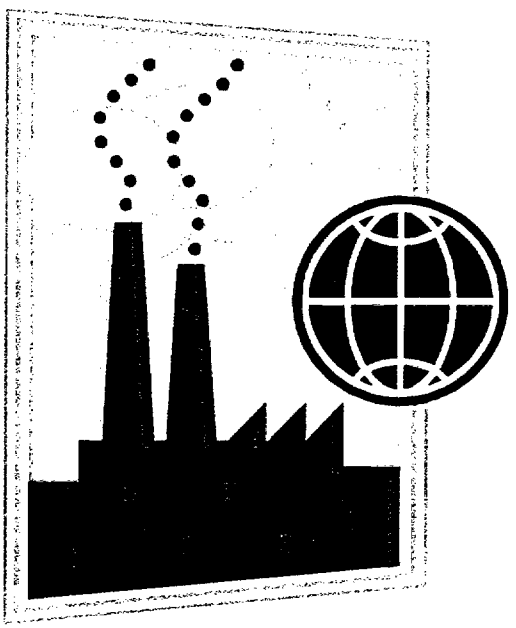
Environmental Report



SNM 1107 /70-1151
Westinghouse Electric Company
Columbia, SC

December 2004

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Environmental Report

1.0 INTRODUCTION

This environmental update report is submitted in accordance with NRC 10 CFR 51.60 and guidance contained in NUREG 1748 Chapter 6. It is provided as a supplement to previous detailed "Environmental Evaluation Report," March 1975; NRC "Environmental Impact Appraisal Report, NR-FM-013," April 1977; "Environmental Assessment for Renewal of SNM-License 1107, NUREG-1118," May 1985; Westinghouse Environmental data supplements in 1990 and 1995; SNM-1107; and the Westinghouse Electric Company Site and Structures ISA, October 2004. These reports have documented the environmental protocol and management program and have subsequently concluded that the environmental impact of operating the Westinghouse Electric Company Columbia nuclear fuel fabrication plant is minimal. NRC regulations 10 CFR 51.60 provide for incorporating previously submitted environmental information. Past NRC reviews and recommendations had been previously made to file a negative declaration in accordance with 10 CFR 51.7 in compliance with the National Environmental Policy Act (NEPA) of 1969. The plant has been safely operated since September 1969, and no major events have occurred in the interim which would reverse those previous conclusions.

2.0 SITE

The Westinghouse Columbia Nuclear Fuel plant is located in Richland County on SC 48 in central South Carolina approximately 8 miles southeast of the Columbia on an 1158 acre site. The site coordinates are latitude 33° 52' 52" and longitude 80° 55' 24". The fuel fabrication facility, waste treatment facilities, holding ponds, raw material storage areas, parking lots, and other miscellaneous buildings occupy approximately 5 percent of the property area or 60 acres. The other approximate 1100 acres are shown in Figure 1.1 and remain undeveloped.

The Westinghouse Plant is located at an approximate floor elevation of 142 feet above mean sea level (MSL); and the Congaree River has a normal maximum elevation pool of 129 feet MSL at the plant site. Flooding has not occurred in the past 75 years and is deemed improbable.

The main manufacturing building is set back 1800 feet from the main road, SC 48, Bluff Road. A continually staffed guard station is located on the plant access road. Site access is controlled by security barriers.

3.0 PROCESS INFORMATION

The Westinghouse Columbia plant fabricates nuclear fuel assemblies containing low enriched (< 5% U-235) uranium oxide fuel for use in commercial light water nuclear

powered reactors. The plant also produces control rods and mechanical components. The fabrication process involves the chemical conversion of uranium hexafluoride to uranium oxide using the ammonium diuranate (ADU) process. The uranium dioxide is formed into ceramic fuel pellets which are used in the nuclear fuel assembly. Some pellets contain a small amount of erbium. Some pellets are coated with boron. The pellets are loaded into metal fuel rods, and the rods are assembled into bundles.

Various ancillary operations are carried out in support of the chemical conversion process and ceramic pellet fabrication process including:

- Oxidation
- Dissolution
- Chemical precipitation
- Cylinder Recertification
- Cylinder Washing
- Respirator Cleaning
- Incineration
- Solvent extraction
- Waste treatment
- Mechanical operations
- Welding
- Metal Fabrication
- Quality Control Testing
- Shipping Container Painting

4.0 GASEOUS EFFLUENTS

Ventilation systems which exhaust air from the airborne radioactivity area are typically processed through High Efficiency Air (HEPA) filtration to remove particulate entrained in the air stream. HEPA filters are designed to remove 99.9 % of the particulate in the air stream. Exhausts from chemical processes may additionally require pretreatment of the air stream prior to discharge. Custom scrubbers have been designed to remove chemical and particulate contaminants. For operations that exhaust radioactive materials to unrestricted areas, the adequacy of air effluent control is determined by representative stack sampling. Summary results of stack sampling gaseous effluents are provided in a table in the attached Environmental Data Summary. Typical cumulative stack point source release of less than 700 uCi/year for the current 48 stacks result in off site estimated TEDE dose of less than 0.4 mRem to an exposed individual living at the site boundary which is substantially less than limits required by 10CFR 20 regulations and Regulatory Guide 8.37.

5.0 LIQUID EFFLUENTS

Radiological Waste Treatment

Process waste streams from the chemical processing area are discharged from the combined ADU conversion area filtration/quarantine tank system. Preliminary treatment of liquid waste for the removal of uranium is completed in the ADU conversion area by the controlled area waste quarantine tank system equipped with an on-line monitoring system. This on-line NaI well detector spectroscopy system alarms and diverts waste to additional quarantine tanks and filtration, if the uranium concentration exceeds 30 ppm uranium(equivalent to 7.2 E-05 uCi/ml). Liquid waste from this system is pumped to the external waste treatment facility for additional radiological and chemical treatment. This second treatment system assures that the uranium in the liquid effluent is removed to a nominal level of 0.5 ppm uranium (equivalent to 1.2 E-06 uCi/ml at a specific activity of 2.4 uCi/gU).

The external waste treatment facility further processes the liquid waste for removal of uranium to de minimus levels at the Waterglass Advanced Wastewater Treatment facility. This process involves treatment of the liquid effluent stream with water soluble sodium silicate and precipitation and removal the uranium as an insoluble product using the Artisan continuous rotary pressure filter where the cake like solids containing uranium are removed. The Waterglass process effluent is typically controlled to insure that the liquid effluent is less than 0.5 mg U /l. Liquid waste may be stored in large storage tanks. Following uranium removal the liquid effluent waste is transferred to 30,000 gallon storage holding tanks in preparation for ammonia removal and recovery at the ammonia distillation process. All liquid process wastes are further treated to assure removal of ammonium fluoride contaminants and compliance with the site EPA/SC-DHEC NPDES liquid effluent discharge permit.

A continuous proportional sample of the liquid released to Congaree River is collected and routinely analyzed to assure NPDES compliance. A 30 day composite of this sample is analyzed for Gross Alpha, Gross Beta, and Isotopic Uranium content. A summary of liquid effluent discharges is provided in a table in the attached Environmental Data Summary.

Chemical Waste Treatment

All process liquid effluent streams are treated to remove radiological impurities using quarantine tanks and diversion tanks inside the chemical controlled area of the plant; a final uranium removal process is then completed at the advanced Waste Water Treatment Facility by reacting the waste stream with a solution of sodium silicate and removing the uranium by a continuous rotary filtration process. The effluent stream is then discharged to the chemical wastewater treatment facility for chemical removal and to assure compliance with the SC-

DHEC/EPA NPDES liquid effluent discharge permit. The primary liquid waste generated in converting uranium hexafluoride into uranium dioxide is ammonium fluoride. The waste stream is treated with slaked lime to supply the pH adjustment necessary for ammonia distillation/recovery and fluoride removal. Recycled ammonia (<25%) is stored at tank farm bulk storage for reuse in the ADU conversion process.

The liquid effluent is tested with the required frequencies to demonstrate continuous compliance for the following parameters: pH, Fluoride, Ammonia, Dissolved Oxygen, BOD5, Total Suspended Solids, Phosphorus, Fecal Coliform, and Chlorine. The plant routinely complies with NPDES permit limitations. Typical average liquid effluent chemical discharges are noted in Table 1.13. A new permit was negotiated with South Carolina Department of Health and Environmental Control effective July 1, 2004. Regulatory compliance history is summarized in Table 1.1 at the end of this section and the few documented exceedances are noted. From this table it can be concluded that Westinghouse maintains full abeyance with NPDES permit conditions. A copy of the SC-DHEC liquid effluent NPDES permit #SC0001848 is provided as Attachment I. A copy of the liquid effluent waste treatment flow paths is provided as Attachment 3.

Following appropriate testing and assurance that permit limits are met, process waste is combined with sanitary waste and other miscellaneous waste and pumped a total distance of approximately 4 miles to Congaree River via a single six inch discharge line. Current typical daily liquid effluent discharges average approximately 130,000 gallons/day, or 0.201 ft3/sec.

The line discharges into Congaree River approximately 25' from the bank using a submerged 3 port diffuser, to a depth approximately a minimum of 6' below the water's surface. This diffuser insures prompt immediate mixing and dilution of the waste stream (to an in stream waste concentration, IWC, of less than 1% within 50 feet of the discharge) with Congaree River. Historical average Congaree River flow of 9326 ft3/sec and Westinghouse average liquid effluent flow of 0.201 ft3/sec results in a typical average dilution factor of 46,363.

Table 1.1 EPA Exceedance History 1995-2004

08/17/95	FECAL COLIFORM (DAILY MAX)	1600 COL/100ML	200 COL/100ML
08/31/95	FECAL COLIFORM (MONTHLY AVERAGE)	542 COL/100ML	400 COL/100ML
08/31/95	TOTAL SUSPENDED SOLIDS	39.5 #/D	32 #/D
08/31/95	TOTAL SUSPENDED SOLIDS	39.5 #/D	32 #/D
01/31/96	TSS (DAILY MAX.) TSS (MONTHLY AVERAGE)	138.5 #/D 43.1 #/D	64 #/D 32 #/D
10/14/99	BOD5 (DAILY MAX)	55.4#/D	50#/D
10/30/99	BOD5 (MONTHLY AVG)	37.5 #/D	25#/D
6/15/00	BOD5 (DAILY MAX)	70 #/D	50#/D
6/30/00	BOD5 (MONTHLY AVG)	37.5 #/D	25 #/D
6/30/02	BOD5 (MONTHLY AVG)	26.9 #/D	25 #/D
9/19/02	BOD5 (DAILY MAX)	94 #/D	50 #/D
9/30/02	BOD5 (MONTHLY AVG)	34.5 #/D	25 #/D
6/30/03	BOD5 (MONTHLY AVG)	32.5	25 #/D
7/31/03	BOD5 (DAILY MAX)	58.7	50 #/D

Sanitary Waste Treatment

Sanitary waste is treated in a 85,000 gallon extended aeration package plant followed by a 1,500,000 polishing pond. These facilities meet the intent of PL 92-500 and the NPDES permit and insure secondary treatment for removal of BOD5 and Total Suspended Solids. Gaseous chlorination is installed following the sanitary treatment facility to assure compliance with Fecal Coliform permit parameter restrictions. Prior to discharge to Congaree River, the effluent stream is dechlorinated with sulfur dioxide.

6.0 ENVIRONMENTAL MONITORING PROGRAM LOGISTICS

Locations of air, vegetation, soil monitoring stations, surface water locations, and locations of monitoring wells are illustrated in Figures 1.14, 1.15, and 1.16 respectively.

7.0 SOLID WASTES

LLLRW

Sundry waste materials such as used packaging, worn-out protective clothing, paper, wood, floor sweepings, plastics, discarded equipment and tools are collected and stored prior to disposal. The method of disposal is based on classification: uranium contaminated or contamination free. Non-combustible waste is examined to determine the feasibility of recovery, and it is either

decontaminated or collected in containers for ultimate disposal at an approved low level radioactive waste burial facility. Combustible items may be reduced to ash in an on-site incinerator, and the ash is processed to recover the uranium. A summary of shipments to low level radioactive waste facilities is provide in a table in the attached data summary.

HAZARDOUS WASTES

Various chemical and mechanical operations at the plant result in generation of small volumes of waste classified as "Hazardous Waste" by the EPA Resource Conservation and Recovery Act (RCRA) documented in 40 CFR 261-262 and South Carolina Hazardous Waste Regulations R61-79.261. Westinghouse is classified as a Hazardous Waste Generator, EPA ID # SCDO47559331, and as such implements an effective program to ensure the safety of employees and comply with the regulatory requirements associated with receipt of chemicals, storage, use, and proper disposal of identified waste hazardous materials. Typical wastes disposed include small quantities of degreasing solvents, miscellaneous lubricating and cutting oils, and spent plating solutions. A copy of a typical SC-DHEC Quarterly Hazardous Waste Generation Report is provided as Attachment 4.

8.0 COMPLIANCE WITH EPA SARA (EPCRA) REGULATIONS

The plant fully complies with EPA SARA Title III regulations also known as the "Emergency Planning Community Right to Know Act" specifying action in Emergency Response Planning; Emergency Release Reporting; Hazardous Chemical Inventory Reporting, and Toxic Chemical Release Reporting.

Major quantities of bulk chemicals and oils used in the plant are typically stored at locations external to the main facility. These chemicals are typically used as processing aides; for pH adjustment; or ancillary uses in support of nuclear fuel and related mechanical components using the ammonium diuranate (ADU) process. Best Management Practices are observed in storing these materials. Diked storage areas are connected to process waste treatment system and no discharges are typically released to the storm drain system.

Certain chemicals are identified as hazardous and stored in quantities which are governed by EPA SARA regulations. Notifications are made annually to EPA regarding the inventory quantities on the annual Tier II report. The following nineteen chemicals were noted on the Tier II report for CY 2003: anhydrous ammonia, chlorine, hydrogen fluoride, nitric acid, sulfur dioxide, ammonium hydroxide, calcium oxide, liquid hydrogen, liquid argon, sodium hydroxide, liquid nitrogen, sodium silicate, uranyl nitrate, uranium oxide (UO2), uranium oxide (U3O8) and uranyl nitrate crystals. Four chemicals are listed on the annual Toxic Chemical Release Report: anhydrous ammonia, hydrofluoric acid nitric acid, and nitrates. A copy of the most recent EPA Tier II report is provided as Attachment 1.

9.0 DESCRIPTION OF PROPOSED ACTION

This environmental update summary report is being prepared to provide a current environmental update appraisal for continuing operations and manufacturing low enriched uranium oxide fuel assemblies (< 5% U-235) for use in light water commercial nuclear reactors. The plant's original production capacity was 400 MTU in 1969 and later expanded to proposed maximum production load of 1600 MTU in previous submittals.

10.0 PURPOSE OF THE PROPOSED ACTION

Westinghouse is one of several industrial facilities dedicated to manufacturing and fabrication of nuclear fuel assemblies for light water moderated nuclear reactors and subsequent production of electrical power. Denial of the license renewal would necessitate expansion of nuclear activities at another facility or construction of a new plant with resultant environmental impact.

11.0 NEARBY HIGHWAYS AND RAILWAYS

Figures 1.1 and 1.2 show major roads and highways near the CFFF. A well-developed and maintained system of interstate, regional, and local highways provides easy, year-round access for commuter, business, and freight traffic to the Columbia area. Three interstate highways run through the Columbia area, I-20, I-26, and I-77. Interstate 20 (which runs east to west from Florence, South Carolina, to Augusta, Georgia) is approximately 14 mi north of the CFFF. Interstate 26 (which runs northwest to southeast from Spartanburg to Charleston) is slightly more than 8 mi west of the CFFF. Interstate 77 (which runs from I-26, south of Columbia to Charlotte, North Carolina) is approximately 6 mi to the northwest. The plant is located just off of SC 48. Other major roads in the vicinity of the CFFF site include US 21 (7 mi west), US 76/378 (about 5 five mi north), and SC 37 (Lower Richland Blvd.), which is approximately 1.5 mi to the southeast. Two rail lines in the vicinity of the CFFF site are both operated by CSX Transportation Inc.; they are about 4 mi and 5 mi northeast, respectively. There are no rail lines or spurs on the CFFF site.

12.0 NEARBY MILITARY INSTALLATIONS AND AIRPORTS

There are two major military installations in the Columbia area: (1) Fort Jackson U.S. Army Base, located approximately 7 mi north of the CFFF site, and (2) McEntire Air National Guard Station (ANGS), located approximately 6 mi northeast of the CFFF site. Fort Jackson has a heliport and McEntire ANGS has an airport and heliport.

Airports within a 20-mi radius of the CFFF site include: Columbia Metropolitan Airport; Columbia Owens Downtown Airport; Lexington County Airport (in Gaston); Corporate Airport and Eagles Nest – Fairview Airpark (both in Pelion); and

Alan's Airport and Do-Little Field Airport (both in St. Matthews). Several hospitals, businesses, and government agencies in the Columbia area own heliports, including Providence Hospital, Palmetto Richland Hospital, Lexington Medical Center, South Carolina Pipeline, South Carolina Law Enforcement Division, Fort Jackson U.S. Army Base, and McEntire ANGS.

13.0 NEARBY BODIES OF WATER

Figure 1.4 shows the various bodies of water in the plant's proximity. The most significant surface water feature is the Congaree River, the nearest point of which is approximately 4 mi to the southwest of the plant. The Congaree River, formed by the confluence of the Broad and Saluda rivers at Columbia, flows in a southeast direction for approximately 60 mi until its confluence with the Wateree River, finally discharging into Lake Marion near Fort Motte, South Carolina. The CFFF site lies within the flood basin of the Congaree River. Sunset Lake is located ¼ mi south of the CFFF's main manufacturing building. The lake originally consisted of two parts, Upper Sunset Lake and Lower Sunset Lake. The two were connected by a channel passing under a causeway. The upper lake was fed by Mill Creek, a tributary of the Congaree River, flowing through the channel into the lower lake. The upper lake is now a swamp area, and the lower lake is still present as an open water area of approximately 8 acres. Mill Creek continues as an outflow from Sunset Lake, meandering through the swampland, discharging into the Congaree River 2.5 mi downstream from the CFFF site. Other water bodies near the CFFF site include Adams Pond, approximately 3 mi to the northwest, Goose Pond, approximately 3 mi to the south, and Myers Creek, which lies approximately 2 mi to the east.

14.0 DEMOGRAPHICS

The 2000 U.S. census shows a total population of 536,691 for the Columbia metropolitan area, which includes Richland and Lexington counties. Census results from 2000 indicated that the total population of Richland County was estimated at 320,677, broken down by race as 161,276 white, 144,809 African-American, 8,713 Hispanic or Latino, 5,501 Asian, 782 Native American, and the rest other (Ref 1.1). The total number of housing units for Richland County was 129,793; 46,142 of which were in the city of Columbia. The major population is concentrated in the city of Columbia. Lexington County to the west, which includes West Columbia, had a population of 216,014, broken down by race as 181,844 white, 27,274 African-American, 4,146 Hispanic or Latino, 2,259 Asian, 725 Native American, and the rest other (Ref 1.1). The total number of housing units for Lexington County was 90,978; 6,436 in West Columbia and 5,517 in Cayce. Within a 5-mile radius of the CFFF site, the population is estimated to be 8,668. Figure 1.5 shows the population density for Richland County using the 2000 census data (Ref. 1.2). The population density in the area near the CFFF site is low, less than 100 people per square mile.

15.0 NEARBY PUBLIC FACILITIES

Of the schools near the CFFF site, there are only two schools within a 5-mile radius. Figure 1.6 identifies nearby schools and their location relative to the CFFF. Table 1.2 provides information about schools near CFFF. Two churches, both of which are approximately 4 mi to the southeast, also lie within the area.

Table 1.2 Schools Near the CFFF Site

School	Grades	Enrollment*	Location
Hopkins Elementary	K-5	408	4 mi NE
Hopkins Middle School	6-8	575	4.6 mi E
Lower Richland High School	9-12	1,729	5.9 mi NE
Mill Creek Elementary School	K-5	320	5.3 mi NNE
Sandhills Academy (private)	1-8	~40	5.9 mi NNE

* Enrollment data taken from the schools' Internet Web pages. Current as of 9/2004.

The Congaree National Park lies just over 5 mi to the southeast of the CFFF (see Figure 1.6). Originally designated as the Congaree Swamp National Monument in 1976, the area was designated as a National Park by the U.S. National Park Service in November 2003. The park covers an area of 22,200 acres. A unit of the National Park Service, the Congaree National Park preserves the last significant (and largest intact) tract of old-growth bottomland hardwood forest in the United States and North America, and contains one of the tallest deciduous forests in the world, including numerous national and state champion trees. Its wetlands are widely acknowledged to be the most outstanding example of the Southern bottomland hardwood ecosystem left in the world, providing a habitat for diverse populations of flora and fauna. The park is designated as an International Biosphere, a Globally Important Bird Area, and a National Natural Landmark.

There are two public parks located within a 5-mile radius of the CFFF: Bluff Road Park, located approximately 3.5 mi north just off Bluff Road (SC 48) and Hopkins Park, located approximately 2.5 mi east off Lower Richland Blvd (SC 37) (see Figure 1.6).

There are no hospitals within a 5-mile radius of the CFFF site. The Alvin S. Glenn (Richland County) Detention Center (jail) is located 3 mi north of the CFFF site, just off Bluff Road (SC 48).

16.0 NEARBY HISTORIC AND CULTURAL LANDMARKS

A search of the National Register of Historic Places database (Ref 1.3) for officially recognized historic sites within a 5-mile radius of the CFFF site, yielded the following listed sites:

1. Barber House – 19th century dwelling in Hopkins, SC
2. Big Lake Creek Cattle Mound – 18th century feature in Hopkins, SC
3. Brady's Cattle Mound – 18th century feature in Hopkins, SC
4. Bridge Abutments – feature in Hopkins, SC
5. Cattle Mound #6 – 18th century feature in Hopkins, SC
6. Cook's Lake Cattle Mound – 18th century feature in Hopkins, SC
7. Cooner's Cattle Mound – 18th century feature in Hopkins, SC
8. Dead River Cattle Mound – 18th century feature in Hopkins, SC
9. Dead River Dike – 18th century feature in Hopkins, SC

As listed in the CFFF Environmental report, there are five other sites within 5 mi of the CFFF that the South Carolina Department of Archives and History considers to have historic significance (Ref. 1.4). These sites are:

1. Raiford's Mill Creek (Mill Creek)
2. Cabin Branch (John Hopkins, Jr. Plantation House) – circa 1786 dwelling
3. Claytor House – 1887 dwelling
4. Chappell Cabin Branch (Hicks Plantation House and Garden) – 1781 dwelling
5. Hopkins Overseers' Dwellings – 19th century dwellings

17.0 LAND USE WITHIN AREA

Figure 1.7 shows the land use within a 1-mile radius of the CFFF. Other than the site itself, there is no classified industrial use or commercial use of the land within those boundaries. Most of the area is swamp-type land, unsuitable for commercial applications. Much of the land that makes up the site boundary is designated as agricultural. Within a 1-mile radius of the CFFF site, agricultural use makes up 44% of the area. The remaining 56% is classified as other.

18.0 METEOROLOGY

The Richland County area experiences four distinct seasons due to its mid-latitude location area and resulting solar radiation effects. Temperatures are moderate throughout the year, averaging in the mid-60s Fahrenheit. Rainfall is moderate throughout the year as are winds. Storms bring severe weather in the form of lightning, hail, and tornadoes. Details and extremes are discussed below. (Meteorological data were taken from the National Climatic Data Center's database [Ref 1.5].)

19.0 WIND

The Appalachian Mountains have an influence on wind in the Columbia area, which changes seasonally. Winds are predominantly from the southwest, but are also prevalent from the northeast in autumn and to a lesser extent in the winter. Wind speeds for all months generally range between 6 and 10 mi per hr (mph), averaging 7 mph. Directions change with the season as listed below:

Season	Direction
Spring	Southwest
Summer	South and Southwest
Autumn	Northeast
Winter	Northeast and Southwest

A query of the National Climatic Data Center's (NCDC's) database for wind events exceeding 50 knots for Richland County resulted in 37 total events between January 1, 1950, and February 29, 2004 (Ref. 1.5). During that time one death and three injuries were recorded. Results of the query are tabulated in Table 1.7. The fastest wind recorded in the Columbia region is 60 knots, and the calculated strongest winds expected to occur in a 100-year period are 100 mph.

20.0 PRECIPITATION

Precipitation occurs in the Richland County area in the form of rain, snow, and sleet with occasional instances of hail. Normal monthly precipitation ranges from a low of 2.88 in. in November to a high of 5.54 in. in July. Normal annual precipitation is 48.27 in. Table 1.3 shows the normal precipitation for each month based on data recorded between 1971 and 2000 at the Columbia Metropolitan Airport.

Table 1.3 Normal Precipitation Amounts

Normal Precipitation (inches)												
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
4.66	3.84	4.59	2.9	3.17	4.99	5.54	5.41	3.94	2.89	2.88	3.38	48.27

Probable maximum fifth quintile precipitation is 61.69 in. annually. On a monthly basis, the greatest probable maximum expected quantity of rain is 17.46 in. occurring in the month of July. Table 1.4 shows probable maximum precipitation for each month.

Table 1.4 Maximum Precipitation Amounts by Month for Richland County

Maximum Precipitation Probabilities (inches)											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
9.26	8.10	10.89	6.85	7.88	14.81	17.46	11.75	7.86	11.66	6.26	8.54

Although rain dominates the precipitation type and amount, Richland County does experience winter precipitation in the form of snow, sleet and freezing rain during the months between November and March, and there have been rare instances of snow in April. Measurable snowfall occurs one to three times during the winter, but seldom do accumulations remain on the ground very long. The average annual snowfall for Richland County totals 1.2 in. The maximum 24-hr snowfall recorded for the county between the years 1948 and 2002 was 16 in., occurring on February 9 and 10, 1973. Over all of South Carolina, the record total snowfall for any month was 34 in., recorded at the Department of Natural Resources' Caesar's Head station in Pickens County. Table 1.5 shows state snowfall statistics on a monthly basis.

Table 1.5 Number of Snowfall Days for South Carolina (by Month)

Number of Days with Snowfall Exceeding Threshold													
Threshold	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
> 0.1 in.	4.4	4.8	2.4	0.4	0	0	0	0	0	0	1.8	3.3	17.1
> 1.0 in.	2.1	2.0	1.0	0.2	0	0	0	0	0	0	0.7	1.4	7.4

21.0 SEVERE WEATHER

Severe weather occurs in South Carolina occasionally in the form of violent thunderstorms, common in the summer months. The summer weather is dominated by a maritime tropical air mass known as the Bermuda high that brings warm moist air inland from the ocean. As the air comes inland, it rises, forming thunderstorms that bring precipitation, high winds, hail, and lightning. Tornadoes have occurred in the area, but are relatively rare. Although hurricanes are common in the Atlantic Ocean and coastal regions of the state, it is rare for a hurricane to maintain hurricane-force winds inland.

THUNDERSTORMS

Thunderstorms occur an average of 53 days per year, 60% of those occurring in the summer months of June, July, and August. Damaging hail is infrequent, and thus is

not a significant damaging factor. A query of the NCDC's database for hail of at least 1 in. in diameter resulted in 53 events between January 1, 1950, and February 29, 2004 (Ref. 1.5). No injuries or deaths were shown to have resulted from hail. Lightning events during thunderstorms have resulted in three injuries and no deaths during the period measured between 1994 and 2000. A query of damaging lightning events showed six recorded occurrences between January 1, 1950, and February 29, 2004. Thunderstorms with high winds can also result in damage. Most of the recorded high wind events had wind gusts less than 60 knots; the highest recorded high wind gusts were 103 knots. Table 1.7 shows a tabulation of lightning, hail, and thunderstorm wind query results.

TORNADOES

Tornadoes averaged 11 per year in the state of South Carolina during the 40-year period from 1950 to 1989 (Ref. 1.5). They occur between February and September, peaking during May and August. A query of the NCDC's database for tornadoes in the Richland County area showed that a total of 27 have been recorded between January 1, 1950, and February 29, 2004, resulting in 17 injuries and one death. Of these 27 recorded tornadoes, 11 were F0 (40-72 mph winds), 10 were F1 (73-112 mph), and 6 were F2 (113-157 mph). The results of the query can be found in Table 1.6. An empirical formula to compute the mean recurrence interval for any location within Richland County found a 1 in 700 year recurrence frequency.

HURRICANES

Hurricanes affect the state of South Carolina at a rate of approximately one every 2 years. Most affect only the coastal areas. Those that do come inland decrease in intensity by the time they reach the Columbia area, becoming tropical storms. A query of the NCDC's database for storm events in Richland County showed no hurricanes or tropical storms between January 1, 1950, and February 29, 2004 (Ref. 1.5). However, maps showing hurricane paths for central South Carolina show that two tropical storms and a category 1 hurricane have passed through Richland County since 1930. An overall tabulation of the meteorology for Richland County is presented in Table 1.6 (Ref. 1.7).

Table 1.6 Richland County Meteorology Summary

Temperature (°F), 1930 - 2000			
Annual Average Maximum	75.6		
Annual Average Mean	64.8		
Annual Average Minimum	54.0		
Highest Maximum	109	June 29,	1998
Lowest Minimum	1	January 21, 1985	
Precipitation (in.), 1930-2000			
Annual Average Rainfall	45.29		
Greatest Daily Rainfall	7.66	August 16,	1949
Wettest Year	74.49	1959	
Driest Year	27.11	1933	
Mean Snowfall	1.2		in.
Largest Snowfall	15.7 in.	1973	

Severe Weather (Jan 1950 through Feb 2004)

Event	Quantity	Injuries	Deaths
Tornadoes	27	17	1
Wind Events*	37	3	1
Hail Events**	53	0	0
Lightning Events	6	3	0
Hurricanes	0	0	0

* thunderstorm winds exceeding 50 knots (57.6 mph)
** hail diameter = 1 in. or greater

Table 1.7 Severe Weather Summary (Jan 1950 – Feb 2004)

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries
1 Columbia	7/18/1994	1700	Lightning	N/A	0	0
2 White Rock	8/23/1996	2:20 p.m.	Lightning	N/A	0	0
3 Columbia	4/27/1999	5:50 p.m.	Lightning	N/A	0	3
4 Columbia	2/22/2003	11:30 a.m.	Lightning	N/A	0	0
5 Columbia	6/11/2003	2:10 p.m.	Lightning	N/A	0	0
6 Columbia	7/21/2003	2:00 p.m.	Lightning	N/A	0	0
TOTALS:					0	3

1 RICHLAND	6/3/1959	17:05	Hail	1.75 in.	0	0
2 RICHLAND	6/3/1959	19:30	Hail	1.75 in.	0	0
3 RICHLAND	4/13/1966	16:30	Hail	1.75 in.	0	0
4 RICHLAND	6/21/1970	15:45	Hail	1.00 in.	0	0
5 RICHLAND	4/19/1977	15:20	Hail	1.00 in.	0	0
6 RICHLAND	4/27/1982	16:50	Hail	1.75 in.	0	0
7 RICHLAND	3/28/1984	12:40	Hail	1.00 in.	0	0
8 RICHLAND	3/28/1984	17:15	Hail	1.50 in.	0	0
9 RICHLAND	4/14/1984	17:50	Hail	1.75 in.	0	0
10 RICHLAND	4/14/1984	18:05	Hail	1.75 in.	0	0
11 RICHLAND	5/2/1984	11:10	Hail	2.75 in.	0	0
12 RICHLAND	5/6/1984	16:15	Hail	1.75 in.	0	0
13 RICHLAND	5/6/1984	16:30	Hail	1.75 in.	0	0
14 RICHLAND	5/6/1984	17:30	Hail	1.75 in.	0	0
15 RICHLAND	6/20/1984	18:20	Hail	1.75 in.	0	0
16 RICHLAND	7/25/1984	18:15	Hail	1.75 in.	0	0
17 RICHLAND	6/7/1985	16:33	Hail	2.00 in.	0	0
18 RICHLAND	3/13/1986	14:30	Hail	1.75 in.	0	0
19 RICHLAND	6/26/1986	14:35	Hail	1.75 in.	0	0
20 RICHLAND	7/29/1987	14:45	Hail	1.75 in.	0	0
21 RICHLAND	5/4/1988	17:00	Hail	1.75 in.	0	0
22 RICHLAND	5/16/1988	15:40	Hail	1.00 in.	0	0
23 RICHLAND	5/17/1988	15:48	Hail	1.00 in.	0	0
24 RICHLAND	5/23/1988	18:56	Hail	1.75 in.	0	0
25 RICHLAND	6/26/1988	13:55	Hail	1.50 in.	0	0
26 RICHLAND	9/25/1988	18:07	Hail	3.00 in.	0	0
27 RICHLAND	6/19/1989	15:30	Hail	1.00 in.	0	0
28 RICHLAND	7/30/1989	13:45	Hail	1.00 in.	0	0
29 RICHLAND	3/13/1991	17:27	Hail	1.00 in.	0	0
30 RICHLAND	3/19/1992	13:50	Hail	1.00 in.	0	0
31 RICHLAND	3/19/1992	13:50	Hail	1.00 in.	0	0
32 RICHLAND	4/30/1992	18:47	Hail	1.00 in.	0	0

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries
33 RICHLAND	4/30/1992	18:47	Hail	1.00 in.	0	0
34 St. Andrews Area	7/22/1994	14:34	Hail	1.75 in.	0	0
35 Rosewood Drive &	4/24/1995	1:24	Hail	1.00 in.	0	0
36 Irmo	5/15/1995	17:05	Hail	1.75 in.	0	0
37 Blythwood	6/24/1995	16:32	Hail	1.75 in.	0	0
38 E.coumbia	7/6/1995	14:30	Hail	1.00 in.	0	0
39 Columbia	10/27/1995	17:40	Hail	1.00 in.	0	0
40 Columbia	6/15/1996	4:45 p.m.	Hail	1.75 in.	0	0
41 Blythewood	7/14/1997	7:25 p.m.	Hail	1.00 in.	0	0
42 Columbia	7/15/1997	5:15 p.m.	Hail	1.00 in.	0	0
43 Columbia	7/29/1997	7:15 p.m.	Hail	1.25 in.	0	0
44 Columbia	7/29/1997	7:30 p.m.	Hail	1.75 in.	0	0
45 Columbia	8/5/1997	4:30 p.m.	Hail	1.00 in.	0	0
46 Dentsville	6/4/1998	7:00 p.m.	Hail	1.75 in.	0	0
47 Columbia	3/21/1999	3:00 a.m.	Hail	1.75 in.	0	0
48 Eastover	4/27/1999	1:15 p.m.	Hail	1.75 in.	0	0
49 Mc Entire Ang	4/27/1999	1:15 p.m.	Hail	1.75 in.	0	0
50 Columbia	4/27/1999	12:52 p.m.	Hail	1.00 in.	0	0
51 Ballentine	8/20/1999	7:15 p.m.	Hail	1.75 in.	0	0
52 Columbia	4/17/2000	6:04 p.m.	Hail	1.00 in.	0	0
53 Congaree	5/25/2000	3:47 p.m.	Hail	1.00 in.	0	0
TOTALS:					0	0

1 RICHLAND	7/29/1966	17:00	Thunderstorm Wind	53 knots	0	0
2 RICHLAND	7/7/1967	17:30	Thunderstorm Wind	57 knots	0	0
3 RICHLAND	3/26/1970	15:00	Thunderstorm Wind	58 knots	0	0
4 RICHLAND	7/20/1971	14:45	Thunderstorm Wind	56 knots	0	0
5 RICHLAND	6/3/1982	13:30	Thunderstorm Wind	52 knots	0	0
6 RICHLAND	6/10/1982	14:40	Thunderstorm Wind	61 knots	0	0
7 RICHLAND	6/20/1984	18:10	Thunderstorm Wind	60 knots	0	0
8 Columbia Area	6/9/1995	17:17	Thunderstorm Winds	N/A	0	0
9 Gadsden	5/6/1996	7:00 p.m.	Thunderstorm Wind/hail	75 knots	0	0
10 Columbia	5/26/1996	5:00 p.m.	Thunderstorm Wind/hail	100 knots	0	0
11 Columbia	4/22/1997	7:55 p.m.	Thunderstorm Wind	55 knots	0	0
12 Columbia	4/22/1997	9:00 p.m.	Thunderstorm Wind	55 knots	0	0
13 Chapin	5/3/1997	7:20 a.m.	Thunderstorm Wind	55 knots	0	0
14 Columbia	5/9/1997	4:50 p.m.	Thunderstorm Wind	65 knots	0	1
15 Columbia	5/9/1997	5:02 p.m.	Thunderstorm Wind	56 knots	0	0

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries
16 Columbia	7/16/1997	4:48 p.m.	Thunderstorm Wind	60 knots	0	0
17 Ballentine	6/19/1998	2:40 p.m.	Thunderstorm Wind	60 knots	0	0
18 Columbia	9/8/1998	3:15 p.m.	Thunderstorm Wind	75 knots	0	0
19 Columbia	5/6/1999	2:35 p.m.	Thunderstorm Wind	55 knots	0	0
20 Mc Entire Ang	8/14/1999	2:18 p.m.	Thunderstorm Wind	103 knots	0	0
21 Ballentine	8/20/1999	7:17 p.m.	Thunderstorm Wind	55 knots	0	0
22 Columbia	4/8/2000	2:15 p.m.	Thunderstorm Wind	60 knots	0	0
23 Ballentine	5/22/2000	3:27 p.m.	Thunderstorm Wind	55 knots	0	1
24 Columbia	6/22/2000	3:25 p.m.	Thunderstorm Wind	60 knots	0	0
25 Ballentine	6/22/2000	3:27 p.m.	Thunderstorm Wind	60 knots	1	1
26 Forest Acres	8/24/2000	6:30 p.m.	Thunderstorm Wind	60 knots	0	0
27 Mc Entire Ang	1/19/2001	5:18 p.m.	Thunderstorm Wind	55 knots	0	0
28 Columbia	4/1/2001	11:31 a.m.	Thunderstorm Wind	55 knots	0	0
29 Mc Entire Ang	6/25/2001	12:15 p.m.	Thunderstorm Wind	57 knots	0	0
30 Ft Jackson	6/25/2001	12:25 p.m.	Thunderstorm Wind	55 knots	0	0
31 Countywide	5/13/2002	5:56 p.m.	Thunderstorm Wind	65 knots	0	0
32 Columbia	8/24/2002	6:55 p.m.	Thunderstorm Wind	55 knots	0	0
33 Blythewood	11/11/2002	8:20 a.m.	Thunderstorm Wind	70 knots	0	0
34 Columbia	2/22/2003	11:45 a.m.	Thunderstorm Wind	55 knots	0	0
35 Columbia	6/11/2003	2:05 p.m.	Thunderstorm Wind	55 knots	0	0
36 Columbia	7/21/2003	9:10 p.m.	Thunderstorm Wind	60 knots	0	0
37 Columbia	8/14/2003	6:05 p.m.	Thunderstorm Wind	55 knots	0	0
TOTALS:					1	3

1 RICHLAND	6/11/1955	10:30	Tornado	F0*	0	0
2 RICHLAND	7/3/1964	1:25	Tornado	F2	0	0
3 RICHLAND	8/29/1964	15:15	Tornado	F2	0	0
4 RICHLAND	3/26/1965	9:15	Tornado	F0	0	0
5 RICHLAND	5/29/1967	18:00	Tornado	F2	0	3
6 RICHLAND	11/24/1967	18:10	Tornado	F1	0	0
7 RICHLAND	5/12/1971	15:30	Tornado	F1	0	0
8 RICHLAND	1/10/1972	14:05	Tornado	F1	0	1
9 RICHLAND	11/12/1975	19:15	Tornado	F2	0	7
10 RICHLAND	5/15/1976	1:30	Tornado	F2	1	3
11 RICHLAND	6/19/1977	20:00	Tornado	F1	0	0
12 RICHLAND	5/20/1980	10:10	Tornado	F1	0	0
13 RICHLAND	2/11/1981	0	Tornado	F1	0	0
14 RICHLAND	4/20/1981	15:05	Tornado	F1	0	0
15 RICHLAND	8/31/1987	15:15	Tornado	F2	0	2
16 RICHLAND	6/16/1989	15:00	Tornado	F0	0	0
17 Mcentire	8/16/1994	12:30	Tornado	F0	0	0
18 Balentine	8/16/1994	13:18	Tornado	F1	0	0

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries
19 Near Ballentine	1/6/1995	22:10	Tornado	F1	0	0
20 Columbia	10/27/1995	17:45	Tornado	F0	0	0
21 Columbia	11/7/1995	15:21	Tornado	F0	0	0
22 Columbia	7/23/1997	11:14 p.m.	Tornado	F1	0	1
23 Columbia	7/23/1997	11:32 p.m.	Tornado	F0	0	0
24 Ft Jackson	3/16/2000	3:30 p.m.	Tornado	F0	0	0
25 Mc Entire Ang	3/16/2000	5:52 p.m.	Tornado	F0	0	0
26 Eastover	3/29/2001	4:12 p.m.	Tornado	F0	0	0
27 Ft Jackson	6/13/2001	1:22 p.m.	Tornado	F0	0	0
TOTALS:					1	17

Tornadoes are rated on the Fujita scale: F0 (winds of 40 – 72 mph), F1 (winds of 73 – 112 mph), F2 (winds of 113 – 157 mph), F3 (winds of 158 – 206 mph), F4 (winds of 207 – 260 mph), and F5 (winds of 261 – 318 mph).

