley ☐ Flat
(check appropriate box)

Latitude/longitude of well location
N34 16.99'/W77 58.98'

(degrees/minutes/seconds)

Latitude/longitude source: ☐ GPS ☒ Topographic map
(check box)

3. OWNER: PROGRESS ENERGY

Address 801 SUTTON STEAM PLANT ROAD
(Street or Route No.)

WILMINGTON NC 28401
City or Town State Zip Code

Area code- Phone number

4. DATE DRILLED 2/2/05

5. TOTAL DEPTH: 14.0'

6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒

7. STATIC WATER LEVEL Below Top of Casing: 5.5 FT.
(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 0 FT. Above Land Surface*

*Top of casing terminated at/or below land surface requires a
variance in accordance with 15A NCAC 2C .0118.

9. YIELD (gpm): N/A METHOD OF TEST N/A

10. WATER ZONES (depth): N/A

DEPTH

From To

DRILLING LOG

Formation Description

NO SAMPLES TAKEN

LOCATION SKETCH

Show direction and distance in miles from at least
two State Roads or County Roads. Include the road
numbers and common road names.

11. DISINFECTION: Type N/A Amount N/A

12. CASING: _____ Wall Thickness _____

From	To	Depth	Diameter	or Weight/Ft.	Material
From <u>0</u>	To <u>4</u>	Ft. <u>2"</u>	<u>SCH 40</u>	<u>PVC</u>	
From _____	To _____	Ft. _____	_____	_____	
From _____	To _____	Ft. _____	_____	_____	

13. GROUT: _____ Material _____ Method _____

From	To	Depth	Material	Method
From <u>0</u>	To <u>1</u>	Ft. <u>PORTLAND</u>	<u>TREMIE</u>	
From <u>1</u>	To <u>3</u>	Ft. <u>BENTONITE</u>	<u>TREMIE</u>	

14. SCREEN: _____ Diameter _____ Slot Size _____ Material _____

From	To	Depth	Diameter	Slot Size	Material
From <u>4</u>	To <u>14</u>	Ft. <u>2</u>	<u>in.</u>	<u>.010</u>	<u>in.</u>
From _____	To _____	Ft. _____	_____	_____	_____

15. SAND/GRAVEL PACK: _____

From	To	Depth	Size	Material
From <u>3</u>	To <u>14</u>	Ft. <u>#1</u>	<u>SAND</u>	
From _____	To _____	Ft. _____	_____	

16. REMARKS: MW-20 SEE MAP ON BACK

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL
CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Arnold Chapel

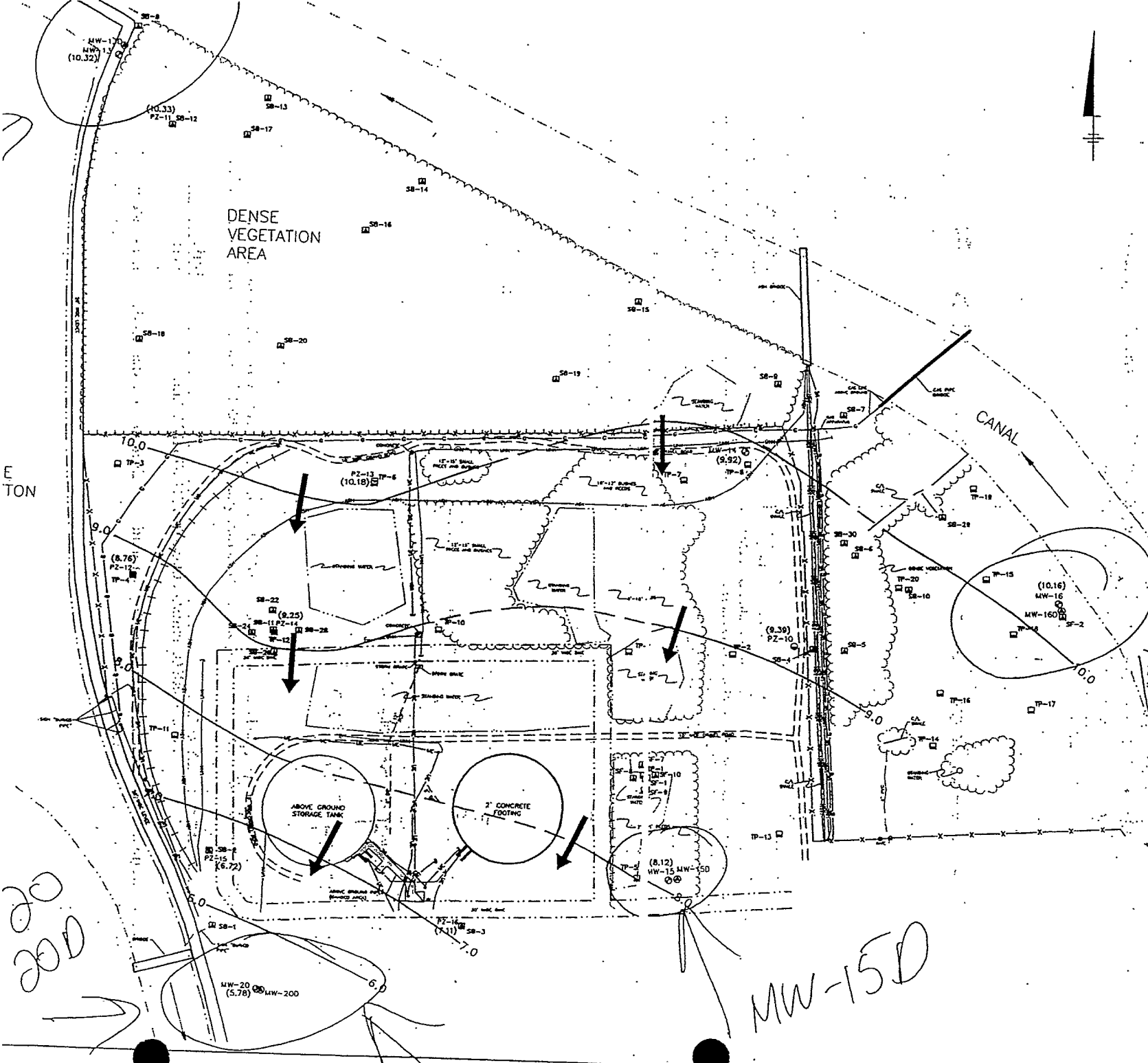
SIGNATURE OF PERSON CONSTRUCTING THE WELL

2/16/05

DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC
27699-1636 Phone No. (919) 733-3221, within 30 days.

GW-1 REV. 07/2001



SYMBOL LEGEND

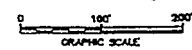
- EXISTING DEEP MONITORING WELL
- EXISTING SHALLOW MONITORING WELL
- TEMPORARY PIEZOMETER (1-IN)
- PERMANENT PIEZOMETER
- UTILITY RISER
- LIGHT POLE
- EXISTING TEST PIT
- EXISTING SOIL BORINGS

GROUNDWATER ELEVATION (FEB. 2005) (9.39)
 9.0 — GROUNDWATER ELEVATION CONTOUR (FEB. 2005) (DASHED WHERE IN CONTOUR INTERVAL = 1.0 FT.)
 ← DIRECTION OF GROUNDWATER FLOW (FEB. 2005)

LINE LEGEND

- FENCE LINE
- GAS LINE
- ASH LINE
- GROUND WIRE LINE
- UNDERGROUND ELECTRIC
- WATER LINE
- DRAIN LINE
- STANDING WATER
- STORM PIPE
- RAILROAD TRACK (C/L)
- TREE/VEGETATION LINE
- UNKNOWN LINE
- GRAVEL ROAD

NOTE:
 1. SOURCE: SURVEY PROVIDED BY TAYLOR, WISEMAN & TAYLOR, 3500 Regency Parkway, Suite 10, Cary, N.C. 919-297-0085, (PROJECT NO. 70488.0005) DATED JULY 13, 2004. SURVEY DATA COLLECTED ON JUNE 23, 2004.



PROGRESS ENERGY
L.V. SUTTON STEAM ELECTRIC PLANT, WISCONSIN
PHASE II REMEDIAL INVESTIGATION

SHALLOW GROUNDWATER POTENTIAL SURFACE MAP - FORMER ASH AREA - FEBRUARY 4, 2005

BBL
 BOND, BOUCK & LEE, INC.
 ENGINEERS, SCIENTISTS, ECONOMISTS

Date Start/Finish: 2/2/05
Drilling Company: Parratt Wolfe
Driller's Name: Arnold Chapel
Drilling Method: Mud Rotary
Bit Size: 5.87-inch roller-bit
Auger Size:
Rig Type: B-61 Mobile Rig
Sampling Method: 24-inch splitspoon

Northing: 196256.89
Easting: 2305326.09
Casing Elevation: 13.66

Borehole Depth: 52 ft bgs
Surface Elevation: 10.73

Logged by: Brian Lovgren

Well/Boring ID: MW-20D (FADA)

Client: Progress Energy Carolinas Inc.

Location: Progress Energy L.V. Sutton Steam Electric Plant
 Wilmington, NC

DEPTH	ELEVATION	Samp. Interval (ft bgs)	Recovery (inches)	Blows / 6 Inches	N - Value	PID (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0									protective above ground steel casing (+2.93'-0.0')
10									Cement pad (2'x2')
								SAND (SM), black, fine to medium grained, loose, damp, no odor.	2-inch SCH 40 PVC riser (43.0' - +2.9')
5		1.0'	3	5	0.0				Bentonite grout (37.0' - 0.0')
			2						
			2					SAND (SM), brown, mottled orange, fine to medium grained, loose, wet, no odor.	
10		1.0'	5	10	0.0				6-inch nominal borehole (48.0'-0.0')
			5					SAND (SM), brown to light gray, fine to medium grained, loose to medium dense, wet, no odor.	
			5						
			7						
15		1.0'	6	15	0.0				
			7					SAND (SM), brown to tan, fine to medium grained, medium dense, wet, no odor.	
			8						
			6						
20		1.5'	13	34	0.0				2-inch SCH 40 PVC riser (43.0' - +2.9')
			17					SAND (SM), tan, fine to medium grained, dense, wet, no odor.	
			17						
			18						

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 BLASLAND, BOUCK & LEE, INC.
 engineers, scientists, economists

Remarks:
 NA: Not Applicable
 ft bgs: feet below ground surface
 PID: Photoionization Detector
 NR: No Recovery

Water Level Data

Date	Depth	Elev.
2/4/05	7.90	5.76

Depth measured from top of casing*

Client:
Progress Energy Carolinas Inc.

Site Location:
Progress Energy
L.V. Sutton Steam
Electric Plant

Well/Boring ID: MW-20D (FADA)

Borehole Depth: 52 ft bgs

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Iron Staining	Geologic Column	Stratigraphic Description	Well/Boring Construction
25 -15				1.5'	4 10 8 13	18	0.0			SAND (SM), tan, fine to medium grained, medium dense, wet, no odor.	Bentonite grout (37.0' - 0.0')
30 -20				1.0'	3 3 3 4	6	0.0			SAND (SM), tan, fine to medium grained, loose, wet, no odor.	6-inch nominal borehole (48.0'-0.0')
35 -25				1.0'	1 1 1 1	2	0.0			SAND (SM), dark brown, fine to medium grained, very loose, wet, no odor.	Bentonite chips (41.0'-37.0')
40 -30				1.0'	1 1 1 1	2	0.0				Well Gravel Pack No. 1 (48.0' - 41.0')
45 -35				0.8'	4 7 7 8	14	0.0			SAND (SM), dark brown, fine to medium grained, medium dense, wet, no odor.	2-inch 0.010 slot PVC screen (48.0' - 43.0')
50 -40				1.5'	14 26 24 19	50	0.0			SAND (SM), green to dark gray, silt to fine grained, very dense, wet, no odor.	1.5-inch nominal borehole (48.0'-45.0')
Boring terminated at 52.0 ft bls											Natural Collapse

BBL[®]
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

Remarks:

NA: Not Applicable
ft bgs: feet below ground surface
PID: Photoionization Detector
NR: No Recovery

Water Level Data

Date	Depth	Elev.
2/4/05	7.90	5.76

Depth measured from top of casing*

WELL CONSTRUCTION RECORD

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) ARNOLD-CHAPEL CERTIFICATION # 2487

WELL CONTRACTOR COMPANY NAME PARRATT-WOLFF, INC. PHONE # (919) 644-2814

STATE WELL CONSTRUCTION PERMIT# _____ ASSOCIATED WQ PERMIT# _____
(if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐
Monitoring ☒ Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use _____

2. WELL LOCATION:

Nearest Town: WILMINGTON County NEW HANOVER

801 SUTTON STEAM PLANT ROAD

(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

3. OWNER: PROGRESS ENERGY

Address 801 SUTTON STEAM PLANT ROAD

(Street or Route No.)

WILMINGTON NC 28401

City or Town State Zip Code

() - _____

Area code- Phone number

4. DATE DRILLED 2/1/05

5. TOTAL DEPTH: 52.0'

6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒

7. STATIC WATER LEVEL Below Top of Casing: 5.5 FT.

(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 0 FT. Above Land Surface*

*Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C .0118.

9. YIELD (gpm): N/A METHOD OF TEST N/A

10. WATER ZONES (depth): N/A

11. DISINFECTION: Type N/A Amount N/A

12. CASING: Wall Thickness

From 0 To 43 Ft. 2" SCH 40 Material PVC

From _____ To _____ Ft. _____

From _____ To _____ Ft. _____

13. GROUT: Depth Material Method

From 0 To 37 Ft. PORTLAND TREMIE

From 37 To 41 Ft. BENTONITE TREMIE

14. SCREEN: Depth Diameter Slot Size Material

From 43 To 48 Ft. 2 in. .010 in. PVC

From _____ To _____ Ft. _____ in. _____ in. _____

15. SAND/GRAVEL PACK:

Depth Size Material

From 41 To 52 Ft. #1 SAND

From _____ To _____ Ft. _____

16. REMARKS: MW-20D SEE MAP ON BACK

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Arnold Chapel 2/1/05
SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC
27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001

Topographic/Land setting
☐ Ridge ☐ Slope ☐ Valley ☐ Flat
(check appropriate box)

Latitude/longitude of well location

N34 16.99'W77 58.98'

(degrees/minutes/seconds)

Latitude/longitude source: ☐ GPS ☒ Topographic map
(check box)

DEPTH

From To

0 5.0'

5.0 25.0

25.0 42.0

42.0 52.0

DRILLING LOG

Formation Description

Black/brown, wet, dense/loose,

fine/coarse SAND; trace

fine/coarse gravel and silt

Gray, wet, dense/loose, fine/

coarse SAND

Gray, wet, very loose, fine

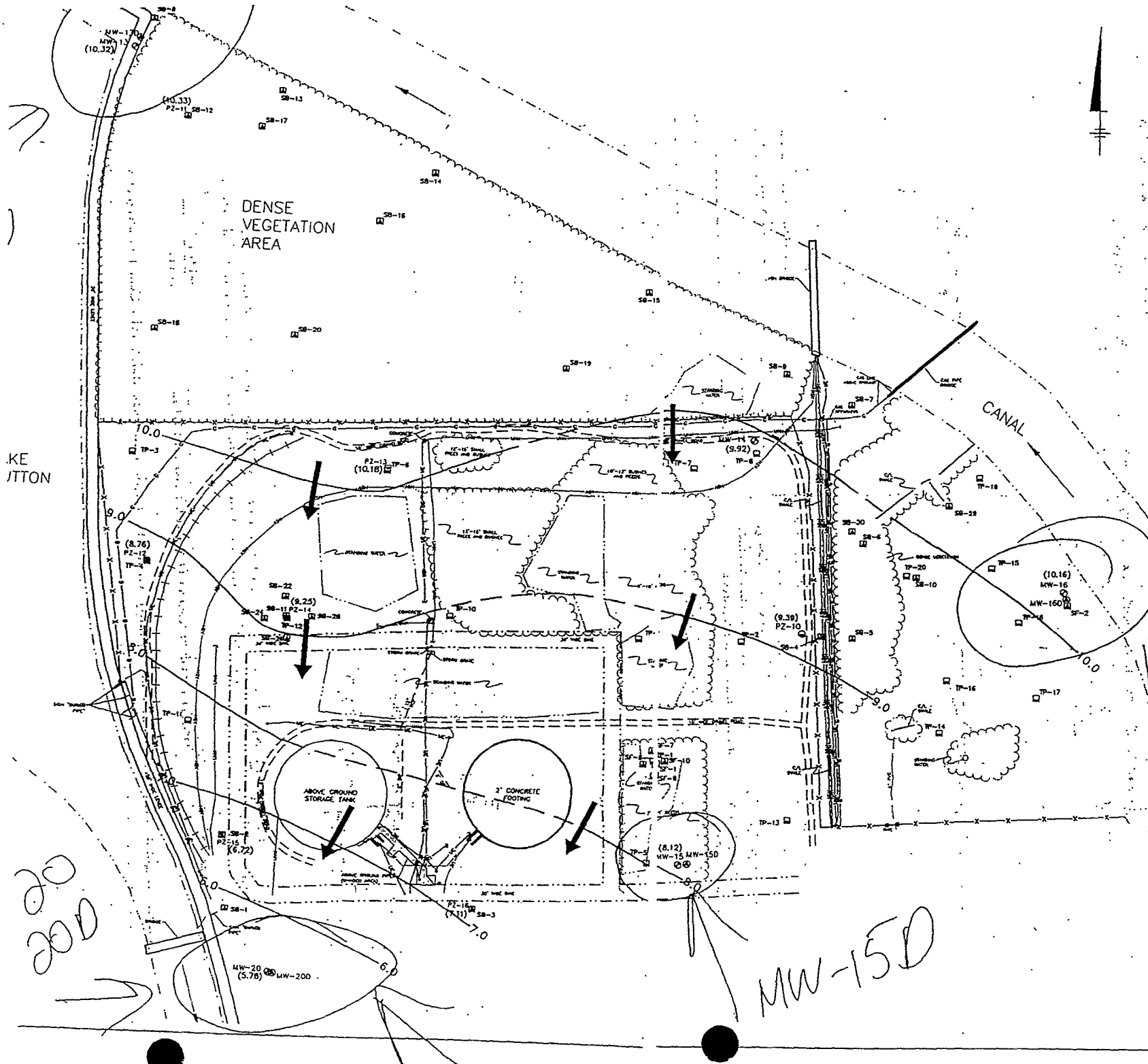
SAND

Green, wet, very dense, fine

SAND; trace clay and silt

LOCATION SKETCH

Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

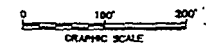


- SYMBOL LEGEND**
- EXISTING DEEP MONITORING POINT
 - EXISTING SHALLOW MONITORING POINT
 - TEMPORARY PIEZOMETER
 - PERMANENT PIEZOMETER
 - UTILITY RISER
 - LIGHT POLE
 - EXISTING TEST PIT
 - EXISTING SOIL BORINGS
- GROUNDWATER ELEVATION**
- (9.30) GROUNDWATER ELEVATION (FEB. 2005) DASHED WHEN CONTOUR INTERVAL = 1.0
- ← DIRECTION OF GROUNDWATER FLOW (FEB. 2005)

- LINE LEGEND**
- X-X- FENCE LINE
 - C- GAS LINE
 - ASH- ASH LINE
 - GW- GROUND WIRE LINE
 - UE- UNDERGROUND ELECTRIC
 - W- WATER LINE
 - D- DIKE LINE
 - SW- STANDING WATER
 - SP- STORM PIPE
 - R- RAILROAD TRACK (C/L)
 - TV- TREE/VEGETATION LINE
 - U- UNKNOWN LINE
 - GR- GRAVEL ROAD

NOTE:

1. SOURCE: SURVEY PROVIDED BY TAYLOR, WISEMAN & TAYLOR, 3500 Regency Parkway, Suite 100, Cary, N.C. 919-297-0085, (PROJECT NO. 70488.0005) DATED JULY 13, 2004. SURVEY DATA COLLECTED ON JUNE 23, 2004.



PROGRESS ENERGY
L.V. SUTTON STEAM ELECTRIC PLANT, W
PHASE II REMEDIAL INVESTIGATION

SHALLOW GROUNDWATER POT
SURFACE MAP - FORMER ASI
AREA - FEBRUARY 4, 2005

BBL
BOUCK & LEE, INC.
SCIENTISTS, ENGINEERS

Appendix B

Data Validation Reports and Laboratory Data

MEMORANDUM



To: Scott Davies
From: Dennis Capria
Re: Data Review

Date: 3/21/2005

Data for sample collected from the Progress Energy-Sutton site in North Carolina during January 2005 were reviewed for quality assurance/quality control compliance. The data report from CompuChem, Inc. of Cary, North Carolina was reviewed. Included in the review are data from the following sample delivery group (SDG): C501739. The following summarizes the findings of the QA/QC review:

Volatile/Semi-volatile

- One data set was reviewed, including 14 soil sample 1 equipment blank and 1 trip blank.
- Samples were analyzed for following:

Analysis	Method
Volatile Petroleum Hydrocarbons (MADEP- VPH)	MADEP-VPH-04-1.1
Extractable Petroleum Hydrocarbons (MADEP-EPH)	MADEP-EPH-04-1.1

- All samples were analyzed within the method-specified holding time.
- All reported laboratory control sample recoveries were within control limits.
- Several target compounds were detected in the method blanks within this SDG. Associated Sample results less than the blank action level have been qualified as non-detect.
- Several surrogate recoveries associated with the EPH analysis were outside of the control limits. The associated sample results were either qualified estimated.
- No calibration data was provided.

