LANCE R. LEFLEUR
DIRECTOR

KAY IVEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov
1400 Coliseum Blvd. 36110-2400 ▪ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ▪ FAX (334) 271-7950

DECEMBER 6, 2019

MS SUSAN B COMENSKY
VP ENVIRONMENTAL AFFAIRS
ALABAMA POWER COMPANY
EC GASTON STEAM ELECTRIC PLANT
POST OFFICE BOX 2641 BIN 12N-0830
BIRMINGHAM ALABAMA 35291

RE: REVISED DRAFT PERMIT
NPDES PERMIT NUMBER AL0003140

Dear Ms. Comensky:

Transmitted herein is a revised draft of the referenced permit.

We would appreciate your comments on the permit within **30 days** of the date of this letter. Please direct any comments of a technical or administrative nature to the undersigned.

By copy of this letter and the revised draft permit, we are also requesting comments within the same time frame from EPA.

Our records indicate that you are currently utilizing the Department's web-based electronic environmental (E2) reporting system for submittal of discharge monitoring reports (DMRs). Your E2 DMRs will automatically update on the effective date of this permit, if issued.

The Alabama Department of Environmental Management encourages you to voluntarily consider pollution prevention practices and alternatives at your facility. Pollution Prevention may assist you in complying with effluent limitations, and possibly reduce or eliminate monitoring requirements.

If you have questions regarding this permit or monitoring requirements, please contact Theo Pinson by e-mail at **tpinson@adem.alabama.gov** or by phone at **(334) 274-4202.**

Sincerely,

Scott Ramsey, Chief
Industrial Section
Industrial/Municipal Branch
Water Division

Enclosure: Revised Draft Permit

pc via website: Montgomery Field Office
EPA Region IV
U.S. Fish & Wildlife Service
AL Historical Commission
Advisory Council on Historic Preservation
Department of Conservation and Natural Resources

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

ADEM
Alabama Department of Environmental Management

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

PERMITTEE:	ALABAMA POWER COMPANY E.C. GASTON STEAM ELECTRIC PLANT
FACILITY LOCATION:	ALABAMA HIGHWAY 25 SOUTH WILSONVILLE, ALABAMA 35186
PERMIT NUMBER:	AL0003140

RECEIVING WATERS:	DSN001:	COOSA RIVER
	DSN002:	COOSA RIVER
	DSN042:	COOSA RIVER
	DSN043:	COOSA RIVER
	DSN013:	COOSA RIVER
	DSN019:	YELLOWLEAF CREEK
	DSN020:	YELLOWLEAF CREEK
	DSN025:	YELLOWLEAF CREEK
	DSN028:	COOSA RIVER
	DSN029:	COOSA RIVER

In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§1251-1388 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 (the "AWPCA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, §§22-22A-1 to 22-22A-17, and rules and regulations adopted thereunder, and subject further to the terms and conditions set forth in this permit, the Permittee is hereby authorized to discharge into the above-named receiving waters.

ISSUANCE DATE:

EFFECTIVE DATE:

EXPIRATION DATE:

Draft

Alabama Department of Environmental Management

INDUSTRIAL SECTION
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

TABLE OF CONTENTS

PART I DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0011: Once through cooling water and fire protection system waters 3/
DSN0021: Once through cooling water and fire protection system waters 3/

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

	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS 1/				
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
Temperature, Water Deg. Fahrenheit 4/ Stage Code: O	-	-	-	90.0 F	REPORT F 5/	Continuous 6/	Recorder or Grab	June - September
Temperature, Water Deg. Fahrenheit 4/ Stage Code: P	-	-	-	93.0 F	REPORT F 5/	Continuous 6/	Recorder or Grab	June - September
Temperature, Water Deg. Fahrenheit Effluent Gross Value	-	-	-	REPORT F	REPORT F 5/	Continuous 6/	Recorder or Grab	-
Temperature, Water Deg. Fahrenheit Intake from Stream	-	-	-	REPORT F	REPORT F 5/	Continuous 6/	Recorder or Grab	-
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Pump Log	-
Chlorine, Total Residual 7/ 8/	-	-	-	0.012 mg/l	0.016 mg/l	Daily	Grab	-
Chlorination Duration 7/ 8/	-	120.0 min/day	-	-	-	Daily	Measured	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ The thermal discharge shall not cause the increase of the Coosa River water temperature above the following: (A) 90°F, as measured at a depth of 5 feet at a distance of 1500 yards downstream of Outfall DSN002 near the east bank (Stage Code O); (B) 93°F, as measured at a depth of 5 feet directly across the Coosa River from Outfall DSN002 (Stage Code P).

5/ Not withstanding the provisions of Part III.H.9, here and after "Daily Maximum" as it applies to temperature means the maximum daily average value.

6/ "Continuous" as it applies to temperature shall mean either a minimum of one grab sample taken every 4 hours or a recorded measurement taken at least every 15 minutes.

7/ Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted. Sampling is required only during chlorination.

8/ A measurement of Total Residual Chlorine below 0.05 mg/L shall be considered in compliance with the permit limitations and should be reported as NODI=B or *B on the discharge monitoring report.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0042: Discharges from the wastewater management pond including the ash pond dewatering treatment system, ash pond dewatering and decanting wastewaters, legacy wastewaters, low volume wastewaters, post carbon capture low volume wastewaters, FGD wastewaters, miscellaneous cooling waters, cooling tower blowdown, coal pile runoff, chemical metal cleaning wastes, sanitary wastewaters, landfill leachate, RSCC System overflow, fire protection system waters, and stormwater runoff associated with power plant operations 3/ 5/ 6/ 7/

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

	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS 1/				
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/ 4/	Sample Type	Seasonal
Turbidity	-	-	-	REPORT NTU	REPORT NTU	2X Monthly	Measured	-
pH	-	-	6.0 S.U.	-	9.0 S.U.	2X Monthly	Grab	-
Solids, Total Suspended	-	-	-	25.2 mg/l	73.7 mg/l	2X Monthly	Grab	-
Oil & Grease	-	-	-	11.0 mg/l	15.0 mg/l	2X Monthly	Grab	-
Nitrogen, Organic Total (As N)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	-
Nitrogen, Ammonia Total (As N)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	-
Nitrogen, Kjeldahl Total (As N)	REPORT lbs/day	REPORT lbs/day	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	April – October
Nitrite Plus Nitrate Total 1 Det. (As N)	REPORT lbs/day	REPORT lbs/day	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	April – October

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ Twice per month monitoring shall be conducted so that two samples are collected in the same month at least 10 days apart.

5/ Following the Permittee's submission of notification of completion of dewatering activities, the Permittee may submit a request to the Water Division to discontinue all monitoring requirements applicable to Outfall DSN0042 (Permit Pages 2, 3, & 4). Monitoring may be discontinued after the Permittee receives written confirmation from the Water Division that the aforementioned monitoring requirements are no longer applicable. At that time, the Outfall DSN0043 requirements will become applicable. After monitoring is no longer applicable, *9 should be reported on the eDMR.

6/ See Part IV.F for Ash Pond Dewatering Plan Requirements.

7/ The Permittee shall submit written notification to the Department prior to commencing dewatering activities.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0042 (continued): Discharges from the wastewater management pond including the ash pond dewatering treatment system, ash pond dewatering and decanting wastewaters, legacy wastewaters, low volume wastewaters, post carbon capture low volume wastewaters, FGD wastewaters, miscellaneous cooling waters, cooling tower blowdown, coal pile runoff, chemical metal cleaning wastes, sanitary wastewaters, landfill leachate, RSCC System overflow, fire protection system waters, and stormwater runoff associated with power plant operations. 3/ 5/ 6/ 7/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/ 4/	Sample Type	Seasonal
Phosphorus, Total (As P)	REPORT lbs/day	REPORT lbs/day	-	0.25 mg/l	REPORT mg/l	2X Monthly	Composite	April – October
Cadmium, Total (As Cd) 8/	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	-
Chromium, Total (As Cr) 8/	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	-
Copper, Total (As Cu) 8/	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	-
Lead, Total (As Pb) 8/	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	-
Nickel, Total (As Ni) 8/	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	-
Zinc, Total (As Zn) 8/	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	-
Selenium, Total (As Se) 8/	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ Twice per month monitoring shall be conducted so that two samples are collected in the same month at least 10 days apart.

5/ Following the Permittee's submission of notification of completion of dewatering activities, the Permittee may submit a request to the Water Division to discontinue all monitoring requirements applicable to Outfall DSN0042 (Permit Pages 2, 3, & 4). Monitoring may be discontinued after the Permittee receives written confirmation from the Water Division that the aforementioned monitoring requirements are no longer applicable. At that time, the Outfall DSN0043 requirements will become applicable. After monitoring is no longer applicable, *9 should be reported on the eDMR.

6/ See Part IV.F for Ash Pond Dewatering Plan Requirements.

7/ The Permittee shall submit written notification to the Department prior to commencing dewatering activities.

8/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0042 (continued): Discharges from the wastewater management pond including the ash pond dewatering treatment system, ash pond dewatering and decanting wastewaters, legacy wastewaters, low volume wastewaters, post carbon capture low volume wastewaters, FGD wastewaters, miscellaneous cooling waters, cooling tower blowdown, coal pile runoff, chemical metal cleaning wastes, sanitary wastewaters, landfill leachate, RSCC System overflow, fire protection system waters, and stormwater runoff associated with power plant operations 3/ 5/ 6/ 7/

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

	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS 1/				
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/ 4/	Sample Type	Seasonal
Arsenic, Trivalent Dissolved	-	-	-	0.02075 mg/l	REPORT mg/l	2X Monthly	Grab	-
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Recorder	-
Chlorine, Total Residual	-	-	-	0.7 mg/l	1.0 mg/l	2X Monthly	Grab	-
E. Coli	-	-	-	REPORT col/100mL	REPORT col/100mL	2X Monthly	Grab	-
Solids, Total Dissolved	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	-
Mercury, Total (As Hg) 8/	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	-
Iron, Total (As Fe) 8/	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	-
BOD, Carbonaceous 05 Day, 20C	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ Twice per month monitoring shall be conducted so that two samples are collected in the same month at least 10 days apart.

5/ Following the Permittee's submission of notification of completion of dewatering activities, the Permittee may submit a request to the Water Division to discontinue all monitoring requirements applicable to Outfall DSN0042 (Permit Pages 2, 3, & 4). Monitoring may be discontinued after the Permittee receives written confirmation from the Water Division that the aforementioned monitoring requirements are no longer applicable. At that time, the Outfall DSN0043 requirements will become applicable. After monitoring is no longer applicable, *9 should be reported on the eDMR.

6/ See Part IV.F for Ash Pond Dewatering Plan Requirements.

7/ The Permittee shall submit written notification to the Department prior to commencing dewatering activities.

8/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN042T: Discharges from the wastewater management pond including the ash pond dewatering treatment system, ash pond dewatering and decanting wastewaters, legacy wastewaters, low volume wastewaters, post carbon capture low volume wastewaters, FGD wastewaters, miscellaneous cooling waters, cooling tower blowdown, coal pile runoff, chemical metal cleaning wastes, sanitary wastewaters, landfill leachate, RSCC System overflow, fire protection system waters, and stormwater runoff associated with power plant operations 3/ 5/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
Toxicity, Ceriodaphnia Chronic 4/	-	0 pass(0)/fail(1)	-	-	-	Quarterly	Composite	-
Toxicity, Pimephales Chronic 4/	-	0 pass(0)/fail(1)	-	-	-	Quarterly	Composite	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

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2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ See Part IV.D for Chronic Effluent Toxicity Limitations and Biomonitoring Requirements.

5/ Following the Permittee's submission of notification of completion of dewatering activities, the Permittee may submit a request to the Water Division to discontinue all monitoring requirements applicable to Outfall DSN042T. Monitoring may be discontinued after the Permittee receives written confirmation from the Water Division that the aforementioned monitoring requirements are no longer applicable. At that time, the Outfall DSN043T requirements will become applicable. After monitoring is no longer applicable, *9 should be reported on the eDMR.

During the period beginning after ash pond closure and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0043: Discharges from the wastewater management pond including low volume wastewaters, post carbon capture low volume wastewaters, FGD wastewaters, miscellaneous cooling waters, cooling tower blowdown, coal pile runoff, chemical metal cleaning wastes, sanitary wastewaters, landfill leachate, RSCC System overflow, fire protection system waters, and stormwater runoff associated with power plant operations 3/ 4/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
pH	-	-	6.0 S.U.	-	9.0 S.U.	Monthly	Grab	-
Solids, Total Suspended	-	-	-	24.4 mg/l	69.4 mg/l	Monthly	Composite	-
Oil & Grease	-	-	-	11.0 mg/l	15.0 mg/l	Monthly	Grab	-
Nitrogen, Ammonia Total (As N)	-	-	-	-	REPORT mg/l	Monthly	Composite	-
Nitrogen, Kjeldahl Total (As N)	-	REPORT lbs/day	-	-	REPORT mg/l	Monthly	Composite	April – October
Nitrite Plus Nitrate Total 1 Det. (As N)	-	REPORT lbs/day	-	-	REPORT mg/l	Monthly	Composite	April – October
Phosphorus, Total (As P)	REPORT lbs/day	REPORT lbs/day	-	0.25 mg/l	REPORT mg/l	Monthly	Composite	April – October
Arsenic, Trivalent Dissolved	-	-	-	0.0245 mg/l	REPORT mg/l	Monthly	Grab	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ Following the Permittee's submission of notification of completion of dewatering activities, the Permittee may submit a request to the Water Division to discontinue all monitoring requirements applicable to Outfall DSN0042 (Permit Pages 2, 3, & 4). After approval, the Outfall DSN0043 requirements will become applicable (Permit Pages 6 & 7). Before monitoring is applicable, *9 should be reported on the eDMR.

During the period beginning after ash pond closure and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0043 (continued): Discharges from the wastewater management pond including low volume wastewaters, post carbon capture low volume wastewaters, FGD wastewaters, miscellaneous cooling waters, cooling tower blowdown, coal pile runoff, chemical metal cleaning wastes, sanitary wastewaters, landfill leachate, RSCC System overflow, fire protection system waters, and stormwater runoff associated with power plant operations 3/ 4/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Recorder	-
Chlorine, Total Residual	-	-	-	0.7 mg/l	1.0 mg/l	Monthly	Grab	-
E. Coli	-	-	-	-	REPORT col/100mL	Monthly	Grab	-
BOD, Carbonaceous 05 Day, 20C	-	-	-	-	REPORT mg/l	Monthly	Composite	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

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4/ Following the Permittee's submission of notification of completion of dewatering activities, the Permittee may submit a request to the Water Division to discontinue all monitoring requirements applicable to Outfall DSN0042 (Permit Pages 2, 3, & 4). After approval, the Outfall DSN0043 requirements will become applicable (Permit Pages 6 & 7). Before monitoring is applicable, *9 should be reported on the eDMR.

During the period beginning after ash pond closure and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN043T: Discharges from the wastewater management pond including low volume wastewaters, post carbon capture low volume wastewaters, FGD wastewaters, miscellaneous cooling waters, cooling tower blowdown, coal pile runoff, chemical metal cleaning wastes, sanitary wastewaters, landfill leachate, RSCC System overflow, fire protection system waters, and stormwater runoff associated with power plant operations 3/ 5/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
Toxicity, Ceriodaphnia Chronic 4/	-	0 pass(0)/fail(1)	-	-	-	Annually	Composite	-
Toxicity, Pimephales Chronic 4/	-	0 pass(0)/fail(1)	-	-	-	Annually	Composite	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

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2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ See Part IV.D for Chronic Effluent Toxicity Limitations and Biomonitoring Requirements.

5/ Following the Permittee's submission of notification of completion of dewatering activities, the Permittee may submit a request to the Water Division to discontinue all monitoring requirements applicable to Outfall DSN042T. After approval, the Outfall DSN043T requirements will become applicable. Before monitoring is applicable, *9 should be reported on the eDMR.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN04A1: Cooling Tower blowdown 3/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Calculated	-
Chlorine, Free Available	-	-	-	0.2 mg/l	0.5 mg/l	Monthly	Grab	-
Chlorination Duration 4/	-	120.0 min/day	-	-	-	Daily	Measured	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Department that the units in a particular location cannot operate at or below this level of chlorination.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN04AY: Cooling Tower blowdown 3/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
Chromium, Total (As Cr) 4/	-	-	-	0.2 mg/l	0.2 mg/l	Annually	Composite	-
Zinc, Total (As Zn) 4/	-	-	-	1.0 mg/l	1.0 mg/l	Annually	Composite	-
Priority Pollutants Total Effluent 5/ 6/	-	-	-	0 ug/l	0 ug/l	Annually	Grab	-
Annual Certification Statement 5/	-	-	-	-	0 Yes=0; No=1	Annually	Not Applicable	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ Monitoring and limitations for chromium and/or zinc are not applicable unless maintenance chemicals containing chromium and/or zinc are added to the cooling tower. *9 should be reported for both chromium and/or zinc to certify the non-use of maintenance chemicals containing either chromium and/or zinc.

5/ Priority Pollutants, except Zinc and Chromium, as defined by Appendix A of 40 CFR Part 423. Monitoring and limitations are not applicable unless maintenance chemicals containing any priority pollutants are added to the tower. A certification eDMR is now required to be submitted electronically instead of a separate statement if the Permittee is certifying the non-use of priority pollutants. To submit a certification statement, the certification statement parameter code should be marked "0" if maintenance chemicals containing any priority pollutants are not added to the tower during the monitoring period and the priority pollutants parameter code should be marked "*9". Alternately, compliance with these limitations may be determined by engineering calculations which demonstrate that the regulated pollutants added to the system for cooling tower maintenance are not detectable in the final discharge. Should the Permittee elect to demonstrate compliance by engineering calculations, "*9" should be marked for both the priority pollutants and the certification statement parameter code. The engineering calculations shall be made available to the Department upon request.

6/ 0 ug/l is defined as "Below Detectable Amount". "Detectable Amount" is defined as detectable using the lowest level MDL method listed in 40 CFR Part 136.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN04B1: Sanitary wastewaters 3/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/ 4/	Sample Type	Seasonal
Solids, Total Suspended	-	-	-	30.0 mg/l	45.0 mg/l	2X Monthly	Composite	-
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	2X Monthly	Instantaneous	-
BOD, Carbonaceous 05 Day, 20C	-	-	-	25.0 mg/l	40.0 mg/l	2X Monthly	Composite	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ Twice per month monitoring shall be conducted so that two samples are collected in the same month at least 10 days apart.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN04CY: Pretreated chemical metal cleaning wastes 3/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum 5/	Monthly Average 5/	Daily Maximum 5/	Measurement Frequency 2/	Sample Type	Seasonal
pH	-	-	6.0 S.U.	-	10.5 S.U.	Daily	Grab	-
Copper, Total (As Cu)	-	-	-	1.0 mg/l	1.0 mg/l	Daily	Composite 6/	-
Iron, Total (As Fe)	-	-	-	1.0 mg/l	1.0 mg/l	Daily	Composite 6/	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Daily	Instantaneous	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ Chemical metal cleaning wastes means any wastewater resulting from chemical metal cleaning as defined and interpreted by EPA in 40 CFR Part 423.

5/ If more than one sampling event occurs during the annual reporting period, the greatest monthly average recorded during the annual monitoring period should be reported as the monthly average. The greatest daily maximum recorded during the annual monitoring period should be reported as the daily maximum. The smallest daily minimum recorded during the annual monitoring period should be reported as the daily minimum.

6/ Sample shall be taken using equal volume aliquots taken at 15 minute intervals over the time of the discharge.

Beginning as soon as possible but no later than December 31, 2023 and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN04F1: FGD Wastewaters which may include bottom ash transport waters utilized in the FGD scrubber 3/ 4/ 5/

Beginning as soon as possible but no later than December 31, 2023, such discharge shall be limited and monitored by the permittee as specified below:

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
Nitrite Plus Nitrate Total 1 Det. (As N)	-	-	-	4.4 mg/l	17.0 mg/l	Monthly	Grab	-
Arsenic, Total (As As)	-	-	-	8 ug/l	11 ug/l	Monthly	Grab	-
Selenium, Total (As Se)	-	-	-	12 ug/l	23 ug/l	Monthly	Grab	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Monthly	Instantaneous	-
Mercury, Total (As Hg)	-	-	-	356 ng/l	788 ng/l	Monthly	Grab	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ If monitoring is not required during the monitoring period, *9 should be reported on the eDMR.

5/ Should EPA promulgate new effluent limitation guidelines that affect the above noted limitations, the Department may reopen the permit to incorporate the requirements of a promulgated final rule.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN019S: Cooling tower blowdown overflow, vehicle rinse waters, fire protection system waters, and stormwater runoff associated with power plant operations and from the C&D landfill 3/ 8/

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

	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS 1/				
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
pH	-	-	6.0 S.U.	-	8.5 S.U.	Monthly	Grab	-
Chromium, Total (As Cr) 4/	-	-	-	0.2 mg/l	0.2 mg/l	Semi-Annual	Composite	-
Zinc, Total (As Zn) 4/	-	-	-	1.0 mg/l	1.0 mg/l	Semi-Annual	Composite	-
Priority Pollutants Total Effluent 5/ 6/	-	-	-	0 ug/l	0 ug/l	Semi-Annual	Grab	-
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Monthly	Estimate	-
Chlorine, Free Available 7/	-	-	-	0.2 mg/l	0.5 mg/l	Monthly	Grab	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ Monitoring and limitations for chromium and/or zinc are not applicable unless maintenance chemicals containing chromium and/or zinc are added to the cooling tower. *9 should be reported for both chromium and/or zinc to certify the non-use of maintenance chemicals containing either chromium and/or zinc.

5/ Priority Pollutants, except Zinc and Chromium, as defined by Appendix A of 40 CFR Part 423. Monitoring and limitations are not applicable unless maintenance chemicals containing any priority pollutants are added to the tower. A certification eDMR is now required to be submitted electronically instead of a separate statement if the Permittee is certifying the non-use of priority pollutants. To submit a certification statement, the certification statement parameter code should be marked "0" if maintenance chemicals containing any priority pollutants are not added to the tower during the monitoring period and the priority pollutants parameter code should be marked "*9". Alternately, compliance with these limitations may be determined by engineering calculations which demonstrate that the regulated pollutants added to the system for cooling tower maintenance are not detectable in the final discharge. Should the Permittee elect to demonstrate compliance by engineering calculations, "*9" should be marked for both the priority pollutants and the certification statement parameter code. The engineering calculations shall be made available to the Department upon request.

6/ 0 ug/l is defined as "Below Detectable Amount". "Detectable Amount" is defined as detectable using the lowest level MDL method listed in 40 CFR Part 136.

7/ Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Department that the units in a particular location cannot operate at or below this level of chlorination.

8/ Monitoring for all DSN019S parameters is only required during months that cooling tower blowdown is discharged. If more than one sampling event occurs during the semiannual reporting period, the greatest monthly average recorded during the semiannual monitoring period should be reported as the monthly average. The greatest daily maximum recorded during the semiannual monitoring period should be reported as the daily maximum. The smallest daily minimum recorded during the semiannual monitoring period should be reported as the daily minimum.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN019S (Continued): Cooling tower blowdown overflow, vehicle rinse waters, fire protection system waters, and stormwater runoff associated with power plant operations and from the C&D landfill 3/ 4/ 5/ 6/ 8/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average 5/	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
Chlorine, Total Residual 9/	-	-	-	-	0.019 mg/l	Monthly	Grab	-
Chlorination Duration 7/	-	120.0 min/day	-	-	-	Monthly	Measured	-
Semiannual Certification Statement 5/	-	-	-	-	0 Yes=0; No=1	Semi-Annual	Not Applicable	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ Monitoring and limitations for chromium and/or zinc are not applicable unless maintenance chemicals containing chromium and/or zinc are added to the cooling tower. *9 should be reported for both chromium and/or zinc to certify the non-use of maintenance chemicals containing either chromium and/or zinc.

5/ Priority Pollutants, except Zinc and Chromium, as defined by Appendix A of 40 CFR Part 423. Monitoring and limitations are not applicable unless maintenance chemicals containing any priority pollutants are added to the tower. A certification eDMR is now required to be submitted electronically instead of a separate statement if the Permittee is certifying the non-use of priority pollutants. To submit a certification statement, the certification statement parameter code should be marked "0" if maintenance chemicals containing any priority pollutants are not added to the tower during the monitoring period and the priority pollutants parameter code should be marked "*9". Alternately, compliance with these limitations may be determined by engineering calculations which demonstrate that the regulated pollutants added to the system for cooling tower maintenance are not detectable in the final discharge. Should the Permittee elect to demonstrate compliance by engineering calculations, "*9" should be marked for both the priority pollutants and the certification statement parameter code. The engineering calculations shall be made available to the Department upon request.

6/ 0 ug/l is defined as "Below Detectable Amount". "Detectable Amount" is defined as detectable using the lowest level MDL method listed in 40 CFR Part 136.

7/ Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Department that the units in a particular location cannot operate at or below this level of chlorination.

8/ Monitoring for all DSN019S parameters is only required during months that cooling tower blowdown is discharged. If more than one sampling event occurs during the semiannual reporting period, the greatest monthly average recorded during the semiannual monitoring period should be reported as the monthly average. The greatest daily maximum recorded during the semiannual monitoring period should be reported as the daily maximum. The smallest daily minimum recorded during the semiannual monitoring period should be reported as the daily minimum.

9/ A measurement of Total Residual Chlorine below 0.05 mg/L shall be considered in compliance with the permit limitations and should be reported as NODI=B or *B on the discharge monitoring report.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN013Y: Intake screen backwash water bypass, fire protection system waters, and stormwater runoff associated with power plant operations 3/ 5/

DSN019Y: Cooling tower blowdown overflow, vehicle rinse waters, fire protection system waters, and stormwater runoff associated with power plant operations and from the C&D landfill 3/ 5/

DSN020Y: Vehicle rinse waters, fire protection system waters, and stormwater runoff associated with power plant operations 3/ 5/

DSN025Y: Intake screen backwash waters and fire protection system waters 3/ 5/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type 4/	Seasonal
pH	-	-	REPORT S.U.	-	REPORT S.U.	Annually	Grab	-
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Annually	Grab	-
Oil & Grease	-	-	-	-	15.0 mg/l	Annually	Grab	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Annually	Estimate	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (3MP) Plan Requirements.

4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

5/ Monitoring is only required at Outfall DSN019Y.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN028S: Stormwater runoff from the closed ash pond footprint and fire protection system waters 3/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type 4/	Seasonal
Turbidity	-	-	-	-	REPORT NTU	Semi-Annually	Measured	-
BOD, 5-Day (20 Deg. C)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
pH	-	-	REPORT S.U.	-	REPORT S.U.	Semi-Annually	Grab	-
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Oil & Grease	-	-	-	-	15.0 mg/l	Semi-Annually	Grab	-
Nitrogen, Organic Total (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Nitrogen, Ammonia Total (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Nitrogen, Kjeldahl Total (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN028S (continued): Stormwater runoff from the closed ash pond footprint and fire protection system waters 3/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type 4/	Seasonal
Nitrite Plus Nitrate Total 1 Det. (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Phosphorus, Total (As P)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Arsenic, Total Recoverable 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Cadmium, Total (As Cd) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Chromium, Total (As Cr) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Copper, Total (As Cu) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Lead, Total (As Pb) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Nickel, Total (As Ni) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN028S (continued): Stormwater runoff from the closed ash pond footprint and fire protection system waters 3/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type 4/	Seasonal
Zinc, Total (As Zn) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Selenium, Total (As Se) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Semi-Annually	Estimate	-
Solids, Total Dissolved	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Mercury, Total (As Hg) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Iron, Total (As Fe) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-

THERE SHALL BE NO DISCHARGE OF POLYCHLORINATED BIPHENYL COMPOUNDS SUCH AS THOSE COMMONLY USED IN TRANSFORMER FLUID.

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN029S: Stormwater runoff from the closed ash pond footprint and fire protection system waters 3/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type 4/	Seasonal
Turbidity	-	-	-	-	REPORT NTU	Semi-Annually	Measured	-
BOD, 5-Day (20 Deg. C)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
pH	-	-	REPORT S.U.	-	REPORT S.U.	Semi-Annually	Grab	-
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Oil & Grease	-	-	-	-	15.0 mg/l	Semi-Annually	Grab	-
Nitrogen, Organic Total (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Nitrogen, Ammonia Total (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Nitrogen, Kjeldahl Total (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-

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2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN029S (continued): Stormwater runoff from the closed ash pond footprint and fire protection system waters 3/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type 4/	Seasonal
Nitrite Plus Nitrate Total 1 Det. (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Phosphorus, Total (As P)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Arsenic, Total Recoverable 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Cadmium, Total (As Cd) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Chromium, Total (As Cr) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Copper, Total (As Cu) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Lead, Total (As Pb) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Nickel, Total (As Ni) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-

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2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN029S (continued): Stormwater runoff from the closed ash pond footprint and fire protection system waters 3/

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

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type 4/	Seasonal
Zinc, Total (As Zn) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Selenium, Total (As Se) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Semi-Annually	Estimate	-
Solids, Total Dissolved	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Mercury, Total (As Hg) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-
Iron, Total (As Fe) 5/	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	-

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3/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.

4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

5/ For the purpose of demonstration of compliance with this parameter, "Total" and "Total Recoverable" shall be considered equivalent.

B. DISCHARGE MONITORING AND RECORD KEEPING REQUIREMENTS

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge and shall be in accordance with the provisions of this permit.

2. Test Procedures

For the purpose of reporting and compliance, permittees shall use one of the following procedures:

a. For parameters with an EPA established Minimum Level (ML), report the measured value if the analytical result is at or above the ML and report "0" for values below the ML. Test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and guidelines published pursuant to Section 304(h) of the FWPCA, 33 U.S.C. Section 1314(h). If more than one method for analysis of a substance is approved for use, a method having a minimum level lower than the permit limit shall be used. If the minimum level of all methods is higher than the permit limit, the method having the lowest minimum level shall be used and a report of less than the minimum level shall be reported as zero and will constitute compliance; however, should EPA approve a method with a lower minimum level during the term of this permit the permittee shall use the newly approved method.

b. For pollutants parameters without an established ML, an interim ML may be utilized. The interim ML shall be calculated as 3.18 times the Method Detection Level (MDL) calculated pursuant to 40 CFR Part 136, Appendix B.

Permittees may develop an effluent matrix-specific ML, where an effluent matrix prevents attainment of the established ML. However, a matrix specific ML shall be based upon proper laboratory method and technique. Matrix-specific MLs must be approved by the Department, and may be developed by the permittee during permit issuance, reissuance, modification, or during compliance schedule.

In either case the measured value should be reported if the analytical result is at or above the ML and "0" reported for values below the ML.

c. For parameters without an EPA established ML, interim ML, or matrix-specific ML, a report of less than the detection limit shall constitute compliance if the detection limit of all analytical methods is higher than the permit limit using the most sensitive EPA approved method. For the purpose of calculating a monthly average, "0" shall be used for values reported less than the detection limit.

The Minimum Level utilized for procedures A and B above shall be reported on the permittee's DMR. When an EPA approved test procedure for analysis of a pollutant does not exist, the Director shall approve the procedure to be used.

3. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The facility name and location, point source number, date, time and exact place of sampling;

b. The name(s) of person(s) who obtained the samples or measurements;

c. The dates and times the analyses were performed;

d. The name(s) of the person(s) who performed the analyses;

e. The analytical techniques or methods used, including source of method and method number; and

f. The results of all required analyses.

4. Records Retention and Production

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the above reports or the application for this permit, for a period of at least three years from the date of the sample measurement, report or application. This period may be extended by request of the Director at any time. If litigation or other enforcement action, under the AWPCA and/or the FWPCA, is ongoing which involves any of the above records, the records shall be kept until the litigation is resolved. Upon the written request of the Director or his designee, the permittee shall provide the Director with a copy of any record required to be retained by this paragraph. Copies of these records shall not be submitted unless requested.

All records required to be kept for a period of three years shall be kept at the permitted facility or an alternate location approved by the Department in writing and shall be available for inspection.

5. Monitoring Equipment and Instrumentation

All equipment and instrumentation used to determine compliance with the requirements of this permit shall be installed, maintained, and calibrated in accordance with the manufacturer's instructions or, in the absence of manufacturer's instructions, in accordance with accepted practices. The permittee shall develop and maintain quality assurance procedures to ensure proper operation and maintenance of all equipment and instrumentation. The quality assurance procedures shall include the proper use, maintenance, and installation, when appropriate, of monitoring equipment at the plant site.

C. DISCHARGE REPORTING REQUIREMENTS

1. Reporting of Monitoring Requirements

a. The permittee shall conduct the required monitoring in accordance with the following schedule:

MONITORING REQUIRED MORE FREQUENTLY THAN MONTHLY AND MONTHLY shall be conducted during the first full month following the effective date of coverage under this permit and every month thereafter.

QUARTERLY MONITORING shall be conducted at least once during each calendar quarter. Calendar quarters are the periods of January through March, April through June, July through September, and October through December. The permittee shall conduct the quarterly monitoring during the first complete calendar quarter following the effective date of this permit and is then required to monitor once during each quarter thereafter. Quarterly monitoring may be done anytime during the quarter, unless restricted elsewhere in this permit, but it should be submitted with the last DMR due for the quarter, i.e., (March, June, September and December DMR's).

SEMIANNUAL MONITORING shall be conducted at least once during the period of January through June and at least once during the period of July through December. The permittee shall conduct the semiannual monitoring during the first complete calendar semiannual period following the effective date of this permit and is then required to monitor once during each semiannual period thereafter. Semiannual monitoring may be done anytime during the semiannual period, unless restricted elsewhere in this permit, but it should be submitted with the last DMR for the month of the semiannual period, i.e. (June and December DMR's).

ANNUAL MONITORING shall be conducted at least once during the period of January through December. The permittee shall conduct the annual monitoring during the first complete calendar annual period following the effective date of this permit and is then required to monitor once during each annual period thereafter. Annual monitoring may be done anytime during the year, unless restricted elsewhere in this permit, but it should be submitted with the December DMR.

b. The permittee shall submit discharge monitoring reports (DMRs) on the forms provided by the Department and in accordance with the following schedule:

REPORTS OF MORE FREQUENTLY THAN MONTHLY AND MONTHLY TESTING shall be submitted on a **quarterly** basis. The first report is due on the **28th day of (MONTH, YEAR).** The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

REPORTS OF QUARTERLY TESTING shall be submitted on a **quarterly** basis. The first report is due on the **28th day of [Month, Year].** The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

REPORTS OF SEMIANNUAL TESTING shall be submitted on a semiannual basis. The reports are due on the 28th day of JANUARY and the 28th day of JULY. The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

REPORTS OF ANNUAL TESTING shall be submitted on an annual basis. The first report is due on the 28th day of JANUARY. The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

c. Except as allowed by Provision I.C.1.c.(1) or (2), the permittee shall submit all Discharge Monitoring Reports (DMRs) required by Provision I.C.1.b by utilizing the Department's web-based Electronic Environmental (E2) Reporting System.

(1) If the permittee is unable to complete the electronic submittal of DMR data due to technical problems originating with the Department's E2 Reporting system (this could include entry/submittal issues with an entire set of DMRs or individual parameters), the permittee is not relieved of their obligation to submit DMR data to the Department by the date specified in Provision I.C.1.b, unless otherwise directed by the Department.

If the E2 Reporting System is down on the 28th day of the month in which the DMR is due or is down for an extended period of time, as determined by the Department, when a DMR is required to be submitted, the permittee may submit the data in an alternate manner and format acceptable to the Department. Preapproved alternate acceptable methods include faxing, e-mailing, mailing, or hand-delivery of data such that they are received by the required reporting date. Within 5 calendar days of the E2 Reporting System resuming operation, the permittee shall enter the data into the E2 Reporting System, unless an alternate timeframe is approved by the Department. An attachment should be included with the E2 DMR submittal verifying the original submittal date (date of the fax, copy of the dated e-mail, or hand-delivery stamped date), if applicable.

(2) The permittee may submit a request to the Department for a temporary electronic reporting waiver for DMR submittals. The waiver request should include the permit number; permittee name; facility/site name; facility address; name, address, and contact information for the responsible official or duly authorized representative; a detailed statement regarding the basis for requesting such a waiver; and the duration for which the waiver is requested. Approved electronic reporting waivers are not transferrable.

Permittees with an approved electronic reporting waiver for DMRs may submit hard copy DMRs for the period that the approved electronic reporting waiver request is effective. The permittee shall submit the Department-approved DMR forms to the address listed in Provision I.C.1.e.

(3) If a permittee is allowed to submit a hard copy DMR, the DMR must be legible and bear an original signature. Photo and electronic copies of the signature are not acceptable and shall not satisfy the reporting requirements of this permit.

(4) If the permittee, using approved analytical methods as specified in Provision I.B.2, monitors any discharge from a point source for a limited substance identified in Provision I.A. of this permit more frequently than required by this permit, the results of such monitoring shall be included in the calculation and reporting of values on the DMR and the increased frequency shall be indicated on the DMR.

(5) In the event no discharge from a point source identified in Provision I.A. of this permit and described more fully in the permittee's application occurs during a monitoring period, the permittee shall report "No Discharge" for such period on the appropriate DMR.

d. All reports and forms required to be submitted by this permit, the AWPCA and the Department's Rules, shall be electronically signed (or, if allowed by the Department, traditionally signed) by a "responsible official" of the permittee as defined in ADEM Administrative Code Rule 335-6-6-.09 or a "duly authorized representative" of such official as defined in ADEM Administrative Code Rule 335-6-6-.09 and shall bear the following certification:

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

e. Discharge Monitoring Reports required by this permit, the AWPCA, and the Department's Rules that are being submitted in hard copy shall be addressed to:

Alabama Department of Environmental Management
Permits and Services Division
Environmental Data Section
Post Office Box 301463
Montgomery, Alabama 36130-1463

Certified and Registered Mail containing Discharge Monitoring Reports shall be addressed to:

Alabama Department of Environmental Management
Permits and Services Division
Environmental Data Section
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2400

f. All other correspondence and reports required to be submitted by this permit, the AWPCA, and the Department's Rules shall be addressed to:

Alabama Department of Environmental Management
Water Division
Post Office Box 301463
Montgomery, Alabama 36130-1463

Certified and Registered Mail shall be addressed to:

Alabama Department of Environmental Management
Water Division
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2400

g. If this permit is a re-issuance, then the permittee shall continue to submit DMRs in accordance with the requirements of their previous permit until such time as DMRs are due as discussed in Part I.C.1.b above.

2. Noncompliance Notification

a. 24-Hour Noncompliance Reporting

The permittee shall report to the Director, within 24-hours of becoming aware of the noncompliance, any noncompliance which may endanger health or the environment. This shall include but is not limited to the following circumstances:

(1) does not comply with any daily minimum or maximum discharge limitation for an effluent characteristic specified in Provision I. A. of this permit which is denoted by an "(X)";

(2) threatens human health or welfare, fish or aquatic life, or water quality standards;

(3) does not comply with an applicable toxic pollutant effluent standard or prohibition established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a);

(4) contains a quantity of a hazardous substance which has been determined may be harmful to public health or welfare under Section 311(b)(4) of the FWPCA, 33 U.S.C. Section 1321(b)(4);

(5) exceeds any discharge limitation for an effluent characteristic as a result of an unanticipated bypass or upset; and

(6) is an unpermitted direct or indirect discharge of a pollutant to a water of the state (unpermitted discharges properly reported to the Department under any other requirement are not required to be reported under this provision).

The permittee shall orally report the occurrence and circumstances of such discharge to the Director within 24-hours after the permittee becomes aware of the occurrence of such discharge. In addition to the oral report, the permittee shall submit to the Director or Designee a written report as provided in Part I.C.2.c no later than five (5) days after becoming aware of the occurrence of such discharge.

b. If for any reason, the permittee's discharge does not comply with any limitation of this permit, the permittee shall submit to the Director or Designee a written report as provided in Part I.C.2.c below, such report shall be submitted with the next Discharge Monitoring Report required to be submitted by Part I.C.1 of this permit after becoming aware of the occurrence of such noncompliance.

c. Any written report required to be submitted to the Director or Designee by Part I.C.2 a. or b. shall be submitted using a Noncompliance Notification Form (ADEM Form 421) available on the Department's website (http://adem.alabama.gov/DeptForms/Form421.pdf) and include the following information:

(1) A description of the discharge and cause of noncompliance;

(2) The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and

(3) A description of the steps taken and/or being taken to reduce or eliminate the noncomplying discharge and to prevent its recurrence.

D. OTHER REPORTING AND NOTIFICATION REQUIREMENTS

1. Anticipated Noncompliance

The permittee shall give the Director written advance notice of any planned changes or other circumstances regarding a facility which may result in noncompliance with permit requirements.

2. Termination of Discharge

The permittee shall notify the Director, in writing, when all discharges from any point source(s) identified in Provision I. A. of this permit have permanently ceased. This notification shall serve as sufficient cause for instituting procedures for modification or termination of the permit.

3. Updating Information

a. The permittee shall inform the Director of any change in the permittee's mailing address, telephone number or in the permittee's designation of a facility contact or office having the authority and responsibility to prevent and abate violations of the AWPCA, the Department's Rules, and the terms and conditions of this permit, in writing, no later than ten (10) days after such change. Upon request of the Director or his designee, the permittee shall furnish the Director with an update of any information provided in the permit application.

b. If the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information with a written explanation for the mistake and/or omission.

4. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director or his designee may request to determine whether cause exists for modifying, revoking and re-issuing, suspending, or terminating this permit, in whole or in part, or to determine compliance with this permit.

5. Cooling Water and Boiler Water Additives

a. The permittee shall notify the Director in writing not later than thirty (30) days prior to instituting the use of any biocide corrosion inhibitor or chemical additive in a cooling or boiler system, not identified in the application for this permit, from which discharge is allowed by this permit. Notification is not required for additives that do not contain a heavy metal(s) as an active ingredient and that pass through a wastewater treatment system prior to discharge nor is notification required for additives that should not reasonably be expected to cause the cooling water or boiler water to exhibit toxicity as determined by analysis of manufacturer's data or testing by the permittee. Such notification shall include:

(1) name and general composition of biocide or chemical;

(2) 96-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge will ultimately reach;

(2) quantities to be used;

(3) frequencies of use;

(4) proposed discharge concentrations; and

(6) EPA registration number, if applicable.

b. The use of a biocide or additive containing tributyl tin, tributyl tin oxide, zinc, chromium or related compounds in cooling or boiler system(s), from which a discharge regulated by this permit occurs, is prohibited except as exempted below. The use of a biocide or additive containing zinc, chromium or related compounds may be used in special circumstances if (1) the permit contains limits for these substances, or (2) the applicant demonstrates during the application process that the use of zinc, chromium or related compounds as a biocide or additive will not pose a reasonable potential to violate the applicable State water quality standards for these substances. The use of any additive, not identified in this permit or in the application for this permit or not exempted from notification under this permit is prohibited, prior to a determination by the Department that permit modification to control discharge of the additive is not required or prior to issuance of a permit modification controlling discharge of the additive.

6. Permit Issued Based On Estimated Characteristics

   a. If this permit was issued based on estimates of the characteristics of a process discharge reported on an EPA NPDES Application Form 2D (EPA Form 3510-2D), the permittee shall complete and submit an EPA NPDES Application Form 2C (EPA Form 3510-2C) no later than two years after the date that discharge begins. Sampling required for completion of the Form 2C shall occur when a discharge(s) from the process(s) causing the new or increased discharge is occurring. If this permit was issued based on estimates concerning the composition of a stormwater discharge(s), the permittee shall perform the sampling required by EPA NPDES Application Form 2F (EPA Form 3510-2F) no later than one year after the industrial activity generating the stormwater discharge has been fully initiated.

   b. This permit shall be reopened if required to address any new information resulting from the completion and submittal of the Form 2C and or 2F.

E. SCHEDULE OF COMPLIANCE

1. Subject to the exceptions set out in Part I.E.2, the permittee shall achieve compliance with the discharge limitations specified in Provision I. A. in accordance with the following schedule:

COMPLIANCE SHALL BE ATTAINED ON THE EFFECTIVE DATE OF THIS PERMIT

2. **Effluent Guideline Limitations Compliance**

   a) There shall be no discharge of pollutants in fly ash transport water generated at the facility on and/or after the effective date of this permit.

   b) Beginning as soon as possible but no later than December 31, 2023, the Permittee shall demonstrate compliance with the FGD ELGs through the monitoring requirements proposed for internal Outfall DSN04F1 for FGD wastewater generated at the facility on and/or after that date.

   c) Beginning as soon as possible but no later than December 31, 2023, there shall be no discharge of pollutants in bottom ash transport water generated at the facility on and/or after that date, subject to the following exceptions:

      i. Low volume, short duration discharges of wastewater from minor leaks (e.g., leaks from valve packing, pipe flanges, or piping) or minor maintenance events (e.g., replacement of valves or pipe sections) are specifically excluded from the definition of "transport water" and may continue to be discharged through Outfalls DSN0042 or DSN0043 subject to the effluent limitations applicable to such discharges through those respective Outfalls.

      ii. Bottom ash transport water may be utilized in the FGD scrubber system and discharged through Outfalls DSN0042, DSN0043 and/or DSN04F1 (as applicable) subject to the effluent limitations applicable to such discharges through those respective Outfalls.

3. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

PART II OTHER REQUIREMENTS, RESPONSIBILITIES, AND DUTIES

A. OPERATIONAL AND MANAGEMENT REQUIREMENTS

1. Facilities Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities only when necessary to achieve compliance with the conditions of the permit.

2. Best Management Practices

a. Dilution water shall not be added to achieve compliance with discharge limitations except when the Director or his designee has granted prior written authorization for dilution to meet water quality requirements.

b. The permittee shall prepare, implement, and maintain a Spill Prevention, Control and Countermeasures (SPCC) Plan in accordance with 40 C.F.R. Section 112 if required thereby.

c. The permittee shall prepare, submit for approval and implement a Best Management Practices (BMP) Plan for containment of any or all process liquids or solids, in a manner such that these materials do not present a significant potential for discharge, if so required by the Director or his designee. When submitted and approved, the BMP Plan shall become a part of this permit and all requirements of the BMP Plan shall become requirements of this permit.

3. Spill Prevention, Control, and Management

The permittee shall provide spill prevention, control, and/or management sufficient to prevent any spills of pollutants from entering a water of the state or a publicly or privately owned treatment works. Any containment system used to implement this requirement shall be constructed of materials compatible with the substance(s) contained and which shall prevent the contamination of groundwater and such containment system shall be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided.

B. OTHER RESPONSIBILITIES

1. Duty to Mitigate Adverse Impacts

The permittee shall promptly take all reasonable steps to mitigate and minimize or prevent any adverse impact on human health or the environment resulting from noncompliance with any discharge limitation specified in Provision I. A. of this permit, including such accelerated or additional monitoring of the discharge and/or the receiving waterbody as necessary to determine the nature and impact of the noncomplying discharge.

2. Right of Entry and Inspection

The permittee shall allow the Director, or an authorized representative, upon the presentation of proper credentials and other documents as may be required by law to:

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

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

c. inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the permit; and

d. sample or monitor, for the purposes of assuring permit compliance or as otherwise authorized by the AWPCA, any substances or parameters at any location.

C. BYPASS AND UPSET

1. Bypass

a. Any bypass is prohibited except as provided in b. and c. below:

b. A bypass is not prohibited if:

(1) It does not cause any discharge limitation specified in Provision I. A. of this permit to be exceeded;

(2) It enters the same receiving stream as the permitted outfall; and

(3) It is necessary for essential maintenance of a treatment or control facility or system to assure efficient operation of such facility or system.

c. A bypass is not prohibited and need not meet the discharge limitations specified in Provision I. A. of this permit if:

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

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

(3) The permittee submits a written request for authorization to bypass to the Director at least ten (10) days prior to the anticipated bypass (if possible), the permittee is granted such authorization, and the permittee complies with any conditions imposed by the Director to minimize any adverse impact on human health or the environment resulting from the bypass.

d. The permittee has the burden of establishing that each of the conditions of Provision II.C.1.b. or c. have been met to qualify for an exception to the general prohibition against bypassing contained in a. and an exemption, where applicable, from the discharge limitations specified in Provision I. A. of this permit.

2. Upset

a. A discharge which results from an upset need not meet the discharge limitations specified in Provision I. A. of this permit if:

(1) No later than 24-hours after becoming aware of the occurrence of the upset, the permittee orally reports the occurrence and circumstances of the upset to the Director or his designee; and

(2) No later than five (5) days after becoming aware of the occurrence of the upset, the permittee furnishes the Director with evidence, including properly signed, contemporaneous operating logs, or other relevant evidence, demonstrating that (i) an upset occurred; (ii) the permittee can identify the specific cause(s) of the upset; (iii) the permittee's facility was being properly operated at the time of the upset; and (iv) the permittee promptly took all reasonable steps to minimize any adverse impact on human health or the environment resulting from the upset.

b. The permittee has the burden of establishing that each of the conditions of Provision II. C.2.a. of this permit have been met to qualify for an exemption from the discharge limitations specified in Provision I.A. of this permit.

D. DUTY TO COMPLY WITH PERMIT, RULES, AND STATUTES

1. Duty to Comply

a. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the AWPCA and the FWPCA and is grounds for enforcement action, for permit termination, revocation and reissuance, suspension, modification; or denial of a permit renewal application.

b. The necessity to halt or reduce production or other activities in order to maintain compliance with the conditions of the permit shall not be a defense for a permittee in an enforcement action.

c. The discharge of a pollutant from a source not specifically identified in the permit application for this permit and not specifically included in the description of an outfall in this permit is not authorized and shall constitute noncompliance with this permit.

d. The permittee shall take all reasonable steps, including cessation of production or other activities, to minimize or prevent any violation of this permit or to minimize or prevent any adverse impact of any permit violation.

e. Nothing in this permit shall be construed to preclude and negate the permittee's responsibility or liability to apply for, obtain, or comply with other ADEM, Federal, State, or Local Government permits, certifications, licenses, or other approvals.

2. Removed Substances

Solids, sludges, filter backwash, or any other pollutant or other waste removed in the course of treatment or control of wastewaters shall be disposed of in a manner that complies with all applicable Department Rules.

3. Loss or Failure of Treatment Facilities

Upon the loss or failure of any treatment facilities, including but not limited to the loss or failure of the primary source of power of the treatment facility, the permittee shall, where necessary to maintain compliance with the discharge limitations specified in Provision I. A. of this permit, or any other terms or conditions of this permit, cease, reduce, or otherwise control production and/or all discharges until treatment is restored. If control of discharge during loss or failure of the primary source of power is to be accomplished by means of alternate power sources, standby generators, or retention of inadequately treated effluent, the permittee must furnish to the Director within six months a certification that such control mechanisms have been installed.

4. Compliance with Statutes and Rules

a. This permit has been issued under ADEM Administrative Code, Chapter 335-6-6. All provisions of this chapter, that are applicable to this permit, are hereby made a part of this permit. A copy of this chapter may be obtained for a small charge from the Office of General Counsel, Alabama Department of Environmental Management, 1400 Coliseum Blvd., Montgomery, AL 36130.

b. This permit does not authorize the noncompliance with or violation of any Laws of the State of Alabama or the United States of America or any regulations or rules implementing such laws. FWPCA, 33 U.S.C. Section 1319, and Code of Alabama 1975, Section 22-22-14.

E. PERMIT TRANSFER, MODIFICATION, SUSPENSION, REVOCATION, AND REISSUANCE

1. Duty to Reapply or Notify of Intent to Cease Discharge

a. If the permittee intends to continue to discharge beyond the expiration date of this permit, the permittee shall file a complete permit application for reissuance of this permit at least 180 days prior to its expiration. If the permittee does not intend to continue discharge beyond the expiration of this permit, the permittee shall submit written notification of this intent which shall be signed by an individual meeting the signatory requirements for a permit application as set forth in ADEM Administrative Code Rule 335-6-6-.09.

b. Failure of the permittee to apply for reissuance at least 180 days prior to permit expiration will void the automatic continuation of the expiring permit provided by ADEM Administrative Code Rule 335-6-6-.06 and should the permit not be reissued for any reason any discharge after expiration of this permit will be an unpermitted discharge.

2. Change in Discharge

a. The permittee shall apply for a permit modification at least 180 days in advance of any facility expansion, production increase, process change, or other action that could result in the discharge of additional pollutants or increase the quantity of a discharged pollutant such that existing permit limitations would be exceeded or that could result in an additional discharge point. This requirement applies to pollutants that are or that are not subject to discharge limitations in this permit. No new or increased discharge may begin until the Director has authorized it by issuance of a permit modification or a reissued permit.

b. The permittee shall notify the Director as soon as it is known or there is reason to believe:

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

(a) one hundred micrograms per liter;

(b) two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dini-trophenol; and one milligram per liter for antimony;

(c) five times the maximum concentration value reported for that pollutant in the permit application; or

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

(a) five hundred micrograms per liter;

(b) one milligram per liter for antimony;

(c) ten times the maximum concentration value reported for that pollutant in the permit application.

3. Transfer of Permit

This permit may not be transferred or the name of the permittee changed without notice to the Director and subsequent modification or revocation and reissuance of the permit to identify the new permittee and to incorporate any other changes as may be required under the FWPCA or AWPCA. In the case of a change in name, ownership or control of the permittee's premises only, a request for permit modification in a format acceptable to the Director is required at least 30 days prior to the change. In the case of a change in name, ownership or control of the permittee's premises accompanied by a change or proposed change in effluent characteristics, a complete permit application is required to be submitted to the Director at least 180 days prior to the change. Whenever the Director is notified of a change in name, ownership or control, he may decide not to modify the existing permit and require the submission of a new permit application.

4. Permit Modification and Revocation

a. This permit may be modified or revoked and reissued, in whole or in part, during its term for cause, including but not limited to, the following:

(1) If cause for termination under Provision II. E. 5. of this permit exists, the Director may choose to revoke and reissue this permit instead of terminating the permit;

(2) If a request to transfer this permit has been received, the Director may decide to revoke and reissue or to modify the permit; or

(3) If modification or revocation and reissuance is requested by the permittee and cause exists, the Director may grant the request.

b. This permit may be modified during its term for cause, including but not limited to, the following:

(1) If cause for termination under Provision II. E. 5. of this permit exists, the Director may choose to modify this permit instead of terminating this permit;

(2) There are material and substantial alterations or additions to the facility or activity generating wastewater which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit;

(3) The Director has received new information that was not available at the time of permit issuance and that would have justified the application of different permit conditions at the time of issuance;

(4) A new or revised requirement(s) of any applicable standard or limitation is promulgated under Sections 301(b)(2)(C), (D), (E), and (F), and 307(a)(2) of the FWPCA;

(5) Errors in calculation of discharge limitations or typographical or clerical errors were made;

(6) To the extent allowed by ADEM Administrative Code, Rule 335-6-6-.17, when the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued;

(7) To the extent allowed by ADEM Administrative Code, Rule 335-6-6-.17, permits may be modified to change compliance schedules;

(8) To agree with a granted variance under 30l(c), 30l(g), 30l(h), 30l(k), or 3l6(a) of the FWPCA or for fundamentally different factors;

(9) To incorporate an applicable 307(a) FWPCA toxic effluent standard or prohibition;

(10) When required by the reopener conditions in this permit;

(11) When required under 40 CFR 403.8(e) (compliance schedule for development of pretreatment program);

(12) Upon failure of the state to notify, as required by Section 402(b)(3) of the FWPCA, another state whose waters may be affected by a discharge permitted by this permit;

(13) When required to correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions; or

(14) When requested by the permittee and the Director determines that the modification has cause and will not result in a violation of federal or state law, regulations or rules.

5. Permit Termination

This permit may be terminated during its term for cause, including but not limited to, the following:

a. Violation of any term or condition of this permit;

b. The permittee's misrepresentation or failure to disclose fully all relevant facts in the permit application or during the permit issuance process or the permittee's misrepresentation of any relevant facts at any time;

c. Materially false or inaccurate statements or information in the permit application or the permit;

d. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;

e. The permittee's discharge threatens human life or welfare or the maintenance of water quality standards;

f. Permanent closure of the facility generating the wastewater permitted to be discharged by this permit or permanent cessation of wastewater discharge;

g. New or revised requirements of any applicable standard or limitation that is promulgated under Sections 301(b)(2)(C), (D), (E), and (F), and 307(a)(2) of the FWPCA that the Director determines cannot be complied with by the permittee; or

h. Any other cause allowed by the ADEM Administrative Code, Chapter 335-6-6.

6. Permit Suspension

This permit may be suspended during its term for noncompliance until the permittee has taken action(s) necessary to achieve compliance.

7. Request for Permit Action Does Not Stay Any Permit Requirement

The filing of a request by the permittee for modification, suspension or revocation of this permit, in whole or in part, does not stay any permit term or condition.

F. COMPLIANCE WITH TOXIC POLLUTANT STANDARD OR PROHIBITION

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a), for a toxic pollutant discharged by the permittee and such standard or prohibition is more stringent than any discharge limitation on the pollutant specified in Provision **I.** A. of this permit, or controls a pollutant not limited in Provision I. A. of this permit, this permit shall be modified to conform to the toxic pollutant effluent standard or prohibition and the permittee shall be notified of such modification. If this permit has not been modified to conform to the toxic pollutant effluent standard or prohibition before the effective date of such standard or prohibition, the permittee shall attain compliance with the requirements of the standard or prohibition within the time period required by the standard or prohibition and shall continue to comply with the standard or prohibition until this permit is modified or reissued.

G. DISCHARGE OF WASTEWATER GENERATED BY OTHERS

The discharge of wastewater, generated by any process, facility, or by any other means not under the operational control of the permittee or not identified in the application for this permit or not identified specifically in the description of an outfall in this permit is not authorized by this permit.

PART III OTHER PERMIT CONDITIONS

A. CIVIL AND CRIMINAL LIABILITY

1. Tampering

Any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained or performed under the permit shall, upon conviction, be subject to penalties as provided by the AWPCA.

2. False Statements

Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be subject to penalties as provided by the AWPCA.

3. Permit Enforcement

a. Any NPDES permit issued or reissued by the Department is a permit for the purpose of the AWPCA and the FWPCA and as such any terms, conditions, or limitations of the permit are enforceable under state and federal law.

b. Any person required to have a NPDES permit pursuant to ADEM Administrative Code Chapter 335-6-6 and who discharges pollutants without said permit, who violates the conditions of said permit, who discharges pollutants in a manner not authorized by the permit, or who violates applicable orders of the Department or any applicable rule or standard of the Department, is subject to any one or combination of the following enforcement actions under applicable state statutes.

(1) An administrative order requiring abatement, compliance, mitigation, cessation, clean-up, and/or penalties;

(2) An action for damages;

(3) An action for injunctive relief; or

(4) An action for penalties.

c. If the permittee is not in compliance with the conditions of an expiring or expired permit the Director may choose to do any or all of the following provided the permittee has made a timely and complete application for reissuance of the permit:

(1) initiate enforcement action based upon the permit which has been continued;

(2) issue a notice of intent to deny the permit reissuance. If the permit is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operating without a permit;

(3) reissue the new permit with appropriate conditions; or

(4) take other actions authorized by these rules and AWPCA.

4. Relief from Liability

Except as provided in Provision II.C.1 (Bypass) and Provision II.C.2 (Upset), nothing in this permit shall be construed to relieve the permittee of civil or criminal liability under the AWPCA or FWPCA for noncompliance with any term or condition of this permit.

B. OIL AND HAZARDOUS SUBSTANCE LIABILITY

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the FWPCA, 33 U.S.C. Section 1321.

C. PROPERTY AND OTHER RIGHTS

This permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, trespass, or any infringement of federal, state, or local laws or regulations, nor does it authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any waters of the state or of the United States.

D. AVAILABILITY OF REPORTS

Except for data determined to be confidential under Code of Alabama 1975, Section 22-22-9(c), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. Effluent data shall not be considered confidential.

E. EXPIRATION OF PERMITS FOR NEW OR INCREASED DISCHARGES

1. If this permit was issued for a new discharger or new source, this permit shall expire eighteen months after the issuance date if construction of the facility has not begun during the eighteen-month period.

2. If this permit was issued or modified to allow the discharge of increased quantities of pollutants to accommodate the modification of an existing facility and if construction of this modification has not begun during the eighteen month period after issuance of this permit or permit modification, this permit shall be modified to reduce the quantities of pollutants allowed to be discharged to those levels that would have been allowed if the modification of the facility had not been planned.

3. Construction has begun when the owner or operator has:

   a. begun, or caused to begin as part of a continuous on-site construction program:

      (1) any placement, assembly, or installation of facilities or equipment; or

      (2) significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or

   b. entered into a binding contractual obligation for the purpose of placement, assembly, or installation of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under the paragraph. The entering into a lease with the State of Alabama for exploration and production of hydrocarbons shall also be considered beginning construction.

F. COMPLIANCE WITH WATER QUALITY STANDARDS

1. On the basis of the permittee's application, plans, or other available information, the Department has determined that compliance with the terms and conditions of this permit should assure compliance with the applicable water quality standards.

2. Compliance with permit terms and conditions notwithstanding, if the permittee's discharge(s) from point sources identified in Provision I. A. of this permit cause or contribute to a condition in contravention of state water quality standards, the Department may require abatement action to be taken by the permittee in emergency situations or modify the permit pursuant to the Department's Rules, or both.

3. If the Department determines, on the basis of a notice provided pursuant to this permit or any investigation, inspection or sampling, that a modification of this permit is necessary to assure maintenance of water quality standards or compliance with other provisions of the AWPCA or FWPCA, the Department may require such modification and, in cases of emergency, the Director may prohibit the discharge until the permit has been modified.

G. GROUNDWATER

Unless specifically authorized under this permit, this permit does not authorize the discharge of pollutants to groundwater. Should a threat of groundwater contamination occur, the Director may require groundwater monitoring to properly assess the degree of the problem and the Director may require that the Permittee undertake measures to abate any such discharge and/or contamination.

H. DEFINITIONS

1. Average monthly discharge limitation - means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month (zero discharge days shall not be included in the number of "daily discharges" measured and a less than detectable test result shall be treated as a concentration of zero if the most sensitive EPA approved method was used).

2. Average weekly discharge limitation - means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week (zero discharge days shall not be included in the number of "daily discharges" measured and a less than detectable test result shall be treated as a concentration of zero if the most sensitive EPA approved method was used).

3. Arithmetic Mean – means the summation of the individual values of any set of values divided by the number of individual values.

4. AWPCA - means the Alabama Water Pollution Control Act.

5. BOD – means the five-day measure of the pollutant parameter biochemical oxygen demand.

6. Bypass - means the intentional diversion of waste streams from any portion of a treatment facility.

7. CBOD – means the five-day measure of the pollutant parameter carbonaceous biochemical oxygen demand.

8. Daily discharge - means the discharge of a pollutant measured during any consecutive 24-hour period in accordance with the sample type and analytical methodology specified by the discharge permit.

9. Daily maximum - means the highest value of any individual sample result obtained during a day.

10. Daily minimum - means the lowest value of any individual sample result obtained during a day.

11. Day - means any consecutive 24-hour period.

12. Department - means the Alabama Department of Environmental Management.

13. Dewatering – means discharges of wastewater from the ash pond from a surface water elevation below which gravity discharges via the overflow discharge structure cannot occur.

14. Director - means the Director of the Department.

15. Discharge - means "[t]he addition, introduction, leaking, spilling or emitting of any sewage, industrial waste, pollutant or other wastes into waters of the state". Code of Alabama 1975, Section 22-22-1(b)(8).

16. Discharge Monitoring Report (DMR) - means the form approved by the Director to accomplish reporting requirements of an NPDES permit.