22.0 LOCAL SURFACE WATER AND GROUND WATER HYDROLOGY

22.1 INTRODUCTION

The CFFF site lies within the Congaree River Basin, which encompasses 688 mi^2 and 7 watersheds. The Congaree River Basin is mainly located within the Sandhills region of South Carolina, but extends to the Upper Coastal Plain region near its confluence with the Catawba-Santee Basin. The watershed specific to the CFFF is the Congaree River watershed, which occupies 140,217 acres of the Sandhills and Upper Coastal Plain regions. The Congaree River is formed by the confluence of the Broad and Saluda rivers in the capital city of Columbia. The CFFF site is located approximately 12 mi southeast of this confluence (Ref. 1.8). Figure 1.9 shows the Congaree River and Sandy Run watersheds (Ref. 1.8). (The CFFF EPA/SC-DHEC liquid effluent discharge permit is NPDES # SC0001848.)

Land cover for the Congaree River watershed falls within the following categories:

- 9.45% urban land
- 7.24% agricultural land
- 2.22% scrub/shrub land
- 0.09% barren land
- 61.76% forested land
- 16.45% forested wetland (swamp)
- 2.79% water

Both groundwater and surface water are derived from precipitation within the region. Rainfall totals for the state of South Carolina were below normal for the years 1999, 2000, and 2001. Near Columbia, the rainfall totals were 41%, 27%, and 39% below normal for the 3 years, respectively, resulting in poorly sustained base flows. In the area around Columbia, the average annual precipitation is approximately 48 in. per year.

Rainfall intensity values (in inches per hour) provided by the South Carolina Department of Transportation for Columbia are given in Table 1.8.

Table 1.8 Rainfall Intensity for the Columbia Area

Frequency (yr)	Rainfall Intensity (inches per hour)		
	tc=5 min	tc=10 min	tc=15 min
2	5.44	4.82	4.32
5	6.42	5.66	5.05
10	7.12	6.25	5.57
25	8.16	7.14	6.34
50	9.03	7.86	6.96
100	9.88	8.57	7.57

Rainfall intensity i is defined as

$$i = \frac{a}{b + tc^c}$$

where tc is the time of concentration in minutes and a, b, and c are coefficients.

23.0 GROUNDWATER

Groundwater levels reflect both the climatic conditions of the region and groundwater withdrawals. The groundwater level also depends upon a combination of the permeability of the strata and the hydraulic head. The inclination of different strata may cause the water tables in the surrounding area to be higher or lower than the water level in the nearby Congaree River since movements of the groundwater are, to a large extent, independent of the river. Because of the friction encountered by water in its passage through pervious strata, the water table is not always horizontal. Several water tables may exist at different levels, separated by impermeable strata.

REGIONAL AREA

Groundwater in the Upper Coastal Plain occurs in multiple aquifer systems, mostly under artesian or confined conditions. These aquifers consist of rocks of Paleozoic age and are typically composed of one to several layers of eastward thickening, permeable sands or limestone split by discontinuous, clay-rich materials. Confining units, consisting of clay-rich sediments, exist above and below the aquifers. Aquifers found below the site are the Peedee, Black Creek, and Upper Cape Fear with the Peedee aquifer being the closest to the surface. In large portions of these aquifers, sands and limestone materials are so well connected that withdrawals cause pressure reductions many miles from the pumping center.

The upper Cape Fear aquifer is present in the western portions of the Coastal Plain at elevations of 295 ft to –1,519 ft, with an average elevation of –250 ft. The upper Cape Fear aquifer varies in thickness from 8 to 665 ft thick and averages 150 ft thick. The aquifer is composed of very fine to coarse sands and occasional gravels. Wells typically yield 200 to 400 gal per minute (gpm).

The Black Creek aquifer is present in the central and southwestern portions of the Coastal Plain. Elevations range from 317 ft to –1207 ft and average 135 ft. The thickness of the Black Creek aquifer ranges from 18 to 972 ft thick, averaging about 175 ft thick. The aquifer is composed of very fine to fine "salt and pepper" sands. Wells typically yield 200 to 400 gpm.

The Peedee aquifer is present in the central to southeastern portion of the Coastal Plain at an average elevation of –30 ft. Elevations vary from 114 ft to –796 ft. The thickness of the aquifer ranges from 8 to 404 ft thick and averages about 135 ft thick. The Peedee aquifer is composed of fine to medium sand, and wells typically yield up to 200 gpm.

SITE AREA

The average depth to the water table in the area of the CFFF site is approximately 15 ft. Since September 1971, the highest mean water level recorded was 2.95 ft below the land-surface datum, and the lowest level was 44.83 ft below the land-surface datum.

The Westinghouse facility is located at 5801 Bluff Road in a rural portion of Richland County. The plant building and the wastewater treatment plant are located on an ancient terrace, known as the Okefenokee Terrace, of the Upper Coastal Plain physiographic province. The southern portion of the property lies within the floodplain of Mill Creek, a tributary of the Congaree River. The terrace and the floodplain are separated by a bluff, approximately 20 foot high, located immediately south of the wastewater treatment plant.

The uppermost geological formation at the site is composed of a stratified, but poorly sorted mixture of clay, silt, sand, and gravel that includes the Okefenokee Formation, which underlies the Okefenokee Terrace. These shallow sediments generally occur to a depth of 20 to 40 feet at the plant site, depending on topography. The Black Mingo Formation occurs below the shallow sediments and consist of an upper clay unit and a lower sand unit. The thickness of the Black Mingo unit beneath the plant site is estimated to be 75 feet. The Tuscaloosa (Middendorf) formation occurs below the Black Mingo formation and overlies bedrock which occurs at a depth of approximately 240 to 290 feet. The Tuscaloosa Formation generally consists of multi-colored clay interbedded with fine to coarse grade sand. The bedrock beneath the Tuscaloosa formation is typically composed of igneous and metamorphic rock.

The sediments occurring beneath the site can be divide into four hydrogeological units. The uppermost hydrogeological unit is the shallow aquifer which includes sediments of the Okefenokee Formation. Groundwater in the shallow aquifer occurs under the unconfined (water table) conditions where the water table is generally subdued replica of the topography. Thus groundwater in the shallow aquifer generally flows from areas of higher topography in the vicinity of the plant to areas of lower topography in the floodplain of Mill Creek. This shallow terrace aquifer

flow is typically in a south-southwesterly direction from the plant site toward Sunset Lake. Sunset Lake functions as a point or line source of groundwater discharge which tends to act as a hydraulic barrier to any movement past Sunset Lake. Beneath the shallow aquifer is a confining unit composed of dry clay and brittle shale of the upper Black Mingo Formation. Beneath the confining unit is an artesian sand aquifer within the Black Mingo Formation known as the Black Mingo aquifer. Below the Black Mingo is the Tuscaloosa Aquifer System which also contains artesian sand aquifers. A generalized hydrogeological column representation and site cross section are provided as Attachment 5.

Groundwater flows from the structural highs toward the structural lows. Both the topography and the drainage around the site are controlled by the local geologic structure. Thus, regional groundwater movement to the site area is determined by the geologic structure. The slope of the terrain in the immediate area of the site has a range of 0 to 15%.

24.0 SURFACE WATER

Stream flow for the Congaree River is dependent on recharge within the Broad River and Saluda River basins. Regulation of stream flow at the Parr Shoals Dam on the Broad River and the Lake Murray Dam (also called the Saluda Dam) on the Saluda River confines the watersheds in these basins that are relevant to stage levels for the Congaree River near the CFFF site. The Broad River represents 70% of the Congaree River watershed while the Saluda River represents 30%.

The Broad River Basin encompasses 21 watersheds and 2,252 mi^2 within South Carolina. In the Broad River Basin, there are approximately 2,500 stream mi and 14,500 acres of lake waters. The watershed that has the most influence on stage levels for the Congaree River near the CFFF site is the Broad River watershed. The Broad River watershed is located in Richland, Newberry, and Fairfield counties and consists primarily of the Broad River and its tributaries from the Parr Shoals Dam to its confluence with the Saluda River. The watershed occupies 160,922 acres of the Piedmont region of South Carolina (Ref. 1.8).

The Saluda River Basin covers 2,519 mi^2 and contains 21 watersheds with geographic regions that extend from the Blue Ridge Province to the Piedmont Province. The watershed that has the most influence on stage levels for the Congaree River is the Saluda River watershed. The Saluda River watershed is located in Lexington and Richland counties and consists primarily of the Saluda River and its tributaries from the Lake Murray Dam to its confluence with the Broad River. The watershed occupies 65,535 acres of the Piedmont and Sandhill regions of South Carolina (Ref. 1.8).

SURFACE RUNOFF

Surface runoff at the CFFF site flows into the Congaree River to the west and into Mill Creek to the east.

STREAM FLOW

For stream gauging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. The accuracy of stream flow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The gauging station at Columbia (station number 02168500) is located 1.4 mi downstream of the confluence of the Saluda and Broad rivers. This gauging station has a drainage area of 7,850 mi^2 and has systematic stream flow records from 1892 to present. Table 1.9 gives recent data for the Congaree River from the Columbia gauging station (Ref. 1.9). (Note: South Carolina experienced a severe, multi-year drought from June 1998 to August 2002, therefore the average stream flows for these years are lower than normally expected.)

Table 1.9 Stream Flow Rates for the Congaree River

Year	Average Discharge (cfs)	Average Stage (ft)
1998	5,423.52	4.01
1999	4,736.25	3.71
2000	4,520.83	3.63
2001	3,473.28	3.87
2002	4,805.91	5.82
2003	12,342.65	6.32

FLOODS

Table 1.10 lists significant floods have affected the area of central South Carolina.

Table 1.10 Significant Flood Events

Date	Area Affected	Recurrence Interval (yr)	Remarks
August 1908	Statewide	2 to >50	Most extensive flood in state; rainfall of 12 in. in 24 hr
August 1928	Statewide	2 to >50	Bridges destroyed, roads and railways impassable
August 1940	Statewide	2 to >100	About 34 deaths and $10 million in damage
September 1945	Statewide	2 to >100	One death and $6-7 million in damages
September 1959	Eastern, southern and central South Carolina	10 to 20	Hurricane Gracie; 6 to 8 in. of rainfall; seven deaths and $20 million in damages

October 1990	Central South Carolina	Unknown	Tropical storms Klaus and Marco; five deaths and 80 bridge failures

The CFFF site lies within the flood basin of the Congaree River. High water on the Congaree River usually occurs in late winter and early spring, but flooding is possible any time of the year. Flooding occurs as the water level in the river rises above the flood stage and creeks and gullies begin to flow backward into the floodplain. Flood stage for the Congaree River at the Carolina Eastman gauging station, located in close proximity to the CFFF, is 115.0 ft (above mean sea level [MSL]). The CFFF site elevation ranges from 115 - 112 ft (above MSL) on the southwest portion of the site, around Mill Creek and Sunset Lake, to 136 - 140 ft (above MSL) on the northeast portion of the site, around the main manufacturing building. The main manufacturing building's floor sits at 142 ft (above MSL). Impacts of flooding at the Carolina Eastman gauging station have been documented for the following water levels:

115 ft — Low lying and flood prone areas become flooded. The Congaree National Park begins to flood.

119 ft — Extensive flooding occurs in the Congaree National Park. Farmland downstream from Columbia becomes flooded.

123 ft — Lowlands and swampland around the Carolina Eastman Chemical Plant become flooded.

124 ft — Farmland along the Congaree River from Columbia to St. Matthews becomes flooded. Extensive flooding occurs on the Carolina Eastman facility.

125 ft — Extensive flooding occurs downstream from the Carolina Eastman Chemical Plant.

126 ft — Extensive swampland around St. Matthews becomes flooded.

Table 1.11 shows the crest history that has been documented for the Congaree River at the Carolina-Eastman gauging station.

Table 1.11 Recorded Crest History for the Congaree River

Date	Water Level (ft above MSL)
10/12/1976	126.95
02/27/1979	126.90
03/16/1975	126.00
04/03/1973	125.40
02/06/1998	124.40

The U.S. Geological Survey has used peak flows observed from 1892 to 1998 to estimate the upper bound base flood discharge for the Congaree River. Base flood discharge estimates range from 269,000 to 319,000 ft^3/s (cfs). The base flood discharge is 269,000 cfs when applying a historical adjustment to the 1908, 1928, and 1930 floods and 280,000 cfs when only the 1908 flood is adjusted for historical information. Using the entire record, station skew and adjusting the 1908 flood for historical information results in a base flood discharge of 319,000 cfs.

One of the major issues in the determination of base flood discharge for the Congaree River is the degree of regulation afforded by Lake Murray. Peak flows from 1892 to 1929 are unregulated and those from 1930 to present have some unknown degree of regulation. Theoretically, the upper and lower bounds of the base flood discharge along the Congaree River would vary with the degree of regulation. The lower bound corresponds to the condition where Lake Murray prevents upstream floodwater from entering the Congaree River, and the upper bound indicates when Lake Murray does not attenuate any of the floodwater entering the Congaree River. However, water in Lake Murray is used for hydropower generation, and there is no dedicated flood storage. Operation of Lake Murray changed in about 1956. The median lake level ranged from 333 to 351 ft between 1931 and 1955 and from 350 to 358 ft between 1956 and 1999. The higher reservoir levels after 1955 suggest that Lake Murray has a lower potential for attenuating flood discharges. Alternative independent analyses using gauging-station data upstream and downstream of the dam indicate that the Saluda River base-flood discharge could be reduced by as much as 50% by Lake Murray. Since the Saluda River represents 30% of the Congaree River watershed, the degree of regulation of the base-flood discharge for the Congaree River has been estimated as approximately 15%.

25.0 WATER QUALITY

The information given in this section was taken from a study of ground water and surface water quality conducted by the South Carolina Department of Health, Environment, and Conservation (SC-DHEC) (Ref. 1.8). Water quality is characterized by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major bios, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. Water quality problems include fecal coliform bacteria contamination, low dissolved oxygen concentrations, high suspended-solid levels, and elevated nutrient levels. Runoff from urban areas can transport trace elements and synthetic organic compounds that can seriously affect the quality of water and wildlife habitats in the receiving streams. Enrichment by nitrogen and phosphorus causes algae in lakes and rivers to increase dramatically, which reduces the concentrations of dissolved oxygen and adversely affects fish and other aquatic biota. Pesticides and nutrients can contaminate both surface and groundwater. Sedimentation impairs municipal, industrial, and recreational water use; destroys aquatic habitat; and adversely impacts desired aquatic organisms. Sediment erosion due to past and present land use increases turbidity, which in turn increases the cost of treatment for public consumption and industrial use, deposits silt in reservoirs, covers fish spawning beds, and causes aesthetic problems. Examples of non-point sources of pollution include agricultural runoff, urban runoff, construction, mining, and silviculture.

The groundwater in the vicinity of the property owned by Westinghouse is contaminated with nitrates, fluoride, and volatile organics from spills, leaks, and unknown sources. The facility is currently in the remediation phase. Surface waters affected by the groundwater contamination are Sunset Lake and the unnamed tributaries and wetlands draining into Mill Creek (Ref. 1.8).

At the confluence of the Broad River and the Saluda River, aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a high concentration of zinc measured in 1995, 1966, and 1997. In addition, a very high concentration of cadmium and chromium was measured in 1995, as well as a significant decreasing trend in dissolved oxygen concentration and pH. Methylene chloride was detected in the water column in 1997. In sediments, a very high concentration of copper was measured in 1994, and very high concentrations of zinc were measured in 1993 and 1994. Benzo(a)pyrene, chrysene, fluoranthene, phenanthrene, pyrene, and benzo(a)anthracene (all polycyclic aromatic hydrocarbons) were detected in the 1994 sediment sample. Isophorone was detected in the 1995 sediment sample and P,P'DDE, a metabolite of DDT, and O,P'DDT were detected in the 1994 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Significantly decreasing trends in 5-day biochemical oxygen demand, total phosphorus, and total nitrogen concentration suggest improving conditions. (See Ref. 1.8.)

Mill Creek is a blackwater system characterized by naturally low pH and dissolved oxygen concentrations. Aquatic life and recreational uses are fully supported along the downstream portion of Mill Creek and decreasing trends in 5-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions (Ref. 1.8).

26.0 WATER USE

More than 95% of the water needs in South Carolina are supplied by surface waters. The South Carolina Water Resources Commission reported a state water use of 206 mgd (million gal per day) of ground water and 5,570 mgd of surface water in 1980. The total gross water withdrawal of 5,780 mgd represented a 96% increase from the previous decade. About 7.6% of this water was consumed and not returned to available supplies. Gross water use is projected to increase by 48% to 8,550 mgd by the year 2020, with 484 mgd projected to correspond to groundwater and 8,060 mgd to surface water. Current average plant water use in 2004 was approximately 1,396,000 gallons/month.

INDUSTRIAL

Major industrial water users in the Congaree watershed include the Carolina Eastman Company and the Westinghouse CFFF.

PUBLIC

The major public uses correspond to water supplies, recreation, and waste disposal. Major municipal water users in the Congaree watershed include the City of Columbia Metro Plant, the City of Cayce Main Plant, and the East Richland County PSD Gills Creek Plant.

27.0 GEOLOGY

The area of the CFFF is located in the upper Coastal Plain physiographic province of the southeastern United States near the boundary with the Piedmont province. The shallow geology of the area is characterized by young undisturbed sediments, which overlie a complex of Paleozoic metamorphic crystalline rocks. Generally, the Coastal Plain consists of poorly consolidated sediments that include gravels, sands, clays, limestones, and marls.

27.1 REGIONAL GEOLOGY

27.2 GEOLOGICAL HISTORY

The Piedmont province in South Carolina is underlain by narrow northeast-southwest trending belts of deformed and metamorphosed crystalline rock, while the Coastal Plain is underlain by younger post-Triassic sediments undisturbed by previous deformational episodes (Figure 1.10). Deformed belts of the Piedmont province resulted from regional metamorphism and tectonic activity during the Paleozoic Era about 400 to 600 million years ago that affected sediments originally

occurring as thick sequences. The degree of metamorphism generally decreases progressively from northwest to southeast.

During the Triassic Period (180 to 225 million years ago), sediments were deposited over parts of the exposed metamorphic belts. In the late Triassic (about 200 million years ago), these deposits and the older metamorphic rocks were intruded by a system of northwest-trending diabase dikes and were faulted by northeast-trending normal faults. Since that time, the region has accumulated a sedimentary cover over its crystalline-metamorphic bedrock that extends southwest to the coast, forming the Coastal Plain. These sediments overlap the bedrock and thicken toward the southeast, effectively masking any ancient faulting. It is possible that igneous activity has occurred in the region in post-Triassic time because volcanic bentonitic clays of Eocene to Miocene age (12-50 million years ago) have been mapped in the sediments of the Coastal Plain, although the source of this volcanic activity is not presently known.

27.3 REGIONAL STRATIGRAPHY

The Piedmont province of the southeastern United States is essentially a dissected peneplain characterized by northeast-southwest trending belts of crystalline metamorphic and plutonic rocks. Six distinct belts are recognized in South Carolina. Northwest from the Coastal Plain, these are the Carolina Slate Belt, the Charlotte Belt, the Kings Mountain Belt, the Inner Piedmont Belt, the Brevard Belt, and the Blue Ridge Belt. Folding, faulting, regional and contact metamorphism, and igneous intrusions have modified the rocks that are presently exposed. Most major streams and some tributaries in the Piedmont have cut down through a great thickness of residual soil and are flowing on, or very close to, crystalline rock.

The Carolina Slate Belt, the southern most zone of the Piedmont province, extends from Virginia to Georgia and is composed of a thick sequence of volcanic, volcaniclastic, and sedimentary rocks that have been strongly deformed and recrystalized by metamorphism to greenschist facies. These metamorphosed rocks were originally deposited in an island arc geologic environment and then accreted to the North American continent when North America collided with Africa during the Paleozoic Era.

Near Columbia, the Carolina Slate Belt has been subdivided into three different formations. The oldest of these is the Wildhorse Branch Formation that contains carbonaceous shale, mafic tuff and flows, and felsic tuff. The next oldest unit is the Persimmon Fork Formation, which contains dacitic tuff with minor andesitic tuff and shale. The youngest formation is the Richtex Formation composed predominately of mudstone.

27.4 COASTAL PLAIN

The Coastal Plain is composed of sediments that range in age from Late Cretaceous to recent. These sediments consist of unconsolidated sand, clay, gravel, and limestone that have been deposited on the beveled surface of the Piedmont province

rocks. The formations exposed in Richland, Lexington, and Calhoun counties are described below. Coastal Plain deposits are generally the result of sediments left from the rising of sea level. The contact between rocks of the Piedmont province and the Coastal Plain dips approximately 30 ft per mile towards the Atlantic coast.

The oldest formation of the Coastal Plain is the Late Cretaceous Tuscaloosa Formation. The Tuscaloosa Formation typically consists of arkosic sands and gravels interbedded with clays that were deposited in a nonmarine environment. These deposits are the result of the erosion and subsequent deposition of Piedmont rocks. The Tuscaloosa Formation is very thin near Columbia and gradually thickens to more than 800 ft in the south coastal area.

The next oldest formation of the Coastal Plain is the Late Cretaceous Black Creek Formation, which consists of gray to black laminated clay and micaceous sands that were deposited in a marine environment. This formation marks the onset of the sea-level rise that resulted in the deposition of sediments of marine origin. The formation has an average dip of about 23 ft per mile to the south-southeast and is approximately 600 ft thick near the coast.

Overlying the Late Cretaceous units is the Black Mingo Formation at the base of the Tertiary units. The Black Mingo Formation is Paleocene to Eocene in age. It is a laminated sandy shale with layers of clay and sand that was deposited in a marine environment. Deposited on the Black Mingo Formation is the Santee Limestone Formation of Eocene age. The Santee Limestone is a white to yellow fossiliferous limestone that was deposited in a restricted marine environment.

The next oldest unit is the Barnwell Formation of Eocene age, which was also deposited in a marine environment. It consists of fine- to coarse-grained massive red sandy clay and clayey sand with minor ferruginous sandstone layers 1 in. to 3 ft in thickness. Overlying the Barnwell Formation are Quaternary alluvial and fluvial deposits that fill present day stream and river channels.

27.5 REGIONAL STRUCTURE

The structural setting of eastern North America results predominantly from the cumulative effect of three major tectonic events. These are (1) the Late Proterozoic rifting of the Pangean supercontinent and subsequent opening of the Iapetus Ocean, (2) the subduction and eventual closing of the Iapetus Ocean in the middle and late Paleozoic, and (3) the return to continental rifting in the early Mesozoic and the subsequent opening of the Atlantic Ocean.

Continental rifting and subsequent formation of the Iapetus Ocean in the Precambrian margin imposed an extensional tectonic regime along the southeastern margin of the ancient North American continent. The rifted Precambrian margin and its associated intracontinental failed arms are important structural elements that include the northeast-trending Reelfoot rift in Missouri and the northwest-trending Southern Oklahoma aulocogen.

Deformation in the Paleozoic along the continental margin of southeastern North America was dominated by a convergent plate margin as the late Precambrian-early Paleozoic Iapetus oceanic lithosphere subducted beneath the proto-North American continent. Repeated collisional orogenies, due possibly to the closing of a back-arc basin, the accretion of island arcs and micro-continents, and final diachronous continent-continent collision resulted in complex, pervasive, low-angle northwest-directed thrusting in miogeoclinal rocks for perhaps hundreds of kilometers onto the craton, overriding the late Precambrian passive continental margin. The events of this tectonic episode served to compress the continental margin following late Precambrian rifting, bury rift-related structures of the Precambrian margin beneath west-transported thrust sheets, and create the Appalachian orogen. Lateral adjustments among accreted terrains were accommodated by strike-slip movement along the Eastern Piedmont fault system.

Following the long Paleozoic history of compressional orogenesis, a dominant extensional tectonic regime was once again imposed along the southeastern margin of North America in late Triassic time. This Mesozoic extension resulted in the rifting apart of the Paleozoic supercontinent and the eventual opening of the present Atlantic Ocean. Initiation of the rifting event resulted in a zone of normal-fault displacements and attenuated continental crust parallel to, and somewhat east of, the Appalachian Highlands. Resultant northeast-trending, elongated Triassic-Jurassic basins have been inferred along the continental shelf and beneath the Coastal Plain, and have been mapped in the Piedmont west of the Fall Line. These basins reflect considerable stretching and thinning of the continental crust and are characterized by asymmetrical graben structures.

With the successful rifting of the continents by late Cretaceous time, a passive tectonic environment was imposed on eastern North America in contrast to the very active tectonic environments of the late Precambrian-early Mesozoic. The configuration of the stress field changed abruptly at the time of seafloor spreading in the late Jurassic period, resulting in weak northwest-oriented compressive stress along the eastern margin of the continent. The present regional stress regime of eastern North America is a remarkably uniform east- to northeast-trending compressive stress imposed by ridge-push forces acting on the North American plate at the mid-Atlantic spreading ridge and countered by drag forces at the base of the lithosphere.

27.6 SITE GEOLOGY

PHYSIOGRAPHY

The area surrounding the CFFF site is just south of the Fall Line zone and the northwestern edge of the Coastal Plain Province. The terrain is characterized by low to moderate hills and gently rolling lowlands. Small streams in the area are for the most part dendritic, but the larger streams such as the Congaree River are better developed in a direction perpendicular to the strike of the underlying Tuscaloosa

formation. The CFFF site lies in the flood plain of the Congaree River. Within the Congaree River flood plain are small dendritic streams that feed into the Congaree River, such as Mill Creek.

The CFFF site is situated on an old river terrace surface of the Congaree River, just off SC Highway 48. The average elevation of the Congaree River flood plain at the site is 110 ft above MSL. The CFFF site elevation ranges from 110 - 115 ft (above MSL) on the southwest portion of the site, around Mill Creek and Sunset Lake, to 136 - 140 ft (above MSL) on the northeast portion of the site, around the main manufacturing building, tank farm, lagoons, and parking lots.

BEDROCK

Bedrocks of the area are primarily metamorphic gneisses and schists with some local granite intrusions. The bedrock has weathered in-place to form the overburden soils. The upper soils are the most highly weathered and are often composed of silty clays or clayey silts. With depth, these upper materials transition into less cohesive silty sands and sandy silts with varying mica content. Weathering processes, which are dependent on fractures in the rock, changing groundwater levels, rock mineralogy, and other factors, result in an extremely variable surface of the bedrock. Also, hard rock layers and boulders are often encountered within the overburden soil or the weathered rock. Recent soil borings in the area indicate 1 to 5 in. of topsoil under which are very loose to dense clayey sands extending from depths of 8 to 17 ft. Under this are loose to very loose sands and soft to very hard clays. The maximum boring was terminated at a depth of 80 ft.

28.0 SEISMOLOGY

The CFFF site is located near Columbia far from any centers of significant earthquake activity. Several major earthquakes have occurred at distant points, and some minor to moderate shocks have occurred nearer to the site. No significant earthquake has been located nearer than about 20 mi from the site.

28.1 GEOLOGIC AND TECTONIC BACKGROUND

Known faults in South Carolina are predominantly of Triassic age and are primarily associated with the last metamorphic episode (200 million years ago) that affected the Piedmont physiographic province. There is no indication that any of these faults have been active since that time. Earthquakes that have been recorded in South Carolina are widely scattered and are unrelated to any known faults or structural features. Only the earthquake activity of the Charleston seismic zone (see below) may indicate the possible presence of a currently active fault, although no evidence of surface rupture has been found in that region.

28.2 SEISMIC HISTORY

South Carolina has experienced a moderate amount of earthquake activity in the last two centuries. Figure 1.11 shows epicentral locations of earthquakes with known magnitudes in the region of South Carolina. This includes the large, magnitude 7.0 Charleston earthquake of August 31, 1886, which is the strongest earthquake documented in the southeastern United States in historic time. The earthquake was located about 90 mi southeast of Columbia and was felt in an area of about 2 million square miles that includes locations as far away as Boston, Milwaukee, New York City, Cuba, and Bermuda (Figure 1.12). A maximum intensity of X on the Modified Mercalli (MM) intensity scale has been estimated for the event (Ref. 1.10). Damage from the earthquake was reported in Columbia, where MM intensities of VII–VIII were observed. The most serious damage was reported in Charleston and nearby cities, where an estimated $23 million damage was incurred and some 60 people died. Damage in Charleston was generally correlated with local soil conditions, with structures constructed on filled-in areas experiencing the greatest damage. Cracks, sand boils, and bent railroad tracks were also observed in the epicentral region.

Other significant historic earthquakes include the Summerville earthquake of June 12, 1912, and the Union County earthquake of January 1, 1913. The 1912 Summerville earthquake caused some damage to chimneys and had an estimated maximum MM intensity of VII. An MM intensity VI was observed at Charleston, about 20 mi southeast of the earthquake. The earthquake was felt in an area of about 35,000 mi^2 that included the cities of Brunswick and Macon, Georgia; Greenville, South Carolina; and Wilmington, North Carolina. The 1913 Union County earthquake occurred about 80 mi northwest of Columbia and was felt over an area of 43,000 mi^2. In the city of Union, cracks appeared in many brick buildings and many chimneys were damaged. The maximum MM intensity of the 1913 Union County earthquake was estimated at VI–VII.

28.3 SEISMICITY OF THE AREA

The nearest earthquake to the CFFF site occurred on April 20, 1964. The event had a magnitude of 3.5 and was located about 15 mi southwest of Columbia, South Carolina. The earthquake was felt in Fairfield, Florence, Lexington, and Richland counties. Vibrations were reported to last over 4 minutes. The maximum reported MM intensity was V in Gaston and Jenkinsville, where a trembling motion was felt by all residents. Intensity IV was reported in Cayce, Irmo, and Lexington accompanied by rumbling noises but no damage. Intensity I-III was reported at Columbia, Florence, and Pelion.

The majority of the earthquakes occurring in the coastal plain of South Carolina are associated with the Charleston seismic zone. This earthquake activity is confined to a relatively localized area that corresponds to a discrete structural anomaly possibly related to zones of weakness in the basement rocks. Studies based on seismicity recorded by regional seismic networks indicate that zones of high seismicity correspond to the intersection of a northwest-trending zone of weakness and

northeast-trending Triassic basins. Alternative explanations include the hypothesis that horizontal nodal planes observed for earthquakes in the Summerville area represent a large-scale regional fault surface associated with a postulated Appalachian decollement. There is little evidence, however, to support a sub-horizontal shear of this size. The reactivation of northwest-dipping or southeast-dipping Triassic tensional faults by present-day northwest-oriented compressional stresses has also been suggested to explain current seismic activity in the Charleston seismic zone. Although the reactivation of some northeast-trending structures in the Cenozoic has generally been recognized, the age of the lateral movement is not well known or defined. In summary, there is no conclusive evidence that would suggest that the seismogenic structure responsible for the earthquake activity in the Charleston seismic zone extends to the northwest near the city of Columbia.

29.0 SEISMOLOGY SUMMARY

The CFFF site area is in a region of low seismicity in the Coastal Plain physiographic province of the southeastern United States. The nearest significant seismic source is located about 90 mi to the southeast in the Charleston seismic zone. The site would thus be primarily affected by seismic vibrations from large distant earthquakes such as the Charleston earthquake of 1886. Indeed, ground motion maps prepared by the U.S. Geological Survey (USGS) indicate that the greatest earthquake hazard in South Carolina is associated with the Charleston seismic zone. Figure 1.13 shows the expected peak ground acceleration (PGA) calculated for South Carolina by the USGS National Seismic Hazard Mapping Project for a 2,475-yr return period on a soft rock site class (Ref. 1.11). The largest PGA values (greater than 0.8 g) in South Carolina are predicted in the area just north of Charleston. For the area near Columbia, a PGA of about 0.3 g would be expected for a 2,475-yr return period. For shorter return periods, the expected ground motions are less. For example, the USGS estimates a PGA of 0.10 g for the Columbia region at a 475-yr return period.

30.0 CONCLUSION

NRC regulations 10 CFR 51.60 provide for incorporating previously submitted environmental information. Past NRC reviews and recommendations have been previously made to file a negative declaration in accordance with 10 CFR 51.7 in compliance with the National Environmental Policy Act (NEPA) of 1969. The plant has been safely operated since September 1969, and no major events have occurred during the interim which would reverse those previous conclusions. Information documented in this environmental update summary and past reports have subsequently reaffirmed the conclusion that the environmental impact of operating the Westinghouse Electric Company Columbia nuclear fuel fabrication plant is minimal. An environmental data summary update is provided as a supplement to this report.

31.0 REFERENCES

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1.2 2000 Population Density Map for Richland County, Richland County GIS Department, Columbia, SC. Maps available online at www.richlandmaps.com.

1.3 National Register of Historic Places, online searchable database operated by the U.S. Department of the Interior, available at http://www.nationalregisterofhistoricplaces.com/

1.4 Personal communication, C. E. Lee, State Historic Preservation Officer, South Carolina Department of Archives and History, Columbia, SC, with G. C. Pangburn, Westinghouse Environmental Systems Department, Pittsburgh, PA, October 2, 1974.

1.5 Online searchable database operated by the National Climatic Data Center (Ashville, NC), which is part of the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), and the National Environmental Satellite, Data and Information Service (NESDIS). The database, available at http://www.ncdc.noaa.gov/oa/ncdc.html.

1.6 National Geographic Society, online map machine available at http://mapmachine.nationalgeographic.com/.

1.7 South Carolina Weather Atlas, climate information from the South Carolina Department of Natural Resources, Office of State Climatology; available online at http://www.dnr.state.sc.us/water/climate/sco/index.html.

1.8 *Watershed Water Quality Assessment, Saluda River Basin,* Technical Report No. 05-98, South Carolina Department of Health and Environmental Control, Bureau of Water, Columbia, SC, December 1998. Available online at http://www.scdhec.net.

1.9 Lake and Stream Data, South Carolina Department of Natural Resources, Land, Water & Conservation Division, Hydrology Section; information available at http://www.dnr.state.sc.us/pls/hydro/river.home.

1.10 Isoseismal Map for the Charleston, South Carolina, Earthquake, U.S. Geological Survey. Map available at http://neic.usgs.gov/neis/eq_depot/usa/1886_09_01_iso.html.

1.11 Interpolated Probabilistic Ground Motion For The Conterminous 48 States By Latitude Longitude, 2002 Data, U.S. Geological Survey. Seismic maps available at http://eqint.cr.usgs.gov/eq/html/lookup-2002-interp.html.

