Georgia Power Company
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Georgia Power

Edwin I. Hatch Nuclear Plant

March 30, 1985
GM-85-234

PLANT E. I. HATCH
Annual Environmental Surveillance Report, 1984

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

Gentlemen:

Pursuant to section 5.7 of the Hatch Unit 1 and Unit 2 Environmental Technical Specifications, please find attached the Annual Environmental Surveillance Report for 1984.

H. C. Nix
General Manager

HCN/WHR/mlb

Xc: J. T. Beckham - letter only
File: M84-4

IE25

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IE25

GEORGIA POWER COMPANY
EDWIN I. HATCH NUCLEAR PLANT
ANNUAL ENVIRONMENTAL SURVEILLANCE REPORT
CALENDAR YEAR 1984

IE25
1 1.

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Director, Office of Nuclear Reactor Regulation
c/o Distribution Services Branch, DDC, ADM
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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GEORGIA POWER COMPANY
EDWIN I. HATCH NUCLEAR PLANT
ANNUAL ENVIRONMENTAL SURVEILLANCE REPORT
CALENDAR YEAR 1984

HNP
ANNUAL REPORT

INTRODUCTION

This annual report is submitted pursuant to paragraph 5.7.1 (a) of the Environmental Technical Specifications (ETS), which is Appendix B to the operating licenses for Edwin I. Hatch Nuclear Plant (HNP), Units I and II, DPR-57 and NPF-5, respectively. This report includes summaries, analyses, interpretation, and statistical evaluation of the results of the environmental monitoring at and in the environs of HNP during 1984.

HNP
ANNUAL REPORT

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RADIOLOGICAL MONITORING

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HNP
ANNUAL REPORT

1. RADIOLOGICAL MONITORING

1.1 Introduction

The objectives of the Radiological Environmental Monitoring Program are to ascertain the levels of radiation and concentrations of radioactivity in the environment which are due to plant operations and to evaluate the impact to the environment from these radiological levels. Assurance is provided in achieving these objectives by following the program's requirements as described in Section 3.2 of the Environmental Technical Specifications (ETS). Provided herein are the program's results for calendar year 1984 which include an assessment of the radiological impact upon the environment, as well as reports on various related activities.

A summary, interpretation and evaluation of the analytical results obtained from the samples utilized for the environmental monitoring of discharges of radioactive materials to the atmosphere and river are provided, as appropriate, in Sections 1.2 and 1.3 respectively. The data on samples required by the ETS are tabulated by station or group of stations. As practical, each tabulation consists of: the maximum, minimum and average values of the radiological level; the number of samples (n); and the standard deviation (s). Nominally, summaries are provided for the control and indicator stations on an annual basis; they may also be provided for other periods of exposure as feasible. The calculated minimum detectable difference (MDD) at the 99% confidence level between these two groups is provided for comparison with the difference in their average values, $L_i - L_c$.

Deviations are permitted from the sampling schedule required by Table 3.2-1 of the ETS if specimens are unobtainable due to hazardous conditions, seasonable unavailability, malfunction of automatic sampling equipment or other legitimate reasons. Any deviations from the required sampling schedule are included in the discussions for each particular type sample.

The sampling of groundwater to monitor discharges to the ground began during the preoperational phase of the radiological environmental monitoring program. Although high tritium levels in groundwater samples have been found near the main plant buildings, these have little impact offsite. There have been no ETS requirements for the sampling of groundwater since 1978, at the time when HNP-2 began operation. At a meeting on December 19, 1983 with NRC Region II, it was agreed that the reporting in the annual environmental surveillance report of onsite radiological levels in groundwater was inappropriate and that such reporting in the annual report was to stop after the report for calendar year 1983. Groundwater sampling continues but reports are made to the NRC by other means.

In Section 1.4, the results of the EPA Crosscheck Program are provided. In Section 1.5, the chief conclusions are presented.

1.2 Discharges To The Atmosphere

The media or pathways sampled to monitor discharges to the atmosphere consisted of: airborne dust, airborne iodine, external radiation, milk and grass. Airborne dust and iodine were collected at air monitoring stations. In accordance with the ETS, thermoluminescent dosimeters (TLDs) for measuring external radiation were placed at each of the air stations and at three other locations as shown below. Starting with the 1st quarter of 1980, additional TLDs were placed in the site environs to conform with Revision 1 of the Technical Position of the Radiation Assessment Branch of the NRC, dated November 1979. The locations of these new TLDs are described in Section 1.2.3. The locations of the milk sampling stations are provided in Section 1.2.4. Grass samples were collected from plots maintained at Air Stations 5, 17 and 21. The sector location and distance as reckoned from the main stack to each of the air stations and to each of the TLD stations required by the ETS are as follows:

Air Stations

No. 1	State Prison	ENE	11.3 miles
No. 5	Baxley	S	10.0 miles
No. 9	Dead River Road	NE	1.8 miles
No. 15	Roadside Park	WNW	0.8 miles
No. 17	Site Boundary	SE	1.2 miles
No. 21	Site Boundary	WSW	1.0 miles

TLD Stations
(same as air stations plus)

No. 119	East Boundary	ESE	1.1 miles
No. 126	South Boundary	S	0.9 miles
No. 133	West Boundary	W	1.1 miles

Stations 1 and 5 are the control stations; the other stations are indicator stations.

All required laboratory analyses of the samples collected to monitor discharges to the atmosphere are contracted to Teledyne Isotopes, Inc. of Westwood, New Jersey except for: the gross beta counting of airborne particulates which is performed by the plant; the reading of the TLDs which is done by Teledyne Isotopes Midwest Laboratory at Northbrook, Illinois; and the gamma scan of grass which is provided by the Center for Applied Isotope Studies at the University of Georgia in Athens, Georgia.

1.2.1 Airborne Dust

The annual summary of the gross beta activities for the airborne dust samples which were collected weekly is presented in Table 1.2-1 for the locations required by the ETS. The average activity for the indicator stations is seen to be slightly less than that for the control stations; the absolute value of the difference between these two values is less than the MDD.

TABLE 1.2-1

ANNUAL SUMMARY OF GROSS BETA ACTIVITY IN AIRBORNE DUST

fCi/m^3

Station No.	n	Maximum	Minimum	Average	s
Control Stations					
1	52	128	10	31	17
5	52	41	5	25	7
Summary	2	31	25	28	5
Indicator Stations					
9	51	53	11	28	10
15	48	45	10	27	8
17	50	41	8	24	9
21	51	44	11	25	7
Summary	4	28	24	26	2

$L_i - L_C = -2$ MDD = 4

The average gross beta activity for all stations during 1984 was 27 fCi/m^3; it averaged 31 and 33 fCi/m^3 during 1983 and 1982 respectively. Going back to 1976 and for several years afterwards, it was 4 to 8 times greater than that for 1984. Those high values were shown to be the result of fallout from the numerous nuclear weapons tests conducted on mainland China from 1976 through 1980.

In the proposed Radiological Effluent Technical Specifications (RETS) which were submitted to the NRC on August 1, 1984 and which are expected to be implemented during 1985, Station 15 which is located in the WNW sector about 0.4 miles inside the site boundary is replaced with Station 150 which is located in the NNW sector at 1.6 miles or about 0.15 miles outside the site boundary. Operations personnel failed to take a sample at Station 15 for the first week of 1984 thinking the phase out was to start at the beginning of 1984. The gross beta activities at Station 150 ranged from 13 to 53 fCi/m^3 during the year with 30 fCi/m^3 as an average. These values are within the range of those found at the other air stations.

Due to mechanical failures, valid data was unavailable on one occasion at Stations 9 and 21, on two occasions at Station 17 and on three occasions at Station 15. Of the seven occasions, six were due to broken filters and one was due to a power failure to the pump. Most of the broken filters were due to acts of bees or other insects; a better screening mechanism on the air intake is planned to alleviate this problem.

The annual summary of activities for specific radionuclides detected in quarterly composites of airborne dust filters by gamma spectral analyses are provided in Table 1.2-2. The naturally occurring radionuclides Be-7 and K-40 were detected at levels and frequencies of occurrence typical of those found in previous years. At Station 150, like the other air stations, Be-7 was found during each quarter, with activities ranging from 49.1 to 62.5 fCi/m^3 and averaging 57.6 fCi/m^3. No other radionuclides were detected during the first three quarters of the year.

During the 4^{th} quarter, a total of five different manmade radionuclides were detected at five of the air stations with activities in units of fCi/m^3 as follows:

Station	Mn-54	Co-60	Zn-65	Zr-95	Nb-95
1	1.06	6.46	7.24		
9		0.45			
15		1.73	2.23	0.82	1.50
17		0.79			
150		1.07			
RL	7730	1720	12100	5580	20000

The Reporting Level (RL) is also listed for each of these radionuclides to emphasize how miniscule the detected levels are. The RL for a given radionuclide is the lowest concentration which would render an annual design objective dose of Appendix I to 10CFR50 to some individual when so exposed for a period of one year. The LLDs usually achieved for these radionuclides are around 0.5 fCi/m^3.

TABLE 1.2-2

ANNUAL SUMMARY OF SPECIFIC RADIONUCLIDES
DETECTED IN AIRBORNE DUST COMPOSITES

fCi/m^3

Radionuclide	n	Max	Min	Avg	s	Li-Lc	MDD
Control Stations							
Be-7	8	75.5	47.2	62.3	11.1		
K-40	2	8.0	4.9	6.5	2.2		
Mn-54	1	1.1	1.1	1.1			
Co-60	1	6.5	6.5	6.5			
Zn-65	1	7.2	7.2	7.2			
Zr-95	0						
Nb-95	0						
Indicator Stations							
Be-7	16	89.1	37.6	55.8	13.4	-6.5	16
K-40	0						
Mn-54	0						
Co-60	3	1.7	0.5	1.0	0.7	-5.5	
Zn-65	1	2.2	2.2	2.2		-5.0	
Zr-95	1	0.8	0.8	0.8			
Nb-95	1	1.5	1.5	1.5			

These manmade radionuclides have all been detected previously. All except Zn-65 had been detected on numerous occasions during the times of the Chinese nuclear weapons tests from the mid-seventies through the early eighties. During these times the readings ranged from those detected in 1984 to about 20 times greater. The radionuclide Zn-65 had been detected only once previously during 1982 at an indicator station with a reading an order of magnitude higher than that found in 1984.

Assuming that the reported values of these manmade radionuclides represent the actual average conditions at the sampling locations during the 4th quarter, the highest dose an individual would receive by breathing these airborne particulates at these locations during the entire quarter is 0.017 mrem. This is well below the quarterly limit of 7.5 mrem specified by Appendix I to 10 CFR 50. This maximum dose would be received by a teenager at Station 1 which is 11.3 miles away.

Each of these radionuclides except Zn-65 is found in the gaseous releases from Plant Hatch. Based on the meterological conditions and the releases during the 4th quarter, the average airborne concentrations were calculated for each radionuclide at the points they were measured. Most of the measured values were about three orders of magnitude greater than the calculated values but a few were less than an order of magnitude greater. Contamination from handling within the plant is suspected as these radionuclides are regularly present in the liquid radwaste. Plans are afoot to have all of the laboratory analyses on the airborne dust filters done off site; this would preclude the necessity of bringing the filters inside the plant area.

1.2.2 Airborne Iodine

The charcoal cartridges used for adsorbing iodine from the atmosphere were collected weekly and analyzed for I-131 by Ge(Li) spectroscopy. I-131 was not detected in any of the samples during 1984. The maximum allowed LLD is 70 fCi/m^3; the LLDs achieved during 1984 never exceeded 50 fCi/m^3. The RL is 900 fCi/m^3.

1.2.3 Thermoluminescent Dosimeters

The nominal location of each of the TLDs by sector and by distance from the main stack in miles is provided in Table 1.2-3. Two badges are placed at each station; each badge contains five LiF chips. At the beginning of 1980, an attempt was made to establish two TLD stations in each sector (in accordance with Revision 1 to the Technical Position of the Radiological Assessment Branch of the NRC, dated November 1979), one near the site boundary and the other at a distance of about four or five miles. Suitable locations were not found in the East Sector. In addition to the locations for these two rings of TLD stations, the table provides for the locations of the control stations and the stations of special interest.

TABLE 1.2-3

LOCATIONS OF TLD STATIONS

Sector	Site Boundary		4-5 Miles	
	No.	Miles	No.	Miles
N	19	1.9	25	5.0
NNE	26	2.5	28	4.9
NE	9	1.8	29	5.0
ENE	27	1.6	30	4.9
E	105	3.6	205	7.2
ESE	119	1.1	12	5.0
SE	17	1.2	11	4.3
SSE	13	1.6	10	4.7
S	126	0.9	8	4.4
SSW	14	1.1	7	4.3
SW	16	0.9	6	4.5
WSW	21	1.0	4	4.4
W	133	1.1	3	4.3
WNW	2	1.2	23	5.4
NW	18	1.1	22	4.5
NNW	20	1.6	24	4.8

Additional TLD Stations

N	No. 31 at 8.2 miles, Toombs Central School
ENE	No. 1 at 11.3 miles, Baxley
S	No. 5 at 10.0 miles, State Prison
WNW	No. 15 at 0.8 miles, Roadside Park

A flood plane is located at the radii of these two rings in the East Sector precluding easy access to such locale for several months during the year. Thus TLDs were not placed in the East Sector. Subsequently, it was decided to complete the two rings even if the radii in the East Sector were a few miles greater than in the other sectors. At the beginning of 1984, TLDs were added in the East Sector at radii of 3.6 and 7.2 miles; these locations have been designated as Stations 105 and 205, respectively.

The annual summary of the on-station doses acquired by the TLDs which are required by the ETS is presented in Table 1.2-4. There is no discernable difference between the average values at the indicator and control stations.

The annual summary of the on-station doses acquired at the site boundary and at 4-5 miles is presented in Table 1.2-5. Again, there is no discernable difference between the average values at the site boundary and the 4-5 mile ring. The on-station quarterly doses acquired by the TLDs placed at Station 31 (Toombs Central School) ranged from 11.9 to 12.8 mrem with 12.4 mrem as an average.

The results for the 3rd and 4th quarters were considered to be erroneous and therefore not included with the data discussed above. In the process of being brought into the protected area, the package of TLDs had passed through the recently installed x-ray machine used by the Security Department for surveillance purposes. The packages were labeled "Do Not X-ray" in light pink but apparently these labels were not noticed. The TLDs used for environmental monitoring are no longer brought into the protected area.

The TLDs passing through the x-ray machine received nonuniform exposures because of the variable shielding afforded to each badge in the package and the orientation of the individual TLD badges to the x-ray beam. The two badges in the package which accompany the shipment to determine the in transit exposures acquired about 5 and 3 times their usual dose in the 3rd and 4th quarters, respectively; after subtracting this "in transit" component, the resultant readings were low for those badges which obviously acquired much less dose from the x-rays. The readings for the two TLD badges placed at the same location in the field usually differ by less than 0.5 mrem. In the 3rd quarter, 80% of the readings for TLD pairs differed by more than 2 mrem, 20% by more than 4 mrem, the maximum difference was 10.5 mrem. In the 4th quarter, about 43% differed by more than 2 mrem and about 14% by more than 4 mrem, the maximum difference was 7.6 mrem.

TLDs are frequently lost due to theft and are frequently damaged by vandalism. At monthly intervals the TLD stations are checked for missing or damaged badges; replacements are provided as needed. Both badges were missing: at Station 29 at the end of the first quarter, and at Stations 25 and 205 at the end of the second quarter; this accounts for the lower value of n at these locations in Table 1.2-5. A total of 7 badges from 4 different stations were found to be missing during the first half of the year. To diminish the frequency of missing or damaged badges, TLDs are placed in less conspicuous places wherever this is practical.

TABLE 1.2-4

ANNUAL SUMMARY OF ON-STATION DOSE ACQUIRED BY TLDs REQUIRED BY ETS

mrem/13 weeks

Station No.	n	Maximum	Minimum	Average	s
Control Stations					
1	2	13.7	12.1	12.9	1.1
5	2	13.1	12.5	12.8	0.4
Summary	2	12.9	12.8	12.9	0.1
Indicator Stations					
9	2	12.8	11.5	12.2	0.9
15	2	12.2	10.8	11.5	1.0
17	2	13.9	12.8	13.4	0.8
21	2	12.1	10.3	11.2	1.2
119	2	14.2	13.7	14.0	0.3
126	2	13.5	12.6	13.1	0.6
133	2	17.7	17.5	17.6	0.2
Summary	7	17.6	11.2	13.3	0.7

$L_i - L_c = 0.4$ MDD = 3.0

TABLE 1.2-5

ANNUAL SUMMARY OF ON-STATION DOSE ACQUIRED BY TLDs AT SITE BOUNDARY AND AT 4-5 MILES

mrem/13 weeks

Station No.	n	Maximum	Minimum	Average	s
4-5 Mile Stations					
25	1	10.7	10.7	10.7	
28	2	11.3	10.6	10.9	0.5
29	1	16.4	16.4	16.4	
30	2	16.2	14.9	15.5	0.9
205	1	13.0	13.0	13.0	
12	2	11.7	10.7	11.2	0.7
11	2	13.8	13.2	13.5	0.4
10	2	11.1	9.9	10.5	0.9
8	2	10.0	9.0	9.5	0.7
7	2	10.2	9.0	9.6	0.9
6	2	13.5	12.7	13.1	0.6
4	2	12.1	10.2	11.1	1.4
3	2	12.3	8.2	10.3	2.9
23	2	13.2	12.4	12.8	0.6
22	2	12.8	12.1	12.4	0.5
24	2	12.0	10.6	11.3	1.0
Summary	16	16.4	9.5	11.9	2.0
Site Boundary Stations					
19	2	12.7	11.8	12.2	0.6
26	2	12.3	11.3	11.8	0.7
9	2	12.8	11.5	12.2	0.9
27	2	11.6	10.9	11.2	0.5
105	2	13.1	12.7	12.9	0.3
119	2	14.2	13.7	14.0	0.3
17	2	13.9	12.8	13.4	0.8
13	2	12.3	11.2	11.8	0.7
126	2	13.5	12.6	13.1	0.6
14	2	15.7	15.3	15.5	0.3
16	2	11.9	10.5	11.2	1.0
21	2	12.1	10.3	11.2	1.2
133	2	17.7	17.5	17.6	0.2
2	2	11.4	10.6	11.0	0.6
18	2	13.2	13.1	13.2	0.2
20	2	13.5	11.8	12.6	1.2
Summary	16	17.6	11.0	12.8	1.8

$L_{SB}-L_{4-5}$ = 0.9 MMD = 1.8

1.2.4 Milk

Milk samples are collected biweekly as available at three stations. Gamma isotopic and I-131 analyses are performed on each sample. The locations of the milk sampling stations and the number of samples analyzed were as follows:

Station	Sector	Distance	n_o
State Prison	ENE	10.8 miles	26
Johnson Brothers	SW	9.1 miles	26
Williamsons	NNE	3.2 miles	19

For two successive years the pregnancy of Williamsons' cow in the latter part of the year has precluded the availability of milk samples at that station for a few months. For that reason, no samples were available for the first collection date of the year and also during November and December. On one occasion in mid June, no sample was available due to the absence of the family.

The State Prison is the control station and Williamsons is the indicator station. Johnson Brothers Dairy is a bit too far away to be considered as an indicator station; however, it is the closest location in the sector into which the wind blows most frequently.

There has been no positive indications of I-131 in any of the milk samples for four years. Previous levels ranged from 0.095 to 88 pCi/l. All significant readings were generally attributed to the weapons tests. The LLD required by the ETS is 0.8 pCi/l; the RL is 3 pCi/l.

As usual, the gamma scans showed naturally occurring K-40 present in each sample at levels which varied between 749 and 1730 pCi/l. These levels are about the same as those found in previous years.

The gamma scans also showed positive indications of the presence of the fission product Cs-137 in about a quarter of the samples collected. The levels were found to be about the same as those found previously. The results in pCi/l for each station are summarized as follows:

Station	n/n_o	Maximum	Minimum	Average	s
Prison	2/26	12.8	7.6	10.2	3.7
Johnson Brothers	12/26	13.8	7.3	9.9	2.2
Williamsons	3/19	10.4	8.0	9.6	1.3

The ratio, n/n_o, is the number of positive results to the number of analyses performed. As usual, more positive results were found at Johnson Brothers. The maximum LLD allowed by the ETS is 15 pCi/l; in practice, however, a LLD of 7 pCi/l is usually achieved; the RL is 70 pCi/l. The positive levels found during the past six years ranged from 6.7 to 57.1 pCi/l with the average values for the stations ranging from 7.2 to 20.9 pCi/l. During preoperations, Cs-137 was measured in milk by a chemical separation technique; the levels ranged from 2 to 60 pCi/l with an average value of 19.3 pCi/l. All of these positive indications of Cs-137 in milk, those during preoperations, as well as those during operations, are attributed to the weapons tests.