The data were presented in a reduced deliverables format. Therefore, only a limited data review could be performed. Since no raw data were provided, no verification of compound identification and quantitation could be performed.

Other than for the deviations noted in this review, the reported data quality is within method specifications and the data is considered acceptable for use as reported by the laboratory.

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-1	SF-7 (0.5-1.0)	Solid	01/28/05	01/26/05 09:00	
01739-2	SF-8 (0.5-1.0)	Solid	01/28/05	01/26/05 09:15	
01739-3	SF-9 (0.5-1.0)	Solid	01/28/05	01/26/05 09:40	
01739-4	SF-10 (0.5-1.0)	Solid	01/28/05	01/26/05 10:00	
01739-5	SF-91 (0.5-1.0)	Solid	01/28/05	01/26/05	

Parameter	Units	Sample ID				
		01739-1 SF-7 (0.5-1.0)	01739-2 SF-8 (0.5-1.0)	01739-3 SF-9 (0.5-1.0)	01739-4 SF-10 (0.5-1.0)	01739-5 SF-91 (0.5-1.0)

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<9.9	<4.5	<8.5	<8.9	<10
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<5.1	<2.4	<4.4	<4.6	1.8J
C9-C10 Aromatic Hydrocarbons (Unadjusted)	mg/kg dw	6.9B	1.5B ✓	2.2JB	4.3B	5.6B
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	122 %	112 %	99 %	107 %	117 %
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	123 %	113 %	100 %	109 %	117 %
Percent Solids		78	81	79	77	80
Dilution Factor		143	68	125	127	150
Prep Date		02/01/05	02/02/05	02/01/05	02/02/05	02/02/05
Analysis Date		02/01/05	02/02/05	02/01/05	02/02/05	02/02/05
Batch ID		TR5009B	TR5009B	TR5009B	TR5009B	TR5009B
Prep Method		MADEP-VPH	MADEP-VPH	MADEP-VPH	MADEP-VPH	MADEP-VPH
Analyst		CP	CP	CP	CP	CP
Quantitation Factor		183	84	158	165	188

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C9-C18 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	51B J	4.4B ✓	9B J	18B J	13B
C19-C36 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	280B J	49B	82B J	120B J	98B

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-1	SF-7 (0.5-1.0)	Solid	01/28/05	01/26/05 09:00	
01739-2	SF-8 (0.5-1.0)	Solid	01/28/05	01/26/05 09:15	
01739-3	SF-9 (0.5-1.0)	Solid	01/28/05	01/26/05 09:40	
01739-4	SF-10 (0.5-1.0)	Solid	01/28/05	01/26/05 10:00	
01739-5	SF-91 (0.5-1.0)	Solid	01/28/05	01/26/05	

Parameter	Units	Sample ID				
		01739-1	01739-2	01739-3	01739-4	01739-5
		SF-7 (0.5-1.0)	SF-8 (0.5-1.0)	SF-9 (0.5-1.0)	SF-10 (0.5-1.0)	SF-91 (0.5-1.0)

Extractable Petroleum Hydrocarbons (MADEP-EPH)

Surrogate -

1-Chloro-octadecane *	%	13 %D	76 %	39 %D	39 %D	84 %
Percent Solids		78	81	79	77	80
Dilution Factor		5	1	2	2	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/03/05	02/04/05	02/04/05	02/03/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550B	3550B	3550B	3550B	3550B
Analyst		IE	IE	IE	IE	IE
Quantitation Factor		6.4	1.2	2.5	2.6	1.3

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C11-C22 Aromatic Hydrocarbons

(Unadjusted)	mg/kg dw	120 J	24 J	33 J	20 J	44 J
Surrogate - o-Terphenyl *	%	69 %	80 %	104 %	66 %	96 %
Surrogate - 2-Fluorobiphenyl *	%	112 %	135 %	154 %	44 %	149 %
Surrogate -						
2-Bromonaphthalene *	%	28 %	35 %	26 %	6 %	36 %
Percent Solids		78	81	79	77	80
Dilution Factor		1	1	1	1	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/03/05	02/03/05	02/03/05	02/03/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550	3550	3550	3550	3550
Analyst		IE	IE	IE	IE	IE
Quantitation Factor		1.3	1.2	1.3	1.3	1.3

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-6	SB-22 (4.0-4.5)	Solid	01/28/05	01/26/05 13:00	
01739-7	SB-24 (4.0-4.5)	Solid	01/28/05	01/26/05 13:55	
01739-8	SB-26 (4.5-5.0)	Solid	01/28/05	01/26/05 15:25	
01739-9	SB-28 (4.0-4.5)	Solid	01/28/05	01/26/05 16:00	
01739-10	SB-29 (3.5-4.0)	Solid	01/28/05	01/27/05 07:45	

Parameter	Units	Sample ID				
		01739-6 SB-22 (4.0-4.5)	01739-7 SB-24 (4.0-4.5)	01739-8 SB-26 (4.5-5.0)	01739-9 SB-28 (4.0-4.5)	01739-10 SB-29 (3.5-4.0)

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<10	<9.6	<9.2	<9.1	<8.7
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<5.2	<5.0	<4.8	<4.7	<4.5
C9-C10 Aromatic Hydrocarbons (Unadjusted)	mg/kg dw	1.6JB ✓	1.5JB ✓	2.8B	2.3JB	16B
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	118 %	112 %	116 %	114 %	105 %
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	118 %	111 %	118 %	115 %	106 %
Percent Solids		78	81	81	80	82
Dilution Factor		145	143	139	135	132
Prep Date		02/02/05	02/02/05	02/02/05	02/02/05	02/02/05
Analysis Date		02/02/05	02/02/05	02/02/05	02/02/05	02/02/05
Batch ID		TR009B	TR009B	TR009B	TR009B	TR009B
Prep Method		MADEP-VPH	MADEP-VPH	MADEP-VPH	MADEP-VPH	MADEP-VPH
Analyst		CP	CP	CP	CP	CP
Quantitation Factor		186	177	171	169	161

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C9-C18 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	4.0B ✓	0.82JB ✓	2.1B ✓	22B	2.1B ✓
C19-C36 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	28B	59B	12B	99B	20B

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-6	SB-22 (4.0-4.5)	Solid	01/28/05	01/26/05 13:00	
01739-7	SB-24 (4.0-4.5)	Solid	01/28/05	01/26/05 13:55	
01739-8	SB-26 (4.5-5.0)	Solid	01/28/05	01/26/05 15:25	
01739-9	SB-28 (4.0-4.5)	Solid	01/28/05	01/26/05 16:00	
01739-10	SB-29 (3.5-4.0)	Solid	01/28/05	01/27/05 07:45	

Parameter	Units	Sample ID				
		01739-6	01739-7	01739-8	01739-9	01739-10
		SB-22 (4.0-4.5)	SB-24 (4.0-4.5)	SB-26 (4.5-5.0)	SB-28 (4.0-4.5)	SB-29 (3.5-4.0)

Extractable Petroleum Hydrocarbons (MADEP-EPH)

Surrogate -

1-Chloro-octadecane *	%	85 %	77 %	67 %	70 %	70 %
Percent Solids		78	81	81	80	82
Dilution Factor		1	1	1	1	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/04/05	02/04/05	02/04/05	02/04/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550B	3550B	3550B	3550B	3550B
Analyst		IE	IE	IE	IE	IE
Quantitation Factor		1.3	1.2	1.2	1.3	1.2

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C11-C22 Aromatic Hydrocarbons

(Unadjusted)	mg/kg dw	9.2	5.9 J	5.9 J	26	7.1 J
Surrogate - o-Terphenyl *	%	97 %	90 %	90 %	103 %	94 %
Surrogate - 2-Fluorobiphenyl *	%	139 %	146 %	146 %	138 %	142 %
Surrogate -						
2-Bromonaphthalene *	%	43 %	75 %	75 %	51 %	77 %
Percent Solids		78	81	81	80	82
Dilution Factor		1	1	1	1	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/04/05	02/04/05	02/04/05	02/04/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550	3550	3550	3550	3550
Analyst		IE	IE	IE	IE	IE
Quantitation Factor		1.3	1.2	1.2	1.3	1.2

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-11	SB-30 (2.5-3.0)	Solid	01/28/05	01/27/05 08:10	
01739-12	SB-32 (3.5-4.0)	Solid	01/28/05	01/27/05 11:10	
01739-13	SB-31 (2.5-3.0)	Solid	01/28/05	01/27/05 08:55	
01739-14	SB-92 (3.5-4.0)	Solid	01/28/05	01/27/05	

Parameter	Units	Sample ID			
		01739-11 SB-30 (2.5-3.0)	01739-12 SB-32 (3.5-4.0)	01739-13 SB-31 (2.5-3.0)	01739-14 SB-92 (3.5-4.0)

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<9.6	<9.9	<8.2	<9.2
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<5.0	<5.1	<4.3	<4.8
C9-C10 Aromatic Hydrocarbons (Unadjusted)	mg/kg dw	1.1JB ✓	1.4JB ✓	0.87JB ✓	0.98JB ✓
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	103 %	94 %	96 %	96 %
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	104 %	95 %	97 %	97 %
Percent Solids		78	76	82	84
Dilution Factor		139	139	125	144
Prep Date		02/03/05	02/03/05	02/03/05	02/03/05
Analysis Date		02/03/05	02/03/05	02/03/05	02/03/05
Batch ID		TRS009B	TRS009B	TRS009B	TRS009B
Prep Method		MADEP-VPH	MADEP-VPH	MADEP-VPH	MADEP-VPH
Analyst		CP	CP	CP	CP
Quantitation Factor		178	183	152	171

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C9-C18 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	1.8B ✓	1.5JB 2.20	0.87JB 2.10	2.3B ✓
C19-C36 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	6.4B ✓	4.6B ✓	3.5B ✓	17B ✓
Surrogate - 1-Chloro-octadecane *	%	78 %	72 %	77 %	72 %
Percent Solids		78	76	82	84
Dilution Factor		1	1	1	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/04/05	02/04/05	02/04/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550B	3550B	3550B	3550B
Analyst		IE	IE	IE	IE
Quantitation Factor		1.3	1.3	1.2	1.2

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-11	SB-30 (2.5-3.0)	Solid	01/28/05	01/27/05 08:10	
01739-12	SB-32 (3.5-4.0)	Solid	01/28/05	01/27/05 11:10	
01739-13	SB-31 (2.5-3.0)	Solid	01/28/05	01/27/05 08:55	
01739-14	SB-92 (3.5-4.0)	Solid	01/28/05	01/27/05	

Parameter	Units	Sample ID			
		01739-11 SB-30 (2.5-3.0)	01739-12 SB-32 (3.5-4.0)	01739-13 SB-31 (2.5-3.0)	01739-14 SB-92 (3.5-4.0)

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C11-C22 Aromatic Hydrocarbons					
(Unadjusted)	mg/kg dw	3.5 J	2.8 J	1.9 J	3.3 J
Surrogate - o-Terphenyl *	%	110 %	126 %	108 %	98 %
Surrogate - 2-Fluorobiphenyl *	%	115 %	186 %*	151 %*	114 %
Surrogate -					
2-Bromonaphthalene *	%	11 %*	32 %*	24 %*	9 %*
Percent Solids		78	76	82	84
Dilution Factor		1	1	1	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/04/05	02/04/05	02/04/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550	3550	3550	3550
Analyst		IE	IE	IE	IE
Quantitation Factor		1.3	1.3	1.2	1.2

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-15	EB-012605	Liquid	01/28/05	01/26/05 16:15	
Sample ID					
Parameter	Units	01739-15			
		EB-012605			

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons		
(Unadjusted)	ug/l	<26
C9-C12 Aliphatic Hydrocarbons		
(Unadjusted)	ug/l	<11
C9-C10 Aromatic Hydrocarbons		
(Unadjusted)	ug/l	5.8JB
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	100 %
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	103 %
Dilution Factor		1
Prep Date		02/01/05
Analysis Date		02/01/05
Batch ID		TRW012A
Prep Method		MADEP-VPH
Analyst		CP
Quantitation Factor		1

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C9-C18 Aliphatic Hydrocarbons		
(Unadjusted)	ug/l	21JB
C19-C36 Aliphatic Hydrocarbons (Unadjusted)	ug/l	68B
Surrogate -		
1-Chloro-octadecane *	%	88 %
Dilution Factor		1
Prep Date		02/01/05
Analysis Date		02/04/05
Batch ID		FPS2008
Prep Method		3550B
Analyst		IE
Quantitation Factor		1.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-15	EB-012605	Liquid	01/28/05	01/26/05 16:15	
Sample ID					
Parameter	Units	01739-15			
		EB-012605			

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C11-C22 Aromatic Hydrocarbons

(Unadjusted)	ug/l	49J
Surrogate - o-Terphenyl *	%	117 %
Surrogate - 2-Fluorobiphenyl *	%	137 %
Surrogate -		
2-Bromonaphthalene *	%	13 %*
Dilution Factor		1
Prep Date		02/01/05
Analysis Date		02/04/05
Batch ID		FPS2008
Prep Method		3550
Analyst		IE
Quantitation Factor		1

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-16	TB-012705	Liquid	01/28/05	01/27/05	
Sample ID					
Parameter	Units	01739-16			
		TB-012705			

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	ug/l	<26
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	ug/l	<11
C9-C10 Aromatic Hydrocarbons (Unadjusted)	ug/l	4.9JB
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	93 %
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	95 %
Dilution Factor		1
Prep Date		02/01/05
Analysis Date		02/01/05
Batch ID		TRW012A
Prep Method		MADEP-VPH
Analyst		CP
Quantitation Factor		1

Analytical Report

For: Mr. Scott Davies
Blasland, Bouck & Lee, Inc.
3700 Regency Parkway, Suite 140
Cary, NC 27511

CC:

Order Number: C501739
SDG Number:
Client Project ID: SUTTON STEAM PLANT
Project: FADA-PHASE II
Report Date: 02/10/2005
Sampled By: Client
Sample Received Date: 01/28/2005
Requisition Number:
Purchase Order:



Stephanie Akers, Project Manager
SAkers@stl-inc.com

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

STL Pensacola 3355 McLemore Drive - Pensacola FL 32514 Telephone: (850) 474-1001 Fax: (850) 478-2671

Sample Summary

Order: C501739
Date Received: 01/28/2005Client: Blasland, Bouck & Lee, Inc.
Project: FADA-PHASE II

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
SF-7 (0.5-1.0)	C501739*1	Solid	01/26/2005 09:00
SF-8 (0.5-1.0)	C501739*2	Solid	01/26/2005 09:15
SF-9 (0.5-1.0)	C501739*3	Solid	01/26/2005 09:40
SF-10 (0.5-1.0)	C501739*4	Solid	01/26/2005 10:00
SF-91 (0.5-1.0)	C501739*5	Solid	01/26/2005
SB-22 (4.0-4.5)	C501739*6	Solid	01/26/2005 13:00
SB-24 (4.0-4.5)	C501739*7	Solid	01/26/2005 13:55
SB-26 (4.5-5.0)	C501739*8	Solid	01/26/2005 15:25
SB-28 (4.0-4.5)	C501739*9	Solid	01/26/2005 16:00
SB-29 (3.5-4.0)	C501739*10	Solid	01/27/2005 07:45
SB-30 (2.5-3.0)	C501739*11	Solid	01/27/2005 08:10
SB-32 (3.5-4.0)	C501739*12	Solid	01/27/2005 11:10
SB-31 (2.5-3.0)	C501739*13	Solid	01/27/2005 08:55
SB-92 (3.5-4.0)	C501739*14	Solid	01/27/2005
EB-012605	C501739*15	Liquid	01/26/2005 16:15
TB-012705	C501739*16	Liquid	01/27/2005

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-1	SF-7 (0.5-1.0)	Solid	01/28/05	01/26/05 09:00	
01739-2	SF-8 (0.5-1.0)	Solid	01/28/05	01/26/05 09:15	
01739-3	SF-9 (0.5-1.0)	Solid	01/28/05	01/26/05 09:40	
01739-4	SF-10 (0.5-1.0)	Solid	01/28/05	01/26/05 10:00	
01739-5	SF-91 (0.5-1.0)	Solid	01/28/05	01/26/05	

Parameter	Units	Sample ID				
		01739-1 SF-7 (0.5-1.0)	01739-2 SF-8 (0.5-1.0)	01739-3 SF-9 (0.5-1.0)	01739-4 SF-10 (0.5-1.0)	01739-5 SF-91 (0.5-1.0)

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<9.9	<4.5	<8.5	<8.9	<10
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<5.1	<2.4	<4.4	<4.6	1.83
C9-C10 Aromatic Hydrocarbons (Unadjusted)	mg/kg dw	6.9B	1.5B	2.2JB	4.3B	5.6B
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	122 %	112 %	99 %	107 %	117 %
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	123 %	113 %	100 %	109 %	117 %
Percent Solids		78	81	79	77	80
Dilution Factor		143	68	125	127	150
Prep Date		02/01/05	02/02/05	02/01/05	02/02/05	02/02/05
Analysis Date		02/01/05	02/02/05	02/01/05	02/02/05	02/02/05
Batch ID		TRS009B	TRS009B	TRS009B	TRS009B	TRS009B
Prep Method		MADEP-VPH	MADEP-VPH	MADEP-VPH	MADEP-VPH	MADEP-VPH
Analyst		CP	CP	CP	CP	CP
Quantitation Factor		183	84	158	165	188

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C9-C18 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	51B	4.4B	9B	18B	13B
C19-C36 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	280B	49B	82B	120B	98B

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-1	SF-7 (0.5-1.0)	Solid	01/28/05	01/26/05 09:00	
01739-2	SF-8 (0.5-1.0)	Solid	01/28/05	01/26/05 09:15	
01739-3	SF-9 (0.5-1.0)	Solid	01/28/05	01/26/05 09:40	
01739-4	SF-10 (0.5-1.0)	Solid	01/28/05	01/26/05 10:00	
01739-5	SF-91 (0.5-1.0)	Solid	01/28/05	01/26/05	

Parameter	Units	Sample ID				
		01739-1	01739-2	01739-3	01739-4	01739-5
		SF-7 (0.5-1.0)	SF-8 (0.5-1.0)	SF-9 (0.5-1.0)	SF-10 (0.5-1.0)	SF-91 (0.5-1.0)

Extractable Petroleum Hydrocarbons (MADEP-EPH)

Surrogate -						
1-Chloro-octadecane *	%	13 %D	76 %	39 %D	39 %D	84 %
Percent Solids		78	81	79	77	80
Dilution Factor		5	1	2	2	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/03/05	02/04/05	02/04/05	02/03/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550B	3550B	3550B	3550B	3550B
Analyst		IE	IE	IE	IE	IE
Quantitation Factor		6.4	1.2	2.5	2.6	1.3

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C11-C22 Aromatic Hydrocarbons						
(Unadjusted)	mg/kg dw	120	24	33	20	44
Surrogate - o-Terphenyl *	%	69 %	80 %	104 %	66 %	96 %
Surrogate - 2-Fluorobiphenyl *	%	112 %	135 %	154 %*	44 %	149 %*
Surrogate -						
2-Bromonaphthalene *	%	28 %*	35 %*	26 %*	6 %*	36 %*
Percent Solids		78	81	79	77	80
Dilution Factor		1	1	1	1	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/03/05	02/03/05	02/03/05	02/03/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550	3550	3550	3550	3550
Analyst		IE	IE	IE	IE	IE
Quantitation Factor		1.3	1.2	1.3	1.3	1.3

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-6	SB-22 (4.0-4.5)	Solid	01/28/05	01/26/05 13:00	
01739-7	SB-24 (4.0-4.5)	Solid	01/28/05	01/26/05 13:55	
01739-8	SB-26 (4.5-5.0)	Solid	01/28/05	01/26/05 15:25	
01739-9	SB-28 (4.0-4.5)	Solid	01/28/05	01/26/05 16:00	
01739-10	SB-29 (3.5-4.0)	Solid	01/28/05	01/27/05 07:45	

Sample ID

Parameter	Units	01739-6 SB-22 (4.0-4.5)	01739-7 SB-24 (4.0-4.5)	01739-8 SB-26 (4.5-5.0)	01739-9 SB-28 (4.0-4.5)	01739-10 SB-29 (3.5-4.0)
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Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<10	<9.6	<9.2	<9.1	<8.7
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<5.2	<5.0	<4.8	<4.7	<4.5
C9-C10 Aromatic Hydrocarbons (Unadjusted)	mg/kg dw	1.6JB	1.6JB	2.8B	2.3JB	16B
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	118 %	112 %	116 %	114 %	105 %
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	118 %	111 %	118 %	115 %	106 %
Percent Solids		78	81	81	80	82
Dilution Factor		145	143	139	135	132
Prep Date		02/02/05	02/02/05	02/02/05	02/02/05	02/02/05
Analysis Date		02/02/05	02/02/05	02/02/05	02/02/05	02/02/05
Batch ID		TRS009B	TRS009B	TRS009B	TRS009B	TRS009B
Prep Method		MADEP-VPH	MADEP-VPH	MADEP-VPH	MADEP-VPH	MADEP-VPH
Analyst		CP	CP	CP	CP	CP
Quantitation Factor		186	177	171	169	161

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C9-C18 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	4.0B	0.82JB	2.1B	22B	2.1B
C19-C36 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	28B	59B	12B	99B	20B