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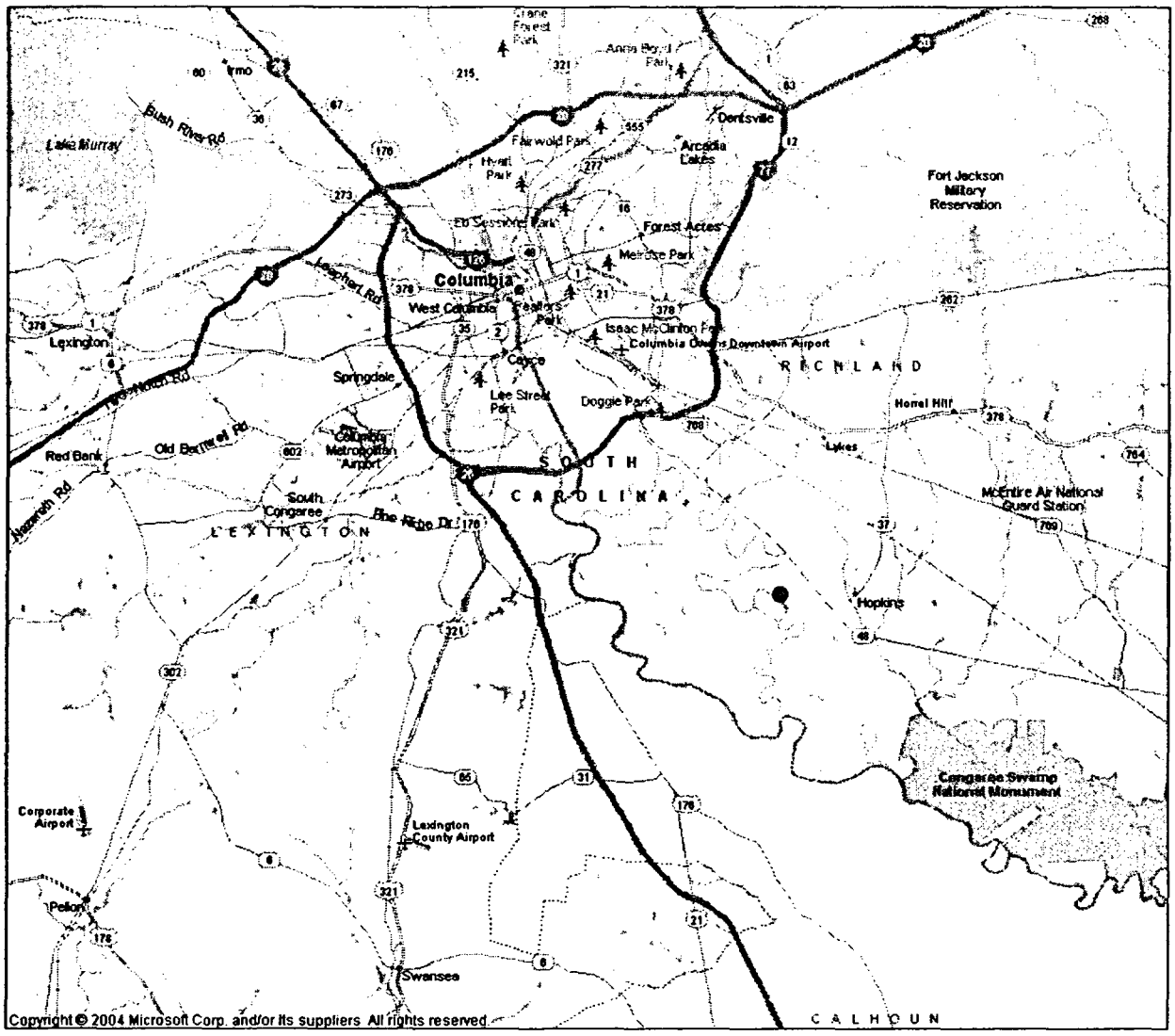


Figure 1.1 CFF and Surrounding Area

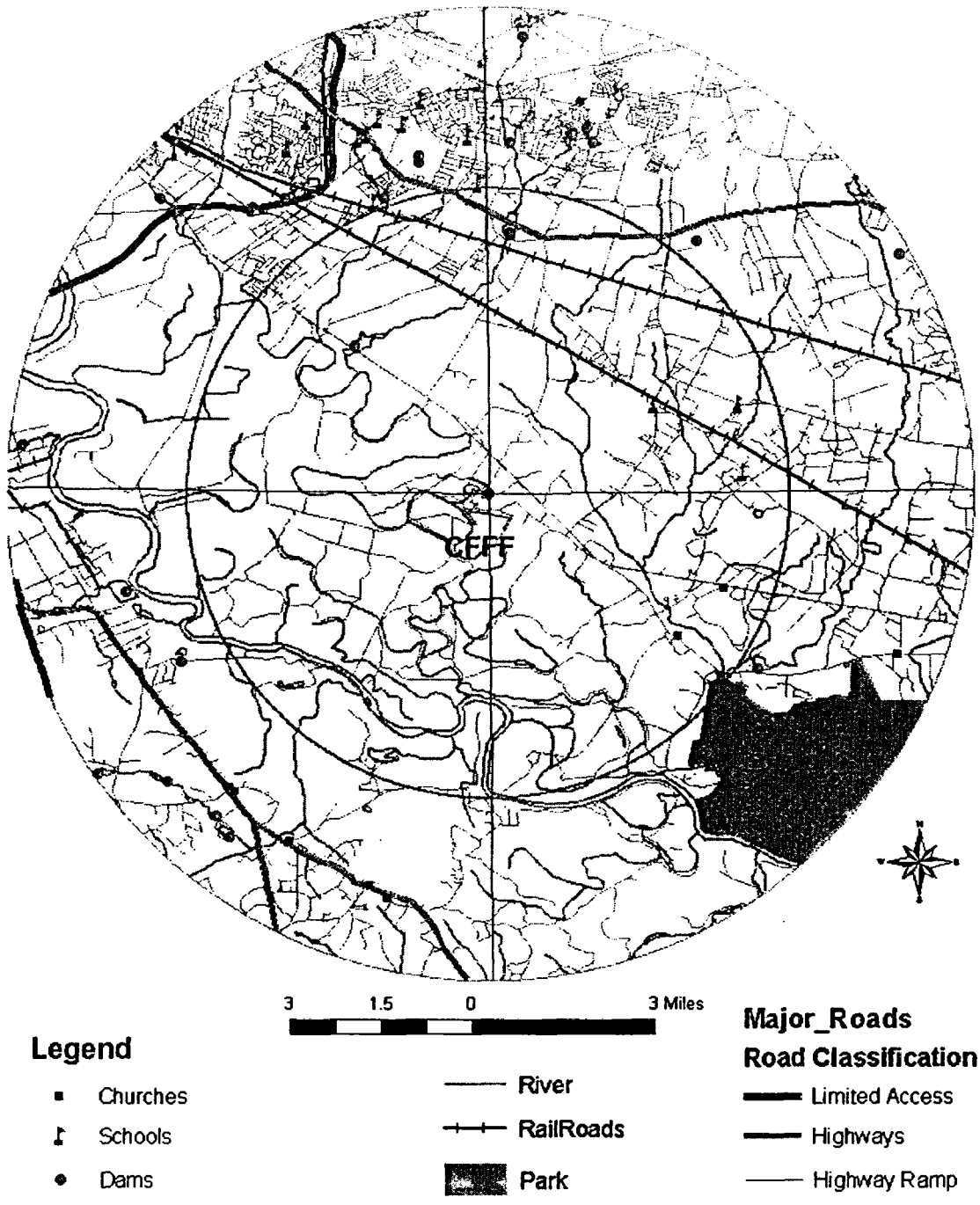


Figure 1.2 Topographic Quadrangle of Area Surrounding the CFFF Site

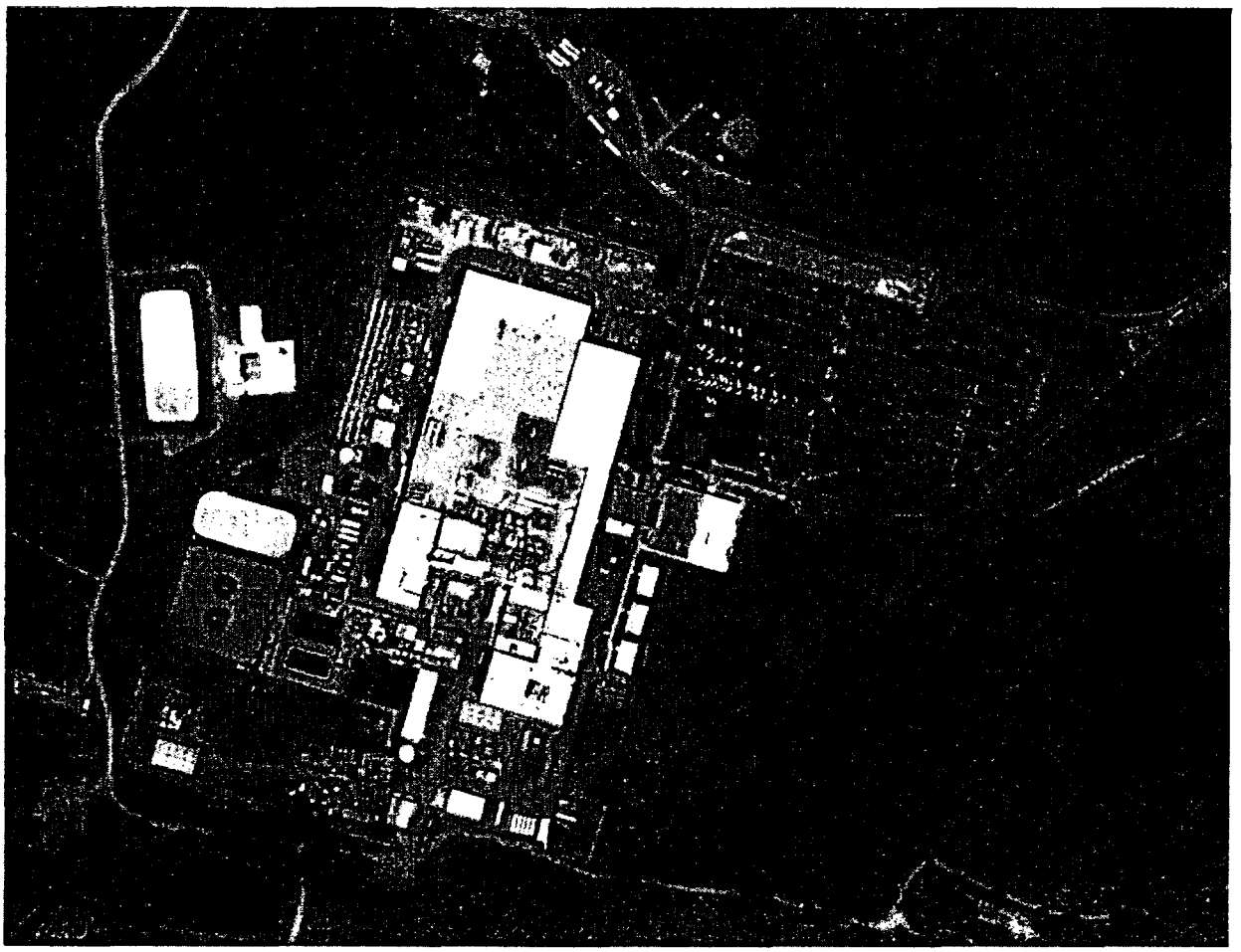


Figure 1.3 Aerial Photograph of the Westinghouse CFFF

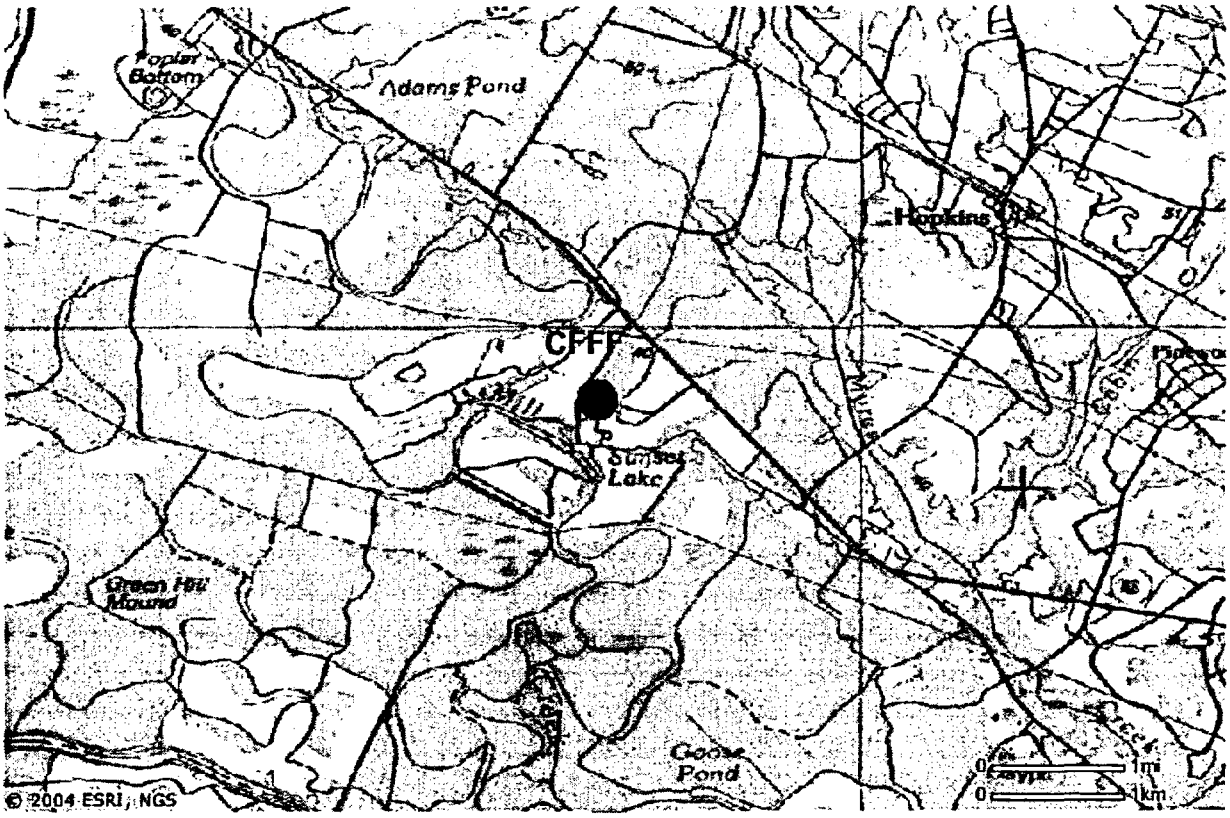


Figure 1.4 Bodies of Water Near the CFFF Site

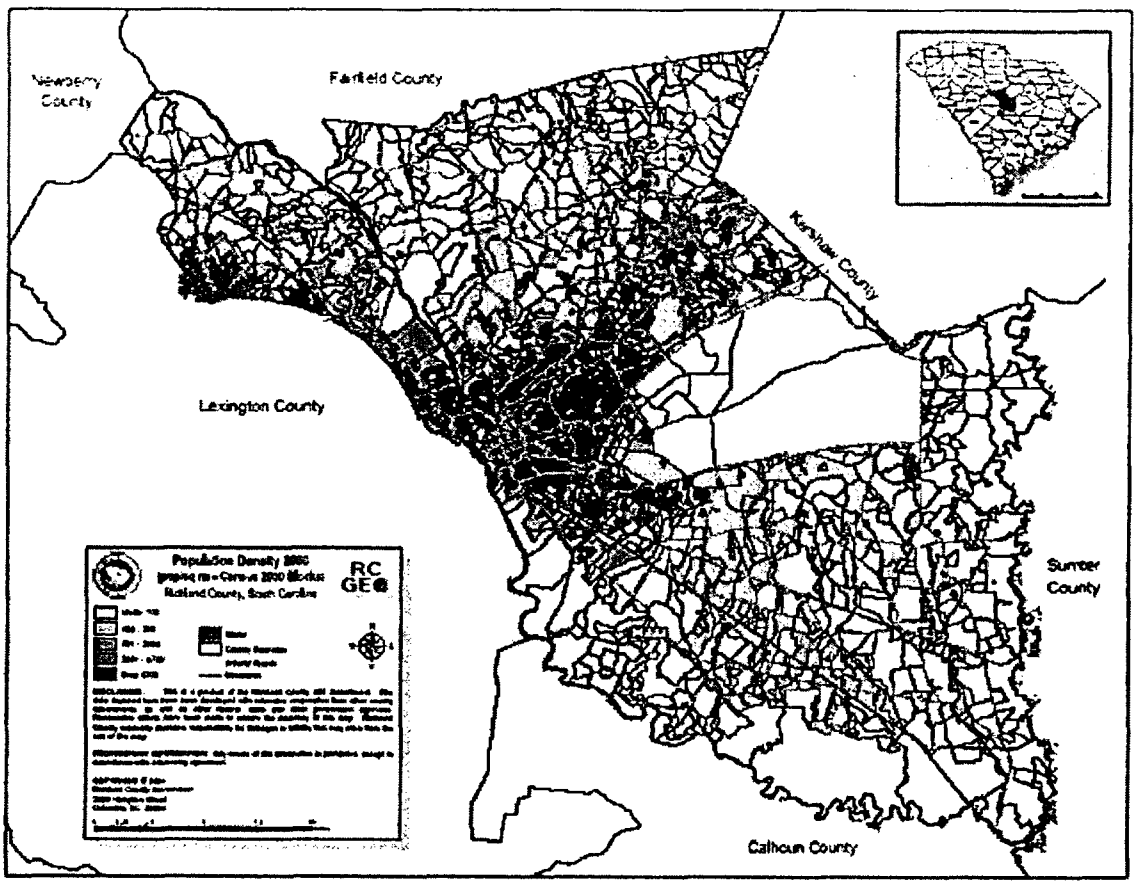


Figure 1.5 Population Densities

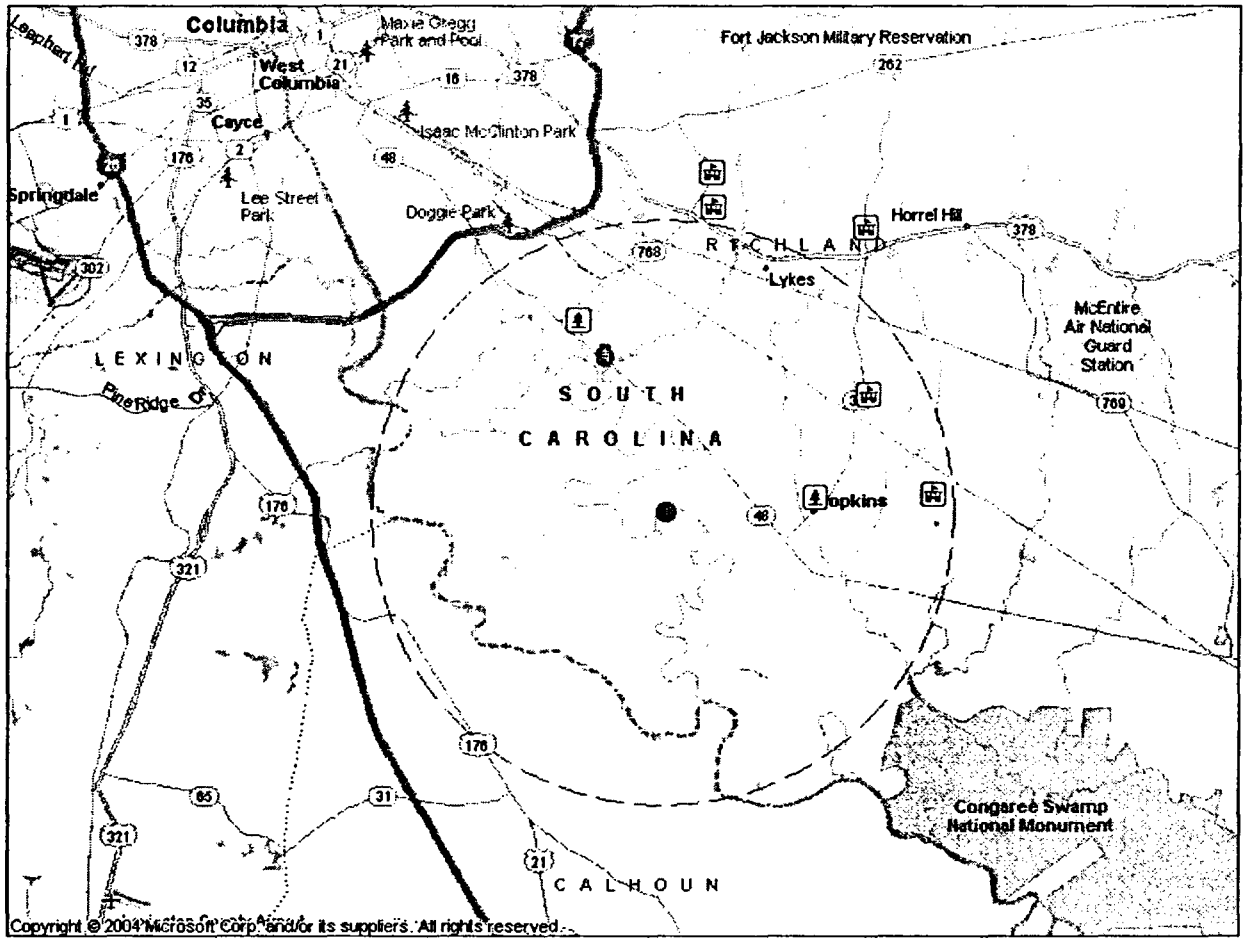


Figure 1.6 Demographics Within 5 Miles of the CFFF

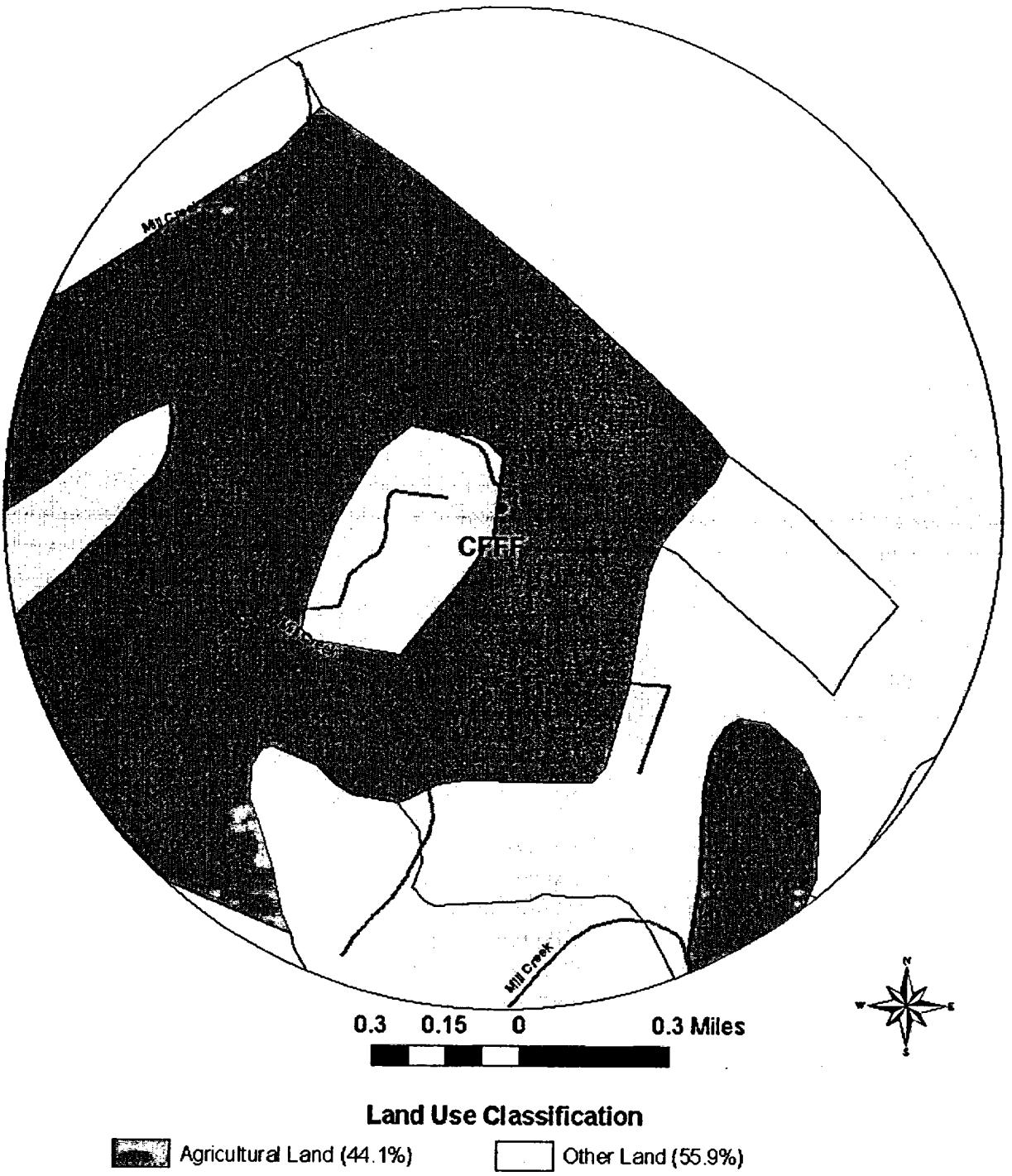


Figure 1.7 Land Use Within 1 Mile of the CFFF

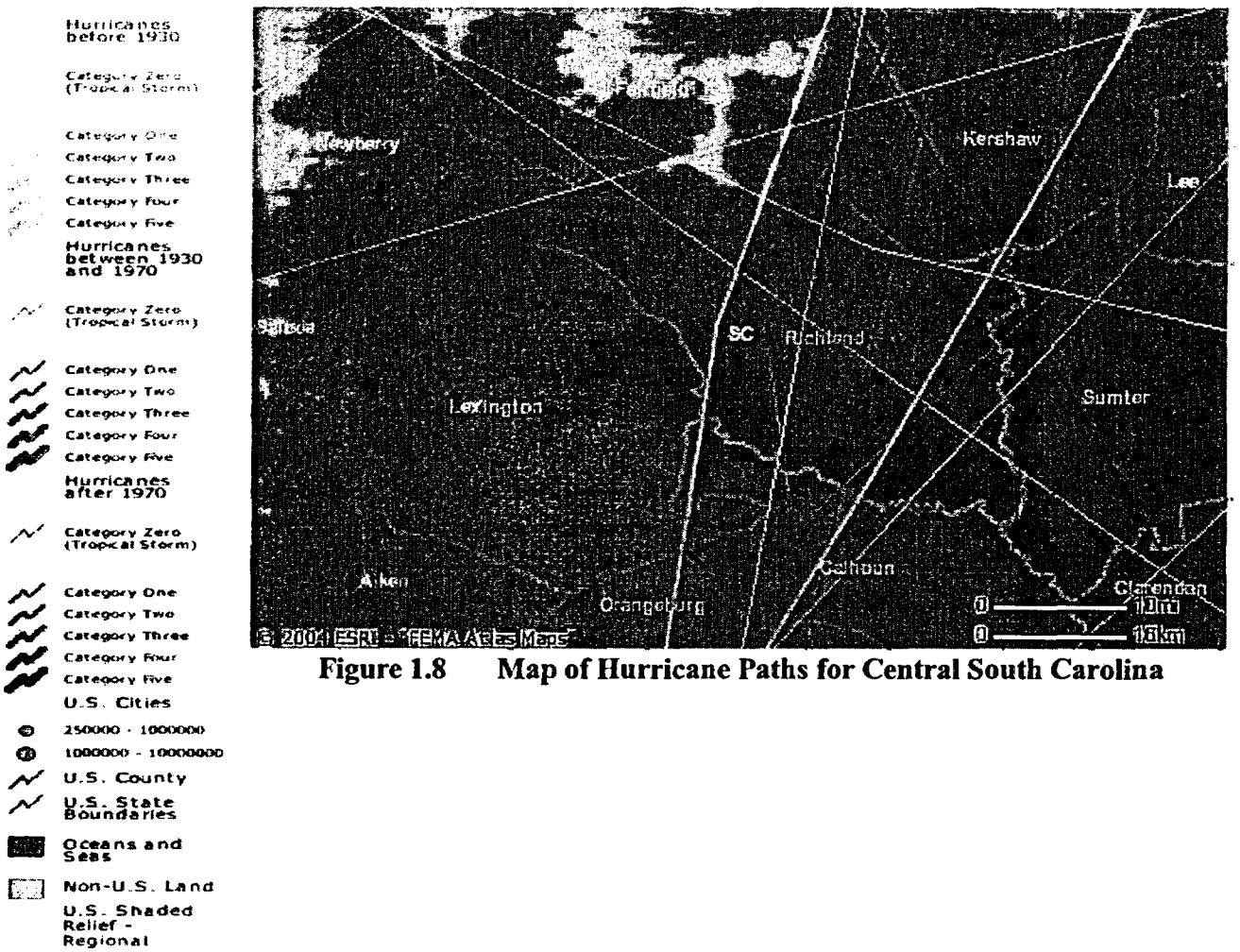


Figure 1.8 Map of Hurricane Paths for Central South Carolina

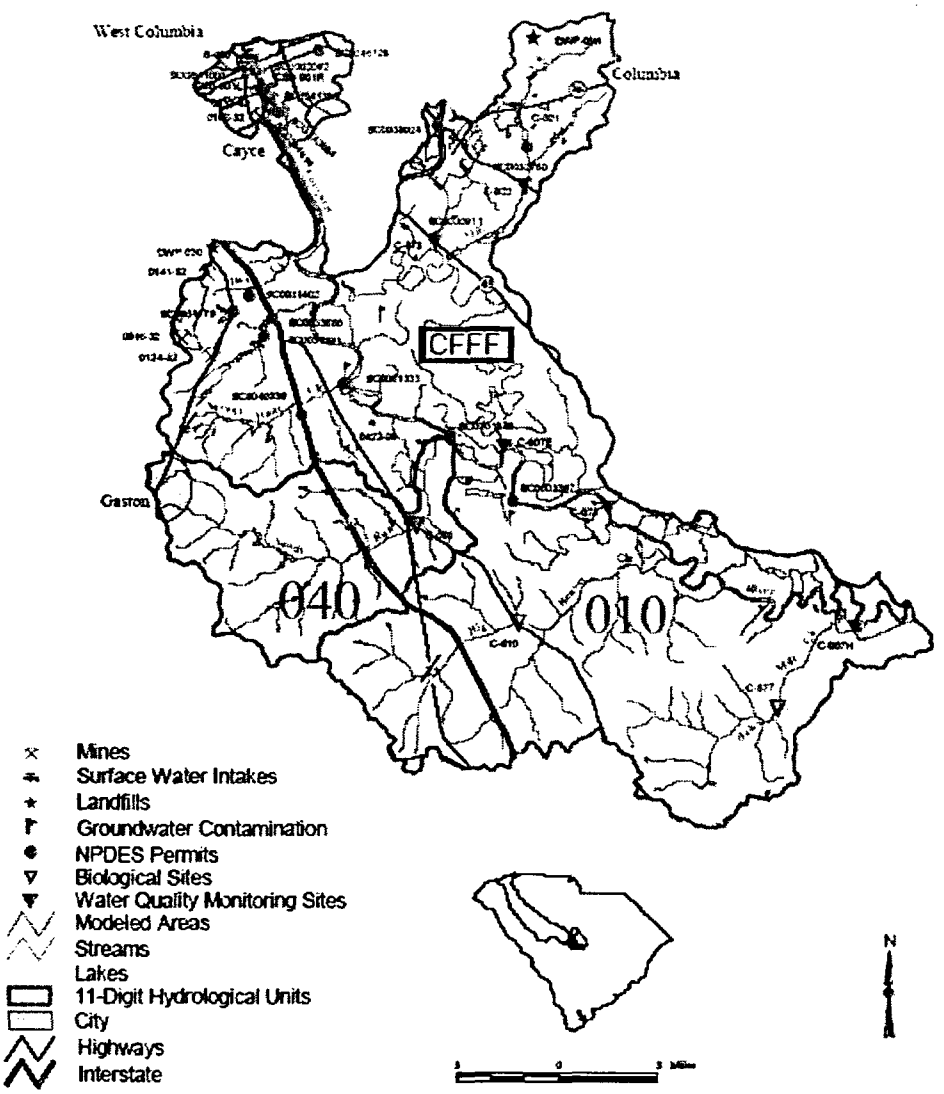
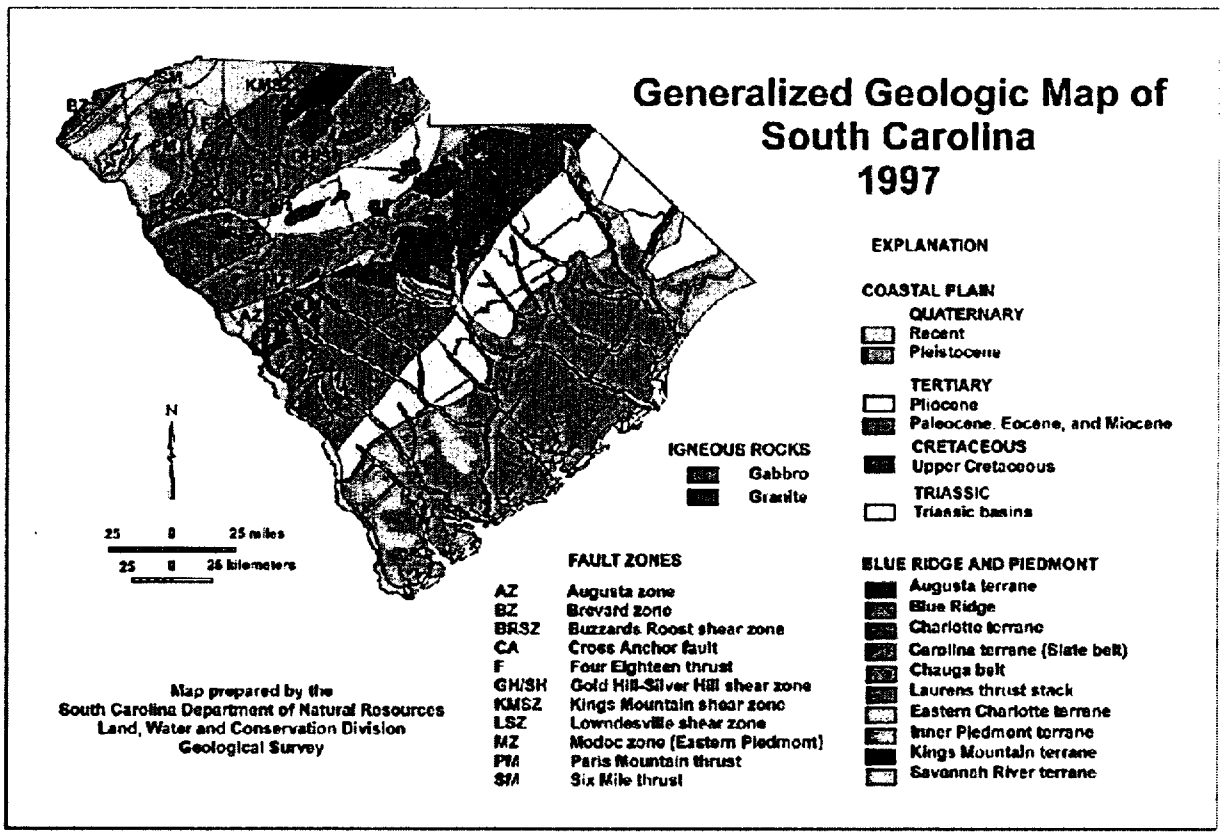
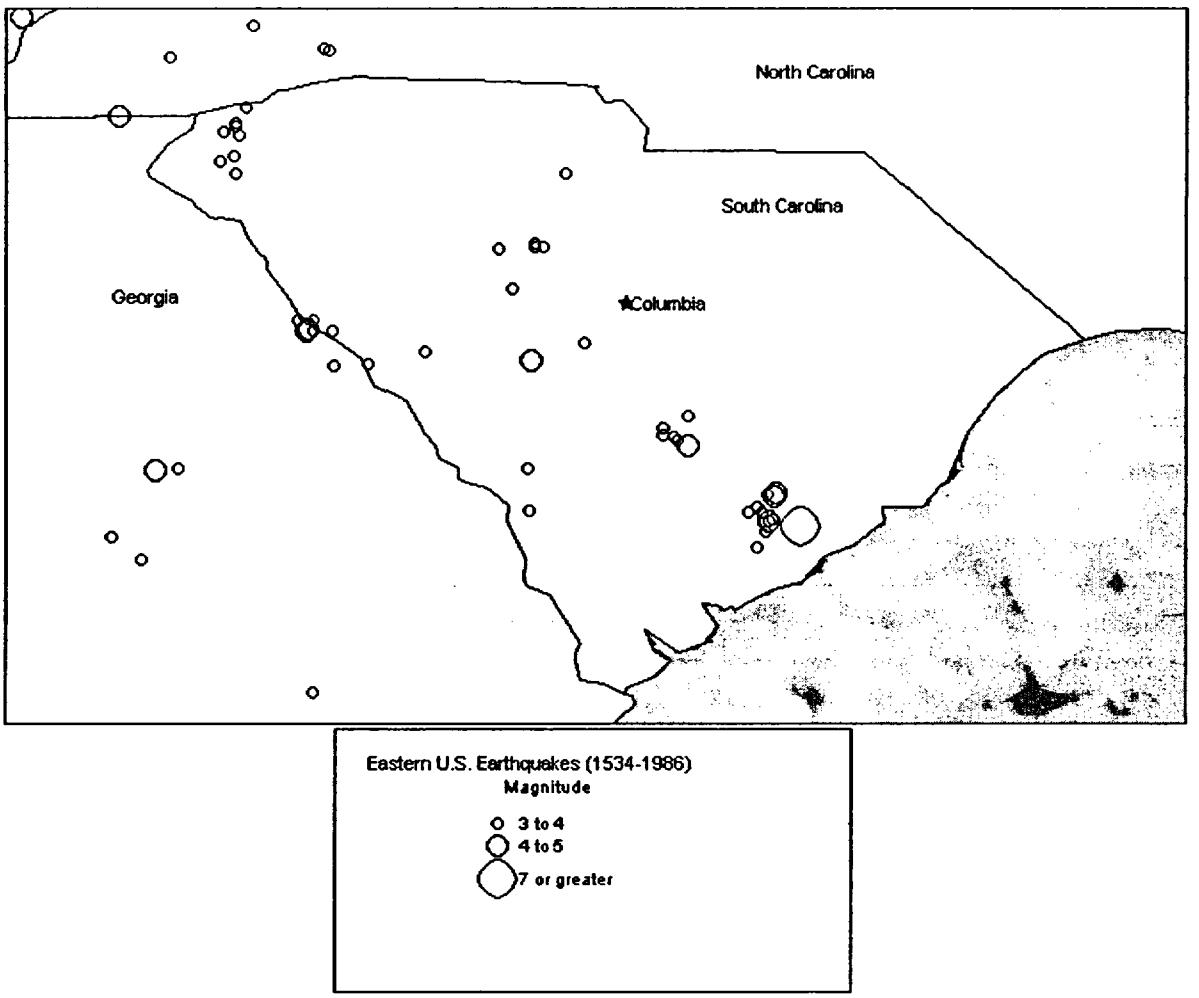


Figure 1.9 Congaree River and sandy Run Watersheds



(Map prepared by the South Carolina State Geological Survey, 1997)

Figure 1.10 Generalized Geologic Map of South Carolina



(Earthquake magnitude information for years 1534 – 1986 was compiled by the U.S. Geological Survey.)

