RCN 218-070-07-20

DEMONSTRATION OF INNOVATIVE APPLICATIONS OF TECHNOLOGY FOR THE CT-121 FGD PROCESS

Plant Yates

Environmental Monitoring Program Report: First Quarter of 1994

(Final)

DOE DE-FC22-90PC89650
SCS C-90-00284

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EXECUTIVE SUMMARY

This progress report summarizes activities associated with the environmental monitoring program (EMP) during the first calendar quarter of 1994 for the U.S. Department of Energy's Innovative Clean Coal Technology project entitled "Demonstration of Innovative Applications of Technology for the CT-121 FGD Process." This demonstration project is being conducted at Georgia Power Company's Plant Yates Unit 1, located near Newnan, Georgia.

This document discusses progress made in EMP activities during the first calendar quarter of 1994. With the exception of certain compliance data, results are not presented in detail; instead, results will be reported in periodic reports focusing on discrete test periods.

During the months of January and February, the remaining low-particulate auxiliary tests were completed, including alternate limestone load-following tests and parametric alternate coal tests.

In March the high-particulate test period (i.e., with the ESP detuned) began. The first nine parametric tests of this test period were completed, including particulate loading measurements conducted by SRI.

Operational-phase groundwater monitoring continued during the quarter. Also, compliance monitoring was conducted and compliance reports were submitted by Georgia Power Company to the Environmental Protection Division of the Georgia Department of Natural Resources.

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1.0 INTRODUCTION

This quarterly progress report summarizes activities associated with the environmental monitoring program (EMP) during the first calendar quarter of 1994 for the U.S. Department of Energy's Innovative Clean Coal Technology project entitled "Demonstration of Innovative Applications of Technology for the CT-121 FGD Process." This demonstration project is being conducted at Georgia Power Company's Plant Yates Unit 1, located near Newnan, Georgia. The Cooperative Agreement for this project was signed by DOE on April 2, 1990.

The EMP was developed to fulfill the following specific objectives:

- To provide monitoring data to fulfill environmental compliance requirements of local, state, and federal regulatory agencies;
- To define and describe additional supplemental monitoring activities, if needed; and
- To ensure that emissions and environmental impacts are consistent with projections provided in NEPA documents.

This document discusses progress made in EMP activities during the first calendar quarter of 1994. Results are presented for groundwater monitoring and compliance (air emissions and wastewater) monitoring, but the results of FGD process monitoring will be presented in periodic reports focusing on discrete test phases.

2.0 PROJECT SUMMARY

This section provides a brief description of the plant and process in addition to the demonstration project.

2.1 Plant and Process Description

Plant Yates consists of seven steam turbine electric generating units providing a total nameplate capacity of 1,250,000 kW. Units 1 through 5 (operational since the 1950s) are operated as intermediate load units and are located in one building that features a common 825-foot stack for venting emissions from all five units. Units 6 and 7, operational since 1974, are operated as base load units. A common 800-foot stack is used to vent emissions from Units 6 and 7, which are housed in a separate building. All of Plant Yates' units are equipped with electrostatic precipitators for particulate control.

Plant Yates typically uses coal that is a 50-50 blend of Arch Mineral and Old Ben coals from the Illinois Basin. The target coal sulfur content for the demonstration project is 2.5 percent. Raw water for process needs is drawn from the Chattahoochee River. Solid waste, in the form of bottom ash and fly ash, is sluiced to a series of wet ash disposal ponds.

2.2 Project Description

The CT-121 flue gas desulfurization project was constructed and is operated to treat the entire flue gas stream from Unit 1 (100 MW), which is approximately 12% of the total flue gas generated at Plant Yates. A 258-foot stack was constructed to vent emissions from the CT-121 process.

A simplified process flow diagram of the flue gas desulfurization process is shown in Figure 1. Major process sampling locations are shown in that diagram.

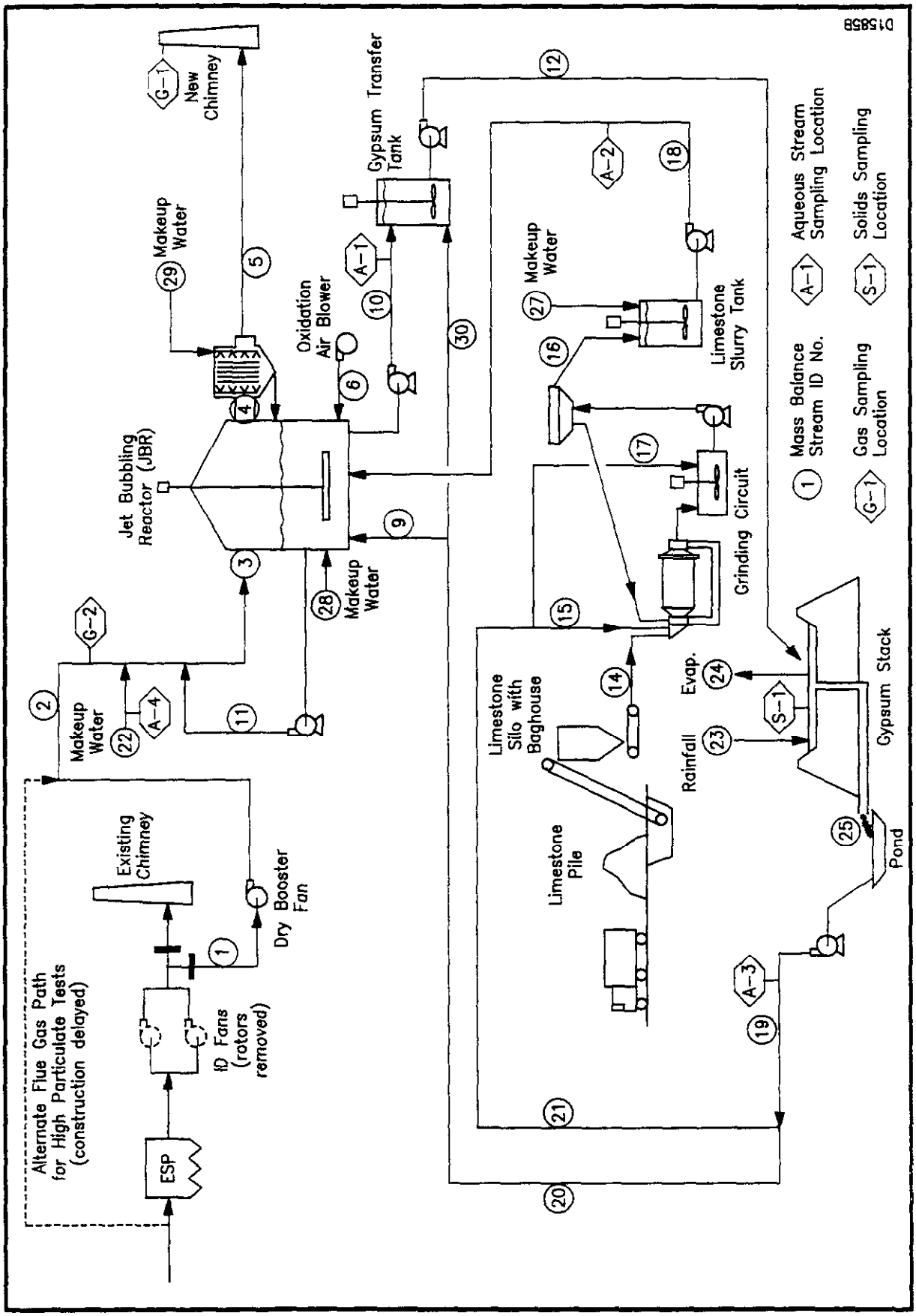

Figure 1. Yates 100 MW CT-121 Process Flow Diagram

3.0 PROJECT STATUS

The CT-121 demonstration project at Plant Yates consists of four distinct environmental test periods, including:

- Period 0: Site Preparation, Construction, and Startup of the Demonstration Project;
- Period 1: Testing at Low Fly Ash Loading—With ESP In Service;
- Period 2: Testing at High Fly Ash Loading—ESP Detuned or Out of Service; and
- Period 3: Post Demonstration Groundwater Testing.

Monitoring during Period 0 consisted solely of background (i.e., prior to project operation) groundwater monitoring. Samples were obtained during seven periods between September 6, 1990 and October 14, 1992.

On October 26, 1992, the CT-121 wet scrubber became operational for the first time. During the remainder of 1992, shakedown of the process equipment and data collection procedures was conducted.

In January, the Period 1 auxiliary test block continued with alternate limestone testing. The unit was operated in load-following mode based on system demand. The primary objective of this portion of the test period was to gather additional data on the scrubber's performance and produced gypsum dewatering characteristics while operating with Dravo limestone.

The Period 1 alternate coal tests began with the delivery of high-sulfur coal (about 4.3%) on January 25 and were nearly complete by the end of February. The purpose of these tests was to judge the flexibility and performance of the scrubber while using the higher sulfur

coal. Modifications were made both to the scrubber's limestone feed system and the JBR because of the significantly higher sulfur content of this coal compared to what had been used during previous tests (about 2.5%). The capacity of the limestone pumps was raised by installing larger motors, and additional oxidation air blowers were installed to maintain adequate SO_2 oxidation.

At the beginning of March, the boiler resumed operation using its normal fuel supply. Preparations were made to begin the high-particulate test period (i.e., with the ESP detuned). The residual amounts of 4.3% sulfur coal remaining in the coal handling system were consumed during the first week of the month. The gypsum/fly ash stack was prepared for use by laying down a layer of gypsum to guard against blinding of the underdrains with fine fly ash that can be expected after detuning the ESP. Detuning of the ESP began on March 14, and the parametric test block began on March 19, 1994.

Particulate sampling of the JBR inlet flue gas and stack gas streams was conducted by SRI during the first nine parametric tests. Preliminary results indicate that with the ESP fully de-energized, the CT-121 scrubber was capable of up to 99% particulate removal efficiency at full load. SO_2 removal efficiency for these tests compared favorably to model predictions for the first five tests; the other four tests were conducted at a pH of 3.5, which was outside the range of the model.

4.0 COMPLIANCE MONITORING AND REPORTING

Wastewater samples collected during the quarter for compliance purposes were as follows:

Stream/Parameter	Ash Transport Water	Final Plant Discharge
Total Suspended Solids	✓	
Oil and Grease	✓	
pH		✓

During the quarter, compliance reports were submitted by Georgia Power Company, as required, to the Environmental Protection Division of the Georgia Department of Natural Resources. These reports are reproduced as Appendices A and B. Appendix A contains excess emission and monitoring system performance reports. Appendix B contains wastewater data.

During the first quarter of 1994, a semiannual progress report was submitted by GPC to the DNR, in accordance with an amendment (effective December 28, 1990) to the air operating permit for Source 1 (comprising Units 1, 2, and 3), No. 4911-038-4838-0.

5.0 SUPPLEMENTAL MONITORING

5.1 Groundwater Monitoring

Operational-phase groundwater monitoring was conducted during the quarter on March 22-23, 1994. The samples collected, shown in Table 1, were analyzed for the parameters shown in Table 2. Results for these samples will be available in the next quarterly EMP progress report.

A report containing the results of groundwater monitoring conducted during the fourth quarter of 1993 is provided as Appendix C. The results from previous quarters have been attached to previously submitted EMP reports.

5.2 FGD Process Monitoring

The monitoring schedules for gaseous, aqueous, and solid streams are shown in Tables 3, 4, and 5, respectively. Tables 6, 7, and 8 are summaries of the EMP monitoring conducted during the quarter.

Table 1

Summary of Groundwater Samples Collected at Plant Yates on March 22-23, 1994

Well ID	Sample ID	Analyses
GWA-1		Well dry; no samples collected
GWC-1	GWC-1-13-1	Anions, TOC, Metals, and Radionuclides
GWC-2	GWC-2-13-1	Anions, TOC, Metals, and Radionuclides
GWC-3	GWC-3-13-1 GWC-3-13-2	Anions, TOC, Metals, and Radionuclides Anions, TOC, and Metals
GWC-4	GWC-4-13-1	Anions, TOC, Metals, and Radionuclides
GWC-5	GWC-5-13-1	Anions, TOC, Metals, and Radionuclides
GWC-6	None	Well dry; no samples collected

Table 2

EMP Groundwater Monitoring Parameters

pH	Conductivity	Temperature
Eh	Alkalinity	Total Dissolved Solids
Bromide	Chloride	Total Organic Carbon
Fluoride	Nitrate-Nitrite	Sulfate
Trace Elements (Dissolved)		
Silver	Aluminum	Arsenic
Boron	Barium	Beryllium
Bismuth	Calcium	Cadmium
Cobalt	Copper	Chromium
Mercury	Iron	Potassium
Lithium	Magnesium	Manganese
Molybdenum	Sodium	Nickel
Phosphorus	Lead	Sulfur
Antimony	Selenium	Silicon
Tin	Strontium	Tellurium
Titanium	Thallium	Uranium
Vanadium	Tungsten	Zinc
Other		
Radionuclides		

Table 3

Gaseous Streams: Integrated Monitoring Schedule

Parameter	Stack Gas Stream	Flue Gas Inlet to JBR
Opacity	None	Continuous
SO_2	Continuous	Continuous
O_2	Continuous	Continuous
Moisture Content	9/Parametric Test Period	9/Parametric Test Period
SO_3, H_2SO_4 Mist (contingent upon funding availability)	36/Parametric Test Period	36/Parametric Test Period
Particulate Matter:		
Loading	9/Parametric Test Period and Annually	9/Parametric Test Period
Particle Size Distribution (contingent upon funding availability)	9/Parametric Test Period	9/Parametric Test Period

Table 4

Aqueous Stream Monitoring Schedule

Parameter	JBR Overflow		JBR Underflow	
	P	L	P	L
Liquid Phase				
pH	7/M	4/M	7/M	4/M
Chloride	7/M	4/M		
Sulfite	7/M	4/M		
Sulfate	7/M	4/M		
Carbonate	7/M	4/M		
Trace Elements		1/M		
Solid Phase				
Solids Content	7/M	4/M	7/M	4/M
Inert Content	7/M	4/M	7/M	4/M
Calcium	7/M	4/M	7/M	4/M
Magnesium			7/M	4/M
Sulfite			7/M	4/M
Sulfate	7/M	4/M	7/M	4/M
Carbonate	7/M	4/M	7/M	4/M
Trace Elements				1/M
TCLP				1/P

Table 4 (Continued)

Parameter	Limestone Slurry Feed		Gypsum Stack Return		Makeup Water	
	P	L	P	L	P	L
Liquid Phase						
pH			7/M	4/M	1/M	1/M
Chloride			7/M	4/M	1/M	1/M
Sulfite					1/M	1/M
Sulfate			7/M	4/M	1/M	1/M
Carbonate			7/M	4/M	1/M	1/M
Trace Elements			1/M	1/M		
Solid Phase						
Solids Content	7/M	4/M				
Inert Content	7/M	4/M				
Calcium	7/M	4/M				
Magnesium	7/M	4/M				
Carbonate	7/M	4/M				

Table 4 (Continued)

Abbreviations:

n/D = n times per day;
n/W = n times per week;
n/M = n times per month;
n/Q = n times per quarter;
1/nM = once per n months;
P = Parametric test; and
L = Long-term test. (Each of the two testing periods consists of a parametric test and a long-term test.)