The ETS require that a survey be conducted annually to determine the location of all milk animals within 3 miles of the plant in each of the 16 azimuthal sectors. For any of the 16 sectors in which a milk animal is not found within 3 miles, the survey is expanded to locate the nearest milk animal within 5 miles in that sector. A milk animal is a cow or goat which is producing milk for human consumption. On May 21, the milk animal survey was conducted. The only milk animal found was the cow at Williamsons which is presently being sampled.

1.2.5 Grass

Gamma isotopic analyses were performed on each of the grass samples collected monthly from the three sampling stations. Positive indication for several radionuclides were determined. These have been separated into four groups as follows:

(1) Be-7 and K-40;
(2) Cs-137;
(3) Pb-214 and Bi-214; and
(4) Tl-208, Pb-212, and Ac-228

The only manmade radionuclide is Cs-137 in the second group. Each of the radionuclides detected except for Be-7 had been found in soil samples taken at each of these plots several years ago. An annual summary of the activities of these radionuclides is provided in Table 1.2-6. It is seen that there are no discernable differences between the average values of the indicator stations and the control station. Except for K-40, the control station had higher average values.

As usual, Be-7 and K-40 were detected in every sample. The levels are on the same order of magnitude as those found previously.

Overall the levels for Cs-137 were found to be about 50% higher than those found during 1983. As usual, the control station values were considerably higher than those for the indicator stations. In June and July, levels of 1380 and 1300 pCi/kg wet were detected at Station 5, the control station; these levels are about 4 times higher than any other reading at that location during the year. The RL is 2000 pCi/kg wet. Station 5, which is 10 miles from the plant, has a history of high Cs-137 readings. The maximum readings obtained in each of the years from 1978 through 1981 were 1500,1680,2330 and 1740 pCi/kg wet, respectively. Each of these readings except that for 1981 occurred at Station 5; the high reading for 1981 occurred at Station 17.

Each of the radionuclides in the third and fourth groups is a primordial nuclide. The radionuclides in the third group are from the Uranium Series. Those in the fourth group are from the Thorium Series. The levels are typical of those found previously.

TABLE 1.2-6

ANNUAL SUMMARY OF SPECIFIC RADIONUCLIDES
DETECTED IN GRASS

pCi/kg wet

Radionuclide	n	Max	Min	Avg	s	Li-Lc	MDD
Control Station							
Be-7	9	4210	278	1725	1356		
K-40	9	4360	1490	2534	932		
Cs-137	9	1380	34	388	549		
Tl-208	1	31	31	31			
Pb-212	3	61	28	43	17		
Pb-214	3	60	28	45	16		
Bi-214	2	107	30	69	54		
Ac-228	2	88	79	84	6		
Indicator Stations							
Be-7	13	3520	81	1166	1040	-559	1452
K-40	13	3930	576	2753	872	219	1106
Cs-137	9	682	8	149	232	-239	580
Tl-208	0						
Pb-212	2	39	29	34	7	-9	91
Pb-214	1	44	44	44		-1	
Bi-214	1	50	50	50		-19	
Ac-228	2	93	27	60	47	-24	332

The ETS require a LLD of not greater than 25 pCi/kg wet for I-131. This limit was exceeded on four occasions as follows:

Station	5	17	21
May		30	
June	44		
September	32		26

Iodine has a strong affinity for water; the moisture content in these samples was low due to very dry weather. The wet to dry ratio for these samples averaged 1.94; it is typically three times higher at other times.

Largely due to colder than normal weather in the winter, to the hot summer weather and to the dry conditions late in the year, less than ordinary success was experienced in obtaining adequate grass samples. No samples at all were obtained in February, November and December. In January, no sample was obtained at Station 21; in June through September, none was obtained at Station 17. In the proposed RETS, Station 17 is to be replaced. The new location has been cleared and seeded; initial grass production indicates some improvement.

1.3 Discharges to the River

The ETS require the sampling of water, clams and sediment from River Stations 170 and 172 which are about a mile upstream and about 2 miles downstream, respectively. The upstream station serves as the control station and the downstream station serves as the indicator station. The ETS also require the sampling of American shad from the area of the discharge structure.

The ETS require a gamma spectral analysis of each sample. This analysis is performed on only the edible portion of the fish and clam samples. A tritium analysis is also required on quarterly composites of river water for each station. All of these analyses are performed by Teledyne Isotopes, Incorporated of Westwood, New Jersey.

1.3.1 River Water

River water is collected using automatic sampling machines; small samples are collected at intervals which are on the order of an hour. Water thus collected is picked up monthly; quarterly composites are composed of the monthly collections.

There was one positive result for the entire year on the gamma scans of the monthly collections. The naturally occurring K-40 was detected at Station 170 in October; the reading was 63.3 pCi/l; the LLD generally achieved ranges from 50 to 100 pCi/l. Only scant positive results have been obtained in the past with this analysis. The only manmade radionuclide ever detected was Ce-141; this occurred only once at an indicator station in the 4th quarter of 1975.

The positive results in units of pCi/l for the tritium analysis of the quarterly composites are summarized as follows for the control and indicator stations, respectively.

n	Max	Min	Avg	s	$L_i - L_c$	MDD
3	500	210	327	153		
3	470	370	437	58	110	262

Although the indicator station had higher average values than the control station, the difference between these values was less than the MDD; hence, there is no discernable difference between the readings at these two stations. These average readings are slightly higher than usually found. The previous maximum annual average reading was 358 pCi/l at Station 172 for 1980. In the 3rd quarter of that year, a reading of 640 pCi/l was found at Station 172; this is the highest individual reading yet detected. In the 4th quarter of 1984 the readings at both stations were less than 100 pCi/l. The monthly samples for April were inadvertently analyzed for tritium; levels of 270 and 340 pCi/l were found for Stations 170 and 172, respectively.

In accordance with the ETS, a survey was conducted downstream of the plant on September 17-18 to determine if water from the Altamaha River was being used for drinking purposes. As in all previous surveys, no intakes for drinking water were observed. If river water should become used for drinking, the ETS require sampling and analyses of the drinking water.

1.3.2 Clams

The ETS require a semiannual sampling of asiatic clams from the two river stations; if clams become unavailable, samples of a commercially or recreationally important species of fish will be collected. Since sufficient quantities of clams were not available on May 30 and November 11, two species of fish were collected at each of the two river stations.

To provide support for the site specific assumptions and parameters to be used in calculating doses due to liquid effluent releases for the proposed Radiological Effluent Technical Specifications, further fish collections were made between July 30 and August 1. In addition to collections at Stations 170 and 172, collections were made over a stretch of the river from the discharge structure to about a half mile downstream; this location is designated as Station 171.

The species collected at each station for each time period during the year were as follows:

Time Period	Station 170	Station 171	Station 172
5/30	D, F		D, F
7/30 - 8/1	A, D, E, F, G, H	C, D, F	all
11/14	A, D		A, D

Specie A	American Eel
Specie B	Bluegill Sunfish
Specie C	Channel Catfish
Specie D	Largemouth Bass
Specie E	Mullet
Specie F	Redbreast Sunfish
Specie G	Redear Sunfish
Specie H	White Crappie

During the period July 30 through August 1, two largemouth bass samples were collected at each station except Station 172 where three such samples were collected. Among the 29 samples analyzed, three different radionuclides were detected.

The naturally occurring K-40 was found in each sample at levels ranging from 1.49 to 4.57 pCi/g wet. The readings were typical of those found previously.

The fission product Cs-134 was detected in two of the samples. A level of 0.0358 pCi/g wet was found in a largemouth bass collected on July 31 at Station 171 which is just downstream of the discharge structure; a level of 0.0263 pCi/g wet was found in a mullet collected on August 1 at Station 170 which is a mile upstream of the discharge structure. The LLD values measured in the samples were found to range from 0.01 to 0.05 pCi/g wet. The ETS require that the LLD not be greater than 0.13 pCi/g wet; the RL is 1.0 pCi/g wet. The radionuclide Cs-134 had been detected previously on only one occasion; in November 1983, the two samples collected at Station 172 had readings of 0.0547 and 0.149 pCi/g wet; the average value of these 1983 readings is about three times greater than that detected this year.

The fission product Cs-137 was detected in all but four of the samples. For the positive results, the levels in units of pCi/g wet are summarized as follows:

Station	n/n_o	Max	Min	Avg	s	L_i-L_c	MDD
170	11/11	0.088	0.037	0.053	0.015		
171	3/4	0.135	0.041	0.083	0.048	.030	.253
172	11/14	0.144	0.037	0.084	0.030	.031	.029

These readings are well within the range of those found in past years. The ETS require that the LLD not be greater than 0.13 pCi/g wet; the RL is 2.0 pCi/g wet. The average value at each of the downstream stations is greater than that for the upstream station. It should be noted that this difference between Station 172 and Station 170 is discernable.

Using only the positive results in looking for discernable differences between sample locations may be too conservative and unrealistic. By dropping the "less than" inequality for the nonpositive results and including them in the summary, a different picture emerges. At station 171, a sample with a value of 0.03 pCi/g wet is added; at Station 172, two samples with values of 0.05 pCi/g wet and one with a value of 0.03 pCi/g wet are added. The above summary becomes:

Station	n/n_o	Max	Min	Avg	s	$L_i - L_c$	MDD
170	11/11	0.088	0.037	0.053	0.015		
171	4/4	0.135	0.030	0.070	0.047	0.017	0.129
172	14/14	0.144	0.030	0.075	0.032	0.022	0.029

The difference between the average values at Station 172 and Station 170 is no longer discernable. Using all the data may provide more realistic results.

The largemouth bass sample collected at Station 171 on July 31 had the highest Cs-134 level (0.0358 pCi/g wet) and nearly the highest Cs-137 level (0.135 pCi/g wet). A greater dose would be received from eating fish with these concentrations than that found in any other fish sample collected during the year. The dose to an individual from consuming fish for a year with these concentrations would be 0.43 mrem to the liver of a teenager; 0.11 mrem of this dose is due to the Cs-134 and 0.32 mrem is due to the Cs-137. This calculated dose is well below the design objective of 10 mrem per year to any organ for liquid releases as specified by Appendix I to 10 CFR 50. Assumed values for the parameters used in this calculation were taken from Revision 1 of Regulatory Guide 1.109, October 1977.

The higher levels of Cs-134 and Cs-137 found in fish collected from the downstream locations may at least partially be attributed to plant releases. The presence of Cs-137 has largely been attributed to the weapons tests. The appearance of Cs-134 beginning last year is a few years subsequent to the weapons tests.

Both Cs-134 and Cs-137 are among the radionuclides comprising the liquid releases. A cursory look at the release data over the past few years indicates the annual increase to be nearly linear. The yearly releases in units of Curies were as follows:

Year	Cs-134	Cs-137
1982	0.111	0.165
1983	0.225	0.357
1984	0.337	0.480

1.3.3 American Shad

Because of its commercial importance, the ETS require that American shad be collected annually during the spring spawning period. The collection was made on March 13. Naturally occurring K-40 was the only radionuclide detected in this single sample. The level was 3.39 pCi/g wet which is about the same as that found previously. Only K-40 has been found in previous samples of American shad. This sample has been collected for seven years.

1.3.4 Sediment

The annual collection of sediment took place on May 30. Additional sediment collections were made on July 30 not only at Stations 170 and 172, but also at a location about a quarter mile below the discharge structure designated as Station 171. The activities in units of pCi/g dry of the radionuclides detected from the gamma scans of these samples are presented below:

Radionuclide	Date	Station 170	Station 171	Station 172
Be-7	5/30	1.25		1.35
	7/30	0.30	0.20	0.30
K-40	5/30	7.93		9.72
	7/30	5.78	4.18	10.70
Cs-134	5/30	0.05		0.22
	7/30	0.03	0.02	0.15
Cs-137	5/30	0.49		0.73
	7/30	0.03	0.02	0.27
Ra-226	5/30	3.23		3.06
	7/30	0.77	0.40	3.03
Th-228	5/30	1.68		1.87
	7/30	1.18	0.14	1.93

Except for Cs-134, the levels and frequencies of occurrence for these radionuclides are typical of those found previously. Each of these radionuclides is naturally occurring except for Cs-134 and Cs-137.

It is noted that the positive levels for Cs-137 at the indicator station are about twice the reading for the control station and that Cs-134 was detected only at the indicator station. These might be at least partially accounted for by the higher liquid effluent releases of Cs-134 and Cs-137. Cs-134 had been detected twice previously: in 1981 at the indicator station at a level of 0.28 pCi/g dry; and during preoperations at the control station at a level of 0.04 pCi/g dry. Each of these occasions occurred during a period when the impact of the nuclear weapons tests was apparent through a number of different radionuclides in a number of sample media. The ETS require the LLD for each of these cesium isotopes not be greater than 0.15 pCi/g dry.

1.4 Crosscheck Program

Laboratories performing the analyses required by the radiological environmental monitoring program as delineated in Table 3.2-1 of the ETS participate in EPA's Environmental Radioactivity Laboratory Intercomparison Studies (Crosscheck) Program conducted by the Environmental Monitoring and Support Laboratory in Las Vegas, Nevada or in an equivalent program. Not all of the sample media/analyses combinations listed in the ETS are covered by the Crosscheck Program. Reported herein are the results of relevant participation in the Crosscheck Program by these laboratories. Relevant participation is considered to consist of those analyses for sample media covered by the EPA Crosscheck Program which are the same as those required by the ETS. HNP conducted the gross beta analysis of air filters; all other relevant media/analysis combinations were conducted by Teledyne. Because of the time lag involved in obtaining results from the EPA and the subsequent reporting of these results by the contract laboratories, not all of the 1984 results were available. The results reported herein also include the 1983 results which were not available last year.

Any results of determinations in the Crosscheck Program for which disagreement can be established using the NRC's "Criteria for Comparing Analytical Measurements" as described in Attachment 1, were investigated to determine the cause of the disagreement. Corrective actions were taken as warranted. The results of any such investigations and corrective actions are reported in this section.

Since all of the results reported herein are presented in the same tabular format, an explanation of the column headings is provided. "Date" means the collection date given by the EPA. "Known" refers to the EPA known value $\pm$ one standard deviation, s. "Result" is the average value measured by the laboratory $\pm$ experimental s. "Resolution" is determined by dividing the known value by its s value. "Ratio" equals the "result" (value determined by the laboratory) divided by the "known" (value determined by EPA). An explanation is provided in the text for any of the comparisons showing "Disagreement". It should be noted that whenever the EPA known value is zero or the laboratory determined result is a "less than" value, a comparison by the NRC criteria cannot be made since the ratio cannot be determined.

The results of the gross beta and Cs-137 analyses of air filters are given in Table 1.5-1. Listed in Table 1.5-2 are the results of the I-131 and gamma analyses of milk samples. Table 1.5-3 presents the results of the gamma and tritium analyses of water. No comparisons show disagreement except for one of the gross beta analyses on the air filters.

The results for the gross beta analyses on the air filters for March 23, 1984 showed disagreement; the November 25, 1983 results showed possible agreement. An examination of the data for the November 25 sample revealed an arithmetic error. The corrected result is 43.8 which renders a ratio of 0.88 which is agreeable. Correcting an assumed similar error on the March 23 sample provides a result of 34.8 and a ratio of 0.68 which is agreeable. The procedure for determining the activities of the EPA samples is being clarified to prevent an error of this sort in the future.

TABLE 1.5-1

CROSSCHECK PROGRAM RESULTS FOR AIR FILTERS

pCi/filter

Date	Known	Result	Resolution	Ratio
		Gross Beta		
11/25/83	50 ± 5	18.3 ± 0.6	10.0	0.4
03/23/84	51 ± 5	14.7 ± 0.6	10.2	0.3
08/24/84	51 ± 5	30.0 ± 1.5	10.2	0.6
		Cs-137		
11/25/83	20 ± 5	20 ± 1	4.0	1.00
03/23/84	10 ± 5	11 ± 1	2.0	1.10
08/24/84	15 ± 5	17 ± 2	3.0	1.13

TABLE 1.5-2

CROSSCHECK PROGRAM RESULTS FOR MILK SAMPLES

pCi/l

Date	Known	Result	Resolution	Ratio
		I-131		
10/28/83	40 ± 6	39 ± 3	6.7	0.98
03/02/84	6 ± .9	6 ± 1	6.7	1.00
06/22/84	43 ± 6	40 ± 3	7.2	0.93
		Cs-137		
10/28/83	33 ± 5	43 ± 2	6.6	1.30
06/22/84	35 ± 5	37 ± 1	7.0	1.06

TABLE 1.5-3

CROSSCHECK PROGRAM RESULTS FOR WATER SAMPLES

pCi/l

Date	Known	Result	Resolution	Ratio
		Cr-51		
02/03/84	40 ± 5	<80	8.0	
06/01/84	66 ± 5	<90	13.2	
10/05/84	40 ± 5	<107	8.0	
		Co-60		
02/03/84	10 ± 5	15 ± 3	2.0	1.50
06/01/84	31 ± 5	33 ± 1	6.2	1.06
10/05/84	20 ± 5	23 ± 3	4.0	1.15
		Zn-65		
02/03/84	50 ± 5	53 ± 6	10.0	1.06
06/01/84	63 ± 5	68 ± 5	12.6	1.08
10/05/84	147 ± 7.4	155 ± 6	19.9	1.05
		Ru-106		
02/03/84	61 ± 5	59 ± 11	12.2	0.97
06/01/84	29 ± 5	<50	5.8	
10/05/84	47 ± 5	<53	9.4	
		Cs-134		
02/03/84	31 ± 5	33 ± 1	6.2	1.06
06/01/84	47 ± 5	46 ± 2	9.4	0.98
10/05/84	31 ± 5	34 ± 4	6.2	1.10
		Cs-137		
02/03/84	16 ± 5	19 ± 1	3.2	1.19
06/01/84	37 ± 5	39 ± 1	7.4	1.05
10/05/84	24 ± 5	28 ± 3	4.8	1.17
		H-3		
12/09/83	2389 ± 351	2410 ± 130	6.8	1.01
02/10/84	2383 ± 351	2270 ± 393	6.8	0.95
04/13/84	3508 ± 364	2660 ± 114	9.6	0.76
06/08/84	3051 ± 359	3210 ± 278	8.5	1.05
08/10/84	2817 ± 356	2950 ± 46	7.9	1.05

ATTACHMENT 1

Criteria for Comparing Analytical Measurements

This attachment provides criteria for comparing results of capability tests and verification measurements. The criteria are based on an empirical relationship which combines prior experience and the accuracy needs of this program.

In these criteria, the judgment limits are variable in relation to the comparison of the Reference Laboratory's value to its associated one sigma uncertainty. As this comparison, referred to as "Resolution" increases, the acceptability of a licensee's measurement should be more selective. Conversely, poorer agreement should be considered acceptable as the resolution decreases. The values in the ratio criteria may be rounded to fewer significant figures to maintain statistical consistency with the number of significant figures reported by the Reference Laboratory, unless such rounding will result in a narrowed category of acceptance. The acceptance category reported will be the narrowest into which the ratio fits for the resolution being used.

RESOLUTION	RATIO = LICENSEE VALUE/REFERENCE VALUE		
	Agreement	Possible Agreement "A"	Possible Agreement "B"
< 3	No Comparison	No Comparison	No Comparison
≥ 3 and < 4	0.4 - 2.5	0.3 - 3.0	No Comparison
≥ 4 and < 8	0.5 - 2.0	0.4 - 2.5	0.3 - 3.0
≥ 8 and < 16	0.6 - 1.67	0.5 - 2.0	0.4 - 2.5
≥ 16 and < 51	0.75 - 1.33	0.6 - 1.67	0.5 - 2.0
≥ 51 and < 200	0.80 - 1.25	0.75 - 1.33	0.6 - 1.67
≥ 200	0.85 - 1.18	0.80 - 1.25	0.75 - 1.33

"A" criteria are applied to the following analyses:

Gamma spectrometry where principal gamma energy used for identification is greater than 250 keV.

Tritium analyses of liquid samples

"B" criteria are applied to the following analyses:

Gamma spectrometry where principal gamma energy used for identification is less than 250 keV.