Figure 1.11 Earthquakes of Magnitude 3.0 or Greater for the South Carolina Region

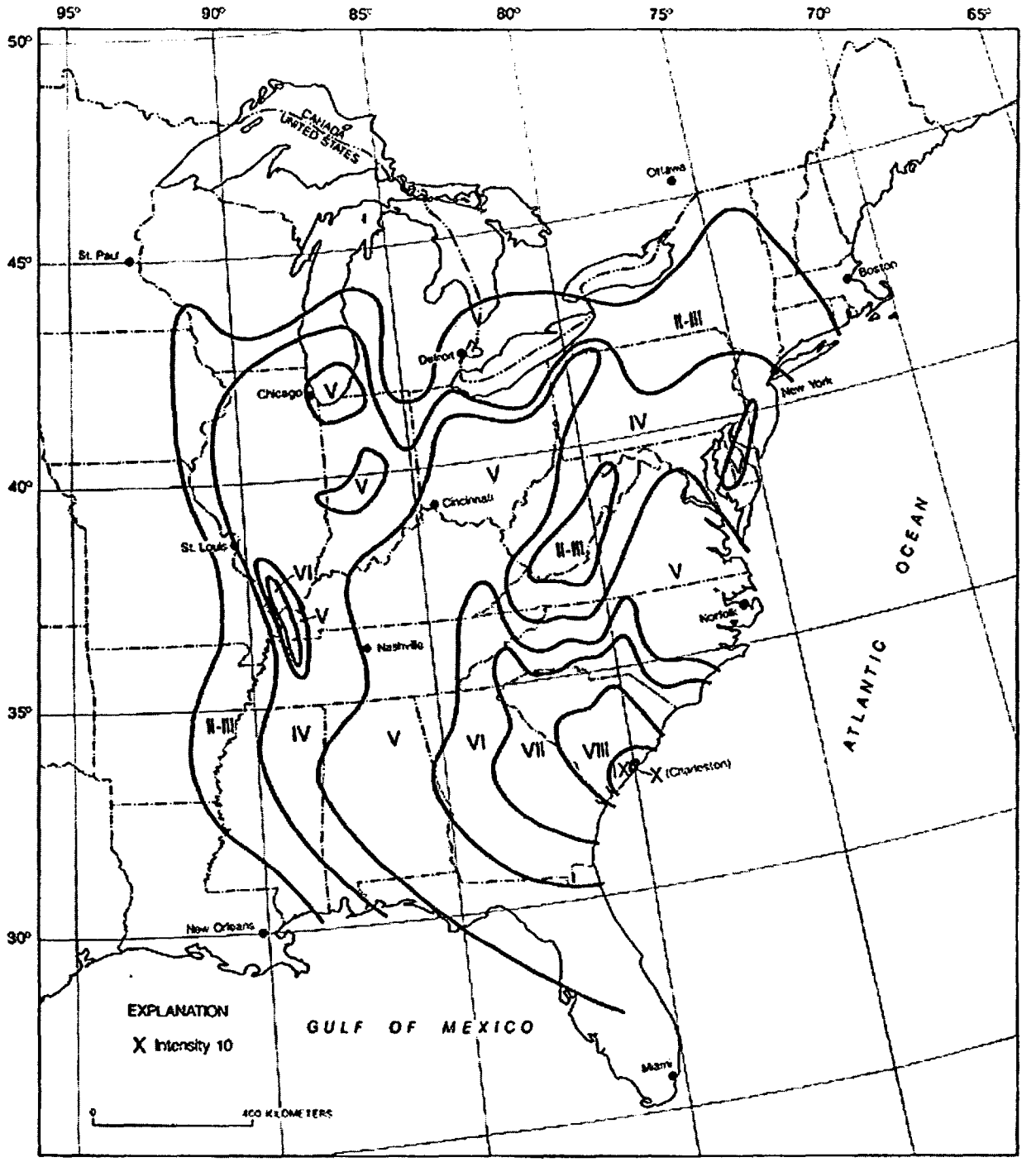
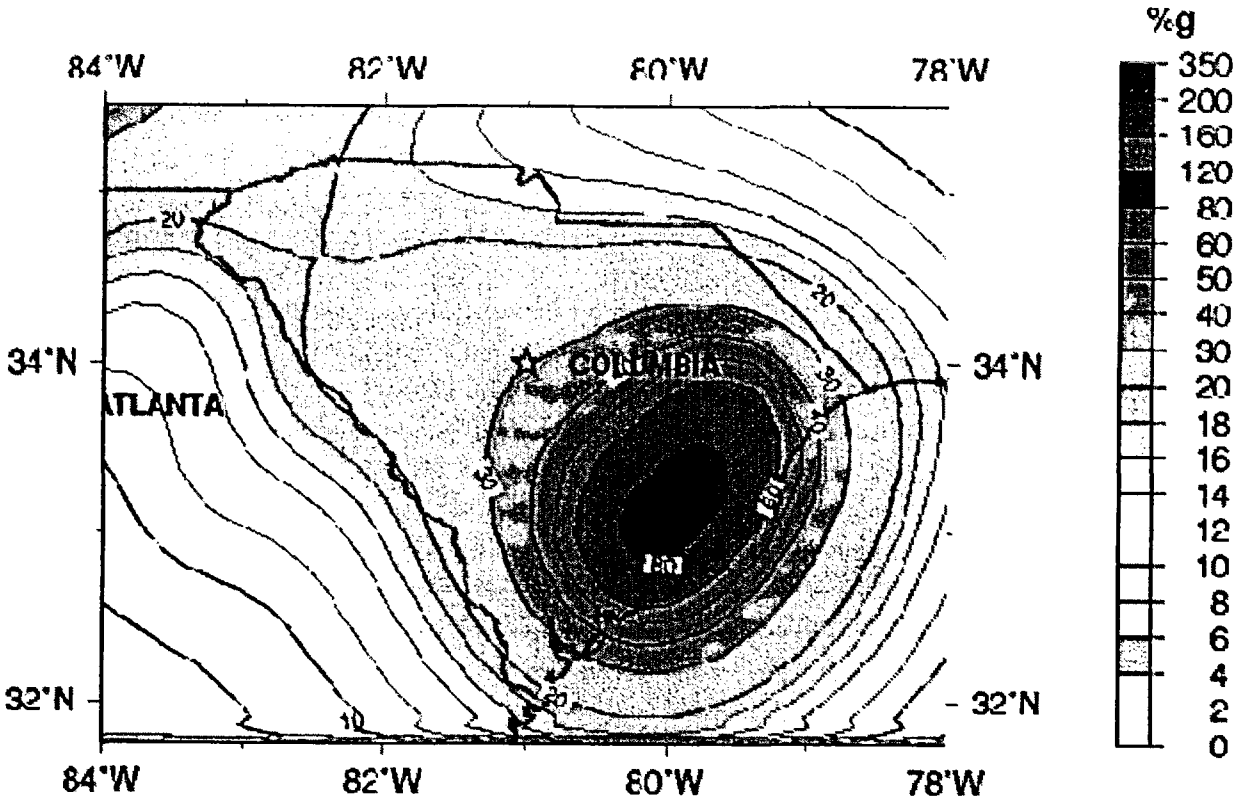


Figure 1.12 Isoseismal Map of the August 31, 1886 Charleston, South Carolina, Earthquake



Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years
site: NEHRP B-C boundary
National Seismic Hazard Mapping Project

(Peak Ground Acceleration [% g] calculated by the US Geological Survey's National Seismic Hazard Mapping Project for South Carolina. Values are given for a soft rock site class [NEHRP B-C boundary].)

Figure 1.13 Peak Ground Acceleration Calculated for South Carolina for a 2,475-Yr Return Period

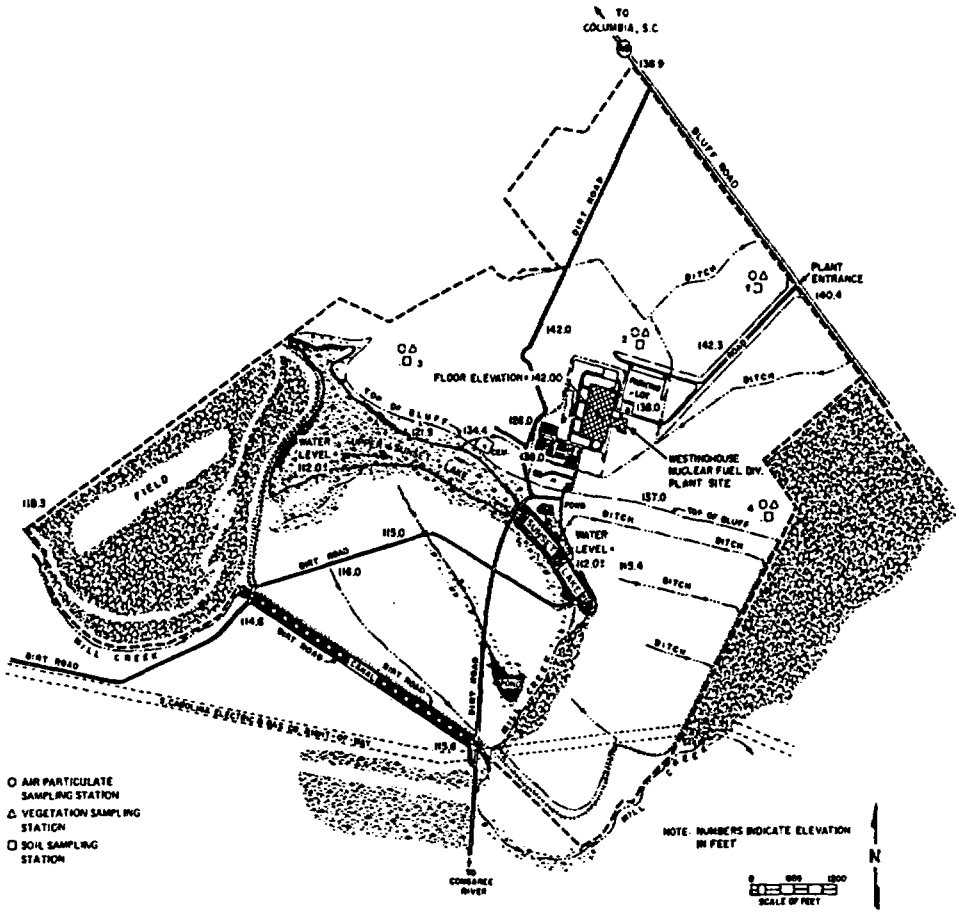


Figure 1.14 Locations of Air, Vegetation, and Soil Monitoring Stations

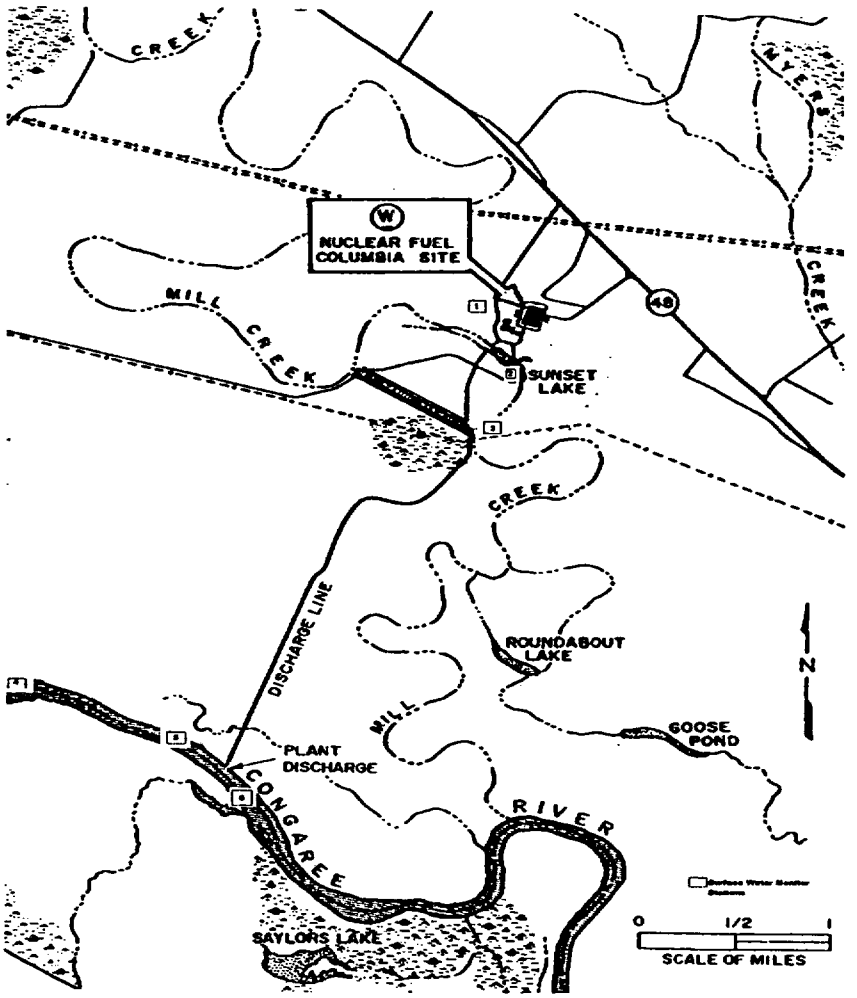


Figure 1.15 Locations of Surface Water Monitoring Stations

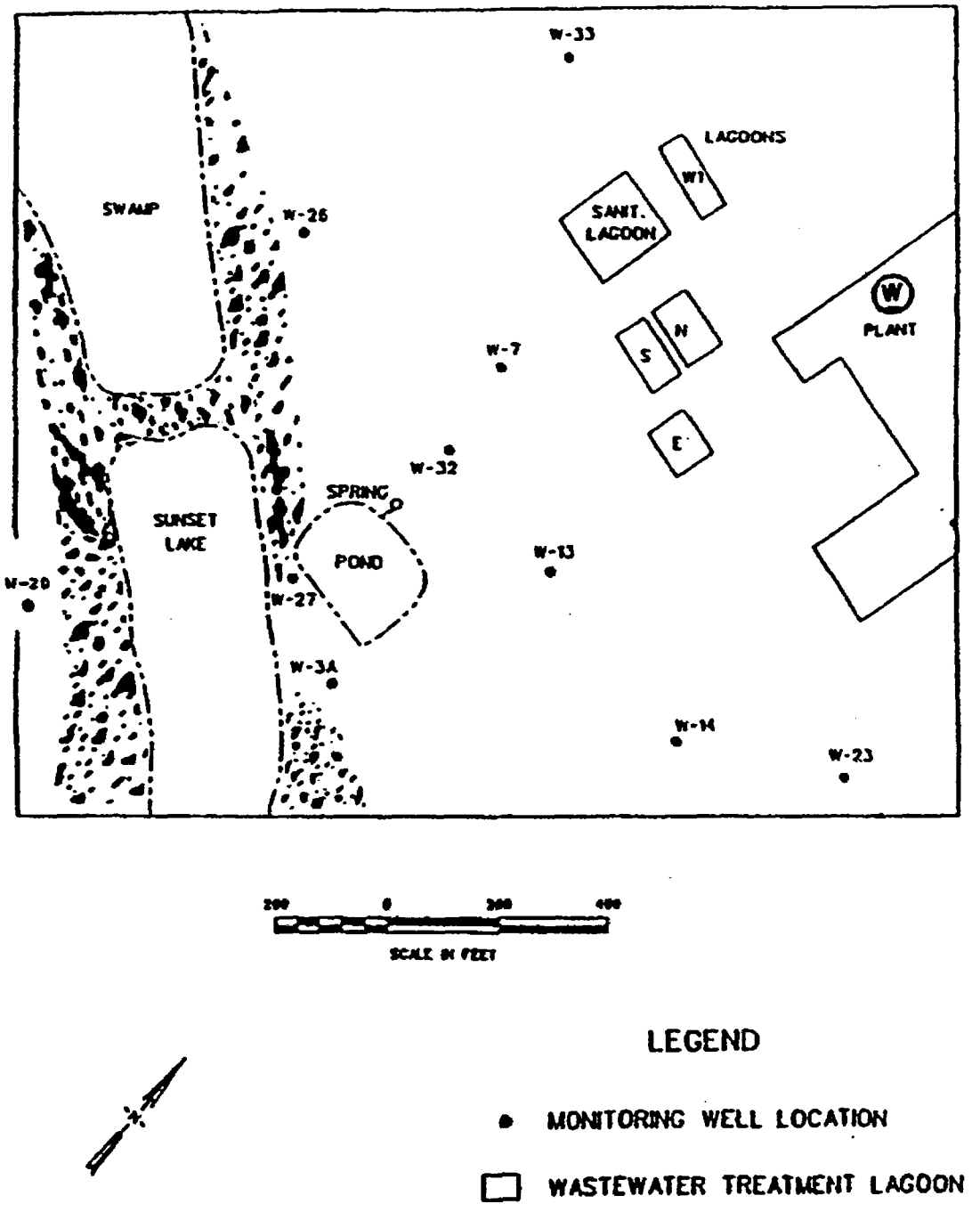


Figure 1.16 Locations of Monitoring Wells

ENVIRONMENTAL DATA SUMMARY UPDATE

Environmental Data Summary
Environmental Update
Westinghouse Electric Company

Table 1.12 Liquid Effluent Discharges/Gaseous Effluent Discharges

Year	Gaseous Effluents, uCi First Half	Liquid Efluents, uCi First Half	Gaseous Effluents, uCi Second Half	Liquid Efluents, uCi Second Half
1996	223.50	21,107.80	261.40	25,688.50
1997	207.30	30,540.20	221.40	22,349.10
1998	188.80	21,230.10	292.50	22,561.20
1999	200.70	27,254.40	252.40	23,844.40
2000	223.10	56,592.70	278.70	67,389.10
2001	224.10	32,374.30	333.50	30,769.00
2002	288.90	24,545.90	267.20	39,733.40
2003	291.60	17,194.90	218.90	37,304.20
2004	314.80	26,813.20		

Table 1.13 Typical Average Liquid Effluent Chemical Discharges (CY 2003)

Parameter	Concentration	Quantity, (Lbs./day)
pH (units)	6.1-8.9	
BOD5	19.0	20.9
Fecal Coliform (MPN/100ml)	<100	
TSS	11.2	12.4
COD	57.0	62.7
Oil & Grease	<5 mg/l	<5.0
Surfactants	0.44	0.80
Nitrate	976	1074
Sulfate	320	352
Sulfide	1.0	1.82
Ammonia (N)	20.1	22.2
Phosphorus	1.0	1.1
Cyanide	<0.01	<0.01
Fluoride	8.4	9.2
Manganese	<0.015	<0.03
Magnesium	<5.0	<9.0
Zinc	0.036	0.07
Aluminum	0.2	0.36
Molybdenum	0.07	0.09
Boron	0.05	0.09
Bromide	<10.0	<10.0

ENVIRONMENTAL AIR SUMMARY

Environmental Air Summary

Table 1.14 Environmental Air Annual Average Ambient Years 1996-2003

ENVIRONMENTAL AIR ANNUAL AVERAGE AMBIENT GROSS ALPHA RADIOLOGICAL CONCENTRATION SUMMARY YEAR 2003 CONC uCi/ml, E-15				
	STAT #1	STAT #2	STAT #3	STAT #4
JAN	3.02	3.12	4.68	3.35
FEB	1.81	1	2.64	1.03
MAR	2.15	1.48	2.25	1.1
APR	2.68	2.49	3.21	2.97
MAY	2.52	1.64	1.79	1.43
JUNE	3.77	4.3	3.7	2.26
JULY	2.41	2.31	2.27	1.88
AUG	1.26	1	1.12	1.05
SEPT	1.48	1.13	1.35	1.05
OCT	1.55	1.24	1.37	1.36
NOV	1.9	1.81	2.13	1.96
DEC	1.21	1.29	1.29	1.39
AVG	2.15	1.90	2.32	1.74
MAX	3.77	4.3	4.68	3.35

ENVIRONMENTAL AIR ANNUAL AVERAGE AMBIENT GROSS ALPHA RADIOLOGICAL CONCENTRATION SUMMARY YEAR 2002 CONC uCi/ml, E-15				
	STAT #1	STAT #2	STAT #3	STAT #4
JAN	2.49	3.01	2.29	3.62
FEB	2.24	1.82	4.11	2.92
MAR	2.19	1.17	2.49	1.59
APR	1.83	1.86	1.88	1.48
MAY	1.92	1.74	2.88	1.86
JUNE	1.98	2.23	2.86	3.47
JULY	2.47	2.35	3.31	2.88
AUG	2.27	1.93	3.52	3.52
SEPT	3.3	1.6	3.69	2.47
OCT	2.25	2.66	2.88	2.28
NOV	3.53	2.05	3.68	1.95
DEC	2.47	3.07	2.55	2.4
AVG	2.41	2.12	3.01	2.54
MAX	3.53	3.07	4.11	3.62

Environmental Air Summary

ENVIRONMENTAL AIR ANNUAL AVERAGE AMBIENT GROSS ALPHA RADIOLOGICAL CONCENTRATION SUMMARY YEAR 2001 CONC uCi/ml, E-15				
	STAT #1	STAT #2	STAT #3	STAT #4
JAN	3.17	3.25	2.19	3.17
FEB	3.16	2.48	3.38	3.00
MAR	2.40	2.85	2.72	2.55
APR	2.00	2.21	2.62	2.97
MAY	2.53	1.62	1.27	2.30
JUNE	1.61	1.13	1.10	2.49
JULY	1.33	1.00	1.57	1.56
AUG	1.19	1.43	1.59	1.26
SEPT	1.43	1.46	1.60	1.05
OCT	1.39	1.20	1.78	1.19
NOV	1.20	1.00	1.31	1.90
DEC	1.75	1.80	2.27	2.15
AVG	1.93	1.79	1.95	2.13
MAX	3.17	3.25	3.38	3.17

ENVIRONMENTAL AIR ANNUAL AVERAGE AMBIENT GROSS ALPHA RADIOLOGICAL CONCENTRATION SUMMARY YEAR 2000 CONC uCi/ml, E-15				
	STAT #1	STAT #2	STAT #3	STAT #4
JAN	2.62	3.46	2.63	2.63
FEB	2.16	2.91	2.39	1.79
MAR	1.68	2.12	2.04	2.95
APR	2.78	2.65	2.35	1.95
MAY	2.00	2.35	3.85	2.33
JUNE	3.48	2.53	2.49	2.87
JULY	3.03	3.48	2.72	2.26
AUG	2.72	2.58	2.94	2.30
SEPT	1.87	1.79	2.76	2.57
OCT	2.77	2.55	2.05	2.39
NOV	2.83	2.46	3.37	3.29
DEC	2.58	2.65	3.26	2.42
AVG	2.54	2.63	2.74	2.48
MAX	3.48	3.48	3.85	3.29

Environmental Air Summary

ENVIRONMENTAL AIR ANNUAL AVERAGE AMBIENT GROSS ALPHA RADIOLOGICAL CONCENTRATION SUMMARY YEAR 1999 CONC uCi/ml, E-15				
	STAT #1	STAT #2	STAT #3	STAT #4
JAN	2.95	2.80	2.19	3.10
FEB	2.61	2.39	3.06	2.41
MAR	2.06	3.18	3.02	2.95
APR	2.09	1.41	1.99	1.99
MAY	1.50	2.03	1.78	2.65
JUNE	1.61	2.00	1.97	1.90
JULY	1.99	2.49	2.15	2.06
AUG	1.10	2.13	1.98	1.88
SEPT	2.64	1.79	1.91	2.69
OCT	3.11	3.01	2.93	2.41
NOV	2.94	2.39	2.69	2.54
DEC	3.23	2.05	1.54	2.05
AVG	2.32	2.31	2.27	2.39
MAX	3.23	3.18	3.06	3.10

ENVIRONMENTAL AIR ANNUAL AVERAGE AMBIENT GROSS ALPHA RADIOLOGICAL CONCENTRATION SUMMARY YEAR 1998 CONC uCi/ml, E-15				
	STAT #1	STAT #2	STAT #3	STAT #4
JAN	3.30	3.67	3.37	2.17
FEB	2.92	2.43	2.47	1.92
MAR	1.89	2.10	2.00	1.83
APR	2.51	2.33	2.40	2.69
MAY	2.35	2.85	2.40	1.63
JUNE	2.93	2.05	2.83	2.41
JULY	2.29	3.05	2.40	2.39
AUG	2.50	2.49	1.60	2.47
SEPT	1.84	1.64	2.29	2.35
OCT	2.69	1.89	2.15	2.16
NOV	1.93	2.10	3.38	1.43
DEC	1.46	2.29	1.77	2.36
AVG	2.38	2.41	2.42	2.15
MAX	3.30	3.67	3.38	2.69

Environmental Air Summary

ENVIRONMENTAL AIR ANNUAL AVERAGE AMBIENT GROSS ALPHA RADIOLOGICAL CONCENTRATION SUMMARY YEAR 1997 CONC uCi/ml, E-15				
	STAT #1	STAT #2	STAT #3	STAT #4
JAN	1.83	2.35	1.83	1.14
FEB	1.76	1.69	1.33	1.61
MAR	1.63	1.79	1.56	1.43
APR	2.29	1.02	2.35	2.45
MAY	2.81	1.48	2.08	1.48
JUNE	1.33	1.56	2.14	1.40
JULY	2.28	2.39	2.48	2.12
AUG	2.50	2.18	2.12	1.94
SEPT	1.68	2.12	2.47	1.87
OCT	1.72	2.14	2.05	1.73
NOV	1.75	2.40	1.99	1.73
DEC	1.44	2.55	1.28	2.13
AVG	1.92	1.97	1.97	1.75
MAX	2.81	2.55	2.48	2.45

ENVIRONMENTAL AIR ANNUAL AVERAGE AMBIENT GROSS ALPHA RADIOLOGICAL CONCENTRATION SUMMARY YEAR 1996 CONC uCi/ml, E-15				
	STAT #1	STAT #2	STAT #3	STAT #4
JAN	1.00	3.10	2.98	1.38
FEB	1.00	1.00	1.00	1.00
MAR	1.00	1.00	1.00	1.00
APR	1.21	1.00	1.00	1.00
MAY	1.39	1.00	1.00	1.00
JUNE	1.00	2.78	2.03	1.00
JULY	2.23	1.63	2.30	1.00
AUG	1.59	1.44	2.88	1.82
SEPT	2.87	2.72	2.57	4.38
OCT	2.59	1.62	2.05	1.93
NOV	2.04	1.00	1.00	1.00
DEC	1.00	1.21	1.00	1.00
AVG	1.58	1.63	1.73	1.46
MAX	2.87	3.10	2.98	4.38

CONGAREE RIVER ANALYSIS SUMMARY

Congaree River Analysis Summary

Table 1.15 Congaree River Results Radiometric Uranium/Beta Analyses Years 1996-2003

CONGAREE RIVER RESULTS RADIOMETRIC URANIUM ANALYSES CY 2003 pCi/l Sum of Iso Uranium						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/03	0.32	0.12	0.10	0.05	0.11	0.11
02/07	0.26	0.11	0.14	0.07	0.12	0.15
03/01	0.09	0.09	0.15	0.17	0.13	0.10
04/02	0.09	0.09	0.15	0.17	0.13	0.11
05/01	0.08	0.04	0.08	0.10	0.16	0.15
06/01	0.12	0.18	0.32	0.15	0.15	0.10
07/01	0.41	0.14	0.28	0.39	0.17	0.34
08/02	0.17	0.21	0.13	0.15	0.18	0.13
09/02	0.12	0.08	0.18	0.16	0.09	0.11
10/01	0.25	0.42	0.15	0.11	0.21	0.18
11/02	0.10	0.15	0.12	0.12	0.23	0.09
12/19	0.04	0.08	0.77	0.08	0.10	0.04
Annual Avg	0.17	0.14	0.21	0.14	0.15	0.13
Annual Max	0.41	0.42	0.77	0.39	0.23	0.34

CONGAREE RIVER RESULTS RADIOMETRIC BETA ANALYSES CY 2003 pCi/l Gross Beta						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/03	2.64	3.03	3.52	3.52	3.64	2.72
02/07	3.10	3.36	2.59	2.59	2.35	4.69
03/01	2.76	4.20	3.97	3.97	2.49	2.33
04/02	3.08	3.18	2.45	2.45	3.30	2.89
05/01	3.32	2.55	3.45	3.45	3.08	3.30
06/01	3.31	3.68	3.78	3.78	4.79	3.65
07/01	4.52	2.59	2.71	2.71	5.35	4.00
08/02	2.82	3.49	4.02	4.02	3.72	3.59
09/02	2.58	3.64	1.73	1.73	3.18	2.91
10/01	2.06	2.16	1.90	1.90	2.97	2.80
11/02	3.50	3.50	2.49	3.74	4.07	3.46
12/19	3.47	3.90	4.43	4.90	4.15	3.92
Annual Avg	3.10	3.27	3.09	3.23	3.59	3.36
Annua Max	4.52	4.20	4.43	4.90	5.35	4.69

Congaree River Analysis Summary

CONGAREE RIVER RESULTS RADIOMETRIC URANIUM ANALYSES CY 2002 pCi/l Sum of Iso Uranium						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/07	0.30	0.30	1.60	0.05	0.61	0.36
02/07	0.19	0.19	0.38	0.14	0.17	0.23
03/04	0.08	0.13	0.19	0.20	0.12	0.11
04/10	0.03	0.18	0.04	0.09	0.13	0.10
05/03	0.09	0.18	0.22	0.20	0.21	0.18
06/02	0.07	0.10	0.07	0.09	0.07	0.10
07/01	0.06	0.08	1.65	0.09	0.08	0.04
08/01	0.07	0.19	0.21	0.18	0.29	0.07
09/03	0.04	0.08	3.20	0.09	0.16	0.06
10/10	0.04	0.12	0.09	0.07	0.21	0.22
11/01	0.06	0.11	0.14	0.12	0.15	0.10
12/10	0.01	0.06	0.08	0.05	0.13	0.17
Annual Avg	0.09	0.14	0.66	0.11	0.19	0.14
Annual Max	0.30	0.30	3.20	0.20	0.61	0.36

CONGAREE RIVER RESULTS RADIOMETRIC BETA ANALYSES CY 2002 pCi/l Gross Beta						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/07	3.00	2.60	4.70	3.40	2.70	3.90
02/07	4.40	4.00	5.00	4.40	3.20	3.50
03/04	2.54	3.36	2.75	3.49	2.03	3.45
04/10	3.13	6.37	4.74	5.45	3.69	3.64
05/03	2.83	3.26	3.13	3.32	3.61	2.76
06/02	2.45	2.20	3.10	2.33	2.71	3.49
07/01	2.17	2.85	3.70	2.58	2.05	2.72
08/01	2.61	3.56	3.46	4.04	5.71	3.20
09/03	2.48	3.02	6.61	2.99	3.06	3.50
10/01	4.16	3.73	4.72	3.17	3.23	3.73
11/01	3.61	3.89	3.03	4.34	3.45	3.82
12/10	2.16	1.94	2.51	2.87	2.59	0.17
Annual Avg	2.96	3.40	3.95	3.53	3.17	3.16
Annual Max	4.40	6.37	6.61	5.45	5.71	3.90

Congaree River Analysis Summary

CONGAREE RIVER RESULTS RADIOMETRIC URANIUM ANALYSES CY 2001 pCi/l Sum of Iso Uranium						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/05	0.40	0.40	0.30	0.30	0.40	0.30
02/01	0.40	0.40	0.40	0.40	2.20	0.50
03/01	0.30	0.30	0.30	0.30	0.30	0.30
04/03	0.20	0.30	0.30	0.20	0.30	0.30
05/01	0.30	0.30	0.60	0.30	0.40	0.30
06/01	0.30	0.30	0.40	0.20	0.20	0.20
06/29	0.20	0.20	0.20	0.20	0.20	0.20
08/01	0.21	0.22	1.46	0.22	0.22	0.23
08/31	0.26	0.25	0.24	0.26	0.24	0.31
10/11	0.24	0.28	1.95	0.24	0.27	0.26
11/07	0.26	0.24	11.00	0.31	0.40	0.27
12/07	0.32	0.29	8.50	0.36	0.32	0.33
Annual Avg	0.28	0.29	2.14	0.27	0.45	0.29
Annual Max	0.40	0.40	11.00	0.40	2.20	0.50

CONGAREE RIVER RESULTS RADIOMETRIC BETA ANALYSES CY 2001 pCi/l Gross Beta						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/05	3.20	3.20	3.50	2.80	2.70	2.80
02/01	2.10	2.00	2.00	3.20		2.20
03/01	2.10	2.00	3.50	3.30	2.20	4.30
04/03	2.90	3.30	3.00	2.90	3.80	
05/01	2.20	2.80	1.80	2.80	2.60	1.90
06/01	2.20	2.70	2.50	3.00	4.40	2.90
06/29	3.00	2.50	2.30	2.27	2.60	2.40
08/01	4.40	2.60	4.30	2.70	2.50	3.80
08/31	4.00	3.90	4.90	3.70	3.90	4.70
10/11	3.70	1.70	5.60	3.00	3.20	3.10
11/07	2.60	3.20	6.30	1.80	1.80	2.50
12/07	3.40	3.60	6.70	3.70	3.90	4.00
Annual Avg	2.98	2.79	3.87	2.93	3.05	3.15
Annual Max	4.40	3.90	6.70	3.70	4.40	4.70

Congaree River Analysis Summary

CONGAREE RIVER RESULTS RADIOMETRIC URANIUM ANALYSES CY 2000 pCi/l Sum of Iso Uranium						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/03	0.40	0.40	0.40	0.30	0.30	0.50
02/03	0.20	0.20	0.20	0.20	2.20	2.35
03/08	0.30	0.30	0.30	0.80	0.30	0.20
04/07	0.50	0.60	0.60	0.50	0.60	0.70
05/08	0.30	0.30	0.30	0.30	0.30	0.40
06/08	0.30	0.40	0.30	0.30	0.30	0.50
07/11	0.30	0.40	0.30	0.40	0.30	0.30
08/04	0.20	0.30	14.00	0.30	0.70	0.20
08/31	0.30	0.30	1.00	0.30	0.30	2.20
10/02	0.40	0.40	4.80	0.40	0.60	0.30
11/06	0.30	0.40	38.90	0.40	0.40	0.40
12/08	0.40	0.30	0.30	0.30	0.30	0.40
Annual Avg	0.33	0.36	5.12	0.38	0.55	0.70
Annual Max	0.50	0.60	38.90	0.80	2.20	2.35

CONGAREE RIVER RESULTS RADIOMETRIC BETA ANALYSES CY 2000 pCi/l Gross Beta						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/03	1.70	2.70	2.10	2.70	1.90	2.60
02/03	2.40	3.50	3.50	3.00	2.20	2.30
03/01	2.30	2.30	2.30	2.50	2.00	2.20
04/03	2.40	2.00	2.70	3.60	3.70	3.60
05/02	2.60	2.00	2.50	2.20	2.40	2.10
06/01	2.70	2.60	3.10	2.90	2.40	2.50
07/03	2.70	2.60	0.30	2.20	3.50	3.40
07/31	2.10	4.30	5.60	3.30	3.50	3.40
08/31	2.00	2.10	2.80	2.40	3.10	2.20
10/02	2.50	4.30	5.30	2.30	2.70	3.40
10/31	3.90	2.90	13.20	3.20	3.30	2.20
12/04	3.00	3.70	3.10	3.30	2.40	2.80
Annual Avg	2.53	2.92	3.88	2.80	2.76	2.73
Annual Max	3.90	4.30	13.20	3.60	3.70	3.60