17. DO – means dissolved oxygen.

18. 8HC – means 8-hour composite sample, including any of the following:

    a. The mixing of at least 5 equal volume samples collected at constant time intervals of not more than 2 hours over a period of not less than 8 hours between the hours of 6:00 a.m. and 6:00 p.m. If the sampling period exceeds 8 hours, sampling may be conducted beyond the 6:00 a.m. to 6:00 p.m. period.

    b. A sample continuously collected at a constant rate over period of not less than 8 hours between the hours of 6:00 a.m. and 6:00 p.m. If the sampling period exceeds 8 hours, sampling may be conducted beyond the 6:00 a.m. to 6:00 p.m. period.

19. EPA - means the United States Environmental Protection Agency.

20. FC – means the pollutant parameter fecal coliform.

21. Flow – means the total volume of discharge in a 24-hour period.

22. FWPCA - means the Federal Water Pollution Control Act.

23. Geometric Mean – means the Nth root of the product of the individual values of any set of values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered one (1).

24. Grab Sample – means a single influent or effluent portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the discharge.

25. Indirect Discharger – means a nondomestic discharger who discharges pollutants to a publicly owned treatment works or a privately owned treatment facility operated by another person.

26. Industrial User – means those industries identified in the Standard Industrial Classification manual, Bureau of the Budget 1967, as amended and supplemented, under the category "Division D – Manufacturing" and such other classes of significant waste producers as, by regulation, the Director deems appropriate.

27. MGD – means million gallons per day.

28. Monthly Average – means, other than for fecal coliform bacteria, the arithmetic mean of the entire composite or grab samples taken for the daily discharges collected in one month period. The monthly average for fecal coliform bacteria is the geometric mean of daily discharge samples collected in a one month period. The monthly average for flow is the arithmetic mean of all flow measurements taken in a one month period.

29. New Discharger – means a person, owning or operating any building, structure, facility or installation:

    a. from which there is or may be a discharge of pollutants;

    b. that did not commence the discharge of pollutants prior to August 13, 1979, and which is not a new source; and

    c. which has never received a final effective NPDES permit for dischargers at that site.

30. NH3-N – means the pollutant parameter ammonia, measured as nitrogen.

31. Permit application - means forms and additional information that is required by ADEM Administrative Code Rule 335-6-6-.08 and applicable permit fees.

32. Point source - means "any discernible, confined and discrete conveyance, including but not limited to any pipe, channel, ditch, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, . . . from which pollutants are or may be discharged." Section 502(14) of the FWPCA, 33 U.S.C. Section 1362(14).

33. Pollutant - includes for purposes of this permit, but is not limited to, those pollutants specified in Code of Alabama 1975, Section 22-22-1(b)(3) and those effluent characteristics specified in Provision I. A. of this permit.

34. Privately Owned Treatment Works – means any devices or system which is used to treat wastes from any facility whose operator is not the operator of the treatment works, and which is not a "POTW".

35. Publicly Owned Treatment Works – means a wastewater collection and treatment facility owned by the State, municipality, regional entity composed of two or more municipalities, or another entity created by the State or local authority for the purpose of collecting and treating municipal wastewater.

36. Receiving Stream – means the "waters" receiving a "discharge" from a "point source".

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

38. Significant Source – means a source which discharges 0.025 MGD or more to a POTW or greater than five percent of the treatment work's capacity, or a source which is a primary industry as defined by the U.S. EPA or which discharges a priority or toxic pollutant.

39. Solvent – means any virgin, used or spent organic solvent(s) identified in the F-Listed wastes (F001 through F005) specified in 40 CFR 261.31 that is used for the purpose of solubilizing other materials.

40. TKN – means the pollutant parameter Total Kjeldahl Nitrogen.

41. TON – means the pollutant parameter Total Organic Nitrogen.

42. TRC – means Total Residual Chlorine.

43. TSS – means the pollutant parameter Total Suspended Solids.

44. 24HC – means 24-hour composite sample, including any of the following:

    a. the mixing of at least 12 equal volume samples collected at constant time intervals of not more than 2 hours over a period of 24 hours;

    b. a sample collected over a consecutive 24-hour period using an automatic sampler composite to one sample. As a minimum, samples shall be collected hourly and each shall be no more than one twenty-fourth (1/24) of the total sample volume collected; or

    c. a sample collected over a consecutive 24-hour period using an automatic composite sampler composited proportional to flow.

45. Upset - means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit discharge limitations because of factors beyond the reasonable control of the permittee. An upset does not include

noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

46. Waters - means "[a]ll waters of any river, stream, watercourse, pond, lake, coastal, ground or surface water, wholly or partially within the state, natural or artificial. This does not include waters which are entirely confined and retained completely upon the property of a single individual, partnership or corporation unless such waters are used in interstate commerce." Code of Alabama 1975, Section 22-22-1(b)(2). Waters "include all navigable waters" as defined in Section 502(7) of the FWPCA, 22 U.S.C. Section 1362(7), which are within the State of Alabama.

47. Week - means the period beginning at twelve midnight Saturday and ending at twelve midnight the following Saturday.

48. Weekly (7-day and calendar week) Average – is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. The calendar week is defined as beginning on Sunday and ending on Saturday. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for the calendar week shall be included in the data for the month that contains the Saturday.

I. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

PART IV ADDITIONAL REQUIREMENTS, CONDITIONS, AND LIMITATIONS

A. BEST MANAGEMENT PRACTICES (BMP) PLAN REQUIREMENTS

1. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) Plan which prevents, or minimizes the potential for, the release of pollutants from ancillary activities, including material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas, to the waters of the State through plant site runoff; spillage or leaks; sludge or waste disposal; or drainage from raw material storage.

2. Plan Content

The permittee shall prepare and implement a best management practices (BMP) plan, which shall:

a. Establish specific objectives for the control of pollutants:

(1) Each facility component or system shall be examined for its potential for causing a release of significant amounts of pollutants to waters of the State due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.

(2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g. precipitation), or circumstances to result in significant amounts of pollutants reaching surface waters, the plan should include a prediction of the direction, rate of flow, and total quantity of pollutants which could be discharged from the facility as a result of each condition or circumstance.

b. Establish specific best management practices to meet the objectives identified under paragraph a. of this section, addressing each component or system capable of causing a release of significant amounts of pollutants to the waters of the State, and identifying specific preventative or remedial measures to be implemented;

c. Establish a program to identify and repair leaking equipment items and damaged containment structures, which may contribute to contaminated stormwater runoff. This program must include regular visual inspections of equipment, containment structures and of the facility in general to ensure that the BMP is continually implemented and effective;

d. Prevent the spillage or loss of fluids, oil, grease, gasoline, etc. from vehicle and equipment maintenance activities and thereby prevent the contamination of stormwater from these substances;

e. Prevent or minimize stormwater contact with material stored on site;

f. Designate by position or name the person or persons responsible for the day to day implementation of the BMP;

g. Provide for routine inspections, on days during which the facility is manned, of any structures that function to prevent stormwater pollution or to remove pollutants from stormwater and of the facility in general to ensure that the BMP is continually implemented and effective;

h. Provide for the use and disposal of any material used to absorb spilled fluids that could contaminate stormwater;

i. Develop a solvent management plan, if solvents are used on site. The solvent management plan shall include as a minimum lists of the solvents on site; the disposal method of solvents used instead of dumping, such as reclamation, contract hauling; and the procedures for assuring that solvents do not routinely spill or leak into the stormwater;

j. Provide for the disposal of all used oils, hydraulic fluids, solvent degreasing material, etc. in accordance with good management practices and any applicable state or federal regulations;

k. Include a diagram of the facility showing the locations where stormwater exits the facility, the locations of any structure or other mechanisms intended to prevent pollution of stormwater or to remove pollutants from stormwater, the locations of any collection and handling systems;

l. Provide control sufficient to prevent or control pollution of stormwater by soil particles to the degree required to maintain compliance with the water quality standard for turbidity applicable to the waterbody(s) receiving discharge(s) under this permit;

m. Provide spill prevention, control, and/or management sufficient to prevent or minimize contaminated stormwater runoff. Any containment system used to implement this requirement shall be constructed of materials compatible with the substance(s) contained and shall prevent the contamination of groundwater. The containment system shall also be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided;

n. Provide and maintain curbing, diking or other means of isolating process areas to the extent necessary to allow segregation and collection for treatment of contaminated stormwater from process areas;

o. Be reviewed by plant engineering staff and the plant manager; and

p. Bear the signature of the plant manager.

3. Compliance Schedule

The permittee shall have reviewed (and revised if necessary) and fully implemented the BMP plan as soon as practicable but no later than six months after the effective date of this permit.

4. Department Review

a. When requested by the Director or his designee, the permittee shall make the BMP available for Department review.

b. The Director or his designee may notify the permittee at any time that the BMP is deficient and require correction of the deficiency.

c. The permittee shall correct any BMP deficiency identified by the Director or his designee within 30 days of receipt of notification and shall certify to the Department that the correction has been made and implemented.

5. Administrative Procedures

a. A copy of the BMP shall be maintained at the facility and shall be available for inspection by representatives of the Department.

b. A log of the routine inspection required above shall be maintained at the facility and shall be available for inspection by representatives of the Department. The log shall contain records of all inspections performed for the last three years and each entry shall be signed by the person performing the inspection.

c. The permittee shall provide training for any personnel required to implement the BMP and shall retain documentation of such training at the facility. This documentation shall be available for inspection by representatives of the Department. Training shall be performed prior to the date that implementation of the BMP is required.

d. BMP Plan Modification. The permittee shall amend the BMP plan whenever there is a change in the facility or change in operation of the facility which materially increases the potential for the ancillary activities to result in a discharge of significant amounts of pollutants.

e. BMP Plan Review. The permittee shall complete a review and evaluation of the BMP plan at least once every three years from the date of preparation of the BMP plan. Documentation of the BMP Plan review and evaluation shall be signed and dated by the Plant Manager.

B. STORMWATER FLOW MEASUREMENT AND SAMPLING REQUIREMENTS

1. Stormwater Flow Measurement

a. All stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches.

b. The total volume of stormwater discharged for the event must be monitored, including the date and duration (in hours) and rainfall (in inches) for storm event(s) sampled. The duration between the storm

event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event must be a minimum of 72 hours. This information must be recorded as part of the sampling procedure and records retained according to Part I.B. of this permit.

c. The volume may be measured using flow measuring devices, or estimated based on a modification of the Rational Method using total depth of rainfall, the size of the drainage area serving a stormwater outfall, and an estimate of the runoff coefficient of the drainage area. This information must be recorded as part of the sampling procedure and records retained according to Part I.B. of this permit.

2. Stormwater Sampling

a. A grab sample, if required by this permit, shall be taken during the first thirty minutes of the discharge (or as soon thereafter as practicable); and a flow-weighted composite sample, if required by this permit, shall be taken for the entire event or for the first three hours of the event.

b. All test procedures will be in accordance with part I.B. of this permit.

C. COOLING WATER INTAKE STRUCTURE (CWIS) REQUIREMENTS

1. The cooling water intake structure used by the permittee has been evaluated using available information. At this time, the Department has determined that the cooling water intake structure represents the interim best technology available (BTA) to minimize adverse environmental impact in accordance with Section 316(b) of the Federal Clean Water Act (33 U.S.C. section 1326).

2. The permittee is required to operate and maintain the CWIS in a manner that minimizes impingement and entrainment levels. Documentation detailing the steps that have and are being taken to minimize the impingement and entrainment levels shall be maintained on site and made available upon request.

3. Nothing in this Permit authorizes take for the purposes of a facility compliance with the Endangered Species Act. Under the Endangered Species Act, take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct, of endangered or threatened species.

4. The permittee shall submit the information for the CWIS as required by 40 CFR 122.21(r) by December 31, 2023.

5. The Permittee must keep records of all submissions that are part of the permit application pertaining to the CWIS until the subsequent permit is issued to the Permittee.

6. The Permittee's permit application must contain readily available information, at the time of permit application development, in identifying all Federally-listed threatened and endangered species and/or designated critical habitat that are or may be present in the action area.

7. The Permittee must conduct weekly visual inspections or employ remote monitoring devices during the period the cooling water intake structure is in operation. This condition is only applicable if control technologies are being employed to comply with final BTA standards for impingement mortality.

8. The Permittee is required to submit an Annual Certification to the Department no later than January 28th of each year. The Annual Certification shall detail if any changes have been made to impact the operation of the CWIS structure.

D. EFFLUENT TOXICITY LIMITATIONS AND BIOMONITORING REQUIREMENTS

1. The permittee shall perform short-term chronic toxicity tests on the wastewater discharges required to be tested for chronic toxicity by Part I of this permit.

a. Test Requirements

(1) The samples shall be diluted using appropriate control water, to the Instream Waste Concentration (IWC) which is 2% effluent. The IWC is the actual concentration of effluent, after mixing, in the receiving stream during a 7-day, 10-year flow period.

(2) Any test result that shows a statistically significant reduction in survival, growth, or reproduction between the control and the test at the 95% confidence level indicate chronic toxicity and constitute noncompliance with this permit.

b. General Test Requirements

(1) A minimum of three (3) composite samples shall be obtained for use in the above biomonitoring tests and collected every other day so that the laboratory receives water samples on the first, third, and fifth day of the seven-day test period. The holding time for each sample shall not exceed 36 hours. The control water shall be a water prepared in the laboratory in accordance with the EPA procedure described in EPA 821-R-02-013 or the most current edition or another control water selected by the permittee and approved by the Department.

(2) Effluent toxicity tests in which the control survival is less than 80%, P. promelas dry weight per surviving control organism is less than 0.25 mg, Ceriodaphnia number of young per surviving control organism is less than 15, Ceriodaphnia reproduction where less than 60% of surviving control females produce three broods or in which the other requirements of the EPA Test Procedure are not met shall be unacceptable and the permittee shall rerun the tests as soon as practical within the monitoring period.

(3) In the event of an invalid test, upon subsequent completion of a valid test, the results of all tests, valid and invalid, are reported with an explanation of the tests performed and results.

c. Reporting Requirements

(1) The Permittee shall notify the Department in writing within 48 hours after toxicity has been demonstrated by the scheduled test(s).

(2) Biomonitoring test results obtained during each monitoring period shall be summarized and reported using the appropriate Discharge Monitoring Report (DMR) form approved by the Department. In accordance with Section 2 of this part, an effluent toxicity report containing the information in Section 2 shall be included with the DMR. Two copies of the test results must be submitted to the Department no later than 28 days after the month in which the tests were performed.

d. Additional Testing Requirements

(1) If chronic toxicity is indicated (noncompliance with permit limit), the permittee shall perform two additional valid chronic toxicity tests in accordance with these procedures to determine the extent and duration of the toxic condition. The toxicity tests shall run consecutively beginning on the first calendar week following the date on which the permittee became aware of the permit noncompliance and the results of these tests shall be submitted no later than 28 days following the month in which the tests were performed.

(2) After evaluation of the results of the follow-up tests, the Department will determine if additional action is appropriate and may require additional testing and/or toxicity reduction measures. The permittee may be required to perform a Toxicity Identification Evaluation (TIE) and/or a Toxicity Reduction Evaluation (TRE). The TIE/TRE shall be performed in accordance with the most recent protocols/guidance outlined by EPA (e.g., EPA/600/2-88/062, EPA/600/R-92/080, EPA/600/R-91-003, EPA/600/R-92/081, EPA/833/B-99/022 and/or EPA/600/6-91/005F, etc.)

e. Test Methods

(1) The tests shall be performed in accordance with the latest edition of the "EPA Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms". The Larval Survival and Growth Test, Methods 1000.0, shall be used for the fathead minnow (*Pimephales promelas*) test and the Survival and Reproduction Test, Method 1002.0, shall be used for the cladoceran (*Ceriodaphnia dubia*) test.

2. Effluent Toxicity Testing Reports

The following information shall be submitted with each discharge monitoring report unless otherwise directed by the Department. The Department may at any time suspend or reinstate these requirements or may decrease or increase the frequency of submittals.

a. Introduction

(1) Facility name, location, and county

(2) Permit number

(3) Toxicity testing requirements of permit

(4) Name of receiving water body

(5) Contract laboratory information (if tests are performed under contract)

(a) Name of firm
(b) Telephone number
(c) Address

(6) Objective of test

b. Plant Operation

(1) Discharge Operating schedule (if other than continuous)

(2) Volume of discharge during sample collection to include Mean daily discharge on sample collection dates (MGD, CFS, GPM)

(3) Design flow of treatment facility at time of sampling

c. Source of Effluent and Dilution Water

(1) Effluent samples

(a) Sampling point
(b) Sample collection dates and times (to include composite sample start and finish times)
(c) Sample collection method
(d) Physical and chemical data of undiluted effluent samples (water temperature, pH, alkalinity, hardness, specific conductance, total residual chlorine (if applicable), etc.)
(e) Lapsed time from sample collection to delivery
(f) Lapsed time from sample collection to test initiation
(g) Sample temperature when received at the laboratory

(2) Dilution Water

(a) Source
(b) Collection/preparation date(s) and time(s)
(c) Pretreatment (if applicable)
(d) Physical and chemical characteristics (water temperature, pH, alkalinity, hardness, specific conductance, etc.)

d. Test Conditions

(1) Toxicity test method utilized

(2) End point(s) of test

(3) Deviations from referenced method, if any, and reason(s)

(4) Date and time test started

(5) Date and time test terminated

(6) Type and volume of test chambers

(7) Volume of solution per chamber

(8) Number of organisms per test chamber

(9) Number of replicate test chambers per treatment

(10) Test temperature, pH, and dissolved oxygen as recommended by the method (to include ranges)

(11) Specify if aeration was needed

(12) Feeding frequency, amount, and type of food

(13) Specify if (and how) pH control measures were implemented

(14) Light intensity (mean)

e. Test Organisms

(1) Scientific name

(2) Life stage and age

(3) Source

(4) Disease(s) treatment (if applicable)

f. Quality Assurance

(1) Reference toxicant utilized and source

(2) Date and time of most recent chronic reference toxicant test(s), raw data and current control chart(s). The most recent chronic reference toxicant test shall be conducted within 30 days of the routine.

(3) Dilution water utilized in reference toxicant test

(4) Results of reference toxicant test(s) (NOEC, IC25, PASS/FAIL, etc.), report concentration response relationship and evaluate test sensitivity

(5) Physical and chemical methods utilized

g. Results

(1) Provide raw toxicity data in tabular form, including daily records of affected organisms in each concentration (including controls) and replicate

(2) Provide table of endpoints: NOECs, IC25s, PASS/FAIL, etc. (as required in the applicable NPDES permit)

(3) Indicate statistical methods used to calculate endpoints

(4) Provide all physical and chemical data required by method

(5) Results of test(s) (NOEC, IC25, PASS/FAIL, etc.), report concentration-response relationship (definitive test only), report percent minimum significant difference (PMSD) calculated for sub-lethal endpoints determined by hypothesis testing.

h. Conclusions and Recommendations

(1) Relationship between test endpoints and permit limits

(2) Actions to be taken

1/ Adapted from "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", Fourth Edition, October 2002 (EPA 821-R-02-013), Section 10, Report Preparation

E. ASH POND SEEP IDENTIFICATION AND CORRECTIVE ACTION

The Permittee shall develop and implement an Ash Pond Seep Identification and Corrective Action Plan within 90 days from the effective date of the Permit. When requested by the Director or his designee, the Permittee shall make the plan available for Department review. The plan shall provide for weekly inspections. If a seep is identified during an inspection, the Permittee must provide corrective action as soon as feasible. A log of the inspections shall be maintained at the facility and shall be available for inspection by representatives of the Department. The log shall contain records of all inspections performed for the last three years and each entry shall be signed by the person performing the inspection. The Permittee shall submit an annual report by January 28th of each year detailing any identified seeps and corrective actions taken during the previous calendar year. The first report is due January 28, 2021 for calendar year 2020.

F. ASH POND DEWATERING PLAN

The Permittee shall perform all ash pond dewatering activities in accordance with an Ash Pond Dewatering Plan approved by the Department. The plan shall be modified, if necessary, as soon as possible subsequent to the receipt of comments from the Department.

G. 316(a) THERMAL VARIANCE CONTINUANCE

A variance request under CWA Section 316(a) for the thermal component of the discharge must be filed with the application for permit renewal in accordance with 40 CFR Part 125.70 Subpart H – Criteria for Determining Alternative Effluent Limitations Under Section 316(a) of the Act and 40 CFR 122.21(m)(6) Subpart B – Permit Application and Special NPDES Program Requirements, Variance Requests by Non-POTWs. The request to continue the variance must be received with the application for renewal of the NPDES permit 180 days prior to permit expiration. At a minimum, the application shall include necessary technical data and relevant information to include data collected within the life of the permit to support the request for a variance continuation.

The Permittee shall conduct a 316(a) study during the permit cycle. A 316(a) study plan shall be submitted to the Department for review within 365 days of the effective date of this permit and shall be revised as soon as practical based upon subsequent receipt of comments. After the study plan has been approved by the Department, the Permittee shall complete the study and submit the results to the Department 365 days prior to the expiration date of this permit.

LANCE R. LEFLEUR
DIRECTOR

KAY IVEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov
1400 Coliseum Blvd. 36110-2400 ▪ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ▪ FAX (334) 271-7950

FACT SHEET

APPLICATION FOR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT TO DISCHARGE POLLUTANTS TO WATERS OF THE STATE OF ALABAMA

Date: November 8, 2019 **Prepared By:** Theo Pinson

NPDES Permit No. AL0003140

1. **Name and Address of Applicant:**

   Alabama Power Company
   Post Office Box 2641, Bin 12N-0830
   Birmingham, Alabama 35291

2. **Name and Address of Facility:**

   E.C. Gaston Steam Electric Plant
   Alabama Highway 25 South
   Wilsonville, Alabama 35186

3. **Description of Applicant's Type of Facility and/or Activity Generating the Discharge:**

   Individual Permit - Standard

4. **Applicant's Receiving Waters**

Receiving Waters	Classification
Coosa River	Public Water Supply, Swimming, Fish & Wildlife
Yellowleaf Creek	Fish & Wildlife

   For the Outfall latitude and longitude see the permit application.

5. **Permit Conditions:**

   See attached Rationale and Draft Permit.

6. **PROCEDURES FOR THE FORMULATION OF FINAL DETERMINATIONS**

   a. **Comment Period**

   The Alabama Department of Environmental Management proposes to issue this NPDES permit subject to the limitations and special conditions outlined above. This determination is tentative.

   Interested persons are invited to submit written comments on the draft permit to the following address:

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

Russell A. Kelly, Chief
Permits and Services Division
Alabama Department of Environmental Management
1400 Coliseum Blvd
(Mailing Address: Post Office Box 301463; Zip 36130-1463)
Montgomery, Alabama 36110-2059
(334) 271-7714

All comments received prior to the closure of the public notice period (see public notice for date) will be considered in the formulation of the final determination with regard to this permit.

b. Public Hearing

A written request for a public hearing may be filed within the public notice period and must state the nature of the issues proposed to be raised in the hearing. A request for a hearing should be filed with the Department at the following address:

Russell A. Kelly, Chief
Permits and Services Division
Alabama Department of Environmental Management
1400 Coliseum Blvd
(Mailing Address: Post Office Box 301463; Zip 36130-1463)
Montgomery, Alabama 36110-2059
(334) 271-7714

The Director shall hold a public hearing whenever it is found, on the basis of hearing requests, that there exists a significant degree of public interest in a permit application or draft permit. The Director may hold a public hearing whenever such a hearing might clarify one or more issues involved in the permit decision. Public notice of such a hearing will be made in accordance with ADEM Admin. Code r. 335-6-6-.21.

c. Issuance of the Permit

All comments received during the public comment period shall be considered in making the final permit decision. At the time that any final permit decision is issued, the Department shall prepare a response to comments in accordance with ADEM Admin. Code r. 335-6-6-.21. **The permit record, including the response to comments, will be available to the public via the eFile System (http://app.adem.alabama.gov/eFile/) or an appointment to review the record may be made by writing the Permits and Services Division at the above address.**

Unless a request for a stay of a permit or permit provision is granted by the Environmental Management Commission, the proposed permit contained in the Director's determination shall be issued and effective, and such issuance will be the final administrative action of the Alabama Department of Environmental Management.

d. Appeal Procedures

As allowed under ADEM Admin. Code chap. 335-2-1, any person aggrieved by the Department's final administrative action may file a request for hearing to contest such action. Such requests should be received by the Environmental Management Commission within thirty days of issuance of the permit. Requests should be filed with the Commission at the following address:

Alabama Environmental Management Commission
1400 Coliseum Blvd
(Mailing Address: Post Office Box 301463; Zip 36130-1463)
Montgomery, Alabama 36110-2059

All requests must be in writing and shall contain the information provided in ADEM Admin. Code r. 335-2-1-.04.

ADEM PERMIT RATIONALE

PREPARED DATE: December 5, 2019
PREPARED BY: Theo Pinson

Permittee Name: Alabama Power Company

Facility Name: E.C. Gaston Steam Electric Plant

Permit Number: AL0003140

PERMIT IS A REISSUANCE DUE TO EXPIRATION

DISCHARGE SERIAL NUMBERS & DESCRIPTIONS:

DSN001: Once through cooling water and fire protection system waters

DSN002: Once through cooling water and fire protection system waters

DSN0042: Discharges from the wastewater management pond including the ash pond dewatering treatment system, ash pond dewatering and decanting wastewaters, legacy wastewaters, low volume wastewaters, post carbon capture low volume wastewaters, FGD wastewaters, miscellaneous cooling waters, cooling tower blowdown, coal pile runoff, chemical metal cleaning wastes, sanitary wastewaters, landfill leachate, RSCC System overflow, fire protection system waters, and stormwater runoff associated with power plant operations

DSN0043: Discharges from the wastewater management pond including low volume wastewaters, post carbon capture low volume wastewaters, FGD wastewaters, miscellaneous cooling waters, cooling tower blowdown, coal pile runoff, chemical metal cleaning wastes, sanitary wastewaters, landfill leachate, RSCC System overflow, fire protection system waters, and stormwater runoff associated with power plant operations

DSN04A: Cooling tower blowdown

DSN04B: Sanitary wastewaters

DSN04C: Pretreated chemical metal cleaning wastes

DSN04D: Low volume wastes and stormwater runoff

DSN04E: Low volume wastes

DSN04F: FGD Wastewaters which may include bottom ash transport waters utilized in the FGD scrubber

DSN04G: Post carbon capture low volume wastewaters

DSN04H: Coal pile runoff

DSN04I: Landfill Leachate

DSN04J: Remote submerged chain conveyor (RSCC) system overflow

DSN013: Intake screen backwash water bypass, fire protection system waters, and stormwater runoff associated with power plant operations

DSN019: Cooling tower blowdown overflow, vehicle rinse waters, fire protection system waters, and stormwater runoff associated with power plant operations and from the C&D landfill

DSN020: Vehicle rinse waters, fire protection system waters, and stormwater runoff associated with power plant operations

DSN025: Intake screen backwash waters and fire protection system waters

DSN028: Stormwater runoff from the closed ash pond footprint and fire protection system waters

DSN029: Stormwater runoff from the closed ash pond footprint and fire protection system waters

INDUSTRIAL CATEGORY: 40 CFR Part 423 Steam Electric Power Generating Point Source Category
§423.12 Best Practicable Control Technology Currently Available (BPT)
§423.13 Best Available Technology Economically Achievable (BAT)

MAJOR: Yes

STREAM INFORMATION:

Outfall:	001, 002, 042, 043, 013, 028, 029	019, 020, 025
Receiving Stream:	Coosa River	Yellowleaf Creek
Classification:	Public Water Supply, Swimming, Fish & Wildlife	Fish & Wildlife
River Basin:	Coosa	Coosa
7Q10:	1524 cfs	1.93 cfs
7Q2:	2035 cfs	5.88 cfs
1Q10:	1421 cfs	1.74 cfs
Annual Average Flow:	10,877 cfs	314.32 cfs
303(d) List:	Yes	Yes
Impairment:	PCBs	PCBs
TMDL:	Yes – Nutrients, Organic Enrichment	No

DISCUSSION:
Alabama Power Company's (APC) E.C. Gaston Steam Electric Plant produces electricity from five operating units with the ability to burn either coal or natural gas. The name plate rating of Units 1, 2, 3, and 4 are 250 MW each and are cooled with once through cooling water. The nameplate rating of Unit 5 is 880 MW and it is cooled with a closed cycle cooling system. Gypsum from the Unit 5 scrubber is stored in the onsite gypsum storage pond.

Pursuant to State and Federal Regulations, ADEM Admin Code 335-13-15 and 40 CFR 257.101(a)(1) (CCR Regulations), Alabama Power Company has ceased discharging wastewaters to the ash pond for treatment and has indicated that they have commenced closure activities. The wastewaters have been rerouted through a new wastewater treatment system (wastewater management pond). Ash pond closure will necessitate decanting and dewatering activities. The ash pond is proposed to be dewatered utilizing a mechanical treatment system. The effluent from the ash pond dewatering treatment system will be discharged into the wastewater management pond before final discharge through existing Outfall DSN004.

ADEM Administrative Rule 335-6-10-.12 requires applicants for new or expanded discharges to Tier II waters to demonstrate that the proposed discharge is necessary for important economic or social development in the area in which the waters are located. The application submitted by the facility is not for a new or expanded discharge to Tier II waters; therefore, anti-degradation requirements do not apply. The proposed dewatering discharges are not considered new or increased since the wastewater streams are existing, there are no new production processes which would introduce any additional pollutants of concern, the proposed treatment systems are expected to provide at least the same level of treatment as the ash pond, and the combined discharge of the ash pond dewatering system and the plant wastewaters are expected to be similar in flow and characteristics.

0011, 0021:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
Temperature, Water Deg. Fahrenheit Stage Code: O	-	-	-	90.0 F	REPORT F	Continuous	Recorder or Grab	316(a)
Temperature, Water Deg. Fahrenheit Stage Code: P	-	-	-	93.0 F	REPORT F	Continuous	Recorder or Grab	316(a)
Temperature, Water Deg. Fahrenheit Effluent Gross Value	-	-	-	REPORT F	REPORT F	Continuous	Recorder or Grab	BPJ
Temperature, Water Deg. Fahrenheit Intake from Stream	-	-	-	REPORT F	REPORT F	Continuous	Recorder or Grab	BPJ
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Pump Log	BPJ
Chlorine, Total Residual	-	-	-	0.012 mg/l	0.016 mg/l	Daily	Grab	BPJ
Chlorination Duration	-	120.0 min/day	-	-	-	Daily	Measured	EGL

04A1:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Calculated	BPJ
Chlorine, Free Available	-	-	-	0.2 mg/l	0.5 mg/l	Monthly	Grab	EGL
Chlorination Duration	-	120.0 min/day	-	-	-	Daily	Measured	EGL

04AY:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
Chromium, Total (As Cr)	-	-	-	0.2 mg/l	0.2 mg/l	Annually	Composite	EGL
Zinc, Total (As Zn)	-	-	-	1.0 mg/l	1.0 mg/l	Annually	Composite	EGL
Priority Pollutants Total Effluent	-	-	-	0 ug/l	0 ug/l	Annually	Grab	EGL
Annual Certification Statement	-	-	-	-	0 Yes=0; No=1	Annually	Not Applicable	EGL

04B1:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
Solids, Total Suspended	-	-	-	30.0 mg/l	45.0 mg/l	2X Monthly	Composite	EGL
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	2X Monthly	Instantaneous	BPJ
BOD, Carbonaceous 05 Day, 20C	-	-	-	25.0 mg/l	40.0 mg/l	2X Monthly	Composite	EGL

04CY:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
pH	-	-	6.0 S.U.	-	10.5 S.U.	Daily	Grab	EGL
Copper, Total (As Cu)	-	-	-	1.0 mg/l	1.0 mg/l	Daily	Composite	EGL
Iron, Total (As Fe)	-	-	-	1.0 mg/l	1.0 mg/l	Daily	Composite	EGL
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Daily	Instantaneous	BPJ

04F1:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
Nitrite Plus Nitrate Total 1 Det. (As N)	-	-	-	4.4 mg/l	17.0 mg/l	Monthly	Grab	EGL
Arsenic, Total (As As)	-	-	-	8 ug/l	11 ug/l	Monthly	Grab	EGL
Selenium, Total (As Se)	-	-	-	12 ug/l	21 ug/l	Monthly	Grab	EGL
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Monthly	Instantaneous	BPJ
Mercury, Total (As Hg)	-	-	-	356 ng/l	788 ng/l	Monthly	Grab	EGL

0042:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
Turbidity	-	-	-	REPORT NTU	REPORT NTU	2X Monthly	Measured	BPJ
pH	-	-	6.0 S.U.	-	9.0 S.U.	2X Monthly	Grab	WQBEL/ BPJ
Solids, Total Suspended	-	-	-	25.2 mg/l	73.7 mg/l	2X Monthly	Grab	EGL/BPJ
Oil & Grease	-	-	-	11.0 mg/l	15.0 mg/l	2X Monthly	Grab	BPJ
Nitrogen, Organic Total (As N)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	BPJ
Nitrogen, Ammonia Total (As N)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	BPJ
Nitrogen, Kjeldahl Total (As N)	REPORT lbs/day	REPORT lbs/day	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	BPJ
Nitrite Plus Nitrate Total 1 Det. (As N)	REPORT lbs/day	REPORT lbs/day	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	BPJ
Phosphorus, Total (As P)	REPORT lbs/day	REPORT lbs/day	-	0.25 mg/l	REPORT mg/l	2X Monthly	Composite	TMDL
Cadmium, Total (As Cd)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	BPJ
Chromium, Total (As Cr)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	BPJ
Copper, Total (As Cu)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	BPJ
Lead, Total (As Pb)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	BPJ
Nickel, Total (As Ni)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	BPJ
Zinc, Total (As Zn)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	BPJ
Selenium, Total (As Se)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	BPJ
Arsenic, Trivalent Dissolved	-	-	-	0.02075 mg/l	REPORT mg/l	2X Monthly	Grab	WQBEL
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Recorder	BPJ
Chlorine, Total Residual	-	-	-	0.7 mg/l	1.0 mg/l	2X Monthly	Grab	WQBEL/ BPJ
E. Coli	-	-	-	REPORT col/100mL	REPORT col/100mL	2X Monthly	Grab	BPJ
Solids, Total Dissolved	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	BPJ
Mercury, Total (As Hg)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	BPJ
Iron, Total (As Fe)	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Grab	BPJ
BOD, Carbonaceous 05 Day, 20C	-	-	-	REPORT mg/l	REPORT mg/l	2X Monthly	Composite	BPJ

042T:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
Toxicity, Ceriodaphnia Chronic	-	0 pass(0)/fail(1)	-	-	-	Quarterly	Composite	BPJ
Toxicity, Pimephales Chronic	-	0 pass(0)/fail(1)	-	-	-	Quarterly	Composite	BPJ

0043:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
pH	-	-	6.0 S.U.	-	9.0 S.U.	Monthly	Grab	WQBEL/ BPJ
Solids, Total Suspended	-	-	-	24.4 mg/l	69.4 mg/l	Monthly	Composite	EGL/BPJ
Oil & Grease	-	-	-	11.0 mg/l	15.0 mg/l	Monthly	Grab	BPJ
Nitrogen, Ammonia Total (As N)	-	-	-	-	REPORT mg/l	Monthly	Composite	BPJ
Nitrogen, Kjeldahl Total (As N)		REPORT lbs/day	-	-	REPORT mg/l	Monthly	Composite	BPJ
Nitrite Plus Nitrate Total 1 Det. (As N)	-	REPORT lbs/day	-	-	REPORT mg/l	Monthly	Composite	BPJ
Phosphorus, Total (As P)	REPORT lbs/day	REPORT lbs/day	-	0.25 mg/l	REPORT mg/l	Monthly	Composite	TMDL
Arsenic, Trivalent Dissolved	-	-	-	0.0245 mg/l	REPORT mg/l	Monthly	Grab	WQBEL
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Daily	Recorder	BPJ
Chlorine, Total Residual	-	-	-	0.7 mg/l	1.0 mg/l	Monthly	Grab	WQBEL/ BPJ
E. Coli	-	-	-	-	REPORT col/100mL	Monthly	Grab	BPJ
BOD, Carbonaceous 05 Day, 20C	-	-	-	-	REPORT mg/l	Monthly	Composite	BPJ

043T:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
Toxicity, Ceriodaphnia Chronic	-	0 pass(0)/fail(1)	-	-	-	Annually	Composite	BPJ
Toxicity, Pimephales Chronic	-	0 pass(0)/fail(1)	-	-	-	Annually	Composite	BPJ

019S: ***

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
pH	-	-	6.0 S.U.	-	8.5 S.U.	Monthly	Grab	WQBEL
Chromium, Total (As Cr)	-	-	-	0.2 mg/l	0.2 mg/l	Semi-Annual	Composite	EGL
Zinc, Total (As Zn)	-	-	-	1.0 mg/l	1.0 mg/l	Semi-Annual	Composite	EGL
Priority Pollutants Total Effluent	-	-	-	0 ug/l	0 ug/l	Semi-Annual	Grab	EGL
Flow, In Conduit or Thru Treatment Plant	REPORT MGD	REPORT MGD	-	-	-	Monthly	Estimate	BPJ
Chlorine, Free Available	-	-	-	0.2 mg/l	0.5 mg/l	Monthly	Grab	EGL
Chlorine, Total Residual	-	-	-	-	0.019 mg/l	Monthly	Grab	WQBEL
Chlorination Duration	-	120.0 min/day	-	-	-	Monthly	Measured	EGL
Semiannual Certification Statement	-	-	-	-	0 Yes=0; No=1	Semi-Annual	Not Applicable	EGL

***Monitoring for the 019S parameters is only required when cooling tower blowdown is discharged to Outfall DSN019. The sample shall be collected when cooling tower blowdown has been discharged to Outfall DSN019 and the discharge is expected to contain cooling tower blowdown.

019Y:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
pH	-	-	REPORT S.U.	-	REPORT S.U.	Annually	Grab	BPJ
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Annually	Grab	BPJ
Oil & Grease	-	-	-	-	15.0 mg/l	Annually	Grab	BPJ
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Annually	Estimate	BPJ

028S, 029S

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
Turbidity	-	-	-	-	REPORT NTU	Semi-Annually	Measured	BPJ
BOD, 5-Day (20 Deg. C)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
pH	-	-	REPORT S.U.	-	REPORT S.U.	Semi-Annually	Grab	BPJ
Solids, Total Suspended	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Oil & Grease	-	-	-	-	15.0 mg/l	Semi-Annually	Grab	BPJ
Nitrogen, Organic Total (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Nitrogen, Ammonia Total (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Nitrogen, Kjeldahl Total (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Nitrite Plus Nitrate Total 1 Det. (As N)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Phosphorus, Total (As P)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Arsenic, Total Recoverable	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Cadmium, Total (As Cd)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Chromium, Total (As Cr)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Copper, Total (As Cu)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Lead, Total (As Pb)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Nickel, Total (As Ni)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Zinc, Total (As Zn)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Selenium, Total (As Se)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Flow, In Conduit or Thru Treatment Plant	-	REPORT MGD	-	-	-	Semi-Annually	Estimate	BPJ
Solids, Total Dissolved	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Mercury, Total (As Hg)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ
Iron, Total (As Fe)	-	-	-	-	REPORT mg/l	Semi-Annually	Grab	BPJ

*Basis for Permit Limitation

- BPJ – Best Professional Judgment
- WQBEL – Water Quality Based Effluent Limits
- EGL – Federal Effluent Guideline Limitations
- 303(d) – 303(d) List of Impaired Waters
- 316(a) – Thermal Variance
- TMDL – Total Maximum Daily Load Requirements

Discussion

Best Professional Judgment (BPJ)
The parameters of concern for this facility are based on the parameters of concern listed in the permit application, from the current permit, and based upon best professional judgment. These parameters are consistent with similar facilities in the state and have been proven to be reflective of the operations at this facility. The proposed frequencies are based on a review of site specific conditions and an evaluation of similar facilities. There shall be no discharge of PCBs such as those used for transformer fluid. The Permittee has indicated that firefighting waters have the potential to discharge through each outfall. The discharge of firefighting waters is not expected to occur on a frequent basis.

Federal Effluent Guideline Limitations (EGL)
Parameters based upon EGL have had effluent guidelines established under 40 CFR Part 423.12 and 40 CFR Part 423.13.

DSN001, DSN002: Unit 1 and 2 once through cooling waters are discharged through Outfall DSN001. Unit 3 and 4 once through cooling waters are discharged through Outfall DSN002.

Total Residual Chlorine (TRC), Chlorination Duration
The chlorine discharge duration limitation and corresponding limitation page footnote are based on 40 CFR Parts 423.12 and 423.13. The total residual chlorine (TRC) limitations are more stringent than the guideline allocation and are proposed to be continued from the previous permit. It is expected that compliance with the proposed TRC permit limitations would also demonstrate compliance with the less stringent free available chlorine guideline values. Sampling for TRC is required only during chlorination. In accordance with a letter dated August 11, 1998 from EPA Headquarters and a 1991 memorandum from EPA Region 4's Environmental Services Division (ESD), due to testing and method detection limitations, a Total Residual Chlorine measurement below 0.05 mg/L shall be considered below detection for compliance purposes.

Temperature
The temperature limitations are based on a 316(a) Thermal Variance established in 1977. The application submitted by the Permittee contained a demonstration for continuation of the variance following EPA's Section 316(a) regulations and guidance. Based on the information required to be submitted to the Department to justify the continuance of the 316(a) thermal variance, the Department has determined that a balanced and indigenous population (BIP) is being maintained in the Coosa River near Plant Gaston.

The Department believes that the monitoring previously completed by the Permittee and proposed in this permit at the established sampling locations and the Permittee's 316(a) studies are sufficient to make a determination that a BIP is being maintained; however, the Permittee shall conduct another 316(a) study during the permit cycle. A 316(a) study plan shall be submitted to the Department for review within 365 days of the effective date of this permit and shall be revised as soon as practical based upon subsequent receipt of comments. After the study plan has been approved by the Department, the Permittee shall complete the study and submit the results to the Department within 365 days of the expiration date of this permit.

Whole Effluent Toxicity (Cooling Water Additives)
The discharge of biocides and corrosion inhibitors with non-process wastewaters (e.g. once through cooling water, etc.) can introduce the potential for toxicity in receiving waters. The facility is expected to verify that the use of these chemicals will not present potential toxic effects to representative organisms in the receiving waters and to ensure that the chemicals are used in a manner that is consistent with their labeling and standard industry practices.

Monitoring for Whole Effluent Toxicity is not proposed for Outfalls DSN001 and DSN002 based on the use of the chemicals specified in the permit application; however, the permittee should refer to Part I.D.5 of the permit for further requirements regarding Cooling Water and Boiler Water Additives.

DSN0042, DSN042T – Combined Ash Pond Dewatering and Plant Wastewater Discharge:

The proposed DSN0042 limitations shall apply during ash pond dewatering and decanting operations to the combined discharge of the wastewater management pond and the dewatering and decanting wastewaters. The Permittee shall perform all ash pond dewatering activities in accordance with an Ash Pond Dewatering Plan that has been approved by the Department. The plan shall be modified, if necessary, as soon as possible subsequent to the receipt of comments from the Department. The Permittee submitted an initial Ash Pond Dewatering Plan that was received on December 21, 2017. Revised Ash Pond Dewatering Plans were received on April 9, 2019 and July 10, 2019. As part of the dewatering plan, APC conducted sampling at various locations and depths within the ash pond. At each sampling location, samples were collected vertically from throughout the water column at one foot intervals from the surface to approximately one foot from the bottom of the ash pond and then composited into a single sample for analysis. The interstitial samples were collected at the water-ash interface at each interstitial sampling location. Prior to analysis, each sample was treated to simulate the proposed mechanical treatment system to be used during dewatering. A combined reasonable potential analysis of the dewatering waters and wastewater management pond waters was performed using available DMR data, data submitted with the permit application, data submitted with the Ash Pond Dewatering Plans, and instream background data collected by the Permittee, as requested by the Department. The reasonable potential analyses and sample calculations are attached. Based on the reasonable potential analyses, arsenic has shown a reasonable potential to exceed water quality criteria; therefore, water quality based limitations have been proposed. Following the Permittee's submission of notification of completion of dewatering activities, the Permittee may submit a request to the Water Division to discontinue all monitoring requirements applicable to Outfalls DSN0042 and DSN042T. (Permit Pages 2, 3, 4, & 5). Monitoring may be discontinued after the Permittee receives written confirmation from the Water Division that the aforementioned monitoring requirements are no longer applicable. At that time, the Outfall DSN0043 and DSN043T requirements will become applicable.

pH

ADEM Administrative Code, Division 6 Regulations, specifically 335-6-10-.09(2) – Specific Water Quality for Public Water Supply classified streams states: "Sewage, industrial waste or other wastes shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.0, nor greater than 8.5 standard units." Based on the volume of the receiving stream compared to the volume of the discharge, a pH limitation of 6.0 - 9.0 S.U. is not expected to impact the receiving stream. The proposed pH limitations are also consistent with the requirements of 40 CFR 423.12.

Total Suspended Solids (TSS)

The proposed DSN0042 TSS limitations were calculated using guideline and BPJ based factors:

			TSS Allocation in mg/l	
	DSN0042 (Dewatering)	Flow in MGD	Average	Maximum
DSN04A	Cooling Tower Blowdown	2.88	10	20
DSN04B	Sanitary	0.114	30	45
DSN04C	Chemical Metal Cleaning Wastes	0	30	100
DSN04D	Low Volume Wastes	2.16	30	100
DSN04E	Low Volume Wastes	3.24	30	100
DSN04F	FGD	0.72	30	100
DSN04G	Carbon Capture Rinsate	0.026	30	100
DSN04H	Coal Pile Runoff	3.44	25	50
DSN04I	Landfill Leachate		Post Ash Pond Closure	
DSN04J	RSCC System Overflow	0.05	30	100
	Ash Pond Dewatering	2.88	30	100
	SUM/CWF	15.5	25.2	73.7

Sample Calculation for Monthly Average TSS:

$$\frac{(2.88*10 + 0.114*30 + 0*30 + 2.16*30 + 3.24*30 + 0.72*30 + 0.026*30 + 3.44*25 + 0.05*30 + 2.88*30)}{15.5} = 25.2$$

DSN0042 Report Only Parameters
These monitoring requirements are proposed to evaluate the effectiveness of both the ash pond dewatering treatment system and the wastewater management pond.

Nutrients
An Organic Enrichment/Dissolved Oxygen and Nutrient TMDL has been developed for Lay Lake of the Coosa River. The TMDL specifies phosphorus limitations for Plant Gaston. The Department's Water Quality Branch has requested that total kjeldahl nitrogen and nitrate plus nitrite-nitrogen be monitored on a monthly basis during the growing season so that sufficient information will be available regarding the nutrient contribution from this point source.

Arsenic
Based on the reasonable potential analyses, arsenic has shown a reasonable potential to exceed water quality criteria; therefore, water quality based limitations have been proposed.

Oil & Grease
The monthly average and daily maximum limitations for Oil and Grease should prevent the occurrence of a visible sheen in the stream and have been shown to be achievable through the use of proper BMPs. The proposed oil and grease limitations are more stringent than the 40 CFR Parts 423.12 and 423.13 requirements.

Total Residual Chlorine (TRC)
The proposed limitations are based on EPA's recommended water quality criteria which considers the available dilution in the receiving stream and BPJ.

Chronic Toxicity Biomonitoring
The toxicity monitoring frequency is proposed as quarterly during ash pond dewatering and decanting operations. The proposed IWC is based on the instream waste concentration and has been rounded up for toxicity testing purposes.

$$\text{Instream Waste Concentration (IWC)} = \frac{Qw}{7Q10 + Qw}$$

DSN04 Internal Outfalls
The following internal outfall monitoring requirements are proposed to demonstrate compliance with effluent guideline limitations before comingling with other wastestreams. The internal outfalls will discharge into the wastewater management pond. The internal outfall monitoring requirements are not tied to dewatering activities and shall apply both during and after dewatering is completed in accordance with any applicable compliance schedules.

DSN04A
DSN04A is an internal outfall for compliance with cooling tower blowdown EGL. The limitations are based on 40 CFR Parts 423.12 and 423.13.

DSN04B
DSN04B is an internal outfall for the main sanitary wastewater treatment plant. Specific limitations for CBOD and TSS have been applied based on secondary treatment standards as required under ADEM Admin. Code r. 335-6-10-.08 in accordance with the 40 CFR 133.102 requirements. The maximum limitations have been proposed as a daily maximum value in lieu of a 7-day average based on the required sampling frequency.

DSN04C
DSN04C is an internal outfall for compliance with chemical metal cleaning wastes EGL. The limitations are based on 40 CFR Parts 423.12 and 423.13.

DSN04D, DSN04E
DSN04D and DSN04E are internal outfall designations for low volume wastes. The EGL specify limitations for TSS and Oil & Grease. Specific limitations have not been applied at the internal outfalls based on further treatment provided by the wastewater management pond. End of pipe limitations have been proposed at the final discharge. The proposed TSS limitations have been adjusted to account for

nonregulated wastestreams. The proposed Oil & Grease limitations are based on BPJ and are more stringent than the guideline allocation.

DSN04F
This is an internal outfall for compliance with FGD wastewater EGL. The proposed limitations are based on 40 CFR Parts 423.12 and 423.13.

DSN04G
Specific monitoring requirements for the post combustion carbon capture rinsate wastewater have not been proposed at this internal outfall because the effluent guidelines indicate that these waters are not considered low volume wastes and are not otherwise categorical in nature.

DSN04H
This is an internal outfall for coal pile runoff EGL. Specific limitations have not been applied at the internal outfall location based on further treatment provided by the wastewater management pond. End of pipe limitations have been proposed at the final discharge.

DSN04I
This is an internal outfall for landfill leachate from the ash pond closure area. Specific limitations have not been applied at the internal outfall location based on further treatment provided by the wastewater management pond. End of pipe limitations have been proposed at the final discharge.

DSN04J
This is an internal outfall for the remote submerged chain conveyor (RSCC) system overflow. Low volume, short duration discharges may be expected to occur from minor leaks and maintenance events. These discharges are considered low volume wastes according to the 2015 EGL. The 2015 EGL allow for bottom ash transport water to be utilized in the FGD scrubber. Specific limitations have not been applied at the internal outfall location based on further treatment provided by the wastewater management pond. End of pipe limitations have been proposed at the final discharge.

DSN0043 – Wastewater management pond discharge after dewatering is completed:
Following the Permittee's submission of notification of completion of dewatering activities, the Permittee may submit a request to the Water Division to discontinue all monitoring requirements applicable to Outfalls DSN0042 and DSN042T. (Permit Pages 2, 3, 4, & 5). Monitoring may be discontinued after the Permittee receives written confirmation from the Water Division that the aforementioned monitoring requirements are no longer applicable. At that time, the Outfall DSN0043 and DSN043T requirements will become applicable.

Total Suspended Solids (TSS)
The proposed DSN0043 TSS limitations were calculated using guideline and BPJ based factors:

			TSS Allocation in mg/l	
	DSN043 Post Ash Pond Closure	Flow in MGD	Average	Maximum
DSN04A	Cooling Tower Blowdown	1.2	10	20
DSN04B	Sanitary	0.114	30	45
DSN04C	Chemical Metal Cleaning Wastes	0	30	100
DSN04D	Low Volume Wastes	2.16	30	100
DSN04E	Low Volume Wastes	3.24	30	100
DSN04F	FGD	0.72	30	100
DSN04G	Carbon Capture Rinsate	0.026	30	100
DSN04H	Coal Pile Runoff	3.44	25	50
DSN04I	Landfill Leachate	0.72	30	100
DSN04J	RSCC System Overflow	0.05	30	100
	SUM/CWF	13.35	24.4	69.4

pH

ADEM Administrative Code, Division 6 Regulations, specifically 335-6-10-.09(2) – Specific Water Quality for Public Water Supply classified streams states: "Sewage, industrial waste or other wastes shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.0, nor greater than 8.5 standard units." Based on the volume of the receiving stream compared to the volume of the discharge, a pH limitation of 6.0 - 9.0 S.U. is not expected to impact the receiving stream. The pH limitations are also consistent with the requirements of 40 CFR 423.12.

Nutrients

An Organic Enrichment/Dissolved Oxygen and Nutrient TMDL has been developed for Lay Lake of the Coosa River. The TMDL specifies phosphorus limitations for Plant Gaston. The Department's Water Quality Branch has requested that total kjeldahl nitrogen, and nitrate plus nitrite-nitrogen be monitored on a monthly basis during the growing season so that sufficient information will be available regarding the nutrient contribution from this point source.

Arsenic

A reasonable potential analysis of the wastewater management pond discharge was performed using available DMR data, data submitted with the permit application, and instream background data collected by the Permittee, as requested by the Department. The reasonable potential analyses and sample calculations are attached. Based on the reasonable potential analyses, arsenic has shown a reasonable potential to exceed water quality criteria; therefore, water quality based limitations have been proposed.

Oil & Grease

The monthly average and daily maximum limitations for Oil & Grease should prevent the occurrence of a visible sheen in the stream and have been shown to be achievable through the use of proper BMPs. The proposed oil and grease limitations are more stringent than the 40 CFR Parts 423.12 and 423.13 requirements.

Total Residual Chlorine (TRC)

The proposed limitations are based on EPA's recommended water quality criteria which considers the available dilution in the receiving stream and BPJ.

DSN0043 Report Only Parameters

These monitoring requirements are proposed to evaluate the effectiveness of the wastewater management pond.

Chronic Toxicity Biomonitoring

The toxicity monitoring frequency is proposed as annually after completion of ash pond dewatering activities.

DSN013: Intake screen backwash bypass and stormwater runoff

Monitoring requirements have not been proposed for this outfall. There are no materials stored in this area which would be expected to contribute to stormwater discharges.

DSN019: Cooling tower blowdown, vehicle rinse waters, fire protection system waters, and stormwater runoff
DSN020: Vehicle rinse facility discharge and stormwater runoff

Discharges from Outfalls DSN019 and DSN020 consist of primarily stormwater runoff and vehicle rinse waters. No soaps or chemicals are used in the vehicle rinse facility. Vehicles are rinsed with river water. The Cooling Tower A Coldwater Basin has the ability to overflow to Outfall DSN019. The proposed DSN019S monitoring requirements shall be collected after discharges of cooling tower blowdown to demonstrate compliance with effluent guideline limitations. Monitoring for the DSN019S parameters is not required if cooing tower blowdown is not discharged during the monitoring period. Due to the infrequent nature of the cooling water discharge, only the acute chlorine criteria has been proposed. In accordance with a letter dated August 11, 1998 from EPA Headquarters and a 1991 memorandum from EPA Region 4's Environmental Services Division (ESD), due to testing and method detection limitations, a Total Residual Chlorine measurement below 0.05 mg/L shall be considered below detection for compliance purposes.

The DSN019Y monitoring requirements are proposed to be representative of stormwater and vehicle rinse water discharges from these outfalls. The daily maximum limit for Oil & Grease should prevent the occurrence of a visible sheen in the stream and has been shown to be achievable through the use of proper BMPs. Monitoring requirements have not been proposed for Outfall DSN020. Monitoring for Whole Effluent Toxicity is not proposed for Outfall DSN019 based on the use of the chemicals specified in the permit application; however, the permittee should refer to Part I.D.5 of the permit for further requirements regarding Cooling Water Additives.

DSN025: Units 1-5 intake screen backwash

Monitoring requirements have not been proposed for this outfall. There are no pollutants of concern expected to be added to the discharge from backwash operations.

DSN028S, DSN029S (Stormwater after Ash Pond Capping Closure)

The Permittee has indicated that two stormwater ponds will be created to control runoff from the capped ash pond footprint. Stormwater discharges from DSN028S and DSN029S are only expected to occur after completion of dewatering activities. During dewatering, the stormwater is expected to be treated through the dewatering treatment system and discharged through Outfall DSN0042.

Best Management Practices

Best Management Practices (BMPs) are believed to be the most effective way to control the contamination of stormwater from areas of industrial activities. This facility is required to maintain a BMP plan. The requirements of the BMP plan call for minimization of stormwater contact with waste materials, products and by-products, and for prevention of spills or loss of fluids from equipment maintenance activities. The effectiveness of the BMPs will be measured through the monitoring of the pollutants of concern.

Total Maximum Daily Load (TMDL)

An Organic Enrichment/Dissolved Oxygen (OE/DO) and Nutrient TMDL has been developed for Lay Lake of the Coosa River. The TMDL specifies specific phosphorus limitations for Plant Gaston. The TMDL indicates that reduction of phosphorus loads is expected to be sufficient to result in the attainment of the applicable DO criterion; therefore, specific OE/DO TMDL requirements have not been proposed.

303(d) List of Impaired Waters

The Coosa River and Yellowleaf Creek are listed on the 303(d) List of Impaired Waters for PCBs. In accordance with 40 CFR Part 423, there shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid. The Department believes that monitoring for PCBs is not necessary to determine compliance with the PCB prohibition since the expected source of PCBs in the discharge would be due to leaks or spills which are addressed by the BMP and SPCC permit conditions.

Fire Protection System Waters

The Permittee has indicated that firefighting waters have the potential to be discharged through each outfall. The source water is river water which has been filtered and chlorinated. The discharge of firefighting waters is not expected to occur on a frequent basis. Chlorine limitations have not been proposed based on the overland flow of the discharge before reaching the receiving streams and the infrequent nature of discharge. The fire protection system is tested periodically in accordance with Federal and State regulations.

Emergency Overflow Outfalls

Outfalls DSN011, DSN027, and DSN030 were listed in the permit renewal application as emergency overflow discharge points. The Permittee indicated that wastewater will not discharge through the emergency points under normal operating conditions. Based on the unexpected use of the outfalls except under upset conditions, Outfalls DSN011, DSN027, and DSN030 have not been included in the proposed draft permit.

Ash Pond Seep Identification and Corrective Action

The Permittee shall develop and implement an Ash Pond Seep Identification and Corrective Action Plan within 90 days from the effective date of the Permit. When requested by the Director or his designee, the Permittee shall make the plan available for Department review. The plan shall provide for weekly inspections. If a seep is identified during an inspection, the Permittee must provide corrective action as soon as feasible. A log of the inspections shall be maintained at the facility and shall be available for inspection by representatives of the Department. The log shall

contain records of all inspections performed for the last three years and each entry shall be signed by the person performing the inspection. The Permittee shall submit an annual report by January 28th of each year detailing any identified seeps and corrective actions taken during the previous calendar year. The first report is due January 28, 2021 for calendar year 2020.

Effluent Guideline Limitations (EGL) Compliance Dates

Through an EGL compliance date justification received on November 2, 2018, the Permittee has requested and provided support for deadlines to attain compliance with the best available technology economically achievable (BAT) effluent limitations for fly ash transport water, bottom ash transport water, and flue gas desulphurization (FGD) wastewater. The Permittee indicated that compliance with the fly ash transport water EGL has been attained. The Permittee provided justification that the most reasonable deadline for compliance with the FGD wastewater and bottom ash transport water EGL is December 31, 2023.

The following schedule for EGL compliance has been proposed:

- There shall be no discharge of pollutants in fly ash transport water generated at the facility on and/or after the effective date of this permit.

- Beginning as soon as possible but no later than December 31, 2023, the Permittee shall demonstrate compliance with the FGD ELGs through the monitoring requirements proposed for internal Outfall DSN04F1 for FGD wastewater generated at the facility on and/or after that date.

- Beginning as soon as possible but no later than December 31, 2023, there shall be no discharge of pollutants in bottom ash transport water generated at the facility on and/or after that date, subject to the following exceptions:

    - Low volume, short duration discharges of wastewater from minor leaks (e.g., leaks from valve packing, pipe flanges, or piping) or minor maintenance events (e.g., replacement of valves or pipe sections) are specifically excluded from the definition of "transport water" and may continue to be discharged through Outfalls DSN0042 or DSN0043 subject to the effluent limitations applicable to such discharges through those respective Outfalls.

    - Bottom ash transport water may be utilized in the FGD scrubber system and discharged through Outfalls DSN0042, DSN0043 and/or DSN04F1 (as applicable) subject to the effluent limitations applicable to such discharges through those respective Outfalls.

EPA is proposing a regulation to revise the technology-based effluent limitations guidelines and standards for the steam electric power generating point source category applicable to FGD wastewater and bottom ash transport water. The Department may reopen the permit to incorporate the requirements of a promulgated final rule.

Cooling Water Intake Structure (CWIS) Requirements

Section 316(b) of the Clean Water Act requires that facilities minimize adverse environmental impacts resulting from the operation of cooling water intake structures (CWIS) by using the "Best Technology Available" (BTA). All of those facilities including those not specifically addressed by the rules, must be evaluated for 316(b) compliance. For those facilities not addressed in Phase I, II, or III rules, a BTA determination must be made using "Best Professional Judgment" (BPJ) under the authority of 40 CFR §§ 125 Subpart J and 401.14.

The Department has made a determination that the CWIS is subject to the 316(b) Phase II requirements. The CWIS withdraws water through 10 bays, 8 of which are each equipped with woven wire mesh vertical traveling screens with 3/8-inch square openings. The other 2 bays are currently not in operation. The average water surface elevation is 396.5 feet above mean sea level. The CWIS has a maximum intake capacity of 867 MGD which is approximately 12% of the annual average flow of the Coosa River. The three year monthly average intake flowrate is 412 MGD.

Facilities that are subject to the 316(b) Phase II requirements must submit the information described in 40 CFR 122.21(r)(2) through (r)(8) in order for the Department to make a BTA determination. In addition, facilities that

have a design intake flowrate of greater than 125 MGD must also submit specific information detailed in 40 CFR 122.21(r)(9) through (r)(13).

The Permittee has indicated that it could not reasonably develop the required information by the compliance date and consequently has requested an alternate submission schedule in accordance with 40 CFR § 125.95. The Department has established an alternate schedule for submission of the information specified in sections 122.21(r)(2) through 122.21(r)(13) in Part IV of the proposed permit. At this time, the Department has made an interim BTA determination that the cooling water intake structure represents the best technology available to minimize adverse environmental impact in accordance with Section 316(b) of the Federal Clean Water Act (33 U.S.C. section 1326).

The Permittee is required to operate and maintain the CWIS in a manner that minimizes impingement and entrainment levels. Documentation detailing the steps that have and are being taken to minimize the impingement and entrainment levels shall be maintained on-site and made available upon request during inspections.

1. The cooling water intake structure used by the permittee has been evaluated using available information. At this time, the Department has determined that the cooling water intake structure represents the interim best technology available (40 CFR 125.98(b)(6)) to minimize adverse environmental impact in accordance with Section 316(b) of the Federal Clean Water Act (33 U.S.C. section 1326).

2. The permittee is required to operate and maintain the CWIS in a manner that minimizes impingement and entrainment levels. Documentation detailing the steps that have and are being taken to minimize the impingement and entrainment levels shall be maintained on site and made available upon request.

3. Nothing in this permit authorizes take for the purposes of a facility's compliance with the "Endangered Species Act."

4. The permittee shall submit the information for the CWIS as required by 40 CFR 122.21(r) by December 31, 2023.

5. The Permittee must keep records of all submissions that are part of the permit application pertaining to the CWIS until the subsequent permit is issued to the Permittee.

6. The Permittee's permit application must contain readily available information, at the time of permit application development, in identifying all Federally-listed threatened and endangered species and/or designated critical habitat that are or may be present in the action area.

7. The Permittee must conduct weekly visual inspections or employ remote monitoring devices during the period the cooling water intake structure is in operation. This condition is only applicable if control technologies are being employed to comply with final BTA for impingement mortality.

8. The Permittee is required to submit an Annual Certification to the Department no later than January 28th of each year. The Annual Certification shall detail if any changes have been made to impact the operation of the CWIS structure.