Sr-89 and Sr-90 determination.

Gross beta where samples are counted on the same date using the same reference nuclide.

1.5 Conclusions

This chapter has shown the licensee's conformance with the radiological portions of the ETS. It has shown that all data were carefully examined. A summary, an interpretation and an evaluation (where warranted) of the results of the laboratory analyses for each type sample collected have been presented.

No measurable radiological impact upon the environment as a consequence of discharges to the atmosphere was established.

A discernable difference between the positive levels of Cs-137 found in fish samples collected at the indicator station and at the control station was noted. The impact of these higher downstream levels was miniscule - less than 4% of the RL.

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CHAPTER 2

METEOROLOGICAL MONITORING

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CHAPTER 2

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2. METEOROLOGICAL MONITORING

2.1 Introduction

The year 1984 was the first full year at Plant Hatch using the meteorological data from the new 100m meteorological tower.

2.2 1984 Data

2.2.1 Data Recovery

Data recovery for the year was better than 90% for all parameters and composites of pertinent parameters. There were some occasional periods of bad data (none longer than 4-5 days) caused by instrument malfunctions and strip chart problems (Table 2.2-1).

2.2.2 Wind Roses

The wind speeds and direction data presented by the seasonal and annual wind roses (Figure 2.2-1 through 2.2-6) compares well with previous years. We are now working with higher levels than on the old tower but that should have little effect on the wind directions. The annual wind roses from all three levels agree quite well, particularly the 60m and 100m. There are some minor differences between the two upper levels and the 10m level in the south to west sectors. This appears to occur mostly during light winds in the summer months when the upper levels tend to show southwest to west winds and the 10m level south to southwest winds. The wind roses correspond well to previous years within normal climatic variations. The major difference between the 1983 and 1984 wind roses being the shift from a predominant northwest wind to a predominant southwest wind in 1984. This is most likely the effects of year-to-year variations.

2.2.3 Temperature Data

The ambient and dew point temperatures (Figures 2.2-7 and 2.2-8) reflect the general climatic conditions in the southeast U.S. during 1984. The Winter and Spring months compare well with previous years and climatic normals. The Summer months were cooler than normal with average high temperatures in the middle 80's instead of near 90 as in most previous years. The dew point also averaged about 5 degrees below Summer normals. In the Fall and early Winter, however, conditions reversed with temperatures warmer than normal during September, October and December. In fact, comparing this December, one of the warmest on record, with December 1983, a very cold one, shows average temperatures of 56 degrees versus 46 degrees a change of about 10 degrees in one year.

2.2.4 Joint Frequency Tables

The joint frequency tables (Tables 2.2-2 through 2.2-4) show some differences that reflect the changes in sensor heights on the new tower. Under normal circumstances, the area around meteorological towers is usually a combination of patchy grass and weeds. This type of sparsely covered surface allows for greater surface heating. As one moves up in the atmosphere the rate of temperature change decreases with height in the lower 1000m. In the case of the old meteorological tower, the delta temperature was taken between 150 ft and 33 ft or a distance of 117 ft. At the present time, the closest comparative level would be between 197 ft and 33 ft or 164 ft. This additional distance means less A stability during the daylight hours due to the increased height the stability is being configured over. The following table shows the latest 5 year stability classifications.

Plant Hatch Stability Classification

Stability Group	% Stability Year					
	1984	1983	1982	1981	1980	5-year Average
A	8.4	14.7	16.7	21.7	25.2	17.3
B	5.2	5.2	3.8	4.6	3.0	4.4
C	5.8	3.8	2.3	2.0	1.2	3.0
D	19.9	21.9	20.8	19.0	14.2	19.2
E	31.8	33.8	34.3	29.1	31.3	32.0
F	12.4	11.3	14.8	11.7	13.3	12.7
G	16.5	9.3	7.8	11.9	11.8	11.4
Total Hours	7928	7468	7725	7944	8361	

2.2.5 Precipitation

The total precipitation for 1984 was about 30 inches. As in the past, this is well below local climatic averages of about 45 inches. The 30 inches is close to the Hatch average precipitation totals of previous years.

TABLE 2.2-1

DATA RECOVERY - 1984

Parameter	Recovery (percent)
Wind speed 10m	93.5
Wind speed 60m	93.0
Wind speed 100m	94.7
Wind direction 10m	95.7
Wind direction 60m	93.7
Wind direction 100m	95.1
Delta temperature 100-10m	98.3
Delta temperature 60-10m	98.7
Temperature 10m	97.1
Dew point temperature 10m	97.0
Rainfall	100.0
Composite	
Wind speed and direction 10m, delta temperature 60-10m	90.3
Wind speed and direction 60m, delta temperature 60-10m	93.0
Wind speed and direction 100m, delta temperature 100-10m	91.4

TABLE 2.2-2

JOINT FREQUENCY TABLE WIND SPEED AND
WIND DIRECTION 10m vs DELTA TEMPERATURE
60m - 10m (1/1/84-12/31/84)

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	13	5	0	0	0	20
NNE	0	25	12	0	0	0	37
NE	2	24	40	0	0	0	66
ENE	0	20	14	0	0	0	34
E	1	20	3	0	0	0	24
ESE	1	19	14	0	0	0	34
SE	1	18	17	0	0	0	36
SSE	0	21	20	0	0	0	41
S	1	23	23	0	0	0	47
SSW	2	26	22	3	0	0	53
SW	1	26	20	1	0	0	48
WSW	3	26	24	3	0	0	56
W	0	29	26	0	0	0	55
WNW	0	22	25	0	0	0	47
NW	0	22	18	0	0	0	40
NNW	0	12	10	0	0	0	22
TOTAL	14	346	293	7	0	0	660

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 856

TABLE 2.2-2 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	11	5	0	0	0	16
NNE	1	13	4	0	0	0	18
NE	2	28	10	0	0	0	40
ENE	0	13	2	0	0	0	15
E	1	11	3	0	0	0	15
ESE	0	9	3	0	0	0	12
SE	1	20	5	0	0	0	26
SSE	1	10	10	0	0	0	21
S	3	21	5	0	0	0	29
SSW	1	29	8	2	0	0	40
SW	1	23	8	1	0	0	33
WSW	2	17	8	1	0	0	28
W	0	23	14	3	0	0	40
WNW	1	22	5	0	0	0	28
NW	0	17	12	0	0	0	29
NNW	1	14	9	1	0	0	25
TOTAL	15	281	111	8	0	0	415

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 856

TABLE 2.2-2 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	3	7	7	2	0	0	19
NNE	5	12	3	0	0	0	20
NE	0	16	7	0	0	0	23
ENE	1	9	3	0	0	0	13
E	0	7	1	0	0	0	8
ESE	1	16	2	0	0	0	19
SE	5	20	4	1	0	0	30
SSE	1	14	7	2	0	0	24
S	3	16	9	0	0	0	28
SSW	4	32	18	1	1	0	56
SW	2	27	10	2	0	0	41
WSW	0	27	9	0	0	0	36
W	2	26	15	0	0	0	43
WNW	1	32	9	1	0	0	43
NW	2	19	10	1	0	0	32
NNW	2	18	6	1	0	0	27
TOTAL	32	298	120	11	1	0	462

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 856

TABLE 2.2-2 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	15	50	22	5	0	0	92
NNE	15	46	13	0	0	0	74
NE	21	89	48	0	0	0	158
ENE	10	62	11	0	0	0	83
E	9	30	4	0	0	0	43
ESE	14	51	15	0	0	0	80
SE	7	60	21	1	0	0	89
SSE	10	55	28	2	0	0	95
S	18	61	22	2	0	0	103
SSW	10	83	26	3	0	0	122
SW	8	61	15	0	0	0	84
WSW	11	55	19	9	0	0	94
W	13	67	35	15	0	0	130
WNW	8	76	32	3	0	0	119
NW	10	70	23	0	0	0	103
NNW	13	62	33	1	0	0	109
TOTAL	192	978	367	41	0	0	1578

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 856

TABLE 2.2-2 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	18	42	21	3	0	0	84
NNE	27	55	12	0	0	0	94
NE	36	152	29	0	0	0	217
ENE	33	94	6	0	0	0	133
E	41	68	11	0	0	0	120
ESE	30	119	11	0	0	0	160
SE	46	194	28	1	0	0	269
SSE	32	120	37	1	0	0	190
S	42	116	31	1	0	0	190
SSW	42	113	39	2	0	0	196
SW	44	121	23	7	0	0	195
WSW	31	70	15	6	0	0	122
W	24	91	17	4	0	0	136
WNW	19	86	22	4	0	0	131
NW	15	98	42	1	0	0	156
NNW	21	81	23	4	0	0	129
TOTAL	501	1620	367	34	0	0	2522

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 856

TABLE 2.2-2 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	10	13	2	0	0	0	25
NNE	9	3	0	0	0	0	12
NE	23	39	2	0	0	0	64
ENE	31	32	2	0	0	0	65
E	35	17	0	0	0	0	52
ESE	39	38	1	0	0	0	78
SE	42	40	3	0	0	0	85
SSE	37	40	2	0	0	0	79
S	33	46	2	0	0	0	81
SSW	28	70	2	0	0	0	100
SW	36	53	1	0	0	0	90
WSW	31	35	0	0	0	0	66
W	20	32	1	0	0	0	53
WNW	9	30	1	0	0	0	40
NW	9	34	3	0	0	0	46
NNW	14	34	1	0	0	0	49
TOTAL	406	556	23	0	0	0	985

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 856

TABLE 2.2-2 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	28	6	0	0	0	0	34
NNE	25	7	0	0	0	0	32
NE	19	14	0	0	0	0	33
ENE	36	13	0	0	0	0	49
E	42	10	0	0	0	0	52
ESE	30	10	0	0	0	0	40
SE	43	11	0	0	0	0	54
SSE	46	11	0	0	0	0	57
S	113	33	0	0	0	0	147
SSW	164	51	0	0	0	0	215
SW	178	48	1	0	0	0	227
WSW	130	41	1	0	0	0	172
W	67	21	0	0	0	0	89
WNW	28	10	0	0	0	0	38
NW	26	12	0	0	0	0	38
NNW	24	4	1	0	0	0	29
TOTAL	999	302	3	0	0	0	1306

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 856

TABLE 2.2-2 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	76	142	62	10	0	0	290
NNE	82	161	44	0	0	0	287
NE	103	362	136	0	0	0	601
ENE	111	243	38	0	0	0	392
E	129	163	22	0	0	0	314
ESE	115	262	46	0	0	0	423
SE	145	363	78	3	0	0	589
SSE	127	271	104	5	0	0	507
S	213	316	92	3	0	0	625
SSW	251	404	115	11	1	0	782
SW	270	359	78	11	0	0	718
WSW	208	271	76	19	0	0	574
W	126	289	108	22	0	0	546
WNW	66	278	94	8	0	0	446
NW	62	272	108	2	0	0	444
NNW	75	225	83	7	0	0	390
TOTAL	2159	4381	1284	101	1	0	7928

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 856

TABLE 2.2-3

JOINT FREQUENCY TABLE WIND SPEED AND
WIND DIRECTION 60m vs DELTA TEMPERATURE
60m - 10m (1/1/84 - 12/31/84)

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	3	9	2	0	0	15
NNE	0	9	9	0	0	0	18
NE	0	17	39	26	1	0	83
ENE	0	14	24	7	0	0	45
E	0	12	13	0	1	0	26
ESE	0	9	15	6	0	0	30
SE	1	8	18	3	0	0	30
SSE	0	12	14	7	0	0	33
S	1	6	25	6	0	0	38
SSW	0	15	29	8	2	0	54
SW	1	7	21	12	6	2	49
WSW	0	13	22	11	9	2	57
W	1	26	43	13	3	1	87
WNW	0	10	21	10	2	0	43
NW	0	5	20	6	2	0	33
NNW	1	13	7	1	0	0	22
TOTAL	6	179	329	118	26	5	663

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 615

TABLE 2.2-3 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	8	9	2	0	0	19
NNE	0	3	5	0	0	0	8
NE	2	12	17	8	0	0	39
ENE	0	5	12	2	0	0	19
E	0	8	8	2	1	0	19
ESE	0	3	11	2	0	0	16
SE	0	10	11	4	0	0	25
SSE	0	7	8	2	0	0	17
S	0	10	12	1	0	0	23
SSW	0	12	15	3	0	2	32
SW	0	13	14	9	1	1	38
WSW	1	19	14	8	1	0	43
W	0	15	17	9	5	1	47
WNW	0	9	24	4	1	1	39
NW	2	7	17	1	0	0	27
NNW	1	4	9	1	0	0	15
TOTAL	6	145	203	58	9	5	426

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 615

TABLE 2.2-3 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	11	5	3	3	0	23
NNE	0	6	4	0	0	0	10
NE	1	8	13	5	1	0	28
ENE	1	7	9	2	0	0	19
E	2	9	6	0	0	0	17
ESE	0	12	6	0	0	0	18
SE	1	8	7	2	1	0	19
SSE	1	11	7	3	0	0	22
S	0	11	12	7	0	0	30
SSW	0	12	13	10	2	1	38
SW	1	12	13	12	1	1	40
WSW	3	17	21	4	3	0	48
W	0	25	19	13	0	0	57
WNW	1	22	23	4	1	0	51
NW	1	14	12	4	1	0	32
NNW	2	14	11	3	0	0	30
TOTAL	15	199	181	72	13	2	482

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 615

TABLE 2.2-3 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	3	25	26	30	6	0	90
NNE	7	26	19	29	5	0	86
NE	6	35	79	47	3	0	170
ENE	6	31	39	11	0	0	87
E	4	35	32	6	0	0	77
ESE	3	23	38	17	0	0	81
SE	8	15	34	13	1	0	71
SSE	2	34	32	12	2	0	82
S	5	19	37	12	2	1	76
SSW	5	27	62	23	1	3	121
SW	4	29	45	13	1	0	92
WSW	3	40	45	17	11	14	130
W	3	30	66	39	9	7	154
WNW	3	33	56	17	3	1	113
NW	6	39	40	12	0	0	97
NNW	5	36	60	27	2	0	130
TOTAL	73	477	710	325	46	26	1657

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 615

TABLE 2.2-3 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	13	37	38	7	0	96
NNE	5	24	43	40	9	0	121
NE	3	38	113	53	2	0	209
ENE	4	28	94	14	1	0	141
E	3	47	72	21	1	1	145
ESE	1	40	87	18	1	0	147
SE	5	60	150	22	1	0	238
SSE	6	31	126	38	2	0	203
S	4	41	105	43	5	0	198
SSW	1	40	109	41	9	2	202
SW	4	41	89	31	15	2	182
WSW	3	25	79	31	12	5	155
W	4	39	74	41	13	1	172
WNW	4	21	62	55	4	0	146
NW	4	24	75	28	1	0	132
NNW	3	21	53	24	1	0	102
TOTAL	55	533	1368	538	84	11	2589

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 615

TABLE 2.2-3 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	3	14	7	0	0	25
NNE	2	6	12	6	0	0	26
NE	1	6	30	12	0	0	49
ENE	4	11	28	7	0	0	50
E	1	11	44	10	0	0	66
ESE	1	20	34	5	0	0	60
SE	1	24	68	4	0	0	97
SSE	1	16	63	8	0	0	88
S	6	24	60	7	1	0	92
SSW	1	12	49	19	1	0	82
SW	0	6	59	19	0	0	94
WSW	2	15	72	19	0	0	108
W	1	9	51	13	0	0	74
WNW	0	9	23	10	0	0	42
NW	1	3	15	9	0	0	28
NNW	0	8	29	8	0	0	45
TOTAL	17	193	651	163	2	0	1026

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 615

TABLE 2.2-3 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	10	16	2	0	0	30
NNE	4	11	20	0	0	0	35
NE	3	11	41	13	0	0	68
ENE	1	28	36	5	0	0	70
E	3	26	33	6	0	0	68
ESE	2	26	37	4	0	0	69
SE	3	36	40	5	0	0	84
SSE	5	12	50	6	0	0	73
S	2	18	63	16	0	0	99
SSW	5	24	54	19	0	0	102
SW	4	24	109	31	1	0	169
WSW	2	21	100	31	0	0	154
W	4	21	82	21	0	0	128
WNW	1	19	50	6	0	0	76
NW	5	19	45	3	0	0	72
NNW	2	11	14	2	0	0	29
TOTAL	48	317	790	170	1	0	1326

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 615

TABLE 2.2-3 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	9	73	116	84	16	0	298
NNE	18	85	112	75	14	0	304
NE	16	127	332	164	7	0	646
ENE	16	124	242	48	1	0	431
E	13	148	208	45	3	1	418
ESE	7	133	228	52	1	0	421
SE	19	161	328	53	3	0	564
SSE	15	123	300	76	4	0	518
S	12	129	314	92	8	1	556
SSW	12	142	331	123	15	8	631
SW	14	142	350	127	25	6	664
WSW	14	150	353	121	36	21	695
W	13	165	352	149	30	10	719
WNW	9	123	259	106	11	2	510
NW	19	111	224	63	4	0	421
NNW	14	107	183	66	3	0	373
TOTAL	220	2043	4232	1444	181	49	8169

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 615

TABLE 2.2-4

JOINT FREQUENCY TABLE WIND SPEED AND
WIND DIRECTION 100m vs DELTA TEMPERATURE
100m - 10m (1/1/84 - 12/31/84)

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

	WIND SPEED(MPH)						
WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	5	7	9	0	0	21
NNE	0	2	10	9	2	0	23
NE	0	6	40	19	0	0	65
ENE	1	5	32	8	0	0	46
E	1	5	17	6	0	0	29
ESE	0	6	12	4	0	0	22
SE	0	7	27	6	0	0	40
SSE	0	7	18	9	0	0	34
S	1	6	14	7	0	0	28
SSW	1	4	7	1	0	0	13
SW	0	8	8	6	1	0	23
WSW	0	10	7	7	5	2	31
W	1	2	10	11	2	0	26
WNW	1	2	6	8	3	0	20
NW	1	5	7	4	0	0	17
NNW	1	4	3	1	0	0	9
TOTAL	8	84	225	115	13	2	447

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 755

TABLE 2.2-4 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	3	3	4	1	0	11
NNE	0	4	6	3	1	0	14
NE	1	7	23	13	1	0	45
ENE	0	2	15	4	0	0	21
E	0	2	6	0	0	0	8
ESE	1	8	14	4	0	0	27
SE	1	6	7	1	0	0	15
SSE	0	6	7	5	0	0	18
S	0	8	10	4	0	0	22
SSW	0	2	9	6	1	0	18
SW	1	3	13	4	2	0	23
WSW	0	3	12	7	1	0	23
W	0	5	18	11	4	1	39
WNW	0	3	9	5	1	0	18
NW	0	2	7	3	0	0	12
NNW	0	3	2	1	0	0	6
TOTAL	4	67	161	75	12	1	320

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 755

TABLE 2.2-4 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	4	3	2	2	1	0	12
NNE	3	4	6	2	1	0	16
NE	2	4	17	10	0	0	33
ENE	0	6	9	2	0	0	17
E	1	4	6	2	0	0	13
ESE	1	9	17	3	1	0	31
SE	1	9	4	1	0	0	15
SSE	2	6	6	3	0	0	17
S	1	6	11	6	0	0	24
SSW	0	7	8	10	0	2	27
SW	1	7	13	8	3	1	33
WSW	1	5	8	5	3	0	22
W	1	7	19	8	3	0	38
WNW	0	8	19	10	0	0	37
NW	0	8	14	10	0	0	32
NNW	1	3	3	1	0	0	8
TOTAL	19	96	162	83	12	3	375

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 755

TABLE 2.2-4 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	11	38	48	55	18	0	170
NNE	9	28	36	68	18	0	159
NE	12	47	88	103	21	0	271
ENE	5	34	39	26	0	0	104
E	6	42	47	26	5	0	126
ESE	5	30	40	22	1	0	98
SE	10	30	56	28	2	0	126
SSE	8	48	50	32	4	0	142
S	8	54	64	22	8	1	157
SSW	7	44	79	35	8	2	175
SW	8	47	66	35	15	4	175
WSW	5	42	76	35	12	13	183
W	14	53	86	59	26	9	247
WNW	10	48	84	42	9	4	197
NW	12	43	63	25	3	1	147
NNW	10	45	39	34	1	0	129
TOTAL	140	673	961	647	151	34	2606