Congaree River Analysis Summary

CONGAREE RIVER RESULTS RADIOMETRIC URANIUM ANALYSES CY 1999 pCi/l						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/01	0.20	0.28	0.22	0.15	0.25	0.29
02/05	0.30	0.30	0.40	0.60	0.45	0.30
03/08	1.15	0.22	0.80	0.73	0.22	0.17
04/02	0.20	0.23	0.20	0.15	0.25	0.18
05/03	0.30	0.27	0.20	0.27	0.26	0.20
06/01	0.30	0.30	2.80	0.30	0.40	0.20
07/02	0.38	0.34	0.37	0.39	0.40	0.33
08/02	0.20	0.30	0.30	0.30	0.30	0.20
09/02	0.30	0.40	18.40	0.30	0.30	0.30
09/30	0.40	0.20	0.20	0.30	0.30	0.20
11/04	0.40	0.30	0.30	0.30	0.30	0.40
12/2	0.40	0.40	0.40	0.40	0.40	0.30
Annual Avg	0.38	0.30	2.05	0.35	0.32	0.26
Annual Max	1.15	0.40	18.40	0.73	0.45	0.40

CONGAREE RIVER RESULTS RADIOMETRIC BETA ANALYSES CY 1999 pCi/l Gross Beta						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/01	2.60	3.40	3.20	4.40	2.70	3.50
02/05	4.10	4.40	5.80	5.90	4.40	2.40
03/08	1.86	1.38	2.73	1.82	1.87	1.82
04/02	1.70	7.45	1.87	1.98	1.81	3.36
05/03	1.20	2.40	2.10	1.80	1.70	2.90
06/01	2.00	1.80	5.80	1.80	2.10	2.00
07/02	1.90	2.71	1.70	2.40	1.90	2.20
08/02	3.60	3.00	2.00	1.80	2.60	2.00
09/02	2.50	2.57	9.30	1.69	3.13	2.44
09/30	2.10	1.71	1.66	1.79	2.15	2.32
11/04	4.60	3.00	3.00	3.70	4.70	4.70
12/2	2.30	2.50	2.20	2.10	2.90	3.40
Annual Avg	2.54	3.03	3.45	2.60	2.66	2.75
Annual Max	4.60	7.45	9.30	5.90	4.70	4.70

Congaree River Analysis Summary

CONGAREE RIVER RESULTS RADIOMETRIC URANIUM ANALYSES CY 1998 pCi/l						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/02	0.70	0.60	0.60	0.70	0.60	0.60
02/03	0.20	0.70	0.20	0.20	0.20	0.10
03/03	0.27	0.45	0.28	0.31	0.34	0.27
04/03	0.32	0.31	0.52	0.46	0.53	0.46
05/01	0.38	0.45	0.43	0.42	0.72	0.60
06/03	0.32	0.30	0.35	0.33	0.30	0.22
07/01	0.40	0.70	3.70	0.70	0.80	0.70
08/03	0.24	0.27	0.40	0.32	0.29	0.20
09/01	0.19	0.24	0.19	0.29	0.26	0.18
10/01	0.50	0.50	0.80	0.50	0.50	0.50
11/01	0.30	0.30	0.30	0.30	0.30	0.40
12/01	0.21	0.30	0.30	0.33	0.35	0.25
Annual Avg	0.34	0.43	0.67	0.41	0.43	0.37
Annual Max	0.70	0.70	3.70	0.70	0.80	0.70

CONGAREE RIVER RESULTS RADIOMETRIC BETA ANALYSES CY 1998 pCi/l Gross Beta						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/02	1.40	1.80	2.70	1.70	2.50	2.00
02/03	3.00	3.40	4.20	2.70	2.70	3.60
03/03	3.10	3.40	3.40	2.70	3.20	2.30
04/03	4.40	2.50	3.10	2.90	2.70	1.70
05/01	2.40	2.20	3.20	3.30	4.30	4.40
06/03	2.70	1.90	2.70	1.80	2.20	2.50
07/01	3.40	2.30	3.30	2.30	2.60	4.00
08/03	1.87	1.74	1.90	1.88	1.81	1.71
09/01	1.46	2.25	2.55	4.53	1.85	2.57
10/01	2.70	2.20	1.90	2.30	5.60	3.50
11/01	2.20	4.60	3.50	3.60	2.70	1.80
12/01	1.90	4.00	3.70	4.00	2.20	2.80
Annual Avg	2.54	2.69	3.01	2.81	2.86	2.74
Annual Max	4.40	4.60	4.20	4.53	5.60	4.40

Congaree River Analysis Summary

CONGAREE RIVER RESULTS RADIOMETRIC URANIUM ANALYSES CY 1997 pCi/l						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/04	0.20	0.23	0.28	0.25	0.23	0.16
02/03	0.20	0.20	0.30	1.30	0.40	0.40
03/04	0.40	0.40	0.30	0.30	0.30	0.30
04/01	0.30	0.30	0.30	0.20	0.40	0.30
05/01	0.70	0.70	0.70	0.70	0.60	0.50
06/03	0.30	0.30	0.20	0.20	0.20	0.20
07/02	0.20	0.20	0.20	2.30	0.20	0.20
08/03	0.12	0.12	0.13	0.11	0.11	0.14
09/02	0.21	0.21	0.21	0.18	0.20	0.21
10/01	0.11	0.11	0.13	0.11	0.11	0.10
11/03	0.30	0.30	0.30	0.30	0.30	0.30
12/01	0.30	0.30	0.80	0.60	0.50	0.50
Annual Avg	0.28	0.28	0.32	0.55	0.30	0.28
Annual Max	0.70	0.70	0.80	2.30	0.60	0.50

CONGAREE RIVER RESULTS RADIOMETRIC BETA ANALYSES CY 1997 pCi/l Gross Beta						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/04	4.80	2.70	3.20	4.60	3.00	4.60
02/03	2.90	3.90	3.50	1.90	2.10	2.00
03/04	5.90	4.10	6.00	4.10	3.10	4.80
04/01	3.20	2.50	2.10	3.70	2.80	2.30
05/01	6.10	6.50	5.30	5.70	4.30	6.30
06/03	2.30	2.30	2.80	3.10	1.90	2.70
07/02	3.30	3.00	2.00	0.20	2.10	3.50
08/03	1.80	2.20	2.80	3.30	2.50	6.90
09/02	2.70	2.70	3.90	2.70	3.10	2.90
10/01	3.90	3.00	4.50	5.50	3.00	4.40
11/03	3.00	3.70	1.90	1.90	3.00	3.50
12/01	3.50	1.90	4.70	3.00	2.90	2.40
Annual Avg	3.62	3.21	3.56	3.31	2.82	3.86
Annual Max	6.10	6.50	6.00	5.70	4.30	6.90

Congaree River Analysis Summary

CONGAREE RIVER RESULTS RADIOMETRIC URANIUM ANALYSES CY 1996 pCi/l						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/03	0.50	0.30	0.20	0.20	0.20	0.50
02/04	1.50	0.60	0.70	0.90	0.70	0.80
03/03	0.20	0.20	0.20	0.20	0.20	0.40
04/01	0.40	0.20	1.90	0.20	0.20	0.50
05/03	0.40	0.30	0.40	0.40	0.20	0.60
06/03	0.20	0.30	0.30	0.50	0.20	0.20
07/07	0.20	0.20	0.20	0.20	0.50	0.20
08/02	0.20	0.20	0.20	0.20	0.20	0.20
09/02	0.30	0.20	0.20	0.30	0.20	0.20
10/04	0.30	0.60	0.50	0.60	0.20	0.60
11/01	0.30	0.30	0.30	0.30	0.30	0.50
12/02	0.20	0.30	0.30	0.20	0.30	0.40
Annual Avg	0.39	0.31	0.45	0.35	0.28	0.43
Annual Max	1.50	0.60	1.90	0.90	0.70	0.80

CONGAREE RIVER RESULTS RADIOMETRIC BETA ANALYSES CY 1996 pCi/l Gross Beta						
Date	Blossom St.	500 yards Above Discharge	At Discharge	500 yards Below Discharge	Mill Creek	601 Bridge
01/03	4.00	4.50	3.40	1.80	2.70	2.00
02/04	5.10	2.90	3.30	3.00	3.00	2.70
03/03	2.70	1.80	3.60	1.70	1.90	2.10
04/01	5.20	1.90	2.90	4.20	2.90	4.70
05/03	4.00	3.80	3.40	3.30	3.30	4.00
06/03	2.50	3.70	3.10	3.80	4.70	2.10
07/07	1.90	1.70	1.80	2.10	2.10	2.10
08/02	2.10	1.70	3.40	3.50	2.30	3.10
09/02	2.10	2.00	4.70	4.10	2.10	2.10
10/04	3.50	2.20	5.70	3.90	3.60	6.80
11/01	2.70	3.60	1.90	3.00	2.60	3.60
12/02	3.90	1.90	2.60	4.50	1.90	2.30
Annual Avg	3.31	2.64	3.32	3.24	2.76	3.13
Annual Max	5.20	4.50	5.70	4.50	4.70	6.80

Congaree River Analysis Summary

CONGAREE RIVER SEDIMENT ANALYSIS SUMMARY							
DATE	LOCATION	G.A.	pCi/gram G.B.	Isotopic Alpha U234	U235	U238	Sum Iso Uranium
10/96	Cong. Riv Disc.	1.10	0.60	0.13	0.05	0.10	0.28
12/97	Cong. Riv Disc.	40.00	29.00	1.50	0.06	1.30	2.86
11/98	Congaree Riv DS	7.90	1.30	0.63	0.03	0.64	1.30
10/99	Congaree River	0.00	0.23	0.32	0.02	0.29	0.62
12/00	Congaree River	6.42	24.60	0.15	0.00	0.33	0.48
11/01	Congaree River	4.34	21.10	0.17	0.00	0.19	0.36
11/02	Congaree River	2.07	15.30	0.20	0.00	0.19	0.39
12/03	Congaree River	5.00	26.10	0.00	0.00	0.00	0.00
Avg		8.35	14.78	0.39	0.02	0.38	0.79

CONGAREE RIVER FISH SUMMARY							
Date	SPECIE	LOCATION	G.A.	pCi/gram G.B.	U234	U235	U238
12/96	Sucker	Congaree River	0.40	9.70	0.05	0.05	0.05
12/97	Bass	Congaree River	0.00	14.00	0.01	0.00	0.01
11/98	Carp	Congaree River	0.00	33.00			
8/99	Carp	Congaree River	1.20	15.00	0.01	0.00	0.01
12/00	Carp	Congaree River	1.18	14.60	0.00	0.00	0.00
11/01	Shad	Congaree River	0.00	0.00	0.42	0.00	0.25
11/02	Shad	Congaree River	0.00	10.90	0.00	0.00	0.00
12/03	Shad	Congaree River	0.00	12.80	0.17	0.00	0.00
Avg			0.35	13.75	0.09	0.01	0.04

SOIL ANALYSIS SUMMARY

Soil Analysis Summary

Table 1.16 Soil Analysis Summary Four Locations Years 1996-2003

DATE	SOIL LOCATION	G.A.	pCi/gram G.B.	U234	U235	U238	Sum of U
05/96	1	1.20	0.70	0.14	0.05	0.10	0.29
09/96	1	0.80	0.90	0.56	0.05	0.10	0.71
05/97	1	22.50	37.80	1.62	0.05	1.62	3.29
09/97	1	17.00	42.00	1.10	0.04	1.00	2.14
05/98	1	8.00	0.40	1.20	0.05	1.20	2.45
09/98	1	6.40	3.70	1.70	0.08	1.70	3.48
05/99	1	5.90	3.30	1.40	0.00	1.30	2.70
09/99	1	3.60	1.80	1.60	0.07	1.50	3.17
05/00	1	26.00	30.00	0.73	0.20	0.90	1.83
09/00	1	8.86	14.80	1.39	0.07	1.48	2.94
05/01	1	16.30	24.30	1.07	0.09	1.07	2.23
09/01	1	14.20	20.80	1.11	0.03	0.81	1.95
05/02	1	22.80	21.00	1.50	0.00	1.02	2.52
09/02	1	15.10	20.50	0.83	0.00	0.58	1.41
05/03	1	8.66	10.00	1.15	0.20	0.95	2.30
09/03	1	13.40	18.40	1.31	0.10	1.05	2.46
Avg	1	11.92	15.65	1.15	0.07	1.02	2.24

05/96	2	1.10	0.70	0.14	0.05	0.10	0.29
09/96	2	0.60	0.60	0.15	0.05	0.12	0.32
05/97	2	22.50	37.80	1.62	0.05	1.62	3.29
09/97	2	32.00	33.00	2.10	0.08	1.50	3.68
05/98	2	9.40	2.40	1.50	0.07	1.30	2.87
09/98	2	5.00	5.90	2.10	0.10	1.90	4.10
05/99	2	7.00	4.30	1.60	0.06	1.60	3.26
09/99	2	61.00	3.70	1.20	0.04	0.92	2.16
05/00	2	18.80	20.10	2.22	0.05	1.66	3.93
09/00	2	8.86	14.80	1.39	0.07	1.48	2.94
05/01	2	12.80	25.30	1.05	0.18	0.62	1.85
09/01	2	21.50	17.10	1.85	0.07	1.67	3.59
05/02	2	23.00	14.90	1.04	0.00	0.95	1.99
09/02	2	25.40	20.90	0.87	0.00	1.10	1.97
05/03	2	24.50	27.00	2.03	0.21	1.67	3.91
09/03	2						
Avg	2	18.23	15.23	1.39	0.07	1.21	2.68

Soil Analysis Summary

05/96	3	0.80	0.40	0.10	0.05	0.11	0.26
09/96	3	2.20	1.70	0.88	0.05	0.39	1.32
05/97	3	22.50	33.70	1.62	0.07	1.49	3.18
09/97	3	16.00	30.00	1.10	0.04	1.00	2.14
05/98	3	7.20	0.27	1.10	0.05	1.20	2.35
09/98	3	2.60	1.80	1.40	0.06	1.20	2.66
05/99	3	6.20	2.50	1.50	0.06	1.40	2.96
09/99	3	1.80	1.30	1.00	0.04	0.94	1.98
05/00	3	25.40	27.70	0.82	0.12	0.54	1.48
09/00	3	6.90	11.30	0.61	0.01	0.64	1.26
05/01	3	9.89	12.90	0.77	0.05	0.62	1.44
09/01	3	11.00	16.90	1.64	0.07	0.90	2.61
05/02	3	17.10	17.40	1.10	0.00	0.32	1.42
09/02	3	13.60	13.00	0.78	0.00	0.67	1.45
05/03	3	8.53	21.90	1.01	0.02	0.44	1.47
09/03	3	15.50	29.40	1.98	0.61	1.47	4.06
Avg	3	10.45	12.21	1.03	0.05	0.82	1.89

05/96	4	1.50	0.90	0.93	0.06	0.47	1.46
09/96	4	1.60	1.40	0.18	0.05	0.18	0.41
05/97	4	34.50	32.80	1.62	0.07	1.62	3.31
09/97	4	22.00	21.00	1.70	0.06	1.50	3.26
05/98	4	3.30	8.50	1.30	0.05	1.40	2.75
09/98	4	0.95	5.10	1.60	0.08	1.60	3.28
05/99	4	3.10	0.00	1.20	0.06	1.10	2.36
09/99	4	2.30	0.86	1.00	0.04	1.10	2.14
05/00	4	21.00	17.90	1.20	0.02	1.30	2.52
09/00	4	9.80	15.10	0.79	0.08	1.02	1.88
05/01	4	17.50	16.50	1.30	0.13	1.12	2.55
09/01	4	15.40	14.40	1.58	0.06	1.01	2.65
05/02	4	17.50	17.40	2.29	0.58	1.33	4.20
09/02	4	18.20	16.20	1.35	0.00	1.39	2.74
05/03	4	27.70	20.80	1.47	0.14	1.31	2.92
09/03	4	1.61	17.20	0.26	0.10	0.25	0.61
Avg	4	12.37	12.88	1.24	0.10	1.11	2.44

VEGETATION ANALYSIS SUMMARY

Vegetation Analysis Summary

Table 1.17 Vegetation Analysis Summary Four Locations Years 1996-2003

DATE	LOCATION	G.A.	pCi/gram G.B.	U234	U235	U238	Sum of U	PPMF
05/96	1	21.40	4.60	0.10	0.03	0.04	0.17	1.10
09/96	1	1.50	12.40	0.22	0.05	0.19	0.46	0.50
05/97	1	0.37	4.09	0.02	0.00	0.02	0.04	
09/97	1	2.25	0.95	0.22	0.01	0.21	0.44	
05/98	1	4.30	36.10	0.37	0.01	0.10	0.48	
09/98	1	0.29	3.66	0.07	0.01	0.06	0.14	0.00
05/99	1	0.08	30.70	0.02	0.01	0.01	0.04	0.50
09/99	1	0.25	5.24	0.05	0.00	0.03	0.08	0.50
05//00	1	4.72	18.40	0.62	0.17	0.96	1.76	15.20
09/00	1	5.39	12.10	0.05	0.05	0.01	0.11	11.10
05/04	1	1.49	10.20	0.15	0.00	0.00	0.15	294.00
09/04	1	1.03	5.07	0.03	0.05	0.03	0.10	34.50
05/04	1	1.00	20.30	0.39	0.00	0.00	0.39	26.00
09/04	1	1.00	7.27	0.17	0.00	0.26	0.43	15.50
05/04	1	0.61	8.36	1.16	0.31	0.33	1.80	
09/04	1	1.57	10.30	0.56	0.05	0.15	0.76	
Avg	1	2.95	11.86	0.26	0.05	0.15	0.46	36.26
05/96	2	2.70	2.10	0.31	0.03	0.09	0.43	1.13
09/96	2	0.70	2.90	0.06	0.06	0.06	0.18	0.50
05/97	2	0.95	4.11	0.05	0.00	0.04	0.10	
09/97	2	0.23	0.11	0.19	0.01	0.10	0.30	
05/98	2	19.20	27.00	0.91	0.02	0.63	1.56	
09/98	2	0.29	3.66	0.07	0.01	0.06	0.14	0.00
05/99	2	2.30	5.15	0.50	0.00	0.39	0.89	0.50
09/99	2	0.20	4.77	0.29	0.01	0.03	0.33	0.50
05/00	2	4.46	9.57	0.52	0.11	0.87	1.50	0.00
09/00	2	0.08	3.43	0.01	0.05	0.05	0.11	9.32
05/04	2	1.12	9.44	0.09	0.02	0.11	0.22	22.40
09/04	2	0.00	8.22	0.05	0.04	0.01	0.10	15.90
05/04	2	0.00	20.30	0.39	0.00	0.00	0.39	26.00
09/04	2	0.00	7.27	0.17	0.00	0.26	0.43	15.50
05/04	2	14.00	16.90	1.09	0.17	0.89	2.15	
09/04	2	0.55	16.30	0.45	0.07	0.10	0.62	
Avg	2	2.92	8.83	0.32	0.04	0.23	0.59	8.34

Vegetation Analysis Summary

DATE	LOCATION	G.A.	pCi/gram G.B.	U234	U235	U238	Sum of U	PPM F
05/96	3	0.90	1.70	0.08	0.01	0.06	0.15	0.13
09/96	3	1.20	3.70	0.80	0.05	0.41	1.26	0.50
05/97	3	3.36	5.77	0.33	0.01	0.22	0.56	
09/97	3	0.48	8.30	0.07	0.01	0.04	0.12	
05/98	3	1.01	16.82	0.34	0.01	0.25	0.60	
09/98	3	2.25	6.52	0.37	0.00	0.27	0.64	2.30
05/99	3	0.43	3.88	0.08	0.00	0.04	0.13	0.50
09/99	3	4.73	4.87	2.36	0.09	1.48	3.93	0.50
05/00	3	3.10	9.15	0.00	0.00	0.01	0.02	14.50
09/00	3	4.34	20.40	0.19	0.00	0.14	0.33	282.00
05/04	3	8.73	25.90	0.85	0.10	0.41	1.36	31.20
09/04	3	1.11	2.61	0.02	0.00	0.02	0.05	4.83
05/04	3	0.00	8.70	0.12	0.00	0.09	0.20	51.70
09/04	3	0.00	1.00	0.18	0.13	0.08	0.39	6.13
05/04	3	0.85	7.73	0.34	0.07	0.15	0.57	
09/04	3	0.13	23.70	0.08	0.17	0.14	0.39	
Avg	3	2.04	9.42	0.39	0.04	0.24	0.67	35.84

05/96	4	0.30	3.40	0.05	0.01	0.05	0.11	0.52
09/96	4	0.50	3.90	0.22	0.05	0.11	0.38	0.50
05/97	4	1.26	4.37	0.06	0.00	0.05	0.11	
09/97	4	7.40	15.00	4.70	0.17	4.20	9.07	
05/98	4	1.90	1.85	0.37	0.01	0.09	0.47	
09/98	4	0.13	2.26	0.03	0.00	0.02	0.05	0.00
05/99	4	0.32	4.94	0.03	0.00	0.03	0.06	77.00
09/99	4	0.67	3.72	0.32	0.01	0.22	0.55	0.50
05/00	4	1.75	14.10	0.01	0.01	0.14	0.16	0.00
09/00	4	0.28	0.90	0.12	0.01	0.01	0.14	6.93
05/04	4	0.54	0.19	0.01	0.30	0.01	0.33	9.17
09/04	4	0.57	6.05	0.03	0.00	0.03	0.06	5.64
05/04	4	0.00	0.00	0.41	0.14	0.14	0.69	38.80
09/04	4	0.00	0.00	0.17	0.08	0.04	0.29	15.30
05/04	4	0.19	9.39	0.27	0.00	0.07	0.33	
09/04	4	1.61	17.20	0.26	0.10	0.25	0.61	
Avg	4	1.09	5.45	0.44	0.06	0.34	0.84	14.03

WELL WATER RADIOACTIVITY SUMMARY

Well Water Radioactivity Summary

Table 1.18 Well Summary Radioactivity Years 1997-2003

WELL SUMMARY RADIOACTIVITY 1997								
	1Q/97		2Q/97		3Q/97		4Q/97	
	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB
Well	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
3A	2.34	1.22	1.22	1.49	1.50	0.00	2.30	8.30
7	1.67	**675.68**	8.56	**630.63**	15.00	**480.00**	30.00	**420.00**
10	4.95	**121.62**	1.89	**112.61**	5.50	**88.00**	6.00	47.00
13	5.41	8.56	3.69	6.76	4.70	6.70	4.00	18.00
14	1.62	6.76	2.43	6.76	1.00	4.50	1.10	6.80
15	2.93	**315.32**	4.95	**243.24**	2.40	**1.50**	11.00	**300.00**
16	2.07	**81.08**	1.22	**76.58**	7.00	**65.00**	7.00	23.00
19	0.77	2.66	1.44	2.57	4.10	2.10	1.50	7.20
20	1.31	2.21	6.76	5.41	1.10	0.40	0.84	5.20
22	14.41	**630.63**	12.61	12.61	1.00	1.00	12.00	**200.00**
23	2.43	4.32	11.26	8.56	**25.00**	18.00	**4.50**	3.40
24	1.44	2.30	1.98	3.74	3.20	4.30	0.00	2.20
26	0.68	31.98	2.52	29.28	5.80	24.00	2.70	30.00
27	4.50	10.36	3.42	4.95	4.70	5.10	10.00	11.00
28	**63.06**	19.82	**0.00**	0.00	**34.00**	**16.00**	**27.00**	**13.00**
29	3.15	30.63	10.81	42.79	4.60	40.00	3.10	15.00
30	**15.32**	31.98	**85.59**	**157.66**	**62.00**	**160.00**	**26.00**	**180.00**
32	2.25	**400.90**	8.11	**450.45**	**19.00**	**1100.00**	**4.00**	**1500.00**
33	3.20	7.66	5.86	9.91	6.10	17.00	2.00	13.00
37	1.13	1.76	2.75	3.69	3.70	6.40	0.68	2.80
38	3.47	6.31	12.61	8.56	2.50	2.30	2.40	4.10

Well Water Radioactivity Summary

WELL SUMMARY RADIOACTIVITY 1998								
	1Q/98		2Q/98		3Q/98		4Q/98	
	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB
Well	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
3A	1.50	2.70	2.80	2.70	2.10	0.50	0.56	1.50
7	6.00	**760.00**	11.00	**500.00**	12.00	**620.00**	3.50	**620.00**
10	3.80	49.00	3.00	**61.00**	9.00	**94.00**	1.50	**91.00**
13	3.20	2.60	0.90	4.90	2.00	5.00	1.20	5.90
14	1.10	10.00	1.70	6.00	3.00	7.40	1.00	6.60
15	1.70	**270.00**	**30.00**	**210.00**	**17.00**	**230.00**	**6.40**	**320.00**
16	1.20	**2.50**	2.70	**17.00**	0.90	**9.70**	3.40	**6.20**
19	3.90	1.20	1.50	3.20	1.30	1.00	0.70	2.70
20	1.10	1.10	1.10	0.80	4.30	2.50	1.40	1.80
22	2.40	1.30	**93.00**	**1400.00**	**3.80**	**11.00**	**1.20**	**23.00**
23	**2.10**	2.00	**4.90**	7.10	**8.10**	11.00	**2.20**	0.95
24	0.44	0.50	1.50	3.20	0.00	1.10	4.40	1.90
26	4.00	26.00	4.00	19.00	4.00	19.00	6.60	58.00
27	0.05	2.60	0.80	4.30	5.30	36.00	0.20	3.50
28	**25.00**	**6.20**	**23.00**	**17.00**	**42.00**	**21.00**	**13.00**	**13.00**
29	1.50	14.00	1.90	31.00	3.30	24.00	2.70	10.00
30	**29.00**	**220.00**	**39.00**	**130.00**	**61.00**	**120.00**	**29.00**	**110.00**
32	**5.60**	**1600.00**	**14.00**	**1700.00**	**4.40**	**1600.00**	**3.90**	**1500.00**
33	1.30	7.80	10.00	36.00	4.30	21.00	1.10	21.00
37	1.10	4.70	0.11	1.90	0.70	2.70	1.50	2.70
38	2.20	3.20	2.20	4.10	0.60	1.60	1.40	5.10

Well Water Radioactivity Summary

WELL SUMMARYRADIOACTIVITY 1999								
	1Q/99		2Q/99		3Q/99		4Q/99	
	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB
Well	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
3A	1.10	3.80	1.90	3.90	2.70	0.00	2.00	0.40
7	0.69	**630.00**	4.90	**580.00**	2.60	**504.00**	2.60	**701.00**
10	5.60	**130.00**	1.90	**110.00**	2.20	**86.00**	4.60	**88.20**
13	3.10	3.20	4.30	5.30	2.90	0.70	0.00	4.50
14	2.90	9.60	0.60	3.70	2.60	0.00	0.60	1.46
15	**0.20**	**340.00**	**3.30**	**230.00**	**1.70**	**163.00**	**17.20**	**344.00**
16	5.50	**11.00**	3.80	**9.10**	2.30	**8.40**	1.74	**84.60**
19	1.30	2.10	1.20	1.00	0.50	0.00	0.58	3.00
20	1.70	1.90	0.70	0.90	0.40	0.40	0.78	2.11
22	**21.00**	**2500.00**	**2.80**	**4.90**	**0.90**	**2.10**	**8.20**	**9.85**
23	**23.00**	11.00	**17.00**	7.90	**2.70**	2.80	3.98	5.57
24	1.70	3.80	3.80	6.20	0.40	0.90	1.35	2.63
26	6.30	25.00	6.30	25.00	4.10	37.60	4.63	19.80
27	24.00	15.00	5.90	42.00	5.90	42.00	3.56	4.29
28	**8.10**	**8.90**	**33.00**	**15.00**	**29.90**	11.00	**11.70**	12.50
29	5.20	14.00	4.10	15.00	5.30	13.60	8.06	11.70
30	**82.00**	**86.00**	**36.00**	**67.00**	**54.40**	**85.40**	**6.71**	**138.00**
32	**250.00**	**960.00**	**230.00**	**1200.00**	**2.20**	**976.00**	**7.16**	**759.00**
33	4.90	14.00	5.50	8.90	3.00	13.00	6.58	11.50
37	0.31	2.70	0.50	0.80	0.35	3.20	1.38	2.30
38	2.30	4.50	1.00	3.70	0.32	3.60	1.63	4.01

Well Water Radioactivity Summary

WELL SUMMARY RADIOACTIVITY 2000								
	1Q/2000		2Q/2000		3Q/2000		4Q/2000	
	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB
Well	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
3A	1.55	1.67	1.04	1.23	2.90	1.60	0.62	0.50
7	9.38	202.00	20.70	497.00	9.15	511.00	1.78	356.00
10	4.26	49.50	1.80	66.10	5.33	58.00	1.32	106.00
13	0.84	1.59	11.30	8.80	1.87	9.07	0.75	2.74
14	1.31	4.96	2.46	9.81	5.60	15.80	0.11	5.71
15	5.32	116.00	1.08	162.00	6.86	186.00	0.31	301.00
16	1.10	1.88	1.94	54.70	4.16	17.40	0.04	56.90
19	0.82	1.37	0.38	2.37	1.53	2.90	1.63	1.98
20	0.63	0.21	1.91	2.00	2.60	2.63	0.88	0.30
22	2.36	121.00	2.00	19.40	12.10	15.10	1.00	104.00
23	1.23	1.59	0.83	1.63	4.41	6.23	1.15	1.91
24	0.06	0.67	0.30	0.67	2.96	5.55	1.25	0.20
26	3.08	25.90	2.55	32.50	2.22	17.90	0.85	33.60
27	0.29	3.34	0.52	2.93	7.62	9.07	1.96	6.64
28	5.77	9.39	5.77	9.39	21.20	25.70	2.69	13.60
29	1.76	12.70	9.10	16.30	8.54	27.40	0.88	5.65
30	15.20	92.50	172.00	200.00	30.30	37.50	17.10	77.50
32	2.55	1770.00	2.20	1140.00	73.50	1370.00	3.85	2040.00
33	0.76	6.01	2.68	6.25	3.53	4.36	0.90	2.54
37	0.00	1.56	0.37	2.10	2.98	5.60	0.76	1.51
38	1.04	5.07	36.90	21.70	2.02	3.37	6.06	6.51

Well Water Radioactivity Summary

WELL SUMMARY RADIOACTIVITY 2001								
	1Q/2001		2Q/2001		3Q/2001		4Q/2001	
	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB
Well	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
3A	0.50	3.16	1.44	3.45	5.15	3.27	0.43	0.90
7	3.20	**311.00**	3.49	**303.00**	7.48	**421.00**	8.76	**441.00**
10	1.80	**71.80**	1.75	**55.40**	6.49	**101.00**	2.24	**91.20**
13	2.00	3.30	4.23	2.73	**19.90**	12.30	**5.27**	7.60
14	1.18	5.60	0.89	8.10	8.00	49.20	2.03	11.00
15	12.20	**276.00**	0.80	**144.00**	10.10	**203.00**	5.55	**238.00**
16	4.80	15.00	2.81	11.70	10.40	22.20	3.34	28.50
19	0.50	3.80	1.00	2.42	9.50	2.68	1.55	3.70
20	0.30	2.34	0.60	0.88	1.82	2.10	2.15	2.24
22	**60.20**	**1190.00**	2.42	3.29	4.55	**9.27**	1.68	**99.00**
23	14.00	34.20	0.69	3.20	6.94	5.85	0.59	1.01
24	1.00	1.00	0.50	1.75	7.00	6.16	4.58	3.37
26	2.11	37.00	0.38	24.60	2.25	26.40	2.90	17.00
27	0.40	2.10	0.80	4.06	5.50	7.17	0.40	4.29
28	3.60	14.00	**15.60**	19.70	8.19	14.70	5.63	15.10
29	3.70	14.70	3.53	21.30	7.31	35.00	9.56	12.40
30	**26.40**	**55.80**	**28.30**	32.50	**31.70**	**53.80**	**20.40**	**95.70**
32	**30.70**	**1650.00**	0.80	**1620.00**	**18.70**	**1710.00**	**43.60**	**1690.00**
33	1.00	5.59	0.80	5.80	2.28	8.07	1.01	14.20
37	1.00	0.11	0.70	1.00	5.66	5.55	0.46	1.66
38	3.27	5.51	4.00	9.30	4.97	8.30	3.55	6.11

Well Water Radioactivity Summary

WELL SUMMARY RADIOACTIVITY 2002								
	1Q/2002		2Q/2002		3Q/2002		4Q/2002	
	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB
Well	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
3A	1.12	0.00	1.03	4.11	1.82	1.49	1.10	1.93
7	2.48	**309.00**	9.37	**434.00**	4.04	**292.00**	3.32	**361.00**
10	2.29	**94.50**	4.53	**113.00**	1.70	**86.90**	0.70	**43.90**
13	2.66	5.50	0.76	6.19	**2.35**	6.39	**2.46**	1.93
14	1.77	9.52	3.40	9.93	0.43	9.22	0.30	1.74
15	1.36	**254.00**	4.29	**182.00**	4.47	**118.00**	4.06	**201.00**
16	1.47	33.40	2.88	15.60	1.13	7.68	0.92	15.30
19	2.05	1.18	0.70	2.22	0.47	1.94	1.00	0.14
20	0.13	1.20	0.20	2.37	1.00	0.17		43.00
22	**44.70**	**2700.00**	32.60	1350.00	0.50	**0.70**	8.66	**43.00**
23	1.24	2.28	1.76	2.85	1.89	6.66	3.45	1.90
24	0.67	2.74	0.37	4.11	1.10	4.85	0.40	1.01
26	1.67	21.00	4.92	21.80	0.43	19.40	0.90	11.40
27	0.17	8.27	2.19	8.44	1.00	2.20	1.40	9.02
28	3.25	13.60	**21.30**	22.70	7.35	15.70	2.61	8.03
29	3.15	14.30	6.40	24.60	8.07	51.70	0.06	48.80
30	**14.20**	**114.00**	**25.00**	13.30	**9.23**	**113.00**	**8.63**	**74.20**
32	**9.40**	**1680.00**	35.30	**1880.00**	**6.07**	**1690.00**	**0.27**	**1250.00**
33	1.50	7.98	1.00	6.71	1.00	6.55	1.35	13.10
37	0.94	2.19	0.28	3.43	0.90	4.40	0.05	2.32
38	1.22	9.48	3.51	8.48	1.83	6.55	1.70	8.97

Well Water Radioactivity Summary

WELL SUMMARY RADIOACTIVITY 2003								
	1Q/2003		2Q/2003		3Q/2003		4Q/2003	
	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB
Well	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
3A	1.69	3.67	1.26	0.56	2.13	0.83	0.97	1.91
7	4.25	**344.00**	1.86	**346.00**	1.35	**34.70**	3.64	**81.60**
10	1.48	**60.70**	2.68	**34.00**	1.56	**7.38**	2.05	**30.90**
13	5.21	5.89	1.52	2.50	**2.98**	2.66	**1.26**	4.12
14	3.55	4.88	13.40	11.10	4.52	8.89	4.87	8.39
15	0.98	**130.00**	9.30	**157.00**	2.20	**17.10**	0.96	**84.70**
16	6.08	11.60	9.16	8.84	4.20	10.30	0.92	9.96
19	1.37	1.88	0.51	0.64	0.74	2.10	3.26	3.99
20	2.46	4.78	3.65	14.90	1.30	1.28	0.88	1.73
22	12.80	**734.00**	13.40	5.53	5.86	**9.91**	4.43	**17.70**
23	4.83	13.60	21.80	13.10	13.20	16.80	3.93	8.90
24	1.46	2.53	2.32	1.92	1.11	2.14	3.10	8.86
26	1.76	17.00	2.84	22.50	3.64	10.70	1.97	15.90
27	1.61	10.30	2.01	8.29	6.31	6.40	5.47	9.98
28	10.40	25.50	**9.26**	17.30	13.20	19.90	35.50	40.30
29	11.00	36.30	6.26	23.50	7.59	13.10	13.30	20.50
30	13.20	41.40	**35.80**	103.00	**28.60**	**65.30**	**34.40**	**96.40**
32	13.10	**1790.00**	275.00	**2110.00**	**14.80**	**130.00**	**18.60**	**435.00**
33	11.70	22.10	1.26	11.20	4.53	7.85	1.12	4.73
37	1.83	3.77	1.35	2.45	0.35	1.43	1.06	1.07
38	5.86	6.59	3.64	6.88	0.84	3.54	3.25	6.50

Well Water Radioactivity Summary

WELL SUMMARY RADIOACTIVITY						
	1Q/2004		2Q/2004		3Q/2004	
	Gross Alpha	GB	Gross Alpha	GB	Gross Alpha	GB
Well	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
3A	5.78	0.74	1.26	0.56	2.13	0.83
7	1.81	**30.20**	1.86	**346.00**	1.35	**34.70**
10	6.19	**12.30**	2.68	**34.00**	1.56	**7.38**
13	2.80	1.18	1.52	2.50	**2.98**	2.66
14	12.10	11.20	13.40	11.10	4.52	8.89
15	5.97	**50.20**	9.30	**157.00**	2.20	**17.10**
16	7.27	13.40	9.16	8.84	4.20	10.30
19	0.80	1.61	0.51	0.64	0.74	2.10
20	0.97	1.20	3.65	14.90	1.30	1.28
22	2.62	**255.00**	13.40	5.53	5.86	**9.91**
23	8.27	13.60	21.80	13.10	13.20	16.80
24	2.44	6.68	2.32	1.92	1.11	2.14
26	0.24	4.30	2.84	22.50	3.64	10.70
27	5.85	6.68	2.01	8.29	6.31	6.40
28	12.00	16.90	**9.26**	17.30	13.20	19.90
29	2.58	4.60	6.26	23.50	7.59	13.10
30	37.30	35.00	**35.80**	103.00	**28.60**	**65.30**
32	14.90	**425.00**	275.00	**2110.00**	**14.80**	**130.00**
33	3.77	6.58	1.26	11.20	4.53	7.85
37	3.95	5.03	1.35	2.45	0.35	1.43
38	5.86	7.75	3.64	6.88	0.84	3.54