Trace elements are the following:

Aluminum	Copper	Phosphorus
Arsenic	Iron	Lead
Boron	Potassium	Sulfur
Barium	Magnesium	Antimony
Beryllium	Manganese	Selenium
Calcium	Mercury	Silicon
Cadmium	Molybdenum	Titanium
Cobalt	Sodium	Uranium
Chromium	Nickel	Vanadium

Table 5

Solid Stream Monitoring Schedule

Parameter	Coal Feed
Proximate Analysis	Daily
Ultimate Analysis, Cl, and F	Twice Yearly
Trace Elements	Twice Yearly

Note: In addition to the monitoring shown, analysis of coal feed for sulfur, moisture, heating value, and ash content once per week is a regulatory compliance requirement.

Table 6

Gaseous Streams: Numbers of Samples Collected During the First Quarter of 1994

Parameter	Stack Gas Stream	Flue Gas Inlet to JBR
Opacity	NA	Continuous
SO_2	Continuous	Continuous
O_2	Continuous	Continuous
Moisture Content	27	27
SO_3, H_2SO_4 Mist	9	9
PM Loading	27	27
PM Size Distribution	9	9

Table 7

Aqueous Streams: Numbers of Samples Collected During the First Quarter of 1994

Parameters	JBR Overflow and Underflow	Limestone Slurry Feed	Gypsum Stack Return	Makeup Water
pH	Twice daily when operating	NA	Daily when operating	Monthly
Anions (liquid and solid phases) and solids/inerts/Ca/Mg (solid phase)	11	11	11	2
Metals (liquid and solid phases)	0	NA	0	NA

Table 8

Solid Streams: Number of Samples Collected During the First Quarter of 1994

Parameters	Coal Feed
Proximate Analysis	Daily when operating
Ultimate Analysis, Cl, and F	3
Trace Elements	1

6.0 QUALITY ASSURANCE/QUALITY CONTROL ACTIVITIES

QA/QC activities for process data consist of calibrations, calibration checks, and related maintenance activities, all of which are recorded in log books. Six log books are used:

1. CEM flow rates and gas concentrations;
2. pH calibrations;
3. ΔP cells;
4. Density measurements;
5. Flow meters; and
6. Level meters.

APPENDIX A

QUARTERLY AIR EMISSION REPORT FOR THE FIRST QUARTER OF 1994

FIGURE 1

SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE

Pollutant (Circle one - SO_2/NO_x/TRS/H_2S/CO/Opacity)

Reporting period dates: From 1-1-94 to 3-31-94

Company: Ga. Power Company
Plant Yates
Address: 708 Dyer Road
Newnan, Ga. 30263

Emission Limitation 40%

Monitor Manufacturer and Model No. Lear Siegler RM41

Date of Latest CMS Certification or Audit 1-14-94

Process Unit(s) Description: Unit 1
Source 1

Total source operating time in reporting period 109380

Emission Data Summary[1]		CMS Performance Summary[1]	
1. Duration of excess emissions in reporting period due to:		1. CMS downtime in reporting period due to:	
a. Startup/shutdown	570	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
c. Process problems	6	c. Quality assurance calibration	0
d. Other known causes	72	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	0
2. Total duration of excess emission	648	2. Total CMS Downtime	0
3. Total duration of excess emissions x (100) / [Total source operating time]	0.6 %	3. [Total CMS Downtime] x (100) / [Total source operating time]	0 %

On a separate page, describe any changes since last quarter in CMS, process or controls.

In accordance with condition 13(b) of the December 28, 1990 amendment to permit no. 4911-038-4838-0, the high particulate loading test phase of the Plant Yates Unit 1 Chiyoda Scrubber Project began on March 19, 1994.

I certify that the information contained in this report is true, accurate, and complete.

M. J. Knowles		Plant Manager	4/13/94
NAME	SIGNATURE	TITLE	DATE

[1] For opacity, record all times in minutes. For gases, record all times in hours.

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Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 01/18/94 — Report Date: 01/03/94
Today's Time: 11:07 — Report Hour: 23 - 24

Opacity Percent				
	0600-0605	2.9	0630-0635	4.4
	0606-0611	3.1	0636-0641	4.0
	0612-0617	3.3	0642-0647	4.0
	0618-0623	4.0	0648-0653	47.9 **
	0624-0629	3.8	0654-0659	56.3 !!

Hourly Averages	SO2	NOX	CO2
Measured	2.3 ppm	0.0 ppm	20.7 %
Bias Adjusted	2.3 ppm ##	0.0 ppm ##	20.7 % $$
Rate	-0.27 lb/mmBtu	0.00 lb/mmBtu	
Bias Adjusted	-0.27 lb/mmBtu	0.00 lb/mmBtu	
Mass Emission	0.0 lb/hr		194.5 ton/hr
Bias Adjusted	0.0 lb/hr		194.5 ton/hr
Bias Factor	1.00000	1.00000	1.00000
Source	1	1	1
Zero Calibration	-2.3 ppm	1.9 ppm	0.2 %
Expected Value	0.0 ppm	0.0 ppm	0.0 %
Span Calibration	428.3 ppm	895.3 ppm	19.8 %
Expected Value	433.0 ppm	896.0 ppm	19.7 %
Heat Input	-27.01		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	16486100 scfh $$	0 MWge	
Bias Adjusted	16486100 scfh		
Bias Factor	1.00000		
Source	1		
Zero Calibration	-0.7 scfh		-0.4 %
Expected Value	0.0 scfh		0.0 %
Span Calibration	347.4 scfh		46.3 %
Expected Value	350.0 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

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Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 01/18/94
Today's Time: 11:08

Report Date: 01/04/94
Report Hour: 19 - 20

Opacity Percent				
	0600-0605	8.5	0630-0635	6.9
	0606-0611	1.9	0636-0641	32.0
	0612-0617	1.2	0642-0647	79.7 **
	0618-0623	2.4	0648-0653	51.5 **
	0624-0629	4.3	0654-0659	44.8 **

Hourly Averages	SO2	NOX	CO2
Measured	3.1 ppm	1.1 ppm	20.9 %
Bias Adjusted	3.1 ppm ##	1.1 ppm ##	20.9 %
Rate	-0.22 lb/mmBtu	-0.06 lb/mmBtu	
Bias Adjusted	-0.22 lb/mmBtu	-0.06 lb/mmBtu	
Mass Emission	0.0 lb/hr		99.4 ton/hr
Bias Adjusted	0.0 lb/hr		99.4 ton/hr
Bias Factor	1.00000	1.00000	1.00000
Source	1	1	1
Zero Calibration	-3.1 ppm	-0.9 ppm	0.0 %
Expected Value	0.0 ppm	0.0 ppm	0.0 %
Span Calibration	435.8 ppm	900.3 ppm	18.3 %
Expected Value	433.0 ppm	896.0 ppm	18.2 %
Heat Input	-21.18		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	8346070 scfh	0 MWge	
Bias Adjusted	8346070 scfh		
Bias Factor	1.00000		
Source	1		
Zero Calibration	1.7 scfh		-0.3 %
Expected Value	0.0 scfh		0.0 %
Span Calibration	347.9 scfh		46.3 %
Expected Value	350.0 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

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Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 01/18/94 — Report Date: 01/04/94
Today's Time: 11:08 — Report Hour: 20 - 21

Opacity Percent

0600-0605 78.0 **	0630-0635 47.9 **
0606-0611 78.6 **	0636-0641 46.0 **
0612-0617 76.8 **	0642-0647 43.7 **
0618-0623 73.6 **	0648-0653 42.9 **
0624-0629 56.0 **	0654-0659 41.8 **

Hourly Averages	SO2		NOX		CO2	
Measured	3.1	ppm	4.2	ppm	20.0	%
Bias Adjusted	3.1	ppm	4.2	ppm	20.0	%
Rate	0.30	lb/mmBtu	0.29	lb/mmBtu		
Bias Adjusted	0.30	lb/mmBtu	0.29	lb/mmBtu		
Mass Emission	3.8	lb/hr			84.2	ton/hr
Bias Adjusted	3.8	lb/hr			84.2	ton/hr
Bias Factor	1.00000		1.00000		1.00000	
Source	1		1		1	
Zero Calibration	-3.1	ppm	-0.9	ppm	0.0	%
Expected Value	0.0	ppm	0.0	ppm	0.0	%
Span Calibration	435.8	ppm	900.3	ppm	18.3	%
Expected Value	433.0	ppm	896.0	ppm	18.2	%
Heat Input	11.15					

Hourly Averages	Flow		Gross Generation		Opacity	
Measured	7384350	scfh	0	MWge		
Bias Adjusted	7384350	scfh				
Bias Factor	1.00000					
Source	1					
Zero Calibration	1.7	scfh			-0.3	%
Expected Value	0.0	scfh			0.0	%
Span Calibration	347.9	scfh			46.3	%
Expected Value	350.0	scfh			46.7	%

Instrument Status

Opacity Monitor	- Normal
SO2 Analyzer	- Normal
NOX Analyzer	- Normal
O2 Analyzer	- Normal
Flow Monitor	- Normal

Legend:

** -Excess Emission	## -Insufficient Data
!! -Fans Off	$$ -Boiler Off

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Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

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Today's Date 01/18/94 Report Date: 01/04/94
Today's Time: 11:08 Report Hour: 21 - 22

Opacity Percent				
	0600-0605	40.2**	0630-0635	29.5
	0606-0611	37.9	0636-0641	26.8
	0612-0617	35.7	0642-0647	24.7
	0618-0623	33.9	0648-0653	23.2
	0624-0629	31.8	0654-0659	23.7

Hourly Averages	SO2	NOX	CO2
Measured	3.1 ppm	4.2 ppm	20.1 %
Bias Adjusted	3.1 ppm	4.2 ppm	20.1 %
Rate	0.40 lb/mmBtu	0.39 lb/mmBtu	
Bias Adjusted	0.40 lb/mmBtu	0.39 lb/mmBtu	
Mass Emission	3.8 lb/hr		85.0 ton/hr
Bias Adjusted	3.8 lb/hr		85.0 ton/hr
Bias Factor	1.00000	1.00000	1.00000
Source	1	1	1
Zero Calibration	-3.1 ppm	-0.9 ppm	0.0 %
Expected Value	0.0 ppm	0.0 ppm	0.0 %
Span Calibration	435.8 ppm	900.3 ppm	18.3 %
Expected Value	433.0 ppm	896.0 ppm	18.2 %
Heat Input	7.87		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	7420410 scfh	0 MWge	
Bias Adjusted	7420410 scfh		
Bias Factor	1.00000		
Source	1		
Zero Calibration	1.7 scfh		-0.3 %
Expected Value	0.0 scfh		0.0 %
Span Calibration	347.9 scfh		46.3 %
Expected Value	350.0 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

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Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 01/24/94 — Report Date: 01/19/94
Today's Time: 08:38 — Report Hour: 8 - 9

Opacity Percent					
	0600-0605	0.8 !!	0630-0635	11.6	
	0606-0611	0.0 !!	0636-0641	3.8	
	0612-0617	34.0	0642-0647	2.6	
	0618-0623	80.6 **	0648-0653	1.8	
	0624-0629	43.8 **	0654-0659	1.4	

Hourly Averages	SO2		NOX		CO2	
Measured	0.6	ppm	60.6	ppm	18.8	%
Bias Adjusted	0.6	ppm ##	60.6	ppm ##	18.8	%
Rate	0.01	lb/mmBtu	1.02	lb/mmBtu		
Bias Adjusted	0.01	lb/mmBtu	1.02	lb/mmBtu		
Mass Emission	0.0	lb/hr			66.6	ton/hr
Bias Adjusted	0.0	lb/hr			66.6	ton/hr
Bias Factor	1.00000		1.00000		1.00000	
Source	1		1		1	
Zero Calibration	1.7	ppm	0.0	ppm	-0.1	%
Expected Value	0.0	ppm	0.0	ppm	0.0	%
Span Calibration	432.2	ppm	856.1	ppm	18.5	%
Expected Value	433.0	ppm	896.0	ppm	18.2	%
Heat Input	42.90					

Hourly Averages	Flow		Gross Generation		Opacity	
Measured	6212650	scfh	0	MWge		
Bias Adjusted	6212650	scfh				
Bias Factor	1.00000					
Source	1					
Zero Calibration	-1.8	scfh			-0.4	%
Expected Value	0.0	scfh			0.0	%
Span Calibration	352.1	scfh			46.3	%
Expected Value	350.0	scfh			46.7	%

Instrument Status		
	Opacity Monitor	- Normal Calibration
	SO2 Analyzer	- Normal
	NOX Analyzer	- Calibration Warning
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Error 2/9 seeking in ../cem/yt1/daily1.dbf database.

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 01/24/94 — Report Date: 01/21/94
Today's Time: 08:39 — Report Hour: 20 - 21

Opacity Percent				
0600-0605	85.6 **	0630-0635	1.7	
0606-0611	36.4	0636-0641	1.7	
0612-0617	1.7	0642-0647	1.6	
0618-0623	0.8	0648-0653	7.1	
0624-0629	1.3	0654-0659	10.9	

Hourly Averages	SO2	NOX	CO2
Measured	0.0 ppm	0.0 ppm	21.4 %
Bias Adjusted	0.0 ppm ##	0.0 ppm ##	21.4 % $$
Rate	0.00 lb/mmBtu	0.00 lb/mmBtu	
Bias Adjusted	0.00 lb/mmBtu	0.00 lb/mmBtu	
Mass Emission	0.0 lb/hr		126.1 ton/hr
Bias Adjusted	0.0 lb/hr		126.1 ton/hr
Bias Factor	1.00000	1.00000	1.00000
Source	1	1	1
Zero Calibration	2.3 ppm	1.0 ppm	0.0 %
Expected Value	0.0 ppm	0.0 ppm	0.0 %
Span Calibration	441.1 ppm	893.2 ppm	18.5 %
Expected Value	433.0 ppm	896.0 ppm	18.2 %
Heat Input	-49.46		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	10333700 scfh $$	0 MWge	
Bias Adjusted	10333700 scfh		
Bias Factor	1.00000		
Source	1		
Zero Calibration	-1.8 scfh		-0.4 %
Expected Value	0.0 scfh		0.0 %
Span Calibration	346.8 scfh		46.3 %
Expected Value	350.0 scfh		46.7 %

Instrument Status	
Opacity Monitor	- Normal
SO2 Analyzer	- Normal
NOX Analyzer	- Normal
O2 Analyzer	- Normal
Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Error 2/9 seeking in ../cem/yt1/daily1.dbf database.