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-6	SB-22 (4.0-4.5)	Solid	01/28/05	01/26/05 13:00	
01739-7	SB-24 (4.0-4.5)	Solid	01/28/05	01/26/05 13:55	
01739-8	SB-26 (4.5-5.0)	Solid	01/28/05	01/26/05 15:25	
01739-9	SB-28 (4.0-4.5)	Solid	01/28/05	01/26/05 16:00	
01739-10	SB-29 (3.5-4.0)	Solid	01/28/05	01/27/05 07:45	

Parameter	Units	Sample ID				
		01739-6 SB-22 (4.0-4.5)	01739-7 SB-24 (4.0-4.5)	01739-8 SB-26 (4.5-5.0)	01739-9 SB-28 (4.0-4.5)	01739-10 SB-29 (3.5-4.0)

Extractable Petroleum Hydrocarbons (MADEP-EPH)

Surrogate -						
1-Chloro-octadecane *	%	85 %	77 %	67 %	70 %	70 %
Percent Solids		78	81	81	80	82
Dilution Factor		1	1	1	1	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/04/05	02/04/05	02/04/05	02/04/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550B	3550B	3550B	3550B	3550B
Analyst		IE	IE	IE	IE	IE
Quantitation Factor		1.3	1.2	1.2	1.3	1.2

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C11-C22 Aromatic Hydrocarbons						
(Unadjusted)	mg/kg dw	9.2	5.9	5.9	26	7.1
Surrogate - o-Terphenyl *	%	97 %	90 %	90 %	103 %	94 %
Surrogate - 2-Fluorobiphenyl *	%	139 %	146 %*	146 %*	138 %	142 %*
Surrogate -						
2-Bromonaphthalene *	%	43 %	75 %	75 %	51 %	77 %
Percent Solids		78	81	81	80	82
Dilution Factor		1	1	1	1	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/04/05	02/04/05	02/04/05	02/04/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550	3550	3550	3550	3550
Analyst		IE	IE	IE	IE	IE
Quantitation Factor		1.3	1.2	1.2	1.3	1.2

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-11	SB-30 (2.5-3.0)	Solid	01/28/05	01/27/05 08:10	
01739-12	SB-32 (3.5-4.0)	Solid	01/28/05	01/27/05 11:10	
01739-13	SB-31 (2.5-3.0)	Solid	01/28/05	01/27/05 08:55	
01739-14	SB-92 (3.5-4.0)	Solid	01/28/05	01/27/05	

Parameter	Units	Sample ID			
		01739-11 SB-30 (2.5-3.0)	01739-12 SB-32 (3.5-4.0)	01739-13 SB-31 (2.5-3.0)	01739-14 SB-92 (3.5-4.0)

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<9.6	<9.9	<8.2	<9.2
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<5.0	<5.1	<4.3	<4.8
C9-C10 Aromatic Hydrocarbons (Unadjusted)	mg/kg dw	1.1JB	1.4JB	0.87JB	0.98JB
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	103 %	94 %	96 %	96 %
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	104 %	95 %	97 %	97 %
Percent Solids		78	76	82	84
Dilution Factor		139	139	125	144
Prep Date		02/03/05	02/03/05	02/03/05	02/03/05
Analysis Date		02/03/05	02/03/05	02/03/05	02/03/05
Batch ID		TRS009B	TRS009B	TRS009B	TRS009B
Prep Method		MADEP-VPH	MADEP-VPH	MADEP-VPH	MADEP-VPH
Analyst		CP	CP	CP	CP
Quantitation Factor		178	183	152	171

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C9-C18 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	1.8B	1.5JB	0.87JB	2.3B
C19-C36 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	6.4B	4.6B	3.5B	17B
Surrogate - 1-Chloro-octadecane *	%	78 %	72 %	77 %	72 %
Percent Solids		78	76	82	84
Dilution Factor		1	1	1	1
Prep Date		02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/04/05	02/04/05	02/04/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550B	3550B	3550B	3550B
Analyst		IE	IE	IE	IE
Quantitation Factor		1.3	1.3	1.2	1.2

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-11	SB-30 (2.5-3.0)	Solid	01/28/05	01/27/05 08:10	
01739-12	SB-32 (3.5-4.0)	Solid	01/28/05	01/27/05 11:10	
01739-13	SB-31 (2.5-3.0)	Solid	01/28/05	01/27/05 08:55	
01739-14	SB-92 (3.5-4.0)	Solid	01/28/05	01/27/05	

Parameter	Units	Sample ID			
		01739-11 SB-30 (2.5-3.0)	01739-12 SB-32 (3.5-4.0)	01739-13 SB-31 (2.5-3.0)	01739-14 SB-92 (3.5-4.0)

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C11-C22 Aromatic Hydrocarbons

(Unadjusted)	mg/kg dw	3.5	2.8	1.9	3.3
Surrogate - o-Terphenyl *	%	110 %	126 %	108 %	98 %
Surrogate - 2-Fluorobiphenyl *	%	115 %	186 %*	151 %*	114 %
Surrogate -					
2-Bromonaphthalene *	%	11 %*	32 %*	24 %*	9 %*
Percent Solids		78	76	82	84
Recovery Factor		1	1	1	1
Sample Date		02/01/05	02/01/05	02/01/05	02/01/05
Analysis Date		02/04/05	02/04/05	02/04/05	02/04/05
Batch ID		FPS2008	FPS2008	FPS2008	FPS2008
Prep Method		3550	3550	3550	3550
Analyst		IE	IE	IE	IE
Quantitation Factor		1.3	1.3	1.2	1.2

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-15	EB-012605	Liquid	01/28/05	01/26/05 16:15	
Sample ID					
Parameter	Units	01739-15 EB-012605			

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	ug/l	<26
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	ug/l	<11
C9-C10 Aromatic Hydrocarbons (Unadjusted)	ug/l	5.8JB
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	100 %
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	103 %
Dilution Factor		1
Prep Date		02/01/05
Analysis Date		02/01/05
Batch ID		TRW012A
Prep Method		MADEP-VPH
Analyst		CP
Quantitation Factor		1

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C9-C18 Aliphatic Hydrocarbons (Unadjusted)	ug/l	21JB
C19-C36 Aliphatic Hydrocarbons (Unadjusted)	ug/l	68B
Surrogate - 1-Chloro-octadecane *	%	88 %
Dilution Factor		1
Prep Date		02/01/05
Analysis Date		02/04/05
Batch ID		FPS2008
Prep Method		3550B
Analyst		IE
Quantitation Factor		1.0

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-15	EB-012605	Liquid	01/28/05	01/26/05 16:15	
Sample ID					
Parameter	Units	01739-15			
		EB-012605			

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C11-C22 Aromatic Hydrocarbons

(Unadjusted)	ug/l	493
Surrogate - o-Terphenyl *	%	117 %
Surrogate - 2-Fluorobiphenyl *	%	137 %
Surrogate -		
2-Bromonaphthalene *	%	13 %*
Dilution Factor		1
Prep Date		02/01/05
Analysis Date		02/04/05
Batch ID		FPS2008
Method		3550
Analyst		IE
Quantitation Factor		1

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-16	TB-012705	Liquid	01/28/05	01/27/05	
Sample ID					
Parameter	Units	01739-16 TB-012705			

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	ug/l	<26
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	ug/l	<11
C9-C10 Aromatic Hydrocarbons (Unadjusted)	ug/l	4.9JB
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	93 %
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	95 %
Recovery Factor		1
Prep Date		02/01/05
Analysis Date		02/01/05
Batch ID		TRW012A
Prep Method		MADEP-VPH
Analyst		CP
Quantitation Factor		1

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-17	Method Blank	Solid	01/28/05		
01739-18	Lab Control Standard % Recovery	Solid	01/28/05		
01739-19	LCS Accuracy Control Limit (%R)	Solid	01/28/05		

Parameter	Units	Sample ID			~
		01739-17 Method Blank	01739-18 Lab Control	01739-19 StanLCS Accuracy Con	

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<2.7	101 %	70-130
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	<1.4	130 %	70-130
C9-C10 Aromatic Hydrocarbons (Unadjusted)	mg/kg dw	0.34J	100 %	70-130
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	109 %	107 %	70-130
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	110 %	109 %	70-130
Dilution Factor		50		
Prep Date		02/02/05		
Analysis Date		02/02/05		
Batch ID		TRS009B	TRS009B	
Prep Method		MADEP-VPH		
Analyst		CP		
Quantitation Factor		50		

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C9-C18 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	1.2J	79 %	40-140
C19-C36 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	0.87J	96 %	40-140
Surrogate - 1-Chloro-octadecane *	%	71 %	70 %	40-140
Dilution Factor		1		
Prep Date		02/01/05		
Analysis Date		02/03/05		
Batch ID		FPS2008	FPS2008	
Prep Method		3550B		
Analyst		IE		
Quantitation Factor		1.0		

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-17	Method Blank	Solid	01/28/05		
01739-18	Lab Control Standard % Recovery	Solid	01/28/05		
01739-19	LCS Accuracy Control Limit (%R)	Solid	01/28/05		

Parameter	Units	Sample ID		
		01739-17 Method Blank	01739-18 Lab Control	01739-19 StanLCS Accuracy Con

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C11-C22 Aromatic Hydrocarbons

(Unadjusted)	mg/kg dw	<1.6	28.333	40-140
Surrogate - o-Terphenyl *	%	74 %	125.000	40-140
Surrogate - 2-Fluorobiphenyl *	%	108 %	100.000	40-140
Surrogate -				
2-Bromonaphthalene *	%	18 %*	100.000	40-140
Dilution Factor		1		
Prep Date		02/01/05		
Analysis Date		02/03/05		
Batch ID		FPS2008	FPS2008	
Prep Method		3550		
Analyst		IE		
Quantitation Factor		1		

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-20	Method Detection Limit (MDL)	Solid	01/28/05		
01739-21	Reporting Limit (RL)	Solid	01/28/05		

Parameter	Units	Sample ID	
		01739-20	01739-21
		Method Detection Limit	Reporting Limit

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	0.011	0.054
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	0.0093	0.028
C9-C10 Aromatic Hydrocarbons (Unadjusted)	mg/kg dw	0.0053	0.015

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C18 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	0.37	1.6
C19-C36 Aliphatic Hydrocarbons (Unadjusted)	mg/kg dw	0.44	1.6

Extractable Petroleum Hydrocarbons (MADEP-EPH)

C11-C22 Aromatic Hydrocarbons			
(Unadjusted)	mg/kg dw	0.37	1.6

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-22	Method Blank	Liquid	01/28/05		
01739-23	Lab Control Standard % Recovery	Liquid	01/28/05		
01739-24	LCS Accuracy Control Limit (%R)	Liquid	01/28/05		
Sample ID					
Parameter	Units	01739-22 Method Blank	01739-23 Lab Control	01739-24 StanLCS Accuracy Con	

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons (Unadjusted)	ug/l	<26	109 %	70-130
C9-C12 Aliphatic Hydrocarbons (Unadjusted)	ug/l	<11	98 %	70-130
C9-C10 Aromatic Hydrocarbons (Unadjusted)	ug/l	<7.0	90 %	70-130
Surrogate-a,a,a-Trifluorotoluene (PID) *	%	100 %	99 %	70-130
Surrogate-a,a,a-Trifluorotoluene (FID) *	%	102 %	102 %	70-130
Dilution Factor		1		
Prep Date		02/01/05		
Analysis Date		02/01/05		
Batch ID		TRW012A	TRW012A	
Prep Method		MADEP-VPH		
Analyst		CP		
Quantitation Factor		1		

STL Pensacola 3355 McLemore Drive - Pensacola FL 32514 Telephone:(850) 474-1001 Fax:(850) 478-2671

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
01739-25	Method Detection Limit (MDL)	Liquid	01/28/05		
01739-26	Reporting Limit (RL)	Liquid	01/28/05		
Sample ID					
Parameter	Units	01739-25	01739-26		
		Method Detection	Reporting Limit		

Volatile Petroleum Hydrocarbons (MADEP-VPH)

C5-C8 Aliphatic Hydrocarbons			
(Unadjusted)	ug/l	4.5	26
C9-C12 Aliphatic Hydrocarbons			
(Unadjusted)	ug/l	4.2	11
C9-C10 Aromatic Hydrocarbons			
(Unadjusted)	ug/l	4.6	7.0

STL Pensacola 3355 McLemore Drive - Pensacola FL 32514 Telephone: (850) 474-1001 Fax: (850) 478-2671

Order Number: C501739

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name BBL
 Project Name FADA-PHASE II
 Site Location NC

Laboratory Name STL PENSACOLA
 NC Certification # (Lab) 314
 Sample Matrix SOIL

Sample Information and Analytical Results

Method for Ranges: MADEP VPH VPH Surrogate Standards Aliphatic: aaa-trifluorotoluene Aromatic: aaa-trifluorotoluene		Sample Identification			C501739-1	C501739-2	C501739-3	C501739-4
		Collection Option (for soil)*			OPTION 3	OPTION 3	OPTION 3	OPTION 3
		Date Collected			1/26/05	1/26/05	1/26/05	1/26/05
		Date Received			1/28/05	1/28/05	1/28/05	1/28/05
		Date Extracted			1/26/05	1/26/05	1/26/05	1/26/05
		Date Analyzed			2/1/05	2/2/05	2/1/05	2/2/05
		% Dry Solids			78	81	79	77
		Dilution Factor			143	68	125	127
Hydrocarbon Ranges	Units of Measure	MDL	RL	Blank				
C5 - C8 Aliphatics**	mg/kg_dw	0.56	2.7	<0.56	<9.9	<4.5	<8.5	<8.9
C9 - C12 Aliphatics**	mg/kg_dw	0.47	1.4	<0.47	<5.1	<2.4	<4.4	<4.6
C9 - C10 Aromatics**	mg/kg_dw	0.27	0.75	0.34 J	6.9 B	1.5 B	2.2 J B	4.3 B
Sample Surrogate Acceptance Range				70-130%	70-130%	70-130%	70-130%	70-130%
Aromatic Surrogate % Recovery - PID				109%	122%	112%	99%	107%
Aliphatic Surrogate % Recovery - FID				110%	123%	113%	100%	109%

* Option 1 = Established fill line on vial Option 2 = Sampling Device (indicate brand, e.g. EnCore™) Option 3 = Field weight of soil
 ** Unadjusted value. Should exclude the concentration of any surrogate(s), internal standards, and/or concentrations of other ranges that elute within the specified range.
 MDL = Method Detection Limit RL = Reporting Limit Blank = Laboratory Method Blank or Trip Blank whichever is higher (indicate type)

VPH rev. 11/00

Were all performance/acceptance standards for required QA/QC procedures achieved?

Yes

Were any significant modifications to the VPH method made?

Yes - Method Modifications are specified in
 STL Pensacola SOP 435

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name BBL
 Project Name FADA-PHASE II
 Site Location NC

Laboratory Name STL PENSACOLA
 NC Certification # (Lab) 314
 Sample Matrix SOIL

Sample Information and Analytical Results

Method for Ranges: MADEP VPH VPH Surrogate Standards Aliphatic: aaa-trifluorotoluene Aromatic: aaa-trifluorotoluene		Sample Identification			C501739-5	C501739-6	C501739-7	C501739-8
		Collection Option (for soil)*			OPTION 3	OPTION 3	OPTION 3	OPTION 3
		Date Collected			1/26/05	1/26/05	1/26/05	1/26/05
		Date Received			1/28/05	1/28/05	1/28/05	1/28/05
		Date Extracted			1/26/05	1/26/05	1/26/05	1/26/05
		Date Analyzed			2/2/05	2/2/05	2/2/05	2/2/05
		% Dry Solids			80	78	81	81
		Dilution Factor			150	145	143	139
Hydrocarbon Ranges	Units of Measure	MDL	RL	Blank				
C5 - C8 Aliphatics**	mg/kg_dw	0.56	2.7	<0.56	<10	<10	<9.6	<9.2
C9 - C12 Aliphatics**	mg/kg_dw	0.47	1.4	<0.47	1.8 J	<5.2	<5.0	<4.8
C9 - C10 Aromatics**	mg/kg_dw	0.27	0.75	0.34 J	5.6 B	1.6 J B	1.6 J B	2.8 B
Sample Surrogate Acceptance Range				70-130%	70-130%	70-130%	70-130%	70-130%
Aromatic Surrogate % Recovery - PID				109%	117%	118%	112%	116%
Aliphatic Surrogate % Recovery - FID				110%	117%	118%	111%	118%
* Option 1 = Established fill line on vial Option 2 = Sampling Device (indicate brand, e.g. EnCore™) Option 3 = Field weight of soil ** Unadjusted value. Should exclude the concentration of any surrogate(s), internal standards, and/or concentrations of other ranges that elute within the specified range. MDL = Method Detection Limit RL = Reporting Limit Blank = Laboratory Method Blank or Trip Blank whichever is higher (indicate type)								

VPH rev. 11/00

Were all performance/acceptance standards for required QA/QC procedures achieved?

Yes

Were any significant modifications to the VPH method made?

Yes - Method Modifications are specified in
 STL Pensacola SOP 435

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name BBL
 Project Name FADA-PHASE II
 Site Location NC

Laboratory Name STL PENSACOLA
 NC Certification # (Lab) 314
 Sample Matrix SOIL

Sample Information and Analytical Results

Method for Ranges: MADEP VPH VPH Surrogate Standards Aliphatic: aaa-trifluorotoluene Aromatic: aaa-trifluorotoluene		Sample Identification			C501739-9	C501739-10	C501739-11	C501739-12
		Collection Option (for soil)*			OPTION 3	OPTION 3	OPTION 3	OPTION 3
		Date Collected			1/26/05	1/27/05	1/27/05	1/27/05
		Date Received			1/28/05	1/28/05	1/28/05	1/28/05
		Date Extracted			1/26/05	1/27/05	1/27/05	1/27/05
		Date Analyzed			2/2/05	2/2/05	2/3/05	2/3/05
		% Dry Solids			80	82	78	76
		Dilution Factor			135	132	139	139
Hydrocarbon Ranges	Units of Measure	MDL	RL	Blank				
C5 - C8 Aliphatics**	mg/kg_dw	0.56	2.7	<0.56	<9.1	<8.7	<9.6	<9.9
C9 - C12 Aliphatics**	mg/kg_dw	0.47	1.4	<0.47	<4.7	<4.5	<5.0	<5.1
C9 - C10 Aromatics**	mg/kg_dw	0.27	0.75	0.34 J	2.3 J B	16 B	1.1 J B	1.4 J B
Sample Surrogate Acceptance Range				70-130%	70-130%	70-130%	70-130%	70-130%
Aromatic Surrogate % Recovery - PID				109%	114%	105%	103%	94%
Aliphatic Surrogate % Recovery - FID				110%	115%	106%	104%	95%

* Option 1 = Established fill line on vial Option 2 = Sampling Device (indicate brand, e.g. EnCore™) Option 3 = Field weight of soil
 ** Unadjusted value. Should exclude the concentration of any surrogate(s), internal standards, and/or concentrations of other ranges that elute within the specified range.
 MDL = Method Detection Limit RL = Reporting Limit Blank = Laboratory Method Blank or Trip Blank whichever is higher (indicate type)

VPH rev. 11/00

Were all performance/acceptance standards for required QA/QC procedures achieved?

Yes

Were any significant modifications to the VPH method made?

Yes - Method Modifications are specified in
 STL Pensacola SOP 435

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name BBL
 Project Name FADA-PHASE II
 Site Location NC

Laboratory Name STL PENSACOLA
 NC Certification # (Lab) 314
 Sample Matrix SOIL

Sample Information and Analytical Results

Method for Ranges: MADEP VPH VPH Surrogate Standards Aliphatic: aaa-trifluorotoluene Aromatic: aaa-trifluorotoluene		Sample Identification			C501739-13	C501739-14		
		Collection Option (for soil)*			OPTION 3	OPTION 3		
		Date Collected			1/27/05	1/27/05		
		Date Received			1/28/05	1/28/05		
		Date Extracted			1/27/05	1/27/05		
		Date Analyzed			2/3/05	2/3/05		
		% Dry Solids			82	84		
		Dilution Factor			125	144		
Hydrocarbon Ranges	Units of Measure	MDL	RL	Blank				
C5 - C8 Aliphatics**	mg/kg_dw	0.56	2.7	<0.56	<8.2	<9.2		
C9 - C12 Aliphatics**	mg/kg_dw	0.47	1.4	<0.47	<4.3	<4.8		
C9 - C10 Aromatics**	mg/kg_dw	0.27	0.75	0.34 J	0.87 J B	0.98 J B		
Sample Surrogate Acceptance Range				70-130%	70-130%	70-130%		
Aromatic Surrogate % Recovery - PID				109%	96%	96%		
Aliphatic Surrogate % Recovery - FID				110%	97%	97%		

* Option 1 = Established fill line on vial Option 2 = Sampling Device (indicate brand, e.g. EnCore™) Option 3 = Field weight of soil
 ** Unadjusted value. Should exclude the concentration of any surrogate(s), internal standards, and/or concentrations of other ranges that elute within the specified range.
 MDL = Method Detection Limit RL = Reporting Limit Blank = Laboratory Method Blank or Trip Blank whichever is higher (indicate type)

VPH rev. 11/00

Were all performance/acceptance standards for required QA/QC procedures achieved?

Yes

Were any significant modifications to the VPH method made?