SURFACE WATER SUMMARY

Surface Water Summary

Table 1.19 Surface Water Summary Gross Alpha/ Beta Years 1996-2003

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 1996 pCi/l Gross Alpha							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	2.00	2.00	2.00	5.00	27.00	6.00	2.00
FEB	2.00	2.00	2.00	0.10	9.00	6.00	3.00
MARCH	4.00	0.20	2.00	3.00	24.00	8.00	6.00
APRIL	2.00	2.00	25.00	22.00	10.00	6.00	4.00
MAY	3.00	0.30	10.00	2.00	12.00	16.00	3.00
JUNE	2.00	2.00	9.00	0.20	25.00	2.70	1.80
JULY	2.00	2.00	2.00	2.00	12.00	5.00	2.00
AUG	2.00	3.00	2.00	3.00	38.00	5.00	4.00
SEPT	2.00	2.00	2.00	4.00	11.00	16.00	8.00
OCT	3.00	2.00	2.00	19.00	10.00	2.00	2.00
NOV	3.00	3.00	2.00	2.00	6.00	5.00	4.00
DEC	2.00	5.00	4.00	3.00	6.00	5.00	7.00
Avg	2.42	2.13	5.33	5.44	15.83	6.89	3.90
Max	4.00	5.00	25.00	22.00	38.00	16.00	8.00

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 1996 pCi/l Gross Beta							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	3.00	3.00	11.00	13.00	12.00	5.00	8.00
FEB	7.00	2.00	6.00	11.00	10.00	7.00	3.00
MARCH	3.00	12.00	16.00	9.00	12.00	3.00	4.00
APRIL	3.00	25.00	2.00	2.00	10.00	5.00	3.00
MAY	3.00	2.00	2.00	7.00	6.00	73.00	2.00
JUNE	3.00	3.00	2.00	6.00	10.00	2.00	3.00
JULY	3.00	3.00	14.00	15.00	4.00	2.00	3.00
AUGUST	3.00	3.00	26.00	21.00	14.00	5.00	3.00
SEPT	3.00	3.00	19.00	42.00	3.00	5.00	4.00
OCT	6.00	3.00	21.00	17.00	3.00	3.00	3.00
NOV	5.00	4.00	7.00	16.00	5.00	5.00	3.00
DEC	3.00	5.00	6.00	9.00	3.00	9.00	6.00
Avg	3.75	5.67	11.00	14.00	7.67	10.33	3.75
Max	7.00	25.00	26.00	42.00	14.00	73.00	8.00

Surface Water Summary

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 1997 pCi/l Gross Alpha							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	4.00	5.00	7.00	2.00	34.00	4.00	3.00
FEB	2.00	2.00	0.10	6.00	12.00	2.00	2.00
MARCH	0.90	0.90	0.80	22.10	2.80	1.70	1.30
APRIL	3.20	22.80	0.29	0.28	10.40	4.95	3.60
MAY	2.40	2.20	0.20	3.30	23.40	3.70	1.80
JUNE	0.60	0.80	0.72	1.90	8.60	2.70	1.80
JULY	0.10	2.00	1.20	0.47	8.40	12.00	1.70
AUGUST	15.00	1.60	1.10	0.10	7.70	3.00	0.50
SEPT	45.00	6.30	3.90	6.50	25.00	21.00	9.60
OCT	16.00	1.20	6.10	6.30	8.00	11.00	12.00
NOV	2.90	0.80	22.00	4.20	2.90	2.20	0.97
DEC	0.52	1.00	1.00	3.20	1.20	5.00	2.10
Avg	7.72	3.88	3.70	4.70	12.03	6.10	3.36
Max	45.00	22.80	22.00	22.10	34.00	21.00	12.00

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 1997 pCi/l Gross Beta							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	5.00	8.00	11.00	5.00	9.00	4.00	4.00
FEB	4.00	3.00	16.00	16.00	6.00	5.00	5.00
MARCH	0.10	0.10	11.00	9.40	4.00	2.50	2.30
APRIL	3.40	2.74	11.70	7.40	7.20	8.00	5.40
MAY	2.07	2.70	2.40	19.80	8.60	3.00	6.30
JUNE	5.60	1.70	14.00	8.80	2.10	1.40	3.70
JULY	1.90	2.30	5.70	12.00	3.90	7.00	4.50
AUGUST	21.00	4.30	19.00	0.10	9.10	7.20	2.50
SEPT	31.00	4.90	21.00	22.00	13.00	32.00	12.00
OCT	6.80	2.20	16.00	19.00	3.40	7.30	6.50
NOV	29.00	1.20	0.97	23.00	3.50	4.00	4.10
DEC	11.00	6.00	24.00	7.10	3.90	3.60	3.80
Avg	10.07	3.26	12.73	12.47	6.14	7.08	5.01
Max	31.00	8.00	24.00	23.00	13.00	32.00	12.00

Surface Water Summary

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 1998 pCi/l Gross Alpha							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	9.90	17.00	3.40	6.60	15.00	9.60	7.90
FEB	6.20	7.10	3.00	6.00	8.20	4.70	8.10
MARCH	0.90	0.90	0.80	22.10	2.80	1.70	1.30
APRIL	3.20	6.30	1.10	0.64	11.00	1.50	8.30
MAY	2.80	1.60	0.20	0.60	2.60	19.00	1.00
JUNE	0.60	2.70	1.10	4.90	8.50	1.10	2.20
JULY	1.40	4.90	5.90	5.10	5.60	9.10	12.00
AUGUST	5.20	1.00	8.50	7.20	7.70	3.00	0.50
SEPT	0.70	1.30	1.40	0.50	18.00	1.90	4.30
OCT	7.40	1.00	0.45	0.10	51.00	9.40	3.40
NOV	5.70	1.20	24.00	51.00	3.50	1.00	2.40
DEC	0.59	1.20	3.20	0.47	56.00	4.70	0.90
Avg	3.72	3.85	4.42	8.77	15.83	5.56	4.36
Max	9.90	17.00	24.00	51.00	56.00	19.00	12.00

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 1998 pCi/l Gross Beta							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	5.90	0.10	7.10	26.00	0.10	1.60	1.40
FEB	10.00	5.00	14.00	12.00	20.00	6.20	3.90
MARCH	0.10	0.10	11.00	9.40	4.00	2.50	2.30
APRIL	4.60	3.70	31.00	7.40	10.00	5.20	7.10
MAY	6.10	0.50	3.90	7.20	3.60	3.10	1.60
JUNE	5.60	1.70	14.00	8.80	2.10	1.40	3.70
JULY	2.50	6.10	17.00	18.00	5.20	18.00	8.60
AUGUST	7.20	5.40	5.30	1.60	0.80	2.40	6.00
SEPT	6.00	3.10	9.60	6.60	8.50	4.40	4.80
OCT	8.20	0.20	20.00	16.00	12.00	4.00	5.40
NOV	4.50	0.10	29.00	37.00	10.00	2.50	5.60
DEC	3.90	2.80	17.00	13.00	27.00	5.10	5.50
Avg	5.38	2.40	14.91	13.58	8.61	4.70	4.66
Max	10.00	6.10	31.00	37.00	27.00	18.00	8.60

Surface Water Summary

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 1999 pCi/l Gross Alpha							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	0.74	2.20	0.16	1.30	1.50	2.30	2.60
FEB	0.25	0.04	1.10	1.00	7.30	3.30	5.00
MARCH	2.10	4.60	1.00	3.20	4.60	0.10	2.00
APRIL	0.22	1.40	1.00	1.00	2.00	1.60	1.40
MAY	0.74	0.85	1.20	1.00	22.00	0.70	3.80
JUNE	1.20	1.50	1.00	0.12	4.40	1.90	2.70
JULY	23.00	2.70	1.00	0.70	67.00	1.40	0.90
AUGUST	0.00	4.00	1.00		5.70	0.70	0.90
SEPT	0.10	0.04	0.19	1.00	8.00	0.80	0.40
OCT	1.20	1.20	1.28	3.13	13.70	4.56	8.15
NOV	1.30	1.87	2.84	2.94	16.00	4.19	12.80
DEC	0.12	1.08	0.69	0.85	3.25	1.74	1.72
Avg	2.58	1.79	1.04	1.48	12.95	1.94	3.53
Max	23.00	4.60	2.84	3.20	67.00	4.56	12.80

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 1999 pCi/l Gross Beta							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	0.10	2.10	5.00	9.70	6.70	4.10	5.10
FEB	2.60	0.80	9.80	9.20	2.90	1.50	3.30
MARCH	2.30	0.50	12.00	10.00	1.10	2.40	1.60
APRIL	3.30	0.89	7.90	11.00	3.00	3.60	2.50
MAY	3.30	2.40	14.00	8.40	2.50	6.20	1.90
JUNE	1.90	1.70	10.00	8.70	1.90	3.00	1.50
JULY	6.50	1.80	11.00	13.00	14.00	2.10	2.50
AUGUST	3.80	7.80	15.00	12.00	0.80	3.10	1.70
SEPT	0.10	1.00	5.80	7.10	2.60	3.20	2.90
OCT	0.10	1.00	20.00	16.00	12.00	1.20	0.10
NOV	5.60	3.90	12.60	13.30	4.50	5.60	8.80
DEC	35.00	2.00	6.80	9.70	2.90	3.20	4.70
Avg	5.38	2.16	10.83	10.68	4.58	3.27	3.05
Max	35.00	7.80	20.00	16.00	14.00	6.20	8.80

Surface Water Summary

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 2000 pCi/l Gross Alpha							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	0.40	1.42	0.75	0.25	0.81	0.00	0.34
FEB	1.51	1.67	3.86	0.20	0.74	0.00	0.00
MARCH	3.20	0.13	0.80	0.50	1.66	1.84	3.94
APRIL	1.04	0.76	0.90	0.20	6.70	5.20	3.10
MAY	0.55	0.10	0.17	0.20	10.50	0.93	0.92
JUNE	0.92	2.00	0.90	0.45	7.18	1.15	0.87
JULY	1.10	1.70	0.18	0.52	12.70	0.90	0.86
AUGUST	1.30	1.70	14.00	3.40	3.20	6.60	1.40
SEPT	0.97	0.52	0.52	0.46	0.56	3.40	2.60
OCT	0.71	0.88	0.68	0.93	27.90	1.90	2.20
NOV	0.95	0.58	0.28	0.50	1.70	3.20	1.40
DEC	1.42	0.50	2.95	0.20	5.80	1.23	0.06
Avg	1.17	1.00	2.17	0.65	6.62	2.20	1.47
Max	3.20	2.00	14.00	3.40	27.90	6.60	3.94

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 2000 pCi/l Gross Beta							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	6.15	2.99	9.84	13.50	2.94	2.55	1.75
FEB	12.20	3.00	29.10	53.70	0.69	0.00	2.99
MARCH	8.91	3.07	13.50	11.20	4.50	1.62	6.23
APRIL	1.77	1.67	12.50	12.70	6.77	0.10	1.71
MAY	3.82	1.26	11.70	9.91	7.56	2.70	2.30
JUNE	4.95	4.95	12.20	17.20	5.64	2.58	2.62
JULY	3.55	3.55	11.10	17.20	11.10	2.80	2.30
AUGUST	3.20	3.61	32.50	31.80	3.47	3.94	3.35
SEPT	1.96	2.09	9.17	9.06	4.36	4.65	3.08
OCT	4.80	4.59	7.59	11.50	14.90	4.35	3.77
NOV	12.80	2.74	30.60	38.00	3.78	5.29	2.76
DEC	6.25	1.66	26.30	38.20	4.96	3.75	3.20
Avg	5.86	2.93	17.18	22.00	5.89	2.86	3.01
Max	12.80	4.95	32.50	53.70	14.90	5.29	6.23

Surface Water Summary

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 2001 pCi/l Gross Alpha							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	0.10	2.60	0.74	0.04	5.74	1.21	1.43
FEB	1.19	0.89	1.40	1.23	4.14	0.10	1.27
MARCH	0.71	0.10	0.10	0.47	2.54	1.97	2.47
APRIL	17.80	3.41	11.00	24.40	0.10	2.72	2.88
MAY	4.25	3.73	1.53	0.45	4.01	1.11	6.11
JUNE	3.73	7.53	8.37	0.10	16.60	5.51	1.69
JULY	0.10	16.50	1.18	1.21	5.40	0.10	4.08
AUGUST	5.77	22.00	0.96	1.12	3.09	0.60	2.49
SEPT	1.50	2.19	1.02	6.06	7.58	0.10	0.61
OCT	0.83	2.35	2.35	3.16	4.88	27.70	0.10
NOV	0.10	5.51	5.51	1.07	61.90	8.93	2.32
DEC	0.97	0.26	0.26	2.26	6.12	1.45	2.02
Avg	3.09	5.59	2.87	3.46	10.18	4.29	2.29
Max	17.80	22.00	11.00	24.40	61.90	27.70	6.11

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 2001 pCi/l Gross Beta							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	3.10	1.69	64.30	40.90	3.11	3.07	3.63
FEB	0.10	2.04	29.10	28.90	3.26	3.13	0.10
MARCH	3.36	0.26	9.04	9.50	1.67	4.40	1.10
APRIL	2.89	5.27	2.23	0.10	5.76	2.14	1.19
MAY	6.81	0.10	12.00	41.60	6.10	1.65	2.87
JUNE	3.21	3.80	10.10	2.91	5.09	2.65	2.37
JULY	0.60	10.50	10.50	21.20	6.11	0.54	2.45
AUGUST	8.91	25.80	12.60	12.00	5.59	4.06	2.92
SEPT	5.29	9.98	27.30	10.60	10.60	4.88	6.35
OCT	4.73	5.98	0.88	29.90	27.10	10.90	4.90
NOV	4.90	13.70	15.10	20.70	26.60	5.04	4.87
DEC	4.12	3.40	19.50	18.00	8.17	6.83	3.93
Avg	4.00	6.88	17.72	19.69	9.10	4.11	3.06
Max	8.91	25.80	64.30	41.60	27.10	10.90	6.35

Surface Water Summary

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 2002 pCi/l Gross Alpha							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	1.83	1.88	2.25	0.75	17.60	0.42	0.15
FEB	0.76	0.11	0.19	0.45	22.80	0.89	0.91
MARCH	0.17	4.45	2.30	3.88	41.50	0.18	1.74
APRIL	0.20	3.43	2.54	0.78	11.50	0.64	1.41
MAY	0.58	5.63	4.67	0.20	8.60	0.20	1.77
JUNE	0.66	10.00	0.04	0.40	29.00	0.60	1.16
JULY	31.70	1.59	0.20	0.79	17.50	0.14	0.83
AUGUST	0.66	1.69	0.68	0.18	8.57	0.60	4.34
SEPT	0.74	2.53	1.18	0.50	4.20	0.43	0.19
OCT	4.09	3.45	2.67	0.64	34.00	2.81	3.43
NOV	0.34	1.98	0.57	0.44	6.90	2.38	0.28
DEC	10.40	1.78	4.80	10.90	5.00	0.40	1.19
Avg	4.34	3.21	1.84	1.66	17.26	0.81	1.45
Max	31.70	10.00	4.80	10.90	41.50	2.81	4.34

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 2002 pCi/l Gross Beta							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	1.96	2.12	9.14	14.70	7.75	1.83	2.29
FEB	1.47	1.45	7.59	8.15	24.40	2.54	2.24
MARCH	3.15	5.59	23.60	20.00	13.30	2.83	3.25
APRIL	4.12	6.03	23.10	18.50	10.50	4.40	2.39
MAY	2.70	5.70	20.90	13.30	3.90	1.57	2.33
JUNE	4.17	13.60	22.70	37.60	18.00	1.54	1.79
JULY	29.00	3.27	14.10	15.70	9.50	2.11	0.89
AUGUST	3.84	5.80	12.90	14.80	3.31	2.91	6.50
SEPT	0.72	4.38	8.15	7.43	34.50	3.36	2.89
OCT	5.20	3.16	14.80	9.17	6.13	0.91	0.09
NOV	4.74	3.16	24.20	18.70	5.46	6.87	2.63
DEC	29.70	2.00	25.30	49.80	5.11	1.16	2.71
Avg	7.56	4.69	17.21	18.99	11.82	2.67	2.50
Max	29.70	13.60	25.30	49.80	34.50	6.87	6.50

Surface Water Summary

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 2003 pCi/l Gross Alpha							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	4.78	2.39	1.47	3.67	1.06	0.30	0.83
FEB	2.22	0.88	2.71	1.36	5.26	0.20	0.24
MARCH	2.47	0.98	0.77	1.15	7.53	20.60	30.60
APRIL	69.10	0.60	0.67	0.84	26.20	0.70	3.60
MAY	1.76	1.43	0.85	3.84	8.28	2.10	2.13
JUNE	1.46	0.60	1.00	1.41	5.57	2.67	1.79
JULY	24.90	2.79	1.75	0.45	0.36	0.34	7.28
AUGUST	1.98	9.69	1.53	1.04	65.10	239.00	465.00
SEPT	2.30	1.13	0.43	0.34	11.40	2.74	1.24
OCT	20.00	17.60	0.50	1.06	6.76	11.10	5.40
NOV	0.50	0.30	0.55	0.34	0.21	0.61	1.08
DEC	4.42	2.31	2.29	0.76	11.20	6.25	3.39
Avg	11.32	3.39	1.21	1.36	12.41	23.88	43.55
Max	69.10	17.60	2.71	3.84	65.10	239.00	465.00

SURFACE WATER SUMMARY ENVIRONMENTAL RESULTS 2003 pCi/l Gross Beta							
	ENTRANCE	EXIT	POND	SPRING	ROAD	CAUSEW.	SPILLWAY
JAN	14.80	2.98	1.47	54.70	0.30	0.30	2.39
FEB	3.86	2.81	24.80	28.60	6.05	1.17	16.80
MARCH	18.20	2.90	26.20	37.60	13.30	28.20	31.80
APRIL	44.20	1.56	9.53	11.60	20.00	4.92	2.40
MAY	10.20	3.00	9.11	8.74	5.56	4.95	1.05
JUNE	2.22	0.11	4.43	5.57	2.56	1.71	1.19
JULY	36.90	3.33	12.40	15.10	0.34	7.28	15.20
AUGUST	4.97	12.00	9.34	9.34	9.38	55.30	95.10
SEPT	0.88	1.96	10.20	8.27	5.86	8.36	2.71
OCT	23.60	21.80	8.30	9.91	5.95	11.00	7.07
NOV	1.37	3.60	23.50	23.50	9.52	16.20	21.30
DEC	3.74	3.63	7.78	5.06	6.31	7.40	3.23
Avg	13.75	4.97	12.26	18.17	7.09	12.23	16.69
Max	44.20	21.80	26.20	54.70	20.00	55.30	95.10

LOW LEVEL RADIOACTIVE WASTE SHIPMENT SUMMARY

Low Level Radioactive Waste Shipment Summary

Table 1.20 Low Level Radioactive Waste Shipment Summary

LOW LEVEL RADIOACTIVE WASTE SHIPMENT SUMMARY					
YEAR	# OF SHIPMENTS	ACTIVITY CURIES	NET WEIGHT (LBS)	VOLUME ft3	GRAMS U235
1996	18	0.13	338,135	6,316	1,881
1997	5	0.04	117,829	2,789	532
1998	52	1.03	582,692	19,063	46,753
1999	9	0.050	202,952	11,104	741
2000	23	0.244	444,916	17,895	3,369
2001	20	0.236	355,927	181,256	3,166
2002	5	0.034	98,093	4,738	503
2003	13	1.437	443,885	15,823	22,088

Attachment 1 Tier 2 Submittal Calendar Year 2003

Westinghouse Proprietary Class 2

Westinghouse Electric Company
Nuclear Fuel
Columbia Fuel Site
P.O. Drawer R
Columbia, South Carolina 29250
USA

South Carolina Department of Health
And Environmental Control
SC SERC EPCRA Reporting Point
2600 Bull Street
Columbia, South Carolina 29201

Direct tel: 803-647-3671

Direct fax: 803-695-3964
e-mail: Fischere@westinghouse.com
Our ref: LTR-EHS-04-57

February 23, 2004

Dear Sir:

RE: Tier 2 Submittal Calendar Year 2003

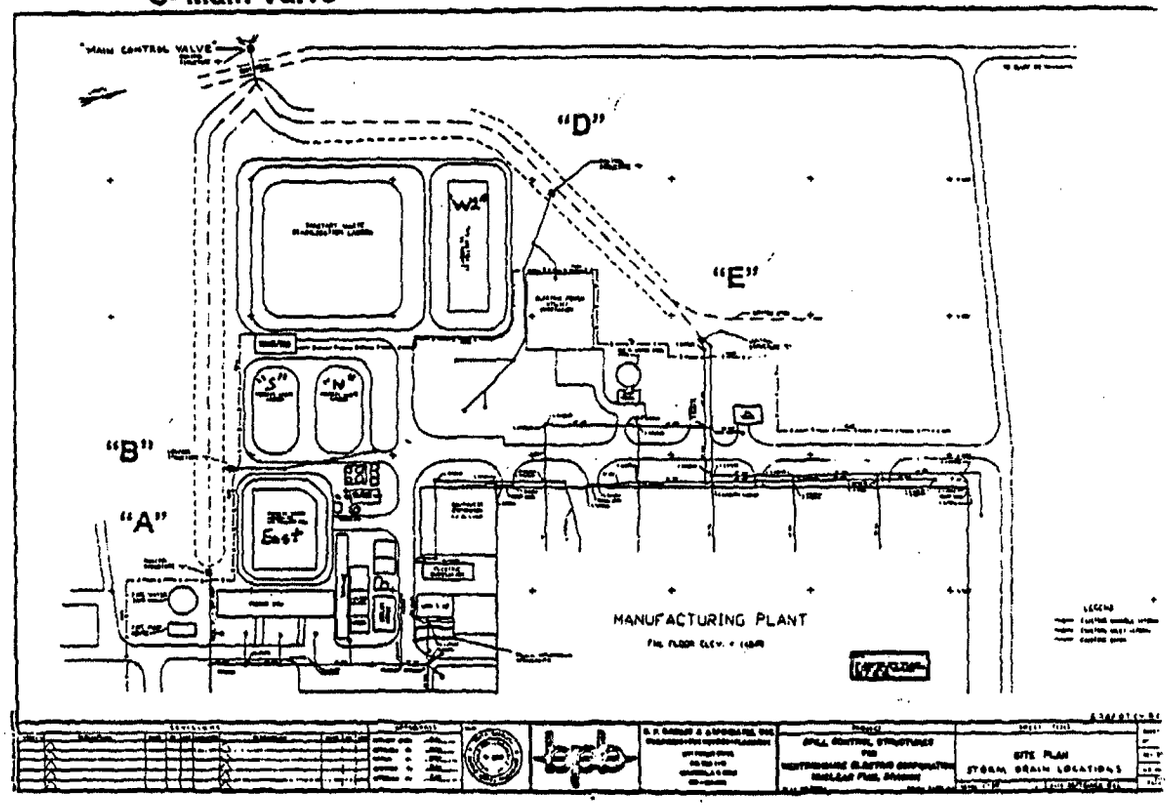
The enclosed submittal of extremely hazardous and hazardous chemical Tier II inventory reports is provided by Westinghouse Electric Company, Nuclear Fuel Plant to the State Emergency Response Commission (SERC) for calendar year 2003 in compliance with Sections 311 & 312, Title III, Superfund Amendments and Reauthorization Act (SARA) and the Emergency Planning and Community Right-to-Know Act (EPCRA). The report has been revised to the EPA Tier2 Submit 2003 software format, and a printed report copy and a diskette are enclosed.

Also, an update of hazardous chemicals is provided to the State Emergency Response Commission, the Richland County Emergency Preparedness LEPC, and the City of Columbia Fire Department in compliance with Section 311 & 312 of Title III SARA EPCRA. A new chemical has been added to supplement the previous lists (submitted on October 14, 1987, February 27, 1990 and February 25, 2003). The update includes the chemical name of the new additional hazardous substance (Sodium Silicate), the CAS number, and the hazards associated with the chemical as determined from the Material Safety Data Sheet.

All information regarding containment and storage locations is considered confidential. A site map and confidential site location map have been included to document storage locations. All inventory locations are provided as coordinates with reference to drawings 601F03CV01 and 522F01AR01. The drawings indicate diked containment liquid storage locations.

SPILL CONTROL VALVES A-E

"C- Main Valve"



If you have any questions regarding the supplied information, please contact me at (803) 647-3671.

Sincerely,

WESTINGHOUSE ELECTRIC COMPANY

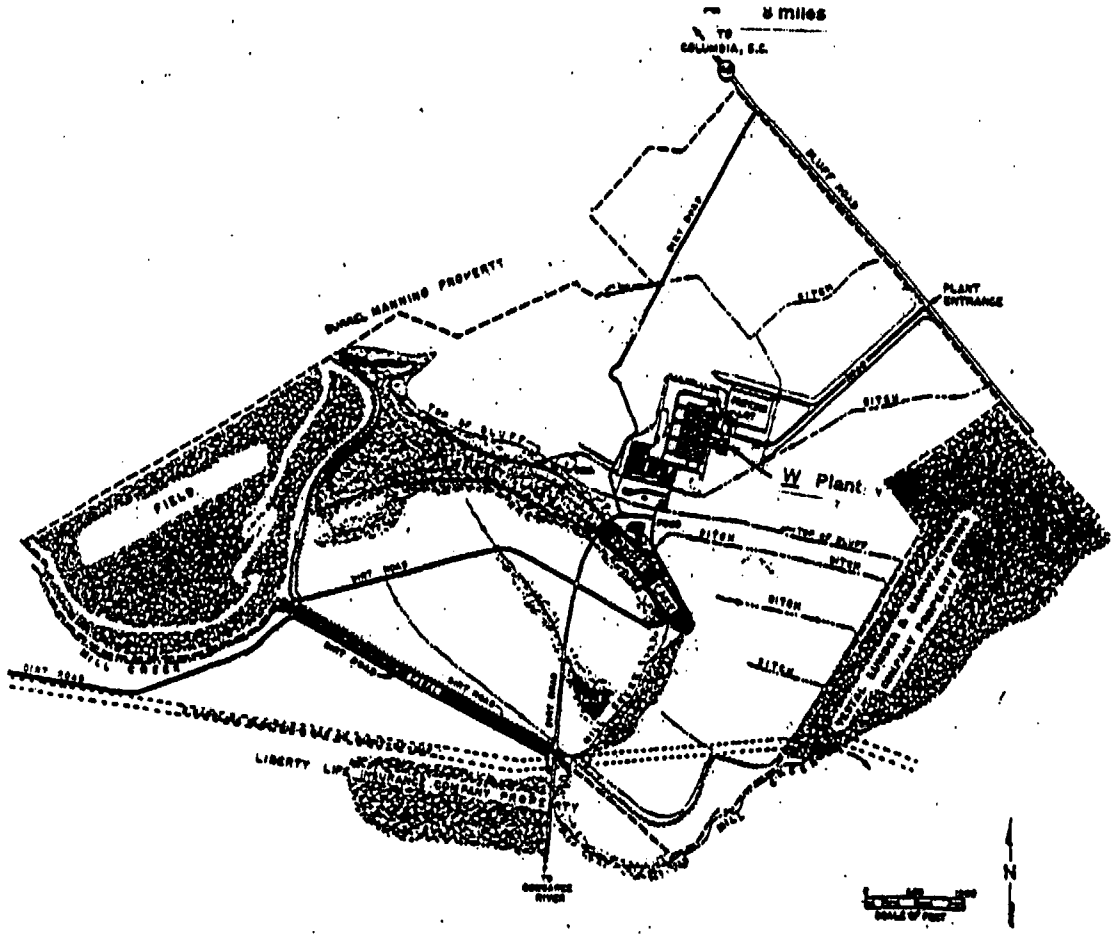
Roger E. Fischer
Senior Engineer, EH&S

cc: (1) Richland County Emergency Preparedness Office
(2) City of Columbia Fire Department

Enclosures: Attachment I
Plant Drawings 601F03 CV01 & 522F01AR01
Site Map
Spill Control Valve Map

ATTACHMENT I
SARA TITLE III UPDATE (EPCRA 311& 312)
February 19, 2004

Number	Chemical Name	Acute Heath Hazard	Chronic Health Hazard	Fire	Pressure	Reactive
1344-09-8	Sodium Silicate	X	X			



WESTINGHOUSE ELECTRIC COMPANY
SITE MAP, RICHLAND COUNTY (S.C.)

Facility Name: Westinghouse Electric Company

FACILITY IDENTIFICATION:
Westinghouse Electric Company
Dept:
5801 Bluff Road
Columbia, SC 29209 USA
County: Richland
Number of employees: 1000
Latitude: 33.8842
Longitude: 80.9175
Method: I1 - Interpolation (Map)
Description: FC - Facility Centroid

IDENTIFICATION NUMBERS:
SIC: 2819
Dun & Bradstreet: 062661272

CONTACT INFORMATION:

Fischer, Roger
Title: Sr. Engineer Contact Type 1: Mailing Contact Type 2: Emergency Contact Contact Type 3: Submitter
Address: P.O. Drawer R, Columbia, SC, 29250 USA
Phones: Work: 803-647-3671 24-hour: 803-647-1000
Email: fischere@westinghouse .com

Desk, Guard
Title: Security Guard Contact Type 1: Emergency Contact
Address: 5801 Bluff Road, Columbia, SC, 29209 USA
Phones: 24-hour: (803) 647-1000

Fecteau, Mark
Title: Plant Manager Contact Type 1: Owner / Operator
Address: 5801 Bluff Road, Columbia, SC, 29209 USA
Phones: Work: 803-647-2104 24-hour: 803-647-1000

Lindler, Mark
Title: Engineer Contact Type 1: Emergency Contact
Address: 5801 Bluff Road, Columbia, SC, 29209 USA
Phones: Work: 803-647-3348 24-hour: 803-647-1000
Email: lindlermk@westinghouse.com

CHEMICAL DESCRIPTIONS:
[ ] All chemicals in inventory are identical to last year's submission

CHEM NAME: #2 Fuel Oil
CAS: 68476-30-2
[ ] Identical to previous year
[ ] TRADE SECRET

Facility Name: Westinghouse Electric Company

[ ] TRADE SECRET
[x] Pure [ ] Mix [ ] Solid [x] Liquid [ ] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[x] Fire [ ] Sudden Release of Pressure [ ] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 146000 pounds Max Daily Amt code: 05
Avg Amt: 80000 pounds Avg Daily Amt code: 04
Max quantity in largest container: 146000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 1 Temp: 4 Location: EXTERIOR AT TANK FARM (C-7) Amount: 110000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Ammonium Hydroxide
CAS: 1336-21-6
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [ ] Solid [x] Liquid [ ] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [ ] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 149000 pounds Max Daily Amt code: 05
Avg Amt: 119000 pounds Avg Daily Amt code: 05
Max quantity in largest container: 31500 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 1 Temp: 4 Location: EXTERIOR AT TANK FARM (C-7) Amount: 36000 pounds
Container Type: A Pressure: 1 Temp: 4 Location: EXTERIOR AT WASTE TREATMENT Amount: 48000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Anhydrous Ammonia
CAS: 7664-41-7
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [ ] Solid [ ] Liquid [x] Gas [x] EHS
PHYSICAL & HEALTH HAZARDS:
[x] Fire [x] Sudden Release of Pressure [ ] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 128000 pounds Max Daily Amt code: 05
Avg Amt: 96000 pounds Avg Daily Amt code: 04
Max quantity in largest container: 128000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 2 Temp: 4 Location: Exterior At Tank Farm (C-7) Amount: 128000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Calcium Oxide

Facility Name: Westinghouse Electric Company

CAS: 1305-78-8
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [x] Solid [ ] Liquid [ ] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [x] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 126000 pounds Max Daily Amt code: 05
Avg Amt: 94500 pounds Avg Daily Amt code: 04
Max quantity in largest container: 126000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 1 Temp: 4 Location: Exterior South of Plant at Waste Treatment (B-6) Amount: 126000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Chlorine
CAS: 7782-50-5
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [ ] Solid [ ] Liquid [x] Gas [x] EHS
PHYSICAL & HEALTH HAZARDS:
[x] Fire [ ] Sudden Release of Pressure [ ] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 600 pounds Max Daily Amt code: 02
Avg Amt: 450 pounds Avg Daily Amt code: 02
Max quantity in largest container: 150 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: L Pressure: 1 Temp: 4 Location: Exterior At Sanitary Lagoon (C-7) Amount: 600 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Hydrogen
CAS: 1333-74-0
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [ ] Solid [x] Liquid [x] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[x] Fire [x] Sudden Release of Pressure [ ] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 9900 pounds Max Daily Amt code: 03
Avg Amt: 7400 pounds Avg Daily Amt code: 03
Max quantity in largest container: 9900 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 2 Temp: 6 Location: Exterior at Tank Farm (C-7) Amount: 11800 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Hydrogen Fluoride (48 % HF Acid)
CAS: 7664-39-3

Facility Name: Westinghouse Electric Company

[ ] Identical to previous year
[ ] TRADE SECRET
[ ] Pure [x] Mix [ ] Solid [x] Liquid [ ] Gas [x] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [x] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 72000 pounds Max Daily Amt code: 04
Avg Amt: 54000 pounds Avg Daily Amt code: 04
Max quantity in largest container: 43000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 1 Temp: 4 Location: Exterior south of plant (C-6) Amount: 72000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Liquid Argon
CAS: 7440-37-1
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [ ] Solid [x] Liquid [x] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [x] Sudden Release of Pressure [ ] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 88500 pounds Max Daily Amt code: 04
Avg Amt: 66000 pounds Avg Daily Amt code: 04
Max quantity in largest container: 70000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 2 Temp: 7 Location: Exterior at Tank Farm (C-7) Amount: 70500 pounds
Container Type: A Pressure: 2 Temp: 7 Location: Exterior North of Plant (E-6) Amount: 18000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Liquid Nitrogen
CAS: 7727-37-9
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [ ] Solid [x] Liquid [x] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [x] Sudden Release of Pressure [ ] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 137000 pounds Max Daily Amt code: 05
Avg Amt: 102000 pounds Avg Daily Amt code: 05
Max quantity in largest container: 74000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 2 Temp: 6 Location: Exterior at Tank Farm (C-7) Amount: 133500 pounds
Container Type: A Pressure: 2 Temp: 6 Location: Exterior Near Chem Lab Entrance(C-5) Amount: 3500 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Nitric Acic

Facility Name: Westinghouse Electric Company

CHEM NAME: Nitric Acid
CAS: 7697-37-2
[ ] Identical to previous year
[ ] TRADE SECRET
[ ] Pure [x] Mix [ ] Solid [x] Liquid [ ] Gas [x] EHS
PHYSICAL & HEALTH HAZARDS:
[x] Fire [ ] Sudden Release of Pressure [x] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 112000 pounds Max Daily Amt code: 05
Avg Amt: 80000 pounds Avg Daily Amt code: 04
Max quantity in largest container: 106000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 1 Temp: 4 Location: Exterior at Tank Farm (C-7) Amount: 106000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Sodium Hydroxide
CAS: 1310-73-2
[ ] Identical to previous year
[ ] TRADE SECRET
[ ] Pure [x] Mix [ ] Solid [x] Liquid [ ] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [x] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 53000 pounds Max Daily Amt code: 04
Avg Amt: 40000 pounds Avg Daily Amt code: 04
Max quantity in largest container: 48000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 1 Temp: 4 Location: Exterior At Tank Farm (C-7) Amount: 48000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Sodium Silicate
CAS: 1344-09-8
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [ ] Solid [x] Liquid [ ] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [ ] Reactivity [x] Immediate (acute) [x] Delayed (chronic)
INVENTORY:
Max Amt: 16800 pounds Max Daily Amt code: 04

Avg Amt: 12600 pounds Avg Daily Amt code: 04
Max quantity in largest container: 16800 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 1 Temp: 4 Location: Exterior south of Plant at Waste Treatment (B-6) Amount: 16800 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Sulfur Dioxide

Facility Name: Westinghouse Electric Company

CHEM NAME: Sulfur Dioxide
CAS: 7446-09-5
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [ ] Solid [ ] Liquid [x] Gas [x] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [x] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 600 pounds Max Daily Amt code: 02
Avg Amt: 450 pounds Avg Daily Amt code: 02
Max quantity in largest container: 150 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: L Pressure: 1 Temp: 4 Location: Exterior At Waste Treatment (B-6) Amount: 600 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Sulfuric Acid
CAS: 7664-93-9
[ ] Identical to previous year
[ ] TRADE SECRET
[ ] Pure [x] Mix [ ] Solid [x] Liquid [ ] Gas [x] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [x] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 14000 pounds Max Daily Amt code: 04
Avg Amt: 10500 pounds Avg Daily Amt code: 04
Max quantity in largest container: 7000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 1 Temp: 4 Location: Exterior at DI Water Building (C-6) Amount: 7000 pounds
Container Type: A Pressure: 1 Temp: 4 Location: Exterior at Waste Treatment (B-6) Amount: 7000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Uranium Hexafluoride
CAS: 7783-81-5
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [x] Solid [x] Liquid [x] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [x] Sudden Release of Pressure [x] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 470000 pounds Max Daily Amt code: 05
Avg Amt: 350000 pounds Avg Daily Amt code: 05
Max quantity in largest container: 5000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: L Pressure: 2 Temp: 5 Location: Ubiquitous in Plant Amount: 100000 pounds
Container Type: L Pressure: 3 Temp: 4 Location: Exterior West of Plant (D-7) Amount: 1200000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Uranium Oxide (U3O8)
CAS: 1344-59-8
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [x] Solid [ ] Liquid [ ] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [x] Reactivity [ ] Immediate (acute) [x] Delayed (chronic)
INVENTORY:
Max Amt: 39000 pounds Max Daily Amt code: 04
Avg Amt: 29000 pounds Avg Daily Amt code: 04
Max quantity in largest container: 100 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: N Pressure: 1 Temp: 4 Location: Ubiquitous Inside Plant Amount:
Container Type: R Pressure: 1 Temp: 4 Location: Ubiquitous inside Plant Amount:
Container Type: O Pressure: 1 Temp: 4 Location: Ubiquitous Inside Plant Amount:
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Uranium Oxide (UO2)
CAS: 1344-57-6
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [x] Solid [ ] Liquid [ ] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [x] Reactivity [ ] Immediate (acute) [x] Delayed (chronic)
INVENTORY:
Max Amt: 210000 pounds Max Daily Amt code: 05
Avg Amt: 160000 pounds Avg Daily Amt code: 05
Max quantity in largest container: 4000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: N Pressure: 1 Temp: 4 Location: Ubiquitous insdie plant Amount:
Container Type: R Pressure: 1 Temp: 4 Location: Ubiquitous inside plant Amount:
Container Type: O Pressure: 1 Temp: 4 Location: Ubiquitous inside plant Amount:
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

CHEM NAME: Uranyl Nitrate
CAS: 13520-83-7
[ ] Identical to previous year
[ ] TRADE SECRET
[ ] Pure [x] Mix [x] Solid [x] Liquid [ ] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [x] Reactivity [x] Immediate (acute) [ ] Delayed (chronic)
INVENTORY:
Max Amt: 105000 pounds Max Daily Amt code: 05
Avg Amt: 80000 pounds Avg Daily Amt code: 04
Max quantity in largest container: 16000 pounds
No. of days on-site: 365
STORAGE CODES & STORAGE LOCATIONS:
Container Type: A Pressure: 1 Temp: 4 Location: Exterior South of Plant (C-6) Amount: 95000 pounds
Container Type: C Pressure: 1 Temp: 4 Location: Ubiquitous inside plant Amount: 11000 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

Facility Name: Westinghouse Electric Company

CHEM NAME: Uranyl Nitrate Crystals
CAS: 10102-06-4
[ ] Identical to previous year
[ ] TRADE SECRET
[x] Pure [ ] Mix [x] Solid [ ] Liquid [ ] Gas [ ] EHS
PHYSICAL & HEALTH HAZARDS:
[ ] Fire [ ] Sudden Release of Pressure [x] Reactivity [ ] Immediate (acute) [x] Delayed (chronic)
INVENTORY:
Max Amt: 22000 pounds Max Daily Amt code: 04
Avg Amt: 11000 pounds Avg Daily Amt code: 04
Max quantity in largest container: 37 pounds
No. of days on-site: 180
STORAGE CODES & STORAGE LOCATIONS:
Container Type: D Pressure: 1 Temp: 4 Location: C-6, Exterior At Dock 3 Amount: 17500 pounds
Container Type: D Pressure: 1 Temp: 4 Location: F-5, Interior Plant Amount: 17500 pounds
CHEMICALS IN INVENTORY STATE FIELDS: South Carolina requires some information located under other tabs.