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 01/24/94 — Report Date: 01/23/94
Today's Time: 08:41 — Report Hour: 23 - 24

Opacity Percent					
	0600-0605	0.1 !!	0630-0635	40.4 **
	0606-0611	0.1	0636-0641	85.8 **
	0612-0617	0.6	0642-0647	81.2 **
	0618-0623	4.8	0648-0653	68.8 **
	0624-0629	3.3	0654-0659	62.1 **

Hourly Averages	SO2	NOX	CO2
Measured	0.0 ppm	1.4 ppm	21.1 %
Bias Adjusted	0.0 ppm ##	1.4 ppm ##	21.1 %
Rate	0.00 lb/mmBtu	-0.05 lb/mmBtu	
Bias Adjusted	0.00 lb/mmBtu	-0.05 lb/mmBtu	
Mass Emission	0.0 lb/hr		55.0 ton/hr
Bias Adjusted	0.0 lb/hr		55.0 ton/hr
Bias Factor	1.00000	1.00000	1.00000
Source	1	1	1
Zero Calibration	1.1 ppm	-1.0 ppm	0.0 %
Expected Value	0.0 ppm	0.0 ppm	0.0 %
Span Calibration	439.2 ppm	901.7 ppm	18.5 %
Expected Value	433.0 ppm	896.0 ppm	18.2 %
Heat Input	-15.72		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	4575030 scfh	0 MWge	
Bias Adjusted	4575030 scfh		
Bias Factor	1.00000		
Source	1		
Zero Calibration	0.3 scfh		-0.4 %
Expected Value	0.0 scfh		0.0 %
Span Calibration	350.5 scfh		46.3 %
Expected Value	350.0 scfh		46.7 %

Instrument Status:		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Error 2/9 seeking in ../cem/yt1/daily1.dbf database.

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 02/04/94 — Report Date: 01/24/94
Today's Time: 12:45 — Report Hour: 0 - 1

Opacity Percent				
	0600-0605	[illegible] **	[illegible]	22.2
	0606-0611	26.7	0636-0641	21.8
	0612-0617	24.1	[illegible]	21.4
	0618-0623	23.2	0648-0653	20.7
	0624-0629	[illegible]	0654-0659	40.2 **

Hourly Averages	SO2		NOx		O2
Measured	0.2	ppm	1.9	ppm	20.8 %
Bias Adjusted	0.2	ppm	1.9	ppm	20.8 %
Rate	-0.02	lb/mmBtu	-0.12	lb/mmBtu	
Bias Adjusted	-0.02	lb/mmBtu	-0.12	lb/mmBtu	
Mass Emission	0.2	lb/hr			-- [illegible]
Bias Adjusted	0.2	lb/hr			77.5 [illegible]
Bias Factor	1.00000		1.00000		1.00000
Source	1		1		1
Zero Calibration	1.1	ppm	-1.0	ppm	0.0 %
Expected Value	0.0	ppm	0.0	ppm	0.0 %
Span Calibration	439.2	ppm	901.7	ppm	18.5 %
Expected Value	433.0	ppm	896.0	ppm	18.2 %
Heat Input	-13.66				

Hourly Averages	Flow		Gross Generation		Opacity
Measured	6541460	scfh	0	MWge	
Bias Adjusted	6541460	scfh			
Bias Factor	1.00000				
Source	1				
Zero Calibration	0.3	[illegible]			-0.4 %
Expected Value	0.0	scfh			0.0 %
Span Calibration	360.5	scfh			44.3 %
Expected Value	350.0	scfh			46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:
** -Excess Emission ## -Insufficient Data
!! -Fans Out $ -Diluent Cap

Error 2/9 seeking in ../cem/yt1/daily1.dbf database.

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 02/04/94 — Report Date: 01/24/94
Today's Time: 08:29 — Report Hour: 1 - 2

Opacity Percent					
	0600-0605	12.4 **	0610-0615	45.0 **
	0606-0611	51.9 **	0636-0641	42.5 **
	0612-0617	50.2 **	0642-0647	41.9 **
	0618-0623	46.2 **	0646-0653	40.9 **
	0624-0629	46.8 **	0654-0659	41.4 **

Hourly Averages	SO2		NOX		CO2	
Measured	0.9	ppm	3.6	ppm	20.5	%
Bias Adjusted	0.9	ppm	3.6	ppm	20.5	%
Rate	-0.29	lb/mmBtu	-0.83	lb/mmBtu		
Bias Adjusted	-0.29	lb/mmBtu	-0.83	lb/mmBtu		
Mass Emission	1.0	lb/hr			75.5	ton/hr
Bias Adjusted	1.0	lb/hr			75.5	ton/hr
Bias Factor	1.00000		1.00000		1.00000	
Source	1		1		1	
Zero Calibration	1.1	ppm	1.0	ppm	0.0	%
Expected Value	0.0	ppm	0.0	ppm	0.0	%
Span Calibration	439.2	ppm	901.7	ppm	18.5	%
Expected Value	433.0	ppm	894.0	ppm	16.2	%
Heat Input	-4.77					

Hourly Averages	Flow		Gross Generation		Opacity
Measured	6458260	scfh	0	MWge	
Bias Adjusted	6458280	scfh			
Bias Factor	1.00000				
Source	1				
Zero Calibration	0.3	scfh			-0.4 %
Expected Value	0.0	scfh			0.0 %
Span Calibration	350.5	scfh			46.3 %
Expected Value	350.0	scfh			46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Error 2/9 seeking in ../cem/yt1/daily1.dbf database.

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 01/04/94 — Report Date: 01/24/94
Today's Time: 08:29 — Report Hour: 2 - 3

Opacity Percent				
	0600-0605	41.4 **	0630-0635	43.3 **
	0606-0611	40.4 **	0636-0641	45.1 **
	0612-0617	42.7 **	0642-0647	47.7 **
	0618-0623	43.0 **	0648-0653	49.2 **
	0624-0629	44.3 **	0654-0659	54.3 **

Hourly Averages	SO2		NOX		CO2	
Measured	1.3	ppm	3.6	ppm	20.2	%
Bias Adjusted	1.3	ppm	3.6	ppm	20.2	%
Rate	0.26	lb/mmBtu	0.52	lb/mmBtu		
Bias Adjusted	0.26	lb/mmBtu	0.52	lb/mmBtu		
Mass Emission	1.3	lb/hr			69.1	ton/hr
Bias Adjusted	1.3	lb/hr			69.1	ton/hr
Bias Factor	1.00000		1.00000		1.00000	
Source	1		1		1	
Zero Calibration	1.1	ppm	-0.4	ppm	0.1	%
Expected Value	0.0	ppm	0.0	ppm	0.0	%
Span Calibration	439.2	ppm	847.8	ppm	18.4	%
Expected Value	433.0	ppm	846.0	ppm	18.2	%
Heat Input	3.64					

Hourly Averages	Flow		Gross Generation		Opacity	
Measured	6000410	scfh	0	MWge		
Bias Adjusted	6000410	scfh				
Bias Factor	1.00000					
Source	1					
Zero Calibration	0.3	scfh			-0.4	%
Expected Value	0.0	scfh			0.0	%
Span Calibration	350.5	scfh			46.3	%
Expected Value	350.0	scfh			46.7	%

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal Calibration
	O2 Analyzer	- Normal Calibration
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Equipment Out

Error 2/9 seeking in ../cem/yt1/daily1.dbf database.

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 02/04/94 — Report Date: 01/24/94
Today's Time: 08:29 — Report Hour: 3 - 4

Opacity Percent				
0600-0605	61.4 **	0630-0635	24.4	
0606-0611	56.8 **	0636-0641	16.6	
0612-0617	58.3 **	0642-0647	28.5	
0618-0623	57.9 **	0648-0653	14.9	
0624-0629	41.1 **	0654-0659	13.4	

Hourly Averages	SO2		NOX		CO2	
Measured	1.7	ppm	4.0	ppm	20.0	%
Bias Adjusted	1.7	ppm	4.0	ppm	20.0	%
Rate	0.16	lb/mmBtu	0.25	lb/mmBtu		
Bias Adjusted	0.16	lb/mmBtu	0.38	lb/mmBtu		
Mass Emission	1.5	lb/hr			71.6	ton/hr
Bias Adjusted	1.5	lb/hr			71.8	ton/hr
Bias Factor	1.00000		1.00000		1.00000	
Source	1		1		1	
Zero Calibration	1.1	ppm	-0.4	ppm	0.1	%
Expected Value	0.0	ppm	0.0	ppm	0.0	%
Span Calibration	439.2	ppm	867.6	ppm	19.4	%
Expected Value	433.0	ppm	896.0	ppm	18.2	%
Heat Input	9.50					

Hourly Averages	Flow		Gross Generation		Opacity	
Measured	6295550	scfh	0	MWge		
Bias Adjusted	6295550	scfh				
Bias Factor	1.00000					
Source	1					
Zero Calibration	0.3	scfh			-0.4	%
Expected Value	0.0	scfh			0.0	%
Span Calibration	347.0	scfh			46.3	%
Expected Value	350.0	scfh			46.7	%

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal Calibration

Legend:
** -Excess Emission ## -Insufficient Data
!! -Fans Off $$ -Boiler Off

Error 2/9 seeking in ../cem/yt1/daily1.dbf database.

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 02/04/94 — Report Date: 01/24/94
Today's Time: 08:30 — Report Hour: 13 - 14

Opacity Percent				
	0600-0605	17.1	0630-0635	4.9
	0606-0611	19.8	0636-0641	4.3
	0612-0617	55.6 **	0642-0647	3.4
	0618-0623	12.9	0648-0653	3.9
	0624-0629	5.3	0654-0659	4.1

Hourly Averages	SO2		NOX		CO2	
Measured	48.4	ppm	162.6	ppm	11.6	%
Bias Adjusted	-8.4	ppm	1[illegible]	ppm	11.6	%
Rate	0.20	lb/mmBtu	[illegible]	lb/mmBtu		
Bias Adjusted	0.20	lb/mmBtu	0.49	lb/mmBtu		
Mass Emission	75.6	lb/hr			64.7	[illegible]
Bias Adjusted	78.5	lb/hr			64.7	ton/hr
Bias Factor	1.00000		1.00000		1.00000	
Source	1		1		1	
Zero Calibration	2.3	ppm	0.0	ppm	0.4	%
Expected Value	0.0	ppm	0.0	ppm	0.0	%
Span Calibration	435.6	ppm	906.9	ppm	15.6	%
Expected Value	433.0	ppm	856.0	ppm	18.2	%
Heat Input	384.46					

Hourly Averages	Flow		Gross Generation		Opacity
Measured	9786890	scfh	90	MWge	
Bias Adjusted	9786690	scfh			
Bias Factor	1.00000				
Source	1				
Zero Calibration	0.2	scfh			-0.3 %
Expected Value	0.0	scfh			0.0 %
Span Calibration	347.0	scfh			4[illegible].3 %
Expected Value	370.0	scfh			46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 03/03/94 — Report Date: 27/02/94
Today's Time: 08:12 — Report Hour: 20 - 21

Opacity Percent	00-05	0.4 !!	30-35	0.3 !!		
	06-11	0.4 !!	36-41	3.5		
	12-17	0.4 !!	42-47	4.8		
	18-23	0.4 !!	48-53	10.5		
	24-29	0.4 !!	54-59	68.4 **		

Hourly Averages	SO2	NOX	O2
Measured	0 ppm	0 ppm	20.8 %
Bias Adjusted	0 ppm	0 ppm	20.8 %
Rate	-0.04 lb/mmBtu	0 lb/mmBtu	
Bias Adjusted	-0.04 lb/mmBtu	0 lb/mmBtu	
Mass Emission	0.2 lb/hr		
Bias Adjusted	0.2 lb/hr		
Bias Factor	1	1	1
Source	1	1	1
Zero Calibration	1.2 ppm	7.3 ppm	0 %
Expected Value	0 ppm	0 ppm	0 %
Span Calibration	1802.9 ppm	889.3 ppm	18 %
Expected Value	1798 ppm	894 ppm	18.2 %
Heat Input	0		
Mass Emiss. CO2	0 ton/hr		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	2390430 scfh	0 MWge	
Bias Adjusted	2390430 scfh		
Bias Factor	1		
Source	1		
Zero Calibration	0 scfh		-0.4 %
Expected Value	0 scfh		0 %
Span Calibration	349.9 scfh		46.3 %
Expected Value	350 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 03/03/94 — Report Date: 27/02/94
Today's Time: 08:12 — Report Hour: 21 - 22

Opacity Percent				
00-05	54.8 **	30-35	91 **
06-11	52.2 **	36-41	88.4 **
12-17	50.7 **	42-47	86.9 **
18-23	39.6	48-53	84.9 **
24-29	85.2 **	54-59	90.4 **

Hourly Averages	SO2	NOX	O2
Measured	0 ppm	0 ppm	20 %
Bias Adjusted	0 ppm	0 ppm	20 %
Rate	0.13 lb/mmBtu	0 lb/mmBtu	
Bias Adjusted	0.13 lb/mmBtu	0 lb/mmBtu	
Mass Emission	1.6 lb/hr		
Bias Adjusted	1.6 lb/hr		
Bias Factor	1	1	1
Source	1	1	1
Zero Calibration	1.2 ppm	7.3 ppm	0 %
Expected Value	0 ppm	0 ppm	0 %
Span Calibration	1802.9 ppm	889.3 ppm	18 %
Expected Value	1798 ppm	894 ppm	18.2 %
Heat Input	23.00		
Mass Emiss. CO2	2.36 ton/hr		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	6901130 scfh	0 MWge	
Bias Adjusted	6901130 scfh		
Bias Factor	1		
Source	1		
Zero Calibration	0 scfh		-0.4 %
Expected Value	0 scfh		0 %
Span Calibration	349.9 scfh		46.3 %
Expected Value	350 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 03/03/94 — Report Date: 27/02/94
Today's Time: 08:12 — Report Hour: 22 - 23

Opacity Percent				
	00-05	91.2 **	30-35	78.4 **
	06-11	88.1 **	36-41	81.8 **
	12-17	83.3 **	42-47	89.5 **
	18-23	81.7 **	48-53	83 **
	24-29	81.3 **	54-59	69.8 **

Hourly Averages	SO2	NOX	O2
Measured	0 ppm	0 ppm	19.4 %
Bias Adjusted	0 ppm	0 ppm	19.4 %
Rate	0.14 lb/mmBtu	0 lb/mmBtu	
Bias Adjusted	0.14 lb/mmBtu	0 lb/mmBtu	
Mass Emission	4.2 lb/hr		
Bias Adjusted	4.2 lb/hr		
Bias Factor	1	1	1
Source	1	1	1
Zero Calibration	1.2 ppm	7.3 ppm	0 %
Expected Value	0 ppm	0 ppm	0 %
Span Calibration	1802.9 ppm	889.3 ppm	18 %
Expected Value	1798 ppm	894 ppm	18.2 %
Heat Input	36.94		
Mass Emiss. CO2	3.79 ton/hr		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	6649140 scfh	0 MWge	
Bias Adjusted	6649140 scfh		
Bias Factor	1		
Source	1		
Zero Calibration	0 scfh		-0.4 %
Expected Value	0 scfh		0 %
Span Calibration	349.9 scfh		46.3 %
Expected Value	350 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 03/03/94 — Report Date: 27/02/94
Today's Time: 08:13 — Report Hour: 23 - 24

Opacity Percent				
00-05	62.9 **	30-35	17.7	
06-11	67.3 **	36-41	15.9	
12-17	45.4 **	42-47	14	
18-23	25.7	48-53	13.1	
24-29	20.4	54-59	11.6	