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 755

TABLE 2.2-4 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	5	8	20	40	6	0	79
NNE	5	17	31	37	18	0	108
NE	7	18	54	83	8	0	170
ENE	3	23	45	63	9	1	144
E	3	12	57	77	6	1	156
ESE	6	25	73	54	4	0	162
SE	7	34	122	72	2	0	237
SSE	5	20	63	90	6	0	184
S	4	27	76	78	14	0	199
SSW	4	11	72	76	27	3	193
SW	3	24	70	66	11	6	180
WSW	6	12	37	55	7	2	119
W	1	24	45	81	12	9	172
WNW	1	16	35	52	9	1	114
NW	9	13	31	68	9	0	130
NNW	3	13	18	24	3	0	61
TOTAL	72	297	849	1016	151	23	2408

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 755

TABLE 2.2-4 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED (MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	7	5	5	2	0	21
NNE	3	2	7	14	2	0	28
NE	1	2	7	10	5	0	25
ENE	3	6	12	25	6	0	52
E	4	4	12	32	10	0	62
ESE	2	10	19	17	3	0	51
SE	2	22	42	26	0	0	92
SSE	1	9	29	31	4	0	74
S	0	8	24	46	8	0	86
SSW	1	7	23	39	3	0	73
SW	0	6	22	46	9	0	83
WSW	1	11	22	70	10	0	114
W	2	5	22	39	9	0	77
WNW	1	6	15	24	2	0	48
NW	1	3	14	16	2	0	36
NNW	2	5	6	5	0	0	18
TOTAL	26	113	281	445	75	0	940

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 755

TABLE 2.2-4 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	6	9	6	0	0	22
NNE	4	2	13	2	0	0	21
NE	2	2	11	18	0	0	33
ENE	1	5	10	26	0	0	42
E	3	10	13	17	2	0	45
ESE	0	17	12	7	1	0	37
SE	9	12	23	25	7	0	76
SSE	5	9	17	23	0	0	54
S	4	8	21	29	2	0	64
SSW	2	10	19	27	2	0	60
SW	4	18	36	46	10	0	114
WSW	2	16	22	55	10	0	105
W	6	16	30	52	7	0	111
WNW	1	7	31	29	0	0	68
NW	4	10	28	16	0	0	58
NNW	2	7	10	3	1	0	23
TOTAL	50	155	305	381	42	0	933

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 755

TABLE 2.2-4 (CONTINUED)

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 84010101-84123124
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED: DIRECTION: LAPSE:

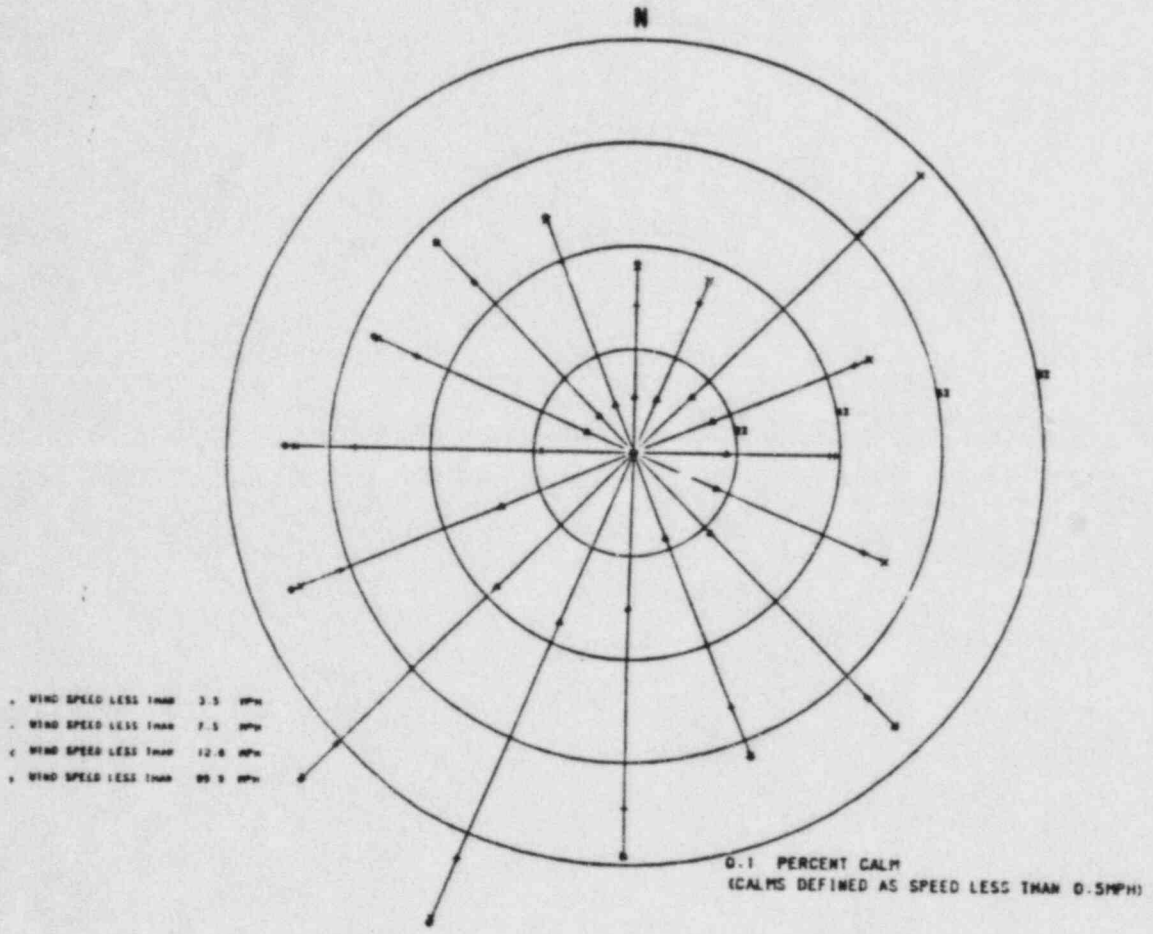
WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	23	70	94	121	28	0	336
NNE	24	59	109	135	42	0	369
NE	25	86	240	256	35	0	642
ENE	13	81	162	154	15	1	426
E	18	79	158	160	23	1	439
ESE	15	105	187	111	10	0	428
SE	30	120	281	159	11	0	601
SSE	21	105	190	193	14	0	523
S	18	117	220	192	32	1	580
SSW	15	85	217	194	41	7	559
SW	17	113	228	211	51	11	631
WSW	15	99	184	234	48	17	597
W	25	112	230	261	63	19	710
WNW	14	90	199	170	24	5	502
NW	27	84	164	142	14	1	432
NNW	19	80	81	69	5	0	254
TOTAL	319	1485	2944	2762	456	63	8029

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 755

TABLE 2.2-5

MONTHLY AND ANNUAL PRECIPITATION
1984

Month	Precipitation (inches)
January	5.29
February	1.95
March	4.60
April	2.83
May	3.22
June	0.48
July	4.27
August	2.14
September	3.09
October	0.45
November	1.59
December	0.02
TOTAL	29.93 inches