FACILITY STATE FIELDS:
No additional information is required by South Carolina

STATE / LOCAL FEES: None.

[x] I have attached a site plan
[x] I have attached a list of site coordinate abbreviations
[x] I have attached a description of dikes and other safeguard measures

Certification (Read and sign after completing all sections)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in pages one through and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Mark W. Fecteau — Name and official title of owner/operator OR owner/operator's authorized representative

Signature

2/25/2003 — Date signed

Tier Two Emergency and Hazardous Chemical Inventory
Reporting Period From January 1 to December 31, 2003

Facility Identification

Name: Westinghouse Electric Company
Street: 5801 Bluff Road
City: Columbia County: Richland State: SC Zip: 29209
Latitude: 33.8842 Longitude: 80.9175 Country: USA

Owner/Operator Name

Name: Mark Fecteau Phone: 803-647-2104
Mail Address: 5801 Bluff Road
City: Columbia
State: SC Zip: 29209 Country: USA

Mailing Address (if different from facility address)

Street:
City: State: Zip: Country:

SIC Code: 2819 Dun & Bradstreet Number: 062861272

Emergency Contact

Name: Roger Fischer Title: Sr. Engineer
Phone: 803-647-3671 24 Hr. Phone: 803-647-1000
Name: Guard Desk Title: Security Guard
Phone: 24 Hr. Phone: (803) 647-1000

Chemical Description	Physical and Heath Hazards	Inventory	Container Type	Pressure	Temperature	Storage Codes and Locations (Non-Confidential)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS: 68476-30-2 Trade Secret: ☐ Chem. Name: #2 Fuel Oil Check All That Apply: ☒ Pure ☐ Mix ☐ Solid ☐ Liquid ☐ Gas ☐ EHS	☒ Fire ☐ Sudden Release of Pressure ☐ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	05 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A	1	4	EXTERIOR AT TANK FARM (C-7)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS: 1336-21-6 Trade Secret: ☐ Chem. Name: Ammonium Hydroxide Check All That Apply: ☒ Pure ☐ Mix ☐ Solid ☐ Liquid ☐ Gas ☐ EHS	☐ Fire ☐ Sudden Release of Pressure ☐ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	05 Max. Daily Amount (code) 05 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A A	1 1	4 4	EXTERIOR AT TANK FARM (C-7) EXTERIOR AT WASTE TREATMENT

Certification (Read and sign after completing all sections)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in pages one through 6, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Mark W. Fecteau — Name and official title of owner/operator OR owner/operator's authorized representative

Signature

2/25/2003 — Date signed

Optional Attachments

☒ I have attached a site plan
☒ I have attached a list of site coordinate abbreviations
☒ I have attached a description of dikes and other safeguards measures

Facility Name: Westinghouse Electric Company — **Tier Two Continuation Page** — Page 2 of 6

Chemical Description	Physical and Heath Hazards	Inventory	Container Type	Pressure	Temperature	Storage Codes and Locations (Non-Confidential)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 7664-41-7 Trade Secret ☐ Chem. Name Anhydrous Ammonia Check All That Apply: ☒ Pure ☐ Mix ☐ Solid ☐ Liquid ☒ Gas ☒ EHS	☒ Fire ☒ Sudden Release of Pressure ☐ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	05 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A	2	4	Exterior At Tank Farm (C-7)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 1305-78-8 Trade Secret ☐ Chem. Name Calcium Oxide Check All That Apply: ☒ Pure ☐ Mix ☒ Solid ☒ Liquid ☐ Gas ☐ EHS	☐ Fire ☐ Sudden Release of Pressure ☒ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	05 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A	1	4	Exterior South of Plant at Waste Treatment
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 7782-50-5 Trade Secret ☐ Chem. Name Chlorine Check All That Apply: ☒ Pure ☐ Mix ☐ Solid ☐ Liquid ☒ Gas ☒ EHS	☒ Fire ☐ Sudden Release of Pressure ☐ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	02 Max. Daily Amount (code) 02 Avg. Daily Amount (code) 365 No. of Days On-site (days)	L	1	4	Exterior At Sanitary Lagoon (C-7)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 1333-74-0 Trade Secret ☐ Chem. Name Hydrogen Check All That Apply: ☒ Pure ☐ Mix ☐ Solid ☐ Liquid ☒ Gas ☐ EHS	☒ Fire ☒ Sudden Release of Pressure ☐ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	03 Max. Daily Amount (code) 03 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A	2	6	Exterior at Tank Farm (C-7)

Facility Name: Westinghouse Electric Company — **Tier Two Continuation Page** — Page 3 of 6

Chemical Description	Physical and Heath Hazards	Inventory	Container Type	Pressure	Temperature	Storage Codes and Locations (Non-Confidential)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 7664-39-3 Trade Secret ☐ Chem. Name Hydrogen Fluoride (48 % HF Acid) Check All That Apply: ☐ Pure ☒ Mix ☐ Solid ☐ Liquid ☐ Gas ☒ EHS	☐ Fire ☐ Sudden Release of Pressure ☒ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	04 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A	1	4	Exterior south of plant (C-6)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 7440-37-1 Trade Secret ☐ Chem. Name Liquid Argon Check All That Apply: ☒ Pure ☐ Mix ☐ Solid ☐ Liquid ☒ Gas ☐ EHS	☐ Fire ☒ Sudden Release of Pressure ☐ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	04 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A A	2 2	7 7	Exterior at Tank Farm (C-7) Exterior North of Plant (E-6)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 7727-37-9 Trade Secret ☐ Chem. Name Liquid Nitrogen Check All That Apply: ☒ Pure ☐ Mix ☐ Solid ☐ Liquid ☒ Gas ☐ EHS	☐ Fire ☒ Sudden Release of Pressure ☐ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	05 Max. Daily Amount (code) 05 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A A	2 2	6 6	Exterior at Tank Farm (C-7) Exterior Near Chem Lab Entrance(C-5)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 7697-37-2 Trade Secret ☐ Chem. Name Nitric Acid Check All That Apply: ☐ Pure ☒ Mix ☐ Solid ☐ Liquid ☐ Gas ☒ EHS	☒ Fire ☐ Sudden Release of Pressure ☒ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	05 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A	1	4	Exterior at Tank Farm (C-7)

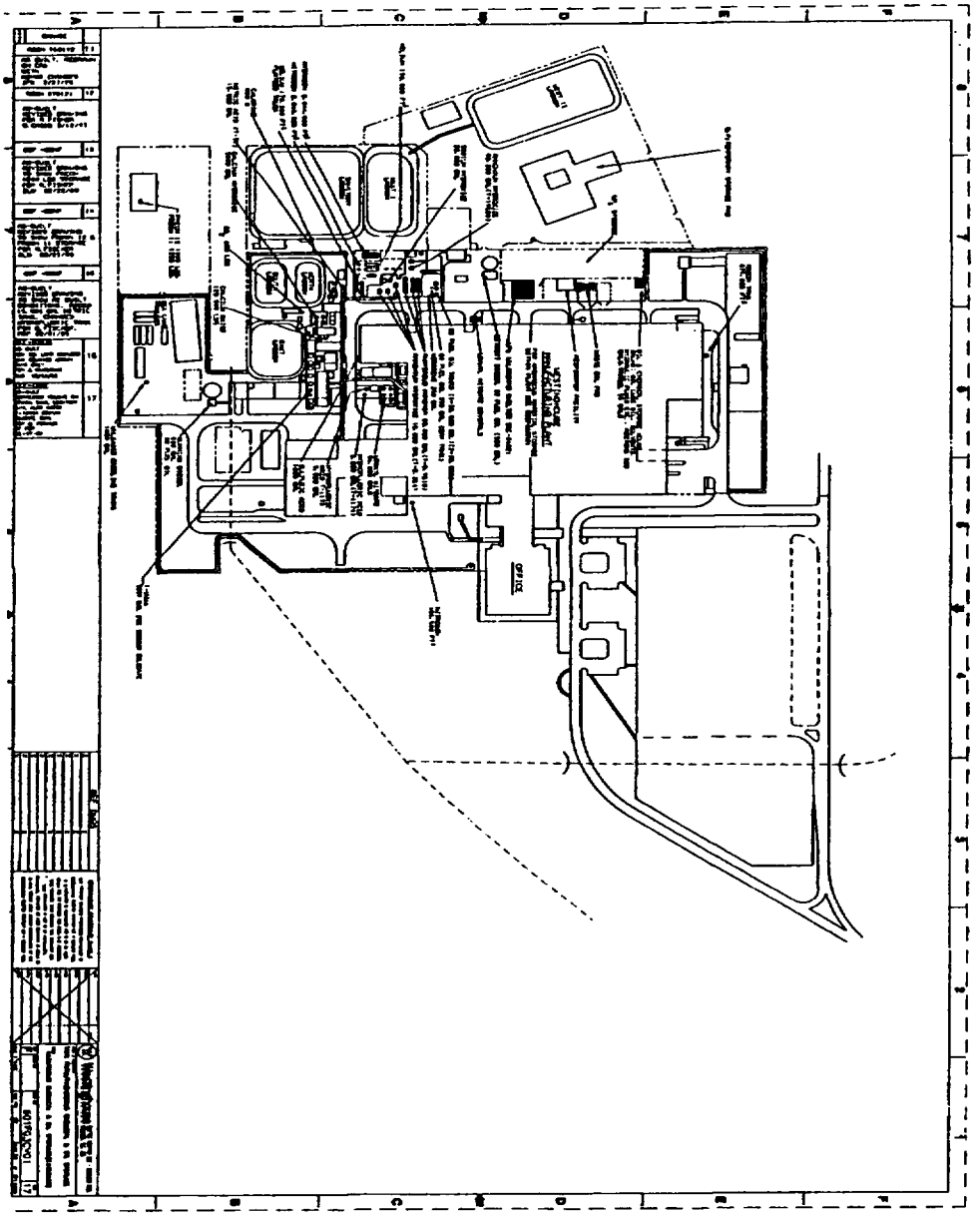
Chemical Description	Physical and Heath Hazards	Inventory	Container Type	Pressure	Temperature	Storage Codes and Locations (Non-Confidential)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 1310-73-2 Trade Secret ☐ Chem. Name Sodium Hydroxide Check All That Apply: ☐ Pure ☒ Mix ☐ Solid ☐ Liquid ☐ Gas ☐ EHS	☐ Fire ☐ Sudden Release of Pressure ☒ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	04 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A	1	4	Exterior At Tank Farm (C-7)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 1344-09-8 Trade Secret ☐ Chem. Name Sodium Silicate Check All That Apply: ☒ Pure ☐ Mix ☐ Solid ☐ Liquid ☐ Gas ☐ EHS	☐ Fire ☐ Sudden Release of Pressure ☐ Reactivity ☒ Immediate (acute) ☒ Delayed (chronic)	04 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A	1	4	Exterior south of Plant at Waste Treatment
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 7446-09-5 Trade Secret ☐ Chem. Name Sulfur Dioxide Check All That Apply: ☒ Pure ☐ Mix ☐ Solid ☐ Liquid ☒ Gas ☒ EHS	☐ Fire ☐ Sudden Release of Pressure ☒ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	02 Max. Daily Amount (code) 02 Avg. Daily Amount (code) 365 No. of Days On-site (days)	L	1	4	Exterior At Waste Treatment (B-6)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 7664-93-9 Trade Secret ☐ Chem. Name Sulfuric Acid Check All That Apply: ☐ Pure ☒ Mix ☐ Solid ☐ Liquid ☐ Gas ☒ EHS	☐ Fire ☐ Sudden Release of Pressure ☒ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	04 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A A	1 1	4 4	Exterior at DI Water Building (C-6) Exterior at Waste Treatment (B-6)

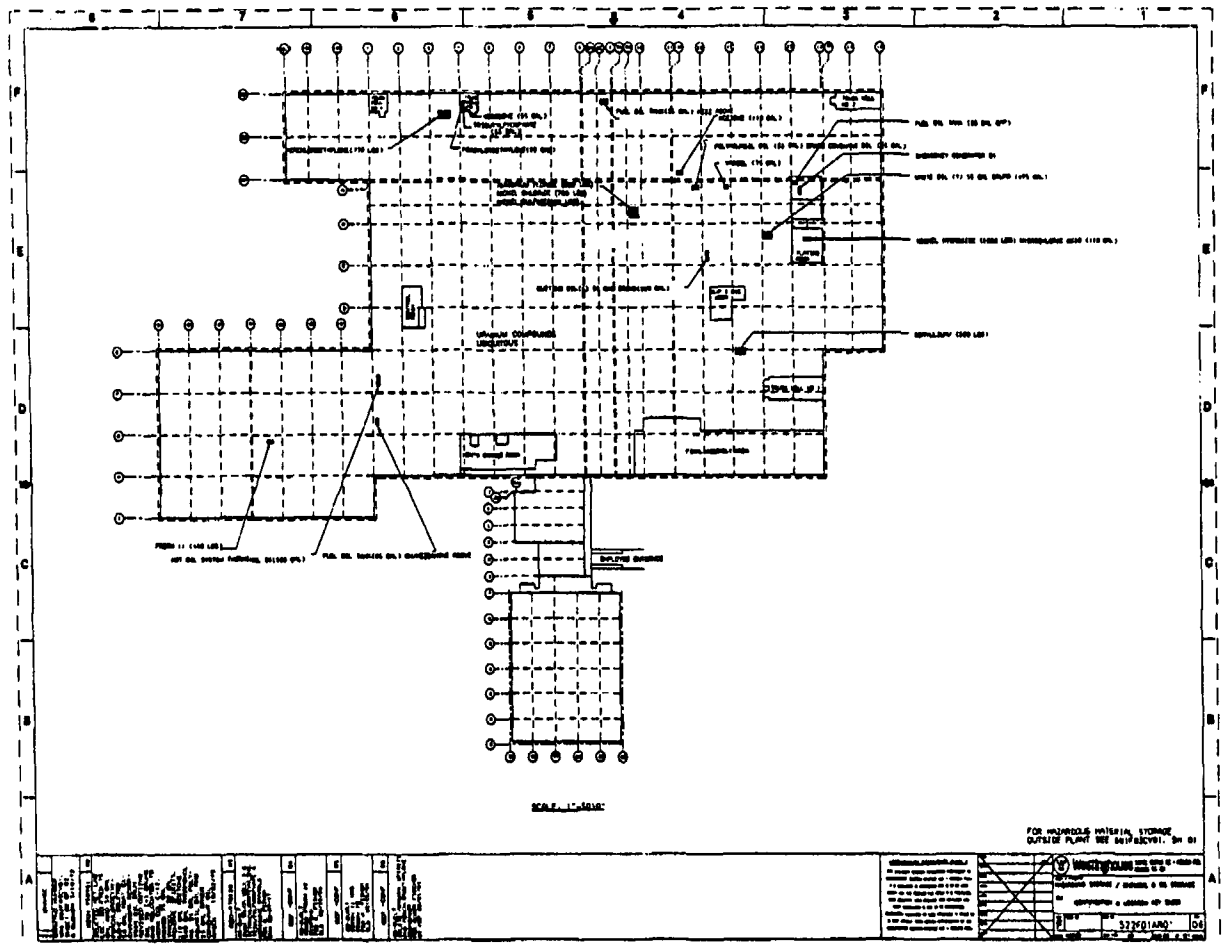
Facility Name: Westinghouse Electric Company — **Tier Two Continuation Page** — Page 5 of 6

Chemical Description	Physical and Heath Hazards	Inventory	Container Type	Pressure	Temperature	Storage Codes and Locations (Non-Confidential)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 7783-81-5 Trade Secret ☐ Chem. Name Uranium Hexafluoride Check All That Apply: ☒ Pure ☐ Mix ☒ Solid ☒ Liquid ☒ Gas ☐ EHS	☐ Fire ☒ Sudden Release of Pressure ☒ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	05 Max. Daily Amount (code) 05 Avg. Daily Amount (code) 365 No. of Days On-site (days)	L	2	5	Ubiquitous in Plant
			L	3	4	Exterior West of Plant (D-7)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 1344-59-8 Trade Secret ☐ Chem. Name Uranium Oxide (U3O8) Check All That Apply: ☒ Pure ☐ Mix ☒ Solid ☒ Liquid ☐ Gas ☐ EHS	☐ Fire ☐ Sudden Release of Pressure ☒ Reactivity ☐ Immediate (acute) ☒ Delayed (chronic)	04 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	N	1	4	Ubiquitous Inside Plant
			R	1	4	Ubiquitous inside Plant
			O	1	4	Ubiquitous Inside Plant
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 1344-57-6 Trade Secret ☐ Chem. Name Uranium Oxide (UO2) Check All That Apply: ☒ Pure ☐ Mix ☒ Solid ☒ Liquid ☐ Gas ☐ EHS	☐ Fire ☐ Sudden Release of Pressure ☒ Reactivity ☐ Immediate (acute) ☒ Delayed (chronic)	05 Max. Daily Amount (code) 05 Avg. Daily Amount (code) 365 No. of Days On-site (days)	N	1	4	Ubiquitous insdie plant
			R	1	4	Ubiquitous inside plant
			O	1	4	Ubiquitous inside plant
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 13520-83-7 Trade Secret ☐ Chem. Name Uranyl Nitrate Check All That Apply: ☐ Pure ☒ Mix ☒ Solid ☒ Liquid ☐ Gas ☐ EHS	☐ Fire ☐ Sudden Release of Pressure ☒ Reactivity ☒ Immediate (acute) ☐ Delayed (chronic)	05 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 365 No. of Days On-site (days)	A	1	4	Exterior South of Plant (C-6)
			C	1	4	Ubiquitous inside plant

Facility Name: Westinghouse Electric Company — Tier Two Continuation Page — Page 6 of 6

Chemical Description	Physical and Heath Hazards	Inventory	Container Type	Pressure	Temperature	Storage Codes and Locations (Non-Confidential)
☐ Check if all of the information for this chemical is identical to the information submitted last year CAS 10102-06-4 Trade Secret ☐ Chem. Name Uranyl Nitrate Crystals Check All That Apply: ☒ Pure ☐ Mix ☒ Solid ☒ Liquid ☐ Gas ☐ EHS	☐ Fire ☐ Sudden Release of Pressure ☒ Reactivity ☐ Immediate (acute) ☒ Delayed (chronic)	04 Max. Daily Amount (code) 04 Avg. Daily Amount (code) 180 No. of Days On-site (days)	D	1	4	C-6, Exterior At Dock 3
			D	1	4	F-5, Interior Plant





Attachment 2 National Pollutant Discharge Elimination System (NPDES) Permit

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

June 2, 2004

Mr. Mark W. Fecteau, Plant Manager
Westinghouse Electric Corp LLC
PO Drawer R
Columbia, South Carolina 29250

RE: WESTINGHOUSE ELEC LLC/COLUMBIA
NPDES Permit # SC0001848
Richland County

Dear Mr. Fecteau:

Enclosed is the National Pollutant Discharge Elimination System (NPDES) Permit for the above referenced facility. The Department of Health and Environmental Control (DHEC) will enforce all the provisions of this permit in an equitable and timely manner.

In order that you understand your responsibilities included in the provisions of this permit, particular attention should be given to the following sections:

1. PART II.E: This section contains your responsibilities for the proper operation and maintenance of your facility.

2. PART II.L.3: This section describes the specific requirements for an NPDES permit to be transferred to another party.

3. PART II.L.4: This section contains your responsibilities for reporting monitoring results. Preprinted Discharge Monitoring Report (DMR) forms are provided by DHEC for reporting monitoring results. A new preprinted DMR form will be sent to you at a later date, but prior to the date specified for submittal in Part II.L.4.a.(1).

4. PART III.A: This section contains listings of effluent characteristics, discharge limitations, and monitoring requirements.

5. PART V: This section contains all the special requirements relative to your permit. Such items in this section include the certified operator required to operate your wastewater treatment plant, the day of the week on which monitoring shall occur, sludge disposal requirements, and whole effluent toxicity requirements.

This permit, as issued, will become effective on the effective date specified on the permit, provided no appeal for an adjudicatory hearing is made. The issuance of the permit represents a final staff decision that may be appealed to the Board of DHEC. Such appeal must be made within fifteen (15) days of the receipt of the permit.

In the event an appeal is filed, the entire reissued permit is automatically stayed. After the start of the administrative review any party may request the Administrative Law Judge (ALJ) to lift the automatic stay. The ALJ will then determine which portions of the permit, if any, will go into effect before the administrative review has been completed. The applicable portions of the previous permit will continue in effect until the administrative review has been completed.

If you wish to appeal the staff's decision, you must submit an initial pleading in accordance with Regulation 61-72, Volume 25, S.C. Code of Laws, 1976, as amended. As required by this regulation, the initial pleading must be served on the Board of SCDHEC, Attn: Clerk of the Board, 2600 Bull Street, Columbia, S.C. 29201, (803)898-3300. The submission of the initial appeal will be within the time period if delivered by First Class mail or other parcel delivery service on or before the fifteenth day.

The following elements must be included within the request:

1. The name of the party requesting the hearing and the issue(s) for which the hearing is requested;
2. The caption or other information sufficient to identify the permit decision being appealed; and
3. The relief requested.

In addition, the Administrative Law Court now requires that a person requesting a contested case hearing must file a copy of the request and a filing fee in the amount of $250.00 with the Administrative Law Court at the following address:

Clerk, Administrative Law Court
1205 Pendleton Street, Suite 224
P.O. Box 11667
Columbia, SC 29211

If you have any questions about the technical aspects of this permit, please contact Mr. Butch Swygert at (803) 898-4235. Information pertaining to adjudicatory matters may be obtained by contacting the Legal Office, SCDHEC, 2600 Bull Street, Columbia, S.C. 29201, or by calling them at (803) 898-3350.

Sincerely,

Marion F. Sadler, Jr.

Marion F. Sadler, Jr. Director
Industrial, Agricultural, and Storm Water Permitting Division

Enclosure
cc: EPA (w/e)
Betty Lou Foster, NPDES Permit Administration
Enforcement Section (w/e)
District Office (w/e)

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

National Pollutant Discharge Elimination System Permit

for Discharge to Surface Waters

This Permit Certifies That

Westinghouse Electric Company, LLC

has been granted permission to discharge from a facility located at

5801 Bluff Road
Columbia, SC
Richland County

to receiving waters named

Congaree River

in accordance with limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Pollution Control Act of South Carolina (S.C. Code Sections 48-1-10 *et seq.*, 1976), Regulation 61-9 and with the provisions of the Federal Clean Water Act (PL 92-500), as amended, 33 U.S.C. 1251 *et seq.*, the "Act."

Marion F. Sadler, Jr., Director
Industrial, Agricultural, and Storm Water Permitting Division
Bureau of Water

Issue Date: **June 2, 2004** ***Expiration Date:*** **June 30, 2009**

Effective Date: **July 1, 2004** ***Permit No.:*** **SC0001848**

Table of Contents

PART I. Definitions

Any term not defined in this Part has the definition stated in the Pollution Control Act or in "Water Pollution Control Permits", R.61-9 or its normal meaning.

A. The "Act", or CWA, shall refer to the Clean Water Act (Formerly referred to as the Federal Water Pollution Control Act) Public Law 92-500, as amended.

B. The "arithmetic mean" of any set of values is the summation of the individual values divided by the number of individual values.

C. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

D. A "composite sample" shall be defined as one of the following four types:

1. An influent or effluent portion collected continuously over a specified period of time at a rate proportional to the flow.

2. A combination of not less than 8 influent or effluent grab samples collected at regular (equal) intervals over a specified period of time and composited by increasing the volume of each aliquot in proportion to flow. If continuous flow measurement is not used to composite in proportion to flow, the following method will be used: An instantaneous flow measurement should be taken each time a grab sample is collected. At the end of the sampling period, the instantaneous flow measurements should be summed to obtain a total flow. The instantaneous flow measurement can then be divided by the total flow to determine the percentage of each grab sample to be combined. These combined samples form the composite sample.

3. A combination of not less than 8 influent or effluent grab samples of equal volume but at variable time intervals that are inversely proportional to the volume of the flow. In other words, the time interval between aliquots is reduced as the volume of flow increases.

4. If the effluent flow varies by less than 15 percent, a combination of not less than 8 influent or effluent grab samples of constant (equal) volume collected at regular (equal) time intervals over a specified period of time.

All samples shall be properly preserved in accordance with Part II.J.4. Continuous flow or the sum of instantaneous flows measured and averaged for the specified compositing time period shall be used with composite results to calculate mass.

E. "Daily maximum" is the highest average value recorded of samples collected on any single day during the calendar month.

F. "Daily minimum" is the lowest average value recorded of samples collected on any single day during the calendar month.

G. The "Department" shall refer to the South Carolina Department of Health and Environmental Control.

H. The "geometric mean" of any set of values is the Nth root of the product of the individual values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the

logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered to be one (1).

I. A "grab sample" is an individual, discrete or single influent or effluent portion of at least 100 milliliters collected at a time representative of the discharge and over a period not exceeding 15 minutes and retained separately for analysis. Instantaneous flow measured at the time of grab sample collection shall be used to calculate quantity, unless a totalizer is used.

J. The "maximum or minimum" is the highest or lowest value, respectively, recorded of all samples collected during the calendar month. These terms may also be known as the instantaneous maximum or minimum.

K. The "monthly average", other than for fecal coliform, is the arithmetic mean of all samples collected in a calendar month period. The monthly average for fecal coliform bacteria is the geometric mean of all samples collected in a calendar month period. The monthly average loading is the arithmetic average of all individual loading determinations made during the month.

L. The "practical quantitation limit (PQL)" is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. It is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specific sample weights, volumes, and processing steps have been followed.

M. "Quarter" is defined as the first three calendar months beginning with the month that this permit becomes effective and each group of three calendar months thereafter.

N. "Quarterly average" is the arithmetic mean of all samples collected in a quarter.

O. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

P. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Q. "Weekly average", other than for fecal coliform, is the arithmetic mean of all the samples collected during a one-week period. The weekly average for fecal coliform is the geometric mean of all samples collected during a one-week period. For self-monitoring purposes, weekly periods in a calendar month are defined as three (3) consecutive seven-day intervals starting with the first day of the calendar month and a fourth interval containing seven (7) days plus those days beyond the 28th day in a calendar month. The value to be reported is the single highest of the four (4) weekly averages computed during a calendar month. The weekly average loading is the arithmetic average of all individual loading determinations made during the week.

PART II. Standard Conditions

A. Duty to comply

The permittee must comply with all conditions of the permit. Any permit noncompliance constitutes a violation of the Clean Water Act and the Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

1. a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

   b. It is the responsibility of the permittee to have a treatment facility that will meet the final effluent limitations of this permit. The approval of plans and specifications by the Department does not relieve the permittee of responsibility for compliance.

2. Failure to comply with permit conditions or the provisions of this permit may subject the permittee to civil penalties under S.C. Code Section 48-1-330 or criminal sanctions under S.C. Code Section 48-1-320. Sanctions for violations of the Federal Clean Water Act may be imposed in accordance with the provisions of 40 CFR Part 122.41(a)(2) and (3).

3. A person who violates any provision of this permit, a term, condition or schedule of compliance contained within this NPDES permit, or the State law is subject to the actions defined in the State law.

B. Duty to reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. A permittee with a currently effective permit shall submit a new application 180 days before the existing permit expires, unless permission for a later date has been granted by the Department. The Department may not grant permission for applications to be submitted later than the expiration date of the existing permit.

C. Need to halt or reduce activity not a defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper operation and maintenance

1. The permittee shall at all times properly operate and maintain in good working order and operate as efficiently as possible all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance based on design facility removals, adequate funding, adequate operator staffing and training and also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Power Failures. In order to maintain compliance with effluent limitations and prohibitions of this permit, the permittee shall either:

   a. provide an alternative power source sufficient to operate the wastewater control facilities;

   b. or have a plan of operation which will halt, reduce, or otherwise control production and/or all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

3. The permittee shall maintain at the permitted facility a complete Operations and Maintenance Manual for the waste treatment plant. The manual shall be made available for on-site review during normal working hours. The manual shall contain operation and maintenance instructions for all equipment and appurtenances associated with the waste treatment plant and land application system. The manual shall contain a general description of the treatment process(es), operating characteristics that will produce maximum treatment efficiency and corrective action to be taken should operating difficulties be encountered.

4. The permittee shall provide for the performance of routine daily treatment plant inspections by a certified operator of the appropriate grade as specified in Part V. The inspection shall include, but is not limited to, areas which require a visual observation to determine efficient operations and for which immediate corrective measures can be taken using the O & M manual as a guide. All inspections shall be recorded and shall include the date, time and name of the person making the inspection, corrective measures taken, and routine equipment maintenance, repair, or replacement performed. The permittee shall maintain all records of inspections at the permitted facility as required by this permit. Records shall be made available for on-site review during normal working hours.

5. The name and grade of the operator of record shall be submitted to DHEC/Bureau of Water/Water Enforcement Division prior to placing the facility into operation. A roster of operators associated with the facility's operation and their certification grades shall also be submitted with the name of the "operator-in-charge". Any changes in operator or operators shall be submitted to the Department as they occur.

F. Permit actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

G. Property rights

This permit does not convey any property rights of any sort, or any exclusive privilege nor does it authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

H. Duty to provide information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

I. Inspection and entry

The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act and Pollution Control Act, any substances or parameters at any location.

J. Monitoring and records

1. a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

   b. Flow Measurements

   Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be present and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 10% from the true discharge rates throughout the range of expected discharge volumes. The primary flow device must be accessible to the use of a continuous flow recorder.

c. The permittee shall maintain at the permitted facility a record of the method(s) used in measuring the discharge flow for the outfall(s) designated on limits pages to monitor flow. Records of any necessary calibrations must also be kept. This information shall be made available for on-site review by Department personnel during normal working hours.

2. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by R.61-9.503 or R.61-9.504), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

3. Records of monitoring information shall include:

   a. The date, exact place, and time of sampling or measurements;

   b. The individual(s) who performed the sampling or measurements;

   c. The date(s) analyses were performed;

   d. The individual(s) who performed the analyses;

   e. The analytical techniques or methods used; and

   f. The results of such analyses.

4. a. Monitoring results for wastewater must be conducted according to test procedures approved under 40 CFR Part 136, equivalent test procedures approved by DHEC's Division of Laboratory Certification or other test procedures that have been specified in the permit.

   In the case of sludge use or disposal, monitoring results must be conducted according to test procedures approved under 40 CFR Part 136, test procedures specified in R.61-9.503 or R.61-9.504, equivalent test procedures approved by DHEC's Division of Laboratory Certification or other test procedures that have been specified in the permit.

   b. Unless addressed elsewhere in this permit, the permittee shall use a sufficiently sensitive analytical method that achieves a value below the derived permit limit stated in Part III. If more than one method of analysis is approved for use, the Department recommends for reasonable potential determinations that the permittee use the method having the lowest practical quantitation limit (PQL) unless otherwise specified in Part V of the permit. For the purposes of reporting analytical data on the Discharge Monitoring Report (DMR):

      (1) Analytical results below the PQL conducted using a method in accordance with Part II.J.4.a above shall be reported as zero (0). Zero (0) shall also be used to average results which are below the PQL. When zero (0) is reported or used to average results, the permittee shall report, in the

"Comment Section" or in an attachment to the DMR, the analytical method used, the PQL achieved, and the number of times results below the PQL were reported as zero (0).

(2) Analytical results above the PQL conducted using a method in accordance with Part II.J.4.a shall be reported as the value achieved. When averaging results using a value containing a "less than," the average shall be calculated using the value and reported as "less than" the average of all results collected.

(3) Mass values shall be calculated using the flow taken at the time of the sample and either the concentration value actually achieved or the value as determined from the procedures in (1) or (2) above, as appropriate.

5. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

K. Signatory requirement.

1. All applications, reports, or information submitted to the Department shall be signed and certified.

a. Applications. All permit applications shall be signed as follows:

(1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or

(b) The manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency or public facility: By either a principal executive officer, mayor, or other duly authorized employee or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(a) The chief executive officer of the agency, or

(b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator, Region IV, EPA).

b. All reports required by permits, and other information requested by the Department, shall be signed by a person described in Part II.K.1.a of this section, or by a duly authorized representative of that person. A person is a duly authorized representative if:

(1) The authorization is made in writing by a person described in Part II.K.1.a of this section;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) and,

(3) The written authorization is submitted to the Department.

c. Changes to authorization. If an authorization under Part II.K.1.b of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part II.K.1.b of this section must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

d. Certification. Any person signing a document under Part II.K.1.a or b of this section shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

2. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

L. Reporting requirements

1. Planned changes.

The permittee shall give written notice to DHEC/Bureau of Water/Industrial, Agricultural and Storm Water Permitting Division as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in R 61-9.122.29(b); or

b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Part II.L.8 of this section.

c. The alteration or addition results in a significant change in the permittee's sewage sludge or industrial sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan (included in the NPDES permit directly or by reference);

2. Anticipated noncompliance.

The permittee shall give advance notice to the DHEC/Bureau of Water/Water Enforcement Division of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers.

This permit is not transferable to any person except after written notice to the DHEC/Bureau of Water/NPDES Administration. The Department may require modification or revocation and reissuance of the permit to change the name of permittee and incorporate such other requirements as may be necessary under the Pollution Control Act and the Clean Water Act.

a. Transfers by modification. Except as provided in paragraph b of this section, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued (under R.61-9.122.62(e)(2)), or a minor modification made (under R.61-9.122.63(d)), to identify the new permittee and incorporate such other requirements as may be necessary under CWA.

b. Other transfers. As an alternative to transfers under paragraph a of this section, any NPDES permit may be transferred to a new permittee if:

(1) The current permittee notifies the Department at least 30 days in advance of the proposed transfer date in Part II.L.3.b(2) of this section;

(2) The notice includes U.S. EPA NPDES Application Form 1 and a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

(3) Permits are non-transferable except with prior consent of the Department. A modification under this section is a minor modification which does not require public notice.

4. Monitoring reports.
Monitoring results shall be reported at the intervals specified elsewhere in this permit.

a. Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Department for reporting results of monitoring of sludge use or disposal practices including the following:

(1) Effluent Monitoring: Effluent monitoring results obtained at the required frequency shall be reported on a Discharge Monitoring Report Form (EPA Form 3320-1). The DMR is due postmarked no later than the 28th day of the month following the end of the monitoring period. One original and one copy of the Discharge Monitoring Reports (DMRs) shall be submitted to:

S.C. Department of Health and Environmental Control
Bureau of Water/Compliance Assurance Division
Permit and Data Administration Section
2600 Bull Street
Columbia, South Carolina 29201

(2) Groundwater Monitoring: Groundwater monitoring results obtained at the required frequency shall be reported on a Groundwater Monitoring Report Form (DHEC 2110) postmarked no later than the 28th day of the month following the end of the monitoring period. One original and one copy of the Groundwater Monitoring Report Form (DHEC 2110) shall be submitted to:

S.C. Department of Health and Environmental Control
Bureau of Water/Water Monitoring, Assessment and Protection Division
Groundwater Quality Section
2600 Bull Street
Columbia, South Carolina 29201

(3) Sludge, Biosolids and/or Soil Monitoring: Sludge, biosolids and/or soil monitoring results obtained at the required frequency shall be reported in a laboratory format postmarked no later than the 28th day of the month following the end of the monitoring period. Two copies of these results shall be submitted to:

S.C. Department of Health and Environmental Control
Bureau of Water/Water Enforcement Division
Water Pollution Enforcement Section
2600 Bull Street
Columbia, South Carolina 29201

(4) All other reports required by this permit shall be submitted at the frequency specified elsewhere in the permit to:
S.C. Department of Health and Environmental Control
Bureau of Water/Water Enforcement Division
Water Pollution Enforcement Section
2600 Bull Street
Columbia, South Carolina 29201

b. If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part

136 unless otherwise specified in R.61-9.503 or R.61-9.504, or as specified in the permit, all valid results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Department. The permittee has sole responsibility for scheduling analyses, other than for the sample data specified in Part V, so as to ensure there is sufficient opportunity to complete and report the required number of valid results for each monitoring period.

c. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Department in the permit.