Yes - Method Modifications are specified in
 STL Pensacola SOP 435

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name BBL
 Project Name FADA-PHASE II
 Site Location NC

Laboratory Name STL PENSACOLA
 NC Certification # (Lab) 314
 Sample Matrix LIQUID

Sample Information and Analytical Results

Method for Ranges: MADEP VPH VPH Surrogate Standards Aliphatic: Aromatic:		Sample Identification			C501739-15	C501739-16		
		Collection Option (for soil)*			N/A	N/A		
		Date Collected			1/26/05	1/27/05		
		Date Received			1/28/05	1/28/05		
		Date Extracted			N/A	N/A		
		Date Analyzed			2/1/05	2/1/05		
		% Dry Solids			N/A	N/A		
		Dilution Factor			1	1		
Hydrocarbon Ranges	Units of Measure	MDL	RL	Blank				
C5 - C8 Aliphatics**	ug/l	4.45	26	<4.5	<26	<26		
C9 - C12 Aliphatics**	ug/l	4.24	11	<4.2	<11	<11		
C9 - C10 Aromatics**	ug/l	4.59	7.0	<4.6	5.8 J	4.9 J		
Sample Surrogate Acceptance Range				70-130%	70-130%	70-130%		
Aliphatic Surrogate % Recovery - PID				100%	100%	93%		
Aromatic Surrogate % Recovery - FID				102%	103%	95%		

* Option 1 = Established fill line on vial Option 2 = Sampling Device (indicate brand, e.g. EnCore™) Option 3 = Field weight of soil
 ** Unadjusted value. Should exclude the concentration of any surrogate(s), internal standards, and/or concentrations of other ranges that elute within the specified range.
 MDL = Method Detection Limit RL = Reporting Limit Blank = Laboratory Method Blank or Trip Blank whichever is higher (indicate type)

VPH rev. 11/00

Were all performance/acceptance standards for required QA/QC procedures achieved?

Yes

Were any significant modifications to the VPH method made?

Yes - Method Modifications are specified
 in STL Pensacola SOP 435

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name BBL
 Project Name FADA-PHASE II
 Site Location NORTH CAROLINA

Laboratory Name STL PENSACOLA
 NC Certification # (Lab) 314
 Sample Matrix SOIL

Sample Information and Analytical Results

Method for Ranges: NC EPH		Sample Identification			C501739-1	C501739-2	C501739-3	C501739-4	C501739-5	C501739-6	C501739-7	C501739-8	C501739-9
EPH Surrogate Standards		Date Collected											
Aliphatic: 1-CHLORO-OCTADECANE		Date Received			1/26/2005	1/26/2005	1/26/2005	1/26/2005	1/26/2005	1/26/2005	1/26/2005	1/26/2005	1/26/2005
Aromatic:O-TERPHENYL		Date Extracted			2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005
EPH Fractionation Surrogates		Date Analyzed			2/4/2005	2/3/2005	2/4/2005	2/4/2005	2/3/2005	2/4/2005	2/4/2005	2/4/2005	2/4/2005
#1:2-FLUOROBIPHENYL		% Dry Solids			78%	81%	79%	77%	80%	78%	81%	81%	80%
#2:2-BROMONAPHTHALENE		Dilution Factor			X5/X1	X1	X2/X1	X2/X1	X1	X1	X1	X1	X1
Hydrocarbon Ranges	Units of Measure	MDL	RL	Blank									
C9 - C18 Aliphatics*	mg/kg	0.37	1.6	1.2J	51B	4.4B	9.0B	18B	13B	4.0B	0.82JB	2.1B	22B
C19 - C36 Aliphatics*	mg/kg	0.44	1.6	0.87J	280B	49B	82B	120B	98B	28B	5.9B	12B	99B
C11 - C22 Aromatics*	mg/kg	0.37	1.6	<1.6	120	24	33	20	44	9.2	4.1	5.9	26
Sample Surrogate Acceptance Range				40-140%	40-140%	40-140%	40-140%	40-140%	40-140%	40-140%	40-140%	40-140%	40-140%
Aliphatic Surrogate % Recovery				71%	13%D	76%	39%D	39%D	84%	85%	77%	67%	70%
Aromatic Surrogate % Recovery				74%	69%	80%	104%	66%	96%	97%	120%	90%	103%
Fractionation Surrogate Acceptance Range				40-140%	40-140%	40-140%	40-140%	40-140%	40-140%	40-140%	40-140%	40-140%	40-140%
Fractionation Surrogate #1 % Recovery				108%	112%	135%	154%*	44%	139%	139%	152%*	146%*	138%
Fractionation Surrogate #2 % Recovery				18%*	28 %*	35%*	26%*	6%*	43%	43%	65%	75%	51%

* Unadjusted value. Should exclude the concentration of any surrogate(s), internal standards, and/or concentrations of other ranges that elute within the specified range.

MDL = Method Detection Limit RL = Reporting Limit Blank = Laboratory Method Blank

EPH rev. 11/00

Were all performance/acceptance standards for required QA/QC procedures achieved?

Yes

Was blank correction applied as a significant modification of the method?

Yes

Were any significant modifications to the EPH method made?

Yes - Method Modifications are specified in
 STL Pensacola SOP 646

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name BBL
 Project Name FADA-PHASE II
 Site Location NORTH CAROLINA

Laboratory Name STL PENSACOLA
 NC Certification # (Lab) 314
 Sample Matrix SOIL

Sample Information and Analytical Results

Method for Ranges: NC EPH		Sample Identification			C501739-10	C501739-11	C501739-12	C501739-13	C501739-14
EPH Surrogate Standards		Date Collected							
Aliphatic: 1-CHLORO-OCTADECANE		Date Received			1/27/2005	1/27/2005	1/27/2005	1/27/2005	1/27/2005
Aromatic:O-TERPHENYL		Date Extracted			2/1/2005	2/1/2005	2/1/2005	2/1/2005	2/1/2005
EPH Fractionation Surrogates		Date Analyzed			2/4/2005	2/4/2005	2/4/2005	2/4/2005	2/4/2005
#1:2-FLUOROBIIPHENYL		% Dry Solids			82%	78%	76%	82%	84%
#2:2-BROMONAPHTHALENE		Dilution Factor			X1	X1	X1	X1	X1
Hydrocarbon Ranges	Units of Measure	MDL	RL	Blank					
C9 - C18 Aliphatics*	mg/kg	0.37	1.6	1.2 J	2.1 B	1.8 B	1.5 JB	0.87 JB	2.3 B
C19 - C36 Aliphatics*	mg/kg	0.44	1.6	0.87 J	20 B	6.4 B	4.6 B	3.5 B	17 B
C11 - C22 Aromatics*	mg/kg	0.37	1.6	<1.6	7.1	3.5	2.8	1.9	3.3
Sample Surrogate Acceptance Range				40-140%	40-140%	40-140%	40-140%	40-140%	40-140%
Aliphatic Surrogate % Recovery				71%	70%	78%	72%	77%	72%
Aromatic Surrogate % Recovery				74%	94%	110%	126%	108%	98%
Fractionation Surrogate Acceptance Range				40-140%	40-140%	40-140%	40-140%	40-140%	40-140%
Fractionation Surrogate #1 % Recovery				108%	142%*	115%	186%*	151%*	114%
Fractionation Surrogate #2 % Recovery				18%*	77%	11%*	32%*	24%*	9%*
* Unadjusted value. Should exclude the concentration of any surrogate(s), internal standards, and/or concentrations of other ranges that elute within the specified range.									
MDL = Method Detection Limit RL = Reporting Limit Blank = Laboratory Method Blank									

EPH rev. 11/00

Were all performance/acceptance standards for required QA/QC procedures achieved?

Yes

Was blank correction applied as a significant modification of the method?

Yes

Were any significant modifications to the EPH method made?

Yes - Method Modifications are specified in
 STL Pensacola SOP 646

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name BBL
 Project Name FADA-PHASELL
 Site Location NORTH CAROLINA

Laboratory Name STL PENSACOLA
 NC Certification # (Lab) 314
 Sample Matrix WATER

Sample Information and Analytical Results

Method for Ranges: NC EPH EPH Surrogate Standards Aliphatic: 1-CHLORO-OCTADECANE Aromatic: O-TERPHENYL EPH Fractionation Surrogates #1: 2-FLUOROBIPHENYL #2: 2-BROMONAPHTHALENE		Sample Identification		C501739-15			
		Date Collected		1/26/2005			
		Date Received					
		Date Extracted		2/1/2005			
		Date Analyzed		2/4/2005			
		% Dry Solids					
		Dilution Factor		X1			
Hydrocarbon Ranges	Units of Measure	MDL	RL	Blank			
C9 - C18 Aliphatics*	µg/L	9.49	50	1.2 J	21 BJ		
C19 - C36 Aliphatics*	µg/L	10.75	50	0.87 J	68 B		
C11 - C22 Aromatics*	µg/L	11.33	50	< 1.6	49 J		
Sample Surrogate Acceptance Range				40-140%	40-140%		
Aliphatic Surrogate % Recovery				71%	88%		
Aromatic Surrogate % Recovery				74%	117%		
Fractionation Surrogate Acceptance Range				40-140%	40-140%		
Fractionation Surrogate #1 % Recovery				108%	137%		
Fractionation Surrogate #2 % Recovery				18%*	13%*		

* Unadjusted value. Should exclude the concentration of any surrogate(s), internal standards, and/or concentrations of other ranges that elute within the specified range.
 MDL = Method Detection Limit RL = Reporting Limit Blank = Laboratory Method Blank

EPH rev. 11/00

Were all performance/acceptance standards for required QA/QC procedures achieved?

Yes

Was blank correction applied as a significant modification of the method?

Yes

Were any significant modifications to the EPH method made?

Yes - Method Modifications are
 specified in STL Pensacola SOP 646

SERIAL NUMBER: 19045

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN
TRENT

STL

STL Pensacola
3355 McLemore Drive
Pensacola, FL 32514Phone: 850-474-1001
Fax: 850-478-2671
Website: www.stl-inc.com

QUOTE NO.

BOTTLE ORDER NO.

ORDER - LOG-IN NO.

C501739

CLIENT BBL, Inc		ADDRESS 3700 Regency Pkwy Suite 140 Cary, NC 27511		REQUESTED ANALYSIS		PAGE 1		OF 2	
PROJECT NAME FADA-Phase II		PROJECT NO. Sutton Steam Plant		CLIENT/PROJECT MANAGER Scott Davies		PROJECT LOC. (STATE) North Carolina		POSSIBLE HAZARD IDENTIFICATION	
SAMPLED BY Brian Lovgren		CONTRACT / P.O. NO.		PRESERVATIVE		MATRIX		<input type="checkbox"/> NON-HAZARD <input type="checkbox"/> FLAMMABLE <input type="checkbox"/> RADIOACTIVE <input type="checkbox"/> POISON B <input type="checkbox"/> UNKNOWN <input type="checkbox"/> OTHER:	
CLIENT PHONE 919-469-1952 X17		CLIENT E-MAIL OR FAX SEB@BBL-INC.COM		No Preservative HCL - Hydrochloric Acid HNO3 - Nitric Acid H2SO4 - Sulfuric Acid or H3PO4 NaOH - Sodium Hydroxide CH3OH - Methanol NaHSO4 - Sodium Bisulfate Na2SO3 - Sodium Thiosulfate Other:		Drinking Water Aqueous GW, SW, WW Solid, Semisolid, Sediment Air NonAqueous (Oil, Solvent, etc.)		NC MAVPH NC MAEPH	
TAT REQUESTED: RUSH NEEDS LAB PREAPPROVAL <input type="checkbox"/> NORMAL - 10 BUSINESS DAYS		<input type="checkbox"/> 1 DAY <input type="checkbox"/> 2 DAYS <input type="checkbox"/> 3 DAYS <input type="checkbox"/> 5 DAYS <input type="checkbox"/> 20 DAYS (Package) <input type="checkbox"/> OTHER:		SAMPLE DISPOSAL: <input type="checkbox"/> RETURN TO CLIENT <input type="checkbox"/> DISPOSAL BY LAB		<input type="checkbox"/> SEE CONTRACT <input type="checkbox"/> OTHER:		NO. OF COOLERS PER SHIPMENT:	
SAMPLE		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED		SPECIAL INSTRUCTIONS/ CONDITIONS OF RECEIPT		LAB USE ONLY - SAMPLE NUMBER	
DATE	TIME								
1-26-05	0900	SF-7 (0.5-1.0)		2		3	1		
1-26-05	0915	SF-8 (0.5-1.0)		2		3	1		
1-26-05	0940	SF-9 (0.5-1.0)		2		3	1		
1-26-05	1000	SF-10 (0.5-1.0)		2		3	1		
1-26-05	1000	SF-10 (0.5-1.0) MS		2		3	1		
1-26-05	1000	SF-10 (0.5-1.0) MSB		2		3	1		
1-26-05	NIR	SF-91 (0.5-1.0)		2		3	1		
1-26-05	1300	SB-22 (4.0-4.5)		2		3	1		
1-26-05	1355	SB-24 (4.0-4.5)		2		3	1		
1-26-05	1525	SB-26 (4.5-5.0)		2		3	1		
1-26-05	1600	SB-28 (4.0-4.5)		2		3	1		
1-26-05	1615	EB-012605		5		3	2		
1-27-05	NIR	TB-012705		2		2			
RELINQUISHED BY: (SIGNATURE) EMDTV CONTAINERS		DATE	TIME	RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i>		DATE	TIME	RELINQUISHED BY: (SIGNATURE) F	
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE) FLD Ex		DATE	TIME	RECEIVED BY: (SIGNATURE)	
						1-27-05	1500		
						1-27-05	1500		
LABORATORY USE ONLY									
RECEIVED FOR LABORATORY BY: <i>[Signature]</i>		DATE	TIME	CUSTODY INTACT? X YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	CUSTODY SEAL NO. 644428 1044438	REMARKS:			
1/28/05		0945							

SERIAL NUMBER: 1944

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**SEVERN
TRENT**

STL

STL Pensacola
3355 McLemore Drive
Pensacola, FL 32514

Phone: 850-474-1001
Fax: 850-478-2671
Website: www.stl-inc.com

QUOTE NO.

BOTTLE ORDER NO.

ORDER -LOG-IN NO.

SCA
C501732

C501739

CLIENT

BBL, Inc

ADDRESS

3700 Regency Pkwy Suite 140 Cary, NC 27511

REQUESTED ANALYSIS

PAGE

OF

2

2

PROJECT NAME

FADA-Phasell

PROJECT NO.

Sutton Steam Plant

CLIENT PROJECT MANAGER

PROJECT LOC. (STATE)

SAMPLED BY

Brian Longren

CONTRACT / P.O. NO.

PRESERVATIVE

MATRIX

CLIENT PHONE

919-469-1952 x17

CLIENT E-MAIL OR FAX

SEDeBBL-INC.com

TAT REQUESTED: RUSH NEEDS LAB PREAPPROVAL ☐ NORMAL - 10 BUSINESS DAYS

☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☐ 5 DAYS ☐ 20 DAYS (Package) ☐ OTHER:

SAMPLE DISPOSAL: ☐ RETURN TO CLIENT ☐ DISPOSAL BY LAB

☐ SEE CONTRACT ☐ OTHER:

SAMPLE

SAMPLE IDENTIFICATION

DATE

TIME

1-27-05 0745

SB-29 (3.5-4.0)

1-27-05 0810

SB-30 (2.5-3.0)

1-27-05 1110

SB-32 (3.5-4.0)

1-27-05 0855

SB-31 (2.5-3.0)

1-27-05 N/R

SB-92 (3.5-4.0)

No Preservative

HCL - Hydrochloric Acid

HNO3 - Nitric Acid

H2SO4 - Sulfuric Acid or H3PO4

NaOH - Sodium Hydroxide

CH3OH - Methanol

NaHSO4 - Sodium Bisulfate

Na2SO3 - Sodium Thiosulfate

Other:

Drinking Water

Aqueous GW, SW, WW

Solid, Semisolid, Sediment

Air

NonAqueous (Oil, Solvent, etc.)

NC MAVPH

NC MAEPH

NUMBER OF CONTAINERS SUBMITTED

POSSIBLE HAZARD

IDENTIFICATION

☐ NON-HAZARD

☐ FLAMMABLE

☐ RADIOACTIVE

☐ POISON B

☐ UNKNOWN

☐ OTHER:

NO. OF COOLERS PER

SHIPMENT:

SPECIAL INSTRUCTIONS/

CONDITIONS OF RECEIPT

LAB USE ONLY - SAMPLE NUMBER

RELINQUISHED BY: (SIGNATURE)

SEVERN TRENT

DATE

1-19-05

TIME

1410

RELINQUISHED BY: (SIGNATURE)

23-3

DATE

1-27-05

TIME

1500

RELINQUISHED BY: (SIGNATURE)

DATE

TIME

RECEIVED BY: (SIGNATURE)

SEVERN TRENT

DATE

1/21/05

TIME

1200

RECEIVED BY: (SIGNATURE)

Fed Ex

DATE

1-27-05

TIME

1500

RECEIVED BY: (SIGNATURE)

DATE

TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY:

Cheryl R. White

DATE

1/28/05

TIME

0945

CUSTODY INTACT?

X YES ☐ NO

CUSTODY SEAL NO.

644438

REMARKS:

STL Pensacola PROJECT SAMPLE INSPECTION FORM



STL

Lab Order #: _____

Date Received: 01/28/05

- | | |
|--|--|
| <p>1. Was there a Chain of Custody? <u>Yes</u> No⁺</p> <p>2. Was Chain of Custody properly filled out and relinquished? <u>Yes</u> No⁺</p> <p>3. Were all samples properly labeled and identified? <u>Yes</u> No⁺</p> <p>4. Were samples received cold? <u>Yes</u> No⁺ N/A
(Criteria: 0.1° - 6°C: STL-SOP 1055)</p> <p>5. Did samples require splitting or compositing⁺? Yes⁺ <u>No</u></p> <p>6. Were samples received in proper containers for analysis requested? <u>Yes</u> No⁺</p> <p>7. Were all sample containers received intact? <u>Yes</u> No⁺</p> | <p>8. Were samples checked for preservative? <u>Yes</u> No⁺ N/A
(Check pH of all H₂O requiring preservative (STL-PN SOP 917) except VOA vials that require zero headspace)⁺</p> <p>9. Is there sufficient volume for analysis requested? <u>Yes</u> No⁺ N/A (Can)</p> <p>10. Were samples received within Holding Time? <u>Yes</u> No⁺</p> <p>11. Is Headspace (bubble) visible > ¼" diameter in VOA vial(s)?⁺ Yes⁺ <u>No</u> N/A</p> <p>12. Were Trip Blanks Received? <u>Yes</u> No N/A</p> <p>13. If yes, was analysis of Trip Blanks requested? <u>Yes</u> No N/A</p> <p>14. Were MS/MSD-specific bottles provided? <u>Yes</u> No⁺ N/A</p> <p>15. If any issues, how was PM notified? PSIF <input type="checkbox"/> Verbal <input type="checkbox"/></p> |
|--|--|

Airbill Number(s): 848373385328

Delivery By: UPS FedEx HD BUS DHL PE

(HD - Hand Delivery)

Cooler Number(s) & Temp(s) °C: Client 0.3 and 2.0°C IR-1

(IE. #340L, 4°C, IR-1 - COOLER NUMBER, TEMPERATURE, THERMOMETER NUMBER)

Comments (reference item numbers above and list sample IDs/Tests where appropriate):

Inspected By: QW

Date: 01/28/05

Logged By: LLK

Date: 29-JAN-05

Note all Out-of-Control and/or questionable events on Comment Section of this form. For holding times, the analytical department will flag immediate hold time samples (pH, Dissolved O2, Residual CL) as out of hold time, therefore, these samples will not be documented on this PSIF.

All volatile samples requested to be split or composited must be done in the Volatile Lab. Document: "Volatile sample values may be compromised due to sample splitting (compositing)"

All pH results for North Carolina, and other requested projects are to be recorded on the pH log provided (STL-SOP 938).

According to EPA, a bubble of ¼" or less is acceptable in 40 ml vials requiring volatile analysis. According to Florida DEP, excess headspace in liquid TCLP volatile containers shall be documented.

ProjectManagement\Pensvr31\Forms\PSIF.DOC June 18, 2004

ANY PERSON MAKING OR ADDING COMMENTS TO ANY PART OF THIS PSIF MUST INITIAL AND DATE ALL CORRECTIONS, COMMENTS AND/OR INSTRUCTIONS.

Organic Data Qualifiers for Final Report

B	The analyte was detected in the method blank and in the client's sample.
D	The result was obtained from a dilution.
E	The result exceeds the calibration range.
J	Estimated value because the analyte concentration is less than the reporting limit.
M	A matrix effect was present.
N	Presumptive evidence of a compound. The compound was identified qualitatively or as a Tentatively Identified Compound.
N/C	Not Calculable. Either the sample spiked was > 4X spike concentration, or the compound was diluted out, or the results of sample duplicate analysis were <RL.
P	Second-column or detector confirmation exceeded method criteria. Appropriate value is reported and data is flagged/qualified as instructed by method/regulation.
U or < or ND	The analyte was not detected.
*	The result is not within control limit(s).