Hourly Averages	SO2		NOX		O2	
Measured	0	ppm	0	ppm	19.9	%
Bias Adjusted	0	ppm	0	ppm	19.9	%
Rate	0.33	lb/mmBtu	0	lb/mmBtu		
Bias Adjusted	0.33	lb/mmBtu	0	lb/mmBtu		
Mass Emission	5.2	lb/hr				
Bias Adjusted	5.2	lb/hr				
Bias Factor	1		1		1	
Source	1		1		1	
Zero Calibration	1.2	ppm	7.3	ppm	0	%
Expected Value	0	ppm	0	ppm	0	%
Span Calibration	1802.9	ppm	889.3	ppm	18	%
Expected Value	1798	ppm	894	ppm	18.2	%
Heat Input	28.17					
Mass Emiss. CO2	2.89	ton/hr				

Hourly Averages	Flow		Gross Generation		Opacity	
Measured	7243450	scfh	0	MWge		
Bias Adjusted	7243450	scfh				
Bias Factor	1					
Source	1					
Zero Calibration	0	scfh			-0.4	%
Expected Value	0	scfh			0	%
Span Calibration	349.9	scfh			46.3	%
Expected Value	350	scfh			46.7	%

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 03/16/94 — Report Date: 10/03/94
Today's Time: 11:25 — Report Hour: 17 - 18

Opacity Percent				
00-05	0.9	30-35	59.3 **	
06-11	0.7	36-41	69.4 **	
12-17	1.2	42-47	75.5 **	
18-23	3.7	48-53	62.2 **	
24-29	43.7 **	54-59	59.9 **	

Hourly Averages	SO2	NOX	O2
Measured	0 ppm	0 ppm	20.8 %
Bias Adjusted	0 ppm	0 ppm	20.8 %
Rate	-0.22 lb/mmBtu	0 lb/mmBtu	
Bias Adjusted	-0.22 lb/mmBtu	0 lb/mmBtu	
Mass Emission	1.8 lb/hr		
Bias Adjusted	1.8 lb/hr		
Bias Factor	1	1	1
Source	1	1	1
Zero Calibration	-2.5 ppm	8 ppm	-0.2 %
Expected Value	0 ppm	0 ppm	0 %
Span Calibration	428.6 ppm	909.4 ppm	17.8 %
Expected Value	428 ppm	894 ppm	18.2 %
Heat Input	2.41		
Mass Emiss. CO2	0.25 ton/hr		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	4338180 scfh	0 MWge	
Bias Adjusted	4338180 scfh		
Bias Factor	1		
Source	1		
Zero Calibration	0 scfh		-0.3 %
Expected Value	0 scfh		0 %
Span Calibration	349.9 scfh		46.3 %
Expected Value	350 scfh		46.7 %

Instrument Status		
Opacity Monitor	- Normal	
SO2 Analyzer	- Normal	
NOX Analyzer	- Normal	
O2 Analyzer	- Normal	
Flow Monitor	- Normal	

Legend:		
** -Excess Emission	## -Insufficient Data	
!! -Fans Off	$$ -Boiler Off	

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 03/16/94 — Report Date: 10/03/94
Today's Time: 11:25 — Report Hour: 18 - 19

Opacity Percent				
	00-05	63.4 **	30-35	22.2
	06-11	37	36-41	44.7 **
	12-17	26.6	42-47	74.6 **
	18-23	23.8	48-53	85.3 **
	24-29	23.3	54-59	73.4 **

Hourly Averages	SO2	NOX	O2
Measured	2.5 ppm	0 ppm	20 %
Bias Adjusted	2.5 ppm	0 ppm	20 %
Rate	-5.78 lb/mmBtu	0 lb/mmBtu	
Bias Adjusted	-5.78 lb/mmBtu	0 lb/mmBtu	
Mass Emission	3.1 lb/hr		
Bias Adjusted	3.1 lb/hr		
Bias Factor	1	1	1
Source	1	1	1
Zero Calibration	-2.5 ppm	8 ppm	-0.2 %
Expected Value	0 ppm	0 ppm	0 %
Span Calibration	428.6 ppm	909.4 ppm	17.8 %
Expected Value	428 ppm	894 ppm	18.2 %
Heat Input	16.60		
Mass Emiss. CO2	1.70 ton/hr		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	7469370 scfh	0 MWge	
Bias Adjusted	7469370 scfh		
Bias Factor	1		
Source	1		
Zero Calibration	0 scfh		-0.3 %
Expected Value	0 scfh		0 %
Span Calibration	349.9 scfh		46.3 %
Expected Value	350 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 03/16/94 — Report Date: 10/03/94
Today's Time: 11:25 — Report Hour: 19 - 20

Opacity Percent				
00-05	69.8 **	30-35	44.5 **	
06-11	64.9 **	36-41	43.5 **	
12-17	61.5 **	42-47	40.3 **	
18-23	59.2 **	48-53	37.5	
24-29	56.1 **	54-59	36.8	

Hourly Averages	SO2	NOX	O2
Measured	2.7 ppm	0 ppm	19.6 %
Bias Adjusted	2.7 ppm	0 ppm	19.6 %
Rate	0.26 lb/mmBtu	0 lb/mmBtu	
Bias Adjusted	0.26 lb/mmBtu	0 lb/mmBtu	
Mass Emission	3.4 lb/hr		
Bias Adjusted	3.4 lb/hr		
Bias Factor	1	1	1
Source	1	1	1
Zero Calibration	-2.5 ppm	8 ppm	-0.2 %
Expected Value	0 ppm	0 ppm	0 %
Span Calibration	428.6 ppm	909.4 ppm	17.8 %
Expected Value	428 ppm	894 ppm	18.2 %
Heat Input	29.09		
Mass Emiss. CO2	2.99 ton/hr		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	7481490 scfh	0 MWge	
Bias Adjusted	7481490 scfh		
Bias Factor	1		
Source	1		
Zero Calibration	0 scfh		-0.3 %
Expected Value	0 scfh		0 %
Span Calibration	349.9 scfh		46.3 %
Expected Value	350 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:
** -Excess Emission ## -Insufficient Data
!! -Fans Off $$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 03/16/94 — Report Date: 10/03/94
Today's Time: 11:28 — Report Hour: 21 - 22

Opacity Percent				
	00-05	28.3	30-35	26.9
	06-11	26.8	36-41	26.5
	12-17	27.1	42-47	28.4
	18-23	26.3	48-53	44.4 **
	24-29	27.3	54-59	41 **

Hourly Averages	SO2	NOX	O2
Measured	3.6 ppm	0 ppm	19.6 %
Bias Adjusted	3.6 ppm	0 ppm	19.6 %
Rate	0.35 lb/mmBtu	0 lb/mmBtu	
Bias Adjusted	0.35 lb/mmBtu	0 lb/mmBtu	
Mass Emission	4.5 lb/hr		
Bias Adjusted	4.5 lb/hr		
Bias Factor	1	1	1
Source	1	1	1
Zero Calibration	-2.5 ppm	8 ppm	-0.2 %
Expected Value	0 ppm	0 ppm	0 %
Span Calibration	428.6 ppm	909.4 ppm	17.8 %
Expected Value	428 ppm	894 ppm	18.2 %
Heat Input	29.19		
Mass Emiss. CO2	2.99 ton/hr		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	7505340 scfh	0 MWge	
Bias Adjusted	7505340 scfh		
Bias Factor	1		
Source	1		
Zero Calibration	0 scfh		-0.3 %
Expected Value	0 scfh		0 %
Span Calibration	349.9 scfh		46.3 %
Expected Value	350 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:
** -Excess Emission ## -Insufficient Data
!! -Fans Off $$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 04/14/94 — Report Date: 15/03/94
Today's Time: 09:37 — Report Hour: 11 - 12

Opacity Percent				
	00-05	6.1	30-35	32.1
	06-11	6.2	36-41	31.4
	12-17	6.1	42-47	28.3
	18-23	34	48-53	23.6
	24-29	43.3 **	54-59	23.1

Hourly Averages	SO2	NOX	O2
Measured	311.2 ppm	292.8 ppm	8.1 %
Bias Adjusted	311.2 ppm	292.8 ppm	8.1 %
Rate	0.85 lb/mmBtu	0.63 lb/mmBtu	
Bias Adjusted	0.85 lb/mmBtu	0.63 lb/mmBtu	
Mass Emission	684.7 lb/hr		
Bias Adjusted	684.7 lb/hr		
Bias Factor	1	1	1
Source	1	1	1
Zero Calibration	-2.2 ppm	11.6 ppm	0 %
Expected Value	0 ppm	0 ppm	0 %
Span Calibration	424.4 ppm	893 ppm	18.1 %
Expected Value	428 ppm	894 ppm	18.2 %
Heat Input	736.78		
Mass Emiss. CO2	75.59 ton/hr		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	14573900 scfh	75 MWge	
Bias Adjusted	14573900 scfh		
Bias Factor	1		
Source	1		
Zero Calibration	-0.8 scfh		-0.4 %
Expected Value	0 scfh		0 %
Span Calibration	350.6 scfh		46.3 %
Expected Value	350 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:
** -Excess Emission
-Insufficient Data
!! -Fans Off
$$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 04/14/94 — Report Date: 16/03/94
Today's Time: 09:38 — Report Hour: 10 - 11

Opacity Percent				
00-05	24.8	30-35	56.7 **	
06-11	23.9	36-41	50 **	
12-17	24.7	42-47	48.5 **	
18-23	62.3 **	48-53	43.4 **	
24-29	67.7 **	54-59	43.2 **	

Hourly Averages	SO2	NOX	O2
Measured	218 ppm	314.7 ppm	8.4 %
Bias Adjusted	218 ppm	314.7 ppm	8.4 %
Rate	0.63 lb/mmBtu	0.70 lb/mmBtu	
Bias Adjusted	0.63 lb/mmBtu	0.70 lb/mmBtu	
Mass Emission	492.3 lb/hr		
Bias Adjusted	492.3 lb/hr		
Bias Factor	1	1	1
Source	1	1	1
Zero Calibration	-3.4 ppm	8.6 ppm	0 %
Expected Value	0 ppm	0 ppm	0 %
Span Calibration	423.3 ppm	892.2 ppm	18.1 %
Expected Value	428 ppm	894 ppm	18.2 %
Heat Input	755.60		
Mass Emiss. CO2	77.53 ton/hr		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	14624700 scfh	75 MWge	
Bias Adjusted	14624700 scfh		
Bias Factor	1		
Source	1		
Zero Calibration	1.3 scfh		-0.3 %
Expected Value	0 scfh		0 %
Span Calibration	348.4 scfh		46.3 %
Expected Value	350 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 04/14/94 — Report Date: 16/03/94
Today's Time: 09:38 — Report Hour: 11 - 12

Opacity Percent				
	00-05	42 **	30-35	36.8
	06-11	41.3 **	36-41	37.2
	12-17	39	42-47	36.9
	18-23	38.3	48-53	36.9
	24-29	38.4	54-59	36.4

Hourly Averages	SO2		NOX		O2	
Measured	212.4	ppm	314.6	ppm	8.4	%
Bias Adjusted	212.4	ppm	314.6	ppm	8.4	%
Rate	0.61	lb/mmBtu	0.70	lb/mmBtu		
Bias Adjusted	0.61	lb/mmBtu	0.70	lb/mmBtu		
Mass Emission	480.6	lb/hr				
Bias Adjusted	480.6	lb/hr				
Bias Factor	1		1		1	
Source	1		1		1	
Zero Calibration	-3.4	ppm	8.6	ppm	0	%
Expected Value	0	ppm	0	ppm	0	%
Span Calibration	423.3	ppm	892.2	ppm	18.1	%
Expected Value	428	ppm	894	ppm	18.2	%
Heat Input	748.48					
Mass Emiss. CO2	76.79	ton/hr				

Hourly Averages	Flow		Gross Generation		Opacity
Measured	14644300	scfh	75	MWge	
Bias Adjusted	14644300	scfh			
Bias Factor	1				
Source	1				
Zero Calibration	1.3	scfh			-0.3 %
Expected Value	0	scfh			0 %
Span Calibration	348.4	scfh			46.3 %
Expected Value	350	scfh			46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:		
	** -Excess Emission	## -Insufficient Data
	!! -Fans Off	$$ -Boiler Off

Hourly Emission Measurement Summary
Georgia Power Company
Yates Unit 1
Newnan, Georgia

Today's Date 04/14/94 — Report Date: 18/03/94
Today's Time: 09:39 — Report Hour: 1 - 2

Opacity Percent				
	00-05	16	30-35	18.4
	06-11	16.2	36-41	24.2
	12-17	16.8	42-47	31.9
	18-23	16.2	48-53	44.9 **
	24-29	16.7	54-59	34

Hourly Averages	SO2	NOX	O2
Measured	83.9 ppm	250.1 ppm	9.7 %
Bias Adjusted	83.9 ppm	250.1 ppm	9.7 %
Rate	0.27 lb/mmBtu	0.62 lb/mmBtu	
Bias Adjusted	0.27 lb/mmBtu	0.62 lb/mmBtu	
Mass Emission	160.9 lb/hr		
Bias Adjusted	160.9 lb/hr		
Bias Factor	1	1	1
Source	1	1	1
Zero Calibration	0.6 ppm	8.6 ppm	0 %
Expected Value	0 ppm	0 ppm	0 %
Span Calibration	432.3 ppm	889.3 ppm	18.2 %
Expected Value	428 ppm	894 ppm	18.2 %
Heat Input	553.85		
Mass Emiss. CO2	56.83 ton/hr		

Hourly Averages	Flow	Gross Generation	Opacity
Measured	12461800 scfh	50 MWge	
Bias Adjusted	12461800 scfh		
Bias Factor	1		
Source	1		
Zero Calibration	-4.9 scfh		-0.4 %
Expected Value	0 scfh		0 %
Span Calibration	349.9 scfh		46.3 %
Expected Value	350 scfh		46.7 %

Instrument Status		
	Opacity Monitor	- Normal
	SO2 Analyzer	- Normal
	NOX Analyzer	- Normal
	O2 Analyzer	- Normal
	Flow Monitor	- Normal

Legend:
** -Excess Emission ## -Insufficient Data
!! -Fans Off $$ -Boiler Off

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Today's Date 04/14/94
Today's Time: 09:39

Opacity Percent

Hourly Averages

Opacity Monitor Breakdown Report

PLANT YATES	UNIT(S) 1	DATE 02-03-94

OPACITY READINGS DURING MALFUNCTIONS*		OPACITY MONITORING SYSTEM MALFUNCTION LOG			
TIME	OPACITY (%)	TIME DISCOVERED	TIME CORRECTED	NATURE OF PROBLEM	CORRECTIVE ACTION TAKEN
0000					
0100					
0200					
0300					
0400					
0500					
0600					
0700					
0800					
0900					
1000		1030	1040	MONTHLY PREVENTATIVE MAINT.	
1100				CLEANED OPTICS.	
1200					
1300					
1400					
1500					
1600					
1700					
1800					
1900					
2000					
2100					
2200					
2300					

* Must indicate whether this reading is taken from opacity monitor or made visually.