5. Twenty-four hour reporting

a. The permittee shall report any non-compliance, which may endanger health or the environment. Any information shall be provided orally to local DHEC office within 24 hours from the time the permittee becomes aware of the circumstances. During normal working hours call:

County	EQC District	Phone No.
Anderson Oconee	Appalachia I	864-260-5569
Greenville Pickens	Appalachia II	864-241-1090
Cherokee, Spartanburg Union	Appalachia III	864-596-3800
Chester, Lancaster York	Catawba	803-285-7461
Fairfield, Lexington Newberry, Richland	Central Midlands	803-896-0620
Aiken, Allendale, Bamberg, Barnwell, Calhoun, Orangeburg	Edisto Savannah	803-641-7670
Beaufort, Colleton Hampton, Jasper	Low Country	843-846-1030
Chesterfield, Darlington, Dillon, Florence, Marion, Marlboro	Pee Dee	843-661-4825
Berkeley, Charleston Dorchester	Trident	843-740-1590
Abbeville, Edgefield, Greenwood Laurens, McCormick, Saluda	Upper Savannah	864-223-0333
Georgetown, Horry Williamsburg	Waccamaw	843-448-1902
Clarendon, Kershaw Lee, Sumter	Wateree	803-778-1531

After-hour reporting should be made to the 24-Hour Emergency Response telephone number 803-253-6488 or 1-888-481-0125 outside of the Columbia area. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances to the address in Part

II.L.4.a(4). The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

b. The following shall be included as information which must be reported within 24 hours under this paragraph.

(1) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See R.61-9.122.44(g)).

(2) Any upset which exceeds any effluent limitation in the permit.

(3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit to be reported within 24 hours (See R 61-9.122.44(g)). If the permit contains maximum limitations for any of the pollutants listed below, a violation of the maximum limitations shall be reported orally to the DHEC/Bureau of Water/Water Enforcement Division within 24 hours or the next business day.

(a) Whole Effluent Toxicity (WET),
(b) tributyl tin (TBT), and
(c) any of the following bioaccumulative pollutants:

α BHC	Lindane
β BHC	Mercury
δ BHC	Mirex
BHC	Octachlorostyrene
Chlordane	PCBs
DDD	Pentachlorobenzene
DDE	Photomirex
DDT	1,2,3,4-Tetrachlorobenzene
Dieldrin	1,2,4,5-Tetrachlorobenzene
Hexachlorobenzene	2,3,7,8-TCDD
Hexachlorobutadiene	Toxaphene

c. The Department may waive the written report on a case-by-case basis for reports under Part II.L.5.b of this section if the oral report has been received within 24 hours.

6. Other noncompliance.

The permittee shall report all instances of noncompliance not reported under Part II.L.4 and 5 of this section and Part IV at the time monitoring reports are submitted. The reports shall contain the information listed in Part II.L.5 of this section.

7. Other information.

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly

submit such facts or information to the Industrial, Agricultural and Storm Water Permitting Division. This information may result in permit modification, revocation and reissuance, or termination in accordance with Regulation 61-9.

8. Existing manufacturing, commercial, mining, and silvicultural dischargers.

In addition to the reporting requirements under Part II.L.1 of this section, all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the DHEC/Bureau of Water/Water Enforcement Division of the Department as soon as they know or have reason to believe:

a. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(1) One hundred micrograms per liter (100 µg/l);

(2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application; or

(4) The level established by the Department in accordance with section R.61-9.122.44(f).

b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed in the highest of the following notification levels :

(1) Five hundred micrograms per liter (500 µg/l);

(2) One milligram per liter (1 mg/l) for antimony;

(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with R.61-9.122.21(g)(7).

(4) The level established by the Department in accordance with section R.61-9.122.44(f).

M. Bypass

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Part II.M.2 and 3 of this section.

2. Notice.

a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of the bypass to the DHEC/Bureau of Water/ Industrial, Agricultural and Storm Water Permitting Division.

b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part II.L.5 of this section.

3. Prohibition of bypass

a. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Part II.M.2 of this section.

b. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in Part II.M.3.a of this section.

N. Upset

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Part II.N.2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and that the permittee can identify the cause(s) of the upset;

b. The permitted facility was at the time being properly operated; and

c. The permittee submitted notice of the upset as required in Part II.L.5.b(2) of this section.

d. The permittee complied with any remedial measures required under Part II.D of this section.

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

O. Misrepresentation of Information

1. Any person making application for a NPDES discharge permit or filing any record, report, or other document pursuant to a regulation of the Department, shall certify that all information contained in such document is true. All application facts certified to by the applicant shall be considered valid conditions of the permit issued pursuant to the application.

2. Any person who knowingly makes any false statement, representation, or certification in any application, record, report, or other documents filed with the Department pursuant to the State law, and the rules and regulations pursuant to that law, shall be deemed to have violated a permit condition and shall be subject to the penalties provided for pursuant to 48-1-320 or 48-1-330.

Part III. Limitations and Monitoring Requirements

A. Effluent Limitations and Monitoring Requirements

1. During the period beginning on the effective date of this permit and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 001: Process wastewater, utility water, and domestic wastewater.

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	Mass		Concentration			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Sampling Frequency	Sample Type
Flow	MR[1], MGD	MR[1], MGD	-	-	Daily	Continuous[2]
pH			Min 6.0 su, Max 9.0 su[3]		Daily	Continuous
Dissolved Oxygen (DO)			Minimum 1.0 mg/l		1/Week	Grab
Biochemical Oxygen Demand (BOD5)	30.0 lbs/day	60.0 lbs/day	MR[1] mg/l	MR[1] mg/l	1/Week	24-Hr Composite
Total Suspended Solids (TSS)	32.0 lbs/day	64.0 lbs/day	MR[1]mg/l	MR[1] mg/l	1/Week	24-Hr Composite
Ammonia-Nitrogen, Total as N	50.0 lbs/day	100.0 lbs/day	MR[1] mg/l	MR[1] mg/l	1/Week	24-Hr Composite
Fecal Coliform	-	-	200/100 ml	400/100 ml	1/Month	Grab
Total Residual Chlorine (TRC)	-	-	-	1.0 mg/l	1/Month	Grab
Fluoride	-	-	MR mg/l	MR mg/l	1/Quarter	24-Hr Composite
Phosphorus[4]	-	-	MR mg/l	MR mg/l	1/Month	24-Hr Composite

[1]MR: Monitor and Report
[2]See Part II.J.1
[3]See Part I.J. and Part V.A.2
[4]See Part V.E.1

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): after treatment but prior to mixing with the receiving stream.

B. Effluent Toxicity Limitations and Monitoring Requirements

During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall 001: Process wastewater, utility water, and domestic wastewater.

Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	Quarterly Average[1]	Maximum[1]	Measurement Frequency	Sample Type
Ceriodaphnia dubia Chronic Whole Effluent Toxicity @ CTC=1.0 %	MR %[2]	MR %[2]	1/year[3]	24 hour composite
Ceriodaphnia dubia Chronic Whole Effluent Toxicity-Reproduction @ CTC=1.0%	MR %[2]	MR %[2]	1/year[3]	24 hour composite
Ceriodaphnia dubia Chronic Whole Effluent Toxicity- 7-day Survival @ CTC=1.0%	MR %[2]	MR %[2]	1/year[3]	24 hour composite

[1]Yearly average is defined as the mean of percent effects for all valid tests performed during the monitoring period following the procedures given in Part V.B.1.d. Maximum is defined as the highest percent effect of all valid tests performed during the monitoring period following the procedures in Part V.B.1.d.
[2] See Part V.B.1 for additional toxicity reporting requirements. MR = Monitor and Report.
[3] Valid tests must be separated by at least 13 days (from the time the first sample is taken to start one test until the time the first sample is taken to start a different test). There is no restriction on when a new test may begin following a failed or invalid test.

a. Samples used to demonstrate compliance with the discharge limitations and monitoring requirements specified above shall be taken at or near the final point-of-discharge but, prior to mixing with the receiving waters or other waste streams.
b. If only one valid test is conducted during a year, results from that test must be used to assess compliance with the quarterly average limit as well as the maximum limit. If more than one valid test is completed during the quarter, the mean percent inhibition of all valid tests must be used to demonstrate compliance with the quarterly average limit.
c. Valid test results from split samples shall be reported on the DMR. For reporting an average on the DMR, individual valid results for each test from a split sample are averaged first to determine a sample value. That value is averaged with other sample results obtained in the reporting period and the average of all sample results reported. For reporting the maximum on the DMR, individual valid results for each test from a split sample are averaged first to determine a sample value. That value is compared to other sample results obtained in the reporting period and the maximum of all sample results reported. For the purposes of reporting, split samples are reported as a single sample regardless of the number of times it is split. All laboratories used shall be identified on the DMR attachment.

C. Groundwater Monitoring Requirements

1. a. During the period beginning the effective date of this permit and lasting through the expiration date, groundwater monitoring wells W-7, W-10, W-13, W-15, W-16, W-18, W-22, W-24, W-29, W-30 and W-32 shall be sampled by the permittee as specified below:

PARAMETER	MEASUREMENT FREQUENCY	SAMPLE METHOD
Field pH	2/Year	Direct Measurement
Field Specific Conductivity	2/Year	Direct Measurement
Groundwater Elevation (ft, msl)	2/Year	Direct Measurement
Fluoride	2/Year	Pump or Bailer Method
Nitrate	2/Year	Pump or Bailer Method
Gross Alpha	2/Year	Pump or Bailer Method
Gross Beta	2/Year	Pump or Bailer Method

1. b. During the period beginning the effective date of this permit and lasting through the expiration date, groundwater monitoring wells W-26, W-41, W-48 and RW-2 shall be sampled by the permittee as specified below:

PARAMETER	MEASUREMENT FREQUENCY	SAMPLE METHOD
Field pH	2/Year	Direct Measurement
Field Specific Conductivity	2/Year	Direct Measurement
Groundwater Elevation (ft, msl)	2/Year	Direct Measurement
Volatile Organic Compounds	2/Year	Pump or Bailer Method
Semi-Volatile Organic Compounds	2/Year	Pump or Bailer Method
Gross Alpha	2/Year	Pump or Bailer Method
Gross Beta	2/Year	Pump or Bailer Method

c. Sample collection methods shall be inaccordance with the most recent version of *EPA Environmental Compliance Branch Standard Quality Operating Procedures and Quality Assurance Manual*, February 1, 1991.

d. All groundwater monitoring wells must be properly maintained at all times.

e. Sampling shall be conducted in the winter (December, January or February) and in the summer (June, July or August) of each year.

D. Sludge Monitoring Requirements

N/A

E. Soil Monitoring Requirements

N/A

Part IV. Schedule of Compliance

A. Schedule(s)

N/A

B. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 10 days following each scheduled date.

Part V. Other Requirements

A. Effluent Requirements

1. There shall be no discharge of floating solids or visible foam in other than trace amounts, nor shall the effluent cause a visible sheen on the receiving waters.

2. Where a permittee continuously measures the pH of wastewater pursuant to a requirement or option in a National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to section 402 of the Act, the permittee shall maintain the pH of such wastewater within the range set forth in the applicable effluent limitations guidelines, except excursions from the range are permitted subject to the following limitations:

   (a) The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and

   (b) No individual excursion from the range of pH values shall exceed 60 minutes.

   For purposes of this section, an excursion is an unintentional and temporary incident in which the pH value of discharge wastewater exceeds the range set forth in the applicable effluent limitations guidelines. (Secs. 301, 304, 306 and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1251 et. seq., as amended by the Clean Water Act of 1977, Pub. L. 95-217))

3. Unless authorized elsewhere in this Permit, the permittee must meet the following requirements concerning maintenance chemicals for the following waste streams: once-through noncontact cooling water, recirculated cooling water, boiler blowdown water, and air washer water. Maintenance chemicals shall be defined as any man-induced additives to the above-referenced waste streams.

   a. Detectable amounts of any of the one hundred and twenty-six priority pollutants is prohibited in the discharge, if the pollutants are present due to the use of maintenance chemicals.

   b. Slimicides, algicides and biocides are to be used in accordance with registration requirements of the Federal Insecticides, Fungicide and Rodenticide Act.

   c. The use of maintenance chemicals containing bis(tributyltin) oxide is prohibited.

   d. Any maintenance chemicals added to the above-referenced waste streams must degrade rapidly, either due to hydrolytic decomposition or biodegradation.

   e. Discharges of maintenance chemicals added to waste streams must be limited to concentrations which protect indigenous aquatic populations in the receiving stream.

   f. The permittee must keep sufficient documentation on-site that would show that the above requirements are being met. This information shall be made available for on-site review by Department personnel during normal working hours.

g. The occurrence of instream problems may necessitate the submittal of chemical additive data and permit modification to include additional monitoring and limitations.

B. Whole Effluent Toxicity and Other Biological Monitoring Requirements

Chronic Toxicity

1. For the requirements identified in Part III.B:

a. A *Ceriodaphnia dubia* three brood chronic toxicity test shall be conducted at the frequency stated in Part III.B, Effluent Toxicity Limitations and Monitoring Requirements, using the chronic test concentration (CTC) of 1.0% and the following test concentrations: 0% (control), 0.50%, 1.0%, 2.0% and 4.0% effluent. The permittee may add additional test concentrations without prior authorization from the Department provided that the test begins with at least 10 replicates in each concentration and all data is used to determine permit compliance.

b. The test shall be conducted using EPA Method 1002.0 in accordance with "Short-Term Methods for Estimating Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," EPA/821/R-02/013 (October 2002).

c. The permittee shall use the 3-parameter logistic regression (3PLR) model assuming a binomial distribution for survival and a Poisson distribution for reproduction as recommended in the DHEC Bureau of Water document entitled "Options for Data Analysis of Whole Effluent Toxicity Testing Required by NPDES Permits," September 2001 for calculating biological effect (percent inhibition) at the applicable CTC.

d. Percent effect is the difference between control and test group performance expressed as a percentage of control group performance, or $\%\ effect = (1 - \frac{test\ group\ performance}{control\ group\ performance}) * 100$, where performance is survival or reproduction. The permittee shall report the percent effect on both *Ceriodaphnia dubia* survival and reproduction at the CTC. Overall percent effect is the greater of the percent effect on survival and reproduction.

e. A test shall be invalidated if any part of Method 1002.0 is not followed or if the laboratory is not certified at the time the test is conducted.

f. All valid toxicity test results shall be submitted on the DHEC Form 3710 entitled "DMR Attachment for Toxicity Test Results" in accordance with Part II.L.4. In addition, results from all invalid tests must be appended to DMRs, including lab control data. The permittee has sole responsibility for scheduling toxicity tests so as to ensure there is sufficient opportunity to complete and report the required number of valid test results for each monitoring period.

g. The permittee is responsible for reporting a valid test during each monitoring period. However, the Department acknowledges that invalid tests may occur. All of the following conditions must be satisfied for the permittee to be in compliance with Whole Effluent Toxicity (WET) testing requirements for a

particular monitoring period when a valid test was not obtained.

(1) A minimum of five (5) tests have been conducted which were invalid in accordance with Part V.B.1.e above;

(2) The data and results of all invalid tests are attached to the DMR;

(3) At least one additional State-certified laboratory is used after two (2) consecutive invalid tests were determined by the first laboratory. The name(s) and lab certification number(s) of the additional lab(s) shall be reported in the comment section of the DMR; and

(4) A valid test was reported during each of the previous three reporting periods.

If these conditions are satisfied, the permittee may enter "H" in the appropriate boxes on the toxicity DMR and add the statement to the Comment Section of the DMR that "H indicates invalid tests."

h. This permit may be modified based on new information that supports a modification in accordance with Regulation 61-9.122.62 and Regulation 61-68.D.

C. Groundwater Requirements

See Part III.C.1.c, d, and e.

D. Sludge and Other Land Application Requirements

1. The flyash generated from the inceneration of the sludge from the wastewater treatment plant will either be reclaimed on-site by Westinghouse Electric Company or taken to the Chem-Nuclear facility in Barnwell County or Envirocare of Utah, Inc.

E. Other Conditions

1. This permit may be reopened to include additional monitoring and/or limitations for Total Phosphorus based on monitoring results obtained.

2. The permittee shall notify the Santee Cooper Reg water treatment plant (intake number S08104) on Lake Moultrie of any emergency condition, plant upset, bypass or other system failure which has the potential to affect the quality of water withdrawn for drinking water purposes. This notification should be made as soon as possible and in anticipation of such event, if feasible, without taking away from any response time necessary to attempt to alleviate the situation.

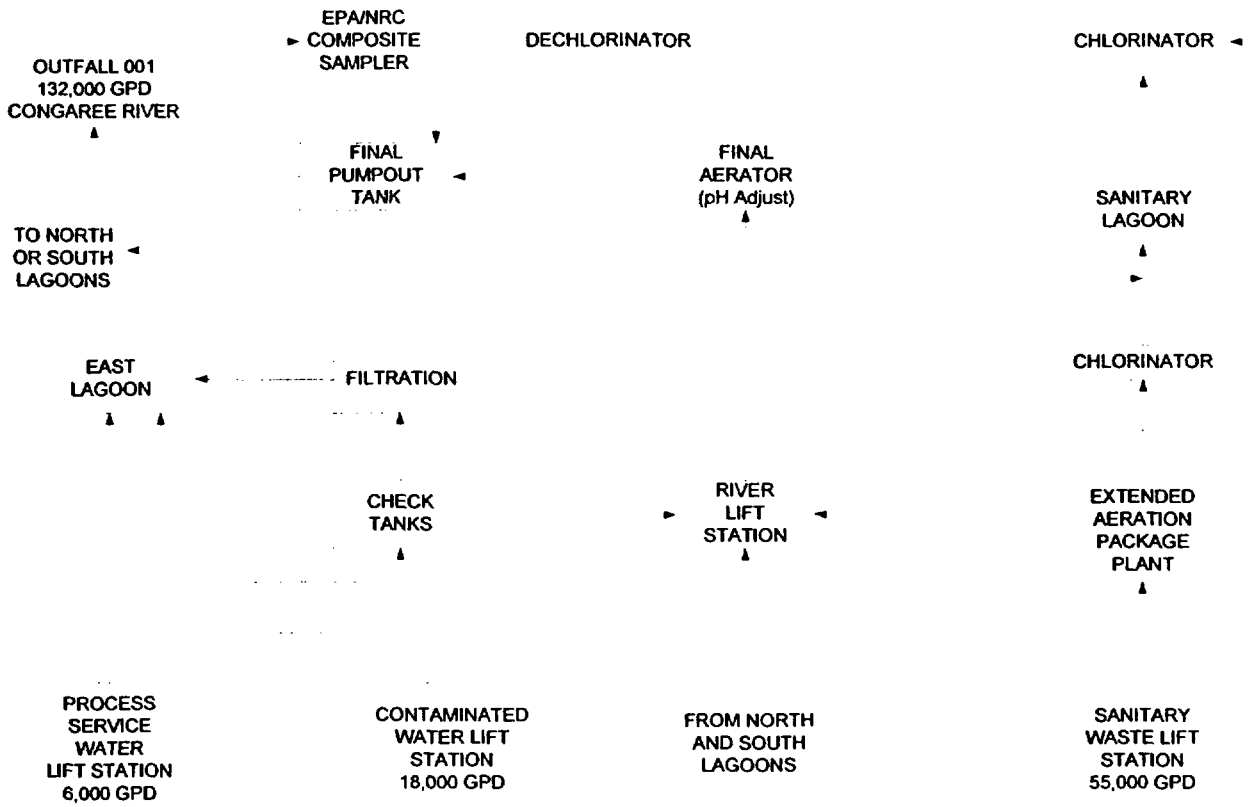
3. The wastewater treatment plant has been assigned a classification of **Group III** in the Permit To Construct issued by the Department. This classification corresponds to an operator with a Grade of B.

4. The permittee shall maintain an all weather access road to the wastewater treatment plant and appurtenances at all times.

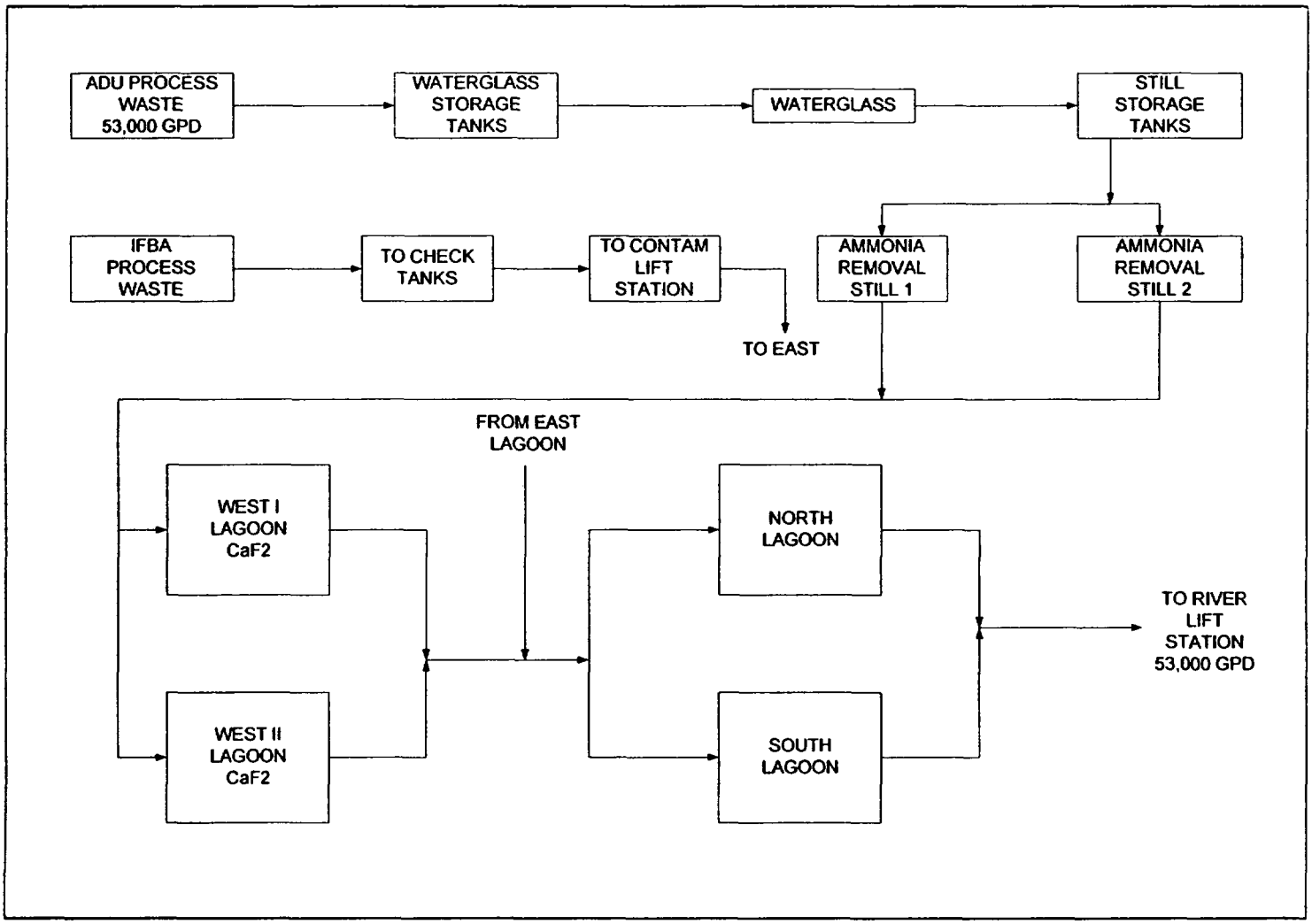
5. The permittee shall monitor all parameters consistent with conditions established by this permit on the 2nd Wednesday of every calendar month, unless otherwise approved by this Department. If no discharge occurs on this day, the permittee shall collect an effluent sample during the reporting period on a day when there is a discharge or report "no discharge" for the reporting period for all parameters. Additional monitoring as necessary to meet the frequency requirements of this permit shall be performed by the permittee.

Attachment 3 Westinghouse Waste Treatment Flow Sheet

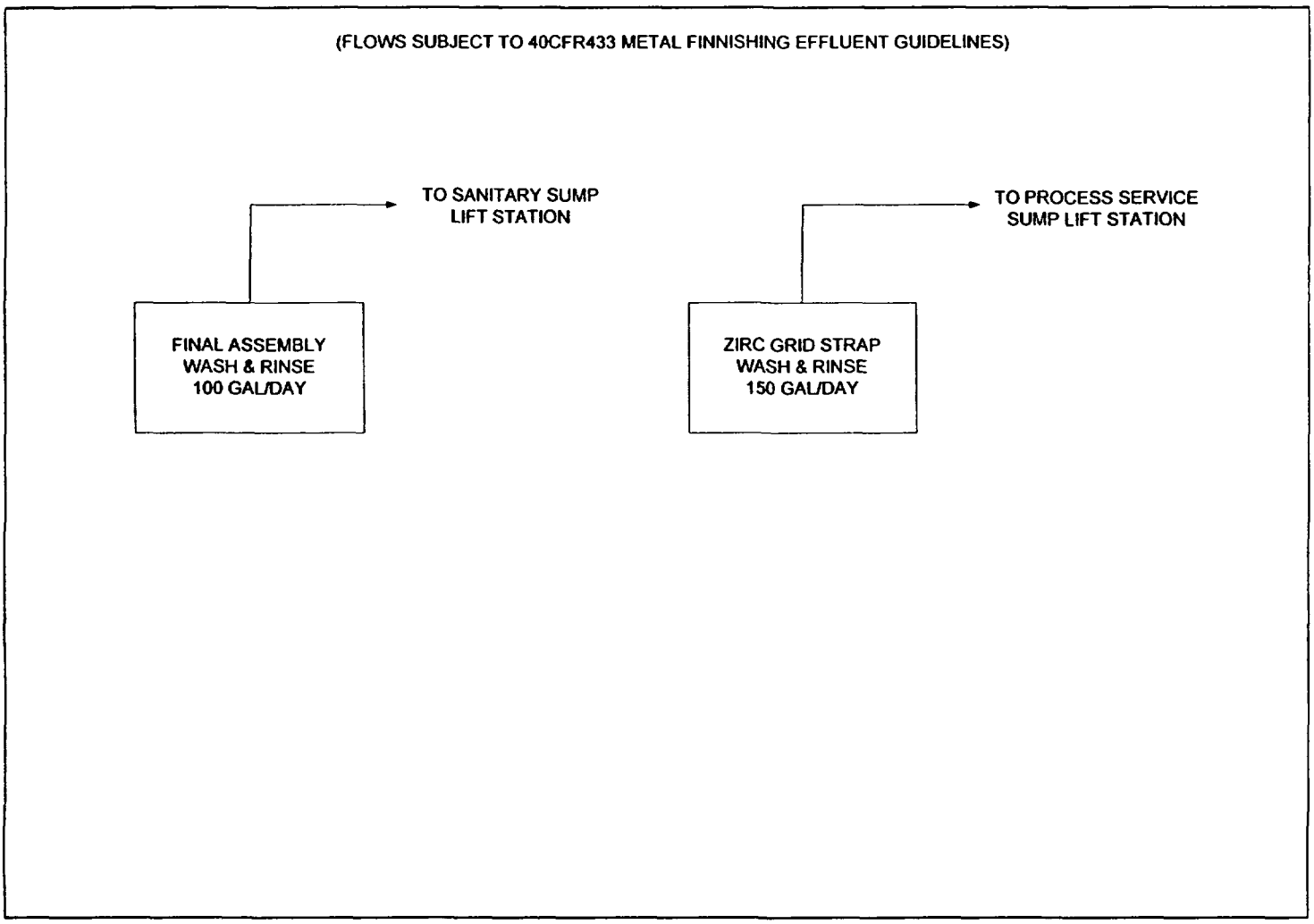
WESTINGHOUSE WASTE TREATMENT FLOW SHEET



WESTINGHOUSE WASTE TREATMENT FLOW SHEET



WESTINGHOUSE WASTE TREATMENT FLOW SHEET



Attachment 4 Typical SC-DHEC RCRA Hazardous Waste Quarterly Report

D H E C
PROMOTE PROTECT PROSPER

Quarterly Hazardous Waste Report
Generation and On-Site Treatment, Storage, Disposal, and Recovery

I.
SCD047559331
ATTN: JIM HEATH
WESTINGHOUSE ELECTRIC CORPORATION
PO DRAWER R
COLUMBIA SC 29250

ages require

1/03
Quarter & Year

II. ☐ Enter 'X' here if no hazardous waste generated, treated, stored, disposed, recovered, or shipped off site during this quarter.

III. Generated Waste

Waste Index Line #	Amount Generated (in lbs)
014	29,010
018	24,000
026	1,12,000

IV. On-Site Treatment, Storage, Disposal & Recovery

Waste Index Line #	Management Code	Amount T,S,D,R, On-Site (in lbs)

V. List below the name, and EPA/DHEC ID# of all the hazardous waste transporters used this quarter.

Transporter EPA/DHEC ID #	Transporter's Name
MAD039312225 10	Clean Harbors Env. Services Inc.
NJD981866071381 0	Maumee Express Inc

VI. Certification

I certify under penalty of law that this document and all attachments, were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimized the present and future threat to human health and the environment.

I also certify the out-of-state generators utilizing this facility have programs in place to reduce the volume or quantity and toxicity of waste using a method currently available which minimizes the present and future threat to human health and the environment.

Jim Heath — Jimmie W. Heath 803 647-3415 — 4/28/03
Signature of Authorized Representative — Print/Type Name & Telephone Number — Date

DHEC 1962 (11/2001)

Page 1 of 2

D H E C

PROMOTE PROTECT PROSPER

Quarterly Hazardous Waste Report
Waste Shipped Off-Site for Treatment, Storage, Disposal, Recovery

VII. SCD041515133 (EPA/DHEC ID#) | Westinghouse Electric Co. (Company Name) | 1/03 Quarter & Year

VIII. 014 (Waste Index Line #) | 02/19/03 (MM/DD/YY Date Shipped) | OHDØØØ81616229 (Facility EPA/DHEC ID #)

Manifest Document Number: 00126 | Amount (lbs.): 2400

VIII. 018 (Waste Index Line #) | 02/19/03 (MM/DD/YY Date Shipped) | OHDØØ081616229 (Facility EPA/DHEC ID #)

Manifest Document Number: 00126 | Amount (lbs.): 2400

VIII. 026 (Waste Index Line #) | 02/19/03 (MM/DD/YY Date Shipped) | OHDØØ081616229 (Facility EPA/DHEC ID #)

Manifest Document Number: 00126 | Amount (lbs.): 11200

VIII. Waste Index Line # | MM/DD/YY Date Shipped | Facility EPA/DHEC ID #

Manifest Document Number | Amount (lbs.)

VIII. Waste Index Line # | MM/DD/YY Date Shipped | Facility EPA/DHEC ID #

Manifest Document Number | Amount (lbs.)

DC 546671

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. SCD0A7559331 Manifest Document No. 00126 2. Page 1 of 2 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Westinghouse Electric, 5801 Bluff Road, Columbia, SC 29250-0000

A. State Manifest Document Number: SC 00126

4. Generator's Phone: 803 776-2610

B. State Generator's ID: 0185001999

5. Transporter 1 Company Name: Clean Harbors Env Services Inc — 6. US EPA ID Number: MAD039322258 — C. State Transporter's ID — D. Transporter's Phone: 281 849-1800

7. Transporter 2 Company Name: Maumee Express Inc. — 8. US EPA ID Number: NJD986607382 — E. State Transporter's ID — F. Transporter's Phone: 800-243-3451

9. Designated Facility Name and Site Address: Spring Grove Resource Recovery, 4879 Spring Grove Avenue, Cincinnati, OH 45232 — 10. US EPA ID Number: OHD000816629 — G. State Facility's ID — H. Facility's Phone: 513 681-5788

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
GENERATOR a. RQ, WASTE ZIRCONIUM POWDER, WETTED , 4.1, UN1358, II	005	DM	02000	P	
b. X Waste Zirconium powder, wetted with not less than 25 percent water (a visible excess of water must be present) (a) secha, 4.1, UN1358, II	001	DF	00400	P	
c. X WASTE ACETONE , 3, UN1090, II	006	DM	02400	P	
d. X RQ, HAZARDOUS WASTE LIQUID, N.O.S. , 9, NA3082, III	028	DM	11200	P	

15. Special Handling Instructions and Additional Information

WO# DC546671
IN EMERGENCY, CALL CHES 1-800-645-8265

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
Michael T. Dickert	Michael T. Dickert	04 19 93

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Denton S. Ussery, Jr	Denton S. Ussery, Jr	04 21 93

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Jerry Mitchell	Jerry Mitchell	04 22 93

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
Tim Daly	Tim Daly	04 30 93

Clean Harbors has appropriate permits for & will accept the waste this generator has shipping

ORIGINAL-RETURN TO GENERATOR

PRINTED ON RECYCLED PAPER

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator's US EPA ID No. SLD047559331 | Manifest Document No. 00126

22. Page 2/2

Information in the shaded areas is not required by Federal law.

23. Generator's Name Westinghouse Electric
5401 Bluff Road
Columbia, SC 29210

Number 00126

24. Transporter ___ Company Name | 25. US EPA ID Number

26. Transporter ___ Company Name | 27. US EPA ID Number

	28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	29. Containers No.	Type	30. Total Quantity	31. Unit Wt/Vol
a.	Non DOT Regulated Material Oil Solution Non DOT Hazardous		001	DF	00400	P
b.	Non DOT Regulated Material Sludge		002	DM	01500	P
c.	Non Hazardous, Non DOT Regulated		001	DM	00400	P
d.						
e.						
f.						
g.						
h.						
i.						

[redacted]

32. Special Handling Instructions and Additional Information

GENERATOR

TRANSPORTER

33. Transporter ___ Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date Month Day Year

34. Transporter ___ Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date Month Day Year

FACILITY

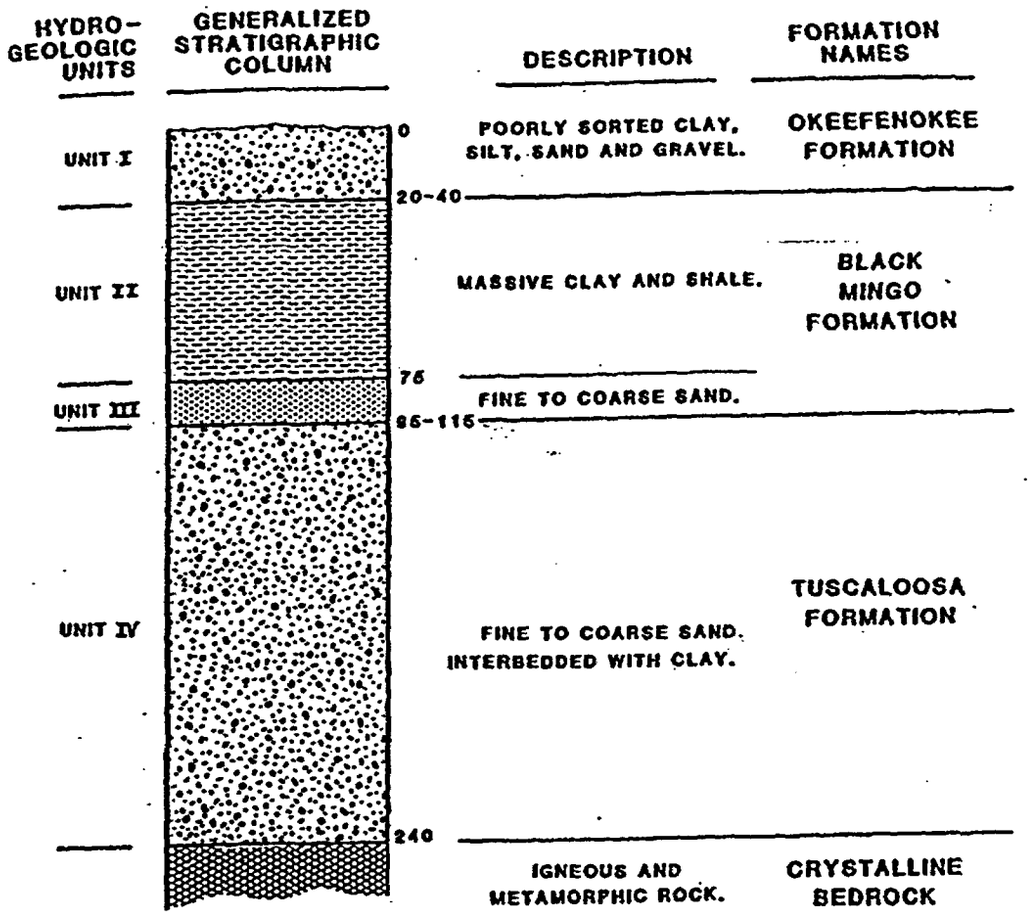
35. Discrepancy Indication Space

Style CF 18 LABELMASTER® (800) 621-5808 www.labelmaster.com

EPA Form 8700-22A (Rev. 9-88) Previous editions are obsolete

ORIGINAL - RETURN TO GENERATOR

Attachment 5 Generalized Hydrogeological Stratigraphic Column at Westinghouse Plant Site



GENERALIZED GEOLOGIC CROSS-SECTION A-A', of SOUTHERN RICHLAND COUNTY.