Inorganic Data Qualifiers for Final Report

B	The analyte was detected in the method blank and in the client's sample.
E	The reported value is estimated because of the presence of interference.
J	Estimated value because the analyte concentration is less than the reporting limit.
N	The spiked sample recovery is not within control limits.
N/C	Not Calculable. Either the sample spiked was > 4X spike concentration, or the compound was diluted out, or the results of sample duplicate analysis were <RL.
U or < or ND	The analyte was not detected.
	Duplicate analysis not within control limits
M	The duplicate injection precision was not met.
S	The reported value was determined by the Method of Standard Addition (MSA).
W	Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance and post spike recovery is greater than or equal to 40%, the sample is flagged with a "W" and no further action is required.
+	The Standard Additions Correlation Coefficient is <0.995.
L	The result is not within control limit(s).

It is permissible to submit an Out-of-Control Events/Corrective Action form and/or Case Narrative in lieu of using above qualifiers.

When the laboratory receives a sample that does not meet EPA requirements for sample collection, preservation or holding time, the laboratory is required to reject the samples. The client must be notified and asked whether the lab should proceed with analysis. Data from any samples that do not meet sample acceptance criteria (collection, preservation and holding time), must be flagged, or noted on a corrective action form or case narrative, or addressed on the Project Sample Inspection Form (PSIF) in an unambiguous manner clearly defining the nature and substance of the variation. NPDES samples from North Carolina that do not meet EPA requirements for sample collection, preservation or holding time are non-reportable for NPDES compliance monitoring.

Abbreviations

ND	Not Detected at or above the STL Pensacola reporting limit (RL)
NS	Not Submitted
NA	Not Applicable
MDL	STL Pensacola Method Detection Limit
RL	STL Pensacola Reporting Limit
NoMS	Not enough sample provided to prepare and/or analyze a method-required matrix spike (MS) and/or duplicate (MSD)
TIC	Tentatively Identified Compound

Florida Projects Inorganic/Organic

Refer to FL DEP 62-160; Table 4 Data Qualifier Codes. FL DEP Rule 62-160, Table 1 lists the Florida sites which require data qualifiers.

Arizona DEQ Projects

Any qualified data submitted to Arizona DEQ (ADEQ) after January 1, 2001 must be designated using the Arizona Data Qualifiers as developed by the Arizona ELAC technical subcommittee. Refer to the ADEQ qualifier list.

Severn Trent Laboratories Inc.

STL Pensacola • 3355 McLemore Dr • Pensacola, FL 32514
Tel 850 474 1001 Fax 850 484 5315 • www.stl-inc.com



STL

STL PENSACOLA **Certifications, Memberships & Affiliations**

Alabama Department of Environmental Management, Laboratory ID No. 40150 (Drinking Water by Reciprocity with FL)

Arizona Department of Health Services, Lab ID No. AZ0589 (Hazardous Waste & Wastewater)

Arkansas Department of Pollution Control and Ecology, (88-0689) (Environmental)

California Department of Health Services, **ELAP** Laboratory ID No. 2510 (Hazardous Waste and Wastewater)

Connecticut Department of Health Services, Connecticut Lab Approval No. PH-0697 (D W, H W and Wastewater)

Florida DOH, **NELAP** Laboratory ID No. E81010 (Drinking Water, Hazardous Waste and Wastewater)

Florida DEP/DOH CompQAP # 980156

Illinois Environmental Laboratory Accreditation Program (ELAP), **NELAP** Laboratory ID No. 200041 (Wastewater and Hazardous Waste)

Iowa Department of Natural Resources, Laboratory ID No. 367 (Wastewater, UST, Solid Waste, & Contaminated Sites)

Kansas Department of Health & Environment, **NELAP** Laboratory ID No. E10253 (Wastewater and Hazardous Waste)

Kentucky NR&EPC, Laboratory ID No. 90043 (Drinking Water)

Kentucky Petroleum Storage Tank Env Assurance Fund, Laboratory ID No. 0053 (UST)

Louisiana DEQ, LELAP, **NELAP** Laboratory ID No. 02075, Agency Interest ID 30748 (Environmental)

Maryland DH&MH Laboratory ID No. 233 (Drinking Water by Reciprocity with Florida)

Massachusetts DEP, Laboratory ID No. M-FL094 (Wastewater)

Michigan Bureau of E&Occh, Laboratory ID No.9912 (Drinking Water by Reciprocity with Florida)

New Hampshire DES ELAP, **NELAP** Laboratory ID No. 250502 (Drinking Water & Wastewater)

New Jersey DEP&E, **NELAP** Laboratory ID No. FL006 (Wastewater and Hazardous Waster)

North Carolina DENR, Laboratory ID No. 314 (Hazardous Waste and Wastewater)

North Dakota DH&Consol Labs, Laboratory ID No. R-108 Wastewater and Hazardous Waste by Reciprocity with Arizona)

Oklahoma Department of Environmental Quality, Laboratory ID No. 9810 (Hazardous Waste and Wastewater)

Pennsylvania Department of Environmental Resources, **NELAP** Laboratory ID No. 68-467 (Drinking Water & Wastewater)

South Carolina DH&EC, Laboratory ID No. 96026 (Wastewater & Solids/Hazardous Waste by Reciprocity with FL)

Tennessee Department of Health & Environment, Laboratory ID No. 02907 (Drinking Water)

Virginia Department of General Services, Laboratory ID No. 00008 (Drinking Water by Reciprocity with FL)

West Virginia DOE, Office of Water Resources, Laboratory ID No. 136 (Haz Waste and Wastewater)

EPA ICR (Information Collection Rule) Approved Laboratory, Laboratory ID No. ICRFL031

NFESC (Naval Facilities Engineering Services Center)

USACE (United States Army Corps. of Engineers), MRD

STL Pensacola also has a foreign soil permit to accept soils from locations other than the continental United States. Permit No. S-37599

To: Scott Davies**Date:** 3/21/2005**From:** Dennis Capria**Re:** Data Review

Data for sample collected from the Progress Energy-Sutton site in North Carolina during February 2005 were reviewed for quality assurance/quality control compliance. The data report from CompuChem, Inc. of Cary, North Carolina was reviewed. Included in the review are data from the following sample delivery group (SDG): 5634 and 5635. The following summarizes the findings of the QA/QC review:

Metals

- One data set was reviewed, including 6 soil sample 1 equipment blank.
- Samples were analyzed for following:

Analysis	Method
Metals	EPA SW-846 6010B

- All samples were analyzed within the method-specified holding time.
- Matrix spike (MS) and laboratory duplicate analyses was performed on the sample location SF-6 (0.5-1.0). MS recoveries and laboratory duplicate relative percent differences were within control limits.
- All reported laboratory control sample recoveries were within control limits.
- Several target analytes were detected in the method blanks within this SDG. Associated Sample results of Zinc less than the blank action level, associated sample results of Thallium and Zinc data have been qualified as non-detect.
- No calibration data was provided.

The data were presented in a reduced deliverables format. Therefore, only a limited data review could be performed. Since no raw data were provided, no verification of compound identification and quantitation could be performed.

Other than for the deviations noted in this review, the reported data quality is within method specifications and the data is considered acceptable for use as reported by the laboratory.

SW-846

-I-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-3-0.5-1.0

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634

Matrix (soil/water): SOIL Lab Sample ID: 563402

Level (low/med): LOW Date Received: 01/28/05

% Solids: 95.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.21	U		P
7440-38-2	Arsenic	0.21	U		P
7440-41-7	Beryllium	0.01	U		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	0.06	U		P
7440-50-8	Copper	0.25	B		P
7439-92-1	Lead	0.42			P
7439-97-6	Mercury	0.015	U		CV
7439-96-5	Manganese	0.39	B		P
7440-02-0	Nickel	0.08	U		P
7782-49-2	Selenium	0.27	U		P
7440-22-4	Silver	0.08	U		P
7440-28-0	Thallium	0.30	U		P
7440-66-6	Zinc	0.85	B	U	P

Color Before: BLACK Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-4-0.5-1.0

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634
Matrix (soil/water): SOIL Lab Sample ID: 563403
Level (low/mad): LOW Date Received: 01/28/05
% Solids: 95.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.21	U		P
7440-38-2	Arsenic	0.21	U		P
7440-41-7	Beryllium	0.01	B		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	0.07	B		P
7440-50-8	Copper	0.19	B		P
7439-92-1	Lead	0.84			P
7439-97-6	Mercury	0.017	U		CV
7439-96-5	Manganese	0.66	B		P
7440-02-0	Nickel	0.24	B		P
7782-49-2	Selenium	0.27	U		P
7440-22-4	Silver	0.08	U		P
7440-28-0	Thallium	0.30	U		P
7440-66-6	Zinc	0.87	B	U	P

Color Before: BROWN Clarity Before: _____ Texture: COARSE
Color After: YELLOW Clarity After: _____ Artifacts: _____
Comments: _____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-5-0.5-1.0

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634
Matrix (soil/water): SOIL Lab Sample ID: 563404
Level (low/med): LOW Date Received: 01/28/05
% Solids: 94.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.20	U		P
7440-38-2	Arsenic	0.38	B		P
7440-41-7	Beryllium	0.01	U		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	0.78	B		P
7440-50-8	Copper	0.27	B		P
7439-92-1	Lead	2.3			P
7439-97-6	Mercury	0.016	U		CV
7439-96-5	Manganese	1.3			P
7440-02-0	Nickel	0.08	U		P
7782-49-2	Selenium	0.26	U		P
7440-22-4	Silver	0.08	U		P
7440-28-0	Thallium	0.29	U		P
7440-66-6	Zinc	1.5	B		P

Color Before: GRAY Clarity Before: _____ Texture: COARSE
Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments: _____

SW-846

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-6-0.5-1.0

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634
Matrix (soil/water): SOIL Lab Sample ID: 563406
Level (low/med): LOW Date Received: 01/28/05
% Solids: 93.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.22	U		P
7440-38-2	Arsenic	0.43	B		P
7440-41-7	Beryllium	0.02	B		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	0.93	B		P
7440-50-8	Copper	0.31	B		P
7439-92-1	Lead	1.7			P
7439-97-6	Mercury	0.018	U		CV
7439-96-5	Manganese	1.5			P
7440-02-0	Nickel	0.17	B		P
7782-49-2	Selenium	0.29	U		P
7440-22-4	Silver	0.09	U		P
7440-28-0	Thallium	0.32	U		P
7440-66-6	Zinc	1.4	B		P

Color Before: BROWN Clarity Before: _____ Texture: COARSE
Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments: _____

SW-846

-I-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-90-0.5-1.0

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5634

Matrix (soil/water): SOIL Lab Sample ID: 563405

Level (low/med): LOW Date Received: 01/28/05

% Solids: 96.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.20	U		P
7440-38-2	Arsenic	0.20	U		P
7440-41-7	Beryllium	0.01	U		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	0.06	U		P
7440-50-8	Copper	0.14	B		P
7439-92-1	Lead	0.42			P
7439-97-6	Mercury	0.015	U		CV
7439-96-5	Manganese	0.37	B		P
7440-02-0	Nickel	0.08	U		P
7782-49-2	Selenium	0.26	U		P
7440-22-4	Silver	0.08	U		P
7440-28-0	Thallium	0.29	U		P
7440-66-6	Zinc	1.1	B	U	P

Color Before: BROWN Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments: _____

SW-846

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

EB-012505

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5635

Matrix (soil/water): WATER Lab Sample ID: 563501

Level (low/med): LOW Date Received: 01/28/05

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	13.0			P
7440-38-2	Arsenic	2.1	U		P
7440-41-7	Beryllium	0.10	U		P
7440-43-9	Cadmium	0.30	U		P
7440-47-3	Chromium	0.60	U		P
7440-50-8	Copper	1.4	B		P
7439-92-1	Lead	1.6	B		P
7439-97-6	Mercury	0.10	U		CV
7439-96-5	Manganese	0.24	B		P
7440-02-0	Nickel	0.80	U		P
7782-49-2	Selenium	2.7	U		P
7440-22-4	Silver	0.80	U		P
7440-28-0	Thallium	3.0	U		P
7440-66-6	Zinc	20.6			P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____



CompuChem

a division of Liberty Analytical Corp.

10-Feb-05

SCOTT DAVIES
BLASLAND, BOUCK & LEE, INC.
3700 REGENCY PARKWAY
SUITE 140
Cary, NC 27511

Subject:

Report of Data-Project: SUTTON STEAM Workorder: 5634

Attn.: SCOTT DAVIES

Enclosed are the results of analytical work performed in accordance with the referenced account number.

This report covers sample(s) appearing on the attached listing.

Thank you for selecting CompuChem for your sample analysis. If you should have questions or require additional analytical services, please contact your representative at 1-800-833-5097.

Sincerely,

CompuChem
A Division of Liberty Analytical

Attachment

TOTAL NUMBER OF PAGES _____

CompuChem, a division of Liberty Analytical

Hsn	Client ID	Wordorder	Matrix	Account	Project	Report
563401	SF-2-0.5-1.0	5634	S	BB&L	SUTTON STEAM	
563402	SF-3-0.5-1.0	5634	S	BB&L	SUTTON STEAM	
563403	SF-4-0.5-1.0	5634	S	BB&L	SUTTON STEAM	
563404	SF-5-0.5-1.0	5634	S	BB&L	SUTTON STEAM	
563405	SF-90-0.5-1.0	5634	S	BB&L	SUTTON STEAM	
563406	SF-6-0.5-1.0	5634	S	BB&L	SUTTON STEAM	

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: COMPUCHEM Contract: _____Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5634SOW No.: SW-846

EPA Sample No.	Lab Sample ID.
SF-2-0.5-1.0	563401
SF-3-0.5-1.0	563402
SF-4-0.5-1.0	563403
SF-5-0.5-1.0	563404
SF-6-0.5-1.0	563406
SF-6-0.5-1.0D	59118
SF-6-0.5-1.0D	59123
SF-6-0.5-1.0S	59119
SF-6-0.5-1.0S	59124
SF-6-0.5-1.0SD	59120
SF-6-0.5-1.0SD	59125
SF-90-0.5-1.0	563405

Were ICP interelement corrections applied? Yes/No YESWere ICP background corrections applied? Yes/No YESIf yes-were raw data generated before
application of background corrections? Yes/No NOComments: _____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Thomas R. ColeName: Thomas R. ColeDate: February 10, 2005Title: Data Reviewer II

CompuChem

a Division of Liberty Analytical Corp.

501 Madison Avenue Cary, NC 27513

INORGANIC CASE SUMMARY NARRATIVE

SDG # 5634

PROTOCOL # SW-846

The indicated Sample Delivery Group (SDG) consisting of six (6) soil samples was received into the laboratory management system (LIMS) on January 28, 2005 intact and in good condition with Chain of Custody (COC) records in order. Sample ID's reported in this data package are noted by the receiving department on the COC if they differ from those listed by the samplers on the COC.

The samples were analyzed for total antimony, arsenic, beryllium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc using analytical methods delineated in SW-846 (Third Edition)-Update III.

NOTE: Thallium in the method blank was found to be below the negative side of the reporting limit; however, no thallium was found in the samples.

SAMPLE IDs:

Customer IDs and correlating laboratory IDs are listed on the cover page.

INSTRUMENTAL QUALITY CONTROL:

All calibration verification solutions (ICV & CCV), blanks (ICB, & CCB), and interference check samples (ICSA & ICSAB) associated with this data were confirmed to be within SW-846 allowable limits.

SAMPLE PREPARATION QUALITY CONTROL:

The above note modifies the following statement.

The sample preparation procedure verifications (LCSS & PBS) were found to be within acceptable ranges and all field samples were prepared and analyzed within the contract specified holding times.

MATRIX RELATED QUALITY CONTROL:

The sample matrix spike, CCN = 59119 and 59124 (SF-6-0.5-1.0S) and the sample matrix spike duplicate, CCN = 59120 and 59125 (SF-6-0.5-1.0SD) were found to be inside control limits for the requested analytes.

SW-846 control limits for matrix spike recoveries are set at 75% to 125% of the analyte quantity added unless original sample concentrations exceed the true values of these "spikes" by a factor of four or more. In this case, affected analytes are not flagged even if recoveries are outside percentage recovery control limits.

The sample matrix duplicate, CCN = 59118 and 59123 (SF-6-0.5-1.0D) was inside control limits for the requested analytes.

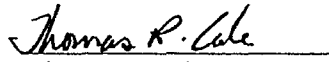
SW-846 control limits for duplicate determinations are $\pm 20\%$ Relative Percent Difference (RPD) for concentrations greater than or equal to five times the PQL in both the original and duplicate samples, and \pm the PQL for concentrations less than five times the PQL. The RPD is not calculated if both the original and duplicate values fall below the IDL.

A five-fold serial dilution of sample, CCN = 563406 (SF-6-0.5-1.0L) was performed in accordance with SW-846 requirements for ICP analysis.

The adjusted sample concentrations were inside control limits for the requested analytes.

SW-846 control limits for serial dilution are defined as a deviation less than or equal to 10% in the dilution-adjusted concentrations from the original values for all analyte concentrations with values greater than fifty (50) times their respective Instrument Detection Limit (IDL) in the original sample.

The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.


Thomas R. Cole
Data Reviewer II
February 10, 2005



501 Madison Ave.

Cary, NC 27513

Phone: 919-379-4100 Fax 919-379-4040

Page ____ of ____

Courier

Airbill No.

Sampling Complete? Y or N

Company Name BBL, Inc				Project Name FADA-Phase II Progress Energy				<div style="display: flex; justify-content: space-between;"> <div> 4 of 1 HSL Metals (14 Total) </div> <div> GW - Ground water WW - Waste water SW - Surface water SO - Soil/Sediment TB - Trip Blank RI - Rinsate WP - Wipe O - Other </div> </div>																	
Address 3700 Regency Pkwy Suite 140				Sampling Location Wilmington, NC Sutton																					
City State Zip Cary NC 27511				Turnaround time Standard																					
Project Contact Scott Davies				Batch QC or Project Specific? If Specific, which Sample ID?																					
Phone # 919-469-1952 X17				Are aqueous samples field filtered for metals? Y or N																					
Sampler's Name Brian Lovgren				Are high concentrations expected? Y or N? If yes, which ID(s)?																					
		Collection						Number of Preserved Bottles																	
Field ID		Date	Time	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	MeOH	Other														
563401		SF-2(0.5-1.0)	1-25-05	1640	Soil	1						1	1												
563402		SF-3(0.5-1.0)	1-25-05	1650	Soil	1						1	1												
563403		SF-4(0.5-1.0)	1-25-05	1715	Soil	1						1	1												
563404		SF-5(0.5-1.0)	1-25-05	1745	Soil	1						1	1												
563405		SF-6(0.5-1.0)	1-25-05	1810	Soil	1						1	1												
↓		SF-6(0.5-1.0)MS/MS	1-25-05	1810	Soil	1						1	1												
563405		SF-90(0.5-1.0)	1-25-05	N/R	Soil	1						1	1												
563501		EB-012505	1-25-05	1750	Water	1			1				1	12											
Sample Unpacked By: <i>[Signature]</i>						Cyanide samples checked for sulfide & chlorine? Y or NA																			
Sample Order Entry By: <i>[Signature]</i>						625 & Phenol samples checked for chlorine? Y or NA																			
Samples Received in Good Condition Y or N						608 samples checked for pH between 5.0-9.0? Y or NA																			
If no, explain:																									
Relinquished by: <i>[Signature]</i>						Date/Time: 1/27/05 1500						Received by: <i>[Signature]</i>						Date/Time: 1/27/05 11500							
Relinquished by:						Date/Time:						Received by:						Date/Time: 1-26-05 10:15							
Subcontact? Y or N If yes, where?						Custody Seal(s) intact? Y or N						On Ice? (Y or N)						Cooler Temp: 2-8 °C							

Samples stored 60 days after date report mailed at no extra charge.

White & Yellow copy to lab • Pink copy for customer



CompuChem

a division of Liberty Analytical Corp.

WORKORDER SUMMARY REPORT

Workorder: 5634 Account: BB&L Project: SUTTON STEAM
SDG-Case: PROGRESS Status: QC Type: CLIENT SPECIFIC MS/MSD
Report Style: COMPUCHEM STYLE 3 WITH EDD

SAMPLE ID	CLIENT ID	COLLECT DATE	RECEIVE DATE	DUE DATE	COMMENTS
563401	SF-2-0.5-1.0	1/25/2005	1/28/2005	2/10/2005	** HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
563402	SF-3-0.5-1.0	1/25/2005	1/28/2005	2/10/2005	HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
563403	SF-4-0.5-1.0	1/25/2005	1/28/2005	2/10/2005	HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
563404	SF-5-0.5-1.0	1/25/2005	1/28/2005	2/10/2005	HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
563405	SF-90-0.5-1.0	1/25/2005	1/28/2005	2/10/2005	HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
563406	SF-6-0.5-1.1	1/25/2005	1/28/2005	2/10/2005	**USE FOR QC** HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	QCS-6010	QC-6010B METALS SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
S	QCS-7471HG	QC-7471 HG SOIL			



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WORKORDER SUMMARY REPORT

Workorder: 5635 Account: BB&L Project: SUTTON STEAM
SDG-Case: PROGRESS Status: QC Type: CLIENT SPECIFIC MS/MSD
Report Style: COMPUCHEM STYLE 3 WITH EDD

SAMPLE ID	CLIENT ID	COLLECT DATE	RECEIVE DATE	DUE DATE	COMMENTS
563501	EB-012505	1/25/2005	1/28/2005	2/10/2005	**REQUIRES 3030C PREP FOR HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	MW7470HG	MERCURY ONLY 7470A WATER			

CompuChem

a Division of Liberty Analytical Corp.