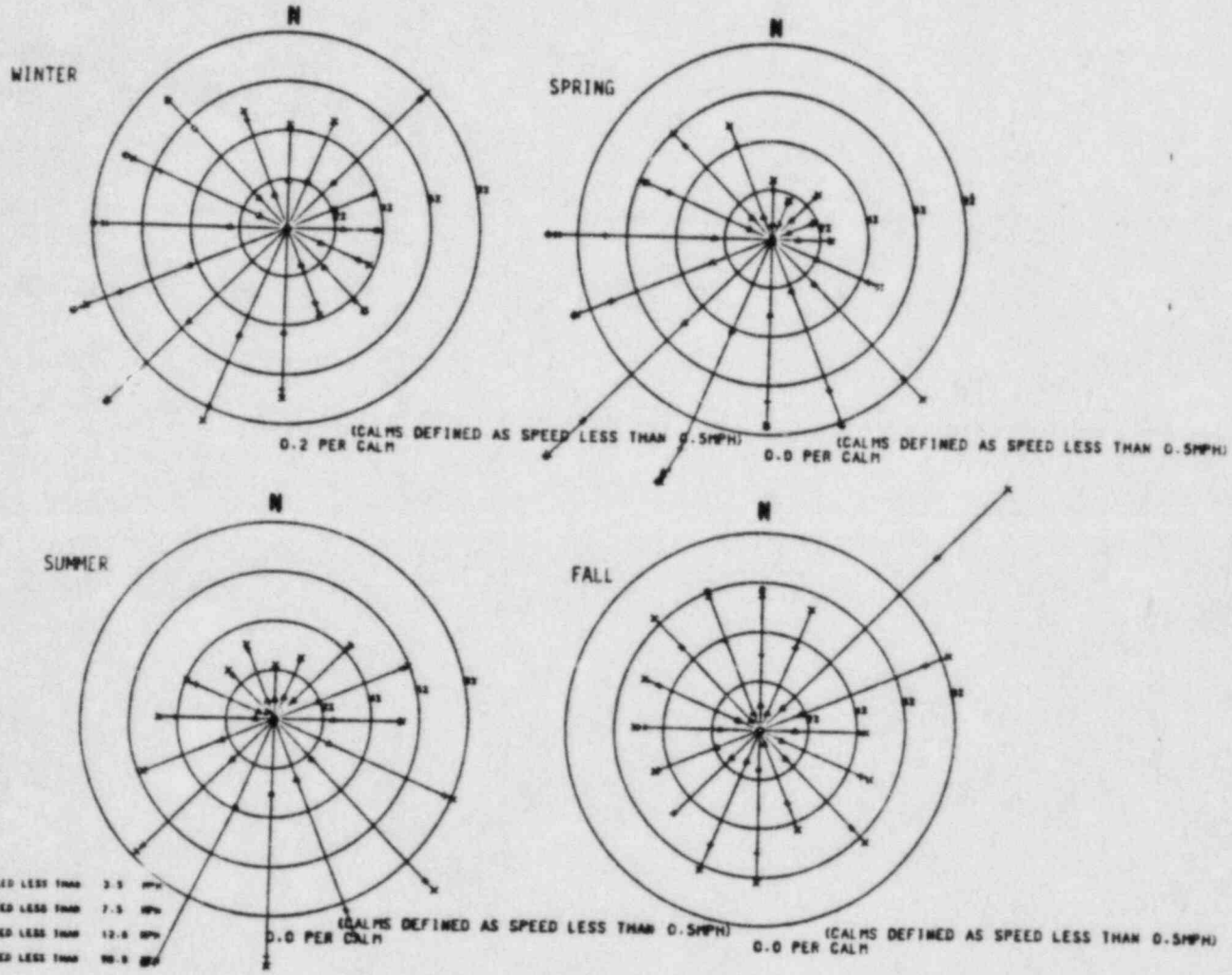


GEORGIA POWER COMPANY

EDWIN I. HATCH NUCLEAR PLANT
ANNUAL REPORT

10 METER WIND ROSE - 1984

FIGURE 2.2-1

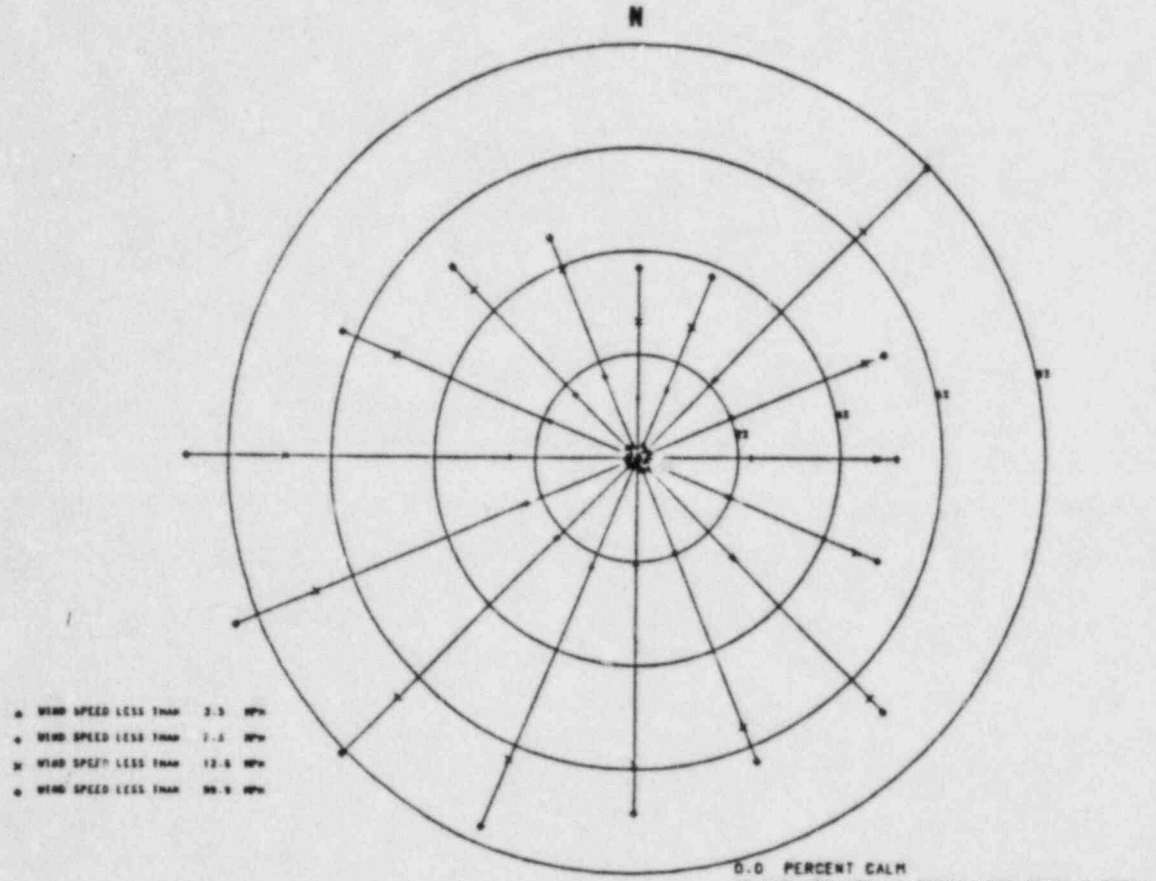


GEORGIA POWER COMPANY

EDWIN I. HATCH NUCLEAR PLANT
ANNUAL REPORT

10 METER SEASONAL WIND ROSES - 1984

FIGURE 2.2-2

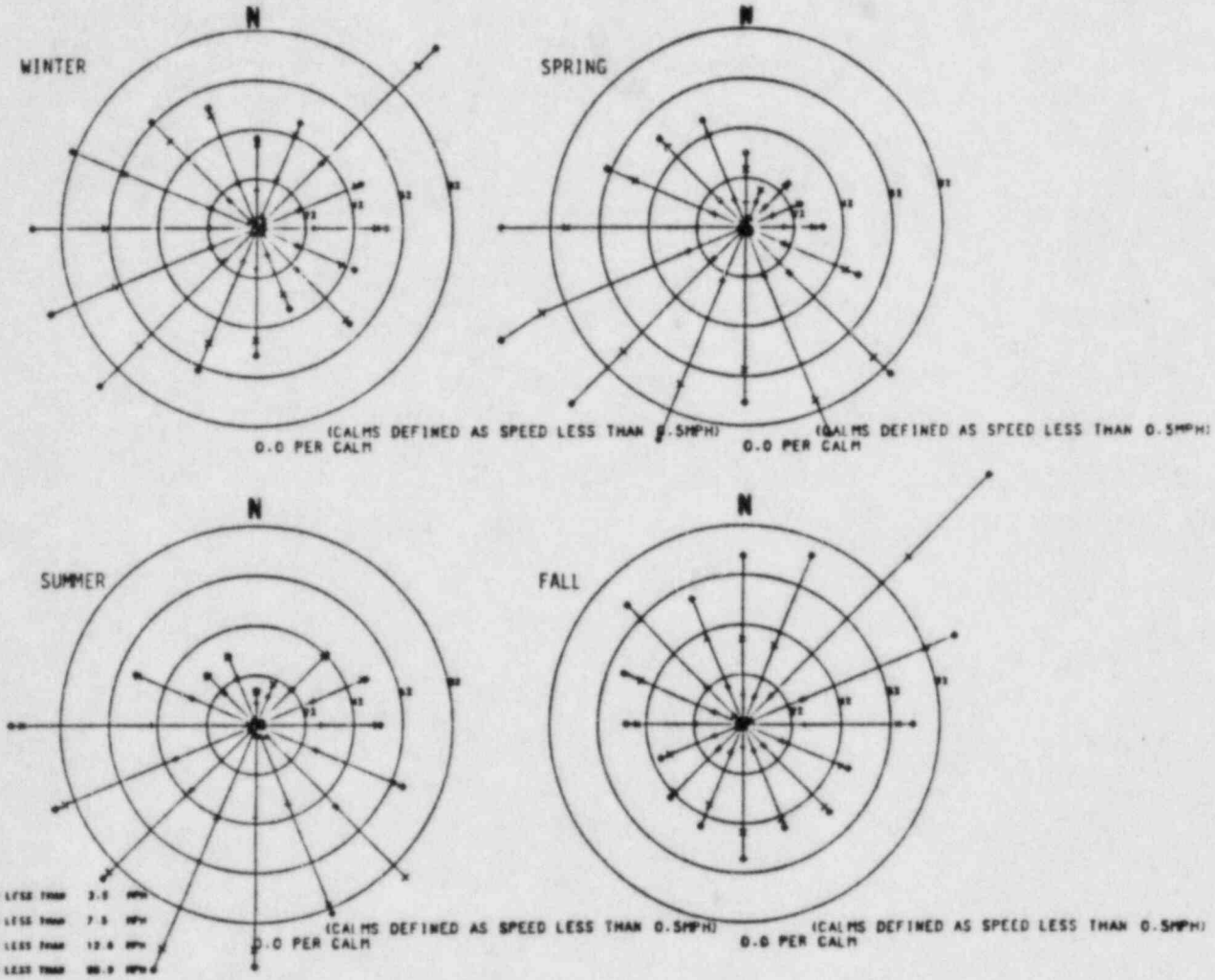


GEORGIA POWER COMPANY

EDWIN I. HATCH NUCLEAR PLANT
ANNUAL REPORT

60 METER WIND ROSE - 1984

FIGURE 2.2-3

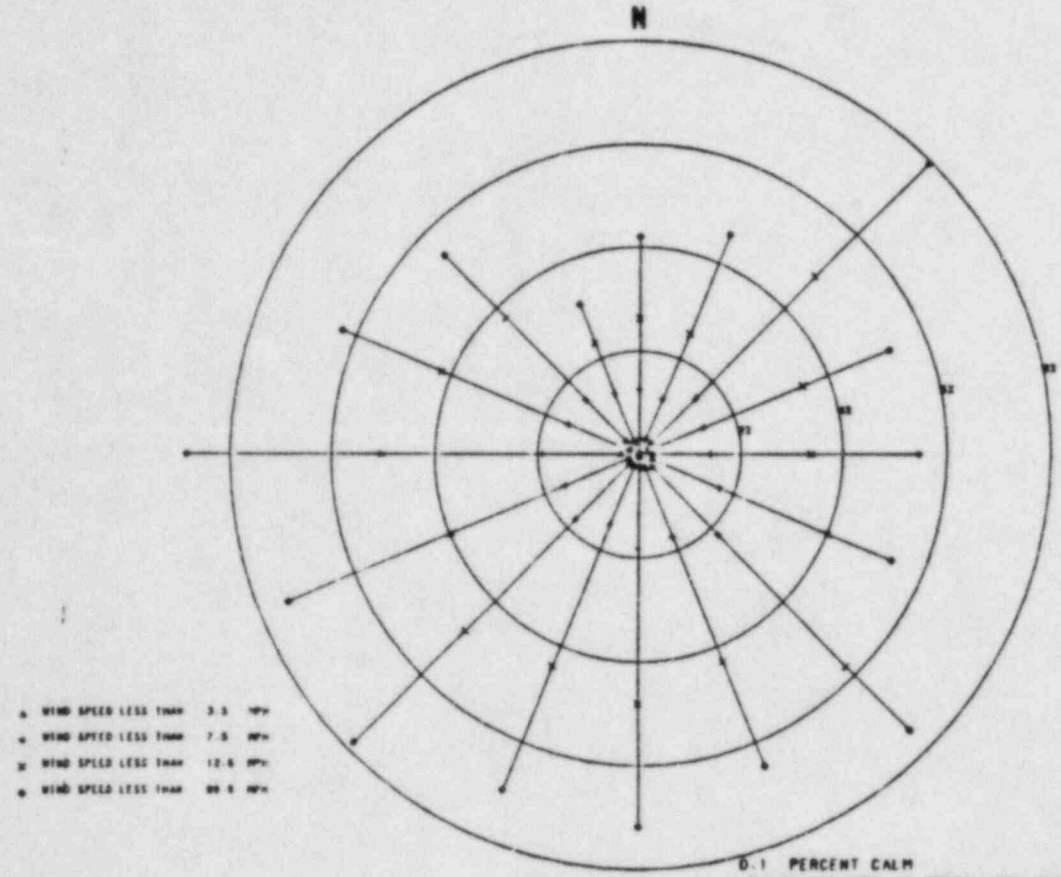


GEORGIA POWER COMPANY

EDWIN I. HATCH NUCLEAR PLANT
ANNUAL REPORT

60 METER SEASONAL WIND ROSES - 1984

FIGURE 2.2-4

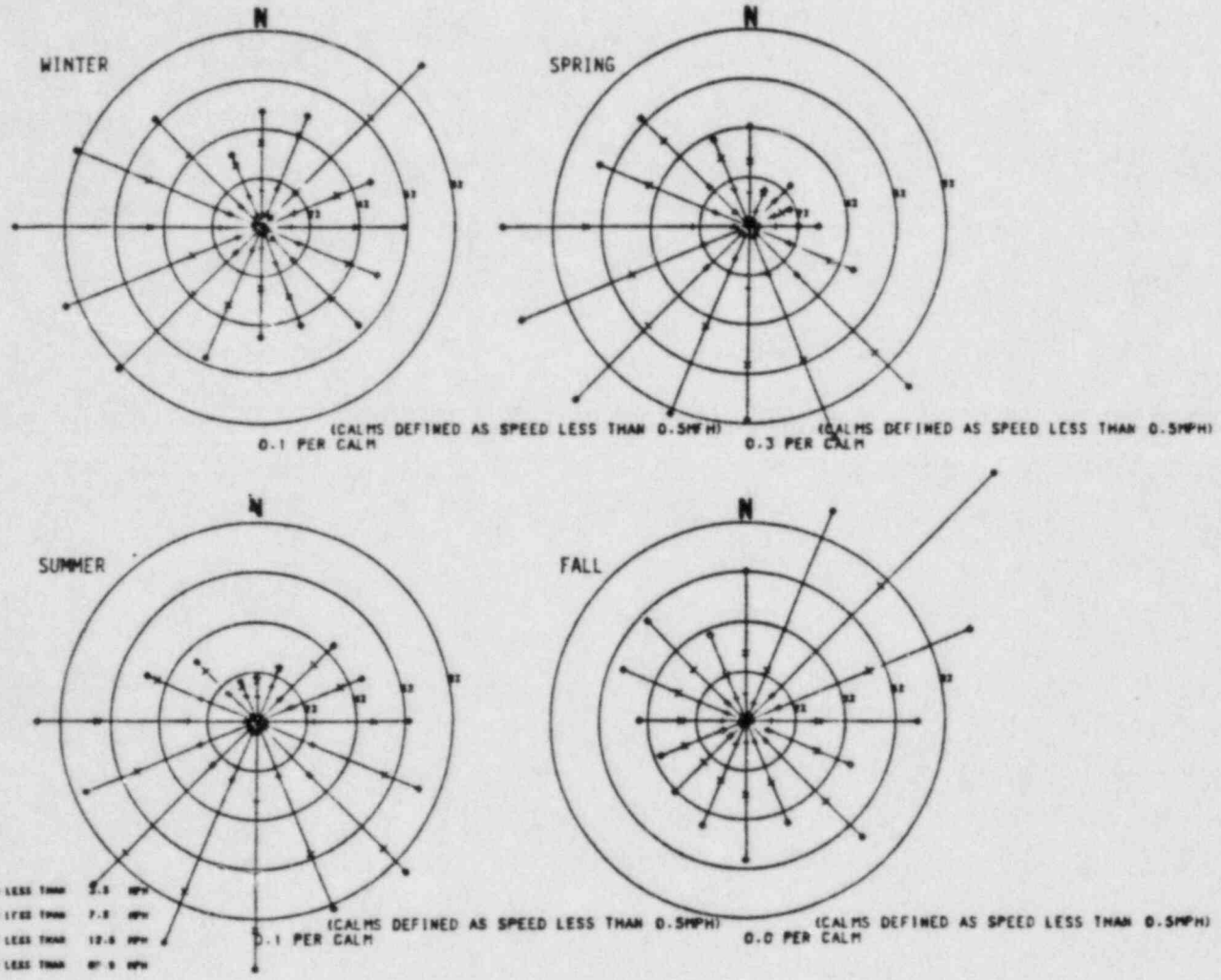


GEORGIA POWER COMPANY

EDWIN I. HATCH NUCLEAR PLANT
ANNUAL REPORT

100 METER WIND ROSE - 1984

FIGURE 2.2-5

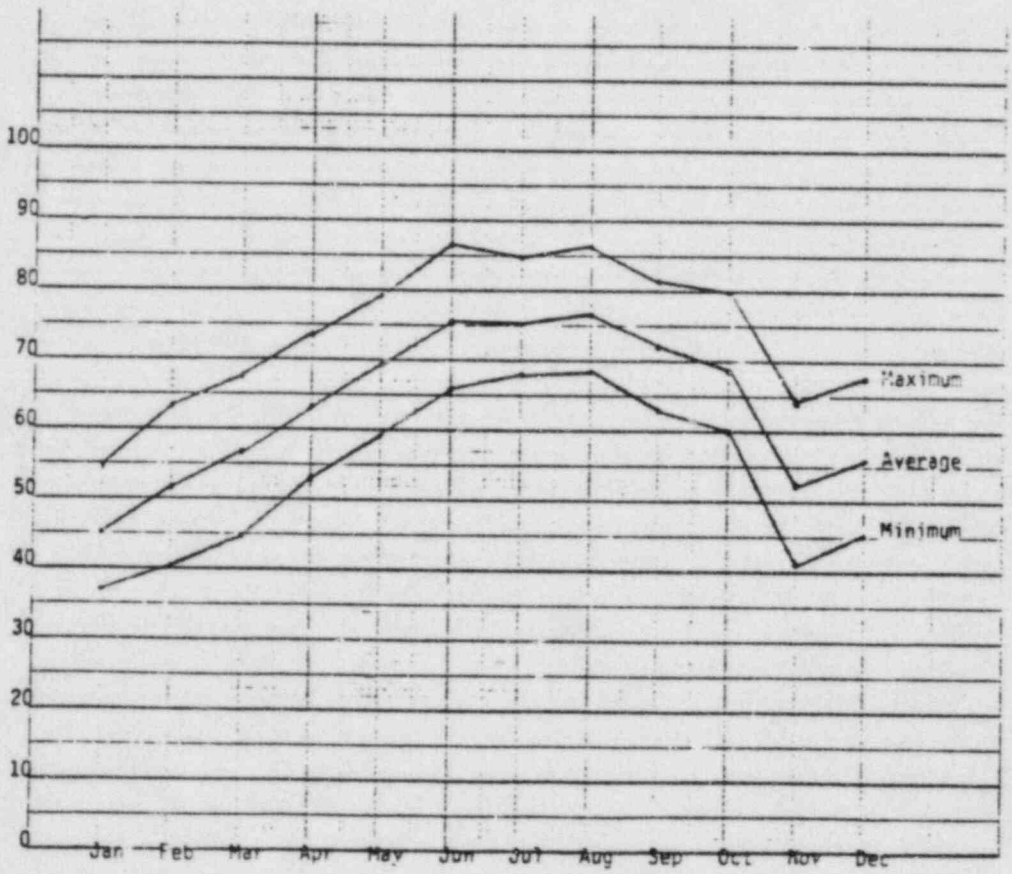


GEORGIA POWER COMPANY

EDWIN I. HATCH NUCLEAR PLANT
ANNUAL REPORT

100 METER SEASONAL WIND ROSES - 1984

FIGURE 2.2-6

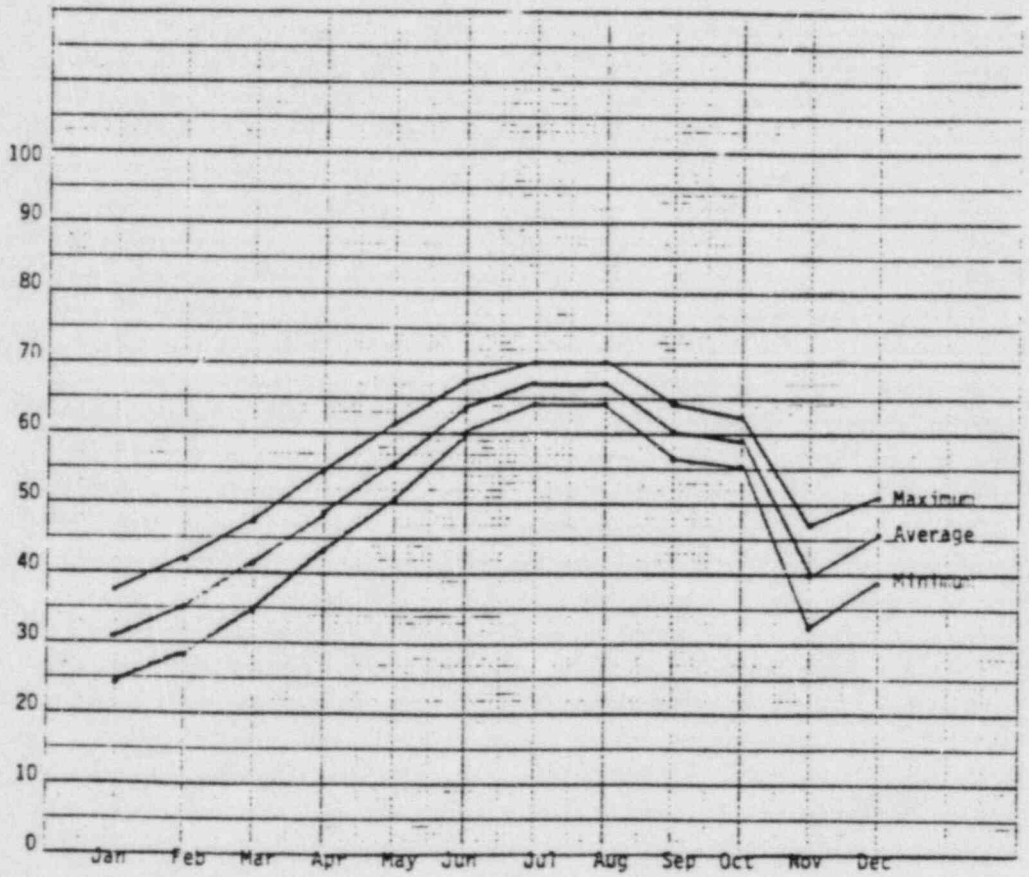


GEORGIA POWER COMPANY

EDWIN I. HATCH NUCLEAR PLANT
ANNUAL REPORT

AMBIENT TEMPERATURE - 1984

FIGURE 2.2-7



GEORGIA POWER COMPANY

EDWIN I. HATCH NUCLEAR PLANT
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DEW POINT TEMPERATURE - 1984

FIGURE 2.2-8

HNP
ANNUAL REPORT

CHAPTER 3

ADMINISTRATIVE CONTROLS

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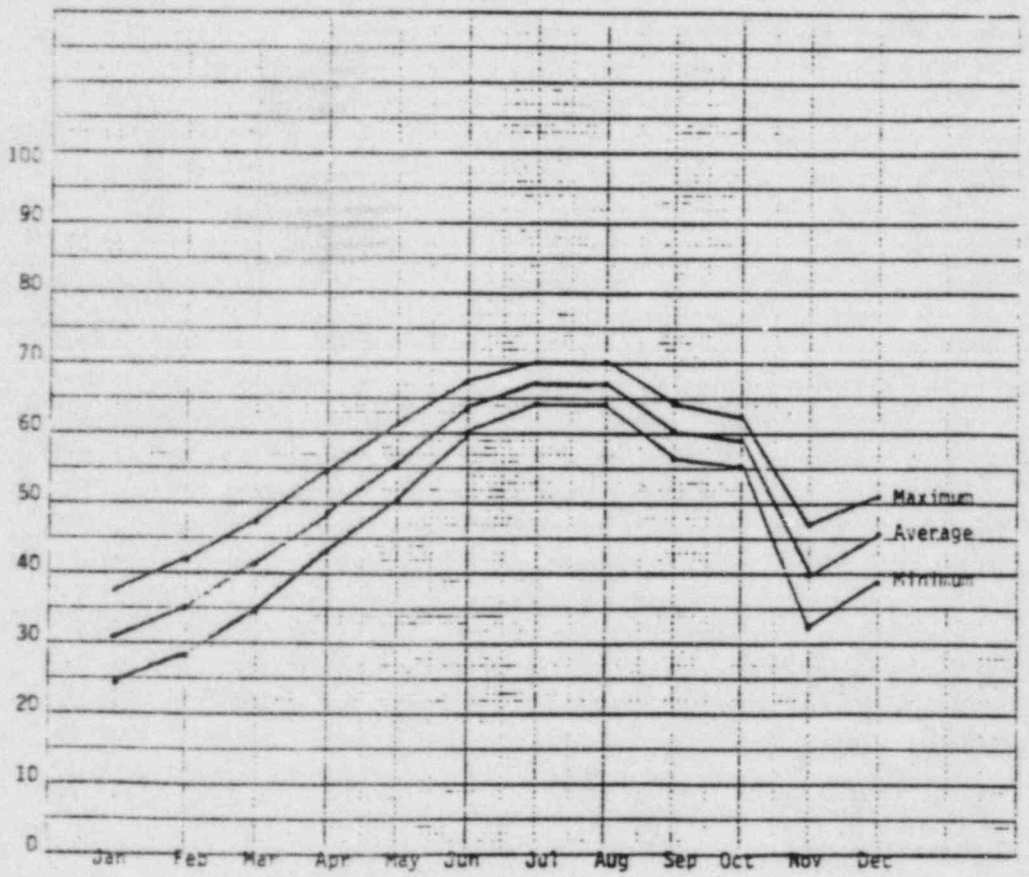
3.1	SPECIFICATIONS	3-1
3.2	DISCUSSION	3-1



GEORGIA POWER COMPANY

EDWIN I. HATCH NUCLEAR PLANT
ANNUAL REPORT

DEW POINT TEMPERATURE - 1984

FIGURE 2.2-8

3. ADMINISTRATIVE CONTROLS

3.1 Specification

In accordance with Section 5.7.1 of the HNP-ETS, Units 1 and 2, the HNP Annual Environmental Surveillance Report will include a summary of all instances of Environmental Technical Specifications (ETS) noncompliances and corrective action taken, changes in federal and state permits and certificates, changes in the Environmental Program Description Document (EPDD), changes in station design or operation which could involve an environmental impact, changes made to the ETS, and copies of all reports regarding station discharges made in accordance with NPDES Permit No. GA-0004120.

3.2 Discussion

The Georgia Department of Natural Resources Environmental Protection Division (EPD) issued three letters stating violations of Plant Hatch's NPDES permit No. 0004120 and its Industrial and Hazardous Waste Management Program I.D. No. GA D000612564. Copies of the letters can be found in Appendix A. The following is a summary of the violations.

In a letter dated May 18, 1984, the EPD issued a Notice of Violation of the NPDES permit for exceeding effluent limitations for pH from the liquid radwaste system discharge and for not meeting pH monitoring reporting requirements of the neutralization tank and pressure filter backwash.

A letter stating a violation of the NPDES permit was issued January 4, 1985, by the EPD for receiving the Operation Monitoring Reports at least a month late every reporting period.

In a letter dated December 19, 1984, the EPD outlined findings of an inspection made on November 8, 1984 of Plant Hatch's Industrial and Hazardous Waste Management Program. See Appendix A for a listing of specific violations.

There were no changes in station design or operation in 1984 which could involve an environmental effect.

Copies of all reports regarding station discharges made in accordance with NPDES permit No. 0004120 are included in Appendix B.

HNP
ANNUAL REPORT

APPENDIX

A

NOTICES OF STATE PERMIT VIOLATIONS

PLANT EDWIN I. HATCH

1984

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

May 18, 1984

Mr. T. E. Byerley
Manager of Environmental Affairs
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Re: Notice of Violation
Plant Hatch
NPDES Permit No. GA 0004120

Dear Mr. Byerley:

In accordance with State and Federal law, the Environmental Protection Division has issued a National Pollutant Discharge Elimination System (NPDES) permit for your water pollution control facilities. We suggest you review this permit in detail.

Review of your Operation Monitoring Reports for the last two quarters of 1983 and the first quarter of 1984 indicated that your facility exceeded permit effluent limitations for pH from the Liquid Radwaste System discharge. While none of these violations individually are serious incidents, the frequency indicates that there is a problem in properly neutralizing the water from the Radwaste system. Please be advised that your company must take any necessary measures to comply with effluent limitations of your NPDES permit in the future. While we are not recommending enforcement action in this instance, continued violations could result in such actions.

Also, reporting requirements of the permit are not being met. The current NPDES permit requires monitoring pH from the neutralization tank and pressure filter backwash twice per month. Refer to pages 2 and 3 of the permit.

As a reminder, we would like to call your attention to a change in monitoring requirements which will be required for the cooling tower blowdown. These will be in effect July 1, 1984 and are detailed on page 4b of your NPDES permit. Existing requirements are listed on page 4a.

If you have any questions, please contact Larry Kloet of my staff at 656-4887.

Sincerely,

David M. Word, P.E.
Program Manager
Industrial Wastewater Program

DMW:lkk

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S W
ATLANTA GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

January 4, 1985

Mr. W. R. Woodall, Jr.
Manager of Environmental Affairs
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Re: NPDES Permit No. GA 0004120
Plant Hatch

Dear Mr. Woodall:

We conducted an inspection of the wastewater treatment facilities at Plant Hatch on December 6, 1984. Mr. Bob Hand and Mr. Oliver Granade were my plant contacts.

Grab samples were taken from the filter backwash from Unit A and from the cooling water ditch from Unit 2. Unit 1 was shut down for routine maintenance. Only the sample of the cooling water was split with the company. Laboratory results for Cr and Zn matched those results for Georgia Power.

Deficiencies which need to be corrected include sampling methods for oil and grease determination in water. Glass bottles should be used instead of the plastic ones now being used. If samples are not analyzed the same day they are collected, sulfuric acid should be added as a preservative.

Operation Monitoring Reports are also being received at least a month late every reporting period. This is a violation of your NPDES permit and steps should be taken to insure timeliness of report submittal.

Attached are the results of our laboratory analyses. Based on these results, you were in compliance with limitations on your NPDES permit. No other problems, other than those already noted, were found.

Sincerely,

Larry P. Kloet

Larry P. Kloet, P.E.
Environmental Engineer
Industrial Wastewater Program

LPK:bk
Attachment

ENVIRONMENTAL PROTECTION DIVISION
DEPARTMENT OF NATURAL RESOURCES

WATER QUALITY ANALYSIS

STATION NO. 060000105 GEORGIA POWER CO. PLANT HATCH
COLLECTION DATE: 84/12/06
COLLECTING AGENCY: INDUSTRIAL WASTEWATER PROGRAM - L. KLOET

TEST DESCRIPTION	VALUE
FILTER BACKWASH UNIT A:	
COLLECTION TIME: 90:55	
PH (STANDARD UNITS) LAB	8.0
SOLIDS, TOTAL SUSPENDED (MG/L)	4
OIL-GREASE, TOTAL (MG/L)	5
COOLING TOWER BLOWDOWN:	
COLLECTION TIME: 10:25	
CHROMIUM, TOTAL (UG/L AS CR)	<10
ZINC, TOTAL (UG/L AS ZN)	255

GEORGIA POWER RESULTS

CHROMIUM	8.7 mg/l
ZINC	255 mg/l

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S W
ATLANTA GEORGIA 30334

Commissioner

J. LEONARD LEDBETTER
Division Director

December 19, 1984

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

W. R. Woodall, Jr.
Manager, Office of Environmental Affairs
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

RE: Notice of Violation
Generator Requirements
Georgia Power Company
Plant Hatch
GAD000612564

Dear Mr. Woodall:

Reference the inspection of November 8, 1984 by Tim Cash of the Industrial and Hazardous Waste Management Program to determine your company's compliance status with Georgia's Rules for Hazardous Waste Management, Chapter 391-3-11-.08, Standards Applicable to Generators of Hazardous Waste. As Georgia's Rules adopt and incorporate by reference the Federal Regulations found in Section 40 CFR, Part 262, the following violations are called to your attention for appropriate action:

40 CFR 262.11 - for failure to make hazardous waste determination for waste oils generated at Plant Hatch.

40 CFR 262.34(a)(4) - for failure to describe agreements with local authorities in accordance with 40 CFR 265.52(c).

40 CFR 262.34(a)(4) - for failure to list, show the location of, describe and provide a brief description of emergency equipment at Plant Hatch in accordance with 40 CFR 265.52(e).