Facility Name: **Plant Gaston Combined Dewatering and Wastewater Management Pond**

NPDES No.: **AL0003140**

$$Q_d*C_d + Q_{d2}*C_{d2} + Q_s*C_s = Q_r*C_r$$

ID	Pollutant	Carcinogen "yes"	Type	Background from upstream source (C_{d2}) Daily Max	Background from upstream source (C_{d2}) Monthly Ave	Background Instream (C_s) Daily Max	Background Instream (C_s) Monthly Ave	Enter Max Daily Discharge as reported by Applicant (C_d) Max	Enter Avg Daily Discharge as reported by Applicant (C_d) Ave	Partition Coefficient (Stream / Lake)
				µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	
1	Antimony		Metals	0	0	0.16	0.028	0.139	0.079	-
2	Arsenic*,**	YES	Metals	0	0	0.2	0.074	42.173	6.745	0.574
3	Beryllium		Metals	0	0	0	0	0	0	-
4	Cadmium**		Metals	0	0	0	0	0.049	0.031	0.236
5	Chromium / Chromium III**		Metals	0	0	0.27	[illegible]	4.84	4.75	0.210
6	Chromium / Chromium VI**		Metals	0	0	0	0	0	0	
7	Copper**		Metals	0	0	1.24	0.819	4.703	4.612	0.388
8	Lead**		Metals	0	0	0	0	0	0	0.206
9	Mercury**		Metals	0	0	0	0	0	0	0.302
10	Nickel**		Metals	0	0	0	0	3.36	2.92	0.505
11	Selenium		Metals	0	0	0.3	0.084	2.84	2.65	-
12	Silver		Metals	0	0	0	0	0	0	-
13	Thallium		Metals	0	0	0	0	0.18	0.18	-
14	Zinc**		Metals	0	0	5.25	1.451	3.99	2.94	0.330
15	Cyanide		Metals	0	0	0	0	0	0	-
16	Total Phenolic Compounds		Metals	0	0	0	0	0	0	-
17	Hardness (As CaCO3)		Metals	0	0	71.6	54.782	0	0	-
18	Acrolein		VOC	0	0	0	0	0	0	-
19	Acrylonitrile*	YES	VOC	0	0	0	0	0	0	-
20	Aldrin	YES	VOC	0	0	0	0	0	0	-
21	Benzene*	YES	VOC	0	0	0	0	0	0	-
22	Bromoform*	YES	VOC	0	0	0	0	0	0	-
23	Carbon Tetrachloride*	YES	VOC	0	0	0	0	0	0	-
24	Chlordane	YES	VOC	0	0	0	0	0	0	-
25	Clorobenzene		VOC	0	0	0	0	0	0	-
26	Chlorodibromo-Methane*	YES	VOC	0	0	0	0	0	0	-
27	Chloroethane		VOC	0	0	0	0	0	0	-
28	2-Chloro-Ethylvinyl Ether		VOC	0	0	0	0	0	0	-
29	ChloroForm*	YES	VOC	0	0	0	0	0	0	-
30	4,4'-DDD	YES	VOC	0	0	0	0	0	0	-
31	4,4'-DDE	YES	VOC	0	0	0	0	0	0	-
32	4.4'-DDT	YES	VOC	0	0	0	0	0	0	-
33	Dichlorobromo-Methane*	YES	VOC	0	0	0	0	0	0	-
34	1, 1-Dichloroethane		VOC	0	0	0	0	0	0	-
35	1, 2-Dichloroethane*	YES	VOC	0	0	0	0	0	0	-
36	Trans-1, 2-Dichloro-Ethylene		VOC	0	0	0	0	0	0	-
37	1, 1-Dichloroethylene*	YES	VOC	0	0	0	0	0	0	-
38	1, 2-Dichloropropane		VOC	0	0	0	0	0	0	-
39	1, 3-Dichloro-Propylene		VOC	0	0	0	0	0	0	-
40	Dieldrin	YES	VOC	0	0	0	0	0	0	-
41	Ethylbenzene		VOC	0	0	0	0	0	0	-
42	Methyl Bromide		VOC	0	0	0	0	0	0	-
43	Methyl Chloride		VOC	0	0	0	0	0	0	-
44	Methylene Chloride*	YES	VOC	0	0	0	0	0	0	-
45	1, 1, 2, 2-Tetrachloro-Ethane*	YES	VOC	0	0	0	0	0	0	-
46	Tetrachloro-Ethylene*	YES	VOC	0	0	0	0	0	0	-
47	Toluene		VOC	0	0	0	0	0	0	-
48	Toxaphene	YES	VOC	0	0	0	0	0	0	-
49	Tributyltine (TBT)	YES	VOC	0	0	0	0	0	0	-
50	1, 1, 1-Trichloroethane		VOC	0	0	0	0	0	0	-
51	1, 1, 2-Trichloroethane*	YES	VOC	0	0	0	0	0	0	-
52	Trichlorethylene*	YES	VOC	0	0	0	0	0	0	-
53	Vinyl Chloride*	YES	VOC	0	0	0	0	0	0	-
54	P-Chloro-M-Cresol		Acids	0	0	0	0	0	0	-
55	2-Chlorophenol		Acids	0	0	0	0	0	0	-
56	2, 4-Dichlorophenol		Acids	0	0	0	0	0	0	-
57	2, 4-Dimethylphenol		Acids	0	0	0	0	0	0	-
58	4, 6-Dinitro-O-Cresol		Acids	0	0	0	0	0	0	-
59	2, 4-Dinitrophenol		Acids	0	0	0	0	0	0	-
60	4,6-Dintro-2-methylophenol	YES	Acids	0	0	0	0	0	0	-
61	Dioxin (2,3,7,8-TCDD)	YES	Acids	0	0	0	0	0	0	-
62	2-Nitrophenol		Acids	0	0	0	0	0	0	-
63	4-Nitrophenol		Acids	0	0	0	0	0	0	-
64	Pentachlorophenol*	YES	Acids	0	0	0	0	0	0	-
65	Phenol		Acids	0	0	0	0	0	0	-
66	2, 4, 6-Trichlorophenol*	YES	Acids	0	0	0	0	0	0	-
67	Acenaphthene		Bases	0	0	0	0	0	0	-
68	Acenaphthylene		Bases	0	0	0	0	0	0	-
69	Anthracene		Bases	0	0	0	0	0	0	-
70	Benzidine		Bases	0	0	0	0	0	0	-
71	Benzo(A)Anthracene*	YES	Bases	0	0	0	0	0	0	-
72	Benzo(A)Pyrene*	YES	Bases	0	0	0	0	0	0	-
73	3, 4 Benzo-Fluoranthene		Bases	0	0	0	0	0	0	-
74	Benzo(GHI)Perylene		Bases	0	0	0	0	0	0	-
75	Benzo(K)Fluoranthene		Bases	0	0	0	0	0	0	-
76	Bis (2-Chloroethoxy) Methane		Bases	0	0	0	0	0	0	-
77	Bis (2-Chloroethyl)-Ether*	YES	Bases	0	0	0	0	0	0	-
78	Bis (2-Chloroiso-Propyl) Ether		Bases	0	0	0	0	0	0	-
79	Bis (2-Ethylhexyl) Phthalate*	YES	Bases	0	0	0	0	0	0	-
80	4-Bromophenyl Phenyl Ether		Bases	0	0	0	0	0	0	-
81	Butyl Benzyl Phthalate		Bases	0	0	0	0	0	0	-
82	2-Chloronaphthalene		Bases	0	0	0	0	0	0	-
83	4-Chlorophenyl Phenyl Ether		Bases	0	0	0	0	0	0	-
84	Chrysene*	YES	Bases	0	0	0	0	0	0	-
85	Di-N-Butyl Phthalate		Bases	0	0	0	0	0	0	-
86	Di-N-Octyl Phthalate		Bases	0	0	0	0	0	0	-
87	Dibenzo(A,H)Anthracene*	YES	Bases	0	0	0	0	0	0	-
88	1, 2-Dichlorobenzene		Bases	0	0	0	0	0	0	-
89	1, 3-Dichlorobenzene		Bases	0	0	0	0	0	0	-
90	1, 4-Dichlorobenzene		Bases	0	0	0	0	0	0	-
91	3, 3-Dichlorobenzidine*	YES	Bases	0	0	0	0	0	0	-
92	Diethyl Phthalate		Bases	0	0	0	0	0	0	-
93	Dimethyl Phthalate		Bases	0	0	0	0	0	0	-
94	2, 4-Dinitrotoluene*	YES	Bases	0	0	0	0	0	0	-
95	2, 6-Dinitrotoluene		Bases	0	0	0	0	0	0	-
96	1,2-Diphenylhydrazine		Bases	0	0	0	0	0	0	-
97	Endosulfan (alpha)	YES	Bases	0	0	0	0	0	0	-
98	Endosulfan (beta)	YES	Bases	0	0	0	0	0	0	-
99	Endosulfan sulfate	YES	Bases	0	0	0	0	0	0	-
100	Endrin	YES	Bases	0	0	0	0	0	0	-
101	Endrin Aldeyhide	YES	Bases	0	0	0	0	0	0	-
102	Fluoranthene		Bases	0	0	0	0	0	0	-
103	Fluorene		Bases	0	0	0	0	0	0	-
104	Heptochlor	YES	Bases	0	0	0	0	0	0	-
105	Heptachlor Epoxide	YES	Bases	0	0	0	0	0	0	-
106	Hexachlorobenzene*	YES	Bases	0	0	0	0	0	0	-
107	Hexachlorobutadiene*	YES	Bases	0	0	0	0	0	0	-
108	Hexachlorocyclohexan (alpa)	YES	Bases	0	0	0	0	0	0	-
109	Hexachlorocyclohexan (beta)	YES	Bases	0	0	0	0	0	0	-
110	Hexachlorocyclohexan (gamma)	YES	Bases	0	0	0	0	0	0	-
111	HexachlorocycloPentadiene		Bases	0	0	0	0	0	0	-
112	Hexachloroethane		Bases	0	0	0	0	0	0	-
113	Indeno(1, 2, 3-CK)Pyrene*	YES	Bases	0	0	0	0	0	0	-
114	Isophorone		Bases	0	0	0	0	0	0	-
115	Naphthalene		Bases	0	0	0	0	0	0	-
116	Nitrobenzene		Bases	0	0	0	0	0	0	-
117	N-Nitrosodi-N-Propylamine*	YES	Bases	0	0	0	0	0	0	-
118	N-Nitrosodi-N-Methylamine*	YES	Bases	0	0	0	0	0	0	-
119	N-Nitrosodi-N-Phenylamine*	YES	Bases	0	0	0	0	0	0	-
120	PCB-1016	YES	Bases	0	0	0	0	0	0	-
121	PCB-1221	YES	Bases	0	0	0	0	0	0	-
122	PCB-1232	YES	Bases	0	0	0	0	0	0	-
123	PCB-1242	YES	Bases	0	0	0	0	0	0	-
124	PCB-1248	YES	Bases	0	0	0	0	0	0	-
125	PCB-1254	YES	Bases	0	0	0	0	0	0	-
126	PCB-1260	YES	Bases	0	0	0	0	0	0	-
127	Phenanthrene		Bases	0	0	0	0	0	0	-
128	Pyrene		Bases	0	0	0	0	0	0	-
129	1, 2, 4-Trichlorobenzene		Bases	0	0	0	0	0	0	-

15.8	Enter Q_d = wastewater discharge flow from facility (MGD)
24.4462182	Q_d = wastewater discharge flow (cfs) (this value is caluclated from the MGD)
0	Enter flow from upstream discharge Qd2 = background stream flow in MGD above point of discharge
0	Qd2 = background stream flow from upstream source (cfs)
1524	Enter 7Q10, Q_s = background stream flow in cfs above point of discharge
1421	Enter or estimated, 1Q10, Q_s = background stream flow in cfs above point of discharge (1Q10 estimated at 75% of 7Q10)
10877	Enter Mean Annual Flow, Q_s = background stream flow in cfs above point of discharge
2035	Enter 7Q2, Q_s = background stream flow in cfs above point of discharge (For LWF class streams)
Enter to Left	Enter C_s = background in-stream pollutant concentration in µg/l (assuming this is zero "0" unless there is data)
Q_d +Qd2+Q_s	Q_r = resultant in-stream flow, after discharge
Calculated on other	C_r = resultant in-stream pollutant concentration in µg/l in the stream (after complete mixing occurs)
54.78	Enter, Background Hardness above point of discharge (assumed 50 South of Birmingham and 100 North of Birmingham)
7.00 s.u.	Enter, Background pH above point of discharge
yes	Enter, Is discharge to a stream? "YES" Other option would be to a Lake. (This changes the partition coefficients for the metals)

** Using Partition Coefficients

December 5, 2019

Facility Name: Plant Gaston Combined Dewatering and Wastewater Management Pond

NPDES No.: AL0003140

Freshwater PWS classification.					Freshwater Acute (µg/l) Q_s =1Q10					Freshwater Chronic (µg/l) Q_s = 7Q10				Human Health Consumption Fish & Water (µg/l) Carcinogen Q_s = Annual Average Non-Carcinogen Q_s = 7Q10				Human Health Consumption Fish only (µg/l) Carcinogen Q_s = Annual Average Non-Carcinogen Q_s = 7Q10			
ID	Pollutant	RP?	Carcinogen yes	Background from upstream source (Cd2) Daily Max	Max Daily Discharge as reported by Applicant (C_{max})	Water Quality Criteria (C_d)	Draft Permit Limit (C_{daily})	20% of Draft Permit Limit	RP?	Background from upstream source (Cd2) Monthly Ave	Avg Daily Discharge as reported by Applicant (C_{daily})	Water Quality Criteria (C_d)	Draft Permit Limit (C_{daily})	20% of Draft Permit Limit	RP?	Water Quality Criteria (C_d)	Draft Permit Limit (C_d)	20% of Draft Permit Limit	RP?	Water Quality Criteria (C_d)	Draft Permit Limit (C_d)	20% of Draft Permit Limit	RP?
1	Antimony			0	0.138559194	-	-	-	-	0	0.079254406	-	-	-	-	5.52E+00	3.48E+02	6.95E+01	No	3.73E+02	2.36E+04	4.73E+03	No
2	Arsenic	YES	YES	0	42.173	592.334	35011.692	7002.338344	No	0	8.745	261.324	16547.888	3309.577503	No	0.120	20.750	4.150	Yes	0.303	102.154	20.431	No
3	Beryllium			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
4	Cadmium			0	0.048785894	4.751	280.940	56.18790827	No	0	0.031193955	0.686	43.444	8.688719883	No	-	-	-	-	-	-	-	-
5	Chromium/ Chromium III			0	4.836624685	1657.380	97981.193	19596.23857	No	0	4.745944584	215.591	13654.748	2730.949589	No	-	-	-	-	-	-	-	-
6	Chromium/ Chromium VI			0	0	16.000	946.042	189.2083209	No	0	0	11.000	696.750	139.350048	No	-	-	-	-	-	-	-	-
7	Copper			0	4.703073048	19.647	1089.575	217.9148409	No	0	4.612392947	13.802	823.142	164.6284142	No	1.30E+03	8.23E+04	1.65E+04	No	-	-	-	-
8	Lead			0	0	181.878	9571.477	1914.295428	No	0	0	8.308	389.565	79.91302246	No	-	-	-	-	-	-	-	-
9	Mercury			0	0	2.400	141.906	28.38124614	No	0	0	0.012	0.760	0.152018234	No	4.19E-02	2.66E+00	5.31E-01	No	4.24E-02	2.69E+00	5.37E-01	No
10	Nickel			0	3.355163728	557.267	32949.854	6589.970728	No	0	2.919899244	61.895	3920.496	784.0992385	No	4.11E+02	2.60E+04	5.20E+03	No	9.93E+02	6.29E+04	1.26E+04	No
11	Selenium			0	2.837858942	20.000	1165.114	233.0227451	No	0	2.654322418	5.000	311.497	62.29947068	No	1.63E+02	1.03E+04	2.07E+03	No	2.43E+03	1.54E+05	3.08E+04	No
12	Silver			0	0	1.143	67.557	13.51140498	No	0	0	-	-	-	-	-	-	-	-	-	-	-	-
13	Thallium			0	0.183173804	-	-	-	-	0	0.177188917	-	-	-	-	1.74E-01	1.10E+01	2.20E+00	No	2.74E-01	1.73E+01	3.47E+00	No
14	Zinc			0	3.989924433	213.251	12303.862	2460.772378	No	0	2.938035264	214.696	13527.590	2705.517926	No	6.16E+03	3.90E+05	7.80E+04	No	1.49E+04	9.43E+05	1.89E+05	No
15	Cyanide			0	0	22.000	1300.807	260.1614413	No	0	0	5.200	329.373	65.87456615	No	1.38E+02	8.74E+03	1.75E+03	No	9.33E+03	5.91E+05	1.18E+05	No
16	Total Phenolic Compounds			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
17	Hardness (As CaCO3)			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
18	Acrolein			0	0	-	-	-	-	0	0	-	-	-	-	4.14E+00	2.62E+02	5.25E+01	No	5.43E+00	3.44E+02	6.87E+01	No
19	Acrylonitrile		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.47E-02	1.99E+01	3.99E+00	No	1.44E-01	6.42E+01	1.28E+01	No
20	Aldrin		YES	0	0	3.000	177.383	35.47656017	No	0	0	-	-	-	-	2.90E-05	1.29E-02	2.58E-03	No	2.94E-05	1.31E-02	2.62E-03	No
21	Benzene		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.12E+00	4.99E+02	9.99E+01	No	1.55E+01	6.90E+03	1.38E+03	No
22	Bromoform		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.19E+00	1.87E+03	3.74E+02	No	7.88E+01	3.51E+04	7.02E+03	No
23	Carbon Tetrachloride		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.10E-01	9.37E+01	1.87E+01	No	9.57E-01	4.27E+02	8.54E+01	No
24	Chlordane		YES	0	0	2.400	141.906	28.38124614	No	0	0	0.0043	0.272	0.054473201	No	4.71E-04	2.10E-01	4.20E-02	No	4.73E-04	2.11E-01	4.22E-02	No
25	Clorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	1.21E+02	7.68E+03	1.54E+03	No	9.08E+02	5.74E+04	1.15E+04	No
26	Chlorodibromo-Methane		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.94E-01	1.76E+02	3.52E+01	No	7.41E+00	3.30E+03	6.61E+02	No
27	Chloroethane			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
28	2-Chloro-Ethylvinyl Ether			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
29	ChloroForm		YES	0	0	-	-	-	-	0	0	-	-	-	-	5.43E+00	2.42E+03	4.84E+02	No	1.02E+02	4.55E+04	9.10E+03	No
30	4,4' - DDD		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.81E-04	8.08E-02	1.62E-02	No	1.81E-04	8.09E-02	1.62E-02	No
31	4,4' - DDE		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.28E-04	5.70E-02	1.14E-02	No	1.28E-04	5.71E-02	1.14E-02	No
32	4,4' - DDT		YES	0	0	1.100	65.040	13.00807206	No	0	0	0.001	0.063	0.012668186	No	1.28E-04	5.70E-02	1.14E-02	No	1.28E-04	5.71E-02	1.14E-02	No
33	Dichlorobromo-Methane		YES	0	0	-	-	-	-	0	0	-	-	-	-	5.34E-01	2.38E+02	4.77E+01	No	1.00E+01	4.46E+03	8.95E+02	No
34	1, 1-Dichloroethane			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
35	1, 2-Dichloroethane		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.78E-01	1.68E+02	3.37E+01	No	2.14E+01	9.53E+03	1.91E+03	No
36	Trans-1, 2-Dichloro-Ethylene			0	0	-	-	-	-	0	0	-	-	-	-	1.37E+01	8.66E+02	1.73E+02	No	5.91E+03	3.74E+05	7.48E+04	No
37	1, 1-Dichloroethylene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.23E+02	1.44E+05	2.88E+04	No	4.17E+03	1.86E+05	3.72E+05	No
38	1, 2-Dichloropropane			0	0	-	-	-	-	0	0	-	-	-	-	4.92E-01	3.12E+01	6.23E+00	No	8.49E+00	5.36E+02	1.08E+02	No
39	1, 3-Dichloro-Propylene			0	0	-	-	-	-	0	0	-	-	-	-	3.40E-01	2.18E+01	4.31E+00	No	1.23E+01	7.78E+02	1.58E+02	No
40	Dieldrin		YES	0	0	0.240	14.191	2.838124614	No	0	0	0.056	3.547	0.709418426	No	3.08E-05	1.37E-02	2.75E-03	No	3.12E-05	1.39E-02	2.79E-03	No
41	Ethylbenzene			0	0	-	-	-	-	0	0	-	-	-	-	4.48E+02	2.84E+04	5.68E+03	No	1.24E+03	7.88E+04	1.58E+04	No
42	Methyl Bromide			0	0	-	-	-	-	0	0	-	-	-	-	4.64E+01	2.94E+03	5.88E+02	No	8.71E+02	5.52E+04	1.10E+04	No
43	Methyl Chloride			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
44	Methylene Chloride		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.60E+00	2.05E+03	4.11E+02	No	3.46E+02	1.54E+05	3.08E+04	No
45	1, 1, 2, 2-Tetrachloro-Ethane		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.63E-01	7.26E+01	1.45E+01	No	2.33E+00	1.04E+03	2.08E+02	No
46	Tetrachloro-Ethylene		YES	0	0	-	-	-	-	0	0	-	-	-	-	6.03E-01	2.69E+02	5.38E+01	No	1.92E+00	8.55E+02	1.71E+02	No
47	Toluene			0	0	-	-	-	-	0	0	-	-	-	-	1.21E+03	7.84E+04	1.53E+04	No	8.72E+03	5.53E+05	1.11E+05	No
48	Toxaphene		YES	0	0	0.730	43.163	8.632629642	No	0	0	0.0002	0.013	0.002533637	No	1.61E-04	7.16E-02	1.44E-02	No	1.62E-04	7.22E-02	1.44E-02	No
49	Tributyltin (TBT)		YES	0	0	0.460	27.199	5.439739228	No	0	0	0.072	4.581	0.912109405	No	-	-	-	-	-	-	-	-
50	1, 1, 1-Trichloroethane			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
51	1, 1, 2-Trichloroethane		YES	0	0	-	-	-	-	0	0	-	-	-	-	5.75E-01	2.57E+02	5.13E+01	No	9.10E+00	4.06E+03	8.11E+02	No
52	Trichloroethylene		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.40E+00	1.07E+03	2.14E+02	No	1.75E+01	7.79E+03	1.56E+03	No
53	Vinyl Chloride		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.46E-02	1.10E+01	2.19E+00	No	1.42E+00	6.35E+02	1.27E+02	No
54	P-Chloro-M-Cresol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
55	2-Chlorophenol			0	0	-	-	-	-	0	0	-	-	-	-	5.81E+01	3.68E+03	7.37E+02	No	8.71E+01	5.51E+03	1.10E+03	No
56	2, 4-Dichlorophenol			0	0	-	-	-	-	0	0	-	-	-	-	8.52E+01	4.13E+03	8.26E+02	No	1.72E+02	1.09E+04	2.18E+03	No
57	2, 4-Dimethylphenol			0	0	-	-	-	-	0	0	-	-	-	-	2.91E+02	1.84E+04	3.68E+03	No	4.86E+02	3.15E+04	6.30E+03	No
58	4, 6-Dinitro-O-Cresol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
59	2, 4-Dinitrophenol			0	0	-	-	-	-	0	0	-	-	-	-	6.85E+01	4.34E+03	8.67E+02	No	3.11E+03	1.97E+05	3.94E+04	No
60	4,6-Dinitro-2-methylphanol		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.26E+01	5.82E+03	1.12E+03	No	1.65E+02	7.38E+04	1.48E+04	No
61	Dioxin (2,3,7,8-TCDD)		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.63E-08	1.17E-05	2.35E-06	No	2.67E-08	1.19E-05	2.38E-06	No
62	2-Nitrophenol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
63	4-Nitrophenol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
64	Pentachlorophenol		YES	0	0	8.723	515.789	103.157808	No	0	0	6.693	423.914	84.78289812	No	2.50E-01	1.12E+02	2.23E+01	No	1.77E+00	7.88E+02	1.58E+02	No
65	Phenol			0	0	-	-	-	-	0	0	-	-	-	-	1.03E+04	6.51E+05	1.30E+05	No	5.00E+05	3.17E+07	6.33E+06	No
66	2, 4, 6-Trichlorophenol		YES	0	0	-	-	-	-	0	0	-	-	-	-	9.79E-01	4.37E+02	8.73E+01	No	1.41E+00	6.31E+02	1.26E+02	No
67	Acenaphthene			0	0	-	-	-	-	0	0	-	-	-	-	4.54E+02	2.87E+04	5.75E+03	No	5.79E+02	3.66E+04	7.33E+03	No
68	Acenaphthylene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
69	Anthracene			0	0	-	-	-	-	0	0	-	-	-	-	7.24E+03	4.59E+05	9.17E+04	No	2.33E+04	1.48E+06	2.98E+05	No
70	Benzidine			0	0	-	-	-	-	0	0	-	-	-	-	6.58E-05	4.17E-03	8.34E-04	No	1.18E-04	7.34E-03	1.47E-03	No
71	Benzo(A)Anthracene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	1.47E+00	2.95E-01	No	1.07E-02	4.75E+00	9.50E-01	No
72	Benzo(A)Pyrene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	1.47E+00	2.95E-01	No	1.07E-02	4.75E+00	9.50E-01	No
73	Benzo(b)fluoranthene			0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	2.09E-01	4.19E-02	No	1.07E-02	6.75E-01	1.35E-01	No
74	Benzo(GHI)Perylene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
75	Benzo(K)Fluoranthene			0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	2.09E-01	4.19E-02	No	1.07E-02	6.75E-01	1.35E-01	No
76	Bis (2-Chloroethoxy) Methane			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
77	Bis (2-Chloroethyl)-Ether		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.88E-02	1.29E+01	2.57E+00	No	3.07E-01	1.37E+02	2.74E+01	No
78	Bis (2-Chloriso-Propyl) Ether			0	0	-	-	-	-	0	0	-	-	-	-	1.35E+03	8.55E+04	1.71E+04	No	3.78E+04	2.39E+06	4.79E+05	No
79	Bis (2-Ethylhexyl) Phthalate		YES	0	0	-	-	-	-	0	0	-	-	-	-	8.47E-01	3.78E+02	7.56E+01	No	1.28E+00	5.72E+02	1.14E+02	No
80	4-Bromophenyl Phenyl Ether			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
81	Butyl Benzyl Phthalate			0	0	-	-	-	-	0	0	-	-	-	-	9.71E+02	6.15E+04	1.23E+04	No	1.13E+03	7.14E+04	1.43E+04	No
82	2-Chloronaphthalene			0	0	-	-	-	-	0	0	-	-	-	-	6.95E+02	4.40E+04	8.80E+03	No	9.24E+02	5.85E+04	1.17E+04	No
83	4-Chlorophenyl Phenyl Ether			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
84	Chrysene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	1.47E+00	2.95E-01	No	1.07E-02	4.75E+00	9.50E-01	No
85	Di-N-Butyl Phthalate			0	0	-	-	-	-	0	0	-	-	-	-	1.50E+03	9.49E+04	1.90E+04	No	2.62E+03	1.66E+05	3.32E+04	No
86	Di-N-Octyl Phthalate			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
87	Dibenzo(A,H)Anthracene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	1.47E+00	2.95E-01	No	1.07E-02	4.75E+00	9.50E-01	No
88	1, 2-Dichlorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	3.44E+02	2.18E+04	4.35E+03	No	7.55E+02	4.78E+04	9.57E+03	No
89	1, 3-Dichlorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	2.56E+02	1.62E+04	3.24E+03	No	5.62E+02	3.56E+04	7.12E+03	No
90	1, 4-Dichlorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	5.11E+01	3.24E+03	6.48E+02	No	1.12E+02	7.12E+03	1.42E+03	No
91	3, 3-Dichlorobenzidine		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.37E-02	6.11E+00	1.22E+00	No	1.88E-02	7.41E+00	1.48E+00	No
92	Diethyl Phthalate			0	0	-	-	-	-	0	0	-	-	-	-	1.34E+04	8.47E+05	1.69E+05	No	2.56E+04	1.62E+05	3.24E+05	No
93	Dimethyl Phthalate			0	0	-	-	-	-	0	0	-	-	-	-	2.27E+05	1.44E+07	2.88E+06	No	6.46E+05	4.11E+07	8.21E+06	No
94	2, 4-Dinitrotoluene		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.07E-01	4.76E+01	9.53E+00	No	1.98E+00	6.83E+02	1.77E+02	No
95	2, 6-Dinitrotoluene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
96	1,2-Diphenylhydrazine			0	0	-	-	-	-	0	0	-	-	-	-	3.19E-02	2.02E+00	4.04E-01	No	1.17E-01	7.42E+00	1.48E+00	No
97	Endosulfan (alpha)		YES	0	0	0.22	13.008	2.601614413	No	0	0	0.056	3.547	0.709418426	No	4.18E+01	1.65E+04	3.71E+03	No	5.19E+01	2.31E+04	4.62E+03	No
98	Endosulfan (beta)		YES	0	0	0.22	13.008	2.601614413	No	0	0	0.056	3.547	0.709418426	No	4.18E+01	1.65E+04	3.71E+03	No	5.19E+01	2.31E+04	4.62E+03	No
99	Endosulfan sulfate		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.18E+01	1.65E+04	3.71E+03	No	5.19E+01	2.31E+04	4.62E+03	No
100	Endrin		YES	0	0	0.056	5.085	1.016994725	No	0	0	0.036	2.280	0.456054703	No	3.47E-02	1.55E+01	3.09E+00	No	3.53E-02	1.57E+01	3.15E+00	No
101	Endrin Aldeyhde		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.73E-01	7.73E+01	1.55E+01	No	1.76E-01	7.86E+01	1.57E+01	No
102	Fluoranthene			0	0	-	-	-	-	0	0	-	-	-	-	7.67E+01	4.86E+03	9.72E+02	No	8.12E+01	5.14E+03	1.03E+03	No
103	Fluorene			0	0	-	-	-	-	0	0	-	-	-	-	9.68E+02	6.12E+04	1.22E+04	No	3.11E+03	1.97E+05	3.94E+04	No
104	Heptochlor		YES	0	0	0.52	30.746	6.14927043	No	0	0	0.004	0.241	0.048139107	No	4.60E-05	2.05E-02	4.10E-03	No	4.63E-05	2.08E-02	4.13E-03	No
105	Heptochlor Epoxide		YES	0	0	0.52	30.746	6.14927043	No	0	0	0.004	0.241	0.048139107	No	2.26E-05	1.01E-02	2.03E-03	No	2.29E-05	1.02E-02	2.04E-03	No
106	Hexachlorobenzene		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.87E-04	7.43E-02	1.49E-02	No	1.88E-04	7.48E-02	1.50E-02	No
107	Hexachlorobutadiene		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.31E-01	1.92E+02	3.84E+01	No	1.08E+01	4.80E+03	9.60E+02	No
108	Hexachlorocyclohexan (alpha)		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.86E-03	8.40E-01	1.68E-01	No	2.85E-03	1.27E+00	2.54E-01	No
109	Hexachlorocyclohexan (beta)		YES	0	0	-	-	-	-	0	0	-	-	-	-	6.59E-03	2.94E+00	5.88E-01	No	9.97E-03	4.45E+00	8.89E-01	No
110	Hexachlorocyclohexan (gamma)		YES	0	0.95	56.171	11.23424405	No	0	0	0	-	-	-	-	7.12E-01	3.17E+02	6.36E+01	No	1.08E+00	4.80E+02	9.60E+01	No
111	HexachlorocyclcPentadiene			0	0	-	-	-	-	0	0	-	-	-	-	3.94E+01	2.50E+03	5.00E+02	No	6.45E+02	4.09E+04	8.17E+03	No
112	Hexachloroethane			0	0	-	-	-	-	0	0	-	-	-	-	1.09E+00	8.67E+01	1.37E+01	No	1.92E+00	1.21E+02	2.43E+01	No
113	Indeno(1, 2, 3-CK)Pyrene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	1.47E+00	2.86E-01	No	1.07E-02	4.75E+00	9.50E-01	No
114	Isophorone			0	0	-	-	-	-	0	0	-	-	-	-	3.46E+01	2.19E+03	4.38E+02	No	5.61E+02	3.56E+04	7.10E+03	No
115	Naphthalene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
116	Nitrobenzene			0	0	-	-	-	-	0	0	-	-	-	-	1.88E+01	1.06E+03	2.12E+02	No	4.04E+02	2.56E+04	5.11E+03	No
117	N-Nitrosodi-N-Propylamine		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.92E-03	2.19E+00	4.39E-01	No	2.85E-01	1.32E+02	2.63E+01	No
118	N-Nitrosodimethylamine		YES	0	0	-	-	-	-	0	0	-	-	-	-	6.86E-04	3.06E-01	6.12E-02	No	1.78E+00	7.85E+02	1.57E+02	No
119	N-Nitrosodiphenylamine		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.35E+00	1.05E+03	2.10E+02	No	3.50E+00	1.56E+03	3.12E+02	No
120	PCB-1016		YES	0	0	-	-	-	-	0	0	0.014	0.887	0.177354607	No	3.73E-05	1.88E-02	3.33E-03	No	3.74E-05	1.67E-02	3.33E-03	No
121	PCB-1221		YES	0	0	-	-	-	-	0	0	0.014	0.887	0.177354607	No	3.73E-05	1.86E-02	3.33E-03	No	3.74E-05	1.67E-02	3.33E-03	No
122	PCB-1232		YES	0	0	-	-	-	-	0	0	0.014	0.887	0.177354607	No	3.73E-05	1.86E-02	3.33E-03	No	3.74E-05	1.67E-02	3.33E-03	No
123	PCB-1242		YES	0	0	-	-	-	-	0	0	0.014	0.887	0.177354607	No	3.73E-05	1.86E-02	3.33E-03	No	3.74E-05	1.67E-02	3.33E-03	No
124	PCB-1248		YES	0	0	-	-	-	-	0	0	0.014	0.887	0.177354607	No	3.73E-05	1.86E-02	3.33E-03	No	3.74E-05	1.67E-02	3.33E-03	No
125	PCB-1254		YES	0	0	-	-	-	-	0	0	0.014	0.887	0.177354607	No	3.73E-05	1.86E-02	3.33E-03	No	3.74E-05	1.67E-02	3.33E-03	No
126	PCB-1260		YES	0	0	-	-	-	-	0	0	0.014	0.887	0.177354607	No	3.73E-05	1.86E-02	3.33E-03	No	3.74E-05	1.67E-02	3.33E-03	No
127	Phenanthrene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
128	Pyrene			0	0	-	-	-	-	0	0	-	-	-	-	7.24E+02	4.59E+04	9.17E+03	No	2.33E+03	1.48E+05	2.98E+04	No
129	1, 2, 4-Trichlorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	2.58E+01	1.64E+03	3.27E+02	No	4.09E+01	2.59E+03	5.19E+02	No

Plant Gaston Combined Dewatering and Wastewater Management Pond Data for RP

	Photic		Interstitial			Dewatering Values Utilized			Plant Wastewaters			Total		
Pollutant	Max	Average	Max	Average		Max	Average	Unit	Max	Average	Unit	Max	Average	Unit
Total Antimony	0.25	0.0833	0.764	0.437	mg/L	0.764	0.437	ug/l	0	0	ug/l	0.139	0.079	ug/l
Total Arsenic	0.617	0.206	24.9	11.1	mg/L	24.9	11.1	ug/l	46	5.78	ug/l	42.173	6.745	ug/l
Total Beryllium	0	0	0	0	mg/L	0	0	ug/l	0	0	ug/l	0	0	ug/l
Total Cadmium	0.269	0.172	0	0	mg/L	0.269	0.172	ug/l	0	0	ug/l	0.049	0.031	ug/l
Total Chromium	1.12	0.62	0.552	0.497	mg/L	1.12	0.62	ug/l	5.66	5.66	ug/l	4.837	4.746	ug/l
Total Copper	2.36	1.96	2.46	1.87	mg/L	2.46	1.96	ug/l	5.2	5.2	ug/l	4.703	4.612	ug/l
Total Lead	0	0	0	0	mg/L	0	0	ug/l	0	0	ug/l	0	0	ug/l
Total Mercury	0	0	0	0	ng/L	0	0	ug/l	0	0	ug/l	0	0	ug/l
Total Nickel	18	16.1	18.5	15.7	mg/L	18.5	16.1	ug/l	0	0	ug/l	3.355	2.920	ug/l
Total Selenium	1.12	0.56	1.79	0.778	mg/L	1.79	0.778	ug/l	3.07	3.07	ug/l	2.838	2.654	ug/l
Total Silver	0	0	0	0	mg/L	0	0	ug/l	0	0	ug/l	0	0	ug/l
Total Thallium	1.01	0.977	0.336	0.112	mg/L	1.01	0.977	ug/l	0	0	ug/l	0.183	0.177	ug/l
Total Zinc	22	15.8	18.3	16.2	mg/L	22	16.2	ug/l	0	0	ug/l	3.990	2.938	ug/l
Total Cyanide	0	0	0	0	mg/L	0	0	ug/l	0	0	ug/l	0	0	ug/l

***The highlighted cells were used for the Dewatering Value

Wastestream	Flow in MGD
Plant Wastewaters	13
Ash Pond Dewatering	2.88
Flow Total	15.88

Combined Maximum Concentration = $\frac{F1*C1+F2*C2}{\text{Flow Total}}$

Combined Average Concentration = $\frac{F1*C1+F2*C2}{\text{Flow Total}}$

Arsenic DMR Data in ug/l	
3/31/2016	0
6/30/2016	0
9/30/2016	46
12/31/2016	29
3/31/2017	3.68
6/30/2017	0
9/30/2017	6.64
12/31/2017	0
3/31/2018	0
6/30/2018	0
9/30/2018	0
12/31/2018	0
3/31/2019	0
6/30/2019	0
9/30/2019	1.39
Average =	5.78

Facility Name: **Plant Gaston Water Management Pond Post Dewatering**

NPDES No.: **AL0003140**

$$Q_d*C_d + Q_{d2}*C_{d2} + Q_s*C_s = Q_r*C_r$$

ID	Pollutant	Carcinogen "yes"	Type	Background from upstream source (C_{d2}) Daily Max	Background from upstream source (C_{d1}) Monthly Ave	Background Instream (C_s) Daily Max	Background Instream (C_s) Monthly Ave	Enter Max Daily Discharge as reported by Applicant (C_d) Max	Enter Avg Daily Discharge as reported by Applicant (C_d) Ave	Partition Coefficient (Stream / Lake)
				µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	
1	Antimony		Metals	0	0	0.26	0.028	0	0	-
2	Arsenic*,**	YES	Metals	0	0	0.2	0.074	46	5.78	0.574
3	Beryllium		Metals	0	0	0	0	0	0	-
4	Cadmium**		Metals	0	0	0	0	0	0	0.200
5	Chromium / Chromium III**		Metals	0	0	0.27	0.015882353	0	0	0.125
6	Chromium / Chromium VI**		Metals	0	0	0	0	5.66	5.66	
7	Copper**		Metals	0	0	1.24	0.839	5.2	5.2	0.230
8	Lead**		Metals	0	0	0	0	0	0	0.191
9	Mercury**		Metals	0	0	0	0	0	0	0.400
10	Nickel**		Metals	0	0	0	0	0	0	0.235
11	Selenium		Metals	0	0	0.3	0.084	3.07	3.07	-
12	Silver		Metals	0	0	0	0	0	0	-
13	Thallium		Metals	0	0	0	0	0	0	-
14	Zinc**		Metals	0	0	5.25	1.451	0	0	0.152
15	Cyanide		Metals	0	0	0	0	0	0	-
16	Total Phenolic Compounds		Metals	0	0	0	0	0	0	-
17	Hardness (As CaCO3)		Metals	0	0	71.6	54.782	0	0	-
18	Acrolein		VOC	0	0	0	0	0	0	-
19	Acrylonitrile*	YES	VOC	0	0	0	0	0	0	-
20	Aldrin	YES	VOC	0	0	0	0	0	0	-
21	Benzene*	YES	VOC	0	0	0	0	0	0	-
22	Bromoform*	YES	VOC	0	0	0	0	0	0	-
23	Carbon Tetrachloride*	YES	VOC	0	0	0	0	0	0	-
24	Chlordane	YES	VOC	0	0	0	0	0	0	-
25	Clorobenzene		VOC	0	0	0	0	0	0	-
26	Chlorodibromo-Methane*	YES	VOC	0	0	0	0	0	0	-
27	Chloroethane		VOC	0	0	0	0	0	0	-
28	2-Chloro-Ethylvinyl Ether		VOC	0	0	0	0	0	0	-
29	ChloroForm*	YES	VOC	0	0	0	0	0	0	-
30	4,4'-DDD	YES	VOC	0	0	0	0	0	0	-
31	4,4'-DDE	YES	VOC	0	0	0	0	0	0	-
32	4,4'-DDT	YES	VOC	0	0	0	0	0	0	-
33	Dichlorobromo-Methane*	YES	VOC	0	0	0	0	0	0	-
34	1, 1-Dichloroethane		VOC	0	0	0	0	0	0	-
35	1, 2-Dichloroethane*	YES	VOC	0	0	0	0	0	0	-
36	Trans-1, 2-Dichloro-Ethylene		VOC	0	0	0	0	0	0	-
37	1, 1-Dichloroethylene*	YES	VOC	0	0	0	0	0	0	-
38	1, 2-Dichloropropane		VOC	0	0	0	0	0	0	-
39	1, 3-Dichloro-Propylene		VOC	0	0	0	0	0	0	-
40	Dieldrin	YES	VOC	0	0	0	0	0	0	-
41	Ethylbenzene		VOC	0	0	0	0	0	0	-
42	Methyl Bromide		VOC	0	0	0	0	0	0	-
43	Methyl Chloride		VOC	0	0	0	0	0	0	-
44	Methylene Chloride*	YES	VOC	0	0	0	0	0	0	-
45	1, 1, 2, 2-Tetrachloro-Ethane*	YES	VOC	0	0	0	0	0	0	-
46	Tetrachloro-Ethylene*	YES	VOC	0	0	0	0	0	0	-
47	Toluene		VOC	0	0	0	0	0	0	-
48	Toxaphene	YES	VOC	0	0	0	0	0	0	-
49	Tributyltine (TBT)	YES	VOC	0	0	0	0	0	0	-
50	1, 1, 1-Trichloroethane		VOC	0	0	0	0	0	0	-
51	1, 1, 2-Trichloroethane*	YES	VOC	0	0	0	0	0	0	-
52	Trichlorethylene*	YES	VOC	0	0	0	0	0	0	-
53	Vinyl Chloride*	YES	VOC	0	0	0	0	0	0	-
54	P-Chloro-M-Cresol		Acids	0	0	0	0	0	0	-
55	2-Chlorophenol		Acids	0	0	0	0	0	0	-
56	2, 4-Dichlorophenol		Acids	0	0	0	0	0	0	-
57	2, 4-Dimethylphenol		Acids	0	0	0	0	0	0	-
58	4, 6-Dinitro-O-Cresol		Acids	0	0	0	0	0	0	-
59	2, 4-Dinitrophenol		Acids	0	0	0	0	0	0	-
60	4,6-Dinitro-2-methylphenol	YES	Acids	0	0	0	0	0	0	-
61	Dioxin (2,3,7,8-TCDD)	YES	Acids	0	0	0	0	0	0	-
62	2-Nitrophenol		Acids	0	0	0	0	0	0	-
63	4-Nitrophenol		Acids	0	0	0	0	0	0	-
64	Pentachlorophenol*	YES	Acids	0	0	0	0	0	0	-
65	Phenol		Acids	0	0	0	0	0	0	-
66	2, 4, 6-Trichlorophenol*	YES	Acids	0	0	0	0	0	0	-
67	Acenaphthene		Bases	0	0	0	0	0	0	-
68	Acenaphthylene		Bases	0	0	0	0	0	0	-
69	Anthracene		Bases	0	0	0	0	0	0	-
70	Benzidine		Bases	0	0	0	0	0	0	-
71	Benzo(A)Anthracene*	YES	Bases	0	0	0	0	0	0	-
72	Benzo(A)Pyrene*	YES	Bases	0	0	0	0	0	0	-
73	3, 4 Benzo-Fluoranthene		Bases	0	0	0	0	0	0	-
74	Benzo(GHI)Perylene		Bases	0	0	0	0	0	0	-
75	Benzo(K)Fluoranthene		Bases	0	0	0	0	0	0	-
76	Bis (2-Chloroethoxy) Methane		Bases	0	0	0	0	0	0	-
77	Bis (2-Chloroethyl)-Ether*	YES	Bases	0	0	0	0	0	0	-
78	Bis (2-Chloroiso-Propyl) Ether		Bases	0	0	0	0	0	0	-
79	Bis (2-Ethylhexyl) Phthalate*	YES	Bases	0	0	0	0	0	0	-
80	4-Bromophenyl Phenyl Ether		Bases	0	0	0	0	0	0	-
81	Butyl Benzyl Phthalate		Bases	0	0	0	0	0	0	-
82	2-Chloronaphthalene		Bases	0	0	0	0	0	0	-
83	4-Chlorophenyl Phenyl Ether		Bases	0	0	0	0	0	0	-
84	Chrysene*	YES	Bases	0	0	0	0	0	0	-
85	Di-N-Butyl Phthalate		Bases	0	0	0	0	0	0	-
86	Di-N-Octyl Phthalate		Bases	0	0	0	0	0	0	-
87	Dibenzo(A,H)Anthracene*	YES	Bases	0	0	0	0	0	0	-
88	1, 2-Dichlorobenzene		Bases	0	0	0	0	0	0	-
89	1, 3-Dichlorobenzene		Bases	0	0	0	0	0	0	-
90	1, 4-Dichlorobenzene		Bases	0	0	0	0	0	0	-
91	3, 3-Dichlorobenzidine*	YES	Bases	0	0	0	0	0	0	-
92	Diethyl Phthalate		Bases	0	0	0	0	0	0	-
93	Dimethyl Phthalate		Bases	0	0	0	0	0	0	-
94	2, 4-Dinitrotoluene*	YES	Bases	0	0	0	0	0	0	-
95	2, 6-Dinitrotoluene		Bases	0	0	0	0	0	0	-
96	1,2-Diphenylhydrazine		Bases	0	0	0	0	0	0	-
97	Endosulfan (alpha)	YES	Bases	0	0	0	0	0	0	-
98	Endosulfan (beta)	YES	Bases	0	0	0	0	0	0	-
99	Endosulfan sulfate	YES	Bases	0	0	0	0	0	0	-
100	Endrin	YES	Bases	0	0	0	0	0	0	-
101	Endrin Aldehyde	YES	Bases	0	0	0	0	0	0	-
102	Fluoranthene		Bases	0	0	0	0	0	0	-
103	Fluorene		Bases	0	0	0	0	0	0	-
104	Heptachlor	YES	Bases	0	0	0	0	0	0	-
105	Heptachlor Epoxide	YES	Bases	0	0	0	0	0	0	-
106	Hexachlorobenzene*	YES	Bases	0	0	0	0	0	0	-
107	Hexachlorobutadiene*	YES	Bases	0	0	0	0	0	0	-
108	Hexachlorocyclohexan (alpa)	YES	Bases	0	0	0	0	0	0	-
109	Hexachlorocyclohexan (beta)	YES	Bases	0	0	0	0	0	0	-
110	Hexachlorocyclohexan (gamma)	YES	Bases	0	0	0	0	0	0	-
111	HexachlorocycloPentadiene		Bases	0	0	0	0	0	0	-
112	Hexachloroethane		Bases	0	0	0	0	0	0	-
113	Indeno(1, 2, 3-CK)Pyrene*	YES	Bases	0	0	0	0	0	0	-
114	Isophorone		Bases	0	0	0	0	0	0	-
115	Naphthalene		Bases	0	0	0	0	0	0	-
116	Nitrobenzene		Bases	0	0	0	0	0	0	-
117	N-Nitrosodi-N-Propylamine*	YES	Bases	0	0	0	0	0	0	-
118	N-Nitrosodi-N-Methylamine*	YES	Bases	0	0	0	0	0	0	-
119	N-Nitrosodi-N-Phenylamine*	YES	Bases	0	0	0	0	0	0	-
120	PCB-1016	YES	Bases	0	0	0	0	0	0	-
121	PCB-1221	YES	Bases	0	0	0	0	0	0	-
122	PCB-1232	YES	Bases	0	0	0	0	0	0	-
123	PCB-1242	YES	Bases	0	0	0	0	0	0	-
124	PCB-1248	YES	Bases	0	0	0	0	0	0	-
125	PCB-1254	YES	Bases	0	0	0	0	0	0	-
126	PCB-1260	YES	Bases	0	0	0	0	0	0	-
127	Phenanthrene		Bases	0	0	0	0	0	0	-
128	Pyrene		Bases	0	0	0	0	0	0	-
129	1, 2, 4-Trichlorobenzene		Bases	0	0	0	0	0	0	-

13.35	Enter Q_d = wastewater discharge flow from facility (MGD)
20.6555072	Q_d = wastewater discharge flow (cfs) (this value is caluclated from the MGD)
0	Enter flow from upstream discharge Qd2 = background stream flow in MGD above point of discharge
0	Qd2 = background stream flow from upstream source (cfs)
1524	Enter 7Q10, Q_s = background stream flow in cfs above point of discharge
1421	Enter or estimated, 1Q10, Q_s = background stream flow in cfs above point of discharge (1Q10 estimated at 75% of 7Q10)
10877	Enter Mean Annual Flow, Q_s = background stream flow in cfs above point of discharge
2035	Enter 7Q2, Q_s = background stream flow in cfs above point of discharge (For LWF class streams)
Enter on Left	Enter C_s = background in-stream pollutant concentration in µg/l (assuming this is zero "0" unless there is data)
Q_d +Qd2+Q_s	Q_r = resultant in-stream flow, after discharge
Calculated on other	C_r = resultant in-stream pollutant concentration in µg/l in the stream (after complete mixing occurs)
54.78	Enter, Background Hardness above point of discharge (assumed 50 South of Birmingham and 100 North of Birmingham)
7.00 s.u.	Enter, Background pH above point of discharge
No	Enter, Is discharge to a stream? "YES" Other option would be to a Lake. (This changes the partition coefficients for the metals)

** Using Partition Coefficients

December 5, 2019

* = carcinogen

Facility Name: Plant Gaston Water Management Pond Post Dewatering

NPDES No.: AL0003140

																Human Health Consumption Fish & Water (µg/l)				Human Health Consumption Fish only (µg/l)			
Freshwater PWS classification.					Freshwater Acute (µg/l) Q_s =1Q10					Freshwater Chronic (µg/l) Q_s = 7Q10						Carcinogen Q_s = Annual Average Non-Carcinogen Q_s = 7Q10				Carcinogen Q_s = Annual Average Non-Carcinogen Q_s = 7Q10			
ID	Pollutant	RP?	Carcinogen yes	Background from upstream source (Cd2) Daily Max	Max Daily Discharge as reported by Applicant (C_{max})	Water Quality Criteria (C_s)	Draft Permit Limit (C_{max})	20% of Draft Permit Limit	RP?	Background from upstream source (Cd2) Monthly Ave	Avg Daily Discharge as reported by Applicant (C_{avg})	Water Quality Criteria (C_s)	Draft Permit Limit (C_{avg})	20% of Draft Permit Limit	RP?	Water Quality Criteria (C_s)	Draft Permit Limit (C_s)	20% of Draft Permit Limit	RP?	Water Quality Criteria (C_s)	Draft Permit Limit (C_s)	20% of Draft Permit Limit	RP?
1	Antimony			0	0	-	-	-	-	0	0	-	-	-	-	5.52E+00	4.11E+02	8.21E+01	No	3.73E+02	2.79E+04	5.58E+03	No
2	Arsenic	YES	YES	0	46	592.334	41328.353	8265.670557	No	0	5.780666667	261.324	19536.807	3907.361461	No	0.120	24.535	4.907	Yes	0.303	120.846	24.169	No
3	Beryllium			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
4	Cadmium			0	0	5.807	391.316	78.26367461	No	0	0	0.809	60.523	12.10456356	No	-	-	-	-	-	-	-	-
5	Chromium/ Chromium III			0	0	2784.398	194319.073	38863.81466	No	0	0	382.193	27084.262	5416.852352	No	-	-	-	-	-	-	-	-
6	Chromium/ Chromium VI			0	5.66	16.000	1118.723	223.3446794	No	0	5.66	11.000	822.600	164.519907	No	-	-	-	-	-	-	-	-
7	Copper			0	5.2	33.143	2227.907	445.5814261	No	0	5.2	23.263	1680.701	336.1402639	No	1.30E+03	9.72E+04	1.94E+04	No	-	-	-	-
8	Lead			0	0	174.591	12185.636	2437.127188	No	0	0	6.804	508.783	101.7568364	No	-	-	-	-	-	-	-	-
9	Mercury			0	0	2.400	167.509	33.50170191	No	0	0	0.012	0.897	0.179478262	No	4.19E-02	3.13E+00	6.27E-01	No	4.24E-02	3.17E+00	6.35E-01	No
10	Nickel			0	0	1197.531	83561.926	16716.38561	No	0	0	133.009	9946.828	1989.325642	No	4.11E+02	3.07E+04	6.14E+03	No	9.93E+02	7.43E+04	1.49E+04	No
11	Selenium			0	3.07	20.000	1375.266	275.0531365	No	0	3.07	5.000	367.746	73.54916825	No	1.63E+02	1.22E+04	2.44E+03	No	2.43E+03	1.82E+05	3.64E+04	No
12	Silver			0	0	1.143	79.745	15.94908934	No	0	0	-	-	-	-	-	-	-	-	-	-	-	-
13	Thallium			0	0	-	-	-	-	0	0	-	-	-	-	1.74E-01	1.30E+01	2.60E+00	No	2.74E-01	2.05E+01	4.09E+00	No
14	Zinc			0	0	462.980	31952.583	6390.51667	No	0	0	468.767	34798.816	6959.723695	No	6.16E+03	4.60E+05	9.21E+04	No	1.49E+04	1.11E+06	2.23E+05	No
15	Cyanide			0	0	22.000	1535.495	307.0989342	No	0	0	5.200	388.865	77.77304695	No	1.36E+02	1.03E+04	2.06E+03	No	9.33E+03	6.98E+05	1.40E+05	No
16	Total Phenolic Compounds			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
17	Hardness (As CaCO3)			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
18	Acrolein			0	0	-	-	-	-	0	0	-	-	-	-	4.14E+00	3.10E+02	6.19E+01	No	5.43E+00	4.08E+02	8.12E+01	No
19	Acrylonitrile		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.47E-02	2.36E+01	4.72E+00	No	1.44E-01	7.60E+01	1.52E+01	No
20	Aldrin		YES	0	0	3.000	209.386	41.87712739	No	0	0	-	-	-	-	2.90E-05	1.53E-02	3.08E-03	No	2.94E-05	1.55E-02	3.10E-03	No
21	Benzene		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.12E+00	5.91E+02	1.18E+02	No	1.55E+01	8.16E+03	1.63E+03	No
22	Bromoform		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.19E+00	2.21E+03	4.43E+02	No	7.88E+01	4.16E+04	8.31E+03	No
23	Carbon Tetrachloride		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.10E-01	1.11E+02	2.22E+01	No	9.57E-01	5.05E+02	1.01E+02	No
24	Chlordane		YES	0	0	2.400	167.509	33.50170191	No	0	0	0.0043	0.322	0.064312327	No	4.71E-04	2.48E-01	4.97E-02	No	4.73E-04	2.49E-01	4.98E-02	No
25	Clorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	1.21E+02	9.07E+03	1.81E+03	No	9.08E+02	6.78E+04	1.36E+04	No
26	Chlorodibromo-Methane		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.94E-01	2.08E+02	4.16E+01	No	7.41E+00	3.91E+03	7.82E+02	No
27	Chloroethane			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
28	2-Chloro-Ethylvinyl Ether			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
29	ChloroForm		YES	0	0	-	-	-	-	0	0	-	-	-	-	5.43E+00	2.87E+03	5.73E+02	No	1.02E+02	5.38E+04	1.08E+04	No
30	4,4' - DDD		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.81E-04	9.56E-02	1.91E-02	No	1.81E-04	9.57E-02	1.91E-02	No
31	4,4' - DDE		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.28E-04	6.75E-02	1.35E-02	No	1.28E-04	6.76E-02	1.35E-02	No
32	4,4' - DDT		YES	0	0	1.100	76.775	15.35484671	No	0	0	0.001	0.075	0.014956355	No	1.28E-04	6.75E-02	1.35E-02	No	1.28E-04	6.76E-02	1.35E-02	No
33	Dichlorobromo-Methane		YES	0	0	-	-	-	-	0	0	-	-	-	-	5.34E-01	2.82E+02	5.64E+01	No	1.00E+01	5.29E+03	1.06E+03	No
34	1, 1-Dichloroethane			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
35	1, 2-Dichloroethane		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.78E-01	1.99E+02	3.99E+01	No	2.14E+01	1.13E+04	2.25E+03	No
36	Trans-1, 2-Dichloro-Ethylene			0	0	-	-	-	-	0	0	-	-	-	-	1.37E+01	1.02E+03	2.05E+02	No	5.91E+03	4.42E+05	8.83E+04	No
37	1, 1-Dichloroethylene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.23E+02	1.70E+05	3.41E+04	No	4.17E+03	2.20E+06	4.40E+05	No
38	1, 2-Dichloropropane			0	0	-	-	-	-	0	0	-	-	-	-	4.92E-01	3.68E+01	7.38E+00	No	6.49E+00	6.35E+02	1.27E+02	No
39	1, 3-Dichloro-Propylene			0	0	-	-	-	-	0	0	-	-	-	-	3.40E-01	2.54E+01	5.09E+00	No	1.25E+01	9.18E+02	1.84E+02	No
40	Dieldrin		YES	0	0	0.240	16.751	3.350170191	No	0	0	0.056	4.188	0.83755589	No	3.08E-05	1.82E-02	3.25E-03	No	3.12E-05	1.65E-02	3.30E-03	No
41	Ethylbenzene			0	0	-	-	-	-	0	0	-	-	-	-	4.48E+02	3.35E+04	6.70E+03	No	1.24E+03	9.31E+04	1.86E+04	No
42	Methyl Bromide			0	0	-	-	-	-	0	0	-	-	-	-	4.84E+01	3.47E+03	6.84E+02	No	8.71E+02	6.51E+04	1.30E+04	No
43	Methyl Chloride			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
44	Methylene Chloride		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.60E+00	2.43E+03	4.86E+02	No	3.46E+02	1.82E+05	3.85E+04	No
45	1, 1, 2, 2-Tetrachloro-Ethane		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.63E-01	8.59E+01	1.72E+01	No	2.33E+00	1.23E+03	2.46E+02	No
46	Tetrachloro-Ethylene		YES	0	0	-	-	-	-	0	0	-	-	-	-	6.03E-01	3.18E+02	6.36E+01	No	1.92E+00	1.01E+03	2.02E+02	No
47	Toluene			0	0	-	-	-	-	0	0	-	-	-	-	1.21E+03	9.02E+04	1.80E+04	No	8.72E+03	6.52E+05	1.30E+05	No
48	Toxaphene		YES	0	0	0.730	50.951	10.190101	No	0	0	0.0002	0.015	0.002991271	No	1.81E-04	8.50E-02	1.70E-02	No	1.82E-04	8.54E-02	1.71E-02	No
49	Tributyltin (TBT)		YES	0	0	0.460	32.108	6.421159534	No	0	0	0.072	5.364	1.078857573	No	-	-	-	-	-	-	-	-
50	1, 1, 1-Trichloroethane			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
51	1, 1, 2-Trichloroethane		YES	0	0	-	-	-	-	0	0	-	-	-	-	5.75E-01	3.03E+02	6.07E+01	No	9.10E+00	4.60E+03	9.60E+02	No
52	Trichlorethylene		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.40E+00	1.26E+03	2.53E+02	No	1.75E+01	9.22E+03	1.84E+03	No
53	Vinyl Chloride		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.46E-02	1.30E+01	2.59E+00	No	1.42E+00	7.52E+02	1.50E+02	No
54	P-Chloro-M-Cresol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
55	2-Chlorophenol			0	0	-	-	-	-	0	0	-	-	-	-	5.81E+01	4.35E+03	8.70E+02	No	8.71E+01	6.51E+03	1.30E+03	No
56	2, 4-Dichlorophenol			0	0	-	-	-	-	0	0	-	-	-	-	6.52E+01	4.88E+03	9.75E+02	No	1.72E+02	1.29E+04	2.57E+03	No
57	2, 4-Dimethylphenol			0	0	-	-	-	-	0	0	-	-	-	-	2.91E+02	2.17E+04	4.35E+03	No	4.98E+02	3.72E+04	7.44E+03	No
58	4, 6-Dinitro-O-Cresol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
59	2, 4-Dinitrophenol			0	0	-	-	-	-	0	0	-	-	-	-	6.85E+01	5.12E+03	1.02E+03	No	3.11E+03	2.33E+05	4.65E+04	No
60	4,6-Dinitro-2-methylphenol		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.26E+01	6.65E+03	1.33E+03	No	1.65E+02	8.73E+04	1.75E+04	No
61	Dioxin (2,3,7,8-TCDD)		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.83E-06	1.39E-05	2.78E-06	No	2.67E-06	1.41E-05	2.81E-06	No
62	2-Nitrophanol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
63	4-Nitrophanol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
64	Pentachlorophenol		YES	0	0	8.723	608.846	121.7692068	No	0	0	6.693	500.483	100.0966586	No	2.50E-01	1.32E+02	2.64E+01	No	1.77E+00	9.33E+02	1.87E+02	No
65	Phenol			0	0	-	-	-	-	0	0	-	-	-	-	1.03E+04	7.89E+05	1.54E+05	No	5.00E+05	3.74E+07	7.48E+06	No
66	2, 4, 6-Trichlorophenol		YES	0	0	-	-	-	-	0	0	-	-	-	-	9.79E-01	5.17E+02	1.03E+02	No	1.41E+00	7.46E+02	1.49E+02	No
67	Acenaphthene			0	0	-	-	-	-	0	0	-	-	-	-	4.54E+02	3.39E+04	6.78E+03	No	5.79E+02	4.33E+04	8.65E+03	No
68	Acenaphthylene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
69	Anthracene			0	0	-	-	-	-	0	0	-	-	-	-	7.24E+03	5.42E+05	1.08E+05	No	2.33E+04	1.74E+06	3.49E+05	No
70	Benzidine			0	0	-	-	-	-	0	0	-	-	-	-	6.58E-05	4.92E-03	9.84E-04	No	1.16E-04	8.67E-03	1.73E-03	No
71	Benzo(A)Anthracene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	1.74E+00	3.49E-01	No	1.07E-02	5.62E+00	1.12E+00	No
72	Benzo(A)Pyrene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	1.74E+00	3.49E-01	No	1.07E-02	5.62E+00	1.12E+00	No
73	Benzo(b)fluoranthene			0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	2.47E-01	4.95E-02	No	1.07E-02	7.97E-01	1.59E-01	No
74	Benzo(GHI)Perylene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
75	Benzo(K)Fluoranthene			0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	2.47E-01	4.95E-02	No	1.07E-02	7.97E-01	1.59E-01	No
76	Bis (2-Chloroethoxy) Methane			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
77	Bis (2-Chloroethyl)-Ether		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.88E-02	1.52E+01	3.04E+00	No	3.07E-01	1.62E+02	3.24E+01	No
78	Bis (2-Chloroiso-Propyl) Ether			0	0	-	-	-	-	0	0	-	-	-	-	1.35E+03	1.01E+05	2.02E+04	No	3.78E+04	2.83E+06	5.65E+05	No
79	Bis (2-Ethylhexyl) Phthalate		YES	0	0	-	-	-	-	0	0	-	-	-	-	8.47E-01	4.47E+02	8.94E+01	No	1.28E+00	6.76E+02	1.35E+02	No
80	4-Bromophanyl Phenyl Ether			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
81	Butyl Benzyl Phthalate			0	0	-	-	-	-	0	0	-	-	-	-	9.71E+02	7.26E+04	1.45E+04	No	1.13E+03	8.43E+04	1.69E+04	No
82	2-Chloronaphthalene			0	0	-	-	-	-	0	0	-	-	-	-	8.95E+02	5.20E+04	1.04E+04	No	9.24E+02	6.91E+04	1.38E+04	No
83	4-Chlorophenyl Phenyl Ether			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
84	Chrysene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	1.74E+00	3.49E-01	No	1.07E-02	5.62E+00	1.12E+00	No
85	Di-N-Butyl Phthalate			0	0	-	-	-	-	0	0	-	-	-	-	1.50E+03	1.12E+05	2.24E+04	No	2.62E+03	1.96E+05	3.92E+04	No
86	Di-N-Octyl Phthalate			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
87	Dibenzo(A,H)Anthracene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	1.74E+00	3.49E-01	No	1.07E-02	5.62E+00	1.12E+00	No
88	1, 2-Dichlorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	3.44E+02	2.57E+04	5.14E+03	No	7.56E+02	5.65E+04	1.13E+04	No
89	1, 3-Dichlorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	2.56E+02	1.91E+04	3.82E+03	No	5.62E+02	4.21E+04	8.41E+03	No
90	1, 4-Dichlorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	5.11E+01	3.82E+03	7.65E+02	No	1.12E+02	8.41E+03	1.68E+03	No
91	3, 3-Dichlorobenzidine		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.37E-02	7.22E+00	1.44E+00	No	1.66E-02	8.77E+00	1.75E+00	No
92	Diethyl Phthalate			0	0	-	-	-	-	0	0	-	-	-	-	1.34E+04	9.98E+05	2.00E+05	No	2.56E+04	1.91E+06	3.82E+05	No
93	Dimethyl Phthalate			0	0	-	-	-	-	0	0	-	-	-	-	2.27E+05	1.70E+07	3.40E+06	No	8.48E+05	4.85E+07	9.69E+06	No
94	2, 4-Dinitrotoluene		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.07E-01	5.84E+01	1.13E+01	No	1.98E+00	1.05E+03	2.08E+02	No
95	2, 6-Dinitrotoluene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
96	1,2-Diphenylhydrazine			0	0	-	-	-	-	0	0	-	-	-	-	3.19E-02	2.36E+00	4.76E-01	No	1.17E-01	8.76E+00	1.75E+00	No
97	Endosulfan (alpha)		YES	0	0	0.22	15.355	3.070989342	No	0	0	0.056	4.188	0.83755589	No	4.16E+01	2.19E+04	4.39E+03	No	5.19E+01	2.74E+04	5.47E+03	No
98	Endosulfan (beta)		YES	0	0	0.22	15.355	3.070989342	No	0	0	0.056	4.188	0.83755589	No	4.16E+01	2.19E+04	4.39E+03	No	5.19E+01	2.74E+04	5.47E+03	No
99	Endosulfan sulfate			0	0	-	-	-	-	0	0	-	-	-	-	4.16E+01	2.19E+04	4.39E+03	No	5.19E+01	2.74E+04	5.47E+03	No
100	Endrin		YES	0	0	0.086	6.002	1.200477852	No	0	0	0.036	2.692	0.538428787	No	3.47E-02	1.83E+01	3.68E+00	No	3.53E-02	1.86E+01	3.72E+00	No
101	Endrin Aldeyhde		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.73E-01	9.15E+01	1.83E+01	No	1.76E-01	9.30E+01	1.86E+01	No
102	Fluoranthene			0	0	-	-	-	-	0	0	-	-	-	-	7.67E+01	5.74E+03	1.15E+03	No	8.12E+01	8.07E+03	1.21E+03	No
103	Fluorene			0	0	-	-	-	-	0	0	-	-	-	-	9.86E+02	7.22E+04	1.44E+04	No	3.11E+03	2.33E+05	4.65E+04	No
104	Heptachlor		YES	0	0	0.52	36.284	7.256702061	No	0	0	0.004	0.284	0.05683415	No	4.80E-05	2.43E-02	4.86E-03	No	4.83E-05	2.44E-02	4.89E-03	No
105	Heptachlor Epoxide		YES	0	0	0.52	36.284	7.256702061	No	0	0	0.004	0.284	0.05683415	No	2.28E-05	1.20E-02	2.40E-03	No	2.29E-05	1.21E-02	2.42E-03	No
106	Hexachlorobenzene		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.87E-04	8.79E-02	1.76E-02	No	1.66E-04	8.85E-02	1.77E-02	No
107	Hexachlorobutadiene		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.31E-01	2.27E+02	4.55E+01	No	1.08E+01	5.68E+03	1.14E+03	No
108	Hexachlorocyclohexan (alpha)		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.88E-03	9.84E-01	1.99E-01	No	2.85E-03	1.50E+00	3.01E-01	No
109	Hexachlorocyclohexan (beta)		YES	0	0	-	-	-	-	0	0	-	-	-	-	6.56E-03	3.46E+00	6.88E-01	No	9.97E-03	5.28E+00	1.05E+00	No
110	Hexachlorocyclohexan (gamma)		YES	0	0	0.95	66.305	13.26109034	No	0	0	-	-	-	-	7.12E-01	3.78E+02	7.51E+01	No	1.08E+00	5.68E+02	1.14E+02	No
111	HexachlorocyclcPentadiene			0	0	-	-	-	-	0	0	-	-	-	-	3.94E+01	2.65E+03	5.90E+02	No	6.45E+02	4.82E+04	9.65E+03	No
112	Hexachloroethane			0	0	-	-	-	-	0	0	-	-	-	-	1.09E+00	6.12E+01	1.62E+01	No	1.92E+00	1.43E+02	2.87E+01	No
113	Indeno(1, 2, 3-CK)Pyrene		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.31E-03	1.74E+00	3.49E-01	No	1.07E-02	5.62E+00	1.12E+00	No
114	Isophorone			0	0	-	-	-	-	0	0	-	-	-	-	3.46E+01	2.59E+03	5.17E+02	No	5.81E+02	4.19E+04	8.39E+03	No
115	Naphthalene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
116	Nitrobenzene			0	0	-	-	-	-	0	0	-	-	-	-	1.68E+01	1.25E+03	2.51E+02	No	4.04E+02	3.02E+04	6.04E+03	No
117	N-Nitrosodi-N-Propylamine		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.92E-03	2.59E+00	5.19E-01	No	2.95E-01	1.56E+02	3.11E+01	No
118	N-Nitrosodimethylamine		YES	0	0	-	-	-	-	0	0	-	-	-	-	6.86E-04	3.62E-01	7.24E-02	No	1.76E+00	9.28E+02	1.86E+02	No
119	N-Nitrosodiphenylamine		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.35E+00	1.24E+03	2.48E+02	No	3.50E+00	1.85E+03	3.69E+02	No
120	PCB-1016		YES	0	0	-	-	-	-	0	0	0.014	1.047	0.209388973	No	3.73E-05	1.97E-02	3.94E-03	No	3.74E-05	1.97E-02	3.95E-03	No
121	PCB-1221		YES	0	0	-	-	-	-	0	0	0.014	1.047	0.209388973	No	3.73E-05	1.97E-02	3.94E-03	No	3.74E-05	1.97E-02	3.95E-03	No
122	PCB-1232		YES	0	0	-	-	-	-	0	0	0.014	1.047	0.209388973	No	3.73E-05	1.97E-02	3.94E-03	No	3.74E-05	1.97E-02	3.95E-03	No
123	PCB-1242		YES	0	0	-	-	-	-	0	0	0.014	1.047	0.209388973	No	3.73E-05	1.97E-02	3.94E-03	No	3.74E-05	1.97E-02	3.95E-03	No
124	PCB-1248		YES	0	0	-	-	-	-	0	0	0.014	1.047	0.209388973	No	3.73E-05	1.97E-02	3.94E-03	No	3.74E-05	1.97E-02	3.95E-03	No
125	PCB-1254		YES	0	0	-	-	-	-	0	0	0.014	1.047	0.209388973	No	3.73E-05	1.97E-02	3.94E-03	No	3.74E-05	1.97E-02	3.95E-03	No
126	PCB-1260		YES	0	0	-	-	-	-	0	0	0.014	1.047	0.209388973	No	3.73E-05	1.97E-02	3.94E-03	No	3.74E-05	1.97E-02	3.95E-03	No
127	Phenanthrene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
128	Pyrene			0	0	-	-	-	-	0	0	-	-	-	-	7.24E+02	5.42E+04	1.08E+04	No	2.33E+03	1.74E+05	3.49E+04	No
129	1, 2, 4-Trichlorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	2.58E+01	1.93E+03	3.86E+02	No	4.09E+01	3.06E+03	6.12E+02	No