501 Madison Avenue Cary, NC 27513

DATA REPORTING QUALIFIERS FOR INORGANICS

On Form I, under the column labeled "C" for concentration qualifier and "Q" for qualifier, each result is flagged with the specific data reporting qualifiers listed below, as appropriate. Up to five qualifiers may be reported on Form I for each analyte.

The C (concentration) qualifiers used are:

- U:** This flag indicates the analyte was analyzed for but not detected. This reported value was obtained from a reading that was less than the Instrument Detection Limit (IDL). The IDL will be adjusted to reflect any dilution and, for soils, the percent moisture.
- B:** This flag indicates the analyte was analyzed for and the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

The Q qualifiers used are:

- E:** This flag indicates an estimated value. This flag is used:
1. When the serial dilution (a five fold dilution for CLP and a five fold dilution for SW-846 method 6010B) results are not within 10%. The analyte concentration must be sufficiently high (minimally a factor of 50X above the IDL in the original sample).
- N:** This flag indicates the sample spike recovery is outside of control limits:
- *:** This flag is used for duplicate analysis when the sample and the sample duplicate results are not within control limits.

The extensions: D, S, SD, L, A, added to the end of the client ID represent as follows:

- D: matrix duplicate
S: matrix spike
SD: matrix spike duplicate
L: serial dilution
A: post digestion spike

Method Codes:

- P: ICP PLASMA
CV: MERCURY COLD VAPOR AA
CA: MIDI-DISTILLATION SPECTROPHOTOMETRIC

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-2-0.5-1.0

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5634
Matrix (soil/water): SOIL Lab Sample ID: 563401
Level (low/med): LOW Date Received: 01/28/05
% Solids: 96.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.20	U		P
7440-38-2	Arsenic	0.26	B		P
7440-41-7	Beryllium	0.02	B		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	1.8			P
7440-50-8	Copper	0.44	B		P
7439-92-1	Lead	2.4			P
7439-97-6	Mercury	0.016	U		CV
7439-96-5	Manganese	2.2			P
7440-02-0	Nickel	0.36	B		P
7782-49-2	Selenium	0.26	U		P
7440-22-4	Silver	0.08	U		P
7440-28-0	Thallium	0.29	U		P
7440-66-6	Zinc	2.5			P

Color Before: GRAY Clarity Before: _____ Texture: COARSE
Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-3-0.5-1.0

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5634
Matrix (soil/water): SOIL Lab Sample ID: 563402
Level (low/med): LOW Date Received: 01/28/05
% Solids: 95.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.21	U		P
7440-38-2	Arsenic	0.21	U		P
7440-41-7	Beryllium	0.01	U		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	0.06	U		P
7440-50-8	Copper	0.25	B		P
7439-92-1	Lead	0.42			P
7439-97-6	Mercury	0.015	U		CV
7439-96-5	Manganese	0.39	B		P
7440-02-0	Nickel	0.08	U		P
7782-49-2	Selenium	0.27	U		P
7440-22-4	Silver	0.08	U		P
7440-28-0	Thallium	0.30	U		P
7440-66-6	Zinc	0.85	B		P

Color Before: BLACK Clarity Before: _____ Texture: COARSEColor After: YELLOW Clarity After: _____ Artifacts: _____Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-4-0.5-1.0

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5634
Matrix (soil/water): SOIL Lab Sample ID: 563403
Level (low/med): LOW Date Received: 01/28/05
% Solids: 95.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.21	U		P
7440-38-2	Arsenic	0.21	U		P
7440-41-7	Beryllium	0.01	B		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	0.07	B		P
7440-50-8	Copper	0.19	B		P
7439-92-1	Lead	0.84			P
7439-97-6	Mercury	0.017	U		CV
7439-96-5	Manganese	0.66	B		P
7440-02-0	Nickel	0.24	B		P
7782-49-2	Selenium	0.27	U		P
7440-22-4	Silver	0.08	U		P
7440-28-0	Thallium	0.30	U		P
7440-66-6	Zinc	0.87	B		P

Color Before: BROWN Clarity Before: _____ Texture: COARSE
Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-5-0.5-1.0

Lab Name: COMPUCHEM

Contract: _____

Lab Code: LIBRTY

Case No.: _____

SAS No.: _____

SDG No.: 5634Matrix (soil/water): SOILLab Sample ID: 563404Level (low/med): LOWDate Received: 01/28/05% Solids: 94.9Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.20	U		P
7440-38-2	Arsenic	0.38	B		P
7440-41-7	Beryllium	0.01	U		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	0.78	B		P
7440-50-8	Copper	0.27	B		P
7439-92-1	Lead	2.3			P
7439-97-6	Mercury	0.016	U		CV
7439-96-5	Manganese	1.3			P
7440-02-0	Nickel	0.08	U		P
7782-49-2	Selenium	0.26	U		P
7440-22-4	Silver	0.08	U		P
7440-28-0	Thallium	0.29	U		P
7440-66-6	Zinc	1.5	B		P

Color Before: GRAY

Clarity Before: _____

Texture: COARSEColor After: YELLOW

Clarity After: _____

Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-6-0.5-1.0

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5634

Matrix (soil/water): SOIL Lab Sample ID: 563406

Level (low/med): LOW Date Received: 01/28/05

% Solids: 93.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.22	U		P
7440-38-2	Arsenic	0.43	B		P
7440-41-7	Beryllium	0.02	B		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	0.93	B		P
7440-50-8	Copper	0.31	B		P
7439-92-1	Lead	1.7			P
7439-97-6	Mercury	0.018	U		CV
7439-96-5	Manganese	1.5			P
7440-02-0	Nickel	0.17	B		P
7782-49-2	Selenium	0.29	U		P
7440-22-4	Silver	0.09	U		P
7440-28-0	Thallium	0.32	U		P
7440-66-6	Zinc	1.4	B		P

Color Before: BROWN Clarity Before: _____ Texture: COARSEColor After: YELLOW Clarity After: _____ Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SF-90-0.5-1.0

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634

Matrix (soil/water): SOIL Lab Sample ID: 563405

Level (low/med): LOW Date Received: 01/28/05

% Solids: 96.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.20	U		P
7440-38-2	Arsenic	0.20	U		P
7440-41-7	Beryllium	0.01	U		P
7440-43-9	Cadmium	0.03	U		P
7440-47-3	Chromium	0.06	U		P
7440-50-8	Copper	0.14	B		P
7439-92-1	Lead	0.42			P
7439-97-6	Mercury	0.015	U		CV
7439-96-5	Manganese	0.37	B		P
7440-02-0	Nickel	0.08	U		P
7782-49-2	Selenium	0.26	U		P
7440-22-4	Silver	0.08	U		P
7440-28-0	Thallium	0.29	U		P
7440-66-6	Zinc	1.1	B		P

Color Before: BROWN Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments: _____

SW-846

3

BLANKS

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	Continuing Calibration Blank (ug/L)						Preparation Blank		M
		1	2	3						
Antimony	2.1 U	2.1 U	2.1 U	2.1 U				0.308	B	P
Arsenic	2.1 U	2.1 U	2.1 U	2.1 U				-0.270	B	P
Beryllium	0.1 U	0.1 U	0.2 B	0.2 B				0.010	U	P
Cadmium	0.3 U	0.3 U	0.3 U	0.3 U				-0.055	B	P
Chromium	-1.7 B	-1.6 B	-1.7 B	-1.6 B				0.060	U	P
Copper	-0.5 B	0.4 U	0.4 U	0.4 U				0.040	U	P
Lead	1.3 U	1.3 U	1.3 U	1.3 U				0.130	U	P
Mercury	0.100 U	0.100 U	0.100 U	0.100 U				0.017	U	CV
Manganese	0.2 U	0.2 U	0.2 U	0.2 U				0.060	B	P
Nickel	0.8 U	0.8 U	0.8 U	0.8 U				0.080	U	P
Selenium	2.7 U	2.7 U	2.7 U	2.7 U				0.270	U	P
Silver	0.8 U	0.8 U	0.8 U	0.8 U				0.080	U	P
Thallium	3.0 U	3.0 U	3.0 U	3.0 U				-1.181		P
Zinc	1.2 U	1.2 U	1.2 U	1.2 U				0.247	B	P

SW-846

5A

SPIKE SAMPLE RECOVERY

SAMPLE NO.

SF-6-0.5-1.0S

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634Matrix (soil/water): SOIL Level (low/med): LOW% Solids for Sample: 93.6Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75 - 125	44.4235		0.2244	U	53.42	83.2		P
Arsenic	75 - 125	4.0775		0.4321	B	4.27	85.4		P
Beryllium	75 - 125	5.3995		0.0187	B	5.34	100.8		P
Cadmium	75 - 125	4.9634		0.0321	U	5.34	92.9		P
Chromium	75 - 125	22.1959		0.9314	B	21.37	99.5		P
Copper	75 - 125	25.7008		0.3097	B	26.71	95.1		P
Lead	75 - 125	3.5967		1.7057		2.14	88.4		P
Mercury	75 - 125	0.1937		0.0178	U	0.18	107.6		CV
Manganese	75 - 125	55.2713		1.5453		53.42	100.6		P
Nickel	75 - 125	51.0065		0.1702	B	53.42	95.2		P
Selenium	75 - 125	1.0070		0.2885	U	1.07	94.1		P
Silver	75 - 125	4.8446		0.0855	U	5.34	90.7		P
Thallium	75 - 125	4.0766		0.3205	U	5.34	76.3		P
Zinc	75 - 125	52.6503		1.3831	B	53.42	96.0		P

Comments:

SW-846

5A

SPIKE SAMPLE RECOVERY

SAMPLE NO.

SF-6-0.5-1.0SD

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634Matrix (soil/water): SOIL Level (low/med): LOW% Solids for Sample: 93.6Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75 - 125	44.7850		0.2244	U	53.42	83.8		P
Arsenic	75 - 125	3.9261		0.4321	B	4.27	81.8		P
Beryllium	75 - 125	5.3690		0.0187	B	5.34	100.2		P
Cadmium	75 - 125	4.9106		0.0321	U	5.34	92.0		P
Chromium	75 - 125	22.0633		0.9314	B	21.37	98.9		P
Copper	75 - 125	25.6256		0.3097	B	26.71	94.8		P
Lead	75 - 125	3.7131		1.7057		2.14	93.8		P
Mercury	75 - 125	0.1891		0.0178	U	0.18	105.1		CV
Manganese	75 - 125	54.8590		1.5453		53.42	99.8		P
Nickel	75 - 125	50.5042		0.1702	B	53.42	94.2		P
Selenium	75 - 125	1.1657		0.2885	U	1.07	108.9		P
Silver	75 - 125	4.8114		0.0855	U	5.34	90.1		P
Thallium	75 - 125	4.2037		0.3205	U	5.34	78.7		P
Zinc	75 - 125	52.3219		1.3831	B	53.42	95.4		P

Comments:

SW-846

6

DUPLICATES

SAMPLE NO.

SF-6-0.5-1.0D

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634Matrix (soil/water): SOIL Level (low/med): LOW% Solids for Sample: 93.6 % Solids for Duplicate: 93.6Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Antimony		0.2244	U	0.2414	B	200.0		P
Arsenic		0.4321	B	0.2244	U	200.0		P
Beryllium		0.0187	B	0.0151	B	21.3		P
Cadmium		0.0321	U	0.0321	U			P
Chromium	1.1	0.9314	B	1.1639		22.2		P
Copper		0.3097	B	0.3825	B	21.0		P
Lead	0.3	1.7057		1.4985		12.9		P
Mercury		0.0178	U	0.0178	U			CV
Manganese	1.1	1.5453		1.7263		11.1		P
Nickel		0.1702	B	0.3289	B	63.6		P
Selenium		0.2885	U	0.2885	U			P
Silver		0.0855	U	0.0855	U			P
Thallium		0.3205	U	0.3205	U			P
Zinc		1.3831	B	2.1277	B	42.4		P

LABORATORY CONTROL SAMPLE

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634

Solid LCS Source: EPA

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Antimony				68.9	49.41		18.8	119.0	71.7
Arsenic				136.0	121.55		101.0	171.0	89.4
Beryllium				95.3	92.56		74.7	116.0	97.1
Cadmium				118.0	113.30		90.4	145.0	96.0
Chromium				89.3	81.53		71.3	107.0	91.3
Copper				117.0	120.35		95.7	138.0	102.9
Lead				138.0	125.75		105.0	170.0	91.1
Mercury				2.5	2.5		1.7	3.3	100.8
Manganese				341.0	312.73		272.0	409.0	91.7
Nickel				156.0	149.74		122.0	190.0	96.0
Selenium				87.6	80.63		64.9	110.0	92.0
Silver				119.0	118.97		88.8	150.0	100.0
Thallium				139.0	124.06		79.6	199.0	89.3
Zinc				66.0	53.30		42.9	89.1	80.8

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ICP SERIAL DILUTIONS

SAMPLE NO.

SF-6-0.5-1.0L

Lab Name: COMPUCHEM

Contract: _____

Lab Code: LIBRTY

Case No.: _____

SAS No.: _____

SDG No.: 5634Matrix (soil/water): SOILLevel (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)			Serial Dilution Result (S)			% Differ- ence	Q	M
	C			C					
Antimony	2.10	U		10.50	U				P
Arsenic	4.04	B		10.50	U	100.0			P
Beryllium	0.17	B		0.50	U	100.0			P
Cadmium	0.30	U		1.50	U				P
Chromium	8.72	B		3.00	U	100.0			P
Copper	2.90	B		4.23	B	45.9			P
Lead	15.97			14.37	B	10.0			P
Manganese	14.46			14.84	B	2.6			P
Nickel	1.59	B		4.00	U	100.0			P
Selenium	2.70	U		13.50	U				P
Silver	0.80	U		4.00	U				P
Thallium	3.00	U		15.00	U				P
Zinc	12.95	B		21.10	B	62.9			P

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5634ICP ID Number: P4 Date: 01/15/05

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRQL (ug/L)	IDL (ug/L)	M
Antimony	206.84		10	2.1	P
Arsenic	189.04		10	2.1	P
Beryllium	313.04		5	0.1	P
Cadmium	226.50		5.0	0.3	P
Chromium	267.72		10	0.6	P
Copper	324.70		5	0.4	P
Lead	220.35		3	1.3	P
Manganese	257.61		10	0.2	P
Nickel	231.60		40	0.8	P
Selenium	196.03		5	2.7	P
Silver	328.07		5	0.8	P
Thallium	190.86		10	3.0	P
Zinc	206.20		20	1.2	P

Comments: _____

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: COMPUCHEM

Contract: _____

Lab Code: LIBRTY Case No.: _____SAS No.: _____ SDG No.: 5634

ICP ID Number: _____

Date: 01/15/05Flame AA ID Number: V3

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRQL (ug/L)	IDL (ug/L)	M
Mercury	253.70		0.20	0.10	CV

Comments: _____



CompuChem

a division of Liberty Analytical Corp.

10-Feb-05

SCOTT DAVIES
BLASLAND, BOUCK & LEE, INC.
3700 REGENCY PARKWAY
SUITE 140
Cary, NC 27511

Subject:

Report of Data-Project: SUTTON STEAM Workorder: 5635

Attn.: SCOTT DAVIES

Enclosed are the results of analytical work performed in accordance with the referenced account number.

This report covers sample(s) appearing on the attached listing.

Thank you for selecting CompuChem for your sample analysis. If you should have questions or require additional analytical services, please contact your representative at 1-800-833-5097.

Sincerely,

CompuChem

A Division of Liberty Analytical

Attachment

TOTAL NUMBER OF PAGES_____

CompuChem, a division of Liberty Analytical

Hsn	Client ID	Wordorder	Matrix	Account	Project	Report
563501	EB-012505	5635	W	BB&L	SUTTON STEAM	

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5635
SOW No.: SW-846
EPA Sample No. EB-012505 Lab Sample ID. 563501

Were ICP interelement corrections applied?

Yes/No YES

Were ICP background corrections applied?

Yes/No YESIf yes-were raw data generated before
application of background corrections?Yes/No NOComments: _____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Thomas R. ColeName: Thomas R. ColeDate: February 10, 2005Title: Data Reviewer II

INORGANIC CASE SUMMARY NARRATIVE

SDG # 5635

PROTOCOL # SW-846

The indicated Sample Delivery Group (SDG) consisting of one (1) water sample was received into the laboratory management system (LIMS) on January 28, 2005 intact and in good condition with Chains of Custody (COC) records in order. Sample ID's reported in this data package are noted by the receiving department on the COC if they differ from those listed by the samplers on the COC.

The sample was analyzed for total antimony, arsenic, beryllium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc using analytical methods delineated in SW-846 (Third Edition)-Update III.

SAMPLE IDs:

Customer IDs and correlating laboratory IDs are listed on the cover page.

INSTRUMENTAL QUALITY CONTROL:

All calibration verification solutions (ICV & CCV), blanks (ICB, CCB), and interference check samples (ICSA & ICSAB) associated with this data were confirmed to be within SW-846 allowable limits.

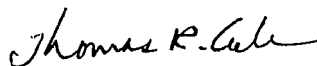
SAMPLE PREPARATION QUALITY CONTROL:

The sample preparation procedure verifications (LCSW & PBW) were found to be within acceptable ranges and all field samples were prepared and analyzed within the contract specified holding times.

MATRIX RELATED QUALITY CONTROL:

No matrix quality control samples were prepared and analyze in this case.

The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.



Thomas R. Cole
Data Reviewer II
February 10, 2005



CompuChem

a division of Liberty Analytical Corp.

WORKORDER SUMMARY REPORT

Workorder: 5634

Account: BB&L

Project: SUTTON STEAM

SDG-Case: PROGRESS

Status:

QC Type: CLIENT SPECIFIC MS/MSD

Report Style: COMPUCHEM STYLE 3 WITH EDD

SAMPLE ID	CLIENT ID	COLLECT DATE	RECEIVE DATE	DUE DATE	COMMENTS
563401	SF-2-0.5-1.0	1/25/2005	1/28/2005	2/10/2005	** HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
563402	SF-3-0.5-1.0	1/25/2005	1/28/2005	2/10/2005	HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
563403	SF-4-0.5-1.0	1/25/2005	1/28/2005	2/10/2005	HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
563404	SF-5-0.5-1.0	1/25/2005	1/28/2005	2/10/2005	HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
563405	SF-90-0.5-1.0	1/25/2005	1/28/2005	2/10/2005	HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
563406	SF-6-0.5-1.1	1/25/2005	1/28/2005	2/10/2005	**USE FOR QC** HSL METALS=Sb,As,Be,Cd,Cr, Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
S	DRY WEIGHT	Dry Weight			
S	MS6010VAR	METAL 6010B VARIABLE SOIL			
S	QCS-6010	QC-6010B METALS SOIL			
S	MS7471HG	MERCURY ONLY 7471A SOIL			
S	QCS-7471HG	QC-7471 HG SOIL			



CompuChem

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WORKORDER SUMMARY REPORT

Workorder: 5635 Account: BB&L Project: SUTTON STEAM
SDG-Case: PROGRESS Status: QC Type: CLIENT SPECIFIC MS/MSD
Report Style: COMPUCHEM STYLE 3 WITH EDD

SAMPLE ID	CLIENT ID	COLLECT DATE	RECEIVE DATE	DUE DATE	COMMENTS
563501	EB-012505	1/25/2005	1/28/2005	2/10/2005	**REQUIRES 3030C PREP FOR HSL METALS=Sb,As,Be,Cd,Cr,Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	MW7470HG	MERCURY ONLY 7470A WATER			

CompuChem

a Division of Liberty Analytical Corp.

501 Madison Avenue Cary, NC 27513

DATA REPORTING QUALIFIERS FOR INORGANICS

On Form I, under the column labeled "C" for concentration qualifier and "Q" for qualifier, each result is flagged with the specific data reporting qualifiers listed below, as appropriate. Up to five qualifiers may be reported on Form I for each analyte.

The C (concentration) qualifiers used are:

- U:** This flag indicates the analyte was analyzed for but not detected. This reported value was obtained from a reading that was less than the Instrument Detection Limit (IDL). The IDL will be adjusted to reflect any dilution and, for soils, the percent moisture.
- B:** This flag indicates the analyte was analyzed for and the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

The Q qualifiers used are:

- E:** This flag indicates an estimated value. This flag is used:
1. When the serial dilution (a five fold dilution for CLP and a five fold dilution for SW-846 method 6010B) results are not within 10%. The analyte concentration must be sufficiently high (minimally a factor of 50X above the IDL in the original sample).
- N:** This flag indicates the sample spike recovery is outside of control limits:
- *:** This flag is used for duplicate analysis when the sample and the sample duplicate results are not within control limits.