EXCESS EMISSIONS REPORT

UNIT STARTUP LOG - TIME EACH BEGAN

PLANT YATES
UNIT(S): 1 SOURCE: 1
DATE FROM: 1-01-94 TO: 1-31-94

DATE	OIL FIRE	PULVERIZER	PRECIPITATOR	FLUE GAS AT 270 °F	GENERATOR ON LINE
01-19-94	0542	0555			0808
01-23-94	2235				
01-24-94		1150	0640		1133

UPSET CONDITION LOG

DATE DISCOVERED	TIME DISCOVERED	TIME CORRECTED	EXPLANATION OF UPSET	CORRECTIVE ACTION TAKEN	PREVENTIVE ACTION TAKEN
01-03-94	2348	2400	UNIT STARTUP.	CONTINUED STARTUP.	
01-04-94	1942	2106	UNIT STARTUP	CONTINUED STARTUP.	
01-19-94	0818	0830	UNIT STARTUP.	CONTINUED STARTUP.	
01-21-94	2000	2006	UNIT SHUTDOWN.	CONTINUED SHUTDOWN.	
01-23-94	2330	2400	UNIT STARTUP.	CONTINUED STARTUP.	
01-24-94	0000	0006	UNIT STARTUP.	CONTINUED STARTUP.	
01-24-94	0054	0330	UNIT STARTUP.	CONTINUED STARTUP.	
01-24-94	1312	1318	RAISING LOAD TOO QUICKLY.	LOADED MORE SLOWLY.	

PLANT MANAGER:

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PLANT YATES

EXCESS EMISSIONS REPORT

UNIT(S): 1 SOURCE: 1

UNIT STARTUP LOG - TIME EACH BEGAN

DATE FROM: 2-01-94 TO: 2-28-94

DATE	OIL FIRE	PULVERIZER	PRECIPITATOR	FLUE GAS AT 270 °F	GENERATOR ON LINE
02-27-94	1955				
02-28-94		0215	0230		0800

UPSET CONDITION LOG

DATE DISCOVERED	TIME DISCOVERED	TIME CORRECTED	EXPLANATION OF UPSET	CORRECTIVE ACTION TAKEN	PREVENTIVE ACTION TAKEN
02-27-94	2054	2118	UNIT STARTUP.	CONTINUED STARTUP.	
02-27-94	2124	2318	UNIT STARTUP.	CONTINUED STARTUP.	

PLANT MANAGER:

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PLANT YATES

EXCESS EMISSIONS REPORT

UNIT(S): 1 SOURCE: 1

UNIT STARTUP LOG - TIME EACH BEGAN

DATE FROM: 3-01-94 TO: 3-31-94

DATE	OIL FIRE	PULVERIZER	PRECIPITATOR	FLUE GAS AT 270 °F	GENERATOR ON LINE
03-10-94	1635	2327	2327		
03-11-94					0320

UPSET CONDITION LOG

DATE DISCOVERED	TIME DISCOVERED	TIME CORRECTED	EXPLANATION OF UPSET	CORRECTIVE ACTION TAKEN	PREVENTIVE ACTION TAKEN
03-10-94	1724	1806	UNIT STARTUP.	CONTINUED STARTUP.	
03-10-94	1836	1948	UNIT STARTUP.	CONTINUED STARTUP.	
03-10-94	2148	2200	UNIT STARTUP.	CONTINUED STARTUP.	
03-15-94	1124	1130	HIGH PARTICULATE LOADING TESTING.	CONTINUED TESTING.	
03-16-94	1018	1112	HIGH PARTICULATE LOADING TESTING.	CONTINUED TESTING.	
03-18-94	0148	0154	HIGH PARTICULATE LOADING TESTING.	CONTINUED TESTING.	
03-18-94	2000	2006	HIGH PARTICULATE LOADING TESTING.	CONTINUED TESTING.	

PLANT MANAGER:

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APPENDIX B

QUARTERLY OPERATIONAL MONITORING REPORT FOR THE FIRST QUARTER OF 1994

Georgia Power Company
Plant Yates
P.O. Box 718
Newnan, Georgia 30264

From 01-01-94
To: 03-31-94

Permit Number: GA0001473

Discharge Location: 01A - Condenser Cooling Water Units 1-5
Frequency of Analysis: 1/wk

Location	Intake	Mixing Zone	N/A	Condenser	Condenser
Type Sample	In. Situ.	In. Situ.	T	Grab	Grab
Frequency	1/Wk	1/Wk	1/Wk		
Parameter	Temp. °F	Temp. °F	Temp. °F	TRC mg/L	Time of TRC Release
PCS Code	00011	00011	00018	50060	81400
Limits	N/A	Max.90	Max. 5	Inst. Max. 0.2	Max. 120 Min.
DATE				Note	Note
01-03-94	50.5	50.9	.4		
01-13-94	45.3	45.9	.6		
01-21-94	40	40.8	.8		
01-25-94	48	48	0		
02-04-94	44.1	46.4	2.3		
02-09-94	53.8	54.1	.3		
02-15-94	48.7	49.1	.4		
02-21-94	59.4	59.4	0		
03-04-94	50	50	0		
03-07-94	57	58	1		
03-15-94	56.7	57.4	.7		
03-22-94	61.9	63.0	1.1		
03-30-94	58.3	58.5	.2		
Note: No chlorination were performed on discharge 01A this quarter.					
Month of: January					
No. of Samples	4	4	4		
Average Value	46	46	.45		
Max. Value	50.5	50.9	.8		
Min. Value	40	40.8	0		
Limits Exceeded	0	0	0		
Month of: February					
No. of Samples	4	4	4		
Average Value	51.5	52.3	.75		
Max. Value	59.4	59.4	2.3		
Min. Value	44.1	46.4	0		
Limits Exceeded	0	0	0		
Month of: March					
No. of Samples	5	5	5		
Average Value	56.8	57.4	.6		
Max. Value	61.9	63	1.1		
Min. Value	50	50	0		
Limits Exceeded	0	0	0		

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Georgia Power Company
Plant Yates
P.O. Box 718
Newnan, Georgia 30264

From: 01-01-94
To: 03-31-94

Permit Number: GA0001473

Discharge Location: 01H - Cooling Tower Blowdown Unit No. 6

Location	Blowdown	Blowdown	Blowdown	Tower Basin	Tower Basin
Type Sample	Grab	Grab	Grab	Grab	Grab
Frequency	1/Wk/Unit	1/Wk/Unit	1/Wk/Unit	1/qtr	1/qtr
Parameter	FAC Avg. (mg/L)	FAC Max. (mg/L)	Total time of TRC Rel & TRC Avg. (Min. mg/L)	Zinc Max. (mg/L)	Chromium Max. (mg/L)
PCS Code	50064	50064	81400-50060	01092	01034
Limits	0.2	0.5	120	1.0	0.2

DATE					
02-07-94				.06	.00
03-17-94				.18	.00
03-24-94	0	0	0		
Month of January	Did not Chlorinate				
No. of Samples					
Average Value					
Max. Value					
Min. Value					
Limits Exceeded					
Month of: February	Did not Chlorinate				
No. of Samples				1	1
Average Value				.06	.00
Max. Value				.06	.00
Min. Value				.06	.00
Limits Exceeded				0	0
Month of: March					
No. of Samples	1	1	1	1	1
Average Value	0	0	0	.18	.00
Max. Value	0	0	0	.18	.00
Min. Value	0	0	0	.18	.00
Limits Exceeded	0	0	0	0	0

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Georgia Power Company
Plant Yates
P.O. Box 718
Newnan, Georgia 30264

From: 01-01-94
To: 03-31-94

Permit Number: GA0001473

Discharge Location: 01J - Cooling Tower Blowdown Unit No. 7

Location	Blowdown	Blowdown	Blowdown	Tower Basin	Tower Basin
Type Sample	Grab	Grab	Grab	Grab	Grab
Frequency	1/Wk/Unit	1/Wk/Unit	1/Wk/Unit	1/qtr	1/qtr
Parameter	FAC Avg. (mg/L)	FAC Max. (mg/L)	Total time of TRC Rel & TRC Avg. (Min. mg/L)	Zinc Max. (mg/L)	Chromium Max. (mg/L)
PCS Code	50064	50064	81400-50060	01092	01034
Limits	0.2	0.5	120	1.0	0.2

DATE					
02-07-94				.21	.00
02-15-94	0	0	0		
Month of: January	Did not Chlorinate				
No. of Samples					
Average Value					
Max. Value					
Min. Value					
Limits Exceeded					
Month of: February					
No. of Samples	1	1	1	1	1
Average Value	0	0	0	.21	.00
Max. Value	0	0	0	.21	.00
Min. Value	0	0	0	.21	.00
Limits Exceeded	0	0	0	0	0
Month of: March	Did not Chlorinate				
No. of Samples					
Average Value					
Max. Value					
Min. Value					
Limits Exceeded					

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Georgia Power Company
Plant Yates
P.O. Box 718
Newnan, Georgia 30264

From: 01-01-94
To: 03-31-94

Permit Number: GA0001473

Discharge Location: 01B - Ash Transport Water

Location	Ash Transport Water	Ash Transport Water	Final Discharge
Type Sample	Grab	Grab	Grab
Frequency	2/Month	2/Month	2/Month
Parameter	Suspended Solids (mg/L)	Oil & Grease (mg/L)	PH (PH Units)
PCS Code	00530	00556	00400
Limits	Avg. 30 Max 100	Avg.15 Max 20	Min. 6.0 Max. 9.0

DATE			
01-03-94	3	0	7.22
01-17-94	4	0	7.13
02-07-94	2	0	6.97
02-21-94	2	0	6.72
03-07-94	4	0	7.14
03-17-94	2	0	7.11
03-21-94	3	0	7.06
Month of: January			
No. of Samples	2	2	2
Average Value	3.5	0	
Max. Value	4	0	7.22
Min. Value	3	0	7.13
Limits Exceeded	0	0	0
Month of: February			
No. of Samples	2	2	2
Average Value	2	0	
Max. Value	2	0	6.97
Min. Value	2	0	6.72
Limits Exceeded	0	0	0
Month of: March			
No. of Samples	3	3	3
Average Value	3	0	
Max. Value	4	0	7.14
Min. Value	2	0	7.06
Limits Exceeded	0	0	0

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Georgia Power Company
Plant Yates
P.O. Box 718
Newnan, Georgia 30264

From: 01-01-94
To: 03-31-94

Permit Number: GA0001473

There were no discharges from the following outfalls during the quarter covered by this report:

01L	Building Sump Overflow
01M	Building Sump Overflow
01N	Building Sump Overflow
02	Ash Pond Emergency Overflow
04	Low Volume Waste Sump
05	Coal Pile Runoff Emergency Overflow

Chemical waste basin supernatant was pumped to ash pond on March 15, 1994 at 8:00 a.m.

Oil & Grease	0
TSS	2 ppm
Copper	.42 ppm
Iron	.07 ppm
Ph	6.73

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M. J. Knowles
Plant Manager

Attachment

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APPENDIX C

GROUNDWATER MONITORING REPORT FOR THE FOURTH QUARTER OF 1993

RCN 218-070-07-20

DEMONSTRATION OF INNOVATIVE APPLICATIONS
OF TECHNOLOGY FOR THE CT-121 FGD PROCESS

Plant Yates

Environmental Monitoring Program Report: Groundwater Monitoring for the Fourth Quarter of 1993

(Final)

DOE DE-FC22-90PC89650
SCS C-90-002284

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1.0 INTRODUCTION

This report summarizes the results of groundwater monitoring performed during the fourth calendar quarter of 1993 as part of the environmental monitoring program (EMP) for the U.S. Department of Energy's Innovative Clean Coal Technology project entitled "Demonstration of Innovative Applications of Technology for the CT-121 FGD Process." This demonstration project is being conducted at Georgia Power Company's Plant Yates Unit 1, located near Newnan, Georgia.

1.1 Project Summary

The purpose of this ICCT project is to demonstrate the use of the Chiyoda Thoroughbred-121 flue gas desulfurization process as a means of reducing SO_2 and particulate emissions from pulverized-coal utility boilers that use medium-sulfur coal. This project is also designed to demonstrate the lower cost and higher reliability of the CT-121 process compared to conventional wet limestone FGD processes.

The demonstration project at Plant Yates consists of four distinct environmental test periods:

- Period 0: Site Preparation, Construction, and Startup of the Demonstration Project (including background groundwater monitoring [29 months]);
- Period 1: Baseline Testing at Low Particulate Loading--ESP In Service (12 months);
- Period 2: Testing at High Particulate Loading--ESP Detuned or Out of Service (12 months); and
- Period 3: Post Demonstration Groundwater Testing and Gypsum Byproduct Evaluation.

Groundwater monitoring was initiated in Period 0 and will continue through Period 3.

1.2 Purpose and Scope of Groundwater Monitoring

The CT-121 process produces gypsum, which is being disposed of in an on-site stacking area, where the solids are concentrated as they are allowed to settle, dewater, and dry. The gypsum and gypsum/fly ash stacking area is lined with a synthetic liner to minimize the potential for adverse impacts on the groundwater. Requirements for the liner, leachate collection system, and groundwater monitoring are specified in the permit issued by the Georgia Department of Natural Resources (DNR). One requirement is the regular monitoring of groundwater before, during, and for two years after the demonstration program. The purpose of this monitoring is to demonstrate that the gypsum stacking area can be operated in an environmentally benign and acceptable manner.

In 1990, five groundwater monitoring wells were installed in the vicinity of the proposed gypsum stacking area. These wells were used to monitor baseline groundwater quality prior to construction of the stacking area. Monitoring was conducted every two months from September 1990 through July 1991. Table 1 is a summary of the parameters that were monitored during this period. The results of this monitoring activity were summarized in the report "Environmental Monitoring Program Report of Preconstruction Monitoring: 1990-1991 Background Water Quality."