Alabama Power Gaston Background Instream Data in ug/l

	MAX	AVERAGE
Aluminum	181.59	36.549
antimony	0.26	0.028
aresenic	0.20	0.074
barium	48.89	33.371
berylium	0.00	0.000
cadmium	0.00	0.000
calcium	20390.81	15067.403
chromium	0.27	0.016
cobalt	0.00	0.000
copper	1.24	0.819
harness	71.60	54.782
iron	205.97	58.186
lead	0.00	0.000
magnesium	5250.43	4166.062
manganeese	10.11	3.225
mercury	0.00	0.000
molybdeum	0.62	0.328
nickel	0.00	0.000
potassium	2399.92	1555.013
selenium	0.30	0.084
silver	0.00	0.000
thallium	0.00	0.000
tin	0.94	0.393
titanium	4.78	1.047
zinc	5.25	1.451

Alabama Power Gaston Background Instream Data in ug/l

	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
Aluminum	181.59	106.27	0	0	0	0	0	0	0	0	19.32
antimony	0	0	0	0	0	0	0	0	0	0	0
aresenic	0.06	0.04	0.04	0.07	0.16	0.14	0.08	0.1	0.08	0.07	0.06
barium	27.53	27.56	25.18	29.1	36.63	35.42	47.94	42.66	47.98	48.89	30.41
berylium	0	0	0	0	0	0	0	0	0	0	0
cadmium	0	0	0	0	0	0	0	0	0	0	0
calcium	13012.25	13389.92	16234.55	17774.8	17316.18	17476.21	17046.72	17678.68	16145.38	20390.81	12030.44
chromium	0.27	0	0	0	0	0	0	0	0	0	0
cobalt	0	0	0	0	0	0	0	0	0	0	0
copper	1.24	1.05	0.69	0.75	0.82	0.85	0.68	0.58	0.98	0.93	0.87
harness	47.5	48.7	61.9	62.4	61.3	65.3	58.9	64.5	60.3	71.6	44
iron	205.97	156.14	14.95	8.94	9.31	8.86	4.45	20.19	3.68	7.14	82.64
lead	0	0	0	0	0	0	0	0	0	0	0
magnesium	3641.68	3692.69	5198.93	4386.96	4397.81	5250.43	3963.04	4953.99	4843.51	5010.82	3397.93
manganeese	7.29	3.06	3.35	0.7	0.67	0.41	0.72	1.84	1.51	2	10.11
mercury	0	0	0	0	0	0	0	0	0	0	0
molybdeum	0.29	0.26	0.3	0.4	0.4	0.62	0.61	0.54	0.51	0.42	0.24
nickel	0	0	0	0	0	0	0	0	0	0	0
potassium	1706.64	1479.57	1356.61	1313.13	1513.2	1570.18	1635.3	1947.14	1984.4	2399.92	1863.39
selenium	0.23	0	0	0	0.2	0.23	0.21	0	0	0.3	0
silver	0	0	0	0	0	0	0	0	0	0	0
thallium	0	0	0	0	0	0	0	0	0	0	0
tin	0.71	0.44	0.3	0.46	0.41	0.33	0.34	0.5	0.32	0	0.76
titanium	4.78	2.88	0	0	0	0	0	0	0	0	1.02
zinc	1.58	5.25	1.66	1.92	1.62	3.08	2.63	1.34	3.1	0	0

Alabama Power Gaston Background Instream Data in ug/l

	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19
Aluminum	101.08	82.9	100.62	18.88	10.68	0
antimony	0	0	0.22	0	0.26	0
aresenic	0.04	0	0.07	0	0.05	0.2
barium	25.82	24.29	24.11	27.08	32.19	34.52
berylium	0	0	0	0	0	0
cadmium	0	0	0	0	0	0
calcium	12273.59	12188.8	10866.54	12998.47	13729.9	15592.61
chromium	0	0	0	0	0	0
cobalt	0	0	0	0	0	0
copper	0.72	0.65	0.99	0.64	0.87	0.62
harness	45	44.4	38	48.1	50.4	59
iron	164.61	126.1	105.52	37.25	28.09	5.33
lead	0	0	0	0	0	0
magnesium	3478.08	3382.81	2645.39	3810.31	3908	4860.67
manganeese	6.88	4.99	7.52	1.29	1.58	0.9
mercury	0	0	0	0	0	0
molybdeum	0	0	0	0.22	0.3	0.47
nickel	0	0	0	0	0	0
potassium	1348.01	1172.78	1226.79	1150.59	1443.89	1323.68
selenium	0.25	0	0	0	0	0
silver	0	0	0	0	0	0
thallium	0	0	0	0	0	0
tin	0.21	0	0.24	0.72	0.94	0
titanium	3.14	2.45	3.53	0	0	0
zinc	0	1.19	0	0	1.29	0

600 North 18th Street
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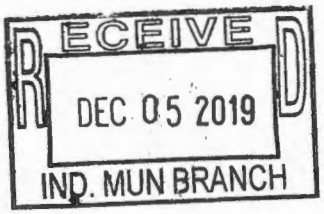
Birmingham, Alabama 35291

Alabama Power



December 5, 2019

Mr. Scott Ramsey
Alabama Department of
Environmental Management
1400 Coliseum Boulevard
Montgomery, AL 36110

Re: **Alabama Power Company – Gaston Steam Plant: NPDES Permit No. AL0003140; Additional Information Related to NPDES Permit Renewal**

Dear Mr. Ramsey:

This letter contains additional information related to 316(b) compliance and the required study submittals as well as additional information specific to some of the ash handling systems at Plant Gaston. This is a formal transmission of previously discussed information and is provided in response to ADEM's request. This information should be considered in conjunction with the submitted application upon the development of the draft Gaston NPDES permit and related permit rationale.

Compliance with Section 316(b) of the Clean Water Act

In accordance with 40 CFR § 122.21(r)(1)(ii)(A) & (B), the information required under paragraphs (r)(2), (3) and (5) of § 122.21 was enclosed with the updated Gaston NPDES permit application, submitted on June 5, 2019. As previously discussed with ADEM, and in accordance with 40 CFR § 125.98(b)(6) and/or § 125.95(a)(2) as detailed below, APC requests that a date of December 31, 2023, for the submission of the information required by 40 CFR § 122.21(r)(4), (6)-(13) be established in the NPDES permit to allow adequate time for the compilation of the remaining 316(b) materials.

40 C.F.R. § 125.98(b)(6) provides that for any permit issued after October 14, 2014, and applied for before October 14, 2014, a permit writer may include permit conditions to ensure the agency will have all the information under 40 C.F.R. § 122.21(r) necessary to establish impingement mortality and entrainment BTA requirements under § 125.94(c) and (d) for the subsequent permit. APC applied for its new permit before October 14, 2014, and the permit will necessarily be issued after October 14, 2014. The updated application submitted on June 5, 2019, does not alter the status of the current permit or the applicability of § 125.98(b)(6), as it was provided as a courtesy to, and at the request of, the agency to ensure the final permit accurately reflects current operations at the facility. ADEM is therefore authorized by 40 C.F.R. § 125.98(b)(6) to provide

APC additional time to generate the remaining 40 C.F.R. § 122.21(r) information so long as the information is completed and submitted to ADEM in time for the agency to establish impingement mortality and entrainment BTA requirements under §125.94(c) and (d) in the next permit for the facility.

40 C.F.R. § 125.95(a)(2) separately provides that a facility whose permit expired prior to July 14, 2018, may request an alternate schedule for the submission of the information described in 40 CFR § 122.21(r). APC's current permit expired prior to July 14, 2018, and as stated above, the company is requesting an alternate date for the submission of the remaining § 122.21(r) information. A document entitled "Plant Gaston 316(b) Compliance Timeline" was included in the 316(b) portion of the updated Gaston NPDES permit application as support and justification for this request. The document details the additional 40 C.F.R. § 122.21(r) information the company needs to formulate and the time needed by the company to complete that work.

Certain § 122.21(r) information is presumed to be relevant and representative of conditions at a facility for a period of 10 years. *See* 40 C.F.R. §122.21(r)(6)(ii)(A) & (7). After that time, a permittee is required to explain why such information remains pertinent despite the passage of time and, if it cannot, collect new information. Following the promulgation of EPA's 2014 316(b) rule, APC assumed the timing for the submission of § 122.21(r) information would be governed by 40 C.F.R. § 125.98(b)(6)—meaning the information would not be required until after a new permit had been issued by the agency or, alternatively, that ADEM would otherwise notify APC if it expected the § 122.21(r) information to be submitted pursuant to some other schedule. Accordingly, the company strategically did not initiate work to collect § 122.21(r) information immediately after the effective date of the 316(b) rule in hopes that a well-timed commencement of the work would allow APC to rely upon the submitted information for at least two permit cycles (i.e., ≥10 years). Doing so would provide value and cost savings to APC's customers given the sizeable costs associated with formulating the required 316(b) information. As more time passed after the effective date of 316(b) rule and a new permit was not issued to the facility, APC ultimately elected to commence gathering certain § 122.21(r) information for this facility to avoid any arguments it impermissibly delayed completion of the work. APC did so, in part, in recognition that it will take the company a greater length of time to compile all the information because of its multiple facilities subject to the final 316(b) rule, its limited in-house manpower, and budgetary constraints. The "Plant Gaston 316(b) Compliance Timeline" provided in the updated permit application represents the reasonable schedule of time APC needs to submit the § 122.21(r) information in light of the aforementioned circumstances.

Collectively, the information provided demonstrates and justifies the additional time (i.e., until December 31, 2023) APC needs to develop the remaining § 122.21(r) information.

Remote Submerged Chain Conveyor (RSCC) System

Existing plant bottom ash systems previously utilized a wet ash sluice system to transport ash to the existing ash settling pond. To comply with the CCR rule, the bottom ash equipment on Gaston Unit 5 was retrofitted with new ash sluicing equipment, as well as mechanical dewatering conveyors (Remote Submerged Chain Conveyors, or RSCC), to handle and dewater the ash.

This equipment replaced the ash pond. The RSCC utilizes a series of submerged chains and flight bars to handle and move the ash during dewatering. This bottom ash system currently operates in an "open loop," which allows the water in the system to overflow to the low volume treatment pond during periods of high flow and certain maintenance events. Pursuant to the ELGs, and after the designated BATW applicability date for the facility, this system will be "closed-loop" (i.e., will not discharge), subject to the following exceptions. Wastewater from the bottom ash system could periodically be utilized as makeup water to the FGD scrubber—to take full advantage of all potential efficiencies and to maintain an optimal water balance for the facility as a whole—and discharged from the facility pursuant to effluent limitations applicable to the FGD wastewater stream. Wastewater could also periodically be routed from the bottom ash system to low volume treatment pond, as needed (and as authorized by the ELGs), and discharged from the facility pursuant to effluent limitations applicable to that treatment system. While the nature of these discharges through the low volume treatment pond cannot be predicted, they are expected to be infrequent and low in volume.

Dry Fly Ash Handling System

Previously, plant fly ash systems utilized a wet ash sluice system to transport ash to the existing ash settling pond. In order to comply with the CCR and ELG rules, the fly ash equipment at Gaston was retrofitted with a pneumatic fly ash handling system. The retrofit required new transport piping and vacuum/blower systems to transport the ash to on-site silos. Unlike the old wet systems, this system is completely dry and utilizes conveying air instead of water to transport the ash.

If you have any additional questions or comments, please contact Zach Ryals at (205) 257-3213.

Sincerely,

Mike Godfrey, Manager
Environmental Compliance

:ZTR

cc: Theo Pinson
Daphne Lutz

600 North 18th Street
Post Office Box 2641
Birmingham, Alabama 35291

Alabama Power

June 5, 2019

Ms. Glenda Dean
Alabama Department of
Environmental Management
1400 Coliseum Boulevard
Montgomery, AL 36110

Re: **Alabama Power Company – Gaston Steam Plant: NPDES Permit No. AL0003140; Updated NPDES Permit Renewal Application for Plant Gaston**

Dear Ms. Dean:

Please find enclosed the updated NPDES permit renewal application for Plant Gaston. Alabama Power Company (APC) submitted a complete and timely NPDES permit renewal application for Plant Gaston on December 15, 2011. Accordingly, the existing NPDES permit for the facility has been administratively continued and remains in effect. The enclosed updated application is being submitted due to recent and anticipated changes to plant operation with respect to the CWA 316(b) Rule, the Effluent Limitations Guidelines Rule (ELGs), and the Coal Combustion Residuals from Electric Utilities Rule (CCR rule).

ADEM Form 187, EPA Forms 1, 2C, 2D, 2E, and 2F are included in this submittal, along with the supplementary information requested by the enclosed Forms, such as site maps, plant flow schematics, and available 316(a) and 316(b) compliance information. This application includes the required sampling analysis at the following locations: the water intake and discharge points 001, 004, 011, 019, 020, and 025. This data is representative of current wastewater and stormwater discharges from the plant site. Historical data used in developing this application was from 2012 to 2017. and was calculated utilizing data from the period 2012 to 2017. Form 2D includes best engineering estimates for data related to FGD wastewater and landfill leachate (anticipated after the completion of the ash pond closure). Form 2E includes data from the internal monitoring point DSN004b which is sanitary wastewater effluent. Form 2E also includes data from the Plant's Fire Protection System Water. Form 2F describes two anticipated stormwater outfalls that will consist of only stormwater associated with the closed ash pond.

APC would appreciate consideration of the following in the development of the renewed NPDES permit for this facility:

Compliance with Section 316(b) of the Clean Water Act

In accordance with 40 CFR 122.21(r)(1)(ii)(A), the information required under paragraphs (r)(2) and (3) of §122.21 and the applicable provisions of paragraph (r)(5) is enclosed with this application. APC requests that, in accordance with 40 CFR 125.95(a)(2), an alternate schedule for the submission of the information required by 40 CFR 122.21(r)(4), (r)(6), (r)(7), (r)(8), (r)(9), (r)(10), (r)(11), and (r)(12) be established in the NPDES permit to allow time for the compilation of this information.

Operational Changes for Environmental Compliance

Compliance with the ELGs

The enclosed updated permit application includes representative data and descriptions of the current configuration of the wastewater treatment systems and corresponding flows at Plant Gaston, as well as the description of potential re-routing of wastewater streams that may eventually be necessary to comply with the ELGs.

The 2015 ELGs include an array of effluent limitations applicable to wastewater streams generated at steam electric power generating facilities. As originally promulgated, the ELGs require facilities to comply with certain effluent limitations, including the limitations associated with FGD wastewater, "as soon as possible beginning November 1, 2018, but no later than December 31, 2023." On August 11, 2017, the EPA Administrator issued a letter announcing his decision to conduct a rulemaking to potentially revise the new, more stringent Best Available Technology (BAT) effluent limitations standards in the 2015 rule that apply to bottom ash transport water (BATW) and flue gas desulfurization (FGD) wastewater. To allow adequate time for this reconsideration process, EPA also finalized a rule postponing the earliest compliance dates for the BAT effluent limitations for BATW and FGD wastewater in the 2015 Rule from November 1, 2018, to November 1, 2020.

Internal monitoring point 004f is being requested for inclusion in this permit pursuant to the ELGs as an internal sampling point for FGD wastewater. It would be needed if the FGD wastewater limits from the ELGs are incorporated into the new permit to ensure the blowdown from the FGD treatment system meets the ELGs effluent limitations prior to mixing with other treated wastewater streams.

APC previously requested a date beyond November 1, 2020, for the application of the ELGs BATW and FGD wastewater effluent limitations to Plant Gaston due to the uncertainty surrounding the potential revision of the ELG requirements. This request included a formal justification to ADEM addressing the "as soon as possible" factors set out in 40 C.F.R. § 423.11(t).

Furthermore, due to the current uncertainties associated with the ELGs, APC specifically reserves its right to revise and/or supplement this permit application following resolution of the pending judicial challenges to the ELGs and/or EPA's forthcoming administrative action,

including any judicial appeal of same.

Compliance with the CCR rule

In accordance with the CCR rule, Plant Gaston's ash pond underwent evaluations per the closure demonstrations, which determined that the ash pond required closure. All existing wastewater streams were removed from the pond and pond closure began in early 2019.

Although the ash pond is undergoing closure, discharge point 004 will remain in use to allow for dewatering of the pond. An updated proposed dewatering plan for Plant Gaston was submitted to ADEM on April 3, 2019. Following the completion of the closure project, discharge point 004 will continue to be used as the discharge point for effluent from a newly constructed treatment pond designed to handle remaining wastewaters generated at the plant.

Miscellaneous

Plant Gaston has a Best Management Practices (BMP) Plan that has been prepared in accordance with Part IV.B. of the NPDES permit. This plan is available for review upon your request.

If you have any additional questions, comments, or concerns, please contact Zach Ryals at (205) 257-3213.

Sincerely,

Mike Godfrey, Manager
Environmental Compliance

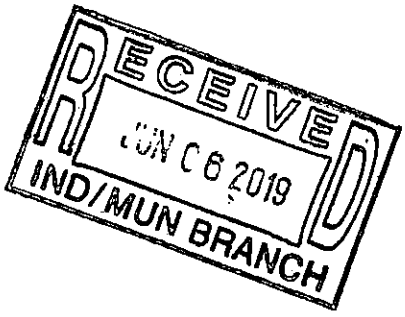
:ZTR

cc: Theo Pinson
Daphne Lutz
Scott Ramsey

Alabama Power Company Plant Gaston
NPDES Permit Application

The following documents are enclosed in this NPDES permit application:

- ADEM Form 187
- EPA Form 1
- EPA Form 2C
- EPA Form 2D
- EPA Form 2E
- EPA Form 2F
- Additional pertinent information



Supplementary information (i.e. describing any assumptions made when calculating average flows or detailing specific discharge points) can be found on the General Comments page immediately preceding each Form.

This permit application includes representative data and descriptions of the current configuration of the wastewater treatment systems and corresponding flows at Plant Gaston, as well as the best currently available data and descriptions of anticipated treatment systems and respective flows that would exist at the facility following implementation of EPA's Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category (ELG or ELGs) promulgated in 2015 and due to ash pond closure pursuant to federal and state regulations (Ala. Admin. Code r. 335-13-15; 40 C.F.R. § 257.101(a)(1)) (CCR Regulations).

Notably, on April 12, 2017, EPA announced its plan to reconsider the ELGs. On April 25, 2017, EPA published in the Federal Register notification of an indefinite stay of all ELG compliance dates that have not yet passed until such time that the pending judicial challenges to the rule are fully resolved and/or EPA's reconsideration of the rule is completed. On September 18, 2017, EPA published a final rule in the Federal Register postponing the earliest compliance dates for the new, more stringent, best available technology economically achievable ("BAT") effluent limitations and pretreatment standards for existing sources ("PSES") for flue gas desulfurization ("FGD") wastewater and bottom ash transport water ("BATW") in the 2015 Rule for a period of two years. During this time, EPA intends to conduct a rulemaking to potentially revise the BAT effluent limitations and PSES for BATW and FGD wastewater. Consequently, due to the uncertainty associated with the ultimate outcome of EPA's reconsideration of the 2015 ELGs, Alabama Power specifically reserves its right to revise and/or supplement this permit application following resolution of the pending judicial challenges to the ELGs and/or EPA's administrative action, including any judicial appeal of the same.

General Comments – Form 187

Section C. Question 2b.

The highest monthly average flow over the last 12 months was taken from the monthly flows recorded between September 1, 2016, and August 31, 2017.

The monthly average of the highest flow year of the last 5 years was taken from the monthly flows recorded each year for the 5-year period beginning September 1, 2012 and ending August 31, 2017.

Low volume wastewater is now managed through a new pond, hereafter referred to as the Wastewater Management Pond (WMP). The flow rate for low volume wastewater is based on measurements obtained from the new pond. See the details provided for 5ection C. Question 5, below.

The ash pond dewatering estimated maximum flow is based on a preliminary engineering study. Ash pond closure activities began at Plant Gaston in April 2019; dewatering will be necessary as a part of this process in the foreseeable future. See the details provided for Section C. Question 5 below.

Section C. Question 5.

The projects described below (both proposed and underway) have the potential to or will alter wastewater volumes and characteristics at Plant Gaston in the coming years. These projects stem from EPA's 2015 ELGs, as well as the CCR Regulations.

As previously mentioned, on September 18, 2017, EPA published a final rule in the Federal Register postponing the earliest compliance dates for the new, more stringent, BAT effluent limitations and PSES for FGD wastewater and BATW in the 2015 ELG Rule for a period of two years. During this time, EPA intends to conduct a rulemaking to potentially revise the BAT effluent limitations and PSES for BATW and FGD wastewater. Despite these facts, APC has included in this permit application the discharge points it would eventually need to comply with the ELGs.

All existing wastewater streams have been removed from the ash pond pursuant to the CCR Regulations. Design and engineering to re-route existing wastewater streams was performed and the new WMP), was constructed and is operational, as mentioned previously.

The 2015 ELGs established a no discharge requirement for BATW, with limited exceptions to this no discharge limitation: (1) for low volume, short duration discharges of wastewater from minor leaks (e.g., leaks from valve packing, pipe flanges, or piping) or minor maintenance events (e.g., replacement of valves or pipe sections) from the treatment system; and (2) if the wastewater is used as makeup water in the scrubber vessel. As a result of this requirement and the potential implications of the CCR Regulations, Plant Gaston commenced design and engineering of a system to re-route the plant's existing wet bottom ash sluicing system from the ash pond to a closed-cycle system. APC has requested a compliance date beyond November 1, 2020, for the application of the BATW effluent limitations set out in the 2015 ELG Rule to Plant Gaston because of EPA's forthcoming reconsideration of these

standards, as explained in EPA's September 18, 2017 final rule postponing the earliest compliance dates for the BAT effluent limitations for BATW. This later applicability date is requested: 1) to ensure the limitations included in the new final permit for Plant Gaston are consistent with the standards set for the steam electric generating industry; and 2) because Plant Gaston intends to maintain the compliance option to utilize BATW as makeup water in the scrubber vessel, meaning the applicability date for BATW compliance is tied to the applicability date for compliance with the FGD wastewater limitations.

The ELGs also set effluent limitations on the FGD wastewater stream. As previously mentioned, the applicability date of the Rule for this wastewater stream has been postponed by two years, during which time EPA plans to reconsider the limitations and possibly revise the rule. Due to the possibility of this rule revision, APC has requested a compliance date beyond November 1, 2020, for the application of the ELGs limitations for FGD wastewater to Plant Gaston.

APC intends to submit updated water use diagrams detailing the changes to the wastewater flow paths resulting from these projects to ADEM when each is completed.

Section D – Water Supply

The surface water intake volume is given as the maximum design withdrawal capacity of the intake system. This is also the peak withdrawal rate permitted through Certificate of Use #61 by the Alabama Department of the Economic and Community Affairs (ADECA).

Section D – Cooling Water Intake Structure Information

The percentage of water used exclusively for cooling purposes over a 12-month period was calculated based on the amount of water withdrawn and discharged from January 1, 2016, to December 31, 2016.

The actual intake flow (AIF) as defined in 40 CFR 125.92(a) was calculated by averaging intake flows recorded in the 2014, 2015, and 2016 calendar years.

Section E – Waste Storage and Disposal Information

All used oil, oil contaminated solids, and hazardous wastes are handled, stored, and disposed of in accordance with ADEM regulations.

Used oils and oil contaminated solids generated by the plant are temporarily stored onsite in the designated storage areas. The storage containers provide secondary containment and are accounted for in the plant's Integrated Pollution Prevention (IPP) Plan. The plant has contracted with an offsite vendor for the ultimate disposal.

Used oil generated by the plant is disposed of through:

Aaron Oil Company
PO Box 2304
Mobile, AL 36652
(251) 479-1616

Oil-contaminated solid waste generated from Plant Gaston is disposed of at the Republic Services' Pineview Landfill.

Republic Services
Pineview Landfill
2730 Bryan Road
Dora, Alabama 35062
(205) 648-1000

Water Use Diagram

Refer to Form 2C Section II. Part B. 2b to obtain the average flow associated with each discharge point.

The water use diagram flows may not balance because some of the flows indicated on the water use diagram are based on the results of flow measurements at selected outfalls within the last three years and other flows are estimated based on pump capacities and pump logs. Due to varying operating conditions over the period of flow measurements, coupled with varying pump conditions, the water flows reported are estimates of representative discharge rates at selected points in time and will vary over time with varying plant operating conditions.

The Water Use Diagram only reflects plant wastewater flow paths and discharge points under current operating conditions. Future scenarios discussed in this application will be carried out, and revised Water Use Diagrams are being submitted to the agency via this updated application.

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (ADEM)
NPDES INDIVIDUAL PERMIT APPLICATION
SUPPLEMENTARY INFORMATION FOR INDUSTRIAL FACILITIES

Instructions: This form should be used to submit the required supplementary information for an application for an NPDES individual permit for industrial facilities. The completed application should be submitted to ADEM in duplicate. If insufficient space is available to address any item, please continue on an attached sheet of paper. Please mark "N/A" in the appropriate box when an item is not applicable to the applicant. Please type or print legibly in blue or black ink. Mail the completed application to:

RECEIVED
JUN 06 2019
IND/MUN BRANCH

ADEM-Water Division
Industrial Section
P O Box 301463
Montgomery, AL 36130-1463

PURPOSE OF THIS APPLICATION

- ☐ Initial Permit Application for New Facility*
- ☐ Initial Permit Application for Existing Facility*
- ☐ Modification of Existing Permit
- ☒ Reissuance of Existing Permit
- ☐ Revocation & Reissuance of Existing Permit

* *An application for participation in the ADEM's Electronic Environmental (E2) Reporting must be submitted to allow permittee to electronically submit reports as required.*

SECTION A – GENERAL INFORMATION

1. Facility Name: ALABAMA POWER COMPANY - E. C. GASTON STEAM ELECTRIC PLANT

   a. Operator Name: ALABAMA POWER COMPANY

   b. Is the operator identified in A.1.a, the owner of the facility? ☒ Yes ☐ No
   If no, provide name and address of the operator and submit information indicating the operator's scope of responsibility for the facility.

2. NPDES Permit Number: AL 0 0 0 3 1 4 0 (not applicable if initial permit application)

3. SID Permit Number (if applicable): IU ___ ___ - ___ ___ - ___ ___ ___ ___ ___

4. NPDES General Permit Number (if applicable): ALG ___ ___ ___ ___ ___ ___

5. Facility Physical Location: **(Attach a map with location marked; street, route no. or other specific identifier)**
   Street: ALABAMA HIGHWAY 25 S
   City: WILSONVILLE County: SHELBY State: ALABAMA Zip: 35186
   Facility Location (Front Gate): Latitude: 33-14-43 N Longitude: 86-27-24 W

6. Facility Mailing Address: PO Box 2641; Bin 12N-0830
   City: Birmingham County: Jefferson State: Alabama Zip: 35291

7. Responsible Official (as described on the last page of this application):
   Name and Title: Susan B. Comensky, Vice President - Environmental Affairs
   Address: PO Box 2641; Bin 12N-0830
   City: Birmingham State: Alabama Zip: 35291
   Phone Number: (205) 257-0298 Email Address: scomensk @southernco.com

8. Designated Facility Contact:
   Name and Title: John M. (Mike) Godfrey, Manager - Environmental Affairs
   Phone Number: (205) 257-6131 Email Address: jgodfrey@southernco.com


Plant Gaston
Plant Gaston
Alabama Highway 25 S
Wilsonville, AL
Wilsonville
Wilsonville
Google earth
© 2018 Google
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1 mi

9. Designated Discharge Monitoring Report (DMR) Contact:

Name and Title: Zachary T. Ryals, Senior Engineer

Phone Number: (205) 257-3213 Email Address: ztryals@southernco.com

10. Type of Business Entity:

☒ Corporation ☐ General Partnership ☐ Limited Partnership ☐ Limited Liability Company ☐ Sole Proprietorship

☐ Other (Please Specify)

11. Complete this section if the Applicant's business entity is a Corporation

a) Location of Incorporation:

Address: 600 North 18th Street

City: Birmingham County: Jefferson State: Alabama Zip: 35203

b) Parent Corporation of Applicant:

Name: Southern Company

Address: 30 Ivan Allen Jr. Boulevard NW

City: Atlanta State: Georgia Zip: 30308

c) Subsidiary Corporation(s) of Applicant:

Name: See Attachment A

Address:

City: State: Zip:

d) Corporate Officers:

Name: See Attachment A

Address:

City: State: Zip:

Name:

Address:

City: State: Zip:

e) Agent designated by the corporation for purposes of service:

Name: Teresa G. Minor - Risk Services Director

Address: PO Box 2641

City: Birmingham State: Alabama Zip: 35291

12. If the Applicant's business entity is a Partnership, please list the general partners.

Name: Name:

Address: Address:

City: State: Zip: City: State: Zip:

13. If the Applicant's business entity is a Proprietorship, please enter the proprietor's information.

Name:_____

Address:_____

City:_____ State:_____ Zip:_____

14. Permit numbers for Applicant's previously issued NPDES Permits and identification of any other State of Alabama Environmental Permits presently held by the Applicant, its parent corporation, or subsidiary corporations within the State of Alabama:

Permit Name	Permit Number	Held By
See Attachment B		

15. Identify all Administrative Complaints, Notices of Violation, Directives, Administrative Orders, or Litigation concerning water pollution, if any, against the Applicant, its parent corporation or subsidiary corporations within the State of Alabama within the past five years (attach additional sheets if necessary):

Facility Name	Permit Number	Type of Action	Date of Action

SECTION B – BUSINESS ACTIVITY

1. Indicate applicable Standard Industrial Classification (SIC) Codes for all processes. If more than one applies, list in order of importance:

a. 4911 - Electric Services

b. _____

c. _____

d. _____

e. _____

f. _____

2. If your facility conducts or will be conducting any of the processes listed below (regardless of whether they generate wastewater, waste sludge, or hazardous waste), place a check beside the category of business activity (check all that apply):

Industrial Categories

- ☐ Aluminum Forming
- ☐ Asbestos Manufacturing
- ☐ Battery Manufacturing
- ☐ Can Making
- ☐ Canned and Preserved Fruit and Vegetables
- ☐ Canned and Preserved Seafood
- ☐ Cement Manufacturing
- ☐ Centralized Waste Treatment
- ☐ Carbon Black
- ☐ Coal Mining
- ☐ Coil Coating
- ☐ Copper Forming
- ☐ Electric and Electronic Components Manufacturing
- ☐ Electroplating
- ☐ Explosives Manufacturing
- ☐ Feedlots
- ☐ Ferroalloy Manufacturing
- ☐ Fertilizer Manufacturing
- ☐ Foundries (Metal Molding and Casting)
- ☐ Glass Manufacturing
- ☐ Grain Mills
- ☐ Gum and Wood Chemicals Manufacturing
- ☐ Inorganic Chemicals
- ☐ Iron and Steel
- ☐ Leather Tanning and Finishing
- ☐ Metal Finishing
- ☐ Meat Products
- ☐ Metal Molding and Casting
- ☐ Metal Products
- ☐ Nonferrous Metals Forming
- ☐ Nonferrous Metals Manufacturing
- ☐ Oil and Gas Extraction
- ☐ Organic Chemicals Manufacturing
- ☐ Paint and Ink Formulating
- ☐ Paving and Roofing Manufacturing
- ☐ Pesticides Manufacturing
- ☐ Petroleum Refining
- ☐ Phosphate Manufacturing
- ☐ Photographic
- ☐ Pharmaceutical
- ☐ Plastic & Synthetic Materials
- ☐ Plastics Processing Manufacturing
- ☐ Porcelain Enamel
- ☐ Pulp, Paper, and Fiberboard Manufacturing
- ☐ Rubber
- ☐ Soap and Detergent Manufacturing
- ☒ Steam and Electric
- ☐ Sugar Processing
- ☐ Textile Mills
- ☐ Timber Products
- ☐ Transportation Equipment Cleaning
- ☐ Waste Combustion
- ☐ Other (specify)_____

A facility with processes inclusive in these business areas may be covered by Environmental Protection (EPA) categorical standards. These facilities are termed "categorical users" and should skip to question 2 of Section C.

3. Give a brief description of all operations at this facility including primary products or services (attach additional sheets if necessary):

Alabama Power Company operates five (5) operating units at the Gaston site. These units have the ability to burn either coal or natural gas. These units are designated as Units 1, 2, 3, 4, and 5. The nameplate rating of Units 1, 2, 3, and 4 are 250 MW each. The nameplate rating of Unit 5 is 880 MW. Units 1-4 are once-through cooling, and Unit 5 is on closed-cycle cooling. Gypsum, from the Unit 5 scrubber, is stored in the gypsum storage pond.

SECTION C – WASTEWATER DISCHARGE INFORMATION

Facilities that checked activities in B.2 and are considered Categorical Industrial Users should skip to C.2 of this section.

1. **For Non-Categorical Users Only**: Provide wastewater flows for each of the processes or proposed processes. Using the process flow schematic (Figure 1), enter the description that corresponds to each process. **(The flow schematic should include all treatment units as well as monitoring and discharge points).** [New facilities should provide estimates for each discharge.]

Process Description	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow	Discharge Type (batch, continuous, intermittent)

If batch discharge occurs or will occur, indicate: [new facilities may estimate.]

a. Number of batch discharges: _____ per day

b. Average discharge per batch: _____ (GPD)

c. Time of batch discharges _____ (days of week) at _____ (hours of day)

d. Flow rate: _____ gallons/minute

e. Percent of total discharge: _____

Non-Process Discharges (e.g. non-contact cooling water)	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow

2. **Complete this Section only if you are subject to Categorical Standards and plan to directly discharge the associated wastewater to a water of the State.** If Categorical wastewater is discharged exclusively via an indirect discharge to a public or privately-owned treatment works, check "Yes" in the appropriate space below and proceed directly to part 2.c .

☐ Yes

For Categorical Users: Provide the wastewater discharge flows or production (whichever is applicable by the effluent guidelines) for each of your processes or proposed processes. Using the process flow schematic (Figure 1, pg 14), enter the description that corresponds to each process. [New facilities should provide estimates for each discharge.]

2a.

Regulated Process	Applicable Category	Applicable Subpart	Type of Discharge Flow (batch, continuous, intermittent)
Low Volume Wastewater	40 CFR 423	423.12	Continuous
(Pre-treated) Chemical Metal Cleaning WW	40 CFR 423	423.12	Batch

2b.

Process Description	Last 12 Months (gals/day), (lbs/day), etc. Highest Month Average*	Highest Flow Year of Last 5 (gals/day), (lbs/day), etc. Monthly Average*	Discharge Type (batch, continuous, intermittent)
Low Volume Wastewater	15,800,000 gals/day		Continuous
(Pre-treated) Chemical Metal Cleaning WW	0	0	Batch

*** Reported values should be expressed in units of the applicable Federal production-based standard. For example, flow (MGD), production (pounds per day), etc.**

If batch discharge occurs or will occur, indicate: [new facilities may estimate.]

a. Number of batch discharges: 1 per day

b. Average discharge per batch: 0 (GPD)

c. Time of batch discharges N/A (days of week) at _____ (hours of day)

d. Flow rate: 0 gallons/minute

e. Percent of total discharge: 0%

If batch discharge occurs or will occur, indicate: [new facilities may estimate.]

a. Number of batch discharges: _____ per day

b. Average discharge per batch: _____ (GPD)

c. Time of batch discharges _____ (days of week) at _____ (hours of day)

d. Flow rate: _____ gallons/minute

e. Percent of total discharge: _____

Non-Process Discharges (e.g. non-contact cooling water)	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow

2. **Complete this Section only if you are subject to Categorical Standards and plan to directly discharge the associated wastewater to a water of the State.** If Categorical wastewater is discharged exclusively via an indirect discharge to a public or privately-owned treatment works, check "Yes" in the appropriate space below and proceed directly to part 2.c .

☐ Yes

For Categorical Users: Provide the wastewater discharge flows or production (whichever is applicable by the effluent guidelines) for each of your processes or proposed processes. Using the process flow schematic (Figure 1, pg 14), enter the description that corresponds to each process. [New facilities should provide estimates for each discharge.]

2a.

Regulated Process	Applicable Category	Applicable Subpart	Type of Discharge Flow (batch, continuous, intermittent)
Cooling Tower Blowdown	40 CFR 423	40 CFR 423.12	Continuous
Ash Pond Dewatering	40 CFR 423	40 CFR 423.12	Continuous
Landfill Leachate	40 CFR 423	40 CFR 423.12	Continuous

2b.

Process Description	Last 12 Months (gals/day), (lbs/day), etc. Highest Month Average*	Highest Flow Year of Last 5 (gals/day), (lbs/day), etc. Monthly Average*	Discharge Type (batch, continuous, intermittent)
Cooling Tower Blowdown	1,200,000 gals/day	9,900,000 gals/day	Continuous
Ash Pond Dewatering	2,880,000 gals/day (est.)		Continuous
Landfill Leachate	0 gals/day	0 gals/day	Continuous

*** Reported values should be expressed in units of the applicable Federal production-based standard. For example, flow (MGD), production (pounds per day), etc.**

If batch discharge occurs or will occur, indicate: [new facilities may estimate.]

a. Number of batch discharges: _____ per day

b. Average discharge per batch: _____ (GPD)

c. Time of batch discharges _____ (days of week) at _____ (hours of day)

d. Flow rate: _____ gallons/minute

e. Percent of total discharge: _____

2c.

Non categorical Process Description	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow	Discharge Type (batch, continuous, intermittent)

If batch discharge occurs or will occur, indicate: [new facilities may estimate.]

a. Number of batch discharges: _____ per day

b. Average discharge per batch: _____ (GPD)

c. Time of batch discharges _____ (days of week) at _____ (hours of day)

d. Flow rate: _____ gallons/minute

e. Percent of total discharge: _____

2d.

Non-Process Discharges (e.g. non-contact cooling water)	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow
Once-through Cooling Water (DSN001)	371,000,000 gals/day	409,860,000 gals/day
Once-through Cooling Water (DSN002)	408,100,000 gals/day	453,060,000 gals/day

All Applicants must complete C.3 – C.6.

3. Do you share an outfall with another facility? ☐ Yes ■ No (If no, continue to C.4)

For each shared outfall, provide the following:

Applicant's Outfall No.	Name of Other Permittee/Facility	NPDES Permit No.	Where is sample collected by Applicant?

4. Do you have, or plan to have, automatic sampling equipment or continuous wastewater flow metering equipment at this facility?

Current:	Flow Metering	☐ Yes	■ No	☐ N/A
	Sampling Equipment	☐ Yes	■ No	☐ N/A
Planned:	Flow Metering	☐ Yes	■ No	☐ N/A
	Sampling Equipment	☐ Yes	■ No	☐ N/A

If so, please attach a schematic diagram of the sewer system indicating the present or future location of this equipment and describe the equipment below:

5. Are any process changes or expansions planned during the next three years that could alter wastewater volumes or characteristics?
■ Yes ☐ No (If no, continue to C.6)

Briefly describe these changes and their anticipated effects on the wastewater volume and characteristics:

Potential process changes are described in the General Comments that precede this Form 187. The changes will come about as a result of ash pond closure.

6. List the trade name and chemical composition of all biocides and corrosion inhibitors used:

Trade Name	Chemical Composition
See Attachment C	

For each biocide and/or corrosion inhibitor used, please include the following information:

(1) 96-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge will ultimately reach,
(2) quantities to be used,
(3) frequencies of use,
(4) proposed discharge concentrations, and
(5) EPA registration number, if applicable

SECTION D – WATER SUPPLY

Water Sources (check as many as are applicable):

☐ Private Well ■ Surface Water

■ Municipal Water Utility (Specify City): ☐ Other (Specify): _____

IF MORE THAN ONE WELL OR SURFACE INTAKE, PROVIDE DATA FOR EACH ON AN ATTACHMENT

City: 0.029 MGD* Well: _____ MGD* Well Depth: _____ Ft. Latitude: _____ Longitude: _____

Surface Intake Volume: 914.57 MGD* Intake Elevation in Relation to Bottom: 0 Ft.

Intake Elevation: 368.5 Ft. Latitude: 33-14-44 N Longitude: 86-27-24 W

Name of Surface Water Source: Coosa River/Yellowleaf Creek

*** MGD – Million Gallons per Day**

Cooling Water Intake Structure Information

Complete D.1 and D.2 if your water supply is provided by an outside source and not by an onsite water intake structure? (e.g., another industry, municipality, etc...)

1. Does the provider of your source water operate a surface water intake? Yes ☐ No ☐
   (If yes, continue, if no, go to Section E.)

   a) Name of Provider: _____ b) Location of Provider: _____

   c) Latitude: _____ Longitude: _____

2. Is the provider a public water system (defined as a system which provides water to the public for human consumption or which provides only treated water, not raw water)? ☐ Yes ☐ No (If yes, go to Section E, if no, continue.)

Only to be completed if you have a cooling water intake structure or the provider of your water supply uses an intake structure and does not treat the raw water.

3. Is any water withdrawn from the source water used for cooling? ■ Yes ☐ No

4. Using the average monthly measurements over any 12-month period, approximately what percentage of water withdrawn is used exclusively for cooling purposes? 90 %

5. Does the cooling water consist of treated effluent that would otherwise be discharged? ☐ Yes ■ No
   (If yes, go to Section E, if no, complete D.6 – D.17)

6. a. Is the cooling water used in a once-through cooling system? ■ Yes ☐ No

   b. Is the cooling water used in a closed cycle cooling system? ☒ Yes ☐ No

7. When was the intake installed? 1960
(Please provide dates for all major construction/installation of intake components including screens)

8. What is the maximum intake volume? 914,570,000 gpd
(maximum pumping capacity in gallons per day)

9. What is the average intake volume? 412,000,000 gpd
(average intake pump rate in gallons per day average in any 30-day period)

10. What is the actual intake flow (AIF) as defined in 40 CFR §125.92(a)? 412 MGD

11. How is the intake operated? (e.g., continuously, intermittently, batch) Intermittently, but only when online.

12. What is the mesh size of the screen on your intake? 3/8 inch

13. What is the intake screen flow-through area? 1145.55 sqft

14. What is the through-screen design intake flow velocity? 0.80 ft/sec

15. What is the through-screen actual velocity (in ft/sec)? 0.36 ft/sec

16. What is the mechanism for cleaning the screen? (e.g., does it rotate for cleaning) Water Backwash

17. Do you have any additional fish detraction technology on your intake? ☐ Yes ■ No

18. Have there been any studies to determine the impact of the intake on aquatic organisms? ■ Yes ☐ No (If yes, please provide.) A study is currently underway. A report will be provided to ADEM once it is complete.

19. Attach a site map showing the location of the water intake in relation to the facility, shoreline, water depth, etc.

SECTION E – WASTE STORAGE AND DISPOSAL INFORMATION

Provide a description of the location of all sites involved in the storage of solids or liquids that could be accidentally discharged to a water of the state, either directly or indirectly via such avenues as storm water drainage, municipal wastewater systems, etc., which are located at the facility for which the NPDES application is being made. Where possible, the location should be noted on a map and included with this application:

Description of Waste	Description of Storage Location
A small amount of oil may be generated and stored onsite	Storage of this waste will be in accordance with
in approved areas for short periods of time.	ADEM Regulations.

Provide a description of the location of the ultimate disposal sites of solid or liquid waste by-products (such as sludges) from any wastewater treatment system located at the facility.

Description of Waste	Quantity (lbs/day)	Disposal Method*
Metal Cleaning Wastes		Pumped by contractor and hauled offsite.

***Indicate which wastes identified above are disposed of at an off-site treatment facility and which are disposed of on-site. If any wastes are sent to an off-site centralized waste treatment facility, identify the waste and the facility.**

SECTION F – COASTAL ZONE INFORMATION

Is the discharge(s) located within the 10-foot elevation contour and within the limits of Mobile or Baldwin County? ☐ Yes ■ No
If yes, complete items F.1 – F.12:

	Yes	No
1. Does the project require new construction?	☐	☐
2. Will the project be a source of new air emissions?	☐	☐

EC Gaston Intake Elevation

250 125 0 250 500 Feet

Alabama Power

N W E S

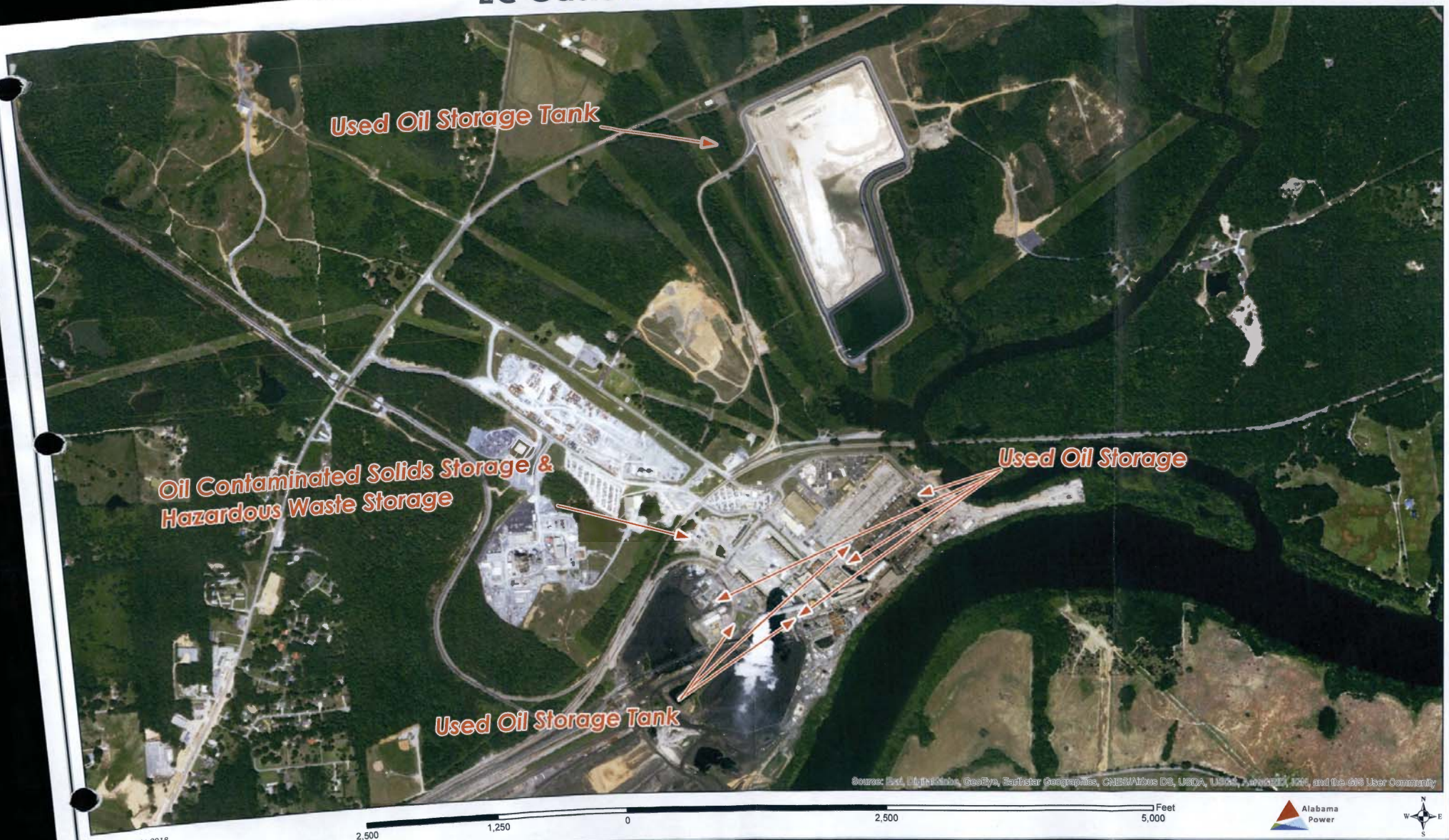
EC Gaston Intake Elevation

250 125 0 250 500 Feet

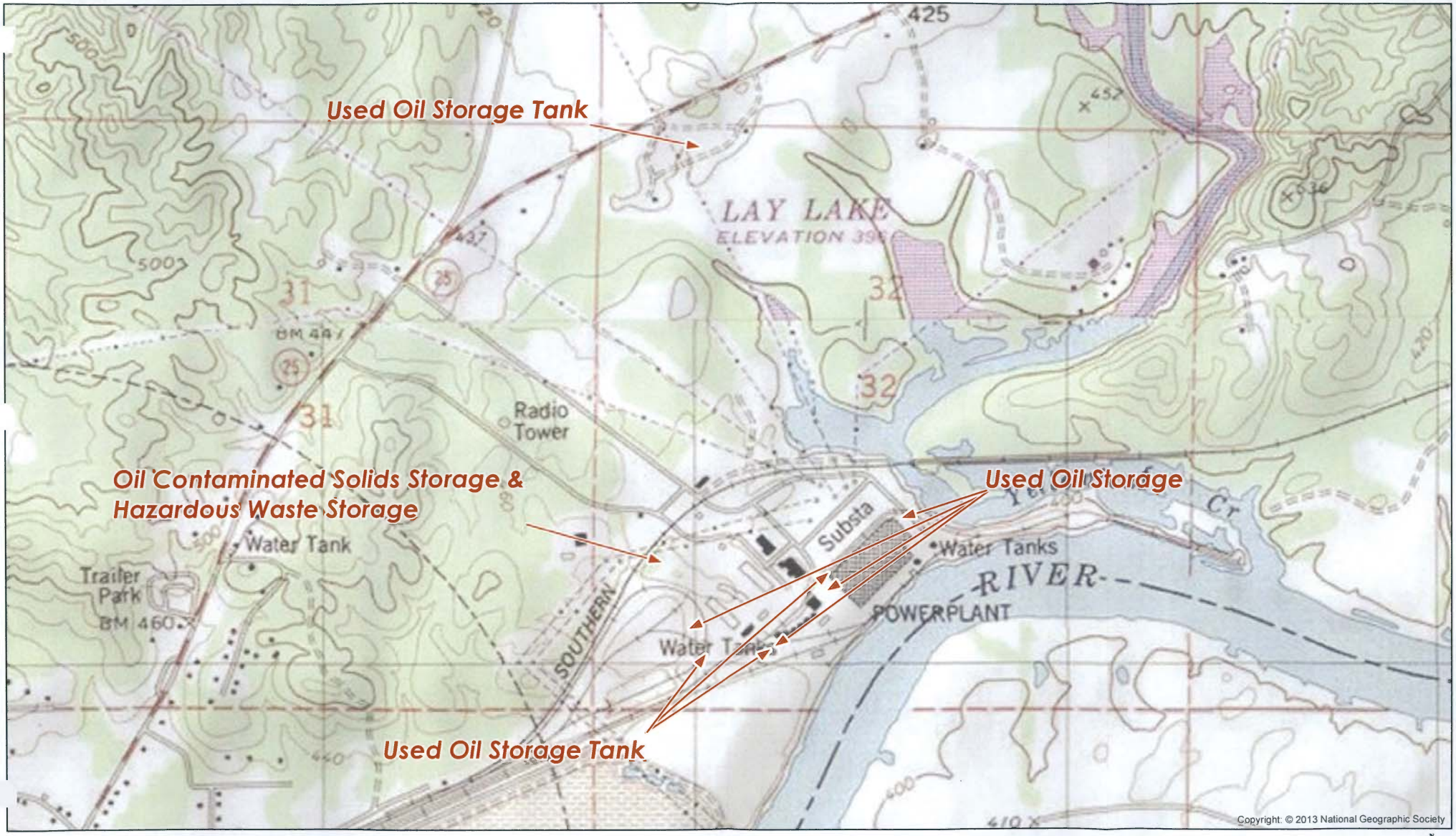
Alabama Power

N W E S

EC Gaston Used Oil Storage Areas



EC Gaston Used Oil Storage Areas



2,500 1,250 0 2,500 5,000 Feet

Alabama Power

		Yes	No
3.	Does the project involve dredging and/or filling of a wetland area or water way?	☐	☐
	If Yes, has the Corps of Engineers (COE) permit been received?	☐	☐
	COE Project No. _____		
4.	Does the project involve wetlands and/or submersed grassbeds?	☐	☐
5.	Are oyster reefs located near the project site?	☐	☐
	If Yes, include a map showing project and discharge location with respect to oyster reefs		
6.	Does the project involve the site development, construction and operation of an energy facility as defined in ADEM Admin. Code r. 335-8-1-.02(bb)?	☐	☐
7.	Does the project involve mitigation of shoreline or coastal area erosion?	☐	☐
8.	Does the project involve construction on beaches or dune areas?	☐	☐
9.	Will the project interfere with public access to coastal waters?	☐	☐
10.	Does the project lie within the 100-year floodplain?	☐	☐
11.	Does the project involve the registration, sale, use, or application of pesticides?	☐	☐
12.	Does the project propose or require construction of a new well or to alter an existing groundwater well to pump more than 50 gallons per day (GPD)?	☐	☐
	If yes, has the applicable permit for groundwater recovery or for groundwater well installation been obtained?	☐	☐

SECTION G – ANTI-DEGRADATION EVALUATION

In accordance with 40 CFR §131.12 and the ADEM Admin. Code r. 335-6-10-.04 for anti-degradation, the following information must be provided, if applicable. It is the applicant's responsibility to demonstrate the social and economic importance of the proposed activity. If further information is required to make this demonstration, attach additional sheets to the application.

1. Is this a new or increased discharge that began after April 3, 1991? ☐ Yes ■ No
   If yes, complete G.2 below. If no, go to Section H.

2. Has an Anti-Degradation Analysis been previously conducted and submitted to the Department for the new or increased discharge referenced in G.1? ■ Yes ☐ No

   If yes, do not complete this section. If no, and the discharge is to a Tier II waterbody as defined in ADEM Admin. Code r. 335-6-10-.12(4), complete G.2.A – G.2.F below and ADEM Forms 311 and 313 (attached). ADEM Form 313 must be provided for each alternative considered technically viable.

   Information required for new or increased discharges to high quality waters:

   A. What environmental or public health problem will the discharger be correcting?

   _____

   B. How much will the discharger be increasing employment (at its existing facility or as the result of locating a new facility)?

   _____

   C. How much reduction in employment will the discharger be avoiding?

   _____

   D. How much additional state or local taxes will the discharger be paying?

   _____

   E. What public service to the community will the discharger be providing?

   _____

   F. What economic or social benefit will the discharger be providing to the community?

   _____

SECTION H – EPA Application Forms

All Applicants must submit EPA permit application forms. More than one application form may be required from a facility depending on the number and types of discharges or outfalls found. The EPA application forms are found on the Department's website at http://www.adem.alabama.gov/programs/water/waterforms.cnt . The EPA application forms must be submitted in duplicate as follows:

1. All applicants must submit Form 1.
2. Applicants for existing industrial facilities (including manufacturing facilities, commercial facilities, mining activities, and silvicultural activities) which discharge process wastewater must submit Form 2C.
3. Applicants for new industrial facilities which propose to discharge process wastewater must submit Form 2D.
4. Applicants for new and existing industrial facilities which discharge only non-process wastewater (i.e., non-contact cooling water and/or sanitary wastewater) must submit Form 2E.
5. Applicants for new and existing facilities whose discharge is composed entirely of storm water associated with industrial activity must submit Form 2F, unless exempted by § 122.26(c)(1)(ii). If the discharge is composed of storm water and non-storm water, the applicant must also submit Forms 2C, 2D, and/or 2E, as appropriate (in addition to Form 2F).