The extensions: D, S, SD, L, A, added to the end of the client ID represent as follows:

- D: matrix duplicate
S: matrix spike
SD: matrix spike duplicate
L: serial dilution
A: post digestion spike

Method Codes:

- P: ICP PLASMA
CV: MERCURY COLD VAPOR AA
CA: MIDI-DISTILLATION SPECTROPHOTOMETRIC

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

EB-012505

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5635
Matrix (soil/water): WATER Lab Sample ID: 563501
Level (low/med): LOW Date Received: 01/28/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	13.0			P
7440-38-2	Arsenic	2.1	U		P
7440-41-7	Beryllium	0.10	U		P
7440-43-9	Cadmium	0.30	U		P
7440-47-3	Chromium	0.60	U		P
7440-50-8	Copper	1.4	B		P
7439-92-1	Lead	1.6	B		P
7439-97-6	Mercury	0.10	U		CV
7439-96-5	Manganese	0.24	B		P
7440-02-0	Nickel	0.80	U		P
7782-49-2	Selenium	2.7	U		P
7440-22-4	Silver	0.80	U		P
7440-28-0	Thallium	3.0	U		P
7440-66-6	Zinc	20.6			P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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BLANKS

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5635Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		M
	C		1	C	2	C	3	C	C		
Antimony	4.2	B	3.1	B	3.7	B	3.2	B	2.100	U	P
Arsenic	2.1	U	2.1	U	2.1	U	2.1	U	2.100	U	P
Beryllium	0.1	U	0.1	U	0.1	B	0.1	U	0.100	U	P
Cadmium	0.3	U	0.3	U	0.3	U	0.3	U	0.300	U	P
Chromium	-0.6	B	0.6	U	-0.6	B	0.6	U	0.600	U	P
Copper	0.4	U	0.4	U	0.4	U	0.4	U	0.510	B	P
Lead	1.3	U	1.3	U	1.3	U	1.3	U	1.300	U	P
Mercury	0.100	U	0.100	U	0.100	U	0.100	U	0.100	U	CV
Manganese	0.2	U	0.2	U	0.2	U	0.2	U	1.165	B	P
Nickel	0.8	U	0.8	U	0.8	U	0.8	U	0.800	U	P
Selenium	2.7	U	2.7	U	2.7	U	2.7	U	2.700	U	P
Silver	0.8	U	0.8	U	0.8	U	0.8	U	0.800	U	P
Thallium	3.0	U	3.0	U	3.0	U	3.0	U	3.000	U	P
Zinc	1.2	U	1.2	U	1.2	U	1.6	B	7.692	B	P

LABORATORY CONTROL SAMPLE

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5635

Solid LCS Source: _____

Aqueous LCS Source: HIPUR

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Antimony	6000.0	5890.08	98.2						
Arsenic	1000.0	1008.64	100.9						
Beryllium	500.0	511.42	102.3						
Cadmium	500.0	468.42	93.7						
Chromium	1000.0	954.02	95.4						
Copper	2500.0	2413.54	96.5						
Lead	300.0	281.38	93.8						
Mercury	3.0	2.76	92.0						
Manganese	1500.0	1461.37	97.4						
Nickel	4000.0	3728.60	93.2						
Selenium	500.0	501.94	100.4						
Silver	1000.0	969.88	97.0						
Thallium	1000.0	887.34	88.7						
Zinc	2000.0	1852.63	92.6						

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5635ICP ID Number: P4 Date: 01/15/05

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRQL (ug/L)	IDL (ug/L)	M
Antimony	206.84		10	2.1	P
Arsenic	189.04		10	2.1	P
Beryllium	313.04		5	0.1	P
Cadmium	226.50		5.0	0.3	P
Chromium	267.72		10	0.6	P
Copper	324.70		5	0.4	P
Lead	220.35		3	1.3	P
Manganese	257.61		10	0.2	P
Nickel	231.60		40	0.8	P
Selenium	196.03		5	2.7	P
Silver	328.07		5	0.8	P
Thallium	190.86		10	3.0	P
Zinc	206.20		20	1.2	P

Comments: _____

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: COMPUCHEM

Contract: _____

Lab Code: LIBRTY Case No.: _____SAS No.: _____ SDG No.: 5635

ICP ID Number: _____

Date: 01/15/05Flame AA ID Number: V3

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRQL (ug/L)	IDL (ug/L)	M
Mercury	253.70		0.20	0.10	CV

Comments: _____

MEMORANDUM



To: Scott Davies
From: Dennis Capria
Re: Data Review

Date: 3/21/2005

Data for sample collected from the Progress Energy-Sutton site in North Carolina during February 2005 were reviewed for quality assurance/quality control compliance. The data report from CompuChem, Inc. of Cary, North Carolina was reviewed. Included in the review are data from the following sample delivery group (SDG): 5674. The following summarizes the findings of the QA/QC review:

Metals

- One data set was reviewed, including 11 water sample 1 equipment blank.
- Samples were analyzed for following:

Analysis	Method
Metals	EPA SW-846 6010B
Sulfate	EPA 375.4
Chloride	EPA 325.2
TOC	EPA 415.1

- All samples were analyzed within the method-specified holding time.
- Matrix spike (MS) and laboratory duplicate analyses was performed on the sample location MW-16. The MS recovery of thallium exhibited a recovery less than the control limit. All associate thallium sample results were qualified as estimated. The laboratory duplicate analysis of chromium exhibited a relative percent difference (RPD) greater than the control limit. All associated sample results were qualified as estimated. All other MS recoveries and laboratory duplicate RPDs were within control limits
- All reported laboratory control sample recoveries were within control limits.
- Several target analytes were detected in the method blanks within this SDG. Associated Sample results of Thallium and Zinc less than the blank action level, associated sample results of Thallium and Zinc data have been qualified as non-detect.
- No calibration data was provided.

The data were presented in a reduced deliverables format. Therefore, only a limited data review could be performed. Since no raw data were provided, no verification of compound identification and quantitation could be performed.

Other than for the deviations noted in this review, the reported data quality is within method specifications and the data is considered acceptable for use as reported by the laboratory.

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-13

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567406
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	99.1			P
7440-70-2	Calcium	125000			P
7440-47-3	Chromium	0.90	U	N J	P
7440-50-8	Copper	0.55	B		P
7440-28-0	Thallium	10 8.9	B	N V J	P
7440-66-6	Zinc	20 9.9	B	U	P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____
Comments: _____

SW-846

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-13D

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674

Matrix (soil/water): WATER Lab Sample ID: 567407

Level (low/med): LOW Date Received: 02/03/05

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	84400			P
7440-47-3	Chromium	0.90	U	<i>14 J</i>	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	<i>10 8.2</i>	<i>B</i>	<i>ND J</i>	P
7440-66-6	Zinc	<i>20 18.3</i>	<i>B</i>	<i>U</i>	P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-14

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567401
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	9.6	B		P
7440-70-2	Calcium	34100			P
7440-47-3	Chromium	0.90	U	*J	P
7440-50-8	Copper	0.59	B		P
7440-28-0	Thallium	6.2 6.2	B	W	P
7440-66-6	Zinc	20 17.8	B	U	P

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____
Color After: COLORLESS Clarity After: CLOUDY Artifacts: _____
Comments: _____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-15

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567408
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	44.0			P
7440-70-2	Calcium	63400			P
7440-47-3	Chromium	0.90	U	X	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	10 5.6	B	N	P
7440-66-6	Zinc	20 13.8	B	U	P

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____
Color After: COLORLESS Clarity After: CLOUDY Artifacts: _____
Comments: _____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-15D

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567409
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	35900			P
7440-47-3	Chromium	0.90	U	*J	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	6.2	U	NJ	P
7440-66-6	Zinc	20 13.6	B	U	P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

EB-020205

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBREY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567404
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	104	B	B	P
7440-47-3	Chromium	0.90	U	J	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	6.2	U	J	P
7440-66-6	Zinc	13.0	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

SW-846

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-20

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567410
Level (low/med): LOW Date Received: 02/04/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	79900			P
7440-47-3	Chromium	0.90	U	<i>✓</i>	P
7440-50-8	Copper	0.59	B		P
7440-28-0	Thallium	6.2	U	<i>NJ</i>	P
7440-66-6	Zinc	24.3		<i>10</i>	P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____
Comments: _____

SW-846

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-20D

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567411
Level (low/med): LOW Date Received: 02/04/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	65300			P
7440-47-3	Chromium	0.90	U	+	P
7440-50-8	Copper	1.1	B		P
7440-28-0	Thallium	6.2	U	N	P
7440-66-6	Zinc	21.9		()	P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

SW-846

-I-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-90

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567405
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	103			P
7440-70-2	Calcium	129000			P
7440-47-3	Chromium	0.90	U	X	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	6.2	U	N	P
7440-66-6	Zinc	20	16.4	10	P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____
Comments: _____

SW-846

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-91

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567412
Level (low/med): LOW Date Received: 02/04/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	84200			P
7440-47-3	Chromium	0.90	U	<i>✓</i>	P
7440-50-8	Copper	0.91	B		P
7440-28-0	Thallium	6.2	U	<i>✓</i>	P
7440-66-6	Zinc	<i>26.2</i> 26.2	<i>U</i>		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____
Comments: _____

SW-846

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-16

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567402
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	5390			P
7440-47-3	Chromium	0.90	U	* J	P
7440-50-8	Copper	0.65	B		P
7440-28-0	Thallium	6.9	B	N V J	P
7440-66-6	Zinc	23.0		U	P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

SW-846

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-16D

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567403
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	4.3	B		P
7440-70-2	Calcium	33700			P
7440-47-3	Chromium	0.90	U	X	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	8.0	B	N	P
7440-66-6	Zinc	35.3			P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____
Comments: _____

EPA SAMPLE NO.

MW-14

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

The diagram illustrates the experimental setup. A participant is seated at a table, looking at a monitor. The monitor displays a video of a person performing a task. The participant is instructed to observe the video and provide feedback. The setup includes a camera, a monitor, and a control panel.

EPA SAMPLE NO.

MW-16

Lab Name: COMPUCHEM Contract: PROGRESS

Lab Code: CompuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E

Matrix: (soil/water) WATER Lab Sample ID: 567402

Level: (low/med) LOW Date Received: 02/03/2005

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

MW-16D

% Solids: 0.0

[illegible]

Comments:

ILM05.2

EPA SAMPLE NO.

MM-90

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Comments:

EPA SAMPLE NO.

MW-13

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

MW-13D

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

4
 5
 6
 7
 8

1A-IN
INORGANIC ANALYSIS DATA SHEET

MW-13D

% Solids: 0.0

[illegible]

Comments:

ILM05.2

EPA SAMPLE NO.

MW-15

Lab Name: COMPUCHEM Contract: PROGRESS
Lab Code: CompuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E
Matrix: (soil/water) WATER Lab Sample ID: 567408
Level: (low/med) LOW Date Received: 02/03/2005
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____
Comments: _____

.....

EPA SAMPLE NO.

MM-15D

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

100

1A-IN
INORGANIC ANALYSIS DATA SHEET

MM-20

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Comments:

ILM05.2

1A-IN
INORGANIC ANALYSIS DATA SHEET

MR-20D

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Comments:

EPA SAMPLE NO.

Lab Name: COMPUCHEM Contract: PROGRESS

Matrix: (soil/water) WATER Lab Sample ID: 567412

% Solids: 0.0

[illegible]

Color After: _____ Clarity After: _____ Artifacts: _____



CompuChem

a division of Liberty Analytical Corp.

17-Feb-05

SCOTT DAVIES
BLASLAND, BOUCK & LEE, INC.
3700 REGENCY PARKWAY

CARY, NC 27511

Subject:

Report of Data-Project: PROGRESS Workorder: 5674

Attn.: SCOTT DAVIES

Enclosed are the results of analytical work performed in accordance with the referenced account number.

This report covers sample(s) appearing on the attached listing.

Thank you for selecting CompuChem for your sample analysis. If you should have questions or require additional analytical services, please contact your representative at 1-800-833-5097.

Sincerely,

CompuChem

A Division of Liberty Analytical

Attachment

TOTAL NUMBER OF PAGES <u>26</u>

CompuChem, a division of Liberty Analytical

Hsn	Client ID	Wordorder	Matrix	Account	Project	Report
567401	MW-14	5674	W	BB&L	PROGRESS	
567402	MW-16	5674	W	BB&L	PROGRESS	
567403	MW-16D	5674	W	BB&L	PROGRESS	
567404	EB-020205	5674	W	BB&L	PROGRESS	
567405	MW-90	5674	W	BB&L	PROGRESS	
567406	MW-13	5674	W	BB&L	PROGRESS	
567407	MW-13D	5674	W	BB&L	PROGRESS	
567408	MW-15	5674	W	BB&L	PROGRESS	
567409	MW-15D	5674	W	BB&L	PROGRESS	
567410	MW-20	5674	W	BB&L	PROGRESS	
567411	MW-20D	5674	W	BB&L	PROGRESS	
567412	MW-91	5674	W	BB&L	PROGRESS	

NOTICE!

**CompuChem's Wet
Chemistry reports have a new
look.**

**Please contact your
CompuChem Project
Manager if you have
questions.**



Wet Chemistry Notice

WO No. 5674

Case/SDG 5674

The C (concentration) qualifiers used in this report are:

J = The reported value was obtained from a reading that was less than the reporting limit but greater than or equal to the MDL.

U = The analytical result was less than the MDL.

The Q qualifiers used in this report are:

N = Spiked sample recovery is not within control limits.

* = Duplicate analysis not within control limits.

Notice:

CompuChem's wet chemistry reporting policy is consistent with the current US EPA contract laboratory program (CLP) inorganic statement of work (SOW) ILM05.2/ILM05.3 requirements.

The SOW requires a set number of decimal places for the Forms 3, 5, and 6. For this reason, more decimal places may be reported on these forms than were found in the raw data.

The SOW requires the RPD and %R values to be rounded to the nearest whole number on the Forms 5, 6, and 7.

Additional Comments:

I certify that this data package and these test results comply with the requirements of NELAC and CompuChem's QA Program unless otherwise indicated. The laboratory manager or designee has authorized the release of this data package and any associated electronic deliverables, as verified by the following signature.

Signature

Date

2-16-05

EPA SAMPLE NO.

MW-14

Lab Name: COMPUCHEM Contract: PROGRESS

Lab Code: CompuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E

Matrix: (soil/water) WATER Lab Sample ID: 567401

Level: (low/med) LOW Date Received: 02/03/2005

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

EPA SAMPLE NO.

MW-16

Lab Name: COMPUCHEM Contract: PROGRESS

Lab Code: CompuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E

Matrix: (soil/water) WATER Lab Sample ID: 567402

Level: (low/med) LOW Date Received: 02/03/2005

```
% Solids: 0.0
```

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

EB-020205

% Solids: 0.0

[illegible]

Comments:

EPA SAMPLE NO.

MW-90

Lab Name: COMPUCHEM Contract: PROGRESS

Lab Code: CompuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E

Matrix: (soil/water) WATER Lab Sample ID: 567405

Level: (low/med) LOW Date Received: 02/03/2005

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

EPA SAMPLE NO.

MW-13

Lab Name: COMPUCHEM Contract: PROGRESS

Lab Code: CompuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E

Matrix: (soil/water) WATER Lab Sample ID: 567406

Level: (low/med) LOW Date Received: 02/03/2005

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

EPA SAMPLE NO.

MW-13D

Lab Name: COMPUCHEM Contract: PROGRESS

Lab Code: CompuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E

Matrix: (soil/water) WATER Lab Sample ID: 567407

Level: (low/med) LOW Date Received: 02/03/2005

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

• : Comments:

INORGANIC ANALYSIS DATA SHEET 1A-IN

MW-13D

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Comments:

EPA SAMPLE NO.

MW-15

Lab Name: COMPUCHEM Contract: PROGRESS

Lab Code: CompuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E

Matrix: (soil/water) WATER Lab Sample ID: 567408

Level: (low/med) LOW Date Received: 02/03/2005

```
% Solids: 0.0
```

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

MW-15D

% Solids: 0.0

[illegible]

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

MW-20

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Comments:

ILM05.2

1A-IN
INORGANIC ANALYSIS DATA SHEET

MW-20D

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

MW-91

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Comments:

ILM05.2

3-IN
BLANKS

Preparation Blank Concentration Units (ug/L or mg/kg): mg/L

[illegible]

3-IN
BLANKS

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): mg/L[illegible]

5A-IN
MATRIX SPIKE SAMPLE RECOVERY

MW-16MS

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

5A-IN
MATRIX SPIKE SAMPLE RECOVERY

MW-16MSD

% Solids for Sample: 0.0

[illegible]

5A-IN
MATRIX SPIKE SAMPLE RECOVERY

MW-16MS

% Solids for Sample: 0.0

[illegible]

5A-IN
MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MW-16MSD

Lab Name: COMPUCHEM Contract: PROGRESS

Lab Code: CompuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E

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

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): mg/L

[illegible]

Comments:

USEPA - CLP

7-IN

LABORATORY CONTROL SAMPLE

Lab Name: COMPUCHEM Contract: PROGRESS
Lab Code: CompuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E
Solid LCS Source: _____
Aqueous LCS Source: NA _____

[illegible]

7-IN
LABORATORY CONTROL SAMPLE

Lab Name: COMPUCHEM Contract: PROGRESS
Lab Code: CómpuChe Case No.: PROGRESS NRAS No.: _____ SDG No.: PROGRESS E
Solid LCS Source: _____
Aqueous LCS Source: NA

[illegible]



501 Madison Ave

Cary, NC 27513

Phone: 919-379-4100 Fax: ~~919-379-4040~~

№ 005006

Page 1 of 2

Courier

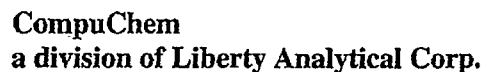
Airbill No.

Sampling Complete? Y or **N**

Client Reporting Information						Project Information								Requested Analytes (include method and bottle type)								
Company Name BBL Inc						Project Name FADA-Phase II Progress Energy																
Address 3700 Regency Pkwy Suite 140						Sampling Location Wilmington, NC Sutton Steam Plant																
City State Zip Cary NC 27511						Turnaround time Standard																
Project Contact Scott Davis						Batch QC or Project Specific? If Specific, which Sample ID?																
Phone # 719-469-1952 x17						Are aqueous samples field filtered for metals? Y or N																
Sampler's Name Brian Lovgren						Are high concentrations expected? Y or N? If yes, which ID(s)?																
Lab Test No. (optional)	Field ID	Collection		Matrix	# of bottles	Number of Preserved Bottles							Ascorbic Acid / Chromium, Copper, Thallium, Zinc + Cadmium / Lead with lab prep 3030CL	Sulfate 375.4 / Chloride 385.2	TOC (415.1)	Matrices						
		Date	Time			HCl	NaOH	HNO3	H2SO4	MEOH	Other	GW - Ground water				WW - Waste water	SW - Surface water					
567401	MW-14	2-2-05	0905	Aqueous	5			1	3		1	1	3				L2/L2					
567402	MW-16	2-2-05	1050	Aqueous	5			1	3		1	1	3				L2/L2					
	MW-16(MSD)	2-2-05	1050	Aqueous	5			1	3		1	1	3				L2/Cr					
v	MW-16 (MSD)	2-2-05	1050	Aqueous	5			1	3		1	1	3				L2/L2					
567403	MW-16 D	2-2-05	1150	Aqueous	5			1	3		1	1	3				L2/L2					
567404	EB-020205	2-2-05	1215	Aqueous	5			1	3		1	1	3				L2/L2					
567405	MW-90	2-2-05	NIR	Aqueous	5			1	3		1	1	3				L2/L2					
Sample Unpacked By: [Signature]						Cyanide samples checked for sulfide & chlorine? Y or NA																
Sample Order Entry By: [Signature]						625 & Phenol samples checked for chlorine? Y or NA																
Samples Received in Good Condition? Y or N						608 samples checked for pH between 5.0-9.0? Y or NA																
If no, explain:						MW14 Red Broken 140 mL TOC MW16 D Rec'd with Broken Lid HPLC																
Relinquished by: B=3 Brian Lovgren						Date/Time: 2/2/05 1830								Received by: FLEX Date/Time: 2/2/05 1830								
Relinquished by:						Date/Time:								Received by: [Signature] Date/Time: 2-3-05 9:00								
Subcontractor? Y or N If yes, where?						Custody Seal(s) intact? Y or N								On Ice? Y or N Cooler Temp: 3.9 °C								

Samples stored 60 days after date report mailed at no extra charge.

White & Yellow copy to lab • Pink copy for customer



501 Madison Ave.

Cary, NC 27513

Phone: 919-379-4100 Fax 919-379-4040

№ 005007

Page 2 of 2

Courier

Airbill No.

Sampling Complete? Y or **N**

[illegible]

Samples stored 60 days after date report mailed at no extra charge.

White & Yellow copy to lab • Pink copy for customer



CompuChem

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WORKORDER SUMMARY REPORT

Workorder: 5674 Account: BB&L Project: PROGRESS
SDG-Case: PROGRESS Status: QC Type: CLIENT SPECIFIC MS/MSD
Report Style: COMPUCHEM STYLE 3 WITH EDD

SAMPLE ID	CLIENT ID	COLLECT DATE	RECEIVE DATE	DUE DATE	COMMENTS
567401	MW-14	2/2/2005	2/3/2005	2/16/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC** W MW6010VAR METAL 6010B VARIABLE WATER W WW300.0-1 300.0 IC WATER OPTION 1 W WW415.1TOC TTL ORGNC CRBN (TOC) 415.1 W
567402	MW-16	2/2/2005	2/3/2005	2/16/2005	**USE FOR QC**REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC** W MW6010VAR METAL 6010B VARIABLE WATER W WW415.1TOC TTL ORGNC CRBN (TOC) 415.1 W W WW300.0-1 300.0 IC WATER OPTION 1
567403	MW-16D	2/2/2005	2/3/2005	2/16/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC** W MW6010VAR METAL 6010B VARIABLE WATER W WW300.0-1 300.0 IC WATER OPTION 1 W WW415.1TOC TTL ORGNC CRBN (TOC) 415.1 W
567404	EB-020205	2/2/2005	2/3/2005	2/16/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC** W MW6010VAR METAL 6010B VARIABLE WATER W WW300.0-1 300.0 IC WATER OPTION 1 W WW415.1TOC TTL ORGNC CRBN (TOC) 415.1 W
567405	MW-90	2/2/2005	2/3/2005	2/16/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**



CompuChem

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WORKORDER SUMMARY REPORT

Workorder: 5674 Account: BB&L Project: PROGRESS
SDG-Case: PROGRESS Status: QC Type: CLIENT SPECIFIC MS/MSD
Report Style: COMPUCHEM STYLE 3 WITH EDD

SAMPLE ID	CLIENT ID	COLLECT DATE	RECEIVE DATE	DUE DATE	COMMENTS
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
567406	MW-13	2/2/2005	2/3/2005	2/16/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
567407	MW-13D	2/2/2005	2/3/2005	2/16/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
567408	MW-15	2/2/2005	2/3/2005	2/16/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
567409	MW-15D	2/2/2005	2/3/2005	2/16/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			



CompuChem

a division of Liberty Analytical Corp.