Following the preconstruction monitoring period, and as a DNR permit requirement, two additional monitoring wells were installed in 1992. The locations of all seven monitoring wells are shown in Figure 1. Because of a delay in the commencement of Phase 1 testing, an additional round of preoperational groundwater monitoring was conducted on September 3-4 and October 14, 1992. The results from this monitoring

Table 1

EMP Groundwater Monitoring Parameters

pH	Conductivity	Temperature
Eh	Alkalinity	Total Dissolved Solids
Bromide	Chloride	Total Organic Carbon
Fluoride	Nitrate-Nitrite	Sulfate
Trace Elements (Dissolved)		
Silver	Aluminum	Arsenic
Boron	Barium	Beryllium
Bismuth	Calcium	Cadmium
Cobalt	Copper	Chromium
Mercury	Iron	Potassium
Lithium	Magnesium	Manganese
Molybdenum	Sodium	Nickel
Phosphorus	Lead	Sulfur
Antimony	Selenium	Silicon
Tin	Strontium	Tellurium
Titanium	Thallium	Uranium
Vanadium	Tungsten	Zinc
Other		
Radionuclides		

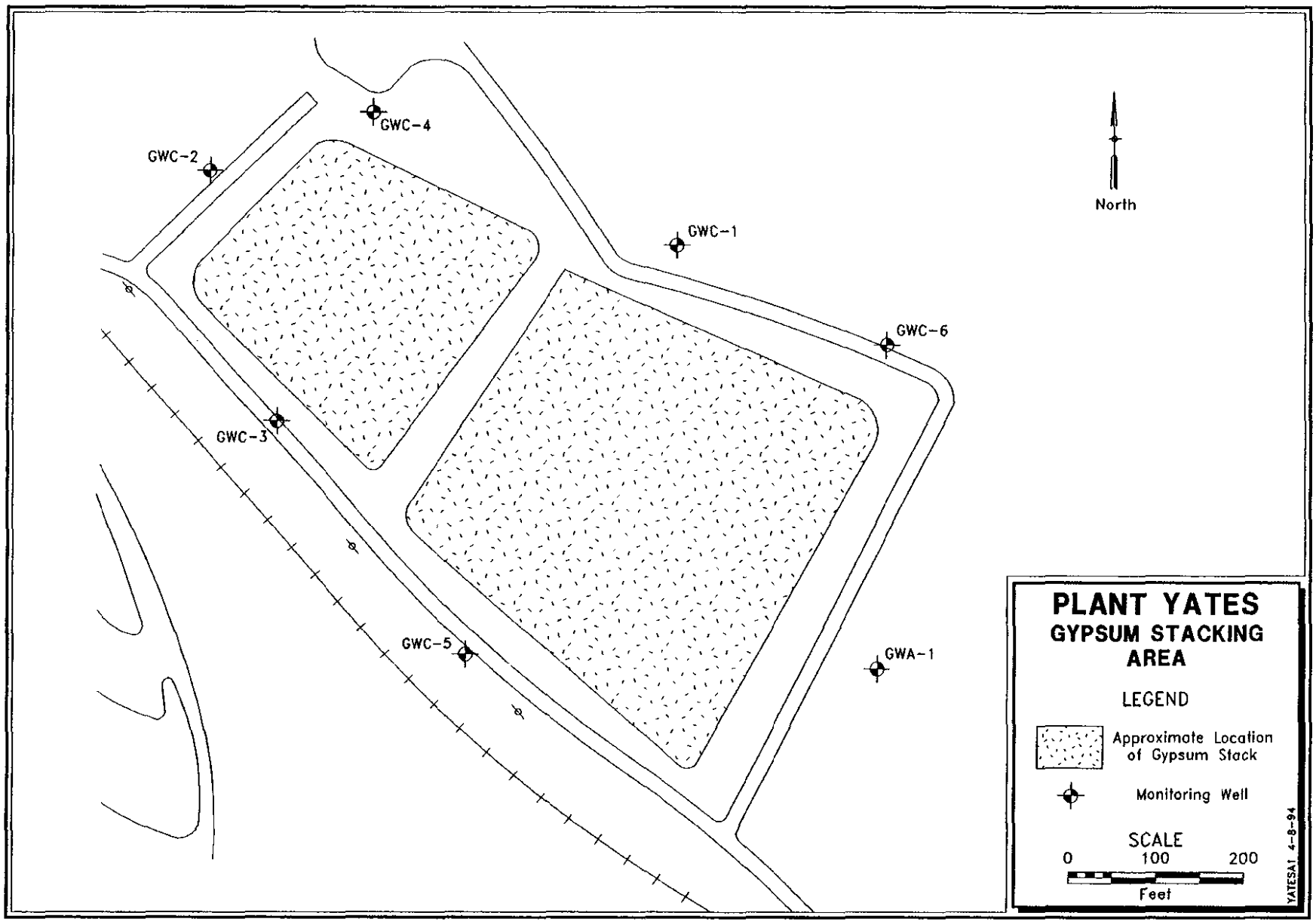


Figure 1. Location of Groundwater Monitoring Wells

effort were presented in the report "Interim Data Report of Preoperational Groundwater Monitoring: September 3-4 and October 14, 1992."

Operational-phase groundwater monitoring, which is performed on a quarterly basis, was initiated in the fourth quarter of 1992. Monitoring is conducted for the suite of parameters shown previously in Table 1. Samples are analyzed each quarter for all parameters shown except for radionuclides, which are monitored semiannually.

1.3 Report Contents

This report presents the results of quarterly operational-phase groundwater monitoring for the fourth calendar quarter of 1993. The groundwater monitoring wells were sampled on January 5, 1994. The delay in monitoring was due to scheduling conflicts that arose late in 1993.

Section 2 is a brief summary of the groundwater sampling and analytical methods. Monitoring results are presented in Section 3. Results of quality assurance/ quality control (QA/QC) activities associated with sample analyses are summarized in Section 4. Tables of historical trends for selected parameters and the results for field and laboratory duplicates are given in the appendices.

2.0 SAMPLING AND ANALYTICAL METHODS

This section describes the methods used to obtain and analyze groundwater samples. These methods were specified in Radian's "Test Plan for Groundwater Monitoring Around the Plant Yates Gypsum Stacking Area," August 30, 1990, as amended.

2.1 Sampling Methods

The QED Well Wizard dedicated sampling system was used to purge the monitoring wells and collect samples. The Well Wizard system utilizes a dedicated Teflon® bladder pump and portable air compressor to extract groundwater samples.

To ensure the collection of a representative sample, standing water was removed from each well by purging a minimum of three wetted casing volumes. Conductivity, pH, redox potential, and temperature were monitored and recorded on field sampling forms during purging. Samples were collected after these indicator parameters stabilized and after at least three wetted casing volumes of water were removed or immediately following recovery if a well was purged dry.

Samples were obtained from five of the six downgradient wells (GWC-1, GWC-2, GWC-3, GWC-4, and GWC-5). As has been the case during previous rounds of monitoring, well GWC-6 could not be sampled since it was unproductive and contained no water. The upgradient well (GWA-1) was not sampled this quarter since it was also dry. Table 2 summarizes the groundwater samples collected during this monitoring period.

To preserve the integrity of the groundwater samples before analyses, proper sample container, preservation, holding time duration, shipment, and chain-of-custody procedures were followed. Sample bottles, preservation methods, and maximum holding times are summarized in Table 3.

2.2 Analytical Procedures

The analytical methods used in this program are listed in Table 4. There were no deviations from these methods.

Table 2

Summary of Groundwater Samples Collected at Plant Yates on January 5, 1994

Well ID	Sample ID	Analyses
GWA-1	None	Well dry; no samples collected
GWC-1	GWC-1-12-1	Anions, TOC, and Metals
GWC-2	GWC-2-12-1	Anions, TOC, and Metals
GWC-3	GWC-3-12-1 GWC-3-12-2	Anions, TOC, and Metals Anions, TOC, and Metals
GWC-4	GWC-4-12-1	Anions, TOC, and Metals
GWC-5	GWC-5-12-1	Anions, TOC, and Metals
GWC-6	None	Well dry; no samples collected

Table 3

Sample Containers, Preservation Method, and Maximum Holding Times

Bottle Label	Containers*	Parameter	Preservation Method	Maximum Holding Time (days)
Total Organic Carbon	500-mL Amber Glass	Total Organic Carbon	H_2SO_4 pH<2	28
Anions/TDS	1-L Plastic	Bromide	4 °C	28
		Chloride	4 °C	28
		Fluoride	4 °C	28
		Nitrate-Nitrite	4 °C	28
		Sulfate	4 °C	28
		Total Dissolved Solids	4 °C	7
Metals	1-L Plastic	Trace Metals	Filtered On Site Ultrex II HNO_3 pH<2	180
Radioactivity	(3) 1-L Plastic	Radium 226, Radium 228, Gross Alpha, Gross Beta, Gross Gamma	Filtered On Site Ultrex II HNO_3 pH<2	180

*Sample containers supplied by either I-Chem or Eagle Picher.

Table 4

Analytical Methods

Parameter	Technique	Reference
pH	Potentiometry	EPA 150.1
Conductivity	Specific Conductance	EPA 120.1
Temperature	Temperature Probe	EPA 170.1
Eh	Electrometry	ASTM D1498
Alkalinity	Titrimetric or Colorimetric	EPA 310.1 or 310.2
Bromide	Ion Chromatography	EPA 300
Chloride	Ion Chromatography	EPA 300
Total Organic Carbon	Combustion/IR	EPA 415.1
Fluoride	SIE	EPA 340.2
Nitrate/Nitrite	Colorimetry	EPA 353.1
Sulfate	Ion Chromatography	EPA 300
Total Dissolved Solids	Filtration/Evaporation/Gravimetry	EPA 160.2
Mercury	On-site Filtration/Cold Vapor AA	EPA 245.1
Trace Elements	On-site Filtration/AA and ICP-AES	EPA 200.7, 7421 (Cr), 7060 (As), 7421 (Pb), 7041 (Sb), 7740 (Se), and 7841 (Tl)
Radium 226 and 228	Proportional Counter	ASTM D2460
Gross Alpha	Proportional Counter	ASTM D1943
Gross Beta	Proportional Counter	ASTM D1890
Gross Gamma	Gamma Ray Spectrometer	ASTM D2459

Legend:

AA = Atomic absorption spectrophotometry;

SIE = Specific ion electrode;

ICP-AES = Inductively coupled plasma-atomic emission spectrometry; and

IR = Infrared detection.

References:

EPA "Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, revised March 1983.

ASTM = American Society for Testing and Material, *Annual Book of ASTM Standards*.

3.0 SUMMARY OF RESULTS

The results of the fourth-quarter 1993 groundwater monitoring are presented in Table 5. The concentrations of all of the monitored dissolved constituents in the groundwater near the gypsum stacking area continue to be low.

To help determine whether the material in the gypsum stacking area is having an impact on groundwater quality, the monitoring data for a selected number of representative species from all of the monitoring rounds conducted to date were tabulated and examined. The representative species selected are those present in appreciable concentrations in the gypsum slurry, including the major cations and ions (i.e., calcium, magnesium, chlorine, and sulfate), as well as several other indicator parameters such as pH, TDS, conductivity, and alkalinity. The complete set of historical data for these species is provided in Appendix A. Examples of time versus concentration plots for several species are provided in Figures 2 through 4. Data are presented for the upgradient well, GWA-1, and two downgradient wells, GWC-2 and GWC-4. The location of these wells were shown previously in Figure 1. Since the upgradient well was dry this quarter, no additional data were obtained for this location.

The measured concentrations for all monitored parameters are generally close to the historically observed concentrations of these species. There is no evidence of any systematic increases in the concentrations of the monitored groundwater constituents. Based on the results obtained to date, there is no indication of leakage from the gypsum stacking area into the nearby groundwater.

Table 5

Results of Groundwater Monitoring Conducted January 5, 1994 (Fourth Quarter 1993)

Parameter	GWA-1-12-1 [a]	GWC-1-12-1	GWC-2-12-1	GWC-3-12-1	GWC-4-12-1	GWC-5-12-1
pH		6.12	5.75	5.51	5.21	6.95
Conductivity (μS/cm)		74	53	22	63	39
Temperature (°C)		15.2	16.4	16.9	17.2	17.1
Eh (mv)		NR	NR	NR	NR	NR
Alkalinity (mg/L $CaCO_3$)		29.9	15.7	9.3	9.2	10.8
Total Dissolved Solids (mg/L)		22	27	<8.7	20	29
Bromide (mg/L)		<0.0277	<0.0277	<0.0277	0.167	<0.0277
Chloride (mg/L)		3.45	3.80	2.79	6.72	2.55
Total Organic Carbon (mg/L)		<0.453	<0.453	<0.453	<0.453	<0.453
Fluoride (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate-Nitrite (mg/L as N)		0.69	0.414	0.0594	1.27	<0.030
Sulfate (mg/L)		3.26	5.78	<0.060	4.37	5.28
Silver (mg/L)		<0.0049	<0.0049	<0.0049	<0.0049	<0.0049
Aluminum (mg/L)		<0.028	<0.028	<0.028	<0.028	<0.028
Arsenic (mg/L)		<0.000984	<0.000984	<0.000984	<0.000984	<0.000984
Boron (mg/L)		<0.015	<0.015	<0.015	<0.015	<0.015
Barium (mg/L)		0.013	0.010	<0.010	0.010	<0.010
Beryllium (mg/L)		<0.00055	<0.00055	<0.00055	<0.00055	<0.00055
Bismuth (mg/L)		0.103 [b]	0.142 [b]	0.0985 [b]	0.115 [b]	0.0973 [b]

Table 5 (Continued)

Parameter	GWA-1-12-1 [a]	GWC-1-12-1	GWC-2-12-1	GWC-3-12-1	GWC-4-12-1	GWC-5-12-1
Calcium (mg/L)		5.06	1.98	<1.0	1.3	1.3
Cadmium (mg/L)		<0.0050	<0.0017	<0.0017	<0.0017	<0.0017
Cobalt (mg/L)		<0.0034	<0.0034	<0.0034	<0.0034	<0.0034
Copper (mg/L)		<0.0038	<0.0038	<0.0038	<0.0038	<0.0038
Chromium (mg/L)		<0.010	0.011 [e]	<0.010	<0.010	<0.010
Mercury (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron (mg/L)		0.097	<0.050	<0.050	<0.050	<0.050
Potassium (mg/L)		<3.0	<3.0	<0.37	<3.0	<3.0
Lithium (mg/L)		<0.0029	<0.0029	<0.0029	<0.0029	<0.020
Magnesium (mg/L)		3.7	1.8	<1.0	3.7	1.3
Manganese (mg/L)		<0.010	<0.010	<0.010	0.041	<0.010
Molybdenum (mg/L)		<0.0046	<0.0046	<0.0046	<0.0046	<0.0046
Sodium (mg/L)		4.3	7.0	4.1	5.0	5.5
Nickel (mg/L)		<0.0099	0.037 [e]	<0.0099	<0.0099	<0.0099
Phosphorus (mg/L)		<0.061	<0.061	<0.061	<0.061	<0.061
Lead (mg/L)		<0.00080	<0.00080	<0.00080	<0.00080	<0.00080
Sulfur (mg/L)		<5.0	<5.0	<5.0	<5.0	<5.0
Antimony (mg/L)		0.0030 [e]	<0.00104	<0.00104	<0.00104	<0.00104
Selenium (mg/L)		<0.000843	<0.000843	<0.000843	<0.000843	<0.000843
Silicon (mg/L)		12.7	12.9	9.7	9.8	11.4
Tin (mg/L)		<0.014	<0.014	<0.014	<0.014	<0.014
Strontium (mg/L)		0.015	0.012	<0.0030	0.011	0.0096
Tellurium (mg/L)		<0.0317	<0.0317	<0.0317	<0.0317	<0.0317
Titanium (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Thallium (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Table 5 (Continued)

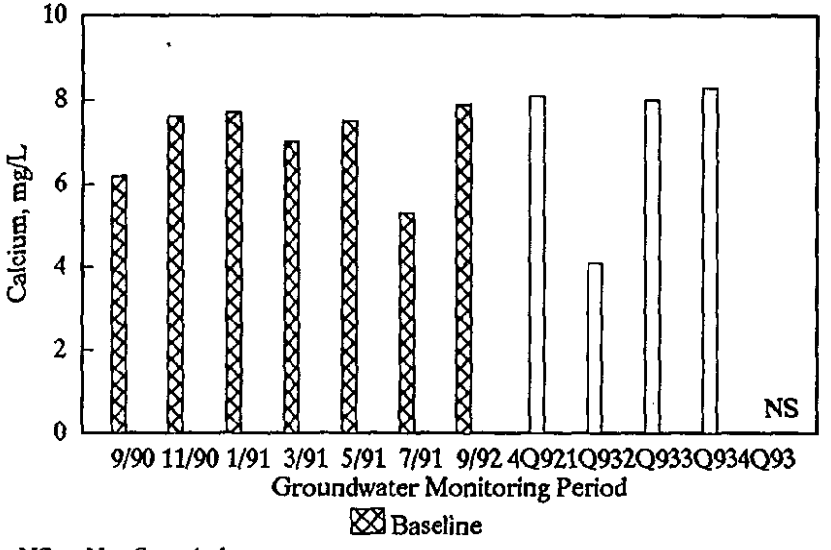
Parameter	GWA-1-12-1 [a]	GWC-1-12-1	GWC-2-12-1	GWC-3-12-1	GWC-4-12-1	GWC-5-12-1
Uranium (mg/L)		<0.083	<0.083	<0.083	<0.083	<0.083
Vanadium (mg/L)		<0.020	<0.0024	<0.0024	<0.0024	<0.0024
Tungsten (mg/L)		<0.046	<0.046	<0.046	<0.046	<0.046
Zinc (mg/L)		<0.020	<0.020	<0.020	<0.0015	<0.020

[a]Well was dry; no samples collected.