SECTION I – ENGINEERING REPORT/BMP PLAN REQUIREMENTS

See ADEM 335-6-6-.08(i) & (j)

SECTION J– RECEIVING WATERS

Outfall No.	Receiving Water(s)	303(d) Segment?		Included in TMDL?*	
001, 002, 004,	Coosa River	■ Yes	☐ No	■ Yes	☐ No
011, 013, 028,		☐ Yes	☐ No	☐ Yes	☐ No
029, & 030		☐ Yes	☐ No	☐ Yes	☐ No
019, 020,	Yellowleaf Creek	■ Yes	☐ No	☐ Yes	■ No
025 & 027		☐ Yes	☐ No	☐ Yes	☐ No

*If a TMDL Compliance Schedule is requested, the following should be attached as supporting documentation:

(1) Justification for the requested Compliance Schedule (e.g. time for design and installation of control equipment, etc.);

(2) Monitoring results for the pollutant(s) of concern which have not previously been submitted to the Department (sample collection dates, analytical results (mass and concentration), methods utilized, MDL/ML, etc. should be submitted as available);

(3) Requested interim limitations, if applicable;

(4) Date of final compliance with the TMDL limitations; and,

(5) Any other additional information available to support requested compliance schedule.

SECTION K – APPLICATION CERTIFICATION

The information contained in this form must be certified by a responsible official as defined in ADEM Administrative Code r. 335-6-6-.09 "signatories to permit applications and reports" (see below).

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

Signature of Responsible Official: Susan B. Comensky Date Signed: 6/3/19

Name and Title: Susan B. Comensky, Vice President - Environmental Affairs

If the Responsible Official signing this application is <u>not</u> identified in Section A.7, provide the following information:

Mailing Address: PO Box 2641; Bin 12N-0830

City: Birmingham State: Alabama Zip: 35291

Phone Number: 205-257-0298 Email Address: scomensk@southernco.com

335-6-6-.09 SIGNATORIES TO PERMIT APPLICATIONS AND REPORTS.

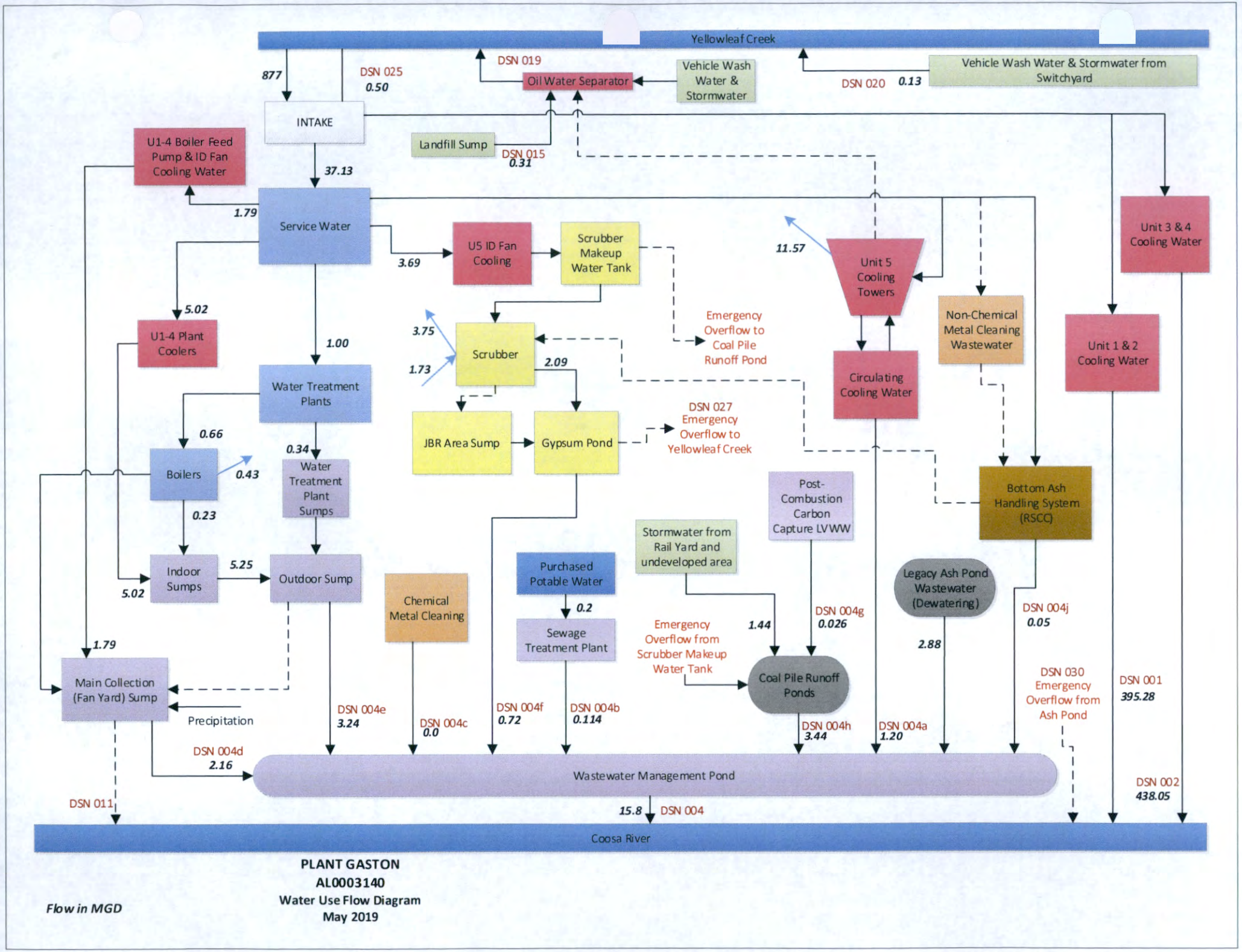
(1) The application for an NPDES permit shall be signed by a responsible official, as indicated below:

(a) In the case of a corporation, by a principal executive officer of at least the level of vice president, or a manager assigned or delegated in accordance with corporate procedures, with such delegation submitted in writing if required by the Department, who is responsible for manufacturing, production, or operating facilities and is authorized to make management decisions which govern the operation of the regulated facility;

(b) In the case of a partnership, by a general partner;

(c) In the case of a sole proprietorship, by the proprietor; or

(d) In the case of a municipal, state, federal, or other public entity, by either a principal executive officer, or ranking elected official.


Yellowleaf Creek
877
DSN 025
0.50
DSN 019
Oil Water Separator
Vehicle Wash Water & Stormwater
DSN 020
0.13
Vehicle Wash Water & Stormwater from Switchyard
INTAKE
U1-4 Boiler Feed Pump & ID Fan Cooling Water
Landfill Sump
DSN 015
0.31
37.13
1.79
Service Water
3.69
U5 ID Fan Cooling
Scrubber Makeup Water Tank
11.57
Unit 5 Cooling Towers
Unit 3 & 4 Cooling Water
5.02
U1-4 Plant Coolers
1.00
3.75
1.73
Scrubber
2.09
Emergency Overflow to Coal Pile Runoff Pond
Non-Chemical Metal Cleaning Wastewater
Unit 1 & 2 Cooling Water
Water Treatment Plants
Circulating Cooling Water
0.66
0.34
Boilers
0.43
Water Treatment Plant Sumps
JBR Area Sump
Gypsum Pond
DSN 027 Emergency Overflow to Yellowleaf Creek
Post-Combustion Carbon Capture LVWW
Bottom Ash Handling System (RSCC)
0.23
Indoor Sumps
5.25
Outdoor Sump
5.02
Stormwater from Rail Yard and undeveloped area
Purchased Potable Water
0.2
Chemical Metal Cleaning
Legacy Ash Pond Wastewater (Dewatering)
DSN 004j
0.05
Emergency Overflow from Scrubber Makeup Water Tank
1.44
DSN 004g
0.026
2.88
1.79
Main Collection (Fan Yard) Sump
Sewage Treatment Plant
Coal Pile Runoff Ponds
DSN 030 Emergency Overflow from Ash Pond
DSN 001
395.28
Precipitation
DSN 004e
3.24
DSN 004c
0.0
DSN 004f
0.72
DSN 004b
0.114
DSN 004h
3.44
DSN 004a
1.20
DSN 004d
2.16
Wastewater Management Pond
DSN 002
438.05
DSN 011
15.8
DSN 004
Coosa River
PLANT GASTON
AL0003140
Water Use Flow Diagram
May 2019
Flow in MGD

Please print or type in the unshaded areas only. Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL	EPA	U.S. ENVIRONMENTAL PROTECTION AGENCY **GENERAL INFORMATION** *Consolidated Permits Program* *(Read the "General Instructions" before starting.)*	I. EPA I.D. NUMBER
			F ALD083742858 T/A C D

LABEL ITEMS		GENERAL INSTRUCTIONS
I. EPA I.D. NUMBER	PLEASE PLACE LABEL IN THIS SPACE	If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.
III. FACILITY NAME		
V. FACILITY MAILING ADDRESS		
VI. FACILITY LOCATION		

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge to waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge to waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	X		X	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge to waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP ALABAMA POWER COMPANY - E. C. GASTON STEAM PLANT

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 JOHN M. GODFREY, MANAGER - ENVIRONMENTAL AFFAIRS	(205) 257-6131

V. FACILTY MAILING ADDRESS

A. STREET OR P.O. BOX

3 P.O. BOX 2641; BIN 12N-0830

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 BIRMINGHAM	AL	35291

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 ALABAMA HIGHWAY 25 S

B. COUNTY NAME

SHELBY

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 WILSONVILLE	AL	35186	

EPA Form 3510-1 (8-90)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
4911 *(specify)* Electric Power Services	*(specify)*
C. THIRD	**D. FOURTH**
(specify)	*(specify)*

VIII. OPERATOR INFORMATION

A. NAME	B. Is the name listed in Item VIII-A also the owner?
ALABAMA POWER COMPANY	☑ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box: if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

P *(specify)*

D. PHONE *(area code & no.)*

A (205) 257-3213

E. STREET OR P.O. BOX

PO BOX 2641; BIN 12N-0830

F. CITY OR TOWN	G. STATE	H. ZIP CODE	IX. INDIAN LAND
BIRMINGHAM	AL	35291	Is the facility located on Indian lands? ☐ YES ☑ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*	D. PSD *(Air Emissions from Proposed Sources)*
N SEE ATTACHMENT B	P SEE ATTACHMENT B
B. UIC *(Underground Injection of Fluids)*	**E. OTHER** *(specify)*
U SEE ATTACHMENT B	SEE ATTACHMENT B *(specify)* WATER SUPPLY PERMITS
C. RCRA *(Hazardous Wastes)*	**E. OTHER** *(specify)*
R N/A	SEE ATTACHMENT B *(specify)* LANDFILL PERMITS

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

GENERATION OF ELECTRICITY

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
Susan B. Comensky, VP - Environmental Affairs	Susan B. Comensky	6/3/19

COMMENTS FOR OFFICIAL USE ONLY

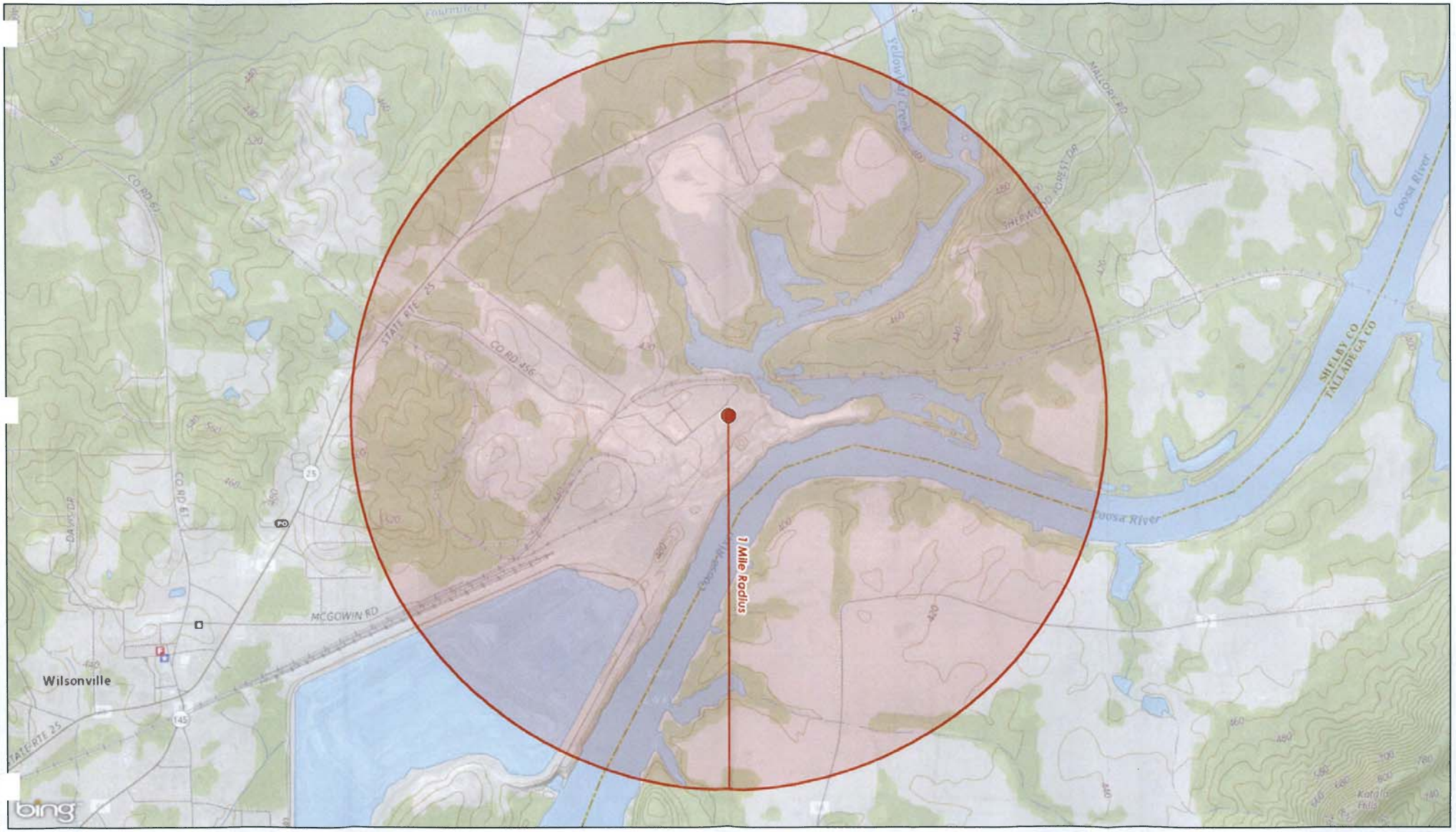
C

1 Mile Radius from the Center of EC Gaston Steam Plant General Arrangement Map

0.75 0.375 0 0.75 1.5 Miles

Alabama Power

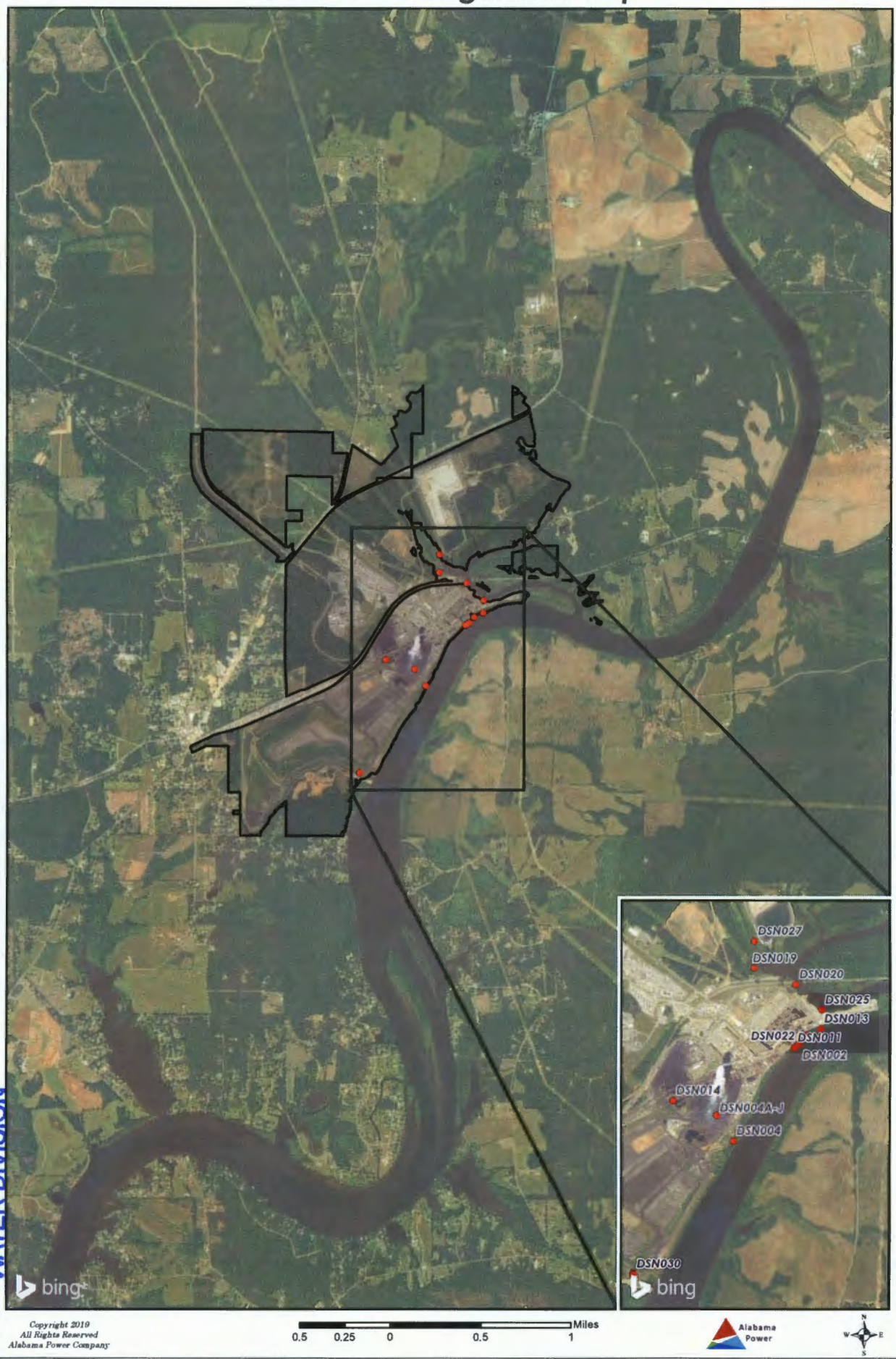
1 Mile Radius from the Center of EC Gaston Steam Plant General Arrangement Map



0.75 0.375 0 0.75 1.5 Miles

Alabama Power

1 Mile Radius from EC Gaston Steam Plant Boundary
General Arrangement Map

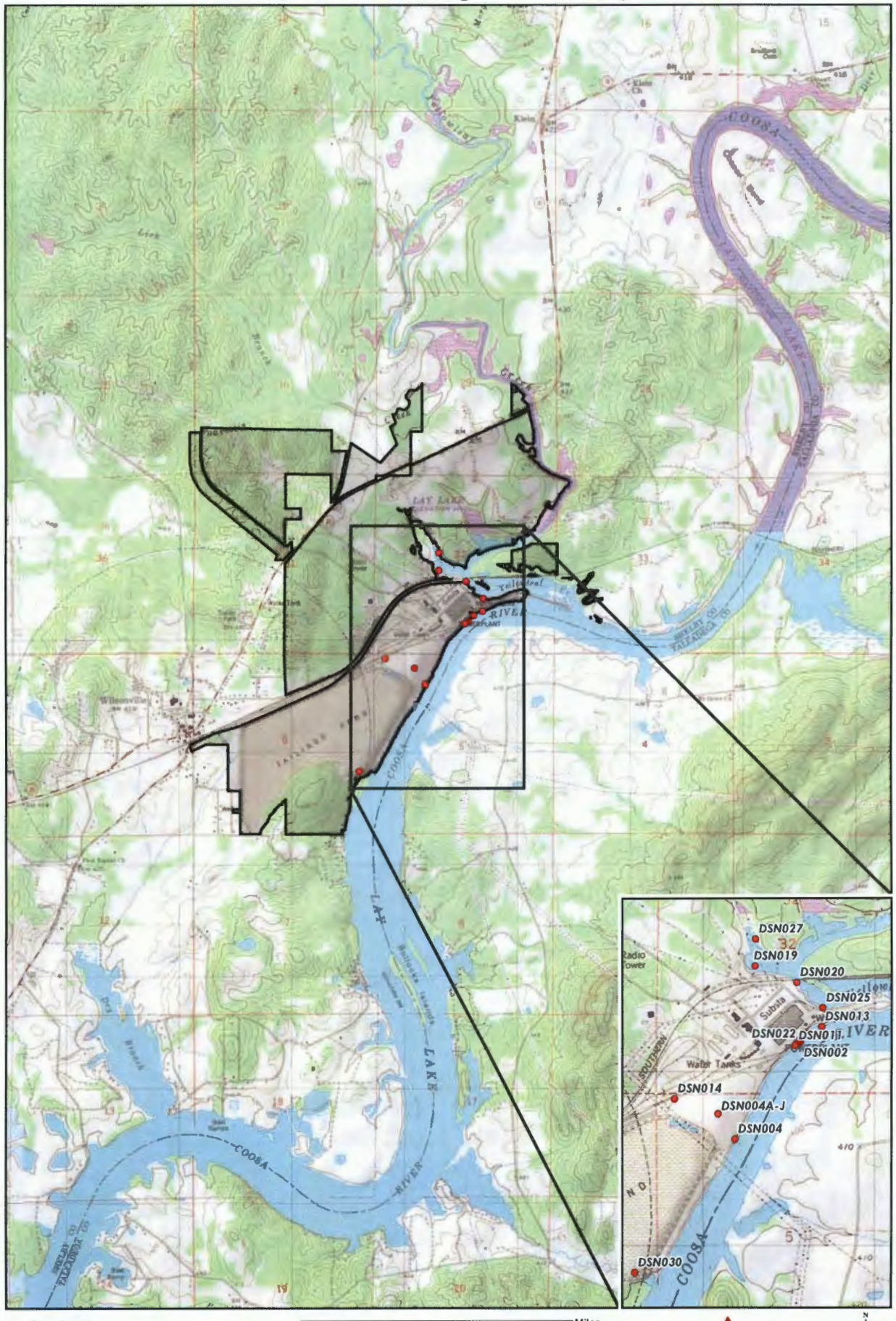


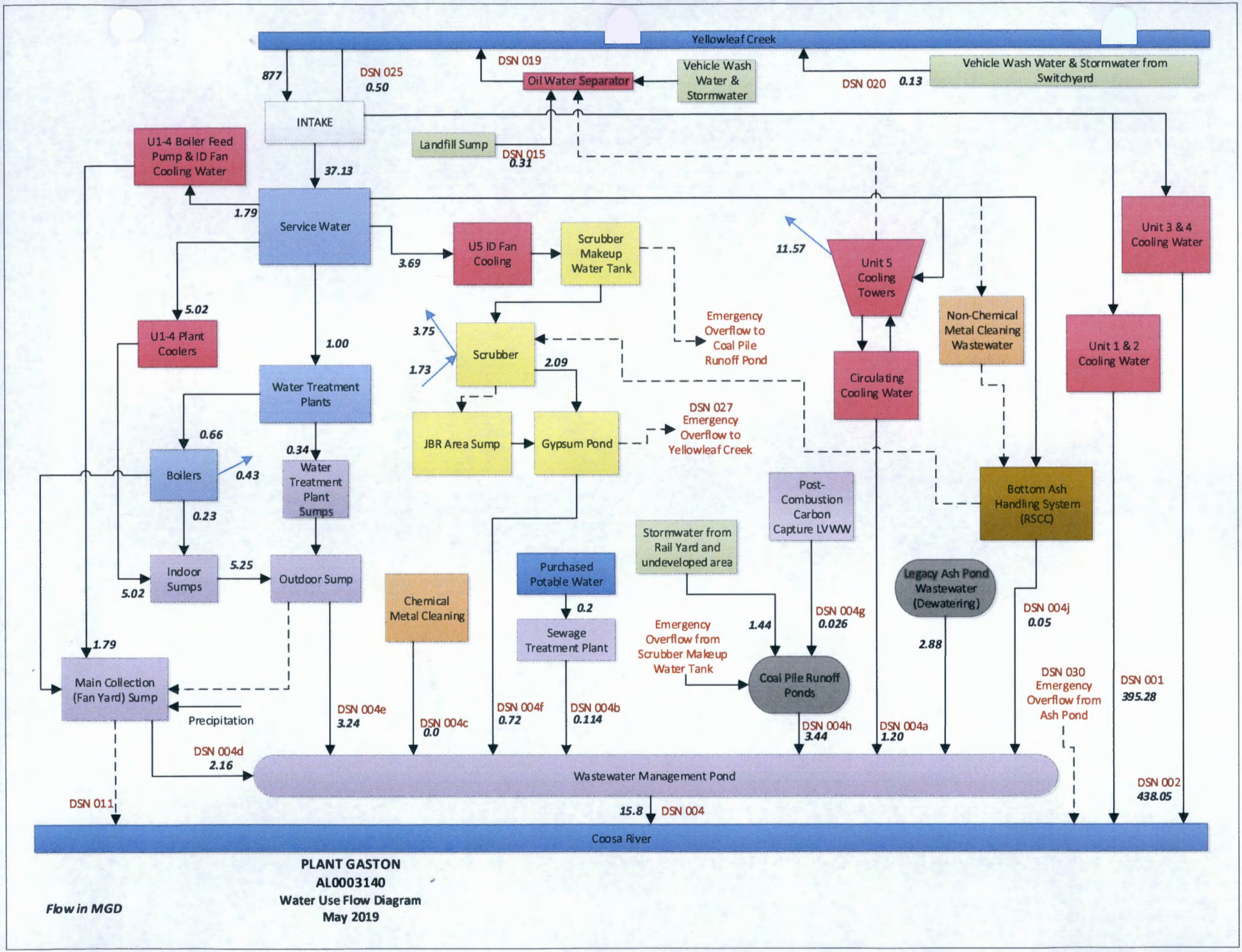
0.5 0.25 0 0.5 1 Miles

Alabama Power

N W E S

1 Mile Radius from EC Gaston Steam Plant Boundary
General Arrangement Map




Yellowleaf Creek
877
DSN 025
0.50
DSN 019
Oil Water Separator
Vehicle Wash Water & Stormwater
DSN 020
0.13
Vehicle Wash Water & Stormwater from Switchyard
INTAKE
Landfill Sump
DSN 015
0.31
U1-4 Boiler Feed Pump & ID Fan Cooling Water
37.13
1.79
Service Water
3.69
U5 ID Fan Cooling
Scrubber Makeup Water Tank
11.57
Unit 5 Cooling Towers
Unit 3 & 4 Cooling Water
5.02
U1-4 Plant Coolers
3.75
1.73
Scrubber
2.09
Emergency Overflow to Coal Pile Runoff Pond
Non-Chemical Metal Cleaning Wastewater
Unit 1 & 2 Cooling Water
1.00
Water Treatment Plants
Circulating Cooling Water
0.66
0.34
JBR Area Sump
Gypsum Pond
DSN 027 Emergency Overflow to Yellowleaf Creek
Boilers
0.43
Water Treatment Plant Sumps
Post-Combustion Carbon Capture LVWW
Bottom Ash Handling System (RSCC)
0.23
Stormwater from Rail Yard and undeveloped area
Indoor Sumps
5.25
Outdoor Sump
5.02
Purchased Potable Water
Chemical Metal Cleaning
Legacy Ash Pond Wastewater (Dewatering)
0.2
Sewage Treatment Plant
Emergency Overflow from Scrubber Makeup Water Tank
1.44
DSN 004g
0.026
DSN 004j
0.05
2.88
1.79
Main Collection (Fan Yard) Sump
Coal Pile Runoff Ponds
DSN 030 Emergency Overflow from Ash Pond
DSN 001
395.28
Precipitation
DSN 004e
3.24
DSN 004c
0.0
DSN 004f
0.72
DSN 004b
0.114
DSN 004h
3.44
DSN 004a
1.20
DSN 004d
2.16
Wastewater Management Pond
DSN 011
15.8
DSN 004
DSN 002
438.05
Coosa River
PLANT GASTON
AL0003140
Water Use Flow Diagram
May 2019
Flow in MGD

General Comments – Form 2C

All existing process wastewater discharge points to be included in this NPDES permit have been included in Form 2C. Specific details regarding each outfall are included in the following information, including references to the current requirements of the 2015 ELGs, even though the fate of certain effluent limitations promulgated as a part of the rulemaking are being revisited by EPA.

For DMR reporting purposes, APC requests the existing discharge points retain their current discharge number designation and the new discharge points be assigned sequential numbering where possible.

Section II. Part A.

Refer to Form 2C. Section II. Part B. 2b. for the flow associated with each discharge point.

Section II. Part B. 1

001 Once-Through Cooling Water (Units 1 & 2) and 002 Once-Through Cooling Water (Units 3 & 4)

These points should continue in the new permit. We are requesting a continuation of the existing 316(a) thermal variance, in accordance with 40 CFR Part 125, Subpart H and with Section 122.21(m)(6), based on the following: 1) Plant operating design conditions and associated thermal discharges have not changed and are expected to remain the same for the duration of the permit; 2) there have been no changes to this facility's discharges which would prevent this thermal variance from not being protective of the fish and wildlife population; and 3) we are not aware of any changes to the biotic community at our facility which would impact the previous 316(a) determination. See 316(a) tab for details.

Discharge point 002 is similar in nature to 001. Therefore, effluent sampled from either point is representative of the other point.

004 – Wastewater Management Pond Discharge

Current:

Effluent from this discharge point is a combination of low-volume wastewater, miscellaneous cooling water, cooling tower blowdown, coal pile runoff, treated sanitary wastewater, FGD wastewater, pre-treated chemical metal cleaning waste, legacy ash pond wastewater and stormwater streams from the plant. This wastewater stream was analyzed according to the Form 2C requirements. As previously mentioned, the WMP has been constructed, and the aforementioned plant wastewater streams that were previously treated in the ash pond are now being routed to this new treatment pond.

The flow provided for 004 is based on averaging actual flow measurements in the WMP. The flow estimates for the majority of the contributing internal monitoring points (004a – 004j) are based upon engineering estimates and are not measured values; therefore, the total flow from 004 may not equal the sum of the contributing flows.

The dry fly ash conversion project was completed at the plant. All fly ash is now being handled through this dry system.

Future:

This point will be used to dewater the ash pond to facilitate closure pursuant to the CCR Regulations. A mechanical treatment system will be utilized during closure to ensure appropriate treatment of the legacy ash transport wastewater prior to discharge.

Treated effluent from the ash pond dewatering mechanical treatment facility will be combined with the other plant waste streams in the WMP prior to discharging through DSN004.

The ash pond is no longer discharging; however, DSN004 will continue to be used as the discharge point for effluent from the WMP. The effluent data provided for 004 in the Form 2C of this updated application is representative of the effluent that will be discharged from the WMP following ash pond closure.

004a – Unit 5 Cooling Tower Blowdown

This is an internal monitoring point for Unit 5 Cooling Tower Blowdown which is routed to the WMP which discharges through 004. The blowdown line from this system was enlarged; the maximum design flowrate of this effluent is now approximately 15 MGD. The discharge rate of this system can fluctuate seasonally, with the peak flow rate occurring during the summer months. The cooling tower blowdown discharge is a continuous flow, rather than a batch discharge.

004b – Sanitary Wastewater

This is an internal monitoring point for sanitary wastewater which was previously routed to the ash pond. This effluent stream was re-routed to and receives additional treatment in the WMP which discharges through 004. An EPA Form 2E has been prepared for this effluent stream (see General Comments – 2E included with this application).

004c – Pre-treated Chemical Metal Cleaning Wastes

This is an internal monitoring point for pre-treated chemical metal cleaning wastes. Chemical metal cleaning wastes are generated only on a periodic basis; therefore, limits associated with this waste should be conditional. Given that Plant Gaston has not recently generated any chemical metal cleaning waste, this wastewater stream was not available for sample collection and analysis. Should Plant Gaston generate chemical metal cleaning waste, it will be collected on-site and either disposed of through an approved onsite vendor or treated and discharged to the new WMP for final discharge through 004.

004d – Low Volume Wastes and Stormwater from Main Collection Sump

This is an existing internal monitoring point for low volume wastewater from the main collection sump which is routed to the new WMP which discharges through 004.

004e – Miscellaneous Low Volume Wastes

This is an existing internal monitoring point for miscellaneous low volume wastewater which is routed to the new WMP which discharges through 004.

004f – FGD Wastewater

Current:

This internal monitoring point currently does not exist but will be needed in the future.

Future:

This point will be needed as an internal sampling point to ensure the blowdown from the FGD system meets the ELG limitations prior to mixing with other treated wastewater streams for discharge. See Form 2D for more information.

004g – Post Combustion Carbon Capture Low Volume Wastewater

This is an existing internal monitoring point for low volume wastewater from the Post Combustion Carbon Capture (PC4) project which is routed to the new WMP which discharges through 004. This facility will be applying for a SID Permit.

The PC4 Research & Development (R&D) project is a collaboration between the U.S. Department of Energy (DOE)/National Energy Technology Laboratory (NETL) and Southern Company Services, Inc. This project entails using a slip stream of flue gas from Plant Gaston Unit 5, and allowing third-parties to evaluate post-combustion carbon capture technologies. The R&D effort is focused on evaluating the effectiveness of various advanced solvents, solid sorbents, and membrane systems in separating CO_2 generated during combustion from the large amounts of nitrogen (from air) found in the flue gas.

004h – Coal Pile Runoff Pond Effluent

This is an internal monitoring point of the effluent from the coal pile runoff pond which is routed to the new WMP and then discharged through 004.

004i – Landfill Leachate Collection

Current:

This wastewater stream does not currently exist but will be associated with ash pond closure.

Future:

During ash pond closure, a leachate collection system will be installed to collect leachate from the closed and capped facility. The leachate will be routed to the new WMP for treatment prior to discharging through 004. See Form 2D for more information.

004j – Remote Submerged Chain Conveyor (RSCC) System Overflow

This is an internal monitoring point for wastewater flows from the RSCC system.

Current:

Periodic discharges of this legacy wastewater are expected as the treatment system is optimized. These flows will continue until the ELG BATW BAT limitations are applicable to the facility. Flows include plant equipment wash water, purge and operational water, as well as water from leaks or maintenance events. This wastewater is routed to the WMP which discharges through 004.

Future:

This point will be needed as an internal sampling point for low volume, short duration discharges of wastewater from minor leaks (e.g., leaks from valve packing, pipe flanges, or piping) or minor maintenance events (e.g., replacement of valves or pipe sections) originating from the RSCC system. These flows constitute low volume wastewater, according to the 2015 ELGs materials. This wastewater will be routed to the WMP which discharges through 004.

011 – Main Collection Sump Emergency Overflow

The effluent from this outfall is identical in nature to the effluent from 004d. In the event of an upset which would cease the flow of 004d, the Main Collection Sump would fill and overflow to the Coosa River through 011.

013 – Intake Screen Backwash Bypass and Area Stormwater Drain

There are no pollutants added to this discharge stream, and there are no materials stored in this area which could contaminate the stormwater.

015 – Stormwater Runoff from Plant Construction & Debris (C&D) Landfill

This is an internal monitoring point for the stormwater runoff from the C&D Landfill. The stormwater runoff from the C&D landfill receives treatment in a retention pond and is then routed to 019.

019 – Cooling Tower "A" Coldwater Basin Blowdown Overflow, Yard Drains, and Vehicle Rinse Facility

Effluent from this discharge point consists of primarily stormwater runoff and effluent from the vehicle rinse facility. The vehicle rinse facility uses no soaps and only rinses the vehicles with water. Any overflow from the cold-water basin from cooling tower "A" will also be discharged from this outfall.

020 – Vehicle Rinse Facility discharge and Stormwater Runoff from the Switchyard

This discharge is comprised of stormwater which drains from the switchyard and effluent from the vehicle rinse facility. The vehicle rinse facility uses no soaps and only rinses the cars with water.

025 – Units 1-5 Intake Screen Backwash Water discharged to Yellowleaf Creek

River water used to backwash the intake screens discharges through 025 to Yellowleaf Creek.

027 – Gypsum Pond Emergency Overflow

The effluent from this outfall is identical in nature to the effluent from 004f. In the event of an upset, the Gypsum Pond would fill, and wastewater would overflow to Yellowleaf Creek through 027.

030 – Ash Pond Emergency Overflow

To comply with CCR Regulations, the southeastern section of the surface impoundment near the primary spillway structure has been modified through grading and the installation of an articulated concrete block armament system to allow it to operate as an auxiliary spillway during a storm event that exceeds the required design capacity of the structure. In the event of this upset condition, the ash pond would fill, and overflow to the Coosa River through 030.

Section II. Part B. 2b.

Due to the fluctuating demand for electricity and the ability to operate various combinations of the generating units at the plant, the discharge flows associated with electrical generation vary greatly. For this reason, the average flows (i.e. excluding stormwater flows) listed in this section were calculated from actual values reported at NPDES discharge locations (other than no flow or no discharge values) for the period between September 1, 2016, and August 31, 2017.

Section V.

The format used for data reporting is similar to previously submitted APC NPDES permits. Since continuous flow monitors were not used, the calculations were not "weighted by flow" and are reported as straight averages.

The "less than" (<) symbol is used to indicate that the result of a sample is less than the reportable limit of the analytical test method used to evaluate the sample.

When calculating the Long-Term Average Value of a pollutant, all data "less than" the reportable limit was changed to one-half of the reporting limit and added to the remaining data.

All long-term average data, and minimum and maximum pH values were acquired from samples collected between September 1, 2016, and August 31, 2017.

Section V. Part B

Per correspondence with ADEM, Escherichia Coli (E. Coli) was sampled in place of fecal coliform. Fecal coliform should be removed from the form and replaced with E. Coli.

Radioactivity was not sampled as part of this application as it is believed absent, except for naturally occurring radioactive material.

Section V. Part C

Dioxin was not sampled as part of this application because this site does not use or manufacture one of

the following compounds:

- 2, 4, 5-trichlorophenoxy acetic acid, (2, 4, 5-T);
- 2-(2, 4, 5-trichlorophenoxy) propanoic acid, (Silvex, 2, 4, 5-TP);
- 2-(2, 4, 5-trichlorophenoxy) ethyl 2, 2-dichloropropionate, (Erbon);
- 0, 0-dimethyl 0-(2, 4, 5-trichlorophenyl) phosphorothioate, (Ronnel);
- 2, 4, 5-trichlorophenol, (TCP); or
- Hexachlorophene, (HCP)

Per the list of toxic pollutants listed on 40 CFR 122, Appendix D, Table II, the list of volatiles which require sampling have been reduced and no longer includes 4V. Bis (*Chloromethyl*) Ether, 13V. Dichlorodifluoromethane, and 30V. Trichlorodifluoromethane. An "n/a" has been shown on the form next to these volatiles.

Per the requirements of 40 CFR 122, Appendix D, Table I and Note 1: c. 5, the testing of GC/MS Pesticide Fractions and GC/MS Base/Neutral Fractions in Once through Cooling Water, Fly Ash and Bottom Ash Transport Water has been suspended from the steam electric power generating industry category. For each discharge point, an "n/a" has been shown on the form next to the corresponding pollutants to indicate the suspension of the testing requirements.

The Certificate of Analysis, which contains the analytical results of both the grab and composite samples, are attached following the data provided for each discharge point presented in Part V.

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)
ALD083742858

Form Approved.
OMB No. 2040-0086.
Approval expires 3-31-98.

FORM **2C** NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (*list*)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (*name*)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
001	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River
002	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River
004	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (*list*)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (*list*)	b. AVERAGE FLOW (*include units*)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
001	Once-Through Condenser	128.67 MGD	Discharge to Surface Waters	4-A	
	Cooling Water, Units 1 & 2				
	Including Fire Protection				
	System Water (FPSW)				
002	Once-Through Condenser	96.7 MGD	Discharge to Surface Waters	4-A	
	Cooling Water, Units 3 & 4				
	(similar to DSN001)				
	Including FPSW				
004	Wastewater Pond Discharge	15.8 MGD	Sedimentation (Settling), Mixing,	1-U	2-C
	Consisting of:		Chemical Precipitation,	2-K	4-A
	Pond Dewatering Effluent	2.88 MGD	Neutralization, Dechlorination,		
	004a - Unit 5 Cooling	2.88 MGD	Discharge to Surface Waters	2-E	
	Tower Blowdown				
	004b - Sanitary Wastewater	0.114 MGD			
	004c - Pretreated Metal	0 MGD			
	Cleaning Wastes				
	004d - Low Volume Wastes	2.16 MGD			
	and Stormwater				
	004e - Miscellaneous	3.24 MGD			
	Low Volume Wastes				
	004f - FGD Wastewater	See Form 2D	See Form 2D		
	004g - Post Combustion	0.026 MGD			
	Carbon Capture Rinsate				
	Wastewater				

OFFICIAL USE ONLY (*effluent guidelines sub-categories*)

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ALD083742858

Form Approved.
OMB No. 2040-0086.
Approval expires 3-31-98.

FORM **2C** NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (*list*)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (*name*)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
004 (cont.)	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River
011	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River
013	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River
015	33.00	14.00	37.00	86.00	27.00	28.00	Internal Monitoring Point

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (*list*)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (*list*)	b. AVERAGE FLOW (*include units*)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
004 (cont.)	Wastewater Pond Discharge				
	Consisting of:				
	004h - Effluent from	3.44 MGD			
	Coal Pile Runoff Ponds				
	004i - Landfill Leachate	See Form 2D	See Form 2D		
	004j - RSCC System	0.05 MGD			
	Discharges				
	Including FPSW				
011	Main Collection Sump	0 MGD		4-A	
	Emergency Overflow				
	Including FPSW				
013	Intake Screen Backwash	8.51 MGD		4-A	
	Bypass and Area SW Drain				
	(Similar to DSN025)				
	Including FPSW				
015	Stormwater Runoff from	Stormwater -		1-U	
	Plant Construction & Debris	Varies			
	(C&D) Landfill	(Internal Monitoring Point)			
	Including FPSW				

OFFICIAL USE ONLY (*effluent guidelines sub-categories*)

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)
ALD083742858

Form Approved.
OMB No. 2040-0086.
Approval expires 3-31-98.

FORM 2C NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (*list*)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (*name*)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
019	33.00	14.00	37.00	86.00	27.00	28.00	Yellowleaf Creek
020	33.00	14.00	37.00	86.00	27.00	28.00	Yellowleaf Creek
025	33.00	14.00	37.00	86.00	27.00	28.00	Yellowleaf Creek
027	33.00	14.00	37.00	86.00	27.00	28.00	Yellowleaf Creek
030	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (*list*)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (*list*)	b. AVERAGE FLOW (*include units*)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
019	Cooling Tower "A" Cold	Stormwater -		4-A	
	Water Blowdown Overflow,	Varies			
	Yard Drainage, Vehicle				
	Rinse Area, and FPSW				
020	Stormwater Runoff from	Stormwater -		4-A	
	Switchyard, Vehicle Rinse	Varies			
	Area, and FPSW				
025	Units 1-5 Intake Screen	8.51 MGD		4-A	
	Backwash				
	Including FPSW				
027	Gypsum Pond Emergency	0 MGD		4-A	
	Overflow				
	Including FPSW				
030	Ash Pond Emergency	0 MGD		4-A	
	Overflow				
	Including FPSW				

OFFICIAL USE ONLY (*effluent guidelines sub-categories*)

CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☒ YES (*complete the following table*) ☐ NO (*go to Section III*)

1. OUTFALL NUMBER (*list*)	2. OPERATION(s) CONTRIBUTING FLOW (*list*)	3. FREQUENCY a. DAYS PER WEEK (*specify average*)	3. FREQUENCY b. MONTHS PER YEAR (*specify average*)	4. FLOW a. FLOW RATE (*in mgd*) 1. LONG TERM AVERAGE	4. FLOW a. FLOW RATE (*in mgd*) 2. MAXIMUM DAILY	4. FLOW B. TOTAL VOLUME (*specify with units*) 1. LONG TERM AVERAGE	4. FLOW B. TOTAL VOLUME (*specify with units*) 2. MAXIMUM DAILY	4. FLOW C. DURATION (*in days*)
011	Main Collection Sump Emergency Overflow	0	0					
027	Gypsum Pond Emergency Overflow	0	0					
030	Ash Pond Emergency Overflow	0	0					

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☒ YES (*complete Item III-B*) ☐ NO (*go to Section IV*)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (*or other measure of operation*)?

☐ YES (*complete Item III-C*) ☒ NO (*go to Section IV*)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (*specify*)	2. AFFECTED OUTFALLS (*list outfall numbers*)

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operations of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES (*complete the following table*) ☒ NO (*go to Item IV-B*)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS a. NO.	2. AFFECTED OUTFALLS b. SOURCE OF DISCHARGE	3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE a. REQUIRED	4. FINAL COMPLIANCE DATE b. PROJECTED
APC is closing the ash pond wastewater treatment system. ADEM Administrative Order No. 18-095-GW relates to this issue.	DSN004	Ash pond discharge, including cooling tower blowdown, sanitary wastewater, pretreated metal cleaning wastes, low volume wastewater, coal pile runoff and storm water	The ash pond wastewater treatment system will be closed and a new wastewater treatment system designed to treat remaining wastewater flows has been constructed.	N/A	The new wastewater treatment system designed to treat remaining wastewater flows was operational April 2019. The current estimate for completion of ash pond closure at Plant Gaston is December, 2029. However, the date is an estimate and is subject to change for several reasons: -The date of completion is dependent on factors beyond APC's direct control, including levels of precipitation during the closure process and construction scheduling/ contingencies. -Dewatering the ash pond is subject to ADEM review and approval, which is outstanding. -Closure of the ash pond is subject to ADEM permitting, and the permit application is pending

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (*or other environmental projects which may affect your discharges*) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.

☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)

ALD083742858

CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided.
NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
Vanadium	Present in trace amounts in coal.		

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ YES (*list all such pollutants below*) ☒ NO (*go to Item VI-B*)

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

[X] YES (*identify the test(s) and describe their purposes below*) [ ] NO (*go to Section VIII*)

Toxicity testing has been conducted on DSN004 as required in our existing NPDES Permit. Testing frequency is once per year.

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

[X] YES (*list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below*) [ ] NO (*go to Section IX*)

A. NAME	B. ADDRESS	C. TELEPHONE (*area code & no.*)	D. POLLUTANTS ANALYZED (*list*)
Pace Analytical Services	3516 Greensboro Avenue, Tuscaloosa, AL 35401	(205)614-6630	Refer to attached Certificates of Analysis

IX. CERTIFICATION

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

A. NAME & OFFICIAL TITLE (*type or print*)	B. PHONE NO. (*area code & no.*)
Susan B. Comensky, Vice President - Environmental Affairs	(205)257-0298
C. SIGNATURE: Susan B. Comensky	D. DATE SIGNED: 6/3/19

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ALD083742858

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 001

PART A –You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCEN-TRATION	3. UNITS b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)	<2.0						1	mg/L		2.1		1
b. Chemical Oxygen Demand (*COD*)	22.0						1	mg/L		16.1		1
c. Total Organic Carbon (*TOC*)	3.97						1	mg/L		3.98		1
d. Total Suspended Solids (*TSS*)	7.1						1	mg/L		7.2		1
e. Ammonia (*as N*)	<0.30						1	mg/L		<0.30		1
f. Flow	VALUE 669.38		VALUE 371.49		VALUE 128.67		366	mgd		VALUE 914.57		1
g. Temperature (*winter*)	VALUE 18.0		VALUE 17.1		VALUE 15.0		121	°C		VALUE 13.1		121
h. Temperature (*summer*)	VALUE 39.5		VALUE 35.2		VALUE 28.3		244	°C		VALUE 24.1		244
i. pH	MINIMUM 7.2	MAXIMUM 7.2	MINIMUM	MAXIMUM			1	STANDARD UNITS				

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCEN-TRATION	4. UNITS b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)			<0.08						1	mg/L		<0.08		1
b. Chlorine, Total Residual			<0.05						1	mg/L		<0.05		1
c. Color			35.0						1	ADMI		37.0		1
d. Fecal Coliform			4.0						1	MPN/100		1.0		1
e. Fluoride (16984-48-8)			0.06						1	mg/L		0.06		1
f. Nitrate-Nitrite (*as N*)			<0.30						1	mg/L		<0.30		1

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (*as N*)			<0.10						1	mg/L		1.15		1
h. Oil and Grease			<5						1	mg/L		<5		1
i. Phosphorus (as P), Total (7723-14-0)			0.057						1	mg/L		0.066		1
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (*as SO_4*) (14808-79-8)			9.02						1	mg/L		9.00		1
l. Sulfide (*as S*)			0.020						1	mg/L		<0.01		1
m. Sulfite (*as SO_3*) (14265-45-3)			<0.4						1	mg/L		<0.4		1
n. Surfactants			<0.05						1	mg/L		<0.05		1
o. Aluminum, Total (7429-90-5)			0.147						1	mg/L		<0.13		1
p. Barium, Total (7440-39-3)			0.0406						1	mg/L		0.0392		1
q. Boron, Total (7440-42-8)			<0.1						1	mg/L		<0.1		1
r. Cobalt, Total (7440-48-4)			<0.002						1	mg/L		<0.002		1
s. Iron, Total (7439-89-6)			0.266						1	mg/L		0.253		1
t. Magnesium, Total (7439-95-4)			5.57						1	mg/L		5.72		1
u. Molybdenum, Total (7439-98-7)			<0.00243						1	mg/L		<0.00243		1
v. Manganese, Total (7439-96-5)			0.101						1	mg/L		0.101		1
w. Tin, Total (7440-31-5)			<0.002						1	mg/L		<0.002		1
x. Titanium, Total (7440-32-6)			<0.01						1	mg/L		<0.01		1

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	001

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<0.002						1	mg/L		<0.002		1
2M. Arsenic, Total (7440-38-2)	X			<0.002						1	mg/L		<0.002		1
3M. Beryllium, Total (7440-41-7)	X			<0.002						1	mg/L		<0.002		1
4M. Cadmium, Total (7440-43-9)	X			<0.002						1	mg/L		<0.002		1
5M. Chromium, Total (7440-47-3)	X			<0.002						1	mg/L		<0.002		1
6M. Copper, Total (7440-50-8)	X			0.00262						1	mg/L		<0.002		1
7M. Lead, Total (7439-92-1)	X			<0.002						1	mg/L		<0.002		1
8M. Mercury, Total (7439-97-6)	X			<0.000005						1	mg/L		<0.000005		1
9M. Nickel, Total (7440-02-0)	X			<0.0116						1	mg/L		<0.0116		1
10M. Selenium, Total (7782-49-2)	X			<0.00231						1	mg/L		<0.00231		1
11M. Silver, Total (7440-22-4)	X			<0.002						1	mg/L		<0.002		1
12M. Thallium, Total (7440-28-0)	X			<0.002						1	mg/L		<0.002		1
13M. Zinc, Total (7440-66-6)	X			0.0110						1	mg/L		<0.01		1
14M. Cyanide, Total (57-12-5)	X			<0.010						1	mg/L		<0.010		1
15M. Phenols, Total	X			<0.10						1	mg/L		<0.10		1
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X			<0.100						1	mg/L		<0.100		1
2V. Acrylonitrile (107-13-1)	X			<0.100						1	mg/L		<0.100		1
3V. Benzene (71-43-2)	X			<0.005						1	mg/L		<0.005		1
4V. Bis (*Chloromethyl*) Ether (542-88-1)				N/A						0			N/A		0
5V. Bromoform (75-25-2)	X			<0.005						1	mg/L		<0.005		1
6V. Carbon Tetrachloride (56-23-5)	X			<0.005						1	mg/L		<0.005		1
7V. Chlorobenzene (108-90-7)	X			<0.005						1	mg/L		<0.005		1
8V. Chlorodibromomethane (124-48-1)	X			<0.005						1	mg/L		<0.005		1
9V. Chloroethane (75-00-3)	X			<0.010						1	mg/L		<0.010		1
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<0.010						1	mg/L		<0.010		1
11V. Chloroform (67-66-3)	X			<0.005						1	mg/L		<0.005		1
12V. Dichlorobromomethane (75-27-4)	X			<0.005						1	mg/L		<0.005		1
13V. Dichlorodifluoromethane (75-71-8)				N/A						0			N/A		0
14V. 1,1-Dichloroethane (75-34-3)	X			<0.005						1	mg/L		<0.005		1
15V. 1,2-Dichloroethane (107-06-2)	X			<0.005						1	mg/L		<0.005		1
16V. 1,1-Dichloroethylene (75-35-4)	X			<0.005						1	mg/L		<0.005		1
17V. 1,2-Dichloropropane (78-87-5)	X			<0.005						1	mg/L		<0.005		1
18V. 1,3-Dichloropropylene (542-75-6)	X			<0.005						1	mg/L		<0.005		1
19V. Ethylbenzene (100-41-4)	X			<0.005						1	mg/L		<0.005		1
20V. Methyl Bromide (74-83-9)	X			<0.010						1	mg/L		<0.010		1
21V. Methyl Chloride (74-87-3)	X			<0.005						1	mg/L		<0.005		1

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)	X			<0.005						1	mg/L		<0.005		1
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<0.005						1	mg/L		<0.005		1
24V. Tetrachloroethylene (127-18-4)	X			<0.005						1	mg/L		<0.005		1
25V. Toluene (108-88-3)	X			<0.005						1	mg/L		<0.005		1
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<0.005						1	mg/L		<0.005		1
27V. 1,1,1-Trichloroethane (71-55-6)	X			<0.005						1	mg/L		<0.005		1
28V. 1,1,2-Trichloroethane (79-00-5)	X			<0.005						1	mg/L		<0.005		1
29V Trichloroethylene (79-01-6)	X			<0.005						1	mg/L		<0.005		1
30V. Trichlorofluoromethane (75-69-4)				N/A						0			N/A		0
31V. Vinyl Chloride (75-01-4)	X			<0.002						1	mg/L		<0.002		1
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<0.010						1	mg/L		<0.010		1
2A. 2,4-Dichlorophenol (120-83-2)	X			<0.010						1	mg/L		<0.010		1
3A. 2,4-Dimethylphenol (105-67-9)	X			<0.010						1	mg/L		<0.010		1
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<0.050						1	mg/L		<0.050		1
5A. 2,4-Dinitrophenol (51-28-5)	X			<0.050						1	mg/L		<0.050		1
6A. 2-Nitrophenol (88-75-5)	X			<0.010						1	mg/L		<0.010		1
7A. 4-Nitrophenol (100-02-7)	X			<0.050						1	mg/L		<0.050		1
8A. P-Chloro-M-Cresol (59-50-7)	X			<0.010						1	mg/L		<0.010		1
9A. Pentachlorophenol (87-86-5)	X			<0.025						1	mg/L		<0.025		1
10A. Phenol (108-95-2)	X			<0.010						1	mg/L		<0.010		1
11A. 2,4,6-Trichlorophenol (88-05-2)	X			<0.010						1	mg/L		<0.010		1

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<0.010						1	mg/L		<0.010		1
2B. Acenaphtylene (208-96-8)	X			<0.010						1	mg/L		<0.010		1
3B. Anthracene (120-12-7)	X			<0.010						1	mg/L		<0.010		1
4B. Benzidine (92-87-5)	X			<0.050						1	mg/L		<0.050		1
5B. Benzo (*a*) Anthracene (56-55-3)	X			<0.010						1	mg/L		<0.010		1
6B. Benzo (*a*) Pyrene (50-32-8)	X			<0.010						1	mg/L		<0.010		1
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<0.010						1	mg/L		<0.010		1
8B. Benzo (*ghi*) Perylene (191-24-2)	X			<0.010						1	mg/L		<0.010		1
9B. Benzo (*k*) Fluoranthene (207-08-9)	X			<0.010						1	mg/L		<0.010		1
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)	X			<0.010						1	mg/L		<0.010		1
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)	X			<0.010						1	mg/L		<0.010		1
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)	X			<0.010						1	mg/L		<0.010		1
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)	X			<0.010						1	mg/L		<0.010		1
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	X			<0.010						1	mg/L		<0.010		1
15B. Butyl Benzyl Phthalate (85-68-7)	X			<0.010						1	mg/L		<0.010		1
16B. 2-Chloro-naphthalene (91-58-7)	X			<0.010						1	mg/L		<0.010		1
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<0.010						1	mg/L		<0.010		1
18B. Chrysene (218-01-9)	X			<0.010						1	mg/L		<0.010		1
19B. Dibenzo (*a,h*) Anthracene (53-70-3)	X			<0.010						1	mg/L		<0.010		1
20B. 1,2-Dichloro-benzene (95-50-1)	X			<0.005						1	mg/L		<0.005		1
21B. 1,3-Di-chloro-benzene (541-73-1)	X			<0.005						1	mg/L		<0.005		1

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<0.005						1	mg/L		<0.005		1
23B. 3,3-Dichlorobenzidine (91-94-1)	X			<0.020						1	mg/L		<0.020		1
24B. Diethyl Phthalate (84-66-2)	X			<0.010						1	mg/L		<0.010		1
25B. Dimethyl Phthalate (131 -11-3)	X			<0.010						1	mg/L		<0.010		1
26B. Di-N-Butyl Phthalate (84-74-2)	X			<0.010						1	mg/L		<0.010		1
27B. 2,4-Dinitrotoluene (121-14-2)	X			<0.010						1	mg/L		<0.010		1
28B. 2,6-Dinitrotoluene (606-20-2)	X			<0.010						1	mg/L		<0.010		1
29B. Di-N-Octyl Phthalate (117-84-0)	X			<0.010						1	mg/L		<0.010		1
30B. 1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	X			<0.050						1	mg/L		<0.050		1
31B. Fluoranthene (206-44-0)	X			<0.010						1	mg/L		<0.010		1
32B. Fluorene (86-73-7)	X			<0.010						1	mg/L		<0.010		1
33B. Hexachlorobenzene (118-74-1)	X			<0.010						1	mg/L		<0.010		1
34B. Hexachlorobutadiene (87-68-3)	X			<0.010						1	mg/L		<0.010		1
35B. Hexachlorocyclopentadiene (77-47-4)	X			<0.010						1	mg/L		<0.010		1
36B Hexachloroethane (87-72-1)	X			<0.010						1	mg/L		<0.010		1
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)	X			<0.010						1	mg/L		<0.010		1
38B. Isophorone (78-59-1)	X			<0.010						1	mg/L		<0.010		1
39B. Naphthalene (91-20-3)	X			<0.010						1	mg/L		<0.010		1
40B. Nitrobenzene (98-95-3)	X			<0.010						1	mg/L		<0.010		1
41B. N-Nitrosodimethylamine (62-75-9)	X			<0.010						1	mg/L		<0.010		1
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<0.010						1	mg/L		<0.010		1

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitro-sodiphenylamine (86-30-6)	X			<0.010						1	mg/L		<0.010		1
44B. Phenanthrene (85-01-8)	X			<0.010						1	mg/L		<0.010		1
45B. Pyrene (129-00-0)	X			<0.010						1	mg/L		<0.010		1
46B. 1,2,4-Tri-chlorobenzene (120-82-1)	X			<0.010						1	mg/L		<0.010		1
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)				N/A						0			N/A		0
2P. α-BHC (319-84-6)				N/A						0			N/A		0
3P. β-BHC (319-85-7)				N/A						0			N/A		0
4P. γ-BHC (58-89-9)				N/A						0			N/A		0
5P. δ-BHC (319-86-8)				N/A						0			N/A		0
6P. Chlordane (57-74-9)				N/A						0			N/A		0
7P. 4,4'-DDT (50-29-3)				N/A						0			N/A		0
8P. 4,4'-DDE (72-55-9)				N/A						0			N/A		0
9P. 4,4'-DDD (72-54-8)				N/A						0			N/A		0
10P. Dieldrin (60-57-1)				N/A						0			N/A		0
11P. α-Enosulfan (115-29-7)				N/A						0			N/A		0
12P. β-Endosulfan (115-29-7)				N/A						0			N/A		0
13P. Endosulfan Sulfate (1031-07-8)				N/A						0			N/A		0
14P. Endrin (72-20-8)				N/A						0			N/A		0
15P. Endrin Aldehyde (7421-93-4)				N/A						0			N/A		0
16P. Heptachlor (76-44-8)				N/A						0			N/A		0

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	001

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)				N/A						0			N/A		0
18P. PCB-1242 (53469-21-9)				N/A						0			N/A		0
19P. PCB-1254 (11097-69-1)				N/A						0			N/A		0
20P. PCB-1221 (11104-28-2)				N/A						0			N/A		0
21P. PCB-1232 (11141-16-5)				N/A						0			N/A		0
22P. PCB-1248 (12672-29-6)				N/A						0			N/A		0
23P. PCB-1260 (11096-82-5)				N/A						0			N/A		0
24P. PCB-1016 (12674-11-2)				N/A						0			N/A		0
25P. Toxaphene (8001-35-2)				N/A						0			N/A		0

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS001R
Sample Date : 01-Aug-17
Customer ID: AL-0003140
Delivery Date : 01-Aug-17

Description: Gaston-DSN001 Repermitting - Grab
Once Through Cond. Cooling Watr

Laboratory ID Number: AX18033

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Metals, Cyanide, Total Phenols									
* Mercury, Total by CVAF	ABB	8/10/2017	EPA 245.7		1	0 9	5	< 5	ng/L
Cyanide, Total, by TTL	TRT	8/4/2017	SM 4500-CN CE		1		0 010	< 0.010	mg/L
Phenol, Total, by TTL	KMC	8/3/2017	SM 5330		1		0.10	< 0 10	mg/L
General Characteristics									
Flow (MGD)	GFH/	8/1/2017	Field Data		1			669.38	MGD
Field pH	GFH	8/1/2017	SM-4500H		1			7.20	SU
Field Sulfite	GFH/	8/1/2017	HACH 8216		1	0.4		U Not Detected	mg/l
Temperature	GFH	8/1/2017	Field Data		1	0.1		28.8	Deg. C
Chlorine, Total Residual	GFH	8/1/2017	Field Test		1	0.05		U Not Detected	mg/L
* Escherichia Coli (E. Coli)	CES	8/2/2017	SM 9223B		1	1.0		4.0	MPN/100ml
* Oil and Grease	DLJ	8/2/2017	EPA 1664B		1	1 4	5	U Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Cyanide and Phenol analyses performed by Tuscaloosa Testing Laboratory.
fkk 8/10/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control _[signature]_ Supervision _[signature]_

Reported:8/15/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS001R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN001 Repermitting
Once Through Cond. Cooling Watr

Laboratory ID Number: AX18140

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ **Supervision** _____

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS001R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN001 Repermitting
Once Through Cond. Cooling Watr

Laboratory ID Number: AX18140

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichlorobenzene, by TTL	LAA	8/10/2017	EPA 624		1		0.005	< 0.005	mg/L
1,3-Dichlorobenzene, by TTL	LAA	8/10/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,4-Dichlorobenzene, by TTL	LAA	8/10/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Metals, Cyanide, Total Phenols									
Total, Tube Digestion Prep Date	DLJ	8/4/2017	EPA 1638		1			08/04/17	DATE
Aluminum, Total	JHK	8/8/2017	EPA 200.8		10	0.04320	0.13	0.147	mg/L
Antimony, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Arsenic, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	< 0.002	mg/L
* Barium, Total	JHK	8/8/2017	EPA 200.8		10	0.000860	0.00258	0.0406	mg/L
* Beryllium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Boron, Total	HRG	8/14/2017	EPA 200.7		1	0.0333	0.1	< 0.1	mg/L
* Cadmium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

uality Control _____ **Supervision**_____

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS001R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN001 Repermitting
Once Through Cond. Cooling Watr