17-Feb-05

SCOTT DAVIES
BLASLAND, BOUCK & LEE, INC.
3700 REGENCY PARKWAY

CARY, NC 27511

Subject:

Report of Data-Project: PROGRESS Workorder: 5674

Attn.: SCOTT DAVIES

Enclosed are the results of analytical work performed in accordance with the referenced account number.

This report covers sample(s) appearing on the attached listing.

Thank you for selecting CompuChem for your sample analysis. If you should have questions or require additional analytical services, please contact your representative at 1-800-833-5097.

Sincerely,

CompuChem

A Division of Liberty Analytical

Attachment

TOTAL NUMBER OF PAGES <u>33</u>

CompuChem, a division of Liberty Analytical

Hsn	Client ID	Wordorder	Matrix	Account	Project	Report
567401	MW-14	5674	W	BB&L	PROGRESS	
567402	MW-16	5674	W	BB&L	PROGRESS	
567403	MW-16D	5674	W	BB&L	PROGRESS	
567404	EB-020205	5674	W	BB&L	PROGRESS	
567405	MW-90	5674	W	BB&L	PROGRESS	
567406	MW-13	5674	W	BB&L	PROGRESS	
567407	MW-13D	5674	W	BB&L	PROGRESS	
567408	MW-15	5674	W	BB&L	PROGRESS	
567409	MW-15D	5674	W	BB&L	PROGRESS	
567410	MW-20	5674	W	BB&L	PROGRESS	
567411	MW-20D	5674	W	BB&L	PROGRESS	
567412	MW-91	5674	W	BB&L	PROGRESS	

Tuesday, February 15, 2005

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
SOW No.: SW-846

EPA Sample No.	Lab Sample ID.
EB-020205	567404
MW-13	567406
MW-13D	567407
MW-14	567401
MW-15	567408
MW-15D	567409
MW-16	567402
MW-16D	59417
MW-16D	567403
MW-16S	59418
MW-16SD	59419
MW-20	567410
MW-20D	567411
MW-90	567405
MW-91	567412

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: _____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Thomas R. Cole Name: Thomas R. Cole
Date: February 14, 2005 Title: Data Reviewer II

INORGANIC CASE SUMMARY NARRATIVE

SDG # 5674

PROTOCOL # SW-846

The indicated Sample Delivery Group (SDG) consisting of twelve (12) water samples was received into the laboratory management system (LIMS) on February 3, 2005 intact and in good condition with Chain of Custody (COC) records in order. Sample ID's reported in this data package are noted by the receiving department on the COC if they differ from those listed by the samplers on the COC.

The samples were prepared by 3030C and then analyzed for total arsenic, calcium, chromium, copper, thallium, and zinc using analytical methods delineated in SW-846 (Third Edition)-Update III.

NOTE: Thallium in the LCSW was found to be outside the control limits; however, no re-preparation was possible for the samples.

SAMPLE IDs:

Customer IDs and correlating laboratory IDs are listed on the cover page.

INSTRUMENTAL QUALITY CONTROL:

All calibration verification solutions (ICV & CCV), blanks (ICB, & CCB), and interference check samples (ICSA & ICSAB) associated with this data were confirmed to be within SW-846 allowable limits.

SAMPLE PREPARATION QUALITY CONTROL:

The above note modifies the following statement.

The sample preparation procedure verifications (LCSW & PBW) were found to be within acceptable ranges and all field samples were prepared and analyzed within the contract specified holding times.

MATRIX RELATED QUALITY CONTROL:

The sample matrix spike, CCN = 59418 (MW-16S) and the sample matrix spike duplicate, CCN = 59419 (MW-16SD) were found to be outside control limits for thallium. The reported concentrations are flagged with an "N" on all associated Form 1 and on Form 5a.

SW-846 control limits for matrix spike recoveries are set at 75% to 125% of the analyte quantity added unless original sample concentrations exceed the true values of these "spikes" by a factor of four or more. In this case, affected analytes are not flagged even if recoveries are outside percentage recovery control limits.

The sample matrix duplicate, CCN = 59417 (MW-16D) was outside control limits for chromium. The reported concentrations are flagged with an "*" on all associated Form 1 and on Form 6.


SW-846 control limits for duplicate determinations are $\pm 20\%$ Relative Percent Difference (RPD) for concentrations greater than or equal to five times the PQL in both the original and duplicate samples, and \pm the PQL for concentrations less than five times the PQL. The RPD is not calculated if both the original and duplicate values fall below the IDL.

A five-fold serial dilution of sample, CCN = 567402 (MW-16L) was performed in accordance with SW-846 requirements for ICP analysis.

The adjusted sample concentrations were inside control limits for the requested analytes.

SW-846 control limits for serial dilution are defined as a deviation less than or equal to 10% in the dilution-adjusted concentrations from the original values for all analyte concentrations with values greater than fifty (50) times their respective Instrument Detection Limit (IDL) in the original sample.

The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.



Thomas R. Cole
Data Reviewer II
February 14, 2005



CompuChem
a division of Liberty Analytical Corp.

CHAIN OF CUSTODY

501 Madison Ave

Cary, NC 27513

Phone: 919-379-4100 Fax: 919-379-4040

No 005006

Page 1 of 2

Courier

Airbill No.

Sampling Complete? Y or ☒ N

Company Name BBK, Inc			Project Name FADA-Phase II Progress Energy		
Address 3700 Regency Pkwy Suite 140			Sampling Location Wilmington, NC Sutton Steam Plant		
City Cary	State NC	Zip 27511	Turnaround time Standard		
Project Contact Scott Paves			Batch QC or Project Specific? If Specific, which Sample ID?		
Phone # 919-469-1952 x17			Are aqueous samples field filtered for metals? Y or <input checked="" type="radio"/> N		
Sampler's Name Brian Lovgren			Are high concentrations expected? Y or N? If yes, which ID(s)?		

Field ID	Date	Time	Matrix	# of bottles	Number of Preserved Bottles							Analyte	Matrix
					HCl	NaOH	HNO3	H2SO4	MeOH	Other			
567401	MW-14	2-2-05	0905	Aqueous	5		1	3	1	1	1	3	42 42
567402	MW-16	2-2-05	1050	Aqueous	5		1	3	1	1	1	3	42 42
	MW-16(MS)	2-2-05	1050	Aqueous	5		1	3	1	1	1	3	42 42
	MW-16(MSD)	2-2-05	1050	Aqueous	5		1	3	1	1	1	3	42 42
567403	MW-16D	2-2-05	1150	Aqueous	5		1	3	1	1	1	3	42 42
567404	EB-020205	2-2-05	1215	Aqueous	5		1	3	1	1	1	3	42 42
567405	MW-90	2-2-05	NIR	Aqueous	5		1	3	1	1	1	3	42 42

Sample Unpacked By: <i>[Signature]</i>	Cyanide samples checked for sulfide & chlorine? Y or NA
Sample Order Entry By: <i>[Signature]</i>	625 & Phenol samples checked for chlorine? Y or NA
Samples Received in Good Condition? Y or N	608 samples checked for pH between 5.0-9.0? Y or NA
If no, explain: MW14 Red Broken 140 mL TOC MW16D Rec'd with Broken Lid	
Relinquished by: Brian Lovgren	Date/Time: 2/2/05 1830
Relinquished by:	Date/Time:
Subcontract? Y or N If yes, where?	Custody Seal(s) intact? Y or N
	On Ice? Y or N
	Cooler Temp: 3.9 °C

Samples stored 60 days after date report mailed at no extra charge.

White & Yellow copy to lab • Pink copy for customer



501 Madison Ave.

Cary, NC 27513

Phone: 919-379-4100 Fax 919-379-4040

№ 005007

Page 2 of 2**Courier**

Airbill No.

Sampling Complete? Y or ☒ N[illegible]

Samples stored 60 days after date report mailed at no extra charge.

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501 Madison Ave

Cary, NC 27513

Phone: 919-379-4100 Fax 919-379-4040

№ 005008

Page 1 of

Courier

Airbill No.

Sampling Complete? Y or N

[illegible]

Samples stored 60 days after date report mailed at no extra charge.

White & Yellow copy to lab • Pink copy for customer



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WORKORDER SUMMARY REPORT

Workorder: 5674 Account: BB&L Project: PROGRESS
SDG-Case: PROGRESS Status: QC Type: CLIENT SPECIFIC MS/MSD
Report Style: COMPUCHEM STYLE 3 WITH EDD

SAMPLE ID	CLIENT ID	COLLECT DATE	RECEIVE DATE	DUE DATE	COMMENTS
567401	MW-14	2/2/2005	2/3/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC** W MW6010VAR METAL 6010B VARIABLE WATER W WW300.0-1 300.0 IC WATER OPTION 1 W WW415.1TOC TTL ORGNC CRBN (TOC) 415.1 W
567402	MW-16	2/2/2005	2/3/2005	2/17/2005	**USE FOR QC**REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC** W MW6010VAR METAL 6010B VARIABLE WATER W WW415.1TOC TTL ORGNC CRBN (TOC) 415.1 W W WW300.0-1 300.0 IC WATER OPTION 1
567403	MW-16D	2/2/2005	2/3/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC** W MW6010VAR METAL 6010B VARIABLE WATER W WW300.0-1 300.0 IC WATER OPTION 1 W WW415.1TOC TTL ORGNC CRBN (TOC) 415.1 W
567404	EB-020205	2/2/2005	2/3/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC** W MW6010VAR METAL 6010B VARIABLE WATER W WW300.0-1 300.0 IC WATER OPTION 1 W WW415.1TOC TTL ORGNC CRBN (TOC) 415.1 W
567405	MW-90	2/2/2005	2/3/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**



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WORKORDER SUMMARY REPORT

Workorder: 5674 Account: BB&L Project: PROGRESS
SDG-Case: PROGRESS Status: QC Type: CLIENT SPECIFIC MS/MSD
Report Style: COMPUCHEM STYLE 3 WITH EDD

SAMPLE ID	CLIENT ID	COLLECT DATE	RECEIVE DATE	DUE DATE	COMMENTS
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
567406	MW-13	2/2/2005	2/3/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
567407	MW-13D	2/2/2005	2/3/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
567408	MW-15	2/2/2005	2/3/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
567409	MW-15D	2/2/2005	2/3/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			



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WORKORDER SUMMARY REPORT

Workorder: 5674 Account: BB&L Project: PROGRESS
SDG-Case: PROGRESS Status: QC Type: CLIENT SPECIFIC MS/MSD
Report Style: COMPUCHEM STYLE 3 WITH EDD

SAMPLE ID	CLIENT ID	COLLECT DATE	RECEIVE DATE	DUE DATE	COMMENTS
567410	MW-20	2/4/2005	2/4/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
567411	MW-20D	2/4/2005	2/4/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			
567412	MW-91	2/4/2005	2/4/2005	2/17/2005	REQ'S 3030C PREP RPT HSL MTLS=As,Cr,Cu,Tl,Zn,Ca, RPT BY 6010**RPT SULFATE;CHLORIDE AND TOC**
W	MW6010VAR	METAL 6010B VARIABLE WATER			
W	WW300.0-1	300.0 IC WATER OPTION 1			
W	WW415.1TOC	TTL ORGNC CRBN (TOC) 415.1 W			

CompuChem**a Division of Liberty Analytical Corp.**

501 Madison Avenue Cary, NC 27513

DATA REPORTING QUALIFIERS FOR INORGANICS

On Form I, under the column labeled "C" for concentration qualifier and "Q" for qualifier, each result is flagged with the specific data reporting qualifiers listed below, as appropriate. Up to five qualifiers may be reported on Form I for each analyte.

The C (concentration) qualifiers used are:

- U:** This flag indicates the analyte was analyzed for but not detected. This reported value was obtained from a reading that was less than the Instrument Detection Limit (IDL). The IDL will be adjusted to reflect any dilution and, for soils, the percent moisture.
- B:** This flag indicates the analyte was analyzed for and the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

The Q qualifiers used are:

- E:** This flag indicates an estimated value. This flag is used:
1. When the serial dilution (a five fold dilution for CLP and a five fold dilution for SW-846 method 6010B) results are not within 10%. The analyte concentration must be sufficiently high (minimally a factor of 50X above the IDL in the original sample).
- N:** This flag indicates the sample spike recovery is outside of control limits:
- *:** This flag is used for duplicate analysis when the sample and the sample duplicate results are not within control limits.

The extensions: D, S, SD, L, A, added to the end of the client ID represent as follows:

- D:** matrix duplicate
S: matrix spike
SD: matrix spike duplicate
L: serial dilution
A: post digestion spike

Method Codes:

- P:** ICP PLASMA
CV: MERCURY COLD VAPOR AA
CA: MIDI-DISTILLATION SPECTROPHOTOMETRIC

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

EB-020205

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567404
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	104	B		P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	6.2	U	N	P
7440-66-6	Zinc	13.0	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-13

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567406
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	99.1			P
7440-70-2	Calcium	125000			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.55	B		P
7440-28-0	Thallium	8.9	B	N	P
7440-66-6	Zinc	9.9	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-13D

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567407
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	84400			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	8.2	B	N	P
7440-66-6	Zinc	18.3	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-14

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567401
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	9.6	B		P
7440-70-2	Calcium	34100			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.59	B		P
7440-28-0	Thallium	6.2	U	N	P
7440-66-6	Zinc	17.8	B		P

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____
Color After: COLORLESS Clarity After: CLOUDY Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-15

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567408
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	44.0			P
7440-70-2	Calcium	63400			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	6.6	B	N	P
7440-66-6	Zinc	13.8	B		P

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____
Color After: COLORLESS Clarity After: CLOUDY Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-15D

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567409
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	35900			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	6.2	U	N	P
7440-66-6	Zinc	13.6	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____
Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-16

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567402
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	5390			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.65	B		P
7440-28-0	Thallium	6.9	B	N	P
7440-66-6	Zinc	23.0			P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

SW-846

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-16D

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567403
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	4.3	B		P
7440-70-2	Calcium	33700			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	8.0	B	N	P
7440-66-6	Zinc	35.3			P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____
Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-20

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567410
Level (low/med): LOW Date Received: 02/04/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	79900			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.59	B		P
7440-28-0	Thallium	6.2	U	N	P
7440-66-6	Zinc	24.3			P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____
Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-20D

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567411
Level (low/med): LOW Date Received: 02/04/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	65300			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	1.1	B		P
7440-28-0	Thallium	6.2	U	N	P
7440-66-6	Zinc	21.9			P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-90

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567405
Level (low/med): LOW Date Received: 02/03/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	103			P
7440-70-2	Calcium	129000			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.50	U		P
7440-28-0	Thallium	6.2	U	N	P
7440-66-6	Zinc	16.4	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____
Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW-91

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674
Matrix (soil/water): WATER Lab Sample ID: 567412
Level (low/med): LOW Date Received: 02/04/05
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.6	U		P
7440-70-2	Calcium	84200			P
7440-47-3	Chromium	0.90	U	*	P
7440-50-8	Copper	0.91	B		P
7440-28-0	Thallium	6.2	U	N	P
7440-66-6	Zinc	26.2			P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____
Comments: _____

SW-846

3

BLANKS

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	Continuing Calibration Blank (ug/L)						Preparation Blank	C	M
		1	C	2	C	3	C			
Arsenic	3.6 U	3.6 U		3.6 U		3.6 U		3.600 U		P
Calcium	23.6 U	29.8 B		25.8 B		35.7 B		93.287 B		P
Chromium	-1.4 B	0.9 U		0.9 U		0.9 U		0.900 U		P
Copper	0.5 U	-0.5 B		-0.6 B		-0.8 B		0.500 U		P
Thallium	6.2 U	6.2 U		6.2 U		7.4 B		6.734 B		P
Zinc	3.6 U	3.6 U		3.6 U		3.6 U		8.492 B		P

SW-846

3

BLANKS

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	Continuing Calibration Blank (ug/L)						Preparation Blank	C	M
		1	C	2	C	3	C			
Arsenic	2.1 U	2.1 U		2.1 U		2.1 U		2.100 U		P
Calcium	17.0 U	17.0 U		17.0 U		17.0 U		76.827 B		P
Chromium	-0.6 B	0.6 U		-0.7 B		0.6 U		0.600 U		P
Copper	-0.7 B	-0.8 B		-0.6 B		-0.8 B		-0.403 B		P
Thallium	3.0 U	3.0 U		3.0 U		3.0 U		3.000 U		P
Zinc	1.2 U	1.2 U		1.2 U		1.2 U		8.164 B		P

SW-846

5A

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MW-16S

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674Matrix (soil/water): WATER Level (low/med): LOW% Solids for Sample: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Arsenic	75 - 125	39.3617		3.6000	U	40.00	98.4		P
Chromium	75 - 125	178.6466		0.9000	U	200.00	89.3		P
Copper	75 - 125	225.6006		0.6511	B	250.00	90.0		P
Thallium	75 - 125	34.8071		6.9232	B	50.00	55.8	N	P
Zinc	75 - 125	467.7613		22.9609		500.00	89.0		P

Comments:

SW-846

5A

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MW-16SD

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674Matrix (soil/water): WATER Level (low/med): LOW% Solids for Sample: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Arsenic	75 - 125	40.3958		3.6000	U	40.00	101.0		P
Chromium	75 - 125	186.4589		0.9000	U	200.00	93.2		P
Copper	75 - 125	233.6648		0.6511	B	250.00	93.2		P
Thallium	75 - 125	34.8625		6.9232	B	50.00	55.9	N	P
Zinc	75 - 125	495.4473		22.9609		500.00	94.5		P

Comments:

SW-846

5B

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

MW-16A

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674

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

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Thallium		26.61		6.92	B	20.0	98.4		P

Comments: _____

SW-846

6

DUPLICATES

SAMPLE NO.

MW-16D

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674Matrix (soil/water): WATER Level (low/med): LOW% Solids for Sample: 0.0 % Solids for Duplicate: 0.0Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Arsenic		3.6000	U	3.6000	U			P
Calcium	5000.0	5385.1920		5792.8940		7.3		P
Chromium	10.0	0.9000	U	116.5681		200.0	*	P
Copper		0.6511	B	0.7347	B	12.1		P
Thallium		6.9232	B	6.2000	U	200.0		P
Zinc		22.9609		13.2792	B	53.4		P

LABORATORY CONTROL SAMPLE

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674

Solid LCS Source: _____

Aqueous LCS Source: HIPUR

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Arsenic	1000.0	891.39	89.1						
Calcium	50000.0	46365.96	92.7						
Chromium	1000.0	848.80	84.9						
Copper	2500.0	2122.94	84.9						
Thallium	1000.0	744.67	74.5						
Zinc	2000.0	1732.77	86.6						

LABORATORY CONTROL SAMPLE

Lab Name: COMPUCHEM Contract: _____Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: 5674

Solid LCS Source: _____

Aqueous LCS Source: HIPUR

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Arsenic	1000.0	1082.70	108.3					
Calcium	50000.0	53257.11	106.5					
Chromium	1000.0	1009.59	101.0					
Copper	2500.0	2576.04	103.0					
Thallium	1000.0	994.27	99.4					
Zinc	2000.0	2061.25	103.1					

SW-846

9

ICP SERIAL DILUTIONS

SAMPLE NO.

MW-16L

Lab Name: COMPUCHEM

Contract: _____

Lab Code: LIBRTY

Case No.: _____

SAS No.: _____

SDG No.: 5674Matrix (soil/water): WATER

Level (low/med): _____

LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Differ- ence	Q	M
		C		C			
Arsenic	3.60	U	18.00	U			P
Calcium	5385.19		5471.05	B	1.6		P
Chromium	0.90	U	4.50	U			P
Copper	0.65	B	2.50	U	100.0		P
Thallium	6.92	B	31.00	U	100.0		P
Zinc	22.96		19.41	B	15.5		P

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674

ICP ID Number: P3 Date: 01/15/05

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRQL (ug/L)	IDL (ug/L)	M
Arsenic	189.04		10	3.6	P
Calcium	317.93		5000	23.6	P
Chromium	267.72		10	0.9	P
Copper	324.70		5	0.5	P
Thallium	190.86		10	6.2	P
Zinc	213.86		20	3.6	P

Comments: _____

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: COMPUCHEM Contract: _____
Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: 5674
ICP ID Number: P4 Date: 01/15/05
Flame AA ID Number: _____
Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRQL (ug/L)	IDL (ug/L)	M
Arsenic	189.04		10	2.1	P
Calcium	317.93		5000	17.0	P
Chromium	267.72		10	0.6	P
Copper	324.70		5	0.4	P
Thallium	190.86		10	3.0	P
Zinc	206.20		20	1.2	P

Comments: _____