[b]Detected in the method blank.

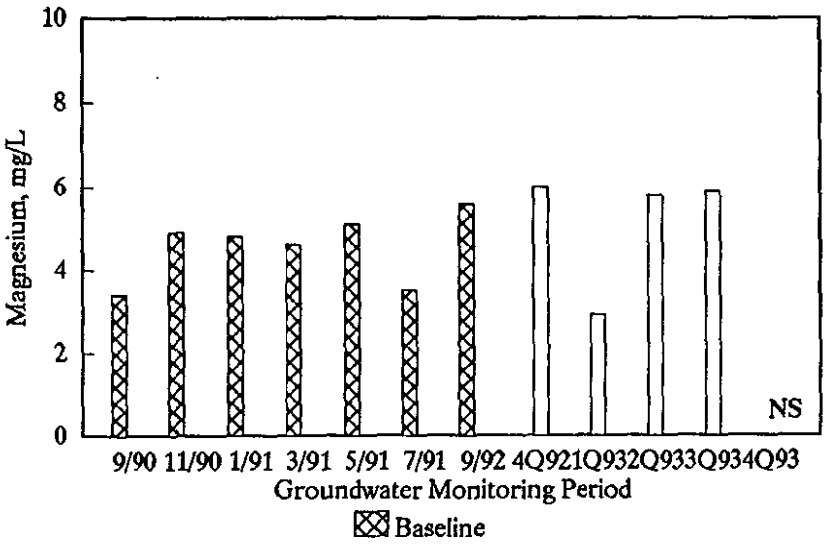
[c]Less than five times the detection limit; results are expected to be less accurate as concentrations approach the detection limit.

NR = Not reported.



NS = Not Sampled

(a) Calcium



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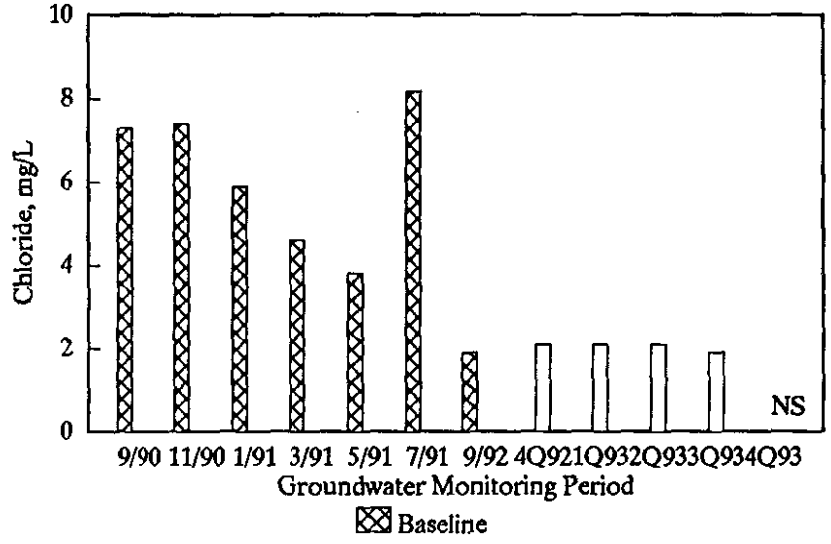
(b) Magnesium



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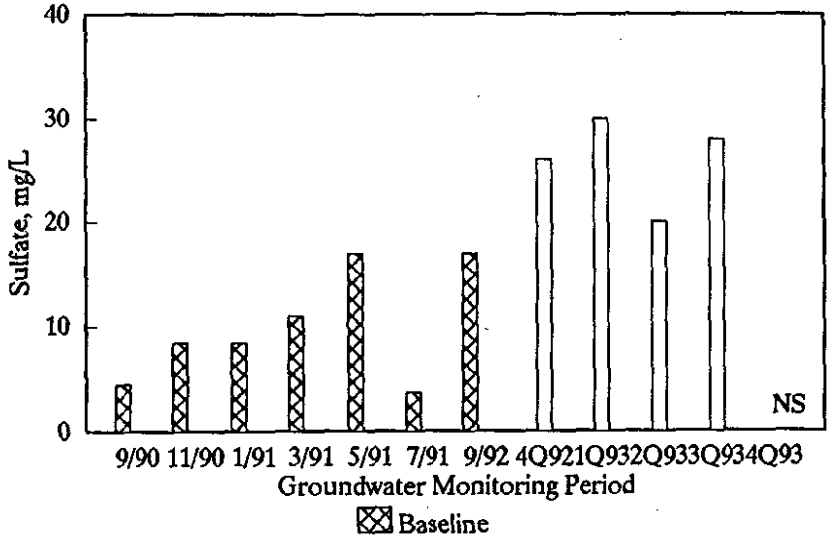
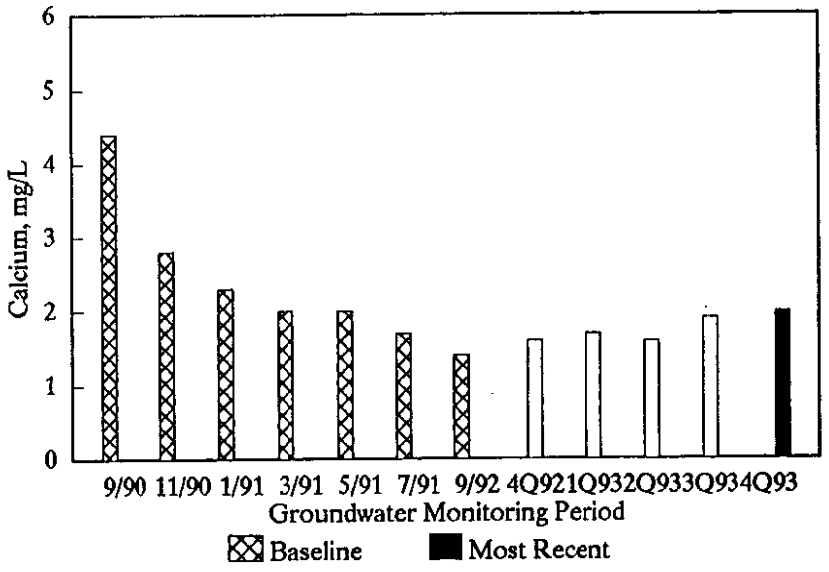
(c) Chloride



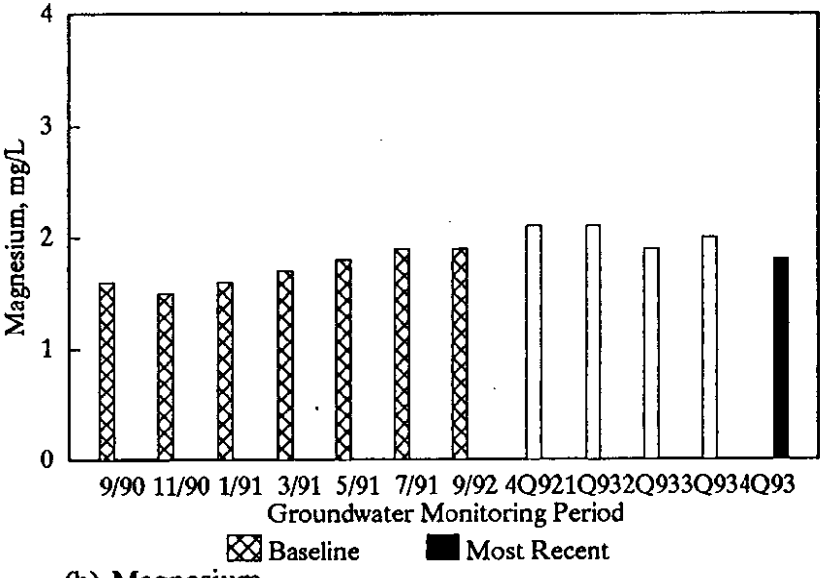
NS = Not Sampled

(d) Sulfate

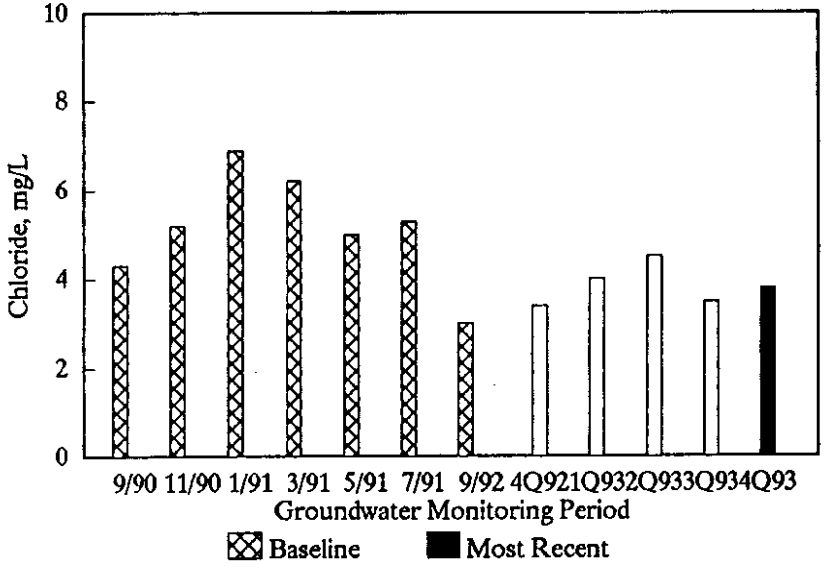
Figure 2. Historical Data for Representative Species from Well GWA-1 (Upgradient)



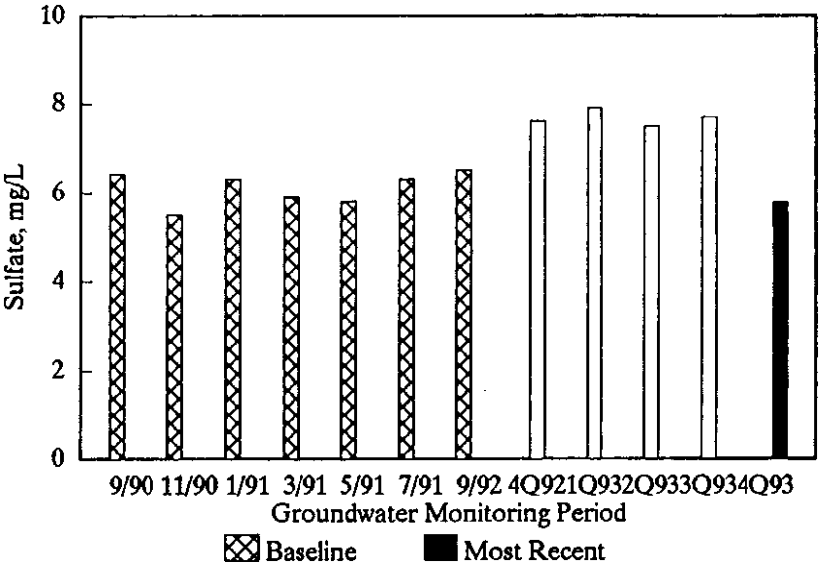
(a) Calcium



(b) Magnesium



(c) Chloride



(d) Sulfate

Figure 3. Historical Data for Representative Species from Well GWC-2 (Downgradient)

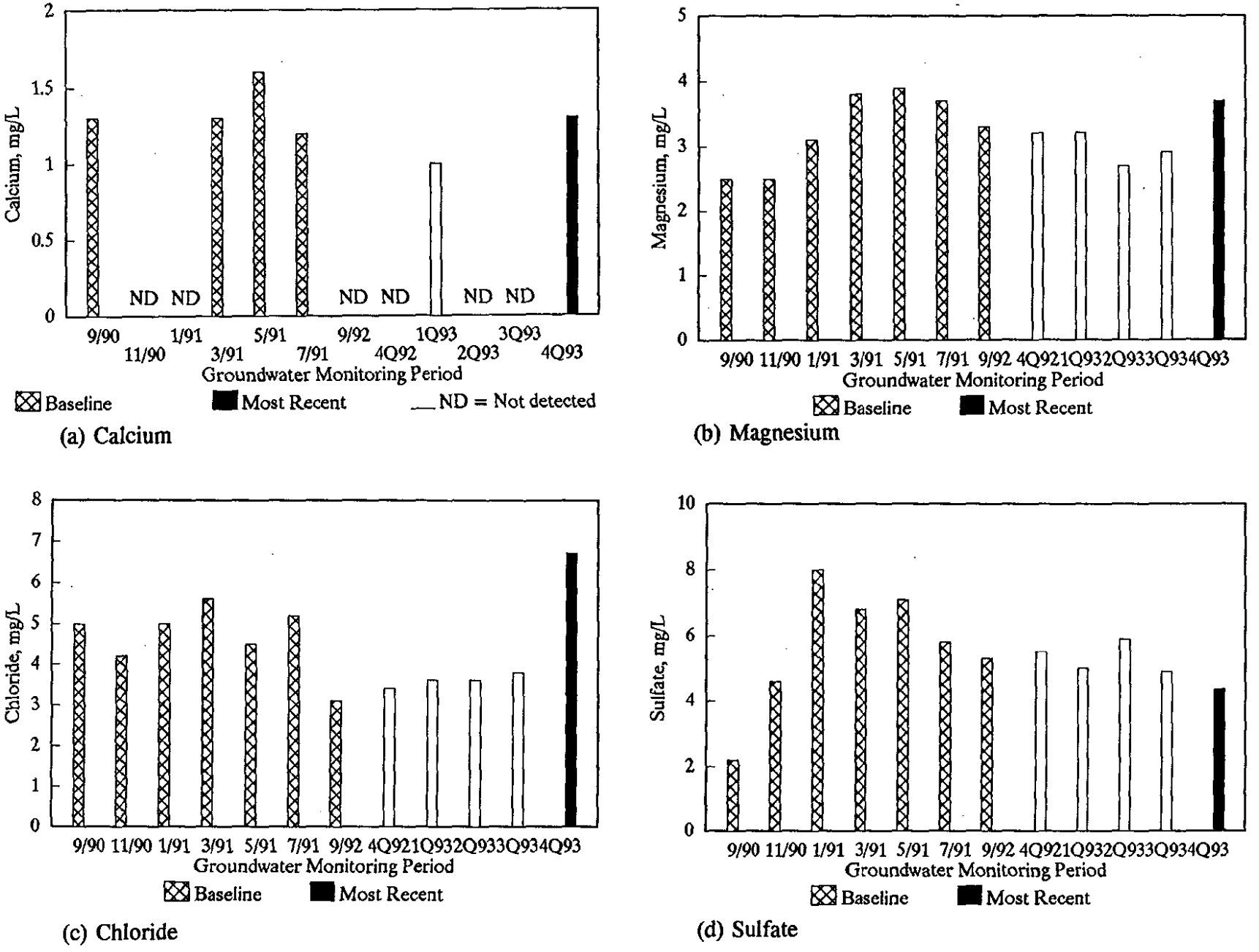


Figure 4. Historical Data for Representative Species from Well GWC-4 (Downgradient)