Laboratory ID Number: AX18140

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
* Chromium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	< 0.002	mg/L
* Cobalt, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Copper, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.00262	mg/L
Iron, Total	JHK	8/8/2017	EPA 200.8		10	0.007460	0.0224	0.266	mg/L
* Lead, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Magnesium, Total	JHK	8/8/2017	EPA 200.8		10	1.670	5	5.57	mg/L
* Manganese, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.101	mg/L
* Molybdenum, Total	JHK	8/8/2017	EPA 200.8		10	0.000810	0.00243	U Not Detected	mg/L
* Nickel, Total	JHK	8/8/2017	EPA 200.8		10	0.003850	0.0116	U Not Detected	mg/L
* Selenium, Total	JHK	8/8/2017	EPA 200.8		10	0.000770	0.00231	U Not Detected	mg/L
* Silver, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Thallium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Tin, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Titanium, Total	JHK	8/8/2017	EPA 200.8		10	0.003330	0.01	< 0.01	mg/L
Zinc, Total	JHK	8/8/2017	EPA 200.8		10	0.003330	0.01	0.0110	mg/L
General Characteristics									
* Solids, Suspended	KRC	8/3/2017	SM 2540D		1		2.5	7.1	mg/L
* Bromide, Total	CES	8/12/2017	EPA 300.0		1	0.04	0.08	U Not Detected	mg/L
Biochemical Oxygen Demand, 5 Day, b	KMC	8/3/2017	SM 5210 B-2001		1		2.0	< 2.0	mg/L
* Fluoride, Total	CES	8/12/2017	EPA 300.0		1	0.01	0.04	0.06	mg/L
* Sulfate, Total	CES	8/12/2017	EPA 300.0		1	0.04	1	9.02	mg/L

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Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

uality Control _____ **Supervision** _____

Reported:8/22/2017
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Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS001R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN001 Repermitting
Once Through Cond. Cooling Watr

Laboratory ID Number: AX18140

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Color, by TTL	TRT	8/3/2017	SM 2120 E		1		10	35.0	ADMI
* Nitrogen, Nitrate/Nitrite	GMW	8/9/2017	EPA 353.2		1	0.10	0.30	<0.30	mg/L as N
Nitrogen, Total Organic	GMW	8/18/2017	EPA 351.3		1	0.10		Not Detected	mg/l as N
Sulfide, by TTL	CRC	8/9/2017	SM4500 S2 D		1		0.01	0.020	mg/l
Surfactants (Foaming Agents), by TTL	CRC	8/3/2017	SM 5540C		1		0.05	< 0.05	mg/l
* Phosphorus, Total	KRC	8/16/2017	SM 4500PE-TP		1	0.010	0.01	0.057	mg/L
* Nitrogen, Ammonia, Distilled	GMW	8/7/2017	EPA 350.1		1	0.10	0.30	U Not Detected	mg/L as N
* Nitrogen, Total Kjeldahl	GMW	8/11/2017	EPA 351.2		1	0.156	0.500	U Not Detected	mg/L as N
* Total Organic Carbon	KRC	8/9/2017	SM 5310 C		1	0.30	1	3.97	mg/L
Chemical Oxygen Demand, by TTL	MMC	8/4/2017	SM 5220 D		1		5.0	22.0	mg/L
Base/Neutral Compounds									
Acenaphthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Acenaphthylene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzidine, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/l
Benz(a)anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(a)pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(b)fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(g,h,i)perylene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzo(k)fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Bis(2-chloroethoxy)methane, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l

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Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS001R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN001 Repermitting
Once Through Cond. Cooling Watr

Laboratory ID Number: AX18140

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Bis(2-chloroethyl)ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroisopropyl)ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-ethylhexyl)phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Bromophenyl phenyl ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Butyl benzyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
2-Chloronaphthalene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Chlorophenyl phenyl ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Chrysene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Dibenzo(a,h)anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
3,3-Dichlorobenzidine, by TTL	LAA	8/10/2017	EPA 625		1		0.020	< 0.020	mg/L
Diethyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Dimethyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-butyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dinitrotoluene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,6-Dinitrotoluene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-octyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2-Diphenylhydrazine, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
Fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Fluorene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobutadiene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L

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Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

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Paula Coker

uality Control _____ **Supervision**_____

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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS001R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN001 Repermitting
Once Through Cond. Cooling Watr

Laboratory ID Number: AX18140

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Hexachlorocyclopentadiene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachloroethane, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Indeno(1,2,3-cd)pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Isophorone, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Naphthalene, TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Nitrobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodimethylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodi-n-propylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodiphenylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Phenanthrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2,4-Trichlorobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Acid Compounds									
2-Chlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
2,4-Dichlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dimethylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
4,6-Dinitro-2-methylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
2,4-Dinitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
2-Nitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
4-Nitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
4-chloro-3-methylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

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Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

uality Control _____ **Supervision**_____

Reported:8/22/2017
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CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS001R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN001 Repermitting
Once Through Cond. Cooling Watr

Laboratory ID Number: AX18140

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Pentachlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.025	< 0.025	mg/L
Phenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4,6-Trichlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Miscellaneous									
Method 625 - Extraction Date, by TTL	LAA	8/3/2017			1			08/03/2017	

MDL's and RL's are adjusted for sample dilution, as applicable

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Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

uality Control Keith Kennedy **Supervision**

Reported:8/22/2017
Version: 4.2

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ALD083742858

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 004

PART A –You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCEN-TRATION	3. UNITS b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)	<2.0						1	mg/L				
b. Chemical Oxygen Demand (*COD*)	27.8						1	mg/L				
c. Total Organic Carbon (*TOC*)	1.37						1	mg/L				
d. Total Suspended Solids (*TSS*)	7.8		5.3		<4.1		8	mg/L				
e. Ammonia (*as N*)	<0.15		<0.15		<0.08		5	mg/L				
f. Flow	VALUE 21		VALUE 21		VALUE 13.8		20	mgd		VALUE		
g. Temperature (*winter*)	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature (*summer*)	VALUE 31.6		VALUE		VALUE		1	°C		VALUE		
i. pH	MINIMUM 6.6	MAXIMUM 7.8	MINIMUM	MAXIMUM	[redacted]		20	STANDARD UNITS		[redacted]		

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCEN-TRATION	4. UNITS b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)			0.98						1	mg/L				
b. Chlorine, Total Residual			<0.05						1	mg/L				
c. Color			18.0						1	ADMI				
d. Fecal Coliform			18.3						1	MPN/100				
e. Fluoride (16984-48-8)			0.26						1	mg/L				
f. Nitrate-Nitrite (*as N*)			0.4		0.39		<0.30		5	mg/L				

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (*as N*)			<0.10						1	mg/L				
h. Oil and Grease			<5		<5		<3.8		8	mg/L				
i. Phosphorus (as P), Total (7723-14-0)			0.082		0.082		<0.04		5	mg/L				
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (*as SO_4*) (14808-79-8)			99.8						1	mg/L				
l. Sulfide (*as S*)			<0.01						1	mg/L				
m. Sulfite (*as SO_3*) (14265-45-3)			<0.4						1	mg/L				
n. Surfactants			<0.05						1	mg/L				
o. Aluminum, Total (7429-90-5)			0.220						1	mg/L				
p. Barium, Total (7440-39-3)			0.0874						1	mg/L				
q. Boron, Total (7440-42-8)			4.71						1	mg/L				
r. Cobalt, Total (7440-48-4)			<0.002						1	mg/L				
s. Iron, Total (7439-89-6)			0.296						1	mg/L				
t. Magnesium, Total (7439-95-4)			22.3						1	mg/L				
u. Molybdenum, Total (7439-98-7)			0.0813						1	mg/L				
v. Manganese, Total (7439-96-5)			0.0838						1	mg/L				
w. Tin, Total (7440-31-5)			<0.002						1	mg/L				
x. Titanium, Total (7440-32-6)			0.0124						1	mg/L				

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	004

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<0.002						1	mg/L				
2M. Arsenic, Total (7440-38-2)	X			0.029		<0.017		<0.009		7	mg/L				
3M. Beryllium, Total (7440-41-7)	X			<0.002						1	mg/L				
4M. Cadmium, Total (7440-43-9)	X			<0.002						1	mg/L				
5M. Chromium, Total (7440-47-3)	X			0.00566						1	mg/L				
6M. Copper, Total (7440-50-8)	X			0.00520						1	mg/L				
7M. Lead, Total (7439-92-1)	X			<0.002						1	mg/L				
8M. Mercury, Total (7439-97-6)	X			<5						1	ng/L				
9M. Nickel, Total (7440-02-0)	X			<0.0116						1	mg/L				
10M. Selenium, Total (7782-49-2)	X			0.00307						1	mg/L				
11M. Silver, Total (7440-22-4)	X			<0.002						1	mg/L				
12M. Thallium, Total (7440-28-0)	X			<0.002						1	mg/L				
13M. Zinc, Total (7440-66-6)	X			<0.01						1	mg/L				
14M. Cyanide, Total (57-12-5)	X			<0.010						1	mg/L				
15M. Phenols, Total	X			<0.10						1	mg/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X			<0.100						1	mg/L				
2V. Acrylonitrile (107-13-1)	X			<0.100						1	mg/L				
3V. Benzene (71-43-2)	X			<0.005						1	mg/L				
4V. Bis (*Chloromethyl*) Ether (542-88-1)				N/A						0					
5V. Bromoform (75-25-2)	X			<0.005						1	mg/L				
6V. Carbon Tetrachloride (56-23-5)	X			<0.005						1	mg/L				
7V. Chlorobenzene (108-90-7)	X			<0.005						1	mg/L				
8V. Chlorodibromomethane (124-48-1)	X			<0.005						1	mg/L				
9V. Chloroethane (75-00-3)	X			<0.010						1	mg/L				
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<0.010						1	mg/L				
11V. Chloroform (67-66-3)	X			<0.005						1	mg/L				
12V. Dichlorobromomethane (75-27-4)	X			<0.005						1	mg/L				
13V. Dichlorodifluoromethane (75-71-8)				N/A						0					
14V. 1,1-Dichloroethane (75-34-3)	X			<0.005						1	mg/L				
15V. 1,2-Dichloroethane (107-06-2)	X			<0.005						1	mg/L				
16V. 1,1-Dichloroethylene (75-35-4)	X			<0.005						1	mg/L				
17V. 1,2-Dichloropropane (78-87-5)	X			<0.005						1	mg/L				
18V. 1,3-Dichloropropylene (542-75-6)	X			<0.005						1	mg/L				
19V. Ethylbenzene (100-41-4)	X			<0.005						1	mg/L				
20V. Methyl Bromide (74-83-9)	X			<0.010						1	mg/L				
21V. Methyl Chloride (74-87-3)	X			<0.005						1	mg/L				

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)	X			<0.005						1	mg/L				
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<0.005						1	mg/L				
24V. Tetrachloroethylene (127-18-4)	X			<0.005						1	mg/L				
25V. Toluene (108-88-3)	X			<0.005						1	mg/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<0.005						1	mg/L				
27V. 1,1,1-Trichloroethane (71-55-6)	X			<0.005						1	mg/L				
28V. 1,1,2-Trichloroethane (79-00-5)	X			<0.005						1	mg/L				
29V Trichloroethylene (79-01-6)	X			<0.005						1	mg/L				
30V. Trichlorofluoromethane (75-69-4)				N/A						0					
31V. Vinyl Chloride (75-01-4)	X			<0.002						1	mg/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<0.010						1	mg/L				
2A. 2,4-Dichlorophenol (120-83-2)	X			<0.010						1	mg/L				
3A. 2,4-Dimethylphenol (105-67-9)	X			<0.010						1	mg/L				
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<0.050						1	mg/L				
5A. 2,4-Dinitrophenol (51-28-5)	X			<0.050						1	mg/L				
6A. 2-Nitrophenol (88-75-5)	X			<0.010						1	mg/L				
7A. 4-Nitrophenol (100-02-7)	X			<0.050						1	mg/L				
8A. P-Chloro-M-Cresol (59-50-7)	X			<0.010						1	mg/L				
9A. Pentachlorophenol (87-86-5)	X			<0.025						1	mg/L				
10A. Phenol (108-95-2)	X			<0.010						1	mg/L				
11A. 2,4,6-Trichlorophenol (88-05-2)	X			<0.010						1	mg/L				

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<0.010						1	mg/L				
2B. Acenaphtylene (208-96-8)	X			<0.010						1	mg/L				
3B. Anthracene (120-12-7)	X			<0.010						1	mg/L				
4B. Benzidine (92-87-5)	X			<0.050						1	mg/L				
5B. Benzo (*a*) Anthracene (56-55-3)	X			<0.010						1	mg/L				
6B. Benzo (*a*) Pyrene (50-32-8)	X			<0.010						1	mg/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<0.010						1	mg/L				
8B. Benzo (*ghi*) Perylene (191-24-2)	X			<0.010						1	mg/L				
9B. Benzo (*k*) Fluoranthene (207-08-9)	X			<0.010						1	mg/L				
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)	X			<0.010						1	mg/L				
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)	X			<0.010						1	mg/L				
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)	X			<0.010						1	mg/L				
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)	X			<0.010						1	mg/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	X			<0.010						1	mg/L				
15B. Butyl Benzyl Phthalate (85-68-7)	X			<0.010						1	mg/L				
16B. 2-Chloro-naphthalene (91-58-7)	X			<0.010						1	mg/L				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<0.010						1	mg/L				
18B. Chrysene (218-01-9)	X			<0.010						1	mg/L				
19B. Dibenzo (*a,h*) Anthracene (53-70-3)	X			<0.010						1	mg/L				
20B. 1,2-Dichloro-benzene (95-50-1)	X			<0.005						1	mg/L				
21B. 1,3-Di-chloro-benzene (541-73-1)	X			<0.005						1	mg/L				

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<0.005						1	mg/L				
23B. 3,3-Dichlorobenzidine (91-94-1)	X			<0.020						1	mg/L				
24B. Diethyl Phthalate (84-66-2)	X			<0.010						1	mg/L				
25B. Dimethyl Phthalate (131 -11-3)	X			<0.010						1	mg/L				
26B. Di-N-Butyl Phthalate (84-74-2)	X			<0.010						1	mg/L				
27B. 2,4-Dinitrotoluene (121-14-2)	X			<0.010						1	mg/L				
28B. 2,6-Dinitrotoluene (606-20-2)	X			<0.010						1	mg/L				
29B. Di-N-Octyl Phthalate (117-84-0)	X			<0.010						1	mg/L				
30B. 1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	X			<0.050						1	mg/L				
31B. Fluoranthene (206-44-0)	X			<0.010						1	mg/L				
32B. Fluorene (86-73-7)	X			<0.010						1	mg/L				
33B. Hexachlorobenzene (118-74-1)	X			<0.010						1	mg/L				
34B. Hexachlorobutadiene (87-68-3)	X			<0.010						1	mg/L				
35B. Hexachlorocyclopentadiene (77-47-4)	X			<0.010						1	mg/L				
36B Hexachloroethane (67-72-1)	X			<0.010						1	mg/L				
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)	X			<0.010						1	mg/L				
38B. Isophorone (78-59-1)	X			<0.010						1	mg/L				
39B. Naphthalene (91-20-3)	X			<0.010						1	mg/L				
40B. Nitrobenzene (98-95-3)	X			<0.010						1	mg/L				
41B. N-Nitrosodimethylamine (62-75-9)	X			<0.010						1	mg/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<0.010						1	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<0.010						1	mg/L				
44B. Phenanthrene (85-01-8)	X			<0.010						1	mg/L				
45B. Pyrene (129-00-0)	X			<0.010						1	mg/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<0.010						1	mg/L				
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)				N/A						0					
2P. α-BHC (319-84-6)				N/A						0					
3P. β-BHC (319-85-7)				N/A						0					
4P. γ-BHC (58-89-9)				N/A						0					
5P. δ-BHC (319-86-8)				N/A						0					
6P. Chlordane (57-74-9)				N/A						0					
7P. 4,4'-DDT (50-29-3)				N/A						0					
8P. 4,4'-DDE (72-55-9)				N/A						0					
9P. 4,4'-DDD (72-54-8)				N/A						0					
10P. Dieldrin (60-57-1)				N/A						0					
11P. α-Enosulfan (115-29-7)				N/A						0					
12P. β-Endosulfan (115-29-7)				N/A						0					
13P. Endosulfan Sulfate (1031-07-8)				N/A						0					
14P. Endrin (72-20-8)				N/A						0					
15P. Endrin Aldehyde (7421-93-4)				N/A						0					
16P. Heptachlor (76-44-8)				N/A						0					

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	004

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)				N/A						0					
18P. PCB-1242 (53469-21-9)				N/A						0					
19P. PCB-1254 (11097-69-1)				N/A						0					
20P. PCB-1221 (11104-28-2)				N/A						0					
21P. PCB-1232 (11141-16-5)				N/A						0					
22P. PCB-1248 (12672-29-6)				N/A						0					
23P. PCB-1260 (11096-82-5)				N/A						0					
24P. PCB-1016 (12674-11-2)				N/A						0					
25P. Toxaphene (8001-35-2)				N/A						0					

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS004R
Sample Date : 01-Aug-17
Customer ID: AL-0003140
Delivery Date : 01-Aug-17

Description: Gaston-DSN004 Repermitting - Grab
Ash Pond Discharge

Laboratory ID Number: AX18034

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Metals, Cyanide, Total Phenols									
* Mercury, Total by CVAF	ABB	8/10/2017	EPA 245.7		1	0.9	5	< 5	ng/L
Cyanide, Total, by TTL	TRT	8/4/2017	SM 4500-CN CE		1		0.010	< 0.010	mg/L
Phenol, Total, by TTL	KMC	8/3/2017	SM 5330		1		0.10	< 0.10	mg/L
General Characteristics									
Flow (MGD)	GFH	8/1/2017	Field Data		1			21.0	MGD
Field pH	GFH	8/1/2017	SM-4500H		1			7.37	SU
Field Sulfite	GFH/	8/1/2017	HACH 8216		1	0.4		U Not Detected	mg/l
Temperature	GFH	8/1/2017	Field Data		1	0.1		31.6	Deg. C
Chlorine, Total Residual	GFH	8/1/2017	Field Test		1	0.05		U Not Detected	mg/L
* Escherichia Coli (E. Coli)	CES	8/2/2017	SM 9223B		1	1.0		18.3	MPN/100ml
* Oil and Grease	DLJ	8/2/2017	EPA 1664B		1	1.4	5	< 5	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Cyanide and Phenol analyses performed by Tuscaloosa Testing Laboratory.
fkk 8/10/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control Keith Kornegay Supervision

Reported:8/15/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS004R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN004 Repermitting
Ash Pond Discharge

Laboratory ID Number: AX18142

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

uality Control _____ **Supervision**_____

Reported:8/22/2017
Version: 4.2

Alabama Power
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Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS004R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN004 Repermitting
Ash Pond Discharge

Laboratory ID Number: AX18142

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,3-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,4-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Metals, Cyanide, Total Phenols									
Total, Tube Digestion Prep Date	DLJ	8/4/2017	EPA 1638		1			08/04/17	DATE
Aluminum, Total	JHK	8/8/2017	EPA 200.8		10	0.04320	0.13	0.220	mg/L
Antimony, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	< 0.002	mg/L
* Arsenic, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.00628	mg/L
* Barium, Total	JHK	8/8/2017	EPA 200.8		10	0.000860	0.00258	0.0874	mg/L
* Beryllium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Boron, Total	HRG	8/14/2017	EPA 200.7		1	0.0333	0.1	4.71	mg/L
* Cadmium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L

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Hagen Kaylor

Customer Account : NGAS004R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN004 Repermitting
Ash Pond Discharge

Laboratory ID Number: AX18142

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
* Chromium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002		0.00566	mg/L
* Cobalt, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U	Not Detected	mg/L
* Copper, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002		0.00520	mg/L
Iron, Total	JHK	8/8/2017	EPA 200.8		10	0.007460	0.0224		0.296	mg/L
* Lead, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002		< 0.002	mg/L
Magnesium, Total	JHK	8/8/2017	EPA 200.8		10	1.670	5		22.3	mg/L
* Manganese, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002		0.0838	mg/L
* Molybdenum, Total	JHK	8/8/2017	EPA 200.8		10	0.000810	0.00243		0.0813	mg/L
* Nickel, Total	JHK	8/8/2017	EPA 200.8		10	0.003850	0.0116		< 0.0116	mg/L
* Selenium, Total	JHK	8/8/2017	EPA 200.8		10	0.000770	0.00231		0.00307	mg/L
* Silver, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U	Not Detected	mg/L
* Thallium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002		< 0.002	mg/L
Tin, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U	Not Detected	mg/L
Titanium, Total	JHK	8/8/2017	EPA 200.8		10	0.003330	0.01		0.0124	mg/L
Zinc, Total	JHK	8/8/2017	EPA 200.8		10	0.003330	0.01		< 0.01	mg/L
General Characteristics										
* Solids, Suspended	KRC	8/3/2017	SM 2540D		1		2.5		3.6	mg/L
* Bromide, Total	CES	8/12/2017	EPA 300.0		1	0.04	0.08		0.98	mg/L
Biochemical Oxygen Demand, 5 Day, b	KMC	8/3/2017	SM 5210 B-2001		1		2.0		< 2.0	mg/L
* Fluoride, Total	CES	8/12/2017	EPA 300.0		1	0.01	0.04		0.26	mg/L
* Sulfate, Total	CES	8/12/2017	EPA 300.0		4	0.16	4		99.8	mg/L

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E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS004R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN004 Repermitting
Ash Pond Discharge

Laboratory ID Number: AX18142

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Color, by TTL	TRT	8/3/2017	SM 2120 E		1		10	18.0	ADMI
* Nitrogen, Nitrate/Nitrite	GMW	8/9/2017	EPA 353.2		1	0.10	0.30	0.40	mg/L as N
Nitrogen, Total Organic	GMW	8/18/2017	EPA 351.3		1	0.10		Not Detected	mg/l as N
Sulfide, by TTL	CRC	8/9/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
Surfactants (Foaming Agents), by TTL	CRC	8/3/2017	SM 5540C		1		0.05	< 0.05	mg/l
* Phosphorus, Total	KRC	8/16/2017	SM 4500PE-TP		1	0.010	0.01	0.041	mg/L
* Nitrogen, Ammonia, Distilled	GMW	8/7/2017	EPA 350.1		1	0.10	0.30	U Not Detected	mg/L as N
* Nitrogen, Total Kjeldahl	GMW	8/11/2017	EPA 351.2		1	0.156	0.500	U Not Detected	mg/L as N
* Total Organic Carbon	KRC	8/9/2017	SM 5310 C		1	0.30	1	1.37	mg/L
Chemical Oxygen Demand, by TTL	MMC	8/4/2017	SM 5220 D		1		5.0	27.8	mg/L
Base/Neutral Compounds									
Acenaphthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Acenaphthylene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzidine, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/l
Benz(a)anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(a)pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(b)fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(g,h,i)perylene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzo(k)fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Bis(2-chloroethoxy)methane, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l

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E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS004R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN004 Repermitting
Ash Pond Discharge

Laboratory ID Number: AX18142

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Bis(2-chloroethyl)ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroisopropyl)ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-ethylhexyl)phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Bromophenyl phenyl ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Butyl benzyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
2-Chloronaphthalene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Chlorophenyl phenyl ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Chrysene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Dibenzo(a,h)anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
3,3-Dichlorobenzidine, by TTL	LAA	8/10/2017	EPA 625		1		0.020	< 0.020	mg/L
Diethyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Dimethyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-butyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dinitrotoluene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,6-Dinitrotoluene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-octyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2-Diphenylhydrazine, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
Fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Fluorene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobutadiene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L

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Hagen Kaylor

Customer Account : NGAS004R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN004 Repermitting
Ash Pond Discharge

Laboratory ID Number: AX18142

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Hexachlorocyclopentadiene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachloroethane, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Indeno(1,2,3-cd)pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Isophorone, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Naphthalene, TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Nitrobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodimethylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodi-n-propylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodiphenylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Phenanthrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2,4-Trichlorobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Acid Compounds									
2-Chlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
2,4-Dichlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dimethylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
4,6-Dinitro-2-methylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
2,4-Dinitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
2-Nitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
4-Nitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
4-chloro-3-methylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L

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Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN004 Repermitting
Ash Pond Discharge

Laboratory ID Number: AX18142

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Pentachlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.025	< 0.025	mg/L
Phenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4,6-Trichlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Miscellaneous									
Method 625 - Extraction Date, by TTL	LAA	8/3/2017			1			08/03/2017	

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cc: Brad Dutton
Paula Coker

Quality Control Keith Thompson **Supervision**

Reported:8/22/2017
Version: 4.2

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ALD083742858

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO.: 004 Dewatering - Photic

PART A –You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)	<2.0				<2.0		3	mg/L				
b. Chemical Oxygen Demand (*COD*)	5.4				<5.3		3	mg/L				
c. Total Organic Carbon (*TOC*)	<1				<1		3	mg/L				
d. Total Suspended Solids (*TSS*)	<2.5				<2.5		3	mg/L				
e. Ammonia (*as N*)	<0.15				<0.15		3	mg/L				
f. Flow	VALUE 2.88		VALUE		VALUE 2.88		System Design Flow	MGD		VALUE		
g. Temperature (*winter*)	VALUE 21.1		VALUE		VALUE 21.0		3	°C		VALUE		
h. Temperature (*summer*)	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 6.5	MAXIMUM 7.0	MINIMUM	MAXIMUM			3	STANDARD UNITS				

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)			0.39				0.31		3	mg/L				
b. Chlorine, Total Residual		X												
c. Color			<10				<10		3	ADMI				
d. Fecal Coliform			1.0				<1.0		3	MPN/100				
e. Fluoride (16984-48-8)			0.16				0.13		3	mg/L				
f. Nitrate-Nitrite (*as N*)			0.27				<0.23		3	mg/L				

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)			0				0		3	mg/L				
h. Oil and Grease			1.7				<1.33		3	mg/L				
i. Phosphorus (as P), Total (7723-14-0)			<0.03				<0.03		3	mg/L				
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (as SO_4) (14808-79-8)			209				136		3	mg/L				
l. Sulfide (as S)			<0.01				<0.01		3	mg/L				
m. Sulfite (as SO_3) (14265-45-3)			4.8				<1.9		3	mg/L				
n. Surfactants			<0.05				<0.05		3	mg/L				
o. Aluminum, Total (7429-90-5)			<0.013				<0.013		3	mg/L				
p. Barium, Total (7440-39-3)			0.0631				0.0571		3	mg/L				
q. Boron, Total (7440-42-8)			1.84				1.49		3	mg/L				
r. Cobalt, Total (7440-48-4)			0.00179				0.00172		3	mg/L				
s. Iron, Total (7439-89-6)			0.376				0.261		3	mg/L				
t. Magnesium, Total (7439-95-4)			7.34				7.04		3	mg/L				
u. Molybdenum, Total (7439-98-7)			0.0378				0.0130		3	mg/L				
v. Manganese, Total (7439-96-5)			0.353				0.334		3	mg/L				
w. Tin, Total (7440-31-5)			0.00373				0.00276		3	mg/L				
x. Titanium, Total (7440-32-6)			<0.001				<0.001		3	mg/L				

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CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			0.00025				<0.00022		3	mg/L				
2M. Arsenic, Total (7440-38-2)	X			0.000617				<0.000339		3	mg/L				
3M. Beryllium, Total (7440-41-7)	X			<0.0002				<0.0002		3	mg/L				
4M. Cadmium, Total (7440-43-9)	X			0.000269				<0.000239		3	mg/L				
5M. Chromium, Total (7440-47-3)	X			0.00112				<0.000689		3	mg/L				
6M. Copper, Total (7440-50-8)	X			0.00236				<0.00196		3	mg/L				
7M. Lead, Total (7439-92-1)	X			<0.0002				<0.0002		3	mg/L				
8M. Mercury, Total (7439-97-6)	X			<0.000005				<0.000005		3	mg/L				
9M. Nickel, Total (7440-02-0)	X			0.018				0.016		3	mg/L				
10M. Selenium, Total (7782-49-2)	X			0.00112				0.00056		3	mg/L				
11M. Silver, Total (7440-22-4)	X			<0.0002				<0.0002		3	mg/L				
12M. Thallium, Total (7440-28-0)	X			0.00101				0.000977		3	mg/L				
13M. Zinc, Total (7440-66-6)	X			0.022				0.0158		3	mg/L				
14M. Cyanide, Total (57-12-5)	X			<0.010				<0.010		3	mg/L				
15M. Phenols, Total	X			<0.10				<0.10		3	mg/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X			<0.100				<0.100		3	mg/L				
2V. Acrylonitrile (107-13-1)	X			<0.100				<0.100		3	mg/L				
3V. Benzene (71-43-2)	X			<0.005				<0.005		3	mg/L				
4V. Bis (*Chloromethyl*) Ether (542-88-1)				N/A						0					
5V. Bromoform (75-25-2)	X			<0.005				<0.005		3	mg/L				
6V. Carbon Tetrachloride (56-23-5)	X			<0.005				<0.005		3	mg/L				
7V. Chlorobenzene (108-90-7)	X			<0.005				<0.005		3	mg/L				
8V. Chlorodibromomethane (124-48-1)	X			<0.005				<0.005		3	mg/L				
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<0.010				<0.010		3	mg/L				
11V. Chloroform (67-66-3)	X			<0.005				<0.005		3	mg/L				
12V. Dichlorobromomethane (75-27-4)	X			<0.005				<0.005		3	mg/L				
13V. Dichlorodifluoromethane (75-71-8)				N/A						0					
14V. 1,1-Dichloroethane (75-34-3)	X			<0.005				<0.005		3	mg/L				
15V. 1,2-Dichloroethane (107-06-2)	X			<0.005				<0.005		3	mg/L				
16V. 1,1-Dichloroethylene (75-35-4)	X			<0.005				<0.005		3	mg/L				
17V. 1,2-Dichloropropane (78-87-5)	X			<0.005				<0.005		3	mg/L				
18V. 1,3-Dichloropropylene (542-75-6)	X			<0.005				<0.005		3	mg/L				
19V. Ethylbenzene (100-41-4)	X			<0.005				<0.005		3	mg/L				
20V. Methyl Bromide (74-83-9)	X			<0.010				<0.010		3	mg/L				
21V. Methyl Chloride (74-87-3)			X												

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)	X			<0.005				<0.005		3	mg/L				
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<0.005				<0.005		3	mg/L				
24V. Tetrachloroethylene (127-18-4)	X			<0.005				<0.005		3	mg/L				
25V. Toluene (108-88-3)	X			<0.005				<0.005		3	mg/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<0.005				<0.005		3	mg/L				
27V. 1,1,1-Trichloroethane (71-55-6)	X			<0.005				<0.005		3	mg/L				
28V. 1,1,2-Trichloroethane (79-00-5)	X			<0.005				<0.005		3	mg/L				
29V Trichloroethylene (79-01-6)	X			<0.005				<0.005		3	mg/L				
30V. Trichlorofluoromethane (75-69-4)				N/A						0					
31V. Vinyl Chloride (75-01-4)	X			<0.002				<0.002		3	mg/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<0.01				<0.01		3	mg/L				
2A. 2,4-Dichlorophenol (120-83-2)	X			<0.01				<0.01		3	mg/L				
3A. 2,4-Dimethylphenol (105-67-9)	X			<0.01				<0.01		3	mg/L				
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<0.01				<0.01		3	mg/L				
5A. 2,4-Dinitrophenol (51-28-5)	X			<0.031				<0.03		3	mg/L				
6A. 2-Nitrophenol (88-75-5)	X			<0.01				<0.01		3	mg/L				
7A. 4-Nitrophenol (100-02-7)	X			<0.01				<0.01		3	mg/L				
8A. P-Chloro-M-Cresol (59-50-7)	X			<0.01				<0.01		3	mg/L				
9A. Pentachlorophenol (87-86-5)	X			<0.021				<0.02		3	mg/L				
10A. Phenol (108-95-2)	X			<0.01				<0.01		3	mg/L				
11A. 2,4,6-Trichlorophenol (88-05-2)	X			<0.01				<0.01		3	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)				N/A						0					
2B. Acenaphtylene (208-96-8)				N/A						0					
3B. Anthracene (120-12-7)				N/A						0					
4B. Benzidine (92-87-5)				N/A						0					
5B. Benzo (*a*) Anthracene (56-55-3)				N/A						0					
6B. Benzo (*a*) Pyrene (50-32-8)				N/A						0					
7B. 3,4-Benzo-fluoranthene (205-99-2)				N/A						0					
8B. Benzo (*ghi*) Perylene (191-24-2)				N/A						0					
9B. Benzo (*k*) Fluoranthene (207-08-9)				N/A						0					
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)				N/A						0					
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)				N/A						0					
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)				N/A						0					
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)				N/A						0					
14B. 4-Bromophenyl Phenyl Ether (101-55-3)				N/A						0					
15B. Butyl Benzyl Phthalate (85-68-7)				N/A						0					
16B. 2-Chloro-naphthalene (91-58-7)				N/A						0					
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)				N/A						0					
18B. Chrysene (218-01-9)				N/A						0					
19B. Dibenzo (*a,h*) Anthracene (53-70-3)				N/A						0					
20B. 1,2-Dichloro-benzene (95-50-1)				N/A						0					
21B. 1,3-Di-chloro-benzene (541-73-1)				N/A						0					

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichlorobenzene (106-46-7)				N/A						0					
23B. 3,3-Dichlorobenzidine (91-94-1)				N/A						0					
24B. Diethyl Phthalate (84-66-2)				N/A						0					
25B. Dimethyl Phthalate (131 -11-3)				N/A						0					
26B. Di-N-Butyl Phthalate (84-74-2)				N/A						0					
27B. 2,4-Dinitrotoluene (121-14-2)				N/A						0					
28B. 2,6-Dinitrotoluene (606-20-2)				N/A						0					
29B. Di-N-Octyl Phthalate (117-84-0)				N/A						0					
30B. 1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)				N/A						0					
31B. Fluoranthene (206-44-0)				N/A						0					
32B. Fluorene (86-73-7)				N/A						0					
33B. Hexachlorobenzene (118-74-1)				N/A						0					
34B. Hexachlorobutadiene (87-68-3)				N/A						0					
35B. Hexachlorocyclopentadiene (77-47-4)				N/A						0					
36B Hexachloroethane (67-72-1)				N/A						0					
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)				N/A						0					
38B. Isophorone (78-59-1)				N/A						0					
39B. Naphthalene (91-20-3)				N/A						0					
40B. Nitrobenzene (98-95-3)				N/A						0					
41B. N-Nitrosodimethylamine (62-75-9)				N/A						0					
42B. N-Nitrosodi-N-Propylamine (621-64-7)				N/A						0					

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitrosodiphenylamine (86-30-6)				N/A						0					
44B. Phenanthrene (85-01-8)				N/A						0					
45B. Pyrene (129-00-0)				N/A						0					
46B. 1,2,4-Trichlorobenzene (120-82-1)				N/A						0					
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)				N/A						0					
2P. α-BHC (319-84-6)				N/A						0					
3P. β-BHC (319-85-7)				N/A						0					
4P. γ-BHC (58-89-9)				N/A						0					
5P. δ-BHC (319-86-8)				N/A						0					
6P. Chlordane (57-74-9)				N/A						0					
7P. 4,4'-DDT (50-29-3)				N/A						0					
8P. 4,4'-DDE (72-55-9)				N/A						0					
9P. 4,4'-DDD (72-54-8)				N/A						0					
10P. Dieldrin (60-57-1)				N/A						0					
11P. α-Enosulfan (115-29-7)				N/A						0					
12P. β-Endosulfan (115-29-7)				N/A						0					
13P. Endosulfan Sulfate (1031-07-8)				N/A						0					
14P. Endrin (72-20-8)				N/A						0					
15P. Endrin Aldehyde (7421-93-4)				N/A						0					
16P. Heptachlor (76-44-8)				N/A						0					

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CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)				N/A						0					
18P. PCB-1242 (53469-21-9)				N/A						0					
19P. PCB-1254 (11097-69-1)				N/A						0					
20P. PCB-1221 (11104-28-2)				N/A						0					
21P. PCB-1232 (11141-16-5)				N/A						0					
22P. PCB-1248 (12672-29-6)				N/A						0					
23P. PCB-1260 (11096-82-5)				N/A						0					
24P. PCB-1016 (12674-11-2)				N/A						0					
25P. Toxaphene (8001-35-2)				N/A						0					

Alabama Power
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744 County Road 87, GSC #8
Calera, AL 35040
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FX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASUPPPT
Sample Date/Time : 11-Apr-17 9:30 AM
Customer ID: CCR2C2017
Delivery Date : 12-Apr-17

Description: Gaston Upper Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08405

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Trans-1,2-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/L
Chloroform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichloropropane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

cc:

uality Control _____ **Supervision**_____

Reported:2/20/2018
Version: 4.2

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Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASUPPPT
Sample Date/Time : 11-Apr-17 9:30 AM
Customer ID: CCR2C2017
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Description: Gaston Upper Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08405

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
	Ethylbenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	1,3-Dichloropropylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	Trichloroethylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	Methylene Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.010	mg/L
	1,1,2,2-Tetrachloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/l
	Toluene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	Metals, Cyanide, Total Phenols										
	Total, Low Level Prep Date	JHK	4/13/2017	EPA 1638		1				04/13/17	DATE
*	Aluminum, Total	JHK	4/18/2017	EPA 200.8		1	0.00432	0.013		< 0.013	mg/L
*	Antimony, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00025	mg/L
*	Arsenic, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000617	mg/L
*	Barium, Total	JHK	4/18/2017	EPA 200.8		1	0.000086	0.000258		0.0631	mg/L
*	Beryllium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
	Boron, Total	JHK	4/18/2017	EPA 200.8		1	0.333	1		1.84	mg/L
	Cadmium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		< 0.0002	mg/L
	Calcium, Total	JHK	4/18/2017	EPA 200.8		10	1.67	5		112	mg/L
*	Chromium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		< 0.0002	mg/L
*	Cobalt, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.0016	mg/L
*	Copper, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00131	mg/L
	Iron, Total	JHK	4/18/2017	EPA 200.8		1	0.000746	0.00224		0.111	mg/L
*	Lead, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

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Justin Mitchell

Customer Account : GASUPPPT
Sample Date/Time : 11-Apr-17 9:30 AM
Customer ID: CCR2C2017
Delivery Date : 12-Apr-17

Description: Gaston Upper Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08405

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
	Magnesium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		7.26	mg/L
*	Manganese, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.339	mg/L
*	Mercury, Total by CVAF	TMS	4/17/2017	EPA 245.7		1	0.9	5	U	Not Detected	ng/L
*	Molybdenum, Total	JHK	4/18/2017	EPA 200.8		1	0.000081	0.000243		0.0378	mg/L
*	Nickel, Total	JHK	4/18/2017	EPA 200.8		1	0.000385	0.00116		0.0138	mg/L
*	Selenium, Total	JHK	4/18/2017	EPA 200.8		1	0.000077	0.000231		0.00112	mg/L
*	Silver, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
	Sodium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		47.3	mg/L
*	Thallium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000912	mg/L
	Tin, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00233	mg/L
	Titanium, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001		< 0.001	mg/L
*	Zinc, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001		0.0106	mg/L
	Cyanide, Total, by TTL	MTL	4/18/2017	SM 4500-CN CE		1		0.01		< 0.010	mg/L
	Phenol, Total, by TTL	KMC	4/18/2017	SM 5330		1		0.1		< 0.10	mg/L
	General Characteristics										
	Field Temperature	TRM	4/11/2017	SM-2550		1				20.93	Deg. C.
	FeCl3 Treated?	TRM	4/11/2017	Field Data		1				Yes	
	Pre-Settled?	TRM	4/11/2017	Field Data		1				Yes	
	Field pH	TRM	4/11/2017	SM-4500H		1				7.00	SU
	Field Sulfite	TRM	4/11/2017	HACH 8216		1	0.4			4.8	mg/l
	Field Conductivity	TRM	4/11/2017	SM-2510		1				875.5	umhos/cm

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	Field Oxidation Reduction Potential	TRM	4/11/2017	SM-2580		1			76.4	mV
	Field Dissolved Oxygen	TRM	4/11/2017	ASTM-888-05		1			8.30	mg/L
	pH	KYM	4/19/2017	SM 4500H+ B		1	0.01		7.13	SU
	Alkalinity, Total as CaCO3	KYM	4/19/2017	SM 2320 B		1	0.1		17.5	mg/L CaCO
	Bicarbonate Alkalinity, as CaCO3	KYM	4/19/2017	SM 4500CO2 D		1	0.1		17.5	mg/l-CaCO3
	Hardness, Total, (as CaCO3)	JHK	4/18/2017	SM 2340 B		1			310	mg/L
*	Solids, Suspended	KYM	4/14/2017	SM 2540D		1		2.5	< 2.5	mg/L
*	Bromide, Total	SES	4/12/2017	EPA 300.0		1	0.04	0.08	0.23	mg/L
	Biochemical Oxygen Demand, 5 Day, b	KMC	4/13/2017	SM 5210 B-2001		1		2	< 2.0	mg/L
*	Chloride, Total	SES	4/13/2017	EPA 300.0		5	0.2	5	125	mg/L
*	Fluoride, Total	SES	4/12/2017	EPA 300.0		1	0.01	0.04	0.16	mg/L
*	Sulfate, Total	SES	4/13/2017	EPA 300.0		5	0.2	5	209	mg/L
	Color, by TTL	TRT	4/13/2017	SM 2120 E		1		10	< 10	ADMI
*	Escherichia Coli (E. Coli)	ABB	4/13/2017	SM 9223B		1	1		U Not Detected	MPN/100ml
	Nitrogen, Nitrate/Nitrite	GMW	4/19/2017	EPA 353.2		1	0.05	0.2	< 0.2	mg/L as N
	Oil and Grease by Tuscaloosa Testing	MTL	4/13/2017	EPA 1664A		1		1	1.3	mg/l
	Sulfide, by TTL	CRC	4/18/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
	Surfactants (Foaming Agents), by TTL	TRT	4/13/2017	SM 5540C		1		0.05	< 0.05	mg/l
*	Phosphorus, Total	KYM	4/18/2017	SM 4500PE-TP		1	0.01	0.03	U Not Detected	mg/L
	Nitrogen, Total, Calculation	GMW	4/19/2017	SM4500		1			< 0.3	mg/L
*	Nitrogen, Ammonia, Distilled	GMW	4/21/2017	EPA 350.1		1	0.05	0.15	< 0.15	mg/L as N

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Description: Gaston Upper Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08405

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*	Nitrogen, Total Kjeldahl	GMW	4/19/2017	EPA 351.2		1	0.225	0.3	< 0.3	mg/L as N
*	Total Organic Carbon	KRC	4/14/2017	SM 5310 C		1	0.3	1	< 1	mg/L
	Chemical Oxygen Demand, by TTL	KMC	4/14/2017	SM 5220 D		1		5	5.4	mg/L
	Acid Compounds									
	2-Chlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	2,4-Dichlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	2,4-Dimethylphenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	4,6-Dinitro-2-methylphenol, by TestAme	VC1	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	2,4-Dinitrophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		30	< 30	ug/L
	2-Nitrophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	4-Nitrophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	4-chloro-3-methylphenol, by TestAmeri	VC1	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	Pentachlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		20	< 20	ug/L
	Phenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	2,4,6-Trichlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	Miscellaneous									
	Method 625 - Ext Date, by TestAmerica	NTH	4/18/2017			1			04/18/17	

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Justin Mitchell

Customer Account : GASMIDPT
Sample Date/Time : 11-Apr-17 10:40 AM
Customer ID: CCR2C2017
Delivery Date : 12-Apr-17

Description: Gaston Mid Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08406

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005	<0.005	mg/L
Benzene, TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Trans-1,2-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/L
Chloroform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichloropropane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/l

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CERTIFICATE OF ANALYSIS

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To: Jeremy Driver
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Customer Account : GASMIDPT
Sample Date/Time : 11-Apr-17 10:40 AM
Customer ID: CCR2C2017
Delivery Date : 12-Apr-17

Description: Gaston Mid Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08406

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
Ethylbenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
1,3-Dichloropropylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
Trichloroethylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
Methylene Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/l
Toluene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
Metals, Cyanide, Total Phenols										
Total, Low Level Prep Date	JHK	4/13/2017	EPA 1638		1				04/13/17	DATE
* Aluminum, Total	JHK	4/18/2017	EPA 200.8		1	0.00432	0.013	U	Not Detected	mg/L
* Antimony, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
* Arsenic, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		< 0.0002	mg/L
* Barium, Total	JHK	4/18/2017	EPA 200.8		1	0.000086	0.000258		0.0514	mg/L
* Beryllium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
Boron, Total	JHK	4/18/2017	EPA 200.8		1	0.333	1		1.21	mg/L
Cadmium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000248	mg/L
Calcium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		66.1	mg/L
* Chromium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000747	mg/L
* Cobalt, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00177	mg/L
* Copper, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00221	mg/L
Iron, Total	JHK	4/18/2017	EPA 200.8		1	0.000746	0.00224		0.297	mg/L
* Lead, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

cc:

uality Control _____ **Supervision** _____

Reported:2/20/2018
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
X (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASMIDPT
Sample Date/Time : 11-Apr-17 10:40 AM
Customer ID: CCR2C2017
Delivery Date : 12-Apr-17

Description: Gaston Mid Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08406

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
Magnesium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		6.53	mg/L
* Manganese, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.311	mg/L
* Mercury, Total by CVAF	TMS	4/17/2017	EPA 245.7		1	0.9	5	U	Not Detected	ng/L
* Molybdenum, Total	JHK	4/18/2017	EPA 200.8		1	0.000081	0.000243		0.000642	mg/L
* Nickel, Total	JHK	4/18/2017	EPA 200.8		1	0.000385	0.00116		0.018	mg/L
* Selenium, Total	JHK	4/18/2017	EPA 200.8		1	0.000077	0.000231		0.000242	mg/L
* Silver, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
Sodium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		53.5	mg/L
* Thallium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00101	mg/L
Tin, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00373	mg/L
Titanium, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001	U	Not Detected	mg/L
* Zinc, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001		0.022	mg/L
Cyanide, Total, by TTL	MTL	4/18/2017	SM 4500-CN CE		1		0.01		< 0.010	mg/L
Phenol, Total, by TTL	KMC	4/18/2017	SM 5330		1		0.1		< 0.10	mg/L
General Characteristics										
Field Temperature	TRM	4/11/2017	SM-2550		1				21.10	Deg. C.
FeCl3 Treated?	TRM	4/11/2017	Field Data		1				Yes	
Pre-Settled?	TRM	4/11/2017	Field Data		1				Yes	
Field pH	TRM	4/11/2017	SM-4500H		1				6.52	SU
Field Sulfite	TRM	4/11/2017	HACH 8216		1	0.4		U	Not Detected	mg/l
Field Conductivity	TRM	4/11/2017	SM-2510		1				598.7	umhos/cm

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Description: Gaston Mid Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08406

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
	Field Oxidation Reduction Potential	TRM	4/11/2017	SM-2580		1			91.8	mV
	Field Dissolved Oxygen	TRM	4/11/2017	ASTM-888-05		1			8.33	mg/L
	pH	KYM	4/19/2017	SM 4500H+ B		1	0.01		6.79	SU
	Alkalinity, Total as CaCO3	KYM	4/19/2017	SM 2320 B		1	0.1		6.2	mg/L CaCO
	Bicarbonate Alkalinity, as CaCO3	KYM	4/19/2017	SM 4500CO2 D		1	0.1		6.2	mg/l-CaCO3
	Hardness, Total, (as CaCO3)	JHK	4/18/2017	SM 2340 B		1			192	mg/L
*	Solids, Suspended	KYM	4/14/2017	SM 2540D		1		2.5	< 2.5	mg/L
*	Bromide, Total	SES	4/12/2017	EPA 300.0		1	0.04	0.08	0.32	mg/L
	Biochemical Oxygen Demand, 5 Day, b	KMC	4/13/2017	SM 5210 B-2001		1		2	< 2.0	mg/L
*	Chloride, Total	SES	4/13/2017	EPA 300.0		5	0.2	5	144	mg/L
*	Fluoride, Total	SES	4/12/2017	EPA 300.0		1	0.01	0.04	0.10	mg/L
*	Sulfate, Total	SES	4/12/2017	EPA 300.0		1	0.04	1	85.5	mg/L
	Color, by TTL	TRT	4/13/2017	SM 2120 E		1		10	< 10	ADMI
*	Escherichia Coli (E. Coli)	ABB	4/13/2017	SM 9223B		1	1		1.0	MPN/100ml
	Nitrogen, Nitrate/Nitrite	GMW	4/19/2017	EPA 353.2		1	0.05	0.2	0.21	mg/L as N
	Oil and Grease by Tuscaloosa Testing	MTL	4/13/2017	EPA 1664A		1		1	1.7	mg/l
	Sulfide, by TTL	CRC	4/18/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
	Surfactants (Foaming Agents), by TTL	TRT	4/13/2017	SM 5540C		1		0.05	< 0.05	mg/l
*	Phosphorus, Total	KYM	4/18/2017	SM 4500PE-TP		1	0.01	0.03	< 0.03	mg/L
	Nitrogen, Total, Calculation	GMW	4/19/2017	SM4500		1			0.210	mg/L
*	Nitrogen, Ammonia, Distilled	GMW	4/21/2017	EPA 350.1		1	0.05	0.15	< 0.15	mg/L as N

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Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASMIDPT
Sample Date/Time : 11-Apr-17 10:40 AM
Customer ID: CCR2C2017
Delivery Date : 12-Apr-17

Description: Gaston Mid Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08406

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
* Nitrogen, Total Kjeldahl	GMW	4/19/2017	EPA 351.2		1	0.225	0.3	U Not Detected	mg/L as N
* Total Organic Carbon	KRC	4/14/2017	SM 5310 C		1	0.3	1	< 1	mg/L
Chemical Oxygen Demand, by TTL	KMC	4/14/2017	SM 5220 D		1		5	< 5.0	mg/L
Acid Compounds									
2-Chlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
2,4-Dichlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
2,4-Dimethylphenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
4,6-Dinitro-2-methylphenol, by TestAme	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
2,4-Dinitrophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		31	< 31	ug/L
2-Nitrophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
4-Nitrophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
4-chloro-3-methylphenol, by TestAmeri	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
Pentachlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		21	< 21	ug/L
Phenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
2,4,6-Trichlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
Miscellaneous									
Method 625 - Ext Date, by TestAmerica	NTH	4/18/2017			1			04/18/17	

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
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Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASLOWPT
Sample Date/Time : 11-Apr-17 11:20 AM
Customer ID: CCR2C2017
Delivery Date : 12-Apr-17

Description: Gaston Lower Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08407

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Trans-1,2-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/L
Chloroform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichloropropane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/l

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To: Jeremy Driver
Justin Mitchell

Customer Account : GASLOWPT
Sample Date/Time : 11-Apr-17 11:20 AM
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Description: Gaston Lower Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08407

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
	Ethylbenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	1,3-Dichloropropylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	Trichloroethylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	Methylene Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	1,1,2,2-Tetrachloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/l
	Toluene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	Metals, Cyanide, Total Phenols										
	Total, Low Level Prep Date	JHK	4/13/2017	EPA 1638		1				04/13/17	DATE
*	Aluminum, Total	JHK	4/18/2017	EPA 200.8		1	0.00432	0.013	U	Not Detected	mg/L
*	Antimony, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
*	Arsenic, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		< 0.0002	mg/L
*	Barium, Total	JHK	4/18/2017	EPA 200.8		1	0.000086	0.000258		0.0568	mg/L
*	Beryllium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
	Boron, Total	JHK	4/18/2017	EPA 200.8		1	0.333	1		1.41	mg/L
	Cadmium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000269	mg/L
	Calcium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		75.4	mg/L
*	Chromium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00112	mg/L
*	Cobalt, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00179	mg/L
*	Copper, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00236	mg/L
	Iron, Total	JHK	4/18/2017	EPA 200.8		1	0.000746	0.00224		0.376	mg/L
*	Lead, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L

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	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
	Magnesium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		7.34	mg/L
*	Manganese, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.353	mg/L
*	Mercury, Total by CVAF	TMS	4/17/2017	EPA 245.7		1	0.9	5		< 5	ng/L
*	Molybdenum, Total	JHK	4/18/2017	EPA 200.8		1	0.000081	0.000243		0.000661	mg/L
*	Nickel, Total	JHK	4/18/2017	EPA 200.8		1	0.000385	0.00116		0.0166	mg/L
*	Selenium, Total	JHK	4/18/2017	EPA 200.8		1	0.000077	0.000231		0.000308	mg/L
*	Silver, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
	Sodium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		55.7	mg/L
*	Thallium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00101	mg/L
	Tin, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00223	mg/L
	Titanium, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001	U	Not Detected	mg/L
*	Zinc, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001		0.0147	mg/L
	Cyanide, Total, by TTL	MTL	4/19/2017	SM 4500-CN CE		1		0.01		< 0.010	mg/L
	Phenol, Total, by TTL	KMC	4/18/2017	SM 5330		1		0.1		< 0.10	mg/L
	General Characteristics										
	Field Temperature	TRM	4/11/2017	SM-2550		1				21.06	Deg. C.
	FeCl3 Treated?	TRM	4/11/2017	Field Data		1				Yes	
	Pre-Settled?	TRM	4/11/2017	Field Data		1				Yes	
	Field pH	TRM	4/11/2017	SM-4500H		1				6.83	SU
	Field Sulfite	TRM	4/11/2017	HACH 8216		1	0.4		U	Not Detected	mg/l
	Field Conductivity	TRM	4/11/2017	SM-2510		1				852.3	umhos/cm

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

cc:

uality Control _____ **Supervision**_____

Reported:2/20/2018
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASLOWPT
Sample Date/Time : 11-Apr-17 11:20 AM
Customer ID: CCR2C2017
Delivery Date : 12-Apr-17

Description: Gaston Lower Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08407

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
	Field Oxidation Reduction Potential	TRM	4/11/2017	SM-2580		1			80.0	mV
	Field Dissolved Oxygen	TRM	4/11/2017	ASTM-888-05		1			8.41	mg/L
	pH	KYM	4/19/2017	SM 4500H+ B		1	0.01		6.74	SU
	Alkalinity, Total as CaCO3	KYM	4/19/2017	SM 2320 B		1	0.1		3.4	mg/L CaCO
	Bicarbonate Alkalinity, as CaCO3	KYM	4/19/2017	SM 4500CO2 D		1	0.1		3.4	mg/l-CaCO3
	Hardness, Total, (as CaCO3)	JHK	4/18/2017	SM 2340 B		1			218	mg/L
*	Solids, Suspended	KYM	4/14/2017	SM 2540D		1		2.5	< 2.5	mg/L
*	Bromide, Total	SES	4/12/2017	EPA 300.0		1	0.04	0.08	0.39	mg/L
	Biochemical Oxygen Demand, 5 Day, b	KMC	4/13/2017	SM 5210 B-2001		1		2	< 2.0	mg/L
*	Chloride, Total	SES	4/13/2017	EPA 300.0		5	0.2	5	151	mg/L
*	Fluoride, Total	SES	4/12/2017	EPA 300.0		1	0.01	0.04	0.12	mg/L
*	Sulfate, Total	SES	4/13/2017	EPA 300.0		5	0.2	5	114	mg/L
	Color, by TTL	TRT	4/13/2017	SM 2120 E		1		10	< 10	ADMI
*	Escherichia Coli (E. Coli)	ABB	4/13/2017	SM 9223B		1	1		U Not Detected	MPN/100ml
	Nitrogen, Nitrate/Nitrite	GMW	4/24/2017	EPA 353.2		1	0.05	0.2	0.27	mg/L as N
	Oil and Grease by Tuscaloosa Testing	MTL	4/13/2017	EPA 1664A		1		1	< 1.0	mg/l
	Sulfide, by TTL	CRC	4/18/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
	Surfactants (Foaming Agents), by TTL	TRT	4/13/2017	SM 5540C		1		0.05	< 0.05	mg/l
*	Phosphorus, Total	KYM	4/18/2017	SM 4500PE-TP		1	0.01	0.03	U Not Detected	mg/L
	Nitrogen, Total, Calculation	GMW	4/24/2017	SM4500		1			0.270	mg/L
*	Nitrogen, Ammonia, Distilled	GMW	4/21/2017	EPA 350.1		1	0.05	0.15	< 0.15	mg/L as N

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

cc:

uality Control _____ **Supervision**_____

Reported:2/20/2018
Version: 4.2

Alabama Power
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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASLOWPT
Sample Date/Time : 11-Apr-17 11:20 AM
Customer ID: CCR2C2017
Delivery Date : 12-Apr-17

Description: Gaston Lower Pond Photic Zone Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08407

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
*	Nitrogen, Total Kjeldahl	GMW	4/19/2017	EPA 351.2		1	0.225	0.3	U Not Detected	mg/L as N
*	Total Organic Carbon	KRC	4/14/2017	SM 5310 C		1	0.3	1	< 1	mg/L
	Chemical Oxygen Demand, by TTL	KMC	4/14/2017	SM 5220 D		1		5	5.4	mg/L
	Acid Compounds									
	2-Chlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
	2,4-Dichlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
	2,4-Dimethylphenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
	4,6-Dinitro-2-methylphenol, by TestAme	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
	2,4-Dinitrophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		30	< 30	ug/L
	2-Nitrophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
	4-Nitrophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
	4-chloro-3-methylphenol, by TestAmeri	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
	Pentachlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		20	< 20	ug/L
	Phenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
	2,4,6-Trichlorophenol, by TestAmerica	VC1	4/21/2017	EPA 625		1		10	< 10	ug/L
	Miscellaneous									
	Method 625 - Ext Date, by TestAmerica	NTH	4/18/2017			1			04/18/17	

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

cc:

Quality Control _____ **Supervision** _____

Reported:2/20/2018
Version: 4.2

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ALD083742858

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO.: 004 Dewatering - Interstitial

PART A –You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)	<2.0				<2.0		3	mg/L				
b. Chemical Oxygen Demand (*COD*)	11.4				8.4		3	mg/L				
c. Total Organic Carbon (*TOC*)	1.15				<1.05		3	mg/L				
d. Total Suspended Solids (*TSS*)	<2.5				<2.5		3	mg/L				
e. Ammonia (*as N*)	2.1				0.99		3	mg/L				
f. Flow	VALUE 2.88		VALUE		VALUE 2.88		System Design Flow	MGD		VALUE		
g. Temperature (*winter*)	VALUE 20.7		VALUE		VALUE 20.5		3	°C		VALUE		
h. Temperature (*summer*)	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 6.2	MAXIMUM 6.4	MINIMUM	MAXIMUM	[redacted]		3	STANDARD UNITS		[redacted]		

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)			0.45				0.38		3	mg/L				
b. Chlorine, Total Residual		X												
c. Color			46				31		3	ADMI				
d. Fecal Coliform			<1				<1		3	MPN/100				
e. Fluoride (16984-48-8)			0.28				0.21		3	mg/L				
f. Nitrate-Nitrite (*as N*)			<0.2				<0.2		3	mg/L				

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (*as N*)			5.02				2.22		3	mg/L				
h. Oil and Grease			1.5				1.2		3	mg/L				
i. Phosphorus (as P), Total (7723-14-0)			<0.03				<0.03		3	mg/L				
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (*as SO_4*) (14808-79-8)			1280				489		3	mg/L				
l. Sulfide (*as S*)			<0.01				<0.01		3	mg/L				
m. Sulfite (*as SO_3*) (14265-45-3)			4.8				<1.9		3	mg/L				
n. Surfactants			<0.05				<0.05		3	mg/L				
o. Aluminum, Total (7429-90-5)			<0.013				<0.013		3	mg/L				
p. Barium, Total (7440-39-3)			0.284				0.202		3	mg/L				
q. Boron, Total (7440-42-8)			2.87				2.27		3	mg/L				
r. Cobalt, Total (7440-48-4)			0.00586				0.00324		3	mg/L				
s. Iron, Total (7439-89-6)			1.64				1.05		3	mg/L				
t. Magnesium, Total (7439-95-4)			13.6				12.2		3	mg/L				
u. Molybdenum, Total (7439-98-7)			0.0418				0.0168		3	mg/L				
v. Manganese, Total (7439-96-5)			2.55				1.33		3	mg/L				
w. Tin, Total (7440-31-5)			0.00117				<0.00085		3	mg/L				
x. Titanium, Total (7440-32-6)			<0.001				<0.001		3	mg/L				

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	004 Dewatering - Interstitial

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			0.000764				0.000437		3	mg/L				
2M. Arsenic, Total (7440-38-2)	X			0.0249				0.0111		3	mg/L				
3M. Beryllium, Total (7440-41-7)	X			<0.0002				<0.0002		3	mg/L				
4M. Cadmium, Total (7440-43-9)	X			<0.0002				<0.0002		3	mg/L				
5M. Chromium, Total (7440-47-3)	X			0.000552				0.000497		3	mg/L				
6M. Copper, Total (7440-50-8)	X			0.00246				0.00187		3	mg/L				
7M. Lead, Total (7439-92-1)	X			<0.0002				<0.0002		3	mg/L				
8M. Mercury, Total (7439-97-6)	X			<0.000005				<0.000005		3	mg/L				
9M. Nickel, Total (7440-02-0)	X			0.0185				0.0157		3	mg/L				
10M. Selenium, Total (7782-49-2)	X			0.00179				0.000778		3	mg/L				
11M. Silver, Total (7440-22-4)	X			<0.0002				<0.0002		3	mg/L				
12M. Thallium, Total (7440-28-0)	X			0.000336				<0.000245		3	mg/L				
13M. Zinc, Total (7440-66-6)	X			0.0183				0.0162		3	mg/L				
14M. Cyanide, Total (57-12-5)	X			<0.010				<0.010		3	mg/L				
15M. Phenols, Total	X			<0.10				<0.10		3	mg/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X			<0.100				<0.100		3	mg/L				
2V. Acrylonitrile (107-13-1)	X			<0.100				<0.100		3	mg/L				
3V. Benzene (71-43-2)	X			<0.005				<0.005		3	mg/L				
4V. Bis (*Chloromethyl*) Ether (542-88-1)				N/A						0					
5V. Bromoform (75-25-2)	X			<0.005				<0.005		3	mg/L				
6V. Carbon Tetrachloride (56-23-5)	X			<0.005				<0.005		3	mg/L				
7V. Chlorobenzene (108-90-7)	X			<0.005				<0.005		3	mg/L				
8V. Chlorodibromomethane (124-48-1)	X			<0.005				<0.005		3	mg/L				
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<0.010				<0.010		3	mg/L				
11V. Chloroform (67-66-3)	X			<0.005				<0.005		3	mg/L				
12V. Dichlorobromomethane (75-27-4)	X			<0.005				<0.005		3	mg/L				
13V. Dichlorodifluoromethane (75-71-8)				N/A						0					
14V. 1,1-Dichloroethane (75-34-3)	X			<0.005				<0.005		3	mg/L				
15V. 1,2-Dichloroethane (107-06-2)	X			<0.005				<0.005		3	mg/L				
16V. 1,1-Dichloroethylene (75-35-4)	X			<0.005				<0.005		3	mg/L				
17V. 1,2-Dichloropropane (78-87-5)	X			<0.005				<0.005		3	mg/L				
18V. 1,3-Dichloropropylene (542-75-6)	X			<0.005				<0.005		3	mg/L				
19V. Ethylbenzene (100-41-4)	X			<0.005				<0.005		3	mg/L				
20V. Methyl Bromide (74-83-9)	X			<0.010				<0.010		3	mg/L				
21V. Methyl Chloride (74-87-3)			X												