40 CFR 262.34(a)(4) - for failure to submit copies of the contingency plan to local authorities in accordance with 40 CFR 265.53(b).

This correspondence will also serve to confirm Mr. Cash's November 20, 1984 meeting with Glenn Gosa, Harold Hobbs, Dean Miracle and George Guill concerning the contingency plan and preparedness and prevention provisions for Plant Hatch. At that meeting, it was agreed that Georgia Power Company could reference other Power Generation Procedures in a facility's contingency plan where documentation required to comply with 40 CFR Part 262.34(a)(4) would result in unnecessary or excessive duplication of procedures which have already been established. In a phone conversation between Harold Hobbs and Tim Cash

on December 11, 1984 it was also agreed that the contingency plan requirements of 40 CFR 265 Subpart D and the preparedness and prevention requirements of 40 CFR 265 Subpart C should concentrate primarily upon the "satellite" accumulation areas and hazardous waste temporary storage areas at each facility. It has been determined that these areas would be significant in terms of the routine handling of hazardous waste.

You are requested to collect samples of the waste oil generated at this facility, conduct analyses of those samples in accordance with 40 CFR 262.11 and submit the results of those analyses to this office by January 15, 1985. You are also requested to amend the facility's contingency plan and submit a revised copy to this office for review by January 15, 1985.

At the time of the inspection, it was observed that your hazardous waste manifest originals are being microcopied and destroyed when they are received from the designated facility. This practice is acceptable and may be continued.

Enclosed is a copy of the Generator Standards Inspection Checklist completed during the inspection. If you have any questions or need any assistance please contact Mr. Tim Cash at 656-7802.

Sincerely,

Howard L. Barefoot
Unit Coordinator
Industrial and Hazardous Waste
Management Program

HLB/tc/w041
cc: Tim Cash
File: Georgia Power Company Hatch Steam Elec. (R)

GEORGIA DEPARTMENT OF NATURAL RESOURCES
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334

LAND PROTECTION BRANCH
Industrial & Hazardous Waste
Management Program
(404) 656-7802

GENERATOR STANDARDS INSPECTION CHECKLIST

SECTION I. FACILITY INFORMATION

SIC 4911 TSDF? Yes No ✓ Transporter? Yes No ✓ INSPECTION DATE: November 8, 1984

Ga. Power Co - Plant Hatch — Facility Name
GA000012564 — I.D. No.
Appling — County

P.O. Box 442 — Mailing Address
Baxley — City
31513 — Zip
Telephone Number

Ga. Power Company — Name of Owner/Operator
Inspector's Signature

SECTION II. INSPECTION SUMMARY & REVIEW

Reason for Inspection: ✓ Routine ______ Other ______

Discussed with:

Name: George Gull Title: Environmental Affairs
Address: P.O. Box 4545, Atlanta, Georgia 30302 Telephone: 526-7092
Name: R.C. "Bob" Hand Title: Health/Physics
Address: P.O. Box 442, Baxley, Ga. 31513 Telephone: 912-36?-7851

Copy of this report submitted to:

Name: W.R. Woodall, Jr. Title: Manager, Env. Affairs
Address: P.O. Box 4545 Atlanta, Ga 30302 Telephone: 526-7100
Name: ______ Title: ______
Address: ______ Telephone: ______

Photographs: ___ yes ✓ no: No. ___

Samples collected: ___ yes ✓ no: No. ___ Split ___ yes ___ no

Summary of Findings: See NOV.

Reviewed by: [signature] Review date: 12/19/84

Attachments: None

Form: HW 0038F/1983

	Yes	No	N/A
5. Wastes are manifested properly? (262.20)	✓		
6. Each container/tank is marked "Hazardous Waste" during accumulation. (262.34)	✓		
7. Wastes are labelled, marked "Hazardous Waste" (49 CFR 172.304) and placards offered to transporter prior to transport? (262.30)	✓		
8. Facility is operated and maintained to minimize possibility of fire, explosion, or release of hazardous waste to the environment. (262.31)	✓		
9. Facility has the following equipment to deal with hazards posed by waste handled: (265.32)	✓		
(a) alarm system	✓		
(b) telephone or 2-way radio	✓		
(c) fire extinguishers	✓		
(d) water	✓		
10. Facility tests and maintains above equipment as necessary. (265.33)	✓		
11. Personnel have immediate access to communications or alarm systems (265.34)	✓		
12. Adequate aisle space maintained. (265.35)	✓		
13. Arrangements with local authorities have been made to familiarize them with facility, designated response authority, etc. (265.37)	✓		
14. Contingency plan written (265.51). If yes: contingency plan includes (265.51)	✓		
(a) facility personnel action responses	✓		
(b) describes local authorities agreements		✓	
(c) lists names, addresses, phone #'s of emergency coordinators, designates primary emergency coordinator, and lists others in order of assumption of responsibility	✓		
(d) lists all emergency equipment at the facility, location, physical description and capabilities		✓	
(e) includes an evacuation plan for facility personnel	✓		
(f) copies of contingency plan submitted to police, fire department, hospital, local emergency response teams		✓	
(g) contingency plan amended when necessary	✓		
(h) at least one emergency coordinator is on facility premises or on call	✓		
(i) Emergency coordinator responds immediately to emergencies. (265.56)	✓		

HNP
ANNUAL REPORT

APPENDIX

B

NPDES OPERATION MONITORING REPORTS

PLANT EDWIN I. HATCH

1984

Georgia Power Company
333 Piedmont Avenue
Atlanta, Georgia 30308
Telephone 404 526-6526

Mailing Address
Post Office Box 4545
Atlanta, Georgia 30302

Georgia Power

Power Supply Engineering and Services

May 3, 1984

Mr. Gene B. Welsh, Chief
Water Protection Branch
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334

Re:		
	Plant Arkwright	NPDES Permit No. GA 0026069
	Plant Bowen	NPDES Permit No. GA 0001449
	Plant Branch	NPDES Permit No. GA 0026051
	Plant Hammond	NPDES Permit No. GA 0001457
	Plant Hatch	NPDES Permit No. GA 0004120
	Plant McDonough-Atkinson	NPDES Permit No. GA 0001431
	Plant McManus	NPDES Permit No. GA 0003794
	Plant Mitchell	NPDES Permit No. GA 0001465
	Plant Scherer	NPDES Permit No. GA 0035564
	Wallace Dam	NPDES Permit No. GA 0033581
	Plant Wansley	NPDES Permit No. GA 0026778
	Plant Yates	NPDES Permit No. GA 0001473

Dear Mr. Welsh:

As required by the above referenced NPDES Permits, we hereby submit the Operation Monitoring Reports for each of the corresponding power plants for the quarter ending March 31, 1984.

If you have any questions or comments, please advise.

Sincerely,

T. E. Byerley
Manager of Environmental Affairs

RDM/RDW:bjk

Attachments

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 01-01-84
To: 03-31-84

Permit Number: GA0001420

Discharge Location: 001B - Cooling Tower Blowdown

Frequency of Analysis: 1/wk.

Location:	Intake	Mixing Zone	Condenser
Type Sample:	In Situ	In Situ	Grab
Parameter:	Temp. Deg. F	Temp. Deg. F	Chlorine
Limits:	T of 5 Deg. Max. 90 Deg.	T of 5 Deg. Max. 90 Deg.	Avg. 0.2 Max. 0.5
Date			
01-04-84	41	43	1
01-11-84	42	41	
01-18-84	39	40	
01-25-84	40	41	
02-04-84	49	49	
02-10-84	48	48	
02-15-84	55	55	
02-24-84	55	55	
03-01-84	50	50	
03-07-84	56	56	
03-14-84	57	57	
03-21-84	62	62	
03-28-84	63	63	
Number of Samples:	13	13	
Average Value:	-	-	
Maximum Value:	63	63	
Minimum Value:	39	40	
Limits Exceeded:	-	0	

NOTE 1: We are no longer required to monitor chlorine at this point.

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 01-01-84
To: 03-31-84

Permit Number: GA0004120

Discharge Location: 001A1 -Low Volume Waste
(Neutralization Tank)

Type of Sample: Grab
Frequency of Analysis: 2/mo

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20
Date		
01-02-84	2.0	1.2
01-16-84	6.8	8.8
02-06-84	2.4	6.4
02-20-84	9.7	1.2
03-05-84	7.6	1.2
03-20-84	17.3	3.6
Number of Samples:	4	4
Average Value:	7.6	3.7
Maximum Value:	17.3	8.8
Minimum Value:	2.0	1.2
Limits Exceeded:	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 01-01-84
To: 03-31-84

Permit Number: GA0004120

Discharge Location: 001A2 -Low Volume Waste
(Pressure Filter Backwash)

Type of Sample: Grab
Frequency of Analysis: 1/qtr

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20
Date		
02-06-84	1.0	<5.0
02-06-84	1.1	<5.0
02-06-84	1.0	<5.0
02-06-84	.6	<5.0
Number of Samples:	4	4
Average Value:	.9	<5.0
Maximum Value:	1.1	<5.0
Minimum Value:	.6	<5.0
Limits Exceeded:	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 01-01-84
To: 03-31-84

Permit Number: GA0004120

Discharge Location: 001C - Sewage Treatmen: Plant

Type of Sample: Grab
Frequency of Analysis: 2/yr.

Parameter:	BOD5 mg/l	FAC mg/l
Limits	Avg. 30 Max. 45	- -
Date		
01-16-84	4.4	1.0
Number of Samples:	1	1
Average Value:	4.4	1.0
Maximum Value:	4.4	1.0
Minimum Value:	4.4	1.0
Limits Exceeded:	0	-

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 01-01-84
To: 03-31-84

Permit Number: GA0004120

Discharge Location: 001D1 - Liquid Radwaste System Unit 1
Type of Sample: Grab
Frequency of Analysis: 2/mo.

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH pH Units
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
01-02-84	13.0	13.0	6.8
01-16-84	.8	.2	5.6
02-06-84	8.0	.1	6.4
02-20-84	2.0	<0.1	6.2
03-05-84	3.0	2.2	5.9
03-19-84	.7	2.2	5.8
Number of Samples:	6	6	6
Average Value:	4.6	3.0	--
Maximum Value:	13.0	13.0	6.8
Minimum Value:	.7	<0.1	5.6
Limits Exceeded:	0	0	3

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 01-01-84
To: 03-31-84

Permit Number: GA0004120

Discharge Location: 001D2 - Liquid Radwaste System Unit 2
Type of Sample: Grab
Frequency of Analysis: 2/mo.

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH pH Units
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
01-02-84	3.0	4.6	5.6
01-16-84	2.0	.3	7.5
02-06-84	7.6	.6	6.0
02-20-84	2.0	<0.1	6.2
03-05-84	.3	1.0	6.7
03-19-84	.7	2.2	5.8
Number of Samples:	6	6	6
Average Value:	2.6	3.0	--
Maximum Value:	7.6	4.6	7.5
Minimum Value:	.3	<0.1	5.6
Limits Exceeded:	0	0	2

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 01-01-84
To: 03-31-84

Permit Number: GA0004120

Discharge Location: 001E1 - Combined Plant Waste Unit 1

Frequency of Analysis: 1/wk

Type of Sample:	In Situ	Grab	Grab
Parameter:	Temperature	FAC	pH
Limits:	Deg F	N/A	Min. 6.0 Max. 9.0
Date			
01-03-84		<0.1	
01-04-84	66		6.5
01-11-84	67		6.9
01-13-84		<0.1	
01-18-84	69		6.8
01-20-84		<0.1	
01-25-84	69		6.6
01-26-84		<0.1	
01-31-84	69	<0.1	6.7
02-07-84		.1	7.5
02-08-84	64		
02-14-84			7.5
02-15-84	59		
02-17-84		<0.1	
02-21-84		<0.1	6.5
02-22-84	60		
02-28-84	51	.1	7.0
03-05-84		.1	
03-06-84			7.1
03-07-84	57		
03-13-84			6.5
03-14-84	59	<0.1	
03-20-84		<0.1	7.1
03-21-84	75		
03-27-84	66	<0.1	7.0
Number of Samples:	13	13	12
Average Value:	--	<0.1	--
Maximum Value:	75	.1	7.5
Minimum Value:	51	<0.1	6.5
Limits Exceeded:	--	--	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 01-01-84
To: 03-31-84

Permit Number: GA0004120

Discharge Location: 001E2 - Combined Plant Waste Unit 2

Frequency of Analysis: 1/wk

Type of Sample:	In Situ	Grab	Grab
Parameter:	Temperature	FAC	pH
Limits:	Deg F	N/A	Min. 6.0 Max. 9.0
Date			
01-03-84		<0.1	
01-04-84	68		6.7
01-11-84	69		6.8
01-13-84		<0.1	
01-18-84	51		6.5
01-20-84		<0.1	
01-25-84	48		6.1
01-26-84		<0.1	
01-31-84	53	<0.1	6.5
02-07-84		.2	7.3
02-08-84	49		
02-14-84			7
02-15-84	55		
02-17-84		<0.2	
02-21-84		<0.2	6.8
02-22-84	59		
02-28-84	51	<0.1	7.3
03-05-84		.1	
03-06-84			6.8
03-07-84	57		
03-13-84			6.8
03-14-84	57	<0.1	
03-20-84		<0.1	6.7
03-21-84	65		
03-27-84	52	<0.1	6.7
Number of Samples:	13	13	12
Average Value:	--	<0.1	--
Maximum Value:	69	.2	7.3
Minimum Value:	48	<0.1	6.1
Limits Exceeded:	--	--	0

I certify that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete, and accurate.

T. E. Byerley

Mr. T. E. Byerley
Manager of Environmental Affairs

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 1

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS			BIOTREND				Cl_2		
			NO. 1	NO. 2	NO. 3	BEFORE	AFTER	FREE mg/l**		FREE mg/l*		DISCHARGE
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	AVG.	MAX	HOUR/DAY
1-12-84	Cont	Cont	[illegible]	[illegible]	CCS	NA	NA	<.2	<.2	<.1	<.1	0
1-19-84	Cont	Cont	CCS	650	CCS	NA	NA	<.2	<.2	<.1	<.1	0
1-25-84	Cont	Cont	500	CCS	CCS	NA	NA	.1	.1	<.1	<.1	0
						NA	NA	<.1	<.1	<.1	<.1	0
						LIMIT				0.20	0.50	2 HR/DAY

(SURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

SERVICE WATER CHLORINATION DATA

DATA PACKAGE 2
(DATA SHEET 2)

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 2

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS			BIOTREND				Cl_2		
	CYCLE/DAY	MIN/CYCLE	NO. 1 #/24 HR	NO. 2 #/24 HR	NO. 3 #/24 HR	BEFORE TIME	AFTER TIME	FREE mg/l** AVG.	FREE mg/l** MAX	FREE mg/l* AVG.	FREE mg/l* MAX	DISCHARGE HOUR/DAY
1-26-89	Cont	Cont	[illegible]	[illegible]	CCS	NA	NA	<.2	<.2	<.1	<.1	C
1-12-89	Cont.	Cont.	CCS	CCS	CCS	NA	NA	<.2	<.2	<.1	<.1	C
1-18-89	Cont.	Cont.	CCS	CCS	CCS	NA	NA	<.2	<.2	<.1	<.1	C
1-25-89	Cont.	Cont.	CCS	CCS	CCS	NA	NA	<.2	<.2	<.1	<.1	C
						LIMIT				0.20	0.50	2 HR/DAY

* MEASURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

DATA PACKAGE 2
(DATA SHEET 2)

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 1

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS			BIOTREND				Cl_2		
	CYCLE/DAY	MIN/CYCLE	NO. 1 #/24 HR	NO. 2 #/24 HR	NO. 3 #/24 HR	BEFORE TIME	AFTER TIME	FREE mg/l** AVG.	FREE mg/l** MAX	FREE mg/l* AVG.	FREE mg/l* MAX	DISCHARGE HOUR/DAY
2-1-84	Cont.	Cont.	CCS	CCS	CCS	NA	NA	.2	.7	.1	<.1	0
2-1-84	Cont	Cont	CCS	400	CCS	NA	NA	.1	.1	<.1	<.1	2
2-2-84	Cont	Cont	350	CCS	CCS	NA	NA	.1	.1	<.1	<.1	2
2-2-84	Cont	Cont	300	CCS	CCS	NA	NA	.1	.1	<.1	<.1	0
						LIMIT				0.20	0.50	2 HR/DAY

* ASUARED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 2

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS			BIOTREND				Cl_2		
			NO. 1	NO. 2	NO. 3	BEFORE	AFTER	FREE mg/l**		FREE mg/l*		DISCHARGE
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	AVG.	MAX	HOUR/DAY
2-1-84	Cont	Cont	CCS	~~590~~ 520	CCS	NA	NA	.2	.2	<.1	<.1	0
2-8-84	cont	cont	CCS	400	CCS	NA	NA	<.1	<.1	<.1	<.1	0
2-15-84	cont	cont	350	CCS	CCS	NA	NA	<.1	<.1	<.1	<.1	0
2-22-84	cont	cont	350	CCS	CCS	NA	NA	<.1	<.1	<.1	<.1	0
						LIMIT				0.20	0.50	2 HR/DAY

* MEASURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 1

DATE	FREQUENCY	CL_2 INJECT	CHLORINATORS NO. 1	CHLORINATORS NO. 2	CHLORINATORS NO. 3	BIOTREND BEFORE	BIOTREND AFTER	BIOTREND FREE mg/l**		Cl_2 FREE mg/l*		Cl_2 DISCHARGE
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	AVG.	MAX	HOUR/DAY
3-1-84	Cont	Cont	300	005	005	NA	NA	<.1	<.1	<.1	<.1	0
3-7-84	Cont	Cont	500	005	005	NA	NA	<.1	<.1	<.1	<.1	0
3-14-84	Cont	Cont	005	356	005	NA	NA	<.1	<.1	<.1	<.1	0
3-27-84	Cont.	Cont.	005	350	005	NA	NA	<.1	<.1	<.1	<.1	0
3-30-84	Cont	Cont	005	400	005	NA	NA	<.1	<.1	<.1	<.1	0 ND
						LIMIT				0.20	0.50	2 HR/DAY

* MEASURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

3-1-84 (3-14-84) Allen

~~* [illegible] presently not [illegible]~~

SERVICE WATER CHLORINATION DATA

DATA PACKAGE 2
(DATA SHEET 2)

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 2

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS			BIOTREND				Cl_2		
			NO. 1	NO. 2	NO. 3	BEFORE	AFTER	FREE mg/l**		FREE mg/l*		DISCHARGE
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	AVG.	MAX	HOUR/DAY
3-1-8	Cont.	Cont.	356	356	356	NA	NA	<.1	<.1	<.1	<.1	0
3-7-84	Cont.	Cont.	356	356	356	NA	NA	<.1	<.1	<.1	<.1	0
3-14-84	Cont.	Cont.	356	356	356	NA	NA	<.1	<.1	<.1	<.1	0
3-21-84	Cont.	Cont.	356	356	356	NA	NA	<.1	<.1	<.1	<.1	0
3-28-84	Cont.	Cont.	356	356	356	NA	NA	<.1	<.1	<.1	<.1	0
						LIMIT				0.20	0.50	2 HR/DAY

* MEASURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: 1

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS		BIOTREND		Cl_2			INITIALS
			NO. 1	NO. 2	BEFORE	AFTER	FREE RQ/1* DISCHARGE			
	CYCLE/DAY	MIN/CYCLE	6/24 HR	6/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
1-[illegible]	3	30	0005	0600	NA	NA	.1	.1	0	[illegible]
1-[illegible]	3	30	0005	1800	NA	NA	.1	.1	0	[illegible]
1-[illegible]	3	30	0005	[illegible]	NA	NA	<.1	.1	0	[illegible]
1-[illegible]	3	30	0005	0600	AA	AA	<.1	<.1	0	[illegible]
					LIMIT		0.20	0.50	2 HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: 2

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS		DICHROMATE		Cl_2			INITIALS
			NO. 1	NO. 2	BEFORE	AFTER	FREE mg/l* DISCHARGE			
	CYCLE/DAY	MIN/CYCLE	1/24 HR	1/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
1-6-84	3	30	ccs	6cs	NA	NA	.1	.1	0	JH
1-12-84	3	30	ccs	3600	NA	NA	.1	.1	0	JH
1-18-84	←			ccs					→	JH
1-27-84	←			ccs					→	JH
					LIMIT		0.20	0.50	2 HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

1-18-84
* Unit 2 circ water is not being chlorinated due to outage.