4.0 SUMMARY OF QA/QC ACTIVITIES

A number of QA/QC activities are being performed, as specified in the project's EMP, to assure that the data obtained meet project objectives. These include the following:

- Groundwater samples were split for independent analysis by a laboratory selected by SCS.
- Established sampling and analysis methods were specified and used. All samples were analyzed within the specified holding times, as outlined in Section 2. There were no deviations from the specified methods during this quarter's monitoring effort.
- Chain-of-custody procedures established in the test plan for this project were observed.
- In the laboratory, method blanks, control samples, and matrix spikes were analyzed in conjunction with the sample analyses, following recognized good laboratory practice. Specified recovery limits (typically 80 to 120%) were met for all analytes in the laboratory control samples and matrix spikes except phosphorus; average recoveries for all analytes were 98 percent. For phosphorus recoveries around 65% were obtained. The results for phosphorus are, therefore, questionable.
- Duplicate samples were obtained in the field and analyzed for all parameters. Replicate analyses were performed for a smaller number of parameters.

The results of the analysis of field and laboratory duplicates are summarized in Table 6 for those parameters measured above the detection limit. Complete results are provided in Appendix B. Differences in the duplicate analyses results were small for most species (i.e., less than 10%). For chloride, the percentage difference between the sample and the field duplicate was about 13%; but the result when the field duplicate was reanalyzed was much closer to the value obtained for the first sample. For bismuth, the percentage difference between the sample and the field duplicate was 25%; but this analyte was detected in the method blank, making the results for this analyte somewhat suspect.

Table 6

Results for Duplicate Samples--4th Quarter 1993

Parameter	Units	Sample GWC-3-12-1	Field Duplicate GWC-3-12-2	% Diff[a]	Duplicate Analysis GWC-3-121-2	% RPD [b]	Spec. Limit
Chloride	mg/L	2.8	3.2	12.9	2.8	12.5	20
Nitrate-Nitrite (as N)	mg/L	0.059	0.056	-6.4	0.058	3.7	20
Bismuth	mg/L	0.099[c]	0.074[c]	-25.0			
Sodium	mg/L	4.1	4.0	-1.2			
Silicon	mg/L	9.7	9.6	-1.1			

[a]Percent Difference = (GWC-3-12-2 - GWC-3-12-1)/GWC-3-12-1 * 100%.

[b]RPD = Relative Percent Difference, defined as follows:

$$RPD = \frac{(\text{Larger Value} - \text{Smaller Value})}{(\text{Larger Value} + \text{Smaller Value})/\ 2} \times 100\%$$

[c]Detected in the method blank.

APPENDIX A

HISTORICAL MONITORING DATA FOR SELECTED PARAMETERS

Table A-1

Historical Monitoring Data for Selected Parameters

	Baseline Monitoring											
Parameter	Round 1 6 Sep 90	Round 2 2 Nov 90	Round 3 8-9 Jan 91	Round 4 11 Mar 91	Round 5 8 May 91	Round 6 1-2 Jul 91	Round 7 3-4 Sep 92	Round 8 29-30 Dec 92	Round 9 30-31 Mar 93	Round 10 21 Jun 93	Round 11 23-24 Sep 93	Round 12 5 Jan 94
Well: GWA-1 (Formerly CW-1)												
pH	5.86	6.27	5.6	6.7	6.05	5.94	6.4	5.7	6.82	6.1	5.9	
Conductivity	98	114	112	121	104	85	116	101	128	100	110	
Alkalinity	15.6	22.3	25.8	27.1	25	16.4	35.4	22.7	28	27	24.8	
TDS	94	87	86	84	90	77	99	110	110	116	99	
Chloride	7.3	7.4	5.9	4.6	3.8	8.2	1.9	2.1	2.1	2.1	1.9	
Sulfate	4.5	8.5	8.5	11	17	3.7	17	26	30	20	28	
Calcium	6.2	7.6	7.7	7	7.5	5.3	7.9	8.1	4.1	8.0	8.3	
Magnesium	3.4	4.9	4.8	4.6	5.1	3.5	5.6	6.0	2.9	5.8	5.9	
Sodium	4.2	4.8	4.9	4.3	4.4	3.8	4.1	4.2	4.0	4.4	4.3	
Silicon	9.8	11	14	16	17	9.6	15	17	11	18	17	
Well: GWC-1 (Formerly CW-2)												
pH	6.09	5.79	5.62	5.93	6.04	5.96	6.1	4.5	5.83	6.0	6.0	6.1
Conductivity	81	70	72	63	63	66	78	57	67	57	61	74
Alkalinity	21.7	22.9	24.4	22.1	20.5	25.8	27.8	23.3	22.5	24.1	27.3	28.9
TDS	81	51	59	52	48	64	64	68	43	74	70	
Chloride	3.5	2.8	3.1	3.4	2.8	2.5	2.5	2.6	2.6	2.6	2.5	3.5
Sulfate	7.6	5	2.8	<0.05	1.2	1.5	3.2	3.3	2.2	<2.5	2.6	3.3
Calcium	3.9	3.6	3.8	3.2	3.4	3.6	4.3	4.0	8.8	4.1	4.1	5.1
Magnesium	2.3	2.5	2.8	2.2	2.4	2.5	3.2	3.0	6.2	2.9	3.0	3.7
Sodium	5.9	5.2	4.3	4.1	4.2	4.1	4.0	4.0	4.2	4.0	3.8	4.3
Silicon	9	9	9.2	11	11	11	11	12	16	12	12	12.7

Table A-1 (Continued)

	Baseline Monitoring											
Parameter	Round 1 6 Sep 90	Round 2 2 Nov 90	Round 3 8-9 Jan 91	Round 4 11 Mar 91	Round 5 8 May 91	Round 6 1-2 Jul 91	Round 7 3-4 Sep 92	Round 8 29-30 Dec 92	Round 9 30-31 Mar 93	Round 10 21 Jun 93	Round 11 23-24 Sep 93	Round 12 5 Jan 94
Well: GWC-2 (Formerly CW-3)												
pH	5.64	5.6	5.04	5.5	4.97	5.65	5.5	4.6	5.29	5.4	5.6	5.8
Conductivity	76	69	64	66	33	71	66	56	67	56	49	53
Alkalinity	23.5	19.3	15.2	16.9	12.2	17.5	18.2	17.3	12.5	14.1	15.9	15.7
TDS	76	50	55	55	63	65	79	71	68	77	60	
Chloride	4.3	5.2	6.9	6.2	5	5.3	3.0	3.4	4.0	4.5	3.5	3.8
Sulfate	6.4	5.5	6.3	5.9	5.8	6.3	6.5	7.6	7.9	7.5	7.7	5.8
Calcium	4.4	2.8	2.3	2	2	1.7	1.4	1.6	1.7	1.6	1.9	2.0
Magnesium	1.6	1.5	1.6	1.7	1.8	1.9	1.9	2.1	2.1	1.9	2.0	1.8
Sodium	7.3	7.4	6.9	7	7.5	7.6	7.5	7.4	7.5	6.7	6.8	7.0
Silicon	10	10	9.3	12	11	11	11	13	12.0	11	13	12.9
Well: GWC-3 (Formerly CW-4)												
pH	5.4	5.15	4.8	4.73	6.19	5.08	5.25	3.8	5.23	5.2	5.3	5.5
Conductivity	40	35	30	34	32	35	32	27	33	27	27	22
Alkalinity	11.5	15.2	9.9	11	7	11.1	10.0	8.9	7.0	8.5	9.1	9.3
TDS	50	35	31	34	39	41	28	37	44	52	21	
Chloride	3	2.8	3.2	3.4	3.1	3.1	2.0	2.3	2.7	2.9	2.8	2.8
Sulfate	2.6	2.1	<0.05	<0.05	0.9	1.5	1.7	2.6	1.6	<2.5	<2.5	<0.06
Calcium	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Magnesium	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Sodium	4.4	4.5	4.3	4.1	4.6	4.3	4.1	4.0	4.1	3.9	3.8	4.1
Silicon	8	7.8	3.9	8.5	8.6	8.3	8.3	9.3	9.0	8.7	9.2	9.7

Table A-1 (Continued)

	Baseline Monitoring											
Parameter	Round 1 6 Sep 90	Round 2 2 Nov 90	Round 3 8-9 Jan 91	Round 4 11 Mar 91	Round 5 8 May 91	Round 6 1-2 Jul 91	Round 7 3-4 Sep 92	Round 8 29-30 Dec 92	Round 9 30-31 Mar 93	Round 10 21 Jun 93	Round 11 23-24 Sep 93	Round 12 5 Jan 94
Well: GWC-4 (Formerly CW-5)												
pH	5.34	4.97	4.8	4.6	5.03	5.4	5.05	3.9	5.04	5.2	5.2	5.2
Conductivity	62	62	66	72	54	70	72	58	64	52	54	63
Alkalinity	12.5	15.3	13.1	15.1	8.6	14.2	11.5	8.0	6.0	6.9	7.0	9.2
TDS	61	52	60	51	58	64	61	65	63	55	44	
Chloride	5	4.2	5	5.6	4.5	5.2	3.1	3.4	3.6	3.6	3.8	6.7
Sulfate	2.2	4.6	8	6.8	7.1	5.8	5.3	5.5	5.0	5.9	4.9	4.4
Calcium	1.3	<1.0	<1.0	1.3	1.6	1.2	<1.0	<1.0	1.0	<1.0	<1.0	1.3
Magnesium	2.5	2.5	3.1	3.8	3.9	3.7	3.3	3.2	3.2	2.7	2.9	3.7
Sodium	5.4	5.8	5.3	5.1	5	5.2	4.8	4.9	4.7	4.4	4.4	5.0
Silicon	9.9	9.1	4.7	9.7	9.2	10	8.6	9.5	8.7	8.3	9.3	9.8
Well: GWC-5												
pH							5.6	4.4	6.13	5.4	5.6	7.0
Conductivity							61	60	54	41	40	39
Alkalinity							14.8	13.5	12.5	10.2	11.5	10.8
TDS							91	86	67	56	50	
Chloride							1.8	2.6	2.7	2.9	2.5	2.6
Sulfate							8.8	10	7.4	6.7	5.5	5.3
Calcium							2.1	2.7	2.2	1.6	1.4	1.3
Magnesium							1.9	2.3	1.8	1.5	1.4	1.3
Sodium							6.0	6.2	5.7	5.5	5.2	5.5
Silicon							12	14	13	12	12	11.4

APPENDIX B

QA/QC RESULTS

Table B-1

Results for Duplicate Samples--3rd Quarter 1993

Parameter	Units	GWC-3-12-1	GWC-3-12-2	% Diff.	Duplicate Analysis GWC-3-12-2	% RPD	Spec. Limit
Total Dissolved Solids	mg/L						
Bromide	mg/L	<0.028	<0.028	--	<0.028	--	
Chloride	mg/L	2.8	3.2	12.9	2.8	12.5	20
Total Organic Carbon	mg/L	<0.45	<0.45	--	<0.45	--	20
Fluoride	mg/L	<0.050	<0.050	--	<0.050	--	20
Nitrate-Nitrite (as N)	mg/L	0.059	0.056	-6.4	0.058	3.7	20
Sulfate	mg/L	<0.060	<0.060	--	<0.060	--	20
Silver	mg/L	<0.0049	<0.0049	--			
Aluminum	mg/L	<0.028	<0.028	--			
Arsenic	mg/L	<0.00098	<0.00098	--			
Boron	mg/L	*<0.015*	*<0.60*	--			
Barium	mg/L	<0.010	<0.010	--			
Beryllium	mg/L	<0.00055	<0.00055	--			
Bismuth	mg/L	0.099 B	0.074 B	-25.0			
Calcium	mg/L	<1.0	<1.0	--			
Cadmium	mg/L	<0.0017	<0.0017	--			
Cobalt	mg/L	<0.0034	<0.0034	--			
Copper	mg/L	<0.0038	<0.020	--			
Chromium	mg/L	<0.010	<0.010	--			
Mercury	mg/L	*<0.000050*	*<0.000050*	--			
Iron	mg/L	<0.050	<0.050	--			
Potassium	mg/L	<0.37	<3.0	--			
Lithium	mg/L	<0.0029	<0.0029	--			
Magnesium	mg/L	<1.0	<1.0	--			
Manganese	mg/L	<0.010	<0.010	--			
Molybdenum	mg/L	<0.0046	<0.0046	--			
Sodium	mg/L	4.1	4.0	-1.2			
Nickel	mg/L	<0.0099	<0.0099	--			
Phosphorus	mg/L	<0.061	<0.061	--			
Lead	mg/L	<0.00080	<0.00080	--			
Sulfur	mg/L	<5.0	<5.0	--			
Antimony	mg/L	<0.0010	<0.0010	--			

Table B-1 (Continued)

Parameter	Units	GWC-3-12-1	GWC-3-12-2	% Diff.	Duplicate Analysis GWC-3-12-2	% RPD	Spec. Limit
Selenium	mg/L	<0.00084	<0.00084	--			
Silicon	mg/L	9.7	9.6	-1.1			
Tin	mg/L	<0.014	<0.014	--			
Strontium	mg/L	<0.0030	<0.0030	--			
Tellurium	mg/L	<0.032	<0.032	--			
Titanium	mg/L	<0.0010	<0.0010	--			
Thallium	mg/L	<0.00087	<0.00087	--			
Uranium	mg/L	<0.083	<0.083	--			
Vanadium	mg/L	<0.0024	<0.0024	--			
Tungsten	mg/L	<0.046	<0.046	--			
Zinc	mg/L	<0.020	<0.020	--			