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)	X			<0.005				<0.005		3	mg/L				
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<0.005				<0.005		3	mg/L				
24V. Tetrachloroethylene (127-18-4)	X			<0.005				<0.005		3	mg/L				
25V. Toluene (108-88-3)	X			<0.005				<0.005		3	mg/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<0.005				<0.005		3	mg/L				
27V. 1,1,1-Trichloroethane (71-55-6)	X			<0.005				<0.005		3	mg/L				
28V. 1,1,2-Trichloroethane (79-00-5)	X			<0.005				<0.005		3	mg/L				
29V Trichloroethylene (79-01-6)	X			<0.005				<0.005		3	mg/L				
30V. Trichlorofluoromethane (75-69-4)				N/A						0					
31V. Vinyl Chloride (75-01-4)	X			<0.002				<0.002		3	mg/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<0.011				<0.010		3	mg/L				
2A. 2,4-Dichlorophenol (120-83-2)	X			<0.011				<0.010		3	mg/L				
3A. 2,4-Dimethylphenol (105-67-9)	X			<0.011				<0.010		3	mg/L				
4A. 4,6-Dinitro-D-Cresol (534-52-1)	X			<0.011				<0.010		3	mg/L				
5A. 2,4-Dinitrophenol (51-28-5)	X			<0.032				<0.030		3	mg/L				
6A. 2-Nitrophenol (88-75-5)	X			<0.011				<0.010		3	mg/L				
7A. 4-Nitrophenol (100-02-7)	X			<0.011				<0.010		3	mg/L				
8A. P-Chloro-M-Cresol (59-50-7)	X			<0.011				<0.010		3	mg/L				
9A. Pentachlorophenol (87-86-5)	X			<0.021				<0.020		3	mg/L				
10A. Phenol (108-95-2)	X			<0.011				<0.010		3	mg/L				
11A. 2,4,6-Trichlorophenol (88-05-2)	X			<0.011				<0.010		3	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)				N/A						0					
2B. Acenaphtylene (208-96-8)				N/A						0					
3B. Anthracene (120-12-7)				N/A						0					
4B. Benzidine (92-87-5)				N/A						0					
5B. Benzo (*a*) Anthracene (56-55-3)				N/A						0					
6B. Benzo (*a*) Pyrene (50-32-8)				N/A						0					
7B. 3,4-Benzo-fluoranthene (205-99-2)				N/A						0					
8B. Benzo (*ghi*) Perylene (191-24-2)				N/A						0					
9B. Benzo (*k*) Fluoranthene (207-08-9)				N/A						0					
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)				N/A						0					
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)				N/A						0					
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)				N/A						0					
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)				N/A						0					
14B. 4-Bromophenyl Phenyl Ether (101-55-3)				N/A						0					
15B. Butyl Benzyl Phthalate (85-68-7)				N/A						0					
16B. 2-Chloro-naphthalene (91-58-7)				N/A						0					
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)				N/A						0					
18B. Chrysene (218-01-9)				N/A						0					
19B. Dibenzo (*a,h*) Anthracene (53-70-3)				N/A						0					
20B. 1,2-Dichloro-benzene (95-50-1)				N/A						0					
21B. 1,3-Di-chloro-benzene (541-73-1)				N/A						0					

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
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				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichlorobenzene (106-46-7)				N/A						0					
23B. 3,3-Dichlorobenzidine (91-94-1)				N/A						0					
24B. Diethyl Phthalate (84-66-2)				N/A						0					
25B. Dimethyl Phthalate (131 -11-3)				N/A						0					
26B. Di-N-Butyl Phthalate (84-74-2)				N/A						0					
27B. 2,4-Dinitrotoluene (121-14-2)				N/A						0					
28B. 2,6-Dinitrotoluene (606-20-2)				N/A						0					
29B. Di-N-Octyl Phthalate (117-84-0)				N/A						0					
30B. 1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)				N/A						0					
31B. Fluoranthene (206-44-0)				N/A						0					
32B. Fluorene (86-73-7)				N/A						0					
33B. Hexachlorobenzene (118-74-1)				N/A						0					
34B. Hexachlorobutadiene (87-68-3)				N/A						0					
35B. Hexachlorocyclopentadiene (77-47-4)				N/A						0					
36B Hexachloroethane (67-72-1)				N/A						0					
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)				N/A						0					
38B. Isophorone (78-59-1)				N/A						0					
39B. Naphthalene (91-20-3)				N/A						0					
40B. Nitrobenzene (98-95-3)				N/A						0					
41B. N-Nitrosodimethylamine (62-75-9)				N/A						0					
42B. N-Nitrosodi-N-Propylamine (621-64-7)				N/A						0					

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitrosodiphenylamine (86-30-6)				N/A						0					
44B. Phenanthrene (85-01-8)				N/A						0					
45B. Pyrene (129-00-0)				N/A						0					
46B. 1,2,4-Trichlorobenzene (120-82-1)				N/A						0					
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)				N/A						0					
2P. α-BHC (319-84-6)				N/A						0					
3P. β-BHC (319-85-7)				N/A						0					
4P. γ-BHC (58-89-9)				N/A						0					
5P. δ-BHC (319-86-8)				N/A						0					
6P. Chlordane (57-74-9)				N/A						0					
7P. 4,4'-DDT (50-29-3)				N/A						0					
8P. 4,4'-DDE (72-55-9)				N/A						0					
9P. 4,4'-DDD (72-54-8)				N/A						0					
10P. Dieldrin (60-57-1)				N/A						0					
11P. α-Enosulfan (115-29-7)				N/A						0					
12P. β-Endosulfan (115-29-7)				N/A						0					
13P. Endosulfan Sulfate (1031-07-8)				N/A						0					
14P. Endrin (72-20-8)				N/A						0					
15P. Endrin Aldehyde (7421-93-4)				N/A						0					
16P. Heptachlor (76-44-8)				N/A						0					

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	004 Dewatering - Interstitial

CONTINUED FROM PAGE V-8

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				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)				N/A						0					
18P. PCB-1242 (53469-21-9)				N/A						0					
19P. PCB-1254 (11097-69-1)				N/A						0					
20P. PCB-1221 (11104-28-2)				N/A						0					
21P. PCB-1232 (11141-18-5)				N/A						0					
22P. PCB-1248 (12672-29-6)				N/A						0					
23P. PCB-1260 (11096-82-5)				N/A						0					
24P. PCB-1016 (12674-11-2)				N/A						0					
25P. Toxaphene (8001-35-2)				N/A						0					

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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASUPPMT
Sample Date/Time : 11-Apr-17 9:35 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Upper Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08533

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Trans-1,2-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/L
Chloroform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichloropropane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

cc:

uality Control _____ **Supervision** _____

Reported:2/20/2018
Version: 4.2

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Description: Gaston Upper Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08533

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
	Ethylbenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	1,3-Dichloropropylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	Trichloroethylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	Methylene Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	1,1,2,2-Tetrachloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/l
	Toluene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
	Metals, Cyanide, Total Phenols										
	Total, Low Level Prep Date	JHK	4/13/2017	EPA 1638		1				04/13/17	DATE
*	Aluminum, Total	JHK	4/18/2017	EPA 200.8		1	0.00432	0.013		< 0.013	mg/L
*	Antimony, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000764	mg/L
*	Arsenic, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00191	mg/L
*	Barium, Total	JHK	4/18/2017	EPA 200.8		1	0.000086	0.000258		0.0626	mg/L
*	Beryllium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
	Boron, Total	JHK	4/18/2017	EPA 200.8		1	0.333	1		2.87	mg/L
	Cadmium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		< 0.0002	mg/L
	Calcium, Total	JHK	4/18/2017	EPA 200.8		10	1.67	5		585	mg/L
*	Chromium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000552	mg/L
*	Cobalt, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00222	mg/L
*	Copper, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00246	mg/L
	Iron, Total	JHK	4/18/2017	EPA 200.8		1	0.000746	0.00224		0.976	mg/L
*	Lead, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

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Justin Mitchell

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Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Upper Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08533

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
	Magnesium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		13.6	mg/L
*	Manganese, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.881	mg/L
*	Mercury, Total by CVAF	TMS	4/19/2017	EPA 245.7		1	0.9	5		< 5	ng/L
*	Molybdenum, Total	JHK	4/18/2017	EPA 200.8		1	0.000081	0.000243		0.0418	mg/L
*	Nickel, Total	JHK	4/18/2017	EPA 200.8		1	0.000385	0.00116		0.0148	mg/L
*	Selenium, Total	JHK	4/18/2017	EPA 200.8		1	0.000077	0.000231		0.00179	mg/L
*	Silver, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
	Sodium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		16.4	mg/L
*	Thallium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000336	mg/L
	Tin, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00117	mg/L
	Titanium, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001		< 0.001	mg/L
*	Zinc, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001		0.0183	mg/L
	Cyanide, Total, by TTL	TRT	4/19/2017	SM 4500-CN CE		1		0.01		< 0.010	mg/L
	Phenol, Total, by TTL	KMC	4/18/2017	SM 5330		1		0.1		< 0.10	mg/L
	General Characteristics										
	Field Temperature	TRM	4/11/2017	SM-2550		1				20.54	Deg. C.
	FeCl3 Treated?	TRM	4/11/2017	Field Data		1				Yes	
	Pre-Settled?	TRM	4/11/2017	Field Data		1				Yes	
	Field pH	TRM	4/11/2017	SM-4500H		1				6.21	SU
	Field Sulfite	TRM	4/11/2017	HACH 8216		1	0.4			4.8	mg/l
	Field Conductivity	TRM	4/11/2017	SM-2510		1				1983.1	umhos/cm

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Expiration: June 30, 2018

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Sample Date/Time : 11-Apr-17 9:35 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Upper Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08533

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
	Field Oxidation Reduction Potential	TRM	4/11/2017	SM-2580		1			169.3	mV
	Field Dissolved Oxygen	TRM	4/11/2017	ASTM-888-05		1			8.82	mg/L
	pH	KYM	4/20/2017	SM 4500H+ B		1	0.01		6.56	SU
	Alkalinity, Total as CaCO3	KYM	4/19/2017	SM 2320 B		1	0.1		6.2	mg/L CaCO
	Bicarbonate Alkalinity, as CaCO3	KYM	4/19/2017	SM 4500CO2 D		1	0.1		6.2	mg/l-CaCO3
	Hardness, Total, (as CaCO3)	JHK	4/18/2017	SM 2340 B		1			1520	mg/L
*	Solids, Suspended	KYM	4/14/2017	SM 2540D		1		2.5	< 2.5	mg/L
*	Bromide, Total	SES	4/19/2017	EPA 300.0		1	0.04	0.08	0.24	mg/L
	Biochemical Oxygen Demand, 5 Day, b	KMC	4/13/2017	SM 5210 B-2001		1		2	< 2.0	mg/L
*	Chloride, Total	SES	4/20/2017	EPA 300.0		30	1.2	30	118	mg/L
*	Fluoride, Total	SES	4/19/2017	EPA 300.0		1	0.01	0.04	0.28	mg/L
*	Sulfate, Total	SES	4/20/2017	EPA 300.0		30	1.2	30	1280	mg/L
	Color, by TTL	CRS	4/14/2017	SM 2120 E		1		10	27	ADMI
*	Escherichia Coli (E. Coli)	ABB	4/14/2017	SM 9223B		1	1		U Not Detected	MPN/100ml
	Nitrogen, Nitrate/Nitrite	GMW	4/24/2017	EPA 353.2		1	0.05	0.2	< 0.2	mg/L as N
	Oil and Grease by Tuscaloosa Testing	MTL	4/13/2017	EPA 1664A		1		1	1.0	mg/l
	Sulfide, by TTL	CRC	4/18/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
	Surfactants (Foaming Agents), by TTL	TRT	4/14/2017	SM 5540C		1		0.05	< 0.05	mg/l
*	Phosphorus, Total	KYM	4/20/2017	SM 4500PE-TP		1	0.01	0.03	< 0.03	mg/L
	Nitrogen, Total, Calculation	GMW	4/24/2017	SM4500		1			5.19	mg/L
*	Nitrogen, Ammonia, Distilled	GMW	4/21/2017	EPA 350.1		1	0.05	0.15	0.17	mg/L as N

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

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uality Control _____ **Supervision**_____

Reported:2/20/2018
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASUPPMT
Sample Date/Time : 11-Apr-17 9:35 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Upper Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08533

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
*	Nitrogen, Total Kjeldahl	GMW	4/28/2017	EPA 351.2		5	1.125	0.3	5.19	mg/L as N
*	Total Organic Carbon	KRC	4/14/2017	SM 5310 C		1	0.3	1	1.15	mg/L
	Chemical Oxygen Demand, by TTL	KMC	4/14/2017	SM 5220 D		1		5	8.4	mg/L
	Acid Compounds									
	2-Chlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	2,4-Dichlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	2,4-Dimethylphenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	4,6-Dinitro-2-methylphenol, by TestAme	C1M	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	2,4-Dinitrophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		30	< 30	ug/L
	2-Nitrophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	4-Nitrophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	4-chloro-3-methylphenol, by TestAmeri	C1M	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	Pentachlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		20	< 20	ug/L
	Phenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	2,4,6-Trichlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.9	< 9.9	ug/L
	Miscellaneous									
	Method 625 - Ext Date, by TestAmerica	NTH	4/18/2017			1			04/18/17	

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASMIDMT
Sample Date/Time : 11-Apr-17 10:40 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Mid Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08534

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Trans-1,2-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/L
Chloroform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichloropropane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/l

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Laboratory certification ID: E571114
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Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
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Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASMIDMT
Sample Date/Time : 11-Apr-17 10:40 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Mid Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08534

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
Ethylbenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
1,3-Dichloropropylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
Trichloroethylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
Methylene Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/l
Toluene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
Metals, Cyanide, Total Phenols										
Total, Low Level Prep Date	JHK	4/13/2017	EPA 1638		1				04/13/17	DATE
* Aluminum, Total	JHK	4/18/2017	EPA 200.8		1	0.00432	0.013		< 0.013	mg/L
* Antimony, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000343	mg/L
* Arsenic, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00662	mg/L
* Barium, Total	JHK	4/18/2017	EPA 200.8		1	0.000086	0.000258		0.284	mg/L
* Beryllium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
Boron, Total	JHK	4/18/2017	EPA 200.8		1	0.333	1		1.97	mg/L
Cadmium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
Calcium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		94.2	mg/L
* Chromium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000459	mg/L
* Cobalt, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00164	mg/L
* Copper, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00174	mg/L
Iron, Total	JHK	4/18/2017	EPA 200.8		1	0.000746	0.00224		0.541	mg/L
* Lead, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L

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Acid Compounds were analyzed by Test America. TBW 05/01/2017

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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASMIDMT
Sample Date/Time : 11-Apr-17 10:40 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Mid Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08534

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
	Magnesium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		11.8	mg/L
*	Manganese, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.544	mg/L
*	Mercury, Total by CVAF	TMS	4/19/2017	EPA 245.7		1	0.9	5	U	Not Detected	ng/L
*	Molybdenum, Total	JHK	4/18/2017	EPA 200.8		1	0.000081	0.000243		0.0051	mg/L
*	Nickel, Total	JHK	4/18/2017	EPA 200.8		1	0.000385	0.00116		0.0137	mg/L
*	Selenium, Total	JHK	4/18/2017	EPA 200.8		1	0.000077	0.000231		0.000268	mg/L
*	Silver, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
	Sodium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		31.5	mg/L
*	Thallium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		< 0.0002	mg/L
	Tin, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00117	mg/L
	Titanium, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001		< 0.001	mg/L
*	Zinc, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001		0.018	mg/L
	Cyanide, Total, by TTL	TRT	4/19/2017	SM 4500-CN CE		1		0.01		< 0.010	mg/L
	Phenol, Total, by TTL	KMC	4/18/2017	SM 5330		1		0.1		< 0.10	mg/L
	General Characteristics										
	Field Temperature	TRM	4/11/2017	SM-2550		1				20.36	Deg. C.
	FeCl3 Treated?	TRM	4/11/2017	Field Data		1				Yes	
	Pre-Settled?	TRM	4/11/2017	Field Data		1				Yes	
	Field pH	TRM	4/11/2017	SM-4500H		1				6.43	SU
	Field Sulfite	TRM	4/11/2017	HACH 8216		1	0.4		U	Not Detected	mg/l
	Field Conductivity	TRM	4/11/2017	SM-2510		1				716.7	umhos/cm

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To: Jeremy Driver
Justin Mitchell

Customer Account : GASMIDMT
Sample Date/Time : 11-Apr-17 10:40 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Mid Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08534

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
	Field Oxidation Reduction Potential	TRM	4/11/2017	SM-2580		1			124.1	mV
	Field Dissolved Oxygen	TRM	4/11/2017	ASTM-888-05		1			8.73	mg/L
	pH	KYM	4/20/2017	SM 4500H+ B		1	0.01		6.64	SU
	Alkalinity, Total as CaCO3	KYM	4/19/2017	SM 2320 B		1	0.1		5.7	mg/L CaCO
	Bicarbonate Alkalinity, as CaCO3	KYM	4/19/2017	SM 4500CO2 D		1	0.1		5.7	mg/l-CaCO3
	Hardness, Total, (as CaCO3)	JHK	4/18/2017	SM 2340 B		1			284	mg/L
*	Solids, Suspended	KYM	4/18/2017	SM 2540D		1		2.5	< 2.5	mg/L
*	Bromide, Total	SES	4/19/2017	EPA 300.0		1	0.04	0.08	0.44	mg/L
	Biochemical Oxygen Demand, 5 Day, b	KMC	4/13/2017	SM 5210 B-2001		1		2	< 2.0	mg/L
*	Chloride, Total	SES	4/20/2017	EPA 300.0		10	0.4	10	165	mg/L
*	Fluoride, Total	SES	4/19/2017	EPA 300.0		1	0.01	0.04	0.10	mg/L
*	Sulfate, Total	SES	4/19/2017	EPA 300.0		1	0.04	1	91.3	mg/L
	Color, by TTL	CRS	4/14/2017	SM 2120 E		1		10	20	ADMI
*	Escherichia Coli (E. Coli)	ABB	4/14/2017	SM 9223B		1	1		U Not Detected	MPN/100ml
	Nitrogen, Nitrate/Nitrite	GMW	4/24/2017	EPA 353.2		1	0.05	0.2	< 0.2	mg/L as N
	Oil and Grease by Tuscaloosa Testing	MTL	4/13/2017	EPA 1664A		1		1	1.5	mg/l
	Sulfide, by TTL	CRC	4/18/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
	Surfactants (Foaming Agents), by TTL	TRT	4/14/2017	SM 5540C		1		0.05	< 0.05	mg/l
*	Phosphorus, Total	KYM	4/20/2017	SM 4500PE-TP		1	0.01	0.03	U Not Detected	mg/L
	Nitrogen, Total, Calculation	GMW	4/24/2017	SM4500		1			1.14	mg/L
*	Nitrogen, Ammonia, Distilled	GMW	4/21/2017	EPA 350.1		1	0.05	0.15	0.70	mg/L as N

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Expiration: June 30, 2018

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Lab & Field SERVICES

To: Jeremy Driver
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Sample Date/Time : 11-Apr-17 10:40 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Mid Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08534

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
* Nitrogen, Total Kjeldahl	GMW	4/28/2017	EPA 351.2		1	0.225	0.3	1.14	mg/L as N
* Total Organic Carbon	KRC	4/14/2017	SM 5310 C		1	0.3	1	< 1	mg/L
Chemical Oxygen Demand, by TTL	KMC	4/14/2017	SM 5220 D		1		5	5.4	mg/L
Acid Compounds									
2-Chlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.5	< 9.5	ug/L
2,4-Dichlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.5	< 9.5	ug/L
2,4-Dimethylphenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.5	< 9.5	ug/L
4,6-Dinitro-2-methylphenol, by TestAme	C1M	4/21/2017	EPA 625		1		9.5	< 9.5	ug/L
2,4-Dinitrophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		29	< 29	ug/L
2-Nitrophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.5	< 9.5	ug/L
4-Nitrophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.5	< 9.5	ug/L
4-chloro-3-methylphenol, by TestAmeri	C1M	4/21/2017	EPA 625		1		9.5	< 9.5	ug/L
Pentachlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		19	< 19	ug/L
Phenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.5	< 9.5	ug/L
2,4,6-Trichlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		9.5	< 9.5	ug/L
Miscellaneous									
Method 625 - Ext Date, by TestAmerica	NTH	4/18/2017			1			04/18/17	

MDL's and RL's are adjusted for sample dilution, as applicable

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Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASLOWMT
Sample Date/Time : 11-Apr-17 11:20 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Lower Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08535

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	4/21/2017	EPA 624		1		0.1	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Trans-1,2-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/L
Chloroform, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichloropropane, by TTL	LAA	4/21/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	4/21/2017	EPA 624		1		0.01	< 0.010	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

cc:

uality Control _____ **Supervision** _____

Reported:2/20/2018
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASLOWMT
Sample Date/Time : 11-Apr-17 11:20 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Lower Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08535

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
Ethylbenzene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
1,3-Dichloropropylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
Trichloroethylene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
Methylene Chloride, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/l
Toluene, by TTL	LAA	4/21/2017	EPA 624		1		0.005		< 0.005	mg/L
Metals, Cyanide, Total Phenols										
Total, Low Level Prep Date	JHK	4/13/2017	EPA 1638		1				04/13/17	DATE
* Aluminum, Total	JHK	4/18/2017	EPA 200.8		1	0.00432	0.013		< 0.013	mg/L
* Antimony, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000203	mg/L
* Arsenic, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.0249	mg/L
* Barium, Total	JHK	4/18/2017	EPA 200.8		1	0.000086	0.000258		0.260	mg/L
* Beryllium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
Boron, Total	JHK	4/18/2017	EPA 200.8		1	0.333	1		1.98	mg/L
Cadmium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
Calcium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		89.8	mg/L
* Chromium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.000481	mg/L
* Cobalt, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00586	mg/L
* Copper, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		0.00142	mg/L
Iron, Total	JHK	4/18/2017	EPA 200.8		10	0.00746	0.0224		1.64	mg/L
* Lead, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

cc:

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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASLOWMT
Sample Date/Time : 11-Apr-17 11:20 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Lower Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08535

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
	Magnesium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		11.3	mg/L
*	Manganese, Total	JHK	4/18/2017	EPA 200.8		10	0.00067	0.002		2.55	mg/L
*	Mercury, Total by CVAF	TMS	4/19/2017	EPA 245.7		1	0.9	5	U	Not Detected	ng/L
*	Molybdenum, Total	JHK	4/18/2017	EPA 200.8		1	0.000081	0.000243		0.00358	mg/L
*	Nickel, Total	JHK	4/18/2017	EPA 200.8		1	0.000385	0.00116		0.0185	mg/L
*	Selenium, Total	JHK	4/18/2017	EPA 200.8		1	0.000077	0.000231		0.000275	mg/L
*	Silver, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
	Sodium, Total	JHK	4/18/2017	EPA 200.8		1	0.167	0.5		43.1	mg/L
*	Thallium, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002	U	Not Detected	mg/L
	Tin, Total	JHK	4/18/2017	EPA 200.8		1	0.000067	0.0002		< 0.0002	mg/L
	Titanium, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001		< 0.001	mg/L
*	Zinc, Total	JHK	4/18/2017	EPA 200.8		1	0.000333	0.001		0.0123	mg/L
	Cyanide, Total, by TTL	TRT	4/19/2017	SM 4500-CN CE		1		0.01		< 0.010	mg/L
	Phenol, Total, by TTL	KMC	4/18/2017	SM 5330		1		0.1		< 0.10	mg/L
	General Characteristics										
	Field Temperature	TRM	4/11/2017	SM-2550		1				20.71	Deg. C.
	FeCl3 Treated?	TRM	4/11/2017	Field Data		1				Yes	
	Pre-Settled?	TRM	4/11/2017	Field Data		1				Yes	
	Field pH	TRM	4/11/2017	SM-4500H		1				6.40	SU
	Field Sulfite	TRM	4/11/2017	HACH 8216		1	0.4		U	Not Detected	mg/l
	Field Conductivity	TRM	4/11/2017	SM-2510		1				807.1	umhos/cm

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Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
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Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

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Version: 4.2

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Alabama Power

Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASLOWMT
Sample Date/Time : 11-Apr-17 11:20 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Lower Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08535

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
	Field Oxidation Reduction Potential	TRM	4/11/2017	SM-2580		1			71.4	mV
	Field Dissolved Oxygen	TRM	4/11/2017	ASTM-888-05		1			8.48	mg/L
	pH	KYM	4/20/2017	SM 4500H+ B		1	0.01		6.75	SU
	Alkalinity, Total as CaCO3	KYM	4/19/2017	SM 2320 B		1	0.1		17.2	mg/L CaCO
	Bicarbonate Alkalinity, as CaCO3	KYM	4/19/2017	SM 4500CO2 D		1	0.1		17.2	mg/l-CaCO3
	Hardness, Total, (as CaCO3)	JHK	4/18/2017	SM 2340 B		1			271	mg/L
*	Solids, Suspended	KYM	4/18/2017	SM 2540D		1		2.5	< 2.5	mg/L
*	Bromide, Total	SES	4/19/2017	EPA 300.0		1	0.04	0.08	0.45	mg/L
	Biochemical Oxygen Demand, 5 Day, b	KMC	4/13/2017	SM 5210 B-2001		1		2	< 2.0	mg/L
*	Chloride, Total	SES	4/20/2017	EPA 300.0		10	0.4	10	181	mg/L
*	Fluoride, Total	SES	4/19/2017	EPA 300.0		1	0.01	0.04	0.25	mg/L
*	Sulfate, Total	SES	4/19/2017	EPA 300.0		1	0.04	1	95.3	mg/L
	Color, by TTL	CRS	4/14/2017	SM 2120 E		1		10	46	ADMI
*	Escherichia Coli (E. Coli)	ABB	4/14/2017	SM 9223B		1	1		U Not Detected	MPN/100ml
	Nitrogen, Nitrate/Nitrite	GMW	4/24/2017	EPA 353.2		1	0.05	0.2	U Not Detected	mg/L as N
	Oil and Grease by Tuscaloosa Testing	MTL	4/13/2017	EPA 1664A		1		1	< 1.0	mg/l
	Sulfide, by TTL	CRC	4/18/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
	Surfactants (Foaming Agents), by TTL	TRT	4/14/2017	SM 5540C		1		0.05	< 0.05	mg/l
*	Phosphorus, Total	KYM	4/20/2017	SM 4500PE-TP		1	0.01	0.03	< 0.03	mg/L
	Nitrogen, Total, Calculation	GMW	4/24/2017	SM4500		1			3.30	mg/L
*	Nitrogen, Ammonia, Distilled	GMW	4/21/2017	EPA 350.1		1	0.05	0.15	2.1	mg/L as N

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
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Lab & Field SERVICES

To: Jeremy Driver
Justin Mitchell

Customer Account : GASLOWMT
Sample Date/Time : 11-Apr-17 11:20 AM
Customer ID: CCR2C2017
Delivery Date : 13-Apr-17

Description: Gaston Lower Pond Muck Treated
CCR Ash Pond 2C Survey

Laboratory ID Number: AX08535

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
*	Nitrogen, Total Kjeldahl	GMW	4/28/2017	EPA 351.2		1	0.225	0.3	3.30	mg/L as N
*	Total Organic Carbon	KRC	4/14/2017	SM 5310 C		1	0.3	1	< 1	mg/L
	Chemical Oxygen Demand, by TTL	KMC	4/14/2017	SM 5220 D		1		5	11.4	mg/L
	Acid Compounds									
	2-Chlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		11	< 11	ug/L
	2,4-Dichlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		11	< 11	ug/L
	2,4-Dimethylphenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		11	< 11	ug/L
	4,6-Dinitro-2-methylphenol, by TestAme	C1M	4/21/2017	EPA 625		1		11	< 11	ug/L
	2,4-Dinitrophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		32	< 32	ug/L
	2-Nitrophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		11	< 11	ug/L
	4-Nitrophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		11	< 11	ug/L
	4-chloro-3-methylphenol, by TestAmeri	C1M	4/21/2017	EPA 625		1		11	< 11	ug/L
	Pentachlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		21	< 21	ug/L
	Phenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		11	< 11	ug/L
	2,4,6-Trichlorophenol, by TestAmerica	C1M	4/21/2017	EPA 625		1		11	< 11	ug/L
	Miscellaneous									
	Method 625 - Ext Date, by TestAmerica	NTH	4/18/2017			1			04/18/17	

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: E. coli was received and analyzed out of holding time. TBW 04/19/2017
Oil & Grease, Biochemical Oxygen Demand, Color, Chemical Oxygen Demand, Surfactants, Sulfide, Total Phenol, Volatile Compounds, and Cyanide were analyzed by TTL.
Color and Surfactants were analyzed out of holding time.
Acid Compounds were analyzed by Test America. TBW 05/01/2017

cc:

uality Control _____ **Supervision**_____

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Version: 4.2

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Definitions

Alabama Power

Lab & Field SERVICES

Abbreviation	Description
DF	Dilution Factor
LFB	Lab Fortified Blank
MB	Method Blank
MDL	Method Detection Limit; minimum concentration of an analyte that can be determined with 99% confidence that the concentration is greater than zero.
MS	Matrix Spike
MSD	Matrix Spike Duplicate
Prec	Precision (% RPD)
Q	Qualifier; comment used to note deviations or additional information associated with analytical results.
QC	Quality Control
Rec	Recovery of Matrix Spike
RL	Reporting Limit; lowest concentration at which an analyte can be quantitatively measured.
Vio Spe	Violation Specification; regulatory limit which has been exceeded by the sample analyzed.

Qualifier	Description
B	Analyte found in reagent blank. Indicates possible reagent or background contamination.
E	Estimated reported value exceeded calibration range.
J	Reported value is an estimate because concentration is less than reporting limit.
N	Organic constituents tentatively identified. Confirmation is needed.
R	Matrix spike recovery is out of range.
U	Compound was analyzed, but not detected.
P	Precision is out of range.
C	Analyte was verified by re-analysis.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.
L	Check standard is outside of the required specification limit.
D	All samples were stored at less than or equal to 6 °C and for no longer than 48 hours from time of sampling, unless otherwise noted.
F	Water Field Group (WFG) qualifier; see comments for more information
I	Improper sample preservation.
T	Sample temperature outside acceptable limits.

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ALD083742858

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO.: 004g - IMP

PART A –You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)	29.7				15.9		2	mg/L				
b. Chemical Oxygen Demand (*COD*)	25,200				13,057		2	mg/L				
c. Total Organic Carbon (*TOC*)	14,000				7,120		2	mg/L				
d. Total Suspended Solids (*TSS*)	263				169		2	mg/L				
e. Ammonia (*as N*)	<0.15				<0.15		2	mg/L				
f. Flow	VALUE 0.024		VALUE		VALUE 0.012			MGD		VALUE		
g. Temperature (*winter*)	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature (*summer*)	VALUE 23		VALUE		VALUE		1	°C		VALUE		
i. pH	MINIMUM 9.5	MAXIMUM 9.8	MINIMUM	MAXIMUM	[redacted]		2	STANDARD UNITS		[redacted]		

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)			0.24				<0.16		2	mg/L				
b. Chlorine, Total Residual			<0.05				<0.05		2	mg/L				
c. Color			599				444		2	ADMI				
d. Fecal Coliform			<1				<1		2	MPN/100				
e. Fluoride (16984-48-8)			2.42				1.3		2	mg/L				
f. Nitrate-Nitrite (*as N*)			4.76				2.42		2	mg/L				

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (*as N*)			351				247		2	mg/L				
h. Oil and Grease			<5.0				<5.0		2	mg/L				
i. Phosphorus (as P), Total (7723-14-0)			0.025				0.024		2	mg/L				
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (*as SO_4*) (14808-79-8)			80.3				40.7		2	mg/L				
l. Sulfide (*as S*)			<1.0				<0.5		2	mg/L				
m. Sulfite (*as SO_3*) (14265-45-3)			33.5				17.9		2	mg/L				
n. Surfactants			<0.05				<0.05		2	mg/L				
o. Aluminum, Total (7429-90-5)			1.02				0.582		2	mg/L				
p. Barium, Total (7440-39-3)			0.055				<0.048		2	mg/L				
q. Boron, Total (7440-42-8)			<0.102				<0.1		2	mg/L				
r. Cobalt, Total (7440-48-4)			<0.041				<0.04		2	mg/L				
s. Iron, Total (7439-89-6)			<0.041				<0.04		2	mg/L				
t. Magnesium, Total (7439-95-4)			<0.041				<0.04		2	mg/L				
u. Molybdenum, Total (7439-98-7)			<0.041				<0.04		2	mg/L				
v. Manganese, Total (7439-96-5)			<0.041				<0.04		2	mg/L				
w. Tin, Total (7440-31-5)			<0.041				<0.04		2	mg/L				
x. Titanium, Total (7440-32-6)			<0.041				<0.04		2	mg/L				

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	004g - IMP

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<0.041				<0.04		2	mg/L				
2M. Arsenic, Total (7440-38-2)	X			<0.048				<0.034		2	mg/L				
3M. Beryllium, Total (7440-41-7)	X			<0.041				<0.04		2	mg/L				
4M. Cadmium, Total (7440-43-9)	X			<0.041				<0.04		2	mg/L				
5M. Chromium, Total (7440-47-3)	X			<0.041				<0.04		2	mg/L				
6M. Copper, Total (7440-50-8)	X			<0.041				<0.04		2	mg/L				
7M. Lead, Total (7439-92-1)	X			<0.041				<0.04		2	mg/L				
8M. Mercury, Total (7439-97-6)	X			<0.0005						1	mg/L				
9M. Nickel, Total (7440-02-0)	X			0.078				<0.059		2	mg/L				
10M. Selenium, Total (7782-49-2)	X			0.148				0.145		2	mg/L				
11M. Silver, Total (7440-22-4)	X			<0.01				<0.01		2	mg/L				
12M. Thallium, Total (7440-28-0)	X			<0.041				<0.04		2	mg/L				
13M. Zinc, Total (7440-66-6)	X			0.161				<0.086		2	mg/L				
14M. Cyanide, Total (57-12-5)	X			<0.01				<0.01		2	mg/L				
15M. Phenols, Total	X			<0.81				<0.46		2	mg/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X			<0.1				<0.1		2	mg/L				
2V. Acrylonitrile (107-13-1)	X			<0.1				<0.1		2	mg/L				
3V. Benzene (71-43-2)	X			<0.005				<0.005		2	mg/L				
4V. Bis (*Chloromethyl*) Ether (542-88-1)				N/A						0					
5V. Bromoform (75-25-2)	X			<0.005				<0.005		2	mg/L				
6V. Carbon Tetrachloride (56-23-5)	X			<0.005				<0.005		2	mg/L				
7V. Chlorobenzene (108-90-7)	X			<0.005				<0.005		2	mg/L				
8V. Chlorodibromomethane (124-48-1)	X			<0.005				<0.005		2	mg/L				
9V. Chloroethane (75-00-3)	X			<0.010				<0.010		2	mg/L				
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<0.010				<0.010		2	mg/L				
11V. Chloroform (67-66-3)	X			<0.005				<0.005		2	mg/L				
12V. Dichlorobromomethane (75-27-4)	X			<0.005				<0.005		2	mg/L				
13V. Dichlorodifluoromethane (75-71-8)				N/A						0					
14V. 1,1-Dichloroethane (75-34-3)	X			<0.005				<0.005		2	mg/L				
15V. 1,2-Dichloroethane (107-06-2)	X			<0.005				<0.005		2	mg/L				
16V. 1,1-Dichloroethylene (75-35-4)	X			<0.005				<0.005		2	mg/L				
17V. 1,2-Dichloropropane (78-87-5)	X			<0.005				<0.005		2	mg/L				
18V. 1,3-Dichloropropylene (542-75-6)	X			<0.005				<0.005		2	mg/L				
19V. Ethylbenzene (100-41-4)	X			<0.005				<0.005		2	mg/L				
20V. Methyl Bromide (74-83-9)	X			<0.010				<0.010		2	mg/L				
21V. Methyl Chloride (74-87-3)			X												

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)	X			<0.005				<0.005		2	mg/L				
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<0.005				<0.005		2	mg/L				
24V. Tetrachloroethylene (127-18-4)	X			<0.005				<0.005		2	mg/L				
25V. Toluene (108-88-3)	X			<0.005				<0.005		2	mg/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<0.005				<0.005		2	mg/L				
27V. 1,1,1-Trichloroethane (71-55-6)	X			<0.005				<0.005		2	mg/L				
28V. 1,1,2-Trichloroethane (79-00-5)	X			<0.005				<0.005		2	mg/L				
29V Trichloroethylene (79-01-6)	X			<0.005				<0.005		2	mg/L				
30V. Trichlorofluoromethane (75-69-4)				N/A						0					
31V. Vinyl Chloride (75-01-4)	X			<0.002				<0.002		2	mg/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<0.010				<0.010		2	mg/L				
2A. 2,4-Dichlorophenol (120-83-2)	X			<0.010				<0.010		2	mg/L				
3A. 2,4-Dimethylphenol (105-67-9)	X			<0.010				<0.010		2	mg/L				
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<0.050				<0.050		2	mg/L				
5A. 2,4-Dinitrophenol (51-28-5)	X			<0.050				<0.050		2	mg/L				
6A. 2-Nitrophenol (88-75-5)	X			<0.010				<0.010		2	mg/L				
7A. 4-Nitrophenol (100-02-7)	X			<0.050				<0.050		2	mg/L				
8A. P-Chloro-M-Cresol (59-50-7)	X			<0.010				<0.010		2	mg/L				
9A. Pentachlorophenol (87-86-5)	X			<0.025				<0.025		2	mg/L				
10A. Phenol (108-95-2)	X			<0.010				<0.010		2	mg/L				
11A. 2,4,6-Trichlorophenol (88-05-2)	X			<0.010				<0.010		2	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<0.010				<0.010		2	mg/L				
2B. Acenaphtylene (208-96-8)	X			<0.010				<0.010		2	mg/L				
3B. Anthracene (120-12-7)	X			<0.010				<0.010		2	mg/L				
4B. Benzidine (92-87-5)	X			<0.050				<0.050		2	mg/L				
5B. Benzo (*a*) Anthracene (56-55-3)	X			<0.010				<0.010		2	mg/L				
6B. Benzo (*a*) Pyrene (50-32-8)	X			<0.010				<0.010		2	mg/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<0.010				<0.010		2	mg/L				
8B. Benzo (*ghi*) Perylene (191-24-2)	X			<0.010				<0.010		2	mg/L				
9B. Benzo (*k*) Fluoranthene (207-08-9)	X			<0.010				<0.010		2	mg/L				
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)	X			<0.010				<0.010		2	mg/L				
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)	X			<0.010				<0.010		2	mg/L				
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)	X			<0.010				<0.010		2	mg/L				
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)	X			<0.010				<0.010		2	mg/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	X			<0.010				<0.010		2	mg/L				
15B. Butyl Benzyl Phthalate (85-68-7)	X			<0.010				<0.010		2	mg/L				
16B. 2-Chloro-naphthalene (91-58-7)	X			<0.010				<0.010		2	mg/L				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<0.010				<0.010		2	mg/L				
18B. Chrysene (218-01-9)	X			<0.010				<0.010		2	mg/L				
19B. Dibenzo (*a,h*) Anthracene (53-70-3)	X			<0.010				<0.010		2	mg/L				
20B. 1,2-Dichloro-benzene (95-50-1)	X			<0.005				<0.005		2	mg/L				
21B. 1,3-Di-chloro-benzene (541-73-1)	X			<0.005				<0.005		2	mg/L				

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT						d. NO. OF ANALYSES	4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS		a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<0.005				<0.005		2	mg/L				
23B. 3,3-Dichlorobenzidine (91-94-1)	X			<0.020				<0.020		2	mg/L				
24B. Diethyl Phthalate (84-66-2)	X			<0.010				<0.010		2	mg/L				
25B. Dimethyl Phthalate (131-11-3)	X			<0.010				<0.010		2	mg/L				
26B. Di-N-Butyl Phthalate (84-74-2)	X			<0.010				<0.010		2	mg/L				
27B. 2,4-Dinitrotoluene (121-14-2)	X			<0.010				<0.010		2	mg/L				
28B. 2,6-Dinitrotoluene (606-20-2)	X			<0.010				<0.010		2	mg/L				
29B. Di-N-Octyl Phthalate (117-84-0)	X			<0.010				<0.010		2	mg/L				
30B. 1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	X			<0.050				<0.050		2	mg/L				
31B. Fluoranthene (206-44-0)	X			<0.010				<0.010		2	mg/L				
32B. Fluorene (86-73-7)	X			<0.010				<0.010		2	mg/L				
33B. Hexachlorobenzene (118-74-1)	X			<0.010				<0.010		2	mg/L				
34B. Hexachlorobutadiene (87-68-3)	X			<0.010				<0.010		2	mg/L				
35B. Hexachlorocyclopentadiene (77-47-4)	X			<0.010				<0.010		2	mg/L				
36B Hexachloroethane (67-72-1)	X			<0.010				<0.010		2	mg/L				
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)	X			<0.010				<0.010		2	mg/L				
38B. Isophorone (78-59-1)	X			<0.010				<0.010		2	mg/L				
39B. Naphthalene (91-20-3)	X			<0.010				<0.010		2	mg/L				
40B. Nitrobenzene (98-95-3)	X			<0.010				<0.010		2	mg/L				
41B. N-Nitrosodimethylamine (62-75-9)	X			<0.010				<0.010		2	mg/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<0.010				<0.010		2	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<0.010				<0.010		2	mg/L				
44B. Phenanthrene (85-01-8)	X			<0.010				<0.010		2	mg/L				
45B. Pyrene (129-00-0)	X			<0.010				<0.010		2	mg/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<0.010				<0.010		2	mg/L				
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)				N/A						0					
2P. α-BHC (319-84-6)				N/A						0					
3P. β-BHC (319-85-7)				N/A						0					
4P. γ-BHC (58-89-9)				N/A						0					
5P. δ-BHC (319-86-8)				N/A						0					
6P. Chlordane (57-74-9)				N/A						0					
7P. 4,4'-DDT (50-29-3)				N/A						0					
8P. 4,4'-DDE (72-55-9)				N/A						0					
9P. 4,4'-DDD (72-54-8)				N/A						0					
10P. Dieldrin (60-57-1)				N/A						0					
11P. α-Enosulfan (115-29-7)				N/A						0					
12P. β-Endosulfan (115-29-7)				N/A						0					
13P. Endosulfan Sulfate (1031-07-8)				N/A						0					
14P. Endrin (72-20-8)				N/A						0					
15P. Endrin Aldehyde (7421-93-4)				N/A						0					
16P. Heptachlor (76-44-8)				N/A						0					

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	004g - IMP

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)				N/A						0					
18P. PCB-1242 (53469-21-9)				N/A						0					
19P. PCB-1254 (11097-69-1)				N/A						0					
20P. PCB-1221 (11104-28-2)				N/A						0					
21P. PCB-1232 (11141-16-5)				N/A						0					
22P. PCB-1248 (12672-29-6)				N/A						0					
23P. PCB-1280 (11096-82-5)				N/A						0					
24P. PCB-1016 (12674-11-2)				N/A						0					
25P. Toxaphene (8001-35-2)				N/A						0					

Alabama Power
General Test Laboratory
P.O. Box 2641
Birmingham, Alabama 35291
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 09-Aug-16
Customer ID: AL0069272
Delivery Date : 10-Aug-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38660

Laboratory ID Number: AW20080

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
General Characteristics										
* Solids, Suspended	LXP	8/15/2016	SM 2540D		1		2.5		263	mg/L
* Nitrogen, Nitrate/Nitrite	GMW	8/17/2016	EPA 353 2		1	0.05	0.20		4.76	mg/L as N
* Phosphorus, Total	DLJ	8/24/2016	SM 4500PE-TP		2	0.012	0.020		0 025	mg/L
Nitrogen, Ammonia, Distilled	GMW	8/19/2016	EPA 350 1		1	0.05	0.15	U	Not Detected	mg/L as N
* Nitrogen, Total Kjeldahl	GMW	8/23/2016	EPA 351 2		50	11.2	0 300	R	351	mg/L as N

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments:

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS4691-0017

Quality Control ____ Supervision ____

Reported:9/8/2016
Version: 4.0

Alabama Power
General Test Laboratory
P.O. Box 2641
Birmingham, Alabama 35291
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 10-Aug-16
Customer ID: AL0069272
Delivery Date : 10-Aug-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38661

Laboratory ID Number: AW20079

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
Biochemical Oxygen Demand, 5 Day, b	TTL	8/11/2016	SM 5210 B-2001		1		2.0	29.7	mg/L
* Escherichia Coli (E Coli)	ABB	8/11/2016	SM 9223B		1	1.0		U Not Detected	MPN/100ml

This Certificate states the physical and/or chemical characteristics of the sample as submitted. This document shall not be reproduced, except in full, without written consent from Alabama Power's General Test Laboratory.

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory.-fkk 8/17/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Control Keith Kornegay Supervision

Reported:9/8/2016
Version: 4.0

Alabama Power
General Test Laboratory
P.O. Box 2641
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CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 15-Aug-16
Customer ID: AL0059272
Delivery Date : 15-Aug-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38664

Laboratory ID Number: AW20479

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
Metals, Cyanide, Total Phenols										
* Aluminum, Total	HRG	8/25/2016	EPA 200.7		1.015	0.020300	0.0507		0.140	mg/L
* Antimony, Total	HRG	8/25/2016	EPA 200.7		1.015	0.004060	0.0406		< 0.04060	mg/L
* Arsenic, Total	HRG	8/25/2016	EPA 200.7		1.015	0.005075	0.0203		0.048	mg/L
* Barium, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0406		< 0.04060	mg/L
* Beryllium, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0406	U	Not Detected	mg/L
* Boron, Total	HRG	8/25/2016	EPA 200.7		1.015	0.002030	0.1015		< 0.1015	mg/L
* Cadmium, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0406	U	Not Detected	mg/L
* Chromium, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0406		< 0.04060	mg/L
* Cobalt, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0406		< 0.04060	mg/L
* Copper, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0406		< 0.04060	mg/L
* Iron, Total	HRG	8/25/2016	EPA 200.7		1.015	0.002030	0.0406		< 0.04060	mg/L
* Lead, Total	HRG	8/25/2016	EPA 200.7		1.015	0.011165	0.0406	U	Not Detected	mg/L
* Magnesium, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0406	L	< 0.04060	mg/L
* Manganese, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0406		< 0.04060	mg/L
* Mercury, Total by CVAA	MCW	8/24/2016	EPA 245.1		1	0.0002	0.0005	R	Not Detected	mg/L
* Molybdenum, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0406		< 0.04060	mg/L
* Nickel, Total	HRG	8/25/2016	EPA 200.7		1.015	0.002030	0.0406		0.078	mg/L
* Selenium, Total	HRG	8/25/2016	EPA 200.7		1.015	0.005075	0.0406		0.148	mg/L
* Silver, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0101	U	Not Detected	mg/L
* Thallium, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001030	0.0406	L	Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: The result for Mercury, Total must be qualified due to low recovery for MS/MSD samples.
Zinc, Total must be qualified due to out of spec results for the ICV/CCV Quality Control samples.-fkk 8/29/16
Chemical Oxygen Demand analyses performed by Tuscaloosa Testing Laboratory.-fkk 8/26/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Quality Control _____ Supervision _____

Reported:8/29/2016
Version: 4.0

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CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 15-Aug-16
Customer ID: AL0069272
Delivery Date : 15-Aug-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38664

Laboratory ID Number: AW20479

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
Tin, Total	HRG	8/25/2016	EPA 200.7		1.015	0.005075	0.0406		< 0.04060	mg/L
Titanium, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001015	0.0406	B	< 0.04060	mg/L
Zinc, Total	HRG	8/25/2016	EPA 200.7		1.015	0.001030	0.0406		0.161	mg/L
General Characteristics										
Chemical Oxygen Demand, by TTL	TTL	8/22/2016	SM 5220 D		1		250		25200	mg/L

This Certificate states the physical and/or chemical characteristics of the sample as submitted. This document shall not be reproduced, except in full, without written consent from Alabama Power's General Test Laboratory.

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E871114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: The result for Mercury, Total must be qualified due to low recovery for MS/MSD samples.
Zinc, Total must be qualified due to out of spec results for the ICV/CCV Quality Control samples.-fkk 8/29/16
Chemical Oxygen Demand analyses performed by Tuscaloosa Testing Laboratory.-fkk 8/26/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Quality Control Keith Kinnegan Supervision

Reported:8/29/2016
Version: 4.0

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General Test Laboratory
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CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFBLK
Sample Date : 17-Aug-16
Customer ID: AL0069272
Delivery Date : 17-Aug-16

Description: PSDF
PSDF TRIP BLANK

Laboratory ID Number: AW20697

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	TTL	8/26/2016	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	TTL	8/26/2016	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	TTL	8/26/2016	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	TTL	8/26/2016	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	TTL	8/26/2016	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments:

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PSDF - Wilsonville
PO # SCS1691-0017

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Version: 4.0

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ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 16-Aug-16
Customer ID: AL0069272
Delivery Date : 17-Aug-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38669

Laboratory ID Number: AW20695

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichlorobenzene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
1,3-Dichlorobenzene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	TTL	8/26/2016	EPA 624	Methyl Bromide	1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
1,4-Dichlorobenzene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	TTL	8/26/2016	EPA 624		1		0.005	< 0.005	mg/L
Metals, Cyanide, Total Phenols									
Cyanide, Total, by TTL	TTL	8/19/2016	EPA 335.4		1		0.010	< 0.010	mg/L
General Characteristics									
Bromide, Total	SES	8/17/2016	EPA 300.0		1	0.04	0.08	0.24	mg/L
* Chloride, Total	SES	8/17/2016	EPA 300.0		1	0.04	1	1.30	mg/L
* Fluoride, Total	SES	8/24/2016	EPA 300.0		1	0.01	0.04	2.42	mg/L
* Sulfate, Total	SES	8/24/2016	EPA 300.0		1	0.04	1	80.3	mg/L
Base/Neutral Compounds									
Acenaphthene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Acenaphthylene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E871114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: EPA 624, EPA 625 and Cyanide, Total analysis performed by Tuscaloosa Testing Laboratory.
EPA 625 analysis performed by TTL without pH adjustment due to high buffering capability of sample.-fkk 8/18/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

...ality Control _____ Supervision _____

Reported:8/31/2016
Version: 4.0

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CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 16-Aug-16
Customer ID: AL0069272
Delivery Date : 17-Aug-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38669

Laboratory ID Number: AW20695

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Anthracene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
Benzidine, by TTL	TTL	8/26/2016	EPA 625		1		0.050	< 0.050	mg/l
Benz(A)anthracene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Benzo(a)pyrene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Benzo(b)fluoranthene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Benzo(g,h,i)perylene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
Benzo(k)fluoranthene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Bis(2-chloroethoxy)methane, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroethyl)ether, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroisopropyl)ether, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-ethylhexyl)phthalate, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
4-Bromophenyl phenyl ether, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
[illegible]yl benzyl phthalate, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
[illegible]chloronaphthalene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
4-Chlorophenyl phenyl ether, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
Chrysene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Dibenzo(a,h)anthracene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
3,3-Dichlorobenzidine, by TTL	TTL	8/26/2016	EPA 625		1		0.020	< 0.020	mg/L
Diethyl phthalate, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Dimethyl phthalate, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Di-n-butylphthalate, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

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Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: EPA 624, EPA 625 and Cyanide. Total analysis performed by Tuscaloosa Testing Laboratory.
EPA 625 analysis performed by TTL without pH adjustment due to high buffering capability of sample.-fkk 8/18/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Quality Control _____ Supervision _____

Reported:8/31/2016
Version: 4.0

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CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 16-Aug-16
Customer ID: AL0069272
Delivery Date : 17-Aug-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38669

Laboratory ID Number: AW20695

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
2,4-Dinitrotoluene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
2,6-Dinitrotoluene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Di-n-octylphthalate, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
1,2-Diphenylhydrazine, by TTL	TTL	8/26/2016	EPA 625		1		0.050	< 0.050	mg/L
Fluoranthene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Fluorene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobenzene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobutadiene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorocyclopentadiene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Hexachloroethane, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Indeno(1,2,3-cd)pyrene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Isophorone, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
phthalene, TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
robenzene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodimethylamine, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodi-n-propylamine, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodiphenylamine, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Phenanthrene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Pyrene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
1,2,4-Trichlorobenzene, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: EPA 624, EPA 625 and Cyanide, Total analysis performed by Tuscaloosa Testing Laboratory.
EPA 625 analysis perfomed by TTL without pH adjustment due to high buffering capability of sample.-fkk 8/18/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

ality Control _____ Supervision_____

Reported:8/31/2016
Version: 4.0

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CERTIFICATE OF ANALYSIS

ALABAMA POWER
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To: Ms. Wynema Kimbrough
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PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 16-Aug-16
Customer ID: AL0069272
Delivery Date : 17-Aug-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38669

Laboratory ID Number: AW20695

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Acid Compounds									
2-Chlorophenol, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/l
2,4-Dichlorophenol, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dimethylphenol, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
4,6-Dinitro-2-methylphenol, by TTL	TTL	8/26/2016	EPA 625		1		0.050	< 0.050	mg/L
2,4-Dinitrophenol, by TTL	TTL	8/26/2016	EPA 625		1		0.050	< 0.050	mg/L
2-Nitrophenol, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
4-Nitrophenol, by TTL	TTL	8/26/2016	EPA 625		1		0.050	< 0.050	mg/L
4-chloro-3-methylphenol, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Pentachlorophenol, by TTL	TTL	8/26/2016	EPA 625		1		0.025	< 0.025	mg/L
Phenol, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
2,4,6-Trichlorophenol, by TTL	TTL	8/26/2016	EPA 625		1		0.010	< 0.010	mg/L
Miscellaneous									
...hod 625 - Extraction Date, by TTL	TTL	8/26/2016			1			08/18/2016	

MDL's and RL's are adjusted for sample dilution, as applicable

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Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: EPA 624, EPA 625 and Cyanide, Total analysis performed by Tuscaloosa Testing Laboratory.
EPA 625 analysis perfomed by TTL without pH adjustment due to high buffering capability of sample.-fkk 8/18/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

...ality Control Keith Longley Supervision

Reported:8/31/2016
Version: 4.0

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CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 16-Aug-16
Customer ID: AL0069272
Delivery Date : 17-Aug-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38670

Laboratory ID Number: AW20696

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
Color, by TTL	TTL	8/18/2016	SM 2120 E		10		100	599	ADMI
Surfactants (Foaming Agents), by TTL	TTL	8/18/2016	SM 5540C		1		0.05	< 0.05	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: Color and Surfactants analyses performed by Tuscaloosa Testing Laboratory.-fkk 8/17/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Quality Control Keith Kornegay Supervision

Reported:8/31/2016
Version: 4.0

Alabama Power
General Test Laboratory
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Birmingham, Alabama 35291
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 23-Aug-16
Customer ID: AL0069272
Delivery Date : 24-Aug-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38674

Laboratory ID Number: AW21393

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Radiological									
Gross Alpha, by TestAmerica	TA	9/10/2016	9310 (GFPC)		1	30 6		U Not Detected	pCi/L
Gross Beta, by TestAmerica	TA	9/10/2016	9310 (GFPC)		1	17.4		U Not Detected	pCi/L
Radium-226, by TestAmerica	TA	10/1/2016	9315 (GFPC)		1	0 167	1.00	U Not Detected	pCi/L
Total Alpha Radium, by TestAmerica,	TA	9/28/2016	9315 (GFPC)		1	0.422	1.00	U Not Detected	pCi/L
Metals, Cyanide, Total Phenols									
Phenol, by TestAmerica	TA	8/30/2016	EPA 8270D		1	0.81	9.7	< 0.81	ug/L
General Characteristics									
* Oil and Grease	DLJ	8/26/2016	EPA 1664B		1	1 4	5	< 5	mg/L
Sulfide, by TestAmerica	TA	8/26/2016	SM 4500 S2 F		1		1.0	< 1.0	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: Phenol, Sulfide, and Radioactivity analyses performed by TestAmerica.-fkk 9/2/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Control Keith Kimbrough Supervision

Reported:10/4/2016
Version: 4.0

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CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4A
Sample Date : 08-Sep-16
Customer ID: AL0069272
Delivery Date : 09-Sep-16

Description: PSDF- PC4 Rinse Water- A
PSDF# AB38694

Laboratory ID Number: AW22948

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
Total Organic Carbon, by TestAmerica	TA	9/15/2016	9060A		1000		1000	14000	mg/L

This Certificate states the physical and/or chemical characteristics of the sample as submitted. This document shall not be reproduced, except in full, without written consent from Alabama Power's General Test Laboratory.

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: TOC analysis performed by TestAmerica.-fkk 9/9/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Quality Control Keith Kornegay Supervision

Reported:9/19/2016
Version: 4.0

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Definitions

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Abbreviation	Description
DF	Dilution Factor
MDL	Method Detection Limit; minimum concentration of an analyte that can be determined with 99% confidence that the concentration is greater than zero.
Q	Qualifier; comment used to note deviations or additional information associated with analytical results.
RL	Reporting Limit; lowest concentration at which an analyte can be quantitatively measured.
Vio Sp	Violation Specification; regulatory limit which has been exceeded by the sample analyzed.
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LFB	Lab Fortified Blank
Rec	Recovery
Prec	Precision
QC	Quality Control

Qualifier	Description
B	Analyte found in reagent blank. Indicates possible reagent or background contamination.
E	Estimated reported value exceeded calibration range.
J	Reported value is an estimate because concentration is less than reporting limit.
	Organic constituents tentatively identified. Confirmation is needed.
	Matrix spike recovery is out of range.
U	Compound was analyzed for, but not detected.
P	Precision is out of range.
C	Analyte was verified by re-analysis.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.
L	Check standard is outside of the required specification limit
D	All samples were stored at less than or equal to 6 °C and for no longer than 48 hours from time of sampling, unless otherwise noted.