CIRC WATER CHLORINATION DATA

DATA PACKAGE 1
(DATA SHEET 1)

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: 1

			CHLORINATORS		BIOTREND		Cl_2			
DATE	FREQUENCY	CL_2 INJECT	NO. 1	NO. 2	BEFORE	AFTER	FREE mg/1*		DISCHARGE	INITIALS
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
2-1-84	3	30	CCS	4ccc	NA	NA	.1	.1	0	[illegible]
2-8-84	3	30	CCS	4ccc	NA	NA	.1	.1	Ø	[illegible]
2-15-84	←			CCS					→	[illegible]
2-23-84	←			CCS					→	[illegible]
					LIMIT		0.20	0.50	2 HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

* 2-11-84 (Saturday morning) a turbine tripped. Inspection reveals damage to the last stage buckets. Presently, the unit is shutdown and there is no flow from sample line.

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: 2

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS		BIOTREND		Cl_2			INITIALS
			NO. 1	NO. 2	BEFORE	AFTER	FREE mg/l* DISCHARGE			
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
2-1-84				OOS						MH
2-8-84				OOS						MH
2-15-84				OOS						JA
2-23-84				OOS						JA
					LIMIT		0.20	0.50	HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

* Unit 2 Cir. water is not being chlorinated due to outage.

DATA PACKAGE 1
(DATA SHEET 1)

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: 1

			CHLORINATORS		BIOTREND		Cl_2			
DATE	FREQUENCY	CL_2 INJECT	NO. 1	NO. 2	BEFORE	AFTER	FREE mg/1* DISCHARGE			INITIALS
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
3-1-84	←	OOS		→	NA	NA	←	OOS	→	[illegible]
3-7-84	←	OOS		→	NA	NA	←	OOS	→	[illegible]
3-14-84	←	OOS		→	NA	NA	←	OOS	→	[illegible]
3-23-84	←	OOS		→	NA	NA	←	OOS	→	[illegible]
3/30/84	←	OOS		→	NA	NA	←	OOS	→	[illegible]
					LIMIT		0.20	0.50	2 HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

Unit ONE is presently out of service due to a turbine tripped on (2-11-84). Therefore, the unit is not being chlorinated.

3-14-84

Unit ONE is in service. Unit not being chlorinated due to a leak and unable to adjust the chlorine feed rate. MR has been written.

3-23-84

Maintenance repaired the leak in the unit #2 chlorinator. Unable to chlorinate because of the vaccum pressure gauge. The gauge is corroded and unattached; MR was written.

3-30-84 Same comments as above [illegible]

CIRC WATER CHLORINATION DATA

DATA PACKAGE 1
(DATA SHEET 1)

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: 2

			CHLORINATORS		BIOTREND		Cl_2			
DATE	FREQUENCY	CL_2 INJECT	NO. 1	NO. 2	BEFORE	AFTER	FREE mg/1* DISCHARGE			INITIALS
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
3-1-84				OOS						[illegible]
3-7-84				OOS						[illegible]/OOC
3-19-84				OOS						[illegible]/OOC
3-23-84				OOS						[illegible]
3-30				OOS						[illegible]
					LIMIT		0.20	0.50	2 HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

* Unit 2 Cir. Water is not being chlorinated due to outage.

Georgia Power Company
333 Piedmont Avenue
Atlanta, Georgia 30308
Telephone (404) 526-3195

Mailing Address:
Post Office Box 4545
Atlanta, Georgia 30302

Georgia Power

Power Supply Engineering and Services

August 24, 1984

Mr. Gene B. Welsh, Chief
Water Protection Branch
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334

Re:		
	Plant Arkwright	NPDES Permit No. GA 0026069
	Plant Bowen	NPDES Permit No. GA 0001449
	Plant Branch	NPDES Permit No. GA 0026051
	Plant Hammond	NPDES Permit No. GA 0001457
	Plant Hatch	NPDES Permit No. GA 0004120
	Plant McDonough-Atkinson	NPDES Permit No. GA 0001431
	Plant McManus	NPDES Permit No. GA 0003794
	Plant Mitchell	NPDES Permit No. GA 0001465
	Plant Scherer	NPDES Permit No. GA 0035564
	Plant Wansley	NPDES Permit No. GA 0026778
	Plant Yates	NPDES Permit No. GA 0001473

Dear Mr. Welsh:

As required by the above referenced NPDES Permits, we hereby submit the Operation Monitoring Reports for each of the corresponding power plants for the quarter ending June 30, 1984.

If you have any questions or comments, please advise.

Sincerely,

Glen J. Gosa
Licensing & Compliance Manager

GNG:bjk

Attachments

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545 -
Atlanta, Georgia 30302

From: 04-01-84
To: 06-30-84

Permit Number: GA0004120

Discharge Location: 001B - Cooling Tower Blowdown

Frequency of Analysis: 1/wk.

Location:	Intake	Mixing Zone	Condenser
Type Sample:	In Situ	In Situ	Grab
Parameter:	Temp. Deg. F	Temp. Deg. F	Chlorine
Limits:	T of 5 Deg. Max. 90 Deg.	T of 5 Deg. Max. 90 Deg.	Avg. 0.2 Max. 0.5
Date			
04-04-84	60	60	1
04-11-84	60	60	
04-18-84	61	61	
04-25-84	66	66	
05-03-84	70	70	
05-09-84	71	71	
05-16-84	70	70	
05-23-84	74	75	
05-30-84	74	74	
06-06-84	75	74	
06-13-84	79	81	
06-20-84	84	84	
06-27-84	83	83	
Number of Samples:	13	13	
Average Value:	-	-	
Maximum Value:	84	84	
Minimum Value:	60	60	
Limits Exceeded:	-	0	

NOTE 1: We are no longer required to monitor chlorine at this point.

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 04-01-84
To: 06-30-84

Permit Number: GA0004120

Discharge Location: 001A1 -Low Volume Waste
(Neutralization Tank)

Type of Sample: Grab
Frequency of Analysis: 2/mo

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20
Date		
04-02-84	16.0	3.0
04-16-84	25.1	2.2
05-07-84	8.2	2.0
05-21-84	33.7	3.8
06-04-84	6.4	1.3
06-18-84	4.0	17.7
Number of Samples:	6	6
Average Value:	15.6	5.0
Maximum Value:	33.7	17.7
Minimum Value:	4.0	1.3
Limits Exceeded:	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 04-01-84
To: 06-30-84

Permit Number: GA0004120

Discharge Location: 001A2 -Low Volume Waste
(Pressure Filter Backwash)

Type of Sample: Grab
Frequency of Analysis: 1/qtr

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20
Date		
05-07-84	.5	5.5
05-07-84	.3	<5.0
05-07-84	.2	<5.0
05-07-84	<0.1	<5.0
Number of Samples:	4	4
Average Value:	.3	<5.0
Maximum Value:	.5	5.5
Minimum Value:	<0.1	<5.0
Limits Exceeded:	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 04-01-84
To: 06-30-84

Permit Number: GA0004120

Discharge Location: 001D - Liquid Radwaste System Unit 1
Type of Sample: Grab
Frequency of Analysis: 2/mo.

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH pH Units
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
04-02-84	1.5	.2	6.8
04-16-84	33.0	2.2	6.9
05-07-84	1.8	2.0	6.8
05-21-84	18.0	3.2	7.1
06-04-84	15.0	10.3	6.5
06-18-84	.4	18.8	7.3
Number of Samples:	6	6	6
Average Value:	11.6	6.1	--
Maximum Value:	33.0	18.8	7.3
Minimum Value:	.4	.2	6.5
Limits Exceeded:	0	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 04-01-84
To: 06-30-84

Permit Number: GA0004120

Discharge Location: 001D - Liquid Radwaste System Unit 2
Type of Sample: Grab
Frequency of Analysis: 2/mo.

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH pH Units
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
04-02-84	2.0	2.4	6.3
04-16-84	1.6	4.8	6.8
05-07-84	1.2	5.2	6.6
05-21-84	0.0	17.8	7.0
06-06-84	1.8	6.7	7.6
06-18-84	.4	1.6	7.3
Number of Samples:	6	6	6
Average Value:	1.2	3.0	--
Maximum Value:	2.0	17.8	7.6
Minimum Value:	0.0	1.6	6.3
Limits Exceeded:	0	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 04-01-84
To: 06-30-84

Permit Number: GA0004120

Discharge Location: 001E - Combined Plant Waste Unit 1

Frequency of Analysis: 1/wk

Type of Sample:	In Situ	Grab	Grab
Parameter:	Temperature	FAC	pH
Limits:	Deg F	N/A	Min. 6.0 Max. 9.0
Date			
04-03-84	68	<0.1	6.5
04-04-84	86	<0.1	7.8
04-11-84	78	<0.1	7.0
04-18-84	77	<0.1	7.0
04-25-84	77	<0.1	7.2
05-02-84	83	<0.1	6.5
05-09-84	80	<0.1	6.9
05-16-84	87	<0.1	7.1
05-23-84	88	<0.1	7.3
05-30-84	82	<0.1	6.8
06-06-84	75		7.6
06-08-84		<0.1	
06-13-84	87	<0.1	6.8
06-20-84	93		7.4
06-22-84		<0.1	
06-27-84	93	<0.1	7.7
Number of Samples:	14	14	14
Average Value:	--	<0.1	--
Maximum Value:	93	<0.1	7.8
Minimum Value:	68	<0.1	6.5
Limits Exceeded:	--	--	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 04-01-84
To: 06-30-84

Permit Number: GA0004120

Discharge Location: 001E - Combined Plant Waste Unit 2

Frequency of Analysis: 1/wk

Type of Sample:	In Situ	Grab	Grab
Parameter:	Temperature	FAC	pH
Limits:	Deg F	N/A	Min. 6.0 Max. 9.0
Date			
04-03-84	62	<0.1	6.4
04-04-84	77	<0.1	7.2
04-11-84	67	<0.1	6.8
04-18-84	64	<0.1	6.9
04-25-84	68	<0.1	6.7
05-02-84	71	<0.1	7.0
05-09-84	74	<0.1	6.7
05-16-84	73	<0.1	7.1
05-23-84	77	<0.1	7.2
05-30-84	80	<0.1	7.2
06-06-84	78		7.6
06-08-84		<0.1	
06-13-84	82	<0.1	7.4
06-20-84	87		7.2
06-22-84		<0.1	
06-27-84	86	<0.1	7.1
Number of Samples:	14	14	14
Average Value:	--	<0.1	--
Maximum Value:	87	<0.1	7.6
Minimum Value:	62	<0.1	6.4
Limits Exceeded:	--	--	0

I certify that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete, and accurate.

Glen Gosa

Mr. Glen J. Gosa
Licensing & Compliance Manager

CIRC WATER CHLORINATION DATA

DATA PACKAGE 1
(DATA SHEET 1)

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: ONE

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS		BIOTREND		Cl_2			INITIALS
	CYCLE/DAY	MIN/CYCLE	NO. 1 #/24 HR	NO. 2 #/24 HR	BEFORE TIME	AFTER TIME	FREE mg/l* DISCHARGE AVG.	MAX	HOUR/DAY	
4-5	—	—	—	COS	—	—	—	—	—	* J
4-11	C	—	—	CC 3	—	—	—	—	—	—
4-19	C	—	—	COS	—	—	—	—	—	* J
4-26	3	30	NA	3600	NA	NA	.10	.10	0	JE
					LIMIT		0.20	0.50	2 HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

& Test shop has MR our procedure for writing MR is being revised

* Maintenance will write MR this week.

CIRC WATER CHLORINATION DATA

DATA PACKAGE 1
(DATA SHEET 1)

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: Two

			CHLORINATORS		BIOTREND		Cl_2			
DATE	FREQUENCY	CL_2 INJECT	NO. 1	NO. 2	BEFORE	AFTER	FREE mg/1*		DISCHARGE	INITIALS
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
4-5					0835					*
4-11					0835					
4-12					0835					
4-26					0835					
					LIMIT		0.20	0.50	2 HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

* U-2 Orange rust pitting

CIRC WATER CHLORINATION DATA

DATA PACKAGE 1
(DATA SHEET 1)

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: ONE

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS		BIOTREND		Cl_2			INITIALS
			NO. 1	NO. 2	BEFORE	AFTER	FREE mg/l* DISCHARGE			
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
5 3	3	30	—	2400	NA	NA	<.1	.1	Ø	J
5-10	3	30	—	2200	NA	NA	<.1	.1	Ø	J
5-17	3	30	—	005 *	NA	NA	<.1	<.1	Ø	J
5-24	3	30	—	4100	NA	NA	<.1	<.1	Ø	J
5 31	3	30	—	4300	NA	NA	<.1	.1	Ø	J
					LIMIT		0.20	0.50	2 HR/DAY	

• MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

* MR water

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: TWO

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS		BIOTREND		Cl_2			INITIALS
			NO. 1	NO. 2	BEFORE	AFTER	FREE mg/l* DISCHARGE			
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
5-3	3	40	—	005	NA	NA	—	—	—	J *
5-10	3	40	—	005	NA	NA	—	—	—	J *
5-17	3	40	—	005	NA	NA	—	—	—	J *
5-24	3	40	—	005	NA	NA	—	—	—	J *
5-31	3	40	—	005	NA	NA	—	—	—	J *
					LIMIT		0.20	0.50	2 HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

* U-2 outage in progress

CIRC WATER CHLORINATION DATA

DATA PACKAGE 1
(DATA SHEET 1)

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: 1

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS		BIOTREND		Cl_2			INITIALS
			NO. 1	NO. 2	BEFORE	AFTER	FREE mg/l* DISCHARGE			
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
6/7	3	30	—	0	NA	NA	—	—	—	✓ ✓
6/14	3	30	—	3600	NA	NA	0.1	0.1	0	✓ [illegible]
6/21	3	30	—	3600	NA	NA	0.2	0.2	0	[illegible]
6/29	3	30	—	3600	NA	NA	0.1	0.1	0	✓
					LIMIT		0.2	0.5	2 HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

✓ U-1 shutdown / Chlorination off

CIRC WATER CHLORINATION DATA

DATA SHEET 1

WEEKLY

UNIT NO: 2

DATE	FREQUENCY	CL_2 INJECT	CHLORINATORS		BIOTREND		Cl_2			INITIALS
			NO. 1	NO. 2	BEFORE	AFTER	FREE mg/l* DISCHARGE			
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	HOUR/DAY	
1-7	3	40	—	0	NA	NA	-	-	—	X
8-14	3	40	—	0	NA	NA	-	-	-	X
15-21	—	—	—	—	—	—	—	—	—	—
22-28	2-3	—	—	-						3
					LIMIT		0.2	0.5	2 HR/DAY	

* MEASURED AT TOWER OVERFLOW DURING CHLORINATION CYCLE

X 1-2 outage in progress

SERVICE WATER CHLORINATION DATA

DATA PACKAGE 2
(DATA SHEET 2)

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 2

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS			BIOTREND				Cl_2		
			NO. 1	NO. 2	NO. 3	BEFORE	AFTER	FREE mg/l**		FREE mg/l*		DISCHARGE
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	AVG.	MAX	HOUR/DAY
4-11-84	1	CONT	300	—	—	NA	NA	—	—	<.1	<.1	0
4-18-84	1	CONT	300	—	—	NA	NA	—	—	<.1	<.1	0
4-25-84	1	CONT	300	—	—	NA	NA	—	—	<.1	<.1	0
5-2-84	1	CONT	300	—	—	NA	NA	—	—	<.1	<.1	0
						OOS						7
						LIMIT				0.25	0.50	2 HR/DAY

* MEASURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

+ The SW piping broke at the intake structure & the system is OOS.

SERVICE WATER CHLORINATION DATA

DATA PACKAGE 2
(DATA SHEET 2)

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 2

DATE	FREQUENCY CYCLE/DAY	CL_2 INJECT MIN/CYCLE	CHLORINATORS NO. 1 #/24 HR	NO. 2 #/24 HR	NO. 3 #/24 HR	BIOTREND BEFORE TIME	AFTER TIME	FREE mg/1** AVG.	FREE mg/1** MAX	Cl_2 FREE mg/1* AVG.	MAX	DISCHARGE HOUR/DAY
[illegible]	—	OOS	—	—	—	NA	NA	—	—	—	—	—
[illegible]	—	OOS	—	—	—	NA	NA	—	—	—	—	—
[illegible]	—	OOS	—	—	—	NA	NA	—	—	—	—	—
[illegible]	—	OOS	—	—	—	NA	NA	—	—	—	—	—
						LIMIT				0.20	0.50	2 HR/DAY

* MEASURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

U2 is OOS for the recirc piping outage.

SERVICE WATER CHLORINATION DATA

DATA PACKAGE 2
(DATA SHEET 2)

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. ONE

DATE	FREQUENCY CYCLE/DAY	CL_2 INJECT MIN/CYCLE	CHLORINATORS NO. 1 #/24 HR	CHLORINATORS NO. 2 #/24 HR	CHLORINATORS NO. 3 #/24 HR	BIOTREND BEFORE TIME	BIOTREND AFTER TIME	BIOTREND FREE mg/l** AVG.	BIOTREND FREE mg/l** MAX	Cl_2 FREE mg/l* AVG.	Cl_2 FREE mg/l* MAX	Cl_2 DISCHAR HOUR/DA
5-3	CONT	1	OOS	~	–	NA	NA	< 1	< 1	< 1	<.1	Ø *
5-10	CONT	1	175	—	—	NA	NA	<.1	<.1	<.1	<.1	Ø
5-17	CONT	1	150	–	–	NA	NA	<.1	<.1	<.1	<.1	Ø
5-24	Cont	1	140	—	—	NA	NA	<.1	<.1	<.1	<.1	0
5-31	CONT	1	150	—	—	NA	NL	.1	.1	<.1	<.1	I
						LIMIT				0.20	0.50	2 HR/DA

* MEASURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

* PSW chlorinator OOS - MR to be worked

SERVICE WATER CHLORINATION DATA

DATA PACKAGE 2
(DATA SHEET 2)

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 2

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS			BIOTREND				Cl_2		
	CYCLE/DAY	MIN/CYCLE	NO. 1 #/24 HR	NO. 2 #/24 HR	NO. 3 #/24 HR	BEFORE TIME	AFTER TIME	FREE mg/l** AVG.	FREE mg/l** MAX	FREE mg/l* AVG.	FREE mg/l* MAX	DISCHA HOUR/
5-3	CONT	1	005	—	—	NA	NA	—	—	—	—	0
5-10	CONT	1	005	—	—	NA	NA	—	—	—	—	0
5-17	CONT	1	005	—	—	NA	NA	—	—	—	—	0
5-24	CONT	1	005	—	—	NA	NA	—	—	—	—	0
5-24	CONT	1	005	—	—	NA	NA	—	—	—	—	0 *
												0 *
						LIMIT				0.20	0.50	2 HR/

* MEASURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

* U-2 outage in progress

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 1

DATE	FREQUENCY	CL_2 INJECT	CHLORINATORS NO. 1	CHLORINATORS NO. 2	CHLORINATORS NO. 3	BIOTREND BEFORE	BIOTREND AFTER	BIOTREND FREE mg/l**		Cl_2 FREE mg/l*		Cl_2 DISCHAR
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	AVG.	MAX	HOUR/DA
6-6	CONT	1	150	—	—	NA	NA	.1	.1	<.1	<.1	0
6-14	CONT	1	* 0	—	—	NA	NA	<.1	<.1	<.1	<.1	0
6-22	CONT	1	** [illegible]	—	—	—	—	<	[illegible]	[illegible]		—
6-2[illegible]	CONT	1	0	—	—	NA	NA	<.1	<.1	<.1	<.1	0
						LIMIT				0.20	0.50	2 HR/DA

* MEASURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

* Evap Htrs on PSW [illegible] not submitted [illegible]

** NO [illegible]

DATA PACKAGE 2
(DATA SHEET 2)

SERVICE WATER CHLORINATION DATA

DATA SHEET 2

WEEKLY

UNIT NO. 2

DATE	FREQUENCY	Cl_2 INJECT	CHLORINATORS			BIOTREND				Cl_2		
			NO. 1	NO. 2	NO. 3	BEFORE	AFTER	FREE mg/l**		TREE mg/l*		DISCHARGE
	CYCLE/DAY	MIN/CYCLE	#/24 HR	#/24 HR	#/24 HR	TIME	TIME	AVG.	MAX	AVG.	MAX	HOUR/DAY
6-5	2	0.5	—	—	—	—	—	—	—	—	—	— X
6-14	0	005	—	—	—	—	—	—	—	—	—	— X
6-12	2	-	—	—	—	—	—	—	—	—	—	— X
6-19	1	0.1	—	—	—	—	—	—	—	—	—	— X
7												
						LIMIT				0.20	0.50	2 HR/DAY

* MEASURED AT POINT OF DISCHARGE TO RIVER DURING CHLORINATION CYCLE

** MEASURED AT SERVICE WATER DISCHARGE TO CIRC WATER FLUME

X 1-2 [illegible]

Interoffice Correspondence Georgia Power

Date: June 28, 1984 LAB-84-190

Re: PLANT E. I. HATCH
Sewage Treatment Plant

From: B. C. Arnold

To: Harold Hobbs

The following actions have been taken to maintain efficient operation of Plant Hatch's sewage treatment plant and to prevent the discharge of raw sewage to the environment:

1. Blowers have been placed in hand for continuous aeration of sewage to maintain a D.O. inventory for bacterial life in the aeration tank. Without this change, the plants would start to go septic in approximately one day.

2. Sludge has been wasted to the sludge holding tank and hauled off every other day and often daily to maintain suspended solids in the 20% to 30% range. Otherwise, it is very hard to maintain a D.O. inventory.

3. The flow of sewage into the plant has been lowered as much as possible.

4. The settling tank has been hosed down and scraped all the way to the bottom every other day in order for the sludge to settle out as much as possible before release.

5. A representative from Burford, Hall and Smith, the designer of the system, came on June 27, 1984 to evaluate the existing systems and to make recommendations for improving plant operation.

6. The System Engineer has been notified of the problems.

B. C. Arnold
Supervisor
Radiochemistry

BCA/jph

xc: File

Georgia Power Company
333 Piedmont Avenue
Atlanta, Georgia 30308
Telephone 404 526-6526

Mailing Address:
Post Office Box 4545
Atlanta, Georgia 30302

November 20, 1984

Georgia Power

Power Supply Engineering and Services

Mr. Gene B. Welsh, Chief
Water Protection Branch
Environmental Protection Division
270 Washington Street, S. W.
Atlanta, Georgia 30334

RE:	Plant Arkwright	NPDES Permit No. GA 0026069
	Plant Bowen	NPDES Permit No. GA 0001449
	Plant Branch	NPDES Permit No. GA 0026051
	Plant Hammond	NPDES Permit No. GA 0001457
	Plant Hatch	NPDES Permit No. GA 0004120
	Plant McDonough-Atkinson	NPDES Permit No. GA 0001431
	Plant McManus	NPDES Permit No. GA 0003794
	Plant Mitchell	NPDES Permit No. GA 0001465
	Plant Scherer	NPDES Permit No. GA 0035564
	Plant Wansley	NPDES Permit No. GA 0026778
	Plant Yates	NPDES Permit No. GA 0001473
	Wallace Dam	NPDES Permit No. GA 0035581

Dear Mr. Welsh:

As required by the above referenced NPDES Permits, we hereby submit the Operation Monitoring Reports for each of the corresponding power plants for the quarter ending September 30, 1984.

Data for Plant Hatch is not available at this time and will be submitted as soon as it is received by us.

If you have any questions or comments please contact Mr. G. N. Guill at 526-7039.

Sincerely,

W. R. Woodall, Jr.
Manager of Environmental Affairs

GNG/
Attatchments

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 07-01-84
To: 09-30-84

Permit Number: GA0004120

Discharge Location: 001A1 -Low Volume Waste
(Neutralization Tank)

Type of Sample: Grab
Frequency of Analysis: 2/mo

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
07-02-84	23	1.2	6.5
07-17-84	.8	7.6	8.9
08-05-84	12.6	1.1	6.1
08-20-84	9.5	1.7	6.8
09-03-84	.4	.1	7.0
09-17-84	.9	.9	7.2
Number of Samples:	6	6	6
Average Value:	7.9	2.1	7.1
Maximum Value:	23	7.6	8.9
Minimum Value:	.4	.1	6.1
Limits Exceeded:	0	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 07-01-84
To: 09-30-84

Permit Number: GA0004120

Discharge Location: 001A2 -Low Volume Waste
(Pressure Filter Backwash)

Type of Sample: Grab
Frequency of Analysis: 1/qtr

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH mg/l
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
08-06-84	1.0	<5.0	7.8
08-06-84	.4	<5.0	7.9
08-06-84	<0.1	<5.0	7.8
08-06-84	2.4	<5.0	7.8
Number of Samples:	4	4	4
Average Value:	1.3	<5.0	7.8
Maximum Value:	2.4	<5.0	7.9
Minimum Value:	<0.1	<5.0	7.8
Limits Exceeded:	0	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

Form: 07-01-84
To: 09-30-84

Permit Number: GA0004120

Discharge Location: 001B - Cooling Tower Blowdown

Location:	Intake	Mixing Zone	pH		Zn		Cr	
Type Sample:	In Situ	In Situ	Grab		Grab		Grab	
Frequency:	1/wk	1/wk	2/mo		1/qtr		1/qtr	
Parameter:	Temp. Deg. F	Temp. Deg. F						
Limits:	T of 5 Deg.	T of 5 Deg.	Min. 6.0		Min. 6.0		Min. 6.0	
	Max. 90 Deg.	Max. 90 Deg.	Max. 9.0		Max. 9.0		Max. 9.0	
			Unit 1	Unit 2	Unit 1	Unit 2	Unit 1	Unit 2
Date								
07-02-84			7.9	1	2		2	
07-05-84	82	82						
07-11-84	84	84						
07-16-84			7.9	1				
07-18-84	84	84						
07-25-84	84	84						
08-01-84	77	77						
08-06-84			7.9	1				
08-08-84	79	79						
08-15-84	79	79						
08-20-84			8.0	1				
08-22-84	81	81						
08-29-84	81	81						
09-03-84			8.4	8.3				
09-05-84	82	82						
09-13-84	81	81						
09-17-84			8.4	8.2				
09-19-84	73	73						
09-26-84	77	77						
Number of Samples:	13	13	6	2	0	0	0	0
Average Value:	-	-	-	-	0	0	0	0
Maximum Value:	84	84	8.4	8.3	0	0	0	0
Minimum Value:	73	73	7.9	8.2	0	0	0	0
Limits Exceeded:	-	0	0	0	0	0	0	0

NOTE #1: Unit 2 was out of service during this period.
#2: Zn and Cr samples were not taken during this quarter.

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 07-01-84
To: 09-30-84

Permit Number: GA0004120

Discharge Location: 001C - Sewage Treatment Plant

Type of Sample: Grab
Frequency of Analysis: 2/yr.

Parameter:	BOD5 mg/l	FAC mg/l	TSS mg/l
Limits	Avg. 30 Max. 45	- -	Avg. 30 Max. 45
Date			
07-09-84	21.0	.5	10.0
Number of Samples:	1	1	1
Average Value:	21.0	.5	10.0
Maximum Value:	21.0	.5	10.0
Minimum Value:	21.0	.5	10.0
Limits Exceeded:	0	-	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 07-01-84
To: 09-30-84

Permit Number: GA0004120

Discharge Location: 001D - Liquid Radwaste System Unit 1
Type of Sample: Grab
Frequency of Analysis: 2/mo.

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH pH Units
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
07-02-84	5.5	13.5	6.3
07-17-84	2.5	8	6.7
08-05-84	12	7.9	6.1
08-20-84	43	16.5	5.7
09-03-84	.7	2.2	6.3
09-17-84	.4	.4	6.1
Number of Samples:	6	6	6
Average Value:	10.7	8.1	--
Maximum Value:	43.0	16.5	6.7
Minimum Value:	.4	.4	5.7
Limits Exceeded:	0	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 07-01-84
To: 09-30-84

Permit Number: GA0004120

Discharge Location: 001D - Liquid Radwaste System Unit 2
Type of Sample: Grab
Frequency of Analysis: 2/mo.

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH pH Units
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
07-02-84	1.1	10.6	6.0
07-17-84	.8	7.8	6.0
08-06-84	.3	.4	7.3
08-20-84	.7	1.5	6.2
09-03-84	4.4	1.1	5.9
09-17-84	22.2	1.7	6.2
Number of Samples:	6	6	6
Average Value:	4.9	3.9	--
Maximum Value:	22.2	10.6	7.3
Minimum Value:	.3	.4	5.9
Limits Exceeded:	0	0	1

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 07-01-84
To: 09-30-84

Permit Number: GA0004120

Discharge Location: 001E - Combined Plant Waste Unit 1

Frequency of Analysis: 1/wk

Type of Sample:	In Situ	Grab	Grab	Grab
Parameter:	Temperature	TRC	FAC	pH
Limits:	Deg F	N/A	N/A	Min. 6.0 Max. 9.0
Date				
07-05-84	89	#1	<0.1	7.5
07-11-84	91		<0.1	7.7
07-18-84	93		<0.1	7.7
07-25-84	89		<0.1	7.3
08-01-84	86		<0.1	7.8
08-08-84	93		<0.1	6.7
08-15-84	89		<0.1	6.8
08-22-84	89		.20	7.2
08-29-84	93		.15	7.2
09-05-84	93		<0.1	7.4
09-13-84	89		.15	7.7
09-25-84	89		.10	7.2
09-30-84				7.1
Number of Samples:	12		12	13
Average Value:	--		<0.1	--
Maximum Value:	93		.2	7.8
Minimum Value:	86		<0.1	6.7
Limits Exceeded:	--		--	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 07-01-84
To: 09-30-84

Permit Number: GA0004120

Discharge Location: 001E - Combined Plant Waste Unit 2

Frequency of Analysis: 1/wk

Type of Sample:	In Situ	Grab	Grab	Grab
Parameter:	Temperature	TRC	FAC	pH
Limits:	Deg F	N/A	N/A	Min. 6.0 Max. 9.0
Date				
07-05-84	82		<0.1	7.5
07-11-84	86		<0.1	7.0
07-18-84	86		<0.1	7.3
07-25-84	84		<0.1	6.9
08-01-84	78		<0.1	7.8
08-08-84	82		<0.1	6.6
08-15-84	82		<0.1	6.8
08-22-84	84		.20	7.1
08-29-84	78		.15	7.1
09-05-84	86		<0.1	7.5
09-13-84	86		1.50	7.1
09-25-84	86		.15	7.4
09-30-84				7.5
Number of Samples:	12		4	13
Average Value:	--		<0.1	--
Maximum Value:	86		1.5	7.8
Minimum Value:	78		<0.1	6.6
Limits Exceeded:	--		--	0

I certify that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete, and accurate.

W. R. Woodall

Mr. W. R. Woodall
Manager of Environmental Affairs

Georgia Power Company
[illegible]
Atlanta, Georgia [illegible]
Telephone [illegible]

Mailing Address:
Post Office Box [illegible]
Atlanta, Georgia [illegible]

Georgia Power

Engineering and Construction Services

January 24, 1985

Mr. G. B. Welsh, Chief
Water Protection Branch
Environmental Protection Division
270 Washington Street, S. W.
Atlanta, Georgia 30334

RE:		
	PLANT ARKWRIGHT	NPDES Permit No. GA-0026069
	PLANT BOWEN	NPDES Permit No. GA-0001449
	PLANT BRANCH	NPDES Permit No. GA-0026051
	PLANT HAMMOND	NPDES Permit No. GA-0001457
	PLANT HATCH	NPDES Permit No. GA-0004120
	PLANT MCDONOUGH/ATKINSON	NPDES Permit No. GA-0001431
	PLANT MCMANUS	NPDES Permit No. GA-0003794
	PLANT MITCHELL	NPDES Permit No. GA-0001465
	PLANT SCHERER	NPDES Permit No. GA-0035564
	PLANT WANSLEY	NPDES Permit No. GA-0026778
	PLANT YATES	NPDES Permit No. GA-0001473

Dear Mr. Welsh:

As required by the above referenced NPDES permits, we hereby submit the Operation Monitoring Reports for each of the corresponding power plants for the quarter ending December 31, 1985.

Data for Plant Hatch for the quarter ending September 30, 1984, is also being submitted at this time.

If you have any questions or comments, please contact Mr. G. N. Guill, at 526-7039.

Yours very truly,

W. R. Woodall, Jr.
Manager of Environmental Affairs

GNG:pd
Enclosure

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 10-01-84
To: 12-31-84

Permit Number: GA0004120

Discharge Location: 001A1 -Low Volume Waste
(Neutralization Tank)

Type of Sample: Grab
Frequency of Analysis: 2/mo

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
10-02-84	25	.3	7.0
10-17-84	19	.1	6.4
11-05-84	11	.5	8.7
11-19-84	4	21.6	6.6
12-03-84	7	15.6	6.6
12-17-84	8	7.6	7.3
Number of Samples:	6	6	6
Average Value:	12.3	7.6	7.1
Maximum Value:	25.0	21.6	8.7
Minimum Value:	4.0	.1	6.4
Limits Exceeded:	0	1	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 10-01-84
To: 12-31-84

Permit Number: GA0004120

Discharge Location: 001A2 -Low Volume Waste
(Pressure Filters)

Type of Sample: Grab
Frequency of Analysis: 1/qtr

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
11-05-84 (A)	.5	7.9	8.0
11-05-84 (B)	1.7	7.0	7.9
11-05-84 (C)	3.6	<5.0	7.9
11-05-84 (D)	2.6	9.2	7.9
Number of Samples:	4	4	4
Average Value:	2.1	7.0	--
Maximum Value:	3.6	9.2	8.0
Minimum Value:	.5	7.0	7.9
Limits Exceeded:	0	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

Form: 10-01-84
To: 12-31-84

Permit Number: GA0004120

Discharge Location: 001B - Cooling Tower Blowdown

Location:	Intake	Mixing Zone	pH		Zn		Cr	
Type Sample:	In Situ	In Situ	Grab		Grab		Grab	
Frequency:	1/wk	1/wk	2/mo		1/qtr		1/qtr	
Parameter:	Temp. Deg. F	Temp. Deg. F						
Limits:	T of 5 Deg.	T of 5 Deg.	Min. 6.0					
	Max. 90 Deg.	Max. 90 Deg.	Max. 9.0		Max. 1.0		Max. 0.2	
			Unit 1	Unit 2	Unit 1	Unit 2	Unit 1	Unit 2
Date								
10-01-84			#1	8.2				
10-03-84	70	70						
10-10-84	73	73						
10-15-84				8.5				
10-17-84	75	75						
10-24-84	76	76						
10-31-84	76	76						
11-05-84				7.7				
11-07-84	64	64						
11-14-84	56	56						
11-20-84				8.1				
11-21-84	59	59						
11-28-84	59	59						
12-03-84				8.4				
12-05-84	56	56						
12-06-84					.26		<0.1	
12-12-84	52	52						
12-12-84	58	58						
12-17-84				8.0				
12-21-84	58	58				.08		<0.1
12-27-84	62	62						
Number of Samples:	14	14	0	6	1	1	1	1
Average Value:	-	-	-	-	.26	.08	<0.1	<0.1
Maximum Value:	76	76	0	8.5	.26	.08	<0.1	<0.1
Minimum Value:	52	52	0	7.7	.26	.08	<0.1	<0.1
Limits Exceeded:	-	0	0	0	0	0	0	0

NOTE #1: Unit 1 was out of service during this period.

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 10-01-84
To: 12-31-84

Permit Number: GA0004120

Discharge Location: 001D - Liquid Radwaste System Unit 1
Type of Sample: Grab
Frequency of Analysis: 2/mo.

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH pH Units
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
10-01-84	28.2	.4	6.9
10-15-84	.2	.6	6.0
11-05-84	1.7	7.4	5.9
11-19-84	2.8	2.4	6.5
12-03-84	5.3	6.4	7.0
12-17-84	0.0	4.0	6.5
Number of Samples:	6	6	6
Average Value:	6.4	3.5	--
Maximum Value:	28.2	7.4	7.0
Minimum Value:	0.0	.4	5.9
Limits Exceeded:	0	0	0

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 10-01-84
To: 12-31-84

Permit Number: GA0004120

Discharge Location: 001D - Liquid Radwaste System Unit 2
Type of Sample: Grab
Frequency of Analysis: 2/mo.

Parameter:	Suspended Solids mg/l	Oil & Grease mg/l	pH pH Units
Limits	Avg. 30 Max. 100	Avg. 15 Max. 20	Min. 6.0 Max. 9.0
Date			
10-01-84	21.0	.1	4.4
10-15-84	25.0	4.0	6.0
11-05-84	10.3	.2	6.2
11-19-84	12.3	6.4	6.5
12-02-84	1.3	6.1	6.3
12-17-84	1.8	1.9	6.4
Number of Samples:	6	6	6
Average Value:	12.0	3.1	--
Maximum Value:	25.0	6.4	6.5
Minimum Value:	1.3	.1	4.4
Limits Exceeded:	0	0	1

QUARTERLY OPERATIONAL MONITOPING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 10-01-84
To: 12-31-84

Permit Number: GA0004120

Discharge Location: 001E - Combined Plant Waste Unit 1

Frecuency of Analysis: 1/wk

Type of Sample:	In Situ	Grab	Grab	Grab
Parameter:	Temperature	TRC	FAC	pH
Limits:	Deg F	N/A	N/A	Min. 6.0 Max. 9.0
Date				
10-02-84		<0.1	<0.1	7.6
10-03-84	74			
10-10-84	75			
10-11-84		#1	<0.1	6.8
10-17-84	77			
10-18-84			<0.1	7.5
10-24-84	77			
10-26-84			<0.1	7.4
11-01-84	74		<0.1	6.8
11-14-84	59		<0.1	6.9
11-19-84			<0.1	6.7
11-21-84	60			
11-28-84	58	<0.1	<0.1	6.8
12-05-84	59	<0.1	<0.1	7.2
12-12-84	55	<0.1	<0.1	7.0
12-21-84	60	.2	.2	6.8
12-26-84	62	0.0	0.0	6.5
Number of Samples:	12	6	12	12
Average Value:	--	--	--	--
Maximum Value:	77	.2	.2	7.6
Minimum Value:	55	<0.1	<0.1	6.5
Limits Exceeded:	--	0	--	0

NOTE #1: TRC not recorded during this period.

QUARTERLY OPERATIONAL MONITORING REPORT

Georgia Power Company
Plant Hatch
P. O. Box 4545
Atlanta, Georgia 30302

From: 10-01-84
To: 12-31-84

Permit Number: GA0004120

Discharge Location: 001E - Combined Plant Waste Unit 2

Frecuency of Analysis: 1/wk

Type of Sample:	In Situ	Grab	Grab	Grab
Parameter:	Temperature	TRC	FAC	pH
Limits:	Deg F	N/A	N/A	Min. 6.0 Max. 9.0
Date				
10-02-84		<0.1	<0.1	7.2
10-03-84	76		<0.1	7.0
10-10-84	78			
10-11-84		#1	<0.1	7.3
10-17-84	81			
10-18-84			<0.1	7.6
10-24-84	79			
10-26-84			<0.1	7.6
11-01-84	79		<0.1	6.9
11-14-84	59		<0.1	7.2
11-19-84			<0.1	7.0
11-21-84	66			
11-28-84	66	<0.1	<0.1	7.3
12-05-84	64			
12-07-84		<0.1	<0.1	7.0
12-12-84	73	<0.1	<0.1	6.8
12-21-84	69	.2	.2	6.7
12-26-84	59	0.0	0.0	6.7
Number of Samples:	12	6	13	13
Average Value:	--	<0.1	<0.1	--
Maximum Value:	81	.2	.2	7.6
Minimum Value:	59	<0.1	<0.1	6.7
Limits Exceeded:	--	--	--	0

I certify that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete, and accurate.

Mr. W. P. Woodall
Manager of Environmental Affairs