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RINSE B

CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4B
Sample Date : 13-Sep-16
Customer ID: AL0069272
Delivery Date : 14-Sep-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38701

Laboratory ID Number: AW23315

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
* Solids, Suspended	LXP	9/16/2016	SM 2540D		1		2.5	75 5	mg/L
* Biochemical Oxygen Demand, 5 Day	HRG	9/20/2016	SM 5210B		1	1		D 2	mg/L
* Nitrogen, Nitrate/Nitrite	GMW	9/16/2016	EPA 353.2		1	0.05	0.20	P 0.07	mg/L as N
* Phosphorus, Total	LXP	9/23/2016	SM 4500PE-TP		1	0.006	0.01	0.023	mg/L
Nitrogen, Ammonia, Distilled	GMW	9/20/2016	EPA 350.1		1	0.05	0.15	U Not Detected	mg/L as N
* Nitrogen, Total Kjeldahl, by TTL	TTL	9/26/2016	EPA 351.2		10		0.50	142	mg/L as N
* Total Organic Carbon	KRC	9/30/2016	SM 5310 C		50	15	50	241	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E871114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: Nitrogen, Total Kjeldahl analysis performed by Tuscaloosa Testing Laboratory.
fkk 9/28/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Quality Control Keith Ramsey Supervision

Reported:10/4/2016
Version: 4.0

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ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4B
Sample Date : 14-Sep-16
Customer ID: AL0069272
Delivery Date : 14-Sep-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38702

Laboratory ID Number: AW23316

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
* Escherichia Coli (E. Coli)	KRC	9/15/2016	SM 9223B		1	1.0		U Not Detected	MPN/100ml

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MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments:

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Control Keith Kennedy Supervision

Reported:10/4/2016
Version: 4.0

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ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
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Customer Account : NPSDFPC4B
Sample Date : 20-Sep-16
Customer ID: AL0069272
Delivery Date : 21-Sep-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38708

Laboratory ID Number: AW23938

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Metals, Cyanide, Total Phenols									
* Aluminum, Total	HRG	9/28/2016	EPA 200.7		1	0.020	0.05	1.023	mg/L
* Antimony, Total	HRG	9/28/2016	EPA 200.7		1	0.004	0.04	U Not Detected	mg/L
* Arsenic, Total	HRG	9/28/2016	EPA 200.7		1	0.005	0.02	U Not Detected	mg/L
* Barium, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0.04	0.055	mg/L
* Beryllium, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0.04	U Not Detected	mg/L
* Boron, Total	HRG	9/28/2016	EPA 200.7		1	0.002	0.1	< 0.1	mg/L
* Cadmium, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0.04	U Not Detected	mg/L
* Calcium, Total	HRG	9/28/2016	EPA 200.7		1	0.030	0.4	2.40	mg/L
* Chromium, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0.04	< 0.04	mg/L
* Cobalt, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0.04	U Not Detected	mg/L
* Copper, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0.04	< 0.04	mg/L
* Iron, Total	HRG	9/28/2016	EPA 200.7		1	0.002	0.04	< 0.04	mg/L
* [illegible]d, Total	HRG	9/28/2016	EPA 200.7		1	0.011	0.04	U Not Detected	mg/L
* [illegible]gnesium, Total	HRG	9/28/2016	EPA 200.7		1	0.005	0.4	< 0.4	mg/L
* Manganese, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0.04	U Not Detected	mg/L
* Molybdenum, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0.04	< 0.04	mg/L
* Nickel, Total	HRG	9/28/2016	EPA 200.7		1	0.002	0.04	< 0.04	mg/L
* Selenium, Total	HRG	9/28/2016	EPA 200.7		1	0.005	0.04	0.141	mg/L
Silicon, Total	HRG	9/28/2016	EPA 200.7		1	0.02	0.25	5.110	mg/L
* Silver, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0.01	U Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: Chemical Oxygen Demand analysis performed by Tuscaloosa Testing Laboratory.
fkk 9/30/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

[illegible]ity Control _____ Supervision _____

Reported:10/6/2016
Version: 4.0

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CERTIFICATE OF ANALYSIS

ALABAMA POWER
A SOUTHERN COMPANY

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4B
Sample Date : 20-Sep-16
Customer ID: AL0069272
Delivery Date : 21-Sep-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38708

Laboratory ID Number: AW23938

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Sodium, Total	HRG	9/28/2016	EPA 200.7		1	0.02	0.4	< 0.4	mg/L
* Strontium, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0 04	0.160	mg/L
* Thallium, Total	HRG	9/28/2016	EPA 200.7		1	0.010	0.04	U Not Detected	mg/L
Tin, Total	HRG	9/28/2016	EPA 200.7		1	0.005	0.04	U Not Detected	mg/L
Titanium, Total	HRG	9/28/2016	EPA 200.7		1	0.005	0.04	U Not Detected	mg/L
* Vanadium, Total	HRG	9/28/2016	EPA 200.7		1	0.001	0 04	0 042	mg/L
* Zinc, Total	HRG	9/28/2016	EPA 200.7		1	0.005	0.01	< 0.01	mg/L
General Characteristics									
* Bromide, Total	SES	9/23/2016	EPA 300.0		1	0.04	0.08	U Not Detected	mg/L
* Chloride, Total	SES	9/23/2016	EPA 300.0		1	0.04	1	< 1	mg/L
* Fluoride, Total	SES	9/23/2016	EPA 300.0		1	0.01	0.04	0.18	mg/L
* Sulfate, Total	SES	9/23/2016	EPA 300.0		1	0.04	1	1.08	mg/L
Chemical Oxygen Demand, by TTL	TTL	9/26/2016	SM 5220 D		1		5.0	914	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: Chemical Oxygen Demand analysis performed by Tuscaloosa Testing Laboratory.
lkk 9/30/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Quality Control _____ Supervision _____

Reported:10/6/2016
Version: 4.0

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PSDF - Wilsonville

Customer Account : NPSDFPC4B
Sample Date : 21-Sep-16
Customer ID: AL0069272
Delivery Date : 21-Sep-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38709

Laboratory ID Number: AW23939

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
Color, by TTL	TTL	9/22/2016	SM 2120 E		1		40	289	ADMI
Surfactants (Foaming Agents), by TTL	TTL	9/22/2016	SM 5540C		1		0 05	< 0.05	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: Color and Surfactants analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/30/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Quality Control Keith Flanagan Supervision

Reported:10/6/2016
Version: 4.0

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To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4B
Sample Date : 11-Oct-16
Customer ID: AL0069272
Delivery Date : 12-Oct-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38725

Laboratory ID Number: AW25758

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
2,3,7,8-TCDD, by TestAmerica	TA	10/31/2016	EPA 1613B		1	0.25	9.4	Not Detected	pg/L
2,3,7,8-TCDF, by TestAmerica	TA	10/31/2016	EPA 1613B		1	0.27	9.4	Not Detected	pg/L
Metals, Cyanide, Total Phenols									
Cyanide, Total, by TTL	TTL	10/14/2016	SM 4500-CN CE		1		0.010	< 0.010	mg/L
General Characteristics									
* Oil and Grease	DLJ	10/13/2016	EPA 1664B		1	1.4	5	U Not Detected	mg/L
Chemical Oxygen Demand, by TTL	TTL	10/13/2016	SM 5220 D		1		5.0	678	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E871114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2017

Comments: Chemical Oxygen Demand and Cyanide analyses performed by Tuscaloosa Testing Laboratory. Dioxins and Furans analysis performed by TestAmerica.-fkk 11/14/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Control Keith Kornegay Supervision

Reported:11/14/2016
Version: 4.1

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Alabama Power
Lab & Field SERVICES

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4B
Sample Date : 04-Oct-16
Customer ID: AL0069272
Delivery Date : 05-Oct-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38719

Laboratory ID Number: AW25114

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	TTL	10/7/2016	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	TTL	10/7/2016	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	TTL	10/7/2016	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
[illegible]loroethane, by TTL	TTL	10/7/2016	EPA 624		1		0.010	< 0.010	mg/l
[illegible]ns-1,2-Dichloroethene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	TTL	10/7/2016	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624, EPA 625, Phenols and Sulfide analyses performed by Tuscaloosa Testing Laboratory. Radioactivity analysis performed by TestAmerica. TestAmerica qualified the result for Radium-226, stating the MS/MSD Recovery and/or RPD exceeds the control limits.-fkk 10/24/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

[illegible]y Control _____ Supervision _____

Reported:11/15/2016
Version: 4.1

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CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Wynema Kimbrough
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PSDF - Wilsonville

Customer Account : NPSDFPC4B
Sample Date : 04-Oct-16
Customer ID: AL0069272
Delivery Date : 05-Oct-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38719

Laboratory ID Number: AW25114

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichlorobenzene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
1,3-Dichlorobenzene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	TTL	10/7/2016	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
1,4-Dichlorobenzene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	TTL	10/7/2016	EPA 624		1		0.005	< 0.005	mg/L
Radiological									
Gross Alpha, by TestAmerica	TA	10/20/2016	9310 (GFPC)		1		3.00	< 3.00	pCi/L
Gross Beta, by TestAmerica	TA	10/20/2016	9310 (GFPC)		1		4.00	< 4.00	pCi/L
Radium-226, by TestAmerica	TA	11/7/2016	9315 (GFPC)		1		1.00	< 1.00	pCi/L
Total Alpha Radium, by TestAmerica,	TA	11/11/2016	9315 (GFPC)		1		1.00	< 1.00	pCi/L
Metals, Cyanide, Total Phenols									
Phenol, Total, by TTL	TTL	10/18/2016	SM 5330		1		0.10	< 0.10	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624, EPA 625, Phenols and Sulfide analyses performed by Tuscaloosa Testing Laboratory. Radioactivity analysis performed by TestAmerica. TestAmerica qualified the result for Radium-226, stating the MS/MSD Recovery and/or RPD exceeds the control limits.-fkk 10/24/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Control _____ **Supervision** _____

Reported:11/16/2016
Version: 4.1

Alabama Power
General Test Laboratory
P.O. Box 2641
Birmingham, Alabama 35291
(205) 664 - 6032 or 6171
(205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4B
Sample Date : 04-Oct-16
Customer ID: AL0069272
Delivery Date : 05-Oct-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38719

Laboratory ID Number: AW25114

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
Sulfide, by TTL	TTL	10/11/2016	SM4500 S2 D		1		0.01	< 0.01	mg/l
Base/Neutral Compounds									
Acenaphthene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Acenaphthylene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Anthracene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
Benzidine, by TTL	TTL	10/13/2016	EPA 625		1		0.050	< 0.050	mg/l
Benz(A)anthracene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Benzo(a)pyrene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Benzo(b)fluoranthene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Benzo(g,h,i)perylene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
Benzo(k)fluoranthene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Bis(2-chloroethoxy)methane, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroethyl)ether, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroisopropyl)ether, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-ethylhexyl)phthalate, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
4-Bromophenyl phenyl ether, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
Butyl benzyl phthalate, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
2-Chloronaphthalene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
4-Chlorophenyl phenyl ether, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
Chrysene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624, EPA 625, Phenols and Sulfide analyses performed by Tuscaloosa Testing Laboratory. Radioactivity analysis performed by TestAmerica. TestAmerica qualified the result for Radium-226, stating the MS/MSD Recovery and/or RPD exceeds the control limits.-fkk 10/24/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Quality Control _____ Supervision _____

Reported:11/15/2016
Version: 4.1

Alabama Power
General Test Laboratory
P.O. Box 2641
Birmingham, Alabama 35291
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(205) 257-1654

CERTIFICATE OF ANALYSIS

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Lab & Field SERVICES

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4B
Sample Date : 04-Oct-16
Customer ID: AL0069272
Delivery Date : 05-Oct-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38719

Laboratory ID Number: AW25114

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Dibenzo(a,h)anthracene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
3,3-Dichlorobenzidine, by TTL	TTL	10/13/2016	EPA 625		1		0.020	< 0.020	mg/L
Diethyl phthalate, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Dimethyl phthalate, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Di-n-butylphthalate, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dinitrotoluene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
2,6-Dinitrotoluene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Di-n-octylphthalate, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
1,2-Diphenylhydrazine, by TTL	TTL	10/13/2016	EPA 625		1		0.050	< 0.050	mg/L
Fluoranthene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Fluorene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobenzene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobutadiene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
[illegible]chlorocyclopentadiene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
[illegible]chloroethane, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Indeno(1,2,3-cd)pyrene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Isophorone, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Nitrobenzene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Naphthalene, TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodimethylamine, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodi-n-propylamine, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624, EPA 625, Phenols and Sulfide analyses performed by Tuscaloosa Testing Laboratory. Radioactivity analysis performed by TestAmerica. TestAmerica qualified the result for Radium-226, stating the MS/MSD Recovery and/or RPD exceeds the control limits.-fkk 10/24/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Control _____ Supervision _____

Reported:11/15/2016
Version: 4.1

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General Test Laboratory
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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Wynema Kimbrough
X2KIMBRO@southernco.com
PSDF - Wilsonville

Customer Account : NPSDFPC4B
Sample Date : 04-Oct-16
Customer ID: AL0069272
Delivery Date : 05-Oct-16

Description: PSDF- PC4 Rinse Water- B
PSDF# AB38719

Laboratory ID Number: AW25114

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
N-Nitrosodiphenylamine, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Phenanthrene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Pyrene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
1,2,4-Trichlorobenzene, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Acid Compounds									
2-Chlorophenol, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/l
2,4-Dichlorophenol, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dimethylphenol, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
4,6-Dinitro-2-methylphenol, by TTL	TTL	10/13/2016	EPA 625		1		0.050	< 0.050	mg/L
2,4-Dinitrophenol, by TTL	TTL	10/13/2016	EPA 625		1		0.050	< 0.050	mg/L
2-Nitrophenol, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
4-Nitrophenol, by TTL	TTL	10/13/2016	EPA 625		1		0.050	< 0.050	mg/L
4-chloro-3-methylphenol, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Pentachlorophenol, by TTL	TTL	10/13/2016	EPA 625		1		0.025	< 0.025	mg/L
Phenol, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
2,4,6-Trichlorophenol, by TTL	TTL	10/13/2016	EPA 625		1		0.010	< 0.010	mg/L
Miscellaneous									
Method 625 - Extraction Date, by TTL	TTL	10/13/2016			1			10/06/2016	

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624, EPA 625, Phenols and Sulfide analyses performed by Tuscaloosa Testing Laboratory. Radioactivity analysis performed by TestAmerica. TestAmerica qualified the result for Radium-226, stating the MS/MSD Recovery and/or RPD exceeds the control limits.-tkk 10/24/16

cc: Mr. Charles Cantrell
PSDF - Wilsonville
PO # SCS1691-0017

Control Keith Kemper Supervision

Reported:11/15/2016
Version: 4.1

Cantrell, Charles E.

From: Kimbrough, Wynema D. (SRI)
Sent: Monday, October 03, 2016 2:17 PM
To: Cantrell, Charles E.
Subject: PC4 Sulfite, pH, Chlorine, and Temperature Results - 10/03/16

PSDF Laboratory Analytical Results: 10/03/16

Sample ID Number		**AB38715**
Sample Description		**PC4 Rinse Water - A**
Location ID		
Collection Date		**10/03/16**
Collection Time		**08:00**
Analysis	**Result**	**Unit**
pH	9.76	---
Sulfite	33.5	mg/L
Total Chlorine (DPD Method)	Not detected	mg/L
Temperature (°F)	72	°F

Sample ID Number		**AB38716**
Sample Description		**PC4 Rinse Water - B**
Location ID		
Collection Date		**10/03/16**
Collection Time		**08:00**
Analysis	**Result**	**Unit**
pH	9.47	---
Sulfite	2.25	mg/L
Total Chlorine (DPD Method)	Not detected	mg/L
Temperature (°F)	72	°F

Sample ID Number		**AB38717**
Sample Description		**PC4 Flue Gas Condensate Header Return**
Location ID		
Collection Date		**10/03/16**
Collection Time		**08:15**
Analysis	**Result**	**Unit**
pH	2.66	---
Sulfite	Below detection limit	mg/L
Total Chlorine (DPD Method)	Not detected	mg/L
Temperature (°F)	71	°F

Sample ID Number		**AB38718**
Sample Description		**Cooling Tower Water - PC4**
Location ID		
Collection Date		**10/03/16**
Collection Time		**08:30**

Analysis	Result	Unit
pH	8.30	---
Sulfite	Below detection limit	mg/L
Total Chlorine (DPD Method)	Not detected	mg/L
Temperature (°F)	71	°F

Wynema D. Kimbrough
Southern Research
PSDF Laboratory
National Carbon Capture Center
Wilsonville, Alabama
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SOUTHERN RESEARCH

Please see www.southernresearch.org for information about our capabilities.

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ALD083742858

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 011

PART A –You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)	<2.0						1	mg/L				
b. Chemical Oxygen Demand (*COD*)	22.0						1	mg/L				
c. Total Organic Carbon (*TOC*)	4.61						1	mg/L				
d. Total Suspended Solids (*TSS*)	816						1	mg/L				
e. Ammonia (*as N*)	<0.30						1	mg/L				
f. Flow	VALUE 0.6		VALUE		VALUE		1	mgd		VALUE		
g. Temperature (*winter*)	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature (*summer*)	VALUE 33.0		VALUE		VALUE		1	°C		VALUE		
i. pH	MINIMUM 7.5	MAXIMUM 7.5	MINIMUM	MAXIMUM			1	STANDARD UNITS				

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)			0.22						1	mg/L				
b. Chlorine, Total Residual			<0.05						1	mg/L				
c. Color			27.0						1	ADMI				
d. Fecal Coliform			93.4						1	MPN/100				
e. Fluoride (16984-48-8)			0.08						1	mg/L				
f. Nitrate-Nitrite (*as N*)			<0.30						1	mg/L				

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (*as N*)			<0.10						1	mg/L				
h. Oil and Grease			<5						1	mg/L				
i. Phosphorus (as P), Total (7723-14-0)			<0.05						1	mg/L				
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (*as SO_4*) (14808-79-8)			33.9						1	mg/L				
l. Sulfide (*as S*)			<0.01						1	mg/L				
m. Sulfite (*as SO_3*) (14265-45-3)			<0.4						1	mg/L				
n. Surfactants			<0.05						1	mg/L				
o. Aluminum, Total (7429-90-5)			10.8						1	mg/L				
p. Barium, Total (7440-39-3)			0.150						1	mg/L				
q. Boron, Total (7440-42-8)			0.758						1	mg/L				
r. Cobalt, Total (7440-48-4)			0.00404						1	mg/L				
s. Iron, Total (7439-89-6)			6.45						1	mg/L				
t. Magnesium, Total (7439-95-4)			7.22						1	mg/L				
u. Molybdenum, Total (7439-98-7)			0.114						1	mg/L				
v. Manganese, Total (7439-96-5)			0.0997						1	mg/L				
w. Tin, Total (7440-31-5)			<0.002						1	mg/L				
x. Titanium, Total (7440-32-6)			0.562						1	mg/L				

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	011

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			0.00279						1	mg/L				
2M. Arsenic, Total (7440-38-2)	X			0.0657						1	mg/L				
3M. Beryllium, Total (7440-41-7)	X			0.00293						1	mg/L				
4M. Cadmium, Total (7440-43-9)	X			0.00202						1	mg/L				
5M. Chromium, Total (7440-47-3)	X			0.0569						1	mg/L				
6M. Copper, Total (7440-50-8)	X			0.0465						1	mg/L				
7M. Lead, Total (7439-92-1)	X			0.0388						1	mg/L				
8M. Mercury, Total (7439-97-6)	X			<5						1	ng/L				
9M. Nickel, Total (7440-02-0)	X			0.0182						1	mg/L				
10M. Selenium, Total (7782-49-2)	X			0.00248						1	mg/L				
11M. Silver, Total (7440-22-4)	X			<0.002						1	mg/L				
12M. Thallium, Total (7440-28-0)	X			0.00379						1	mg/L				
13M. Zinc, Total (7440-66-6)	X			0.0787						1	mg/L				
14M. Cyanide, Total (57-12-5)	X			<0.010						1	mg/L				
15M. Phenols, Total	X			<0.10						1	mg/L				
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X			<0.100						1	mg/L				
2V. Acrylonitrile (107-13-1)	X			<0.100						1	mg/L				
3V. Benzene (71-43-2)	X			<0.005						1	mg/L				
4V. Bis (*Chloromethyl*) Ether (542-88-1)				N/A						0					
5V. Bromoform (75-25-2)	X			<0.005						1	mg/L				
6V. Carbon Tetrachloride (56-23-5)	X			<0.005						1	mg/L				
7V. Chlorobenzene (108-90-7)	X			<0.005						1	mg/L				
8V. Chlorodibromomethane (124-48-1)	X			<0.005						1	mg/L				
9V. Chloroethane (75-00-3)	X			<0.010						1	mg/L				
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<0.010						1	mg/L				
11V. Chloroform (67-66-3)	X			<0.005						1	mg/L				
12V. Dichlorobromomethane (75-27-4)	X			<0.005						1	mg/L				
13V. Dichlorodifluoromethane (75-71-8)				N/A						0					
14V. 1,1-Dichloroethane (75-34-3)	X			<0.005						1	mg/L				
15V. 1,2-Dichloroethane (107-06-2)	X			<0.005						1	mg/L				
16V. 1,1-Dichloroethylene (75-35-4)	X			<0.005						1	mg/L				
17V. 1,2-Dichloropropane (78-87-5)	X			<0.005						1	mg/L				
18V. 1,3-Dichloropropylene (542-75-6)	X			<0.005						1	mg/L				
19V. Ethylbenzene (100-41-4)	X			<0.005						1	mg/L				
20V. Methyl Bromide (74-83-9)	X			<0.010						1	mg/L				
21V. Methyl Chloride (74-87-3)	X			<0.005						1	mg/L				

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)	X			<0.005						1	mg/L				
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<0.005						1	mg/L				
24V. Tetrachloroethylene (127-18-4)	X			<0.005						1	mg/L				
25V. Toluene (108-88-3)	X			<0.005						1	mg/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<0.005						1	mg/L				
27V. 1,1,1-Trichloroethane (71-55-6)	X			<0.005						1	mg/L				
28V. 1,1,2-Trichloroethane (79-00-5)	X			<0.005						1	mg/L				
29V Trichloroethylene (79-01-6)	X			<0.005						1	mg/L				
30V. Trichlorofluoromethane (75-69-4)				N/A						0					
31V. Vinyl Chloride (75-01-4)	X			<0.002						1	mg/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<0.010						1	mg/L				
2A. 2,4-Dichlorophenol (120-83-2)	X			<0.010						1	mg/L				
3A. 2,4-Dimethylphenol (105-67-9)	X			<0.010						1	mg/L				
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<0.050						1	mg/L				
5A. 2,4-Dinitrophenol (51-28-5)	X			<0.050						1	mg/L				
6A. 2-Nitrophenol (88-75-5)	X			<0.010						1	mg/L				
7A. 4-Nitrophenol (100-02-7)	X			<0.050						1	mg/L				
8A. P-Chloro-M-Cresol (59-50-7)	X			<0.010						1	mg/L				
9A. Pentachlorophenol (87-86-5)	X			<0.025						1	mg/L				
10A. Phenol (108-95-2)	X			<0.010						1	mg/L				
11A. 2,4,6-Trichlorophenol (88-05-2)	X			<0.010						1	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<0.010						1	mg/L				
2B. Acenaphtylene (208-96-8)	X			<0.010						1	mg/L				
3B. Anthracene (120-12-7)	X			<0.010						1	mg/L				
4B. Benzidine (92-87-5)	X			<0.050						1	mg/L				
5B. Benzo (*a*) Anthracene (56-55-3)	X			<0.010						1	mg/L				
6B. Benzo (*a*) Pyrene (50-32-8)	X			<0.010						1	mg/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<0.010						1	mg/L				
8B. Benzo (*ghi*) Perylene (191-24-2)	X			<0.010						1	mg/L				
9B. Benzo (*k*) Fluoranthene (207-08-9)	X			<0.010						1	mg/L				
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)	X			<0.010						1	mg/L				
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)	X			<0.010						1	mg/L				
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)	X			<0.010						1	mg/L				
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)	X			<0.010						1	mg/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	X			<0.010						1	mg/L				
15B. Butyl Benzyl Phthalate (85-68-7)	X			<0.010						1	mg/L				
16B. 2-Chloro-naphthalene (91-58-7)	X			<0.010						1	mg/L				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<0.010						1	mg/L				
18B. Chrysene (218-01-9)	X			<0.010						1	mg/L				
19B. Dibenzo (*a,h*) Anthracene (53-70-3)	X			<0.010						1	mg/L				
20B. 1,2-Dichloro-benzene (95-50-1)	X			<0.005						1	mg/L				
21B. 1,3-Di-chloro-benzene (541-73-1)	X			<0.005						1	mg/L				

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<0.005						1	mg/L				
23B. 3,3-Dichlorobenzidine (91-94-1)	X			<0.020						1	mg/L				
24B. Diethyl Phthalate (84-66-2)	X			<0.010						1	mg/L				
25B. Dimethyl Phthalate (131 -11-3)	X			<0.010						1	mg/L				
26B. Di-N-Butyl Phthalate (84-74-2)	X			<0.010						1	mg/L				
27B. 2,4-Dinitrotoluene (121-14-2)	X			<0.010						1	mg/L				
28B. 2,6-Dinitrotoluene (606-20-2)	X			<0.010						1	mg/L				
29B. Di-N-Octyl Phthalate (117-84-0)	X			<0.010						1	mg/L				
30B. 1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	X			<0.050						1	mg/L				
31B. Fluoranthene (206-44-0)	X			<0.010						1	mg/L				
32B. Fluorene (86-73-7)	X			<0.010						1	mg/L				
33B. Hexachlorobenzene (118-74-1)	X			<0.010						1	mg/L				
34B. Hexachlorobutadiene (87-68-3)	X			<0.010						1	mg/L				
35B. Hexachlorocyclopentadiene (77-47-4)	X			<0.010						1	mg/L				
36B Hexachloroethane (67-72-1)	X			<0.010						1	mg/L				
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)	X			<0.010						1	mg/L				
38B. Isophorone (78-59-1)	X			<0.010						1	mg/L				
39B. Naphthalene (91-20-3)	X			<0.010						1	mg/L				
40B. Nitrobenzene (98-95-3)	X			<0.010						1	mg/L				
41B. N-Nitrosodimethylamine (62-75-9)	X			<0.010						1	mg/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<0.010						1	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<0.010						1	mg/L				
44B. Phenanthrene (85-01-8)	X			<0.010						1	mg/L				
45B. Pyrene (129-00-0)	X			<0.010						1	mg/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<0.010						1	mg/L				
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)				N/A						0					
2P. α-BHC (319-84-6)				N/A						0					
3P. β-BHC (319-85-7)				N/A						0					
4P. γ-BHC (58-89-9)				N/A						0					
5P. δ-BHC (319-86-8)				N/A						0					
6P. Chlordane (57-74-9)				N/A						0					
7P. 4,4'-DDT (50-29-3)				N/A						0					
8P. 4,4'-DDE (72-55-9)				N/A						0					
9P. 4,4'-DDD (72-54-8)				N/A						0					
10P. Dieldrin (60-57-1)				N/A						0					
11P. α-Enosulfan (115-29-7)				N/A						0					
12P. β-Endosulfan (115-29-7)				N/A						0					
13P. Endosulfan Sulfate (1031-07-8)				N/A						0					
14P. Endrin (72-20-8)				N/A						0					
15P. Endrin Aldehyde (7421-93-4)				N/A						0					
16P. Heptachlor (76-44-8)				N/A						0					

CONTINUE ON PAGE V-9

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	011

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)				N/A						0					
18P. PCB-1242 (53469-21-9)				N/A						0					
19P. PCB-1254 (11097-69-1)				N/A						0					
20P. PCB-1221 (11104-28-2)				N/A						0					
21P. PCB-1232 (11141-16-5)				N/A						0					
22P. PCB-1248 (12672-29-6)				N/A						0					
23P. PCB-1260 (11096-82-5)				N/A						0					
24P. PCB-1016 (12674-11-2)				N/A						0					
25P. Toxaphene (8001-35-2)				N/A						0					

Alabama Power
General Test Laboratory
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Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS011R
Sample Date : 01-Aug-17
Customer ID: AL-0003140
Delivery Date : 01-Aug-17

Description: Gaston-DSN011 Repermitting - Grab
Main Collec Sump Emerg Overflow

Laboratory ID Number: AX18035

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Metals, Cyanide, Total Phenols									
* Mercury, Total by CVAF	ABB	8/10/2017	EPA 245.7		1	0.9	5	< 5	ng/L
Cyanide, Total, by TTL	TRT	8/4/2017	SM 4500-CN CE		1		0.010	< 0.010	mg/L
Phenol, Total, by TTL	KMC	8/3/2017	SM 5330		1		0.10	< 0.10	mg/L
General Characteristics									
Flow (MGD)	GFH/	8/1/2017	Field Data		1			0.6	MGD
Field pH	GFH	8/1/2017	SM-4500H		1			7.45	SU
Field Sulfite	GFH/	8/1/2017	HACH 8216		1	0.4		U Not Detected	mg/l
Temperature	GFH	8/1/2017	Field Data		1	0.1		33.0	Deg. C
Chlorine, Total Residual	GFH	8/1/2017	Field Test		1	0.05		U Not Detected	mg/L
* Escherichia Coli (E. Coli)	CES	8/2/2017	SM 9223B		1	1.0		93.4	MPN/100ml
* Oil and Grease	DLJ	8/2/2017	EPA 1664B		1	1.4	5	< 5	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Cyanide and Phenol analyses performed by Tuscaloosa Testing Laboratory.
fkk 8/10/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control _____ Supervision _____

Reported:8/15/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS011R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN011 Repermitting
Main Collec Sump Emerg Overflow

Laboratory ID Number: AX18144

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ Supervision _____

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS011R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN011 Repermitting
Main Collec Sump Emerg Overflow

Laboratory ID Number: AX18144

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,3-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,4-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Metals, Cyanide, Total Phenols									
Total, Tube Digestion Prep Date	DLJ	8/4/2017	EPA 1638		1			08/04/17	DATE
Aluminum, Total	JHK	8/8/2017	EPA 200.8		10	0.04320	0.13	10.8	mg/L
* Antimony, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.00279	mg/L
* Arsenic, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.0657	mg/L
* Barium, Total	JHK	8/8/2017	EPA 200.8		10	0.000860	0.00258	0.150	mg/L
* Beryllium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.00293	mg/L
* Boron, Total	HRG	8/14/2017	EPA 200.7		1	0.0333	0.1	0.758	mg/L
* Cadmium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.00202	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E871114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ Supervision_____

Reported:8/22/2017
Version: 4.2

Alabama Power
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS011R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN011 Repermitting
Main Collec Sump Emerg Overflow

Laboratory ID Number: AX18144

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
* Chromium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.0569	mg/L
* Cobalt, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.00404	mg/L
* Copper, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.0465	mg/L
Iron, Total	JHK	8/8/2017	EPA 200.8		10	0.007460	0.0224	6.45	mg/L
* Lead, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.0388	mg/L
Magnesium, Total	JHK	8/8/2017	EPA 200.8		10	1.670	5	7.22	mg/L
* Manganese, Total	JHK	8/8/2017	EPA 200 8		10	0.000670	0.002	0.0997	mg/L
* Molybdenum, Total	JHK	8/8/2017	EPA 200.8		10	0.000810	0.00243	0.114	mg/L
* Nickel, Total	JHK	8/8/2017	EPA 200.8		10	0.003850	0 0116	0.0182	mg/L
* Selenium, Total	JHK	8/8/2017	EPA 200.8		10	0.000770	0.00231	0.00248	mg/L
* Silver, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Thallium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.00379	mg/L
Tin, Total	JHK	8/8/2017	EPA 200 8		10	0.000670	0.002	< 0.002	mg/L
Titanium, Total	JHK	8/8/2017	EPA 200.8		10	0.003330	0 01	0.562	mg/L
Zinc, Total	JHK	8/8/2017	EPA 200 8		10	0.003330	0 01	0.0787	mg/L
General Characteristics									
* Solids, Suspended	KRC	8/3/2017	SM 2540D		1		2.5	816	mg/L
* Bromide, Total	CES	8/12/2017	EPA 300 0		1	0.04	0 08	0.22	mg/L
Biochemical Oxygen Demand, 5 Day, b	KMC	8/3/2017	SM 5210 B-2001		1		2.0	< 2.0	mg/L
* Fluoride, Total	CES	8/12/2017	EPA 300 0		1	0 01	0.04	0.08	mg/L
* Sulfate, Total	CES	8/12/2017	EPA 300 0		1	0.04	1	33.9	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ Supervision_____

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS011R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN011 Repermitting
Main Collec Sump Emerg Overflow

Laboratory ID Number: AX18144

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Color, by TTL	TRT	8/3/2017	SM 2120 E		1		10	27.0	ADMI
* Nitrogen, Nitrate/Nitrite	GMW	8/9/2017	EPA 353 2		1	0.10	0.30	<0.30	mg/L as N
Nitrogen, Total Organic	GMW	8/18/2017	EPA 351.3		1	0.10		Not Detected	mg/l as N
Sulfide, by TTL	CRC	8/9/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
Surfactants (Foaming Agents), by TTL	CRC	8/3/2017	SM 5540C		1		0.05	< 0.05	mg/l
* Phosphorus, Total	KRC	8/17/2017	SM 4500PE-TP		5	0.050	0.05	U Not Detected	mg/L
* Nitrogen, Ammonia, Distilled	GMW	8/7/2017	EPA 350 1		1	0.10	0.30	U Not Detected	mg/L as N
* Nitrogen, Total Kjeldahl	GMW	8/11/2017	EPA 351.2		1	0.156	0.500	U Not Detected	mg/L as N
* Total Organic Carbon	KRC	8/9/2017	SM 5310 C		1	0.30	1	4.61	mg/L
Chemical Oxygen Demand, by TTL	MMC	8/4/2017	SM 5220 D		1		5.0	22.0	mg/L
Base/Neutral Compounds									
Acenaphthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Acenaphthylene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzidine, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/l
Benz(a)anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(a)pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(b)fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(g,h,i)perylene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzo(k)fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Bis(2-chloroethoxy)methane, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

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Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ Supervision_____

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS011R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN011 Repermitting
Main Collec Sump Emerg Overflow

Laboratory ID Number: AX18144

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Bis(2-chloroethyl)ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroisopropyl)ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-ethylhexyl)phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Bromophenyl phenyl ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Butyl benzyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
2-Chloronaphthalene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Chlorophenyl phenyl ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Chrysene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Dibenzo(a,h)anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
3,3-Dichlorobenzidine, by TTL	LAA	8/10/2017	EPA 625		1		0.020	< 0.020	mg/L
Diethyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Dimethyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-butyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dinitrotoluene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,6-Dinitrotoluene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-octyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2-Diphenylhydrazine, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
Fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Fluorene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobutadiene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L

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Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory. fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ Supervision _____

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS011R
Sample Date : 02-Aug-17
Customer ID: AL-000314D
Delivery Date : 02-Aug-17

Description: Gaston-DSN011 Repermitting
Main Collec Sump Emerg Overflow

Laboratory ID Number: AX18144

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Hexachlorocyclopentadiene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachloroethane, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Indeno(1,2,3-cd)pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Isophorone, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Naphthalene, TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Nitrobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodimethylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodi-n-propylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodiphenylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Phenanthrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2,4-Trichlorobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Acid Compounds									
2-Chlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
2,4-Dichlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dimethylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
4,6-Dinitro-2-methylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
2,4-Dinitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
2-Nitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
4-Nitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
4-chloro-3-methylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

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Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ Supervision _____

Reported:8/22/2017
Version: 4.2

Alabama Power
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS011R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN011 Repermitting
Main Collec Sump Emerg Overflow

Laboratory ID Number: AX18144

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Pentachlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.025	< 0.025	mg/L
Phenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4,6-Trichlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Miscellaneous									
Method 625 - Extraction Date, by TTL	LAA	8/3/2017			1			08/03/2017	

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control Keith Kornegay Supervision

Reported:8/22/2017
Version: 4.2

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ALD083742858

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)* [redacted] OUTFALL NO. 019

PART A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)	2.9						1	mg/L				
b. Chemical Oxygen Demand (*COD*)	78.5						1	mg/L				
c. Total Organic Carbon (*TOC*)	3.90						1	mg/L				
d. Total Suspended Solids (*TSS*)	312						1	mg/L				
e. Ammonia (*as N*)	<0.30						1	mg/L				
f. Flow	VALUE 15.1		VALUE		VALUE		1	mgd		VALUE		
g. Temperature (*winter*)	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature (*summer*)	VALUE 24.2		VALUE		VALUE		1	°C		VALUE		
i. pH	MINIMUM 9.0	MAXIMUM 9.0	MINIMUM	MAXIMUM	[redacted]		1	STANDARD UNITS		[redacted]		

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)			<0.08						1	mg/L				
b. Chlorine, Total Residual			<0.05						1	mg/L				
c. Color			27.0						1	ADMI				
d. Fecal Coliform			3.0						1	MPN/100				
e. Fluoride (16984-48-8)			0.11						1	mg/L				
f. Nitrate-Nitrite (*as N*)			<0.30						1	mg/L				

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (*as N*)			<0.10						1	mg/L				
h. Oil and Grease			<5						1	mg/L				
i. Phosphorus (as P), Total (7723-14-0)			0.152						1	mg/L				
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (*as SO_4*) (14808-79-8)			104						1	mg/L				
l. Sulfide (*as S*)			<0.01						1	mg/L				
m. Sulfite (*as SO_3*) (14265-45-3)			N/A						0					
n. Surfactants			0.09						1	mg/L				
o. Aluminum, Total (7429-90-5)			1.66						1	mg/L				
p. Barium, Total (7440-39-3)			0.101						1	mg/L				
q. Boron, Total (7440-42-8)			<0.1						1	mg/L				
r. Cobalt, Total (7440-48-4)			<0.002						1	mg/L				
s. Iron, Total (7439-89-6)			2.15						1	mg/L				
t. Magnesium, Total (7439-95-4)			6.63						1	mg/L				
u. Molybdenum, Total (7439-98-7)			0.00310						1	mg/L				
v. Manganese, Total (7439-96-5)			0.135						1	mg/L				
w. Tin, Total (7440-31-5)			<0.002						1	mg/L				
x. Titanium, Total (7440-32-6)			0.0485						1	mg/L				

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	019

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<0.002						1	mg/L				
2M. Arsenic, Total (7440-38-2)	X			0.0125						1	mg/L				
3M. Beryllium, Total (7440-41-7)	X			<0.002						1	mg/L				
4M. Cadmium, Total (7440-43-9)	X			<0.002						1	mg/L				
5M. Chromium, Total (7440-47-3)	X			0.00558						1	mg/L				
6M. Copper, Total (7440-50-8)	X			0.0148						1	mg/L				
7M. Lead, Total (7439-92-1)	X			0.0119						1	mg/L				
8M. Mercury, Total (7439-97-6)	X			74.0						1	ng/L				
9M. Nickel, Total (7440-02-0)	X			<0.0116						1	mg/L				
10M. Selenium, Total (7782-49-2)	X			0.00299						1	mg/L				
11M. Silver, Total (7440-22-4)	X			<0.002						1	mg/L				
12M. Thallium, Total (7440-28-0)	X			<0.002						1	mg/L				
13M. Zinc, Total (7440-66-6)	X			0.690						1	mg/L				
14M. Cyanide, Total (57-12-5)	X			<0.010						1	mg/L				
15M. Phenols, Total	X			<0.10						1	mg/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X			<0.100						1	mg/L				
2V. Acrylonitrile (107-13-1)	X			<0.100						1	mg/L				
3V. Benzene (71-43-2)	X			<0.005						1	mg/L				
4V. Bis (*Chloromethyl*) Ether (542-88-1)				N/A						0					
5V. Bromoform (75-25-2)	X			<0.005						1	mg/L				
6V. Carbon Tetrachloride (56-23-5)	X			<0.005						1	mg/L				
7V. Chlorobenzene (108-90-7)	X			<0.005						1	mg/L				
8V. Chlorodibromomethane (124-48-1)	X			<0.005						1	mg/L				
9V. Chloroethane (75-00-3)	X			<0.010						1	mg/L				
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<0.010						1	mg/L				
11V. Chloroform (67-66-3)	X			<0.005						1	mg/L				
12V. Dichlorobromomethane (75-27-4)	X			<0.005						1	mg/L				
13V. Dichlorodifluoromethane (75-71-8)				N/A						0					
14V. 1,1-Dichloroethane (75-34-3)	X			<0.005						1	mg/L				
15V. 1,2-Dichloroethane (107-06-2)	X			<0.005						1	mg/L				
16V. 1,1-Dichloroethylene (75-35-4)	X			<0.005						1	mg/L				
17V. 1,2-Dichloropropane (78-87-5)	X			<0.005						1	mg/L				
18V. 1,3-Dichloropropylene (542-75-6)	X			<0.005						1	mg/L				
19V. Ethylbenzene (100-41-4)	X			<0.005						1	mg/L				
20V. Methyl Bromide (74-83-9)	X			<0.010						1	mg/L				
21V. Methyl Chloride (74-87-3)	X			<0.005						1	mg/L				

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)	X			<0.005						1	mg/L				
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<0.005						1	mg/L				
24V. Tetrachloroethylene (127-18-4)	X			<0.005						1	mg/L				
25V. Toluene (108-88-3)	X			<0.005						1	mg/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<0.005						1	mg/L				
27V. 1,1,1-Trichloroethane (71-55-6)	X			<0.005						1	mg/L				
28V. 1,1,2-Trichloroethane (79-00-5)	X			<0.005						1	mg/L				
29V Trichloroethylene (79-01-6)	X			<0.005						1	mg/L				
30V. Trichlorofluoromethane (75-69-4)				N/A						0					
31V. Vinyl Chloride (75-01-4)	X			<0.002						1	mg/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<0.010						1	mg/L				
2A. 2,4-Dichlorophenol (120-83-2)	X			<0.010						1	mg/L				
3A. 2,4-Dimethylphenol (105-67-9)	X			<0.010						1	mg/L				
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<0.050						1	mg/L				
5A. 2,4-Dinitrophenol (51-28-5)	X			<0.050						1	mg/L				
6A. 2-Nitrophenol (88-75-5)	X			<0.010						1	mg/L				
7A. 4-Nitrophenol (100-02-7)	X			<0.050						1	mg/L				
8A. P-Chloro-M-Cresol (59-50-7)	X			<0.010						1	mg/L				
9A. Pentachlorophenol (87-86-5)	X			<0.025						1	mg/L				
10A. Phenol (108-95-2)	X			<0.010						1	mg/L				
11A. 2,4,6-Trichlorophenol (88-05-2)	X			<0.010						1	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<0.010						1	mg/L				
2B. Acenaphtylene (208-96-8)	X			<0.010						1	mg/L				
3B. Anthracene (120-12-7)	X			<0.010						1	mg/L				
4B. Benzidine (92-87-5)	X			<0.050						1	mg/L				
5B. Benzo (*a*) Anthracene (56-55-3)	X			<0.010						1	mg/L				
6B. Benzo (*a*) Pyrene (50-32-8)	X			<0.010						1	mg/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<0.010						1	mg/L				
8B. Benzo (*ghi*) Perylene (191-24-2)	X			<0.010						1	mg/L				
9B. Benzo (*k*) Fluoranthene (207-08-9)	X			<0.010						1	mg/L				
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)	X			<0.010						1	mg/L				
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)	X			<0.010						1	mg/L				
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)	X			<0.010						1	mg/L				
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)	X			<0.010						1	mg/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	X			<0.010						1	mg/L				
15B. Butyl Benzyl Phthalate (85-68-7)	X			<0.010						1	mg/L				
16B. 2-Chloro-naphthalene (91-58-7)	X			<0.010						1	mg/L				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<0.010						1	mg/L				
18B. Chrysene (218-01-9)	X			<0.010						1	mg/L				
19B. Dibenzo (*a,h*) Anthracene (53-70-3)	X			<0.010						1	mg/L				
20B. 1,2-Dichloro-benzene (95-50-1)	X			<0.005						1	mg/L				
21B. 1,3-Di-chloro-benzene (541-73-1)	X			<0.005						1	mg/L				

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<0.005						1	mg/L				
23B. 3,3-Dichlorobenzidine (91-94-1)	X			<0.020						1	mg/L				
24B. Diethyl Phthalate (84-66-2)	X			<0.010						1	mg/L				
25B. Dimethyl Phthalate (131 -11-3)	X			<0.010						1	mg/L				
26B. Di-N-Butyl Phthalate (84-74-2)	X			<0.010						1	mg/L				
27B. 2,4-Dinitrotoluene (121-14-2)	X			<0.010						1	mg/L				
28B. 2,6-Dinitrotoluene (606-20-2)	X			<0.010						1	mg/L				
29B. Di-N-Octyl Phthalate (117-84-0)	X			<0.010						1	mg/L				
30B. 1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	X			<0.050						1	mg/L				
31B. Fluoranthene (206-44-0)	X			<0.010						1	mg/L				
32B. Fluorene (86-73-7)	X			<0.010						1	mg/L				
33B. Hexachlorobenzene (118-74-1)	X			<0.010						1	mg/L				
34B. Hexachlorobutadiene (87-68-3)	X			<0.010						1	mg/L				
35B. Hexachlorocyclopentadiene (77-47-4)	X			<0.010						1	mg/L				
36B Hexachloroethane (67-72-1)	X			<0.010						1	mg/L				
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)	X			<0.010						1	mg/L				
38B. Isophorone (78-59-1)	X			<0.010						1	mg/L				
39B. Naphthalene (91-20-3)	X			<0.010						1	mg/L				
40B. Nitrobenzene (98-95-3)	X			<0.010						1	mg/L				
41B. N-Nitrosodimethylamine (62-75-9)	X			<0.010						1	mg/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<0.010						1	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<0.010						1	mg/L				
44B. Phenanthrene (85-01-8)	X			<0.010						1	mg/L				
45B. Pyrene (129-00-0)	X			<0.010						1	mg/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<0.010						1	mg/L				
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)				N/A						0					
2P. α-BHC (319-84-6)				N/A						0					
3P. β-BHC (319-85-7)				N/A						0					
4P. γ-BHC (58-89-9)				N/A						0					
5P. δ-BHC (319-86-8)				N/A						0					
6P. Chlordane (57-74-9)				N/A						0					
7P. 4,4'-DDT (50-29-3)				N/A						0					
8P. 4,4'-DDE (72-55-9)				N/A						0					
9P. 4,4'-DDD (72-54-8)				N/A						0					
10P. Dieldrin (60-57-1)				N/A						0					
11P. α-Enosulfan (115-29-7)				N/A						0					
12P. β-Endosulfan (115-29-7)				N/A						0					
13P. Endosulfan Sulfate (1031-07-8)				N/A						0					
14P. Endrin (72-20-8)				N/A						0					
15P. Endrin Aldehyde (7421-93-4)				N/A						0					
16P. Heptachlor (76-44-8)				N/A						0					

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	019

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)				N/A						0					
18P. PCB-1242 (53469-21-9)				N/A						0					
19P. PCB-1254 (11097-69-1)				N/A						0					
20P. PCB-1221 (11104-28-2)				N/A						0					
21P. PCB-1232 (11141-16-5)				N/A						0					
22P. PCB-1248 (12672-29-6)				N/A						0					
23P. PCB-1260 (11096-82-5)				N/A						0					
24P. PCB-1016 (12674-11-2)				N/A						0					
25P. Toxaphene (8001-35-2)				N/A						0					

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Revised Report

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS019R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN019 Repermitting - Grab
Cooling Tower A Blowdown & YD

Laboratory ID Number: AX20616

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Metals, Cyanide, Total Phenols									
* Mercury, Total by CVAF	ABB	9/8/2017	EPA 245.7		1	0.9	5	74.0	ng/L
Cyanide, Total, by TTL	TRT	9/6/2017	SM 4500-CN CE		1		0.01	< 0.010	mg/L
Phenol, Total, by TTL	KMC	9/13/2017	SM 5330		1		0.1	< 0.10	mg/L
General Characteristics									
Field Temperature	HK	8/30/2017	SM-2550		1			24.2	Deg. C.
Field pH	HK	8/30/2017	SM-4500H		1			9.04	SU
Chlorine, Total Residual	HK	8/30/2017	Field Test		1	0.05		Not Detected	mg/L
* Escherichia Coli (E. Coli)	CES	8/31/2017	SM 9223B		1	1		3.0	MPN/100ml
* Oil and Grease	DLJ	9/7/2017	EPA 1664B		1	1.4	5	< 5	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: REVISED COPY: Temperature originally reported in degrees Fahrenheit._fkk 1/19/18
Cyanide and Phenol analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control Keith Kornegay Supervision

Reported:1/19/2018
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS019R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN019 Repermitting - Composite
Cooling Tower A Blowdown & YD

Laboratory ID Number: AX20617

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	9/11/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	9/11/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	9/11/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Surfactants, Sulfide, Biochemical Oxygen Demand, EPA 624 and EPA 625 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control _____ Supervision _____

Reported:9/20/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field Services

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS019R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN019 Repermitting - Composite
Cooling Tower A Blowdown & YD

Laboratory ID Number: AX20617

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichlorobenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,3-Dichlorobenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,4-Dichlorobenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Metals, Cyanide, Total Phenols									
Total, Tube Digestion Prep Date	DLJ	8/31/2017	EPA 1638		1			08/31/17	DATE
Aluminum, Total	JHK	9/5/2017	EPA 200.8		10	0.04320	0.13	1.66	mg/L
Antimony, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	< 0.002	mg/L
* Arsenic, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	0.0125	mg/L
* Barium, Total	JHK	9/5/2017	EPA 200.8		10	0.000860	0.00258	0.101	mg/L
* Beryllium, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Boron, Total	HRG	9/13/2017	EPA 200.7		1	0.0333	0.1	< 0.1	mg/L
* Cadmium, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Surfactants, Sulfide, Biochemical Oxygen Demand, EPA 624 and EPA 625 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control _____ Supervision _____

Reported:9/20/2017
Version: 4.2

Alabama Power
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744 County Road 87, GSC #8
Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field Services

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS019R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN019 Repermitting - Composite
Cooling Tower A Blowdown & YD

Laboratory ID Number: AX20617

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
* Chromium, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	0.00558	mg/L
* Cobalt, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	< 0.002	mg/L
* Copper, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	0.0146	mg/L
Iron, Total	JHK	9/5/2017	EPA 200.8		10	0.007460	0.0224	2.15	mg/L
* Lead, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	0.0119	mg/L
Magnesium, Total	JHK	9/5/2017	EPA 200.8		10	1.670	5	6.63	mg/L
* Manganese, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	0.135	mg/L
* Molybdenum, Total	JHK	9/5/2017	EPA 200.8		10	0.000810	0.00243	0.00310	mg/L
* Nickel, Total	JHK	9/5/2017	EPA 200.8		10	0.003850	0.0116	< 0.0116	mg/L
* Selenium, Total	JHK	9/5/2017	EPA 200.8		10	0.000770	0.00231	0.00299	mg/L
* Silver, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Thallium, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Tin, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Titanium, Total	JHK	9/5/2017	EPA 200.8		10	0.003330	0.01	0.0485	mg/L
Zinc, Total	JHK	9/5/2017	EPA 200.8		10	0.003330	0.01	0.690	mg/L
General Characteristics									
* Solids, Suspended	GAS	9/6/2017	SM 2540D		1		2.5	312	mg/L
* Bromide, Total	CES	9/6/2017	EPA 300.0		1	0.04	0.08	< 0.08	mg/L
Biochemical Oxygen Demand, 5 Day, b	MMC	8/31/2017	SM 5210 B-2001		1		2.0	2.9	mg/L
* Fluoride, Total	CES	9/6/2017	EPA 300.0		1	0.01	0.04	0.11	mg/L
* Sulfate, Total	CES	9/6/2017	EPA 300.0		2	0.08	2	104	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E871114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Surfactants, Sulfide, Biochemical Oxygen Demand, EPA 624 and EPA 625 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control _____ Supervision _____

Reported:9/20/2017
Version: 4.2

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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS019R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN019 Repermitting - Composite
Cooling Tower A Blowdown & YD

Laboratory ID Number: AX20617

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Color, by TTL	CRC	8/31/2017	SM 2120 E		1		10	27.0	ADMI
* Nitrogen, Nitrate/Nitrite	GMW	9/15/2017	EPA 353.2		1	0.10	0.30	U Not Detected	mg/L as N
Nitrogen, Total Organic	SHM	11/30/2017	EPA 351.3		1	0.10		Not Detected	mg/l as N
Sulfide, by TTL	CRC	8/31/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
Surfactants (Foaming Agents), by TTL	CRC	8/31/2017	SM 5540C		1		0.05	0.09	mg/l
* Phosphorus, Total	CNJ	9/7/2017	SM 4500PE-TP		1	0.010	0.03	0.152	mg/L
* Nitrogen, Ammonia, Distilled	GMW	9/12/2017	EPA 350.1		1	0.10	0.30	U Not Detected	mg/L as N
* Nitrogen, Total Kjeldahl	GMW	9/15/2017	EPA 351.2		1	0.156	0.500	U Not Detected	mg/L as N
* Total Organic Carbon	KRC	9/8/2017	SM 5310 C		1	0.30	1	3.90	mg/L
Chemical Oxygen Demand, by TTL	MMC	9/5/2017	SM 5220 D		1		5.0	78.5	mg/L
Base/Neutral Compounds									
Acenaphthene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Acenaphthylene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Anthracene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzidine, by TTL	SHM	9/13/2017	EPA 625		1		0.050	< 0.050	mg/l
Benz(a)anthracene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(a)pyrene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(b)fluoranthene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(g,h,i)perylene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzo(k)fluoranthene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Bis(2-chloroethoxy)methane, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

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Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Surfactants, Sulfide, Biochemical Oxygen Demand, EPA 624 and EPA 625 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS019R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN019 Repermitting - Composite
Cooling Tower A Blowdown & YD

Laboratory ID Number: AX20617

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Bis(2-chloroethyl)ether, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroisopropyl)ether, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-ethylhexyl)phthalate, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Bromophenyl phenyl ether, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
Butyl benzyl phthalate, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/l
2-Chloronaphthalene, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Chlorophenyl phenyl ether, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
Chrysene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Dibenzo(a,h)anthracene, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
3,3-Dichlorobenzidine, by TTL	SHM	11/30/2017	EPA 625		1		0.020	< 0.020	mg/L
Diethyl phthalate, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
Dimethyl phthalate, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-butyl phthalate, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dinitrotoluene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
2,6-Dinitrotoluene, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-octyl phthalate, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2-Diphenylhydrazine, by TTL	SHM	9/13/2017	EPA 625		1		0.050	< 0.050	mg/L
Fluoranthene, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
Fluorene, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobenzene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobutadiene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L

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Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Surfactants, Sulfide, Biochemical Oxygen Demand, EPA 624 and EPA 625 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

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Ms. Paula Coker

Quality Control _____ Supervision _____

Reported:9/20/2017
Version: 4.2

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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS019R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN019 Repermitting - Composite
Cooling Tower A Blowdown & YD

Laboratory ID Number: AX20617

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Hexachlorocyclopentadiene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachloroethane, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Indeno(1,2,3-cd)pyrene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Isophorone, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
Naphthalene, TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Nitrobenzene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodimethylamine, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodi-n-propylamine, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodiphenylamine, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Phenanthrene, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
Pyrene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2,4-Trichlorobenzene, by TTL	SHM	11/30/2017	EPA 625		1		0.010	< 0.010	mg/L
Acid Compounds									
2-Chlorophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
2,4-Dichlorophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dimethylphenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
4,6-Dinitro-2-methylphenol, by TTL	SHM	9/13/2017	EPA 625		1		0.050	< 0.050	mg/L
2,4-Dinitrophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.050	< 0.050	mg/L
2-Nitrophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
4-Nitrophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.050	< 0.050	mg/L
4-chloro-3-methylphenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for those accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E671114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Surfactants, Sulfide, Biochemical Oxygen Demand, EPA 624 and EPA 625 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control _____ Supervision _____

Reported:9/20/2017
Version: 4.2

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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS019R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN019 Repermitting - Composite
Cooling Tower A Blowdown & YD

Laboratory ID Number: AX20617

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Pentachlorophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.025	< 0.025	mg/L
Phenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4,6-Trichlorophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Miscellaneous									
Method 625 - Extraction Date, by TTL	SHM	8/31/2017			1			08/31/2017	

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Surfactants, Sulfide, Biochemical Oxygen Demand, EPA 624 and EPA 625 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control Keith Vonnegut **Supervision**

Reported:9/20/2017
Version: 4.2

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ALD083742858

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)* [redacted] OUTFALL NO. 020

PART A –You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCEN-TRATION	3. UNITS b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)	<2.0						1	mg/L				
b. Chemical Oxygen Demand (*COD*)	34.8						1	mg/L				
c. Total Organic Carbon (*TOC*)	3.49						1	mg/L				
d. Total Suspended Solids (*TSS*)	58.6						1	mg/L				
e. Ammonia (*as N*)	<0.30						1	mg/L				
f. Flow	VALUE 2.1		VALUE		VALUE		1	mgd		VALUE		
g. Temperature (*winter*)	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature (*summer*)	VALUE 24.1		VALUE		VALUE		1	°C		VALUE		
i. pH	MINIMUM 8.3	MAXIMUM 8.3	MINIMUM	MAXIMUM	[redacted]		1	STANDARD UNITS		[redacted]		

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCEN-TRATION	4. UNITS b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)			<0.08						1	mg/L				
b. Chlorine, Total Residual			<0.05						1	mg/L				
c. Color			22.0						1	ADMI				
d. Fecal Coliform			>2419.6						1	MPN/100				
e. Fluoride (16984-48-8)			0.06						1	mg/L				
f. Nitrate-Nitrite (*as N*)			<0.30						1	mg/L				

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (*as N*)			<0.10						1	mg/L				
h. Oil and Grease			<5						1	mg/L				
i. Phosphorus (as P), Total (7723-14-0)			0.132						1	mg/L				
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (*as SO_4*) (14808-79-8)			16.9						1	mg/L				
l. Sulfide (*as S*)			<0.01						1	mg/L				
m. Sulfite (*as SO_3*) (14265-45-3)			N/A						0					
n. Surfactants			0.09						1	mg/L				
o. Aluminum, Total (7429-90-5)			0.724						1	mg/L				
p. Barium, Total (7440-39-3)			0.0284						1	mg/L				
q. Boron, Total (7440-42-8)			<0.1						1	mg/L				
r. Cobalt, Total (7440-48-4)			<0.002						1	mg/L				
s. Iron, Total (7439-89-6)			0.730						1	mg/L				
t. Magnesium, Total (7439-95-4)			<5						1	mg/L				
u. Molybdenum, Total (7439-98-7)			<0.00243						1	mg/L				
v. Manganese, Total (7439-96-5)			0.0528						1	mg/L				
w. Tin, Total (7440-31-5)			<0.002						1	mg/L				
x. Titanium, Total (7440-32-6)			0.0256						1	mg/L				

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	020

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<0.002						1	mg/L				
2M. Arsenic, Total (7440-38-2)	X			0.00978						1	mg/L				
3M. Beryllium, Total (7440-41-7)	X			<0.002						1	mg/L				
4M. Cadmium, Total (7440-43-9)	X			<0.002						1	mg/L				
5M. Chromium, Total (7440-47-3)	X			0.00309						1	mg/L				
6M. Copper, Total (7440-50-8)	X			0.00784						1	mg/L				
7M. Lead, Total (7439-92-1)	X			0.00478						1	mg/L				
8M. Mercury, Total (7439-97-6)	X			17.1						1	ng/L				
9M. Nickel, Total (7440-02-0)	X			<0.0116						1	mg/L				
10M. Selenium, Total (7782-49-2)	X			0.00377						1	mg/L				
11M. Silver, Total (7440-22-4)	X			<0.002						1	mg/L				
12M. Thallium, Total (7440-28-0)	X			<0.002						1	mg/L				
13M. Zinc, Total (7440-66-6)	X			0.0586						1	mg/L				
14M. Cyanide, Total (57-12-5)	X			<0.010						1	mg/L				
15M. Phenols, Total	X			<0.10						1	mg/L				
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X			<0.100						1	mg/L				
2V. Acrylonitrile (107-13-1)	X			<0.100						1	mg/L				
3V. Benzene (71-43-2)	X			<0.005						1	mg/L				
4V. Bis (*Chloromethyl*) Ether (542-88-1)				N/A						0					
5V. Bromoform (75-25-2)	X			<0.005						1	mg/L				
6V. Carbon Tetrachloride (56-23-5)	X			<0.005						1	mg/L				
7V. Chlorobenzene (108-90-7)	X			<0.005						1	mg/L				
8V. Chlorodibromomethane (124-48-1)	X			<0.005						1	mg/L				
9V. Chloroethane (75-00-3)	X			<0.010						1	mg/L				
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<0.010						1	mg/L				
11V. Chloroform (67-66-3)	X			<0.005						1	mg/L				
12V. Dichlorobromomethane (75-27-4)	X			<0.005						1	mg/L				
13V. Dichlorodifluoromethane (75-71-8)				N/A						0					
14V. 1,1-Dichloroethane (75-34-3)	X			<0.005						1	mg/L				
15V. 1,2-Dichloroethane (107-06-2)	X			<0.005						1	mg/L				
16V. 1,1-Dichloroethylene (75-35-4)	X			<0.005						1	mg/L				
17V. 1,2-Dichloropropane (78-87-5)	X			<0.005						1	mg/L				
18V. 1,3-Dichloropropylene (542-75-6)	X			<0.005						1	mg/L				
19V. Ethylbenzene (100-41-4)	X			<0.005						1	mg/L				
20V. Methyl Bromide (74-83-9)	X			<0.010						1	mg/L				
21V. Methyl Chloride (74-87-3)	X			<0.005						1	mg/L				

CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)	X			<0.005						1	mg/L				
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<0.005						1	mg/L				
24V. Tetrachloroethylene (127-18-4)	X			<0.005						1	mg/L				
25V. Toluene (108-88-3)	X			<0.005						1	mg/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<0.005						1	mg/L				
27V. 1,1,1-Trichloroethane (71-55-6)	X			<0.005						1	mg/L				
28V. 1,1,2-Trichloroethane (79-00-5)	X			<0.005						1	mg/L				
29V Trichloroethylene (79-01-6)	X			<0.005						1	mg/L				
30V. Trichlorofluoromethane (75-69-4)				N/A						0					
31V. Vinyl Chloride (75-01-4)	X			<0.002						1	mg/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<0.010						1	mg/L				
2A. 2,4-Dichlorophenol (120-83-2)	X			<0.010						1	mg/L				
3A. 2,4-Dimethylphenol (105-67-9)	X			<0.010						1	mg/L				
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<0.050						1	mg/L				
5A. 2,4-Dinitrophenol (51-28-5)	X			<0.050						1	mg/L				
6A. 2-Nitrophenol (88-75-5)	X			<0.010						1	mg/L				
7A. 4-Nitrophenol (100-02-7)	X			<0.050						1	mg/L				
8A. P-Chloro-M-Cresol (59-50-7)	X			<0.010						1	mg/L				
9A. Pentachlorophenol (87-86-5)	X			<0.025						1	mg/L				
10A. Phenol (108-95-2)	X			<0.010						1	mg/L				
11A. 2,4,6-Trichlorophenol (88-05-2)	X			<0.010						1	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<0.010						1	mg/L				
2B. Acenaphtylene (208-96-8)	X			<0.010						1	mg/L				
3B. Anthracene (120-12-7)	X			<0.010						1	mg/L				
4B. Benzidine (92-87-5)	X			<0.050						1	mg/L				
5B. Benzo (*a*) Anthracene (56-55-3)	X			<0.010						1	mg/L				
6B. Benzo (*a*) Pyrene (50-32-8)	X			<0.010						1	mg/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<0.010						1	mg/L				
8B. Benzo (*ghi*) Perylene (191-24-2)	X			<0.010						1	mg/L				
9B. Benzo (*k*) Fluoranthene (207-08-9)	X			<0.010						1	mg/L				
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)	X			<0.010						1	mg/L				
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)	X			<0.010						1	mg/L				
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)	X			<0.010						1	mg/L				
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)	X			<0.010						1	mg/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	X			<0.010						1	mg/L				
15B. Butyl Benzyl Phthalate (85-68-7)	X			<0.010						1	mg/L				
16B. 2-Chloro-naphthalene (91-58-7)	X			<0.010						1	mg/L				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<0.010						1	mg/L				
18B. Chrysene (218-01-9)	X			<0.010						1	mg/L				
19B. Dibenzo (*a,h*) Anthracene (53-70-3)	X			<0.010						1	mg/L				
20B. 1,2-Dichloro-benzene (95-50-1)	X			<0.005						1	mg/L				
21B. 1,3-Di-chloro-benzene (541-73-1)	X			<0.005						1	mg/L				

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<0.005						1	mg/L				
23B. 3,3-Dichlorobenzidine (91-94-1)	X			<0.020						1	mg/L				
24B. Diethyl Phthalate (84-66-2)	X			<0.010						1	mg/L				
25B. Dimethyl Phthalate (131-11-3)	X			<0.010						1	mg/L				
26B. Di-N-Butyl Phthalate (84-74-2)	X			<0.010						1	mg/L				
27B. 2,4-Dinitrotoluene (121-14-2)	X			<0.010						1	mg/L				
28B. 2,6-Dinitrotoluene (606-20-2)	X			<0.010						1	mg/L				
29B. Di-N-Octyl Phthalate (117-84-0)	X			<0.010						1	mg/L				
30B. 1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	X			<0.050						1	mg/L				
31B. Fluoranthene (206-44-0)	X			<0.010						1	mg/L				
32B. Fluorene (86-73-7)	X			<0.010						1	mg/L				
33B. Hexachlorobenzene (118-74-1)	X			<0.010						1	mg/L				
34B. Hexachlorobutadiene (87-68-3)	X			<0.010						1	mg/L				
35B. Hexachlorocyclopentadiene (77-47-4)	X			<0.010						1	mg/L				
36B Hexachloroethane (67-72-1)	X			<0.010						1	mg/L				
37B. Indeno (1,2,3-*cd*) Pyrene (193-39-5)	X			<0.010						1	mg/L				
38B. Isophorone (78-59-1)	X			<0.010						1	mg/L				
39B. Naphthalene (91-20-3)	X			<0.010						1	mg/L				
40B. Nitrobenzene (98-95-3)	X			<0.010						1	mg/L				
41B. N-Nitrosodimethylamine (62-75-9)	X			<0.010						1	mg/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<0.010						1	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<0.010						1	mg/L				
44B. Phenanthrene (85-01-8)	X			<0.010						1	mg/L				
45B. Pyrene (129-00-0)	X			<0.010						1	mg/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<0.010						1	mg/L				
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)				N/A						0					
2P. α-BHC (319-84-6)				N/A						0					
3P. β-BHC (319-85-7)				N/A						0					
4P. γ-BHC (58-89-9)				N/A						0					
5P. δ-BHC (319-86-8)				N/A						0					
6P. Chlordane (57-74-9)				N/A						0					
7P. 4,4'-DDT (50-29-3)				N/A						0					
8P. 4,4'-DDE (72-55-9)				N/A						0					
9P. 4,4'-DDD (72-54-8)				N/A						0					
10P. Dieldrin (60-57-1)				N/A						0					
11P. α-Enosulfan (115-29-7)				N/A						0					
12P. β-Endosulfan (115-29-7)				N/A						0					
13P. Endosulfan Sulfate (1031-07-8)				N/A						0					
14P. Endrin (72-20-8)				N/A						0					
15P. Endrin Aldehyde (7421-93-4)				N/A						0					
16P. Heptachlor (76-44-8)				N/A						0					

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	020

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)				N/A						0					
18P. PCB-1242 (53469-21-9)				N/A						0					
19P. PCB-1254 (11097-69-1)				N/A						0					
20P. PCB-1221 (11104-28-2)				N/A						0					
21P. PCB-1232 (11141-16-5)				N/A						0					
22P. PCB-1248 (12672-29-6)				N/A						0					
23P. PCB-1260 (11096-82-5)				N/A						0					
24P. PCB-1016 (12674-11-2)				N/A						0					
25P. Toxaphene (8001-35-2)				N/A						0					

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Revised Report

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS020R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN020 Repermitting - Grab
Switchyard SW Runoff/Car Rinse

Laboratory ID Number: AX20619

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Metals, Cyanide, Total Phenols									
* Mercury, Total by CVAF	ABB	9/8/2017	EPA 245.7		1	0.9	5	17.1	ng/L
Cyanide, Total, by TTL	TRT	9/6/2017	SM 4500-CN CE		1		0.01	< 0.010	mg/L
Phenol, Total, by TTL	KMC	9/13/2017	SM 5330		1		0.1	< 0.10	mg/L
General Characteristics									
Field Temperature	HK	8/30/2017	SM-2550		1			24.1	Deg. C.
Field pH	HK	8/30/2017	SM-4500H		1			8.3	SU
Chlorine, Total Residual	HK	8/30/2017	Field Test		1	0.05		Not Detected	mg/L
* Escherichia Coli (E. Coli)	CES	8/31/2017	SM 9223B		1	1		>2419.6	MPN/100ml
* Oil and Grease	DLJ	9/7/2017	EPA 1664B		1	1.4	5	< 5	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: REVISED COPY: Temperature originally reported in degrees Fahrenheit._fkk 1/19/18
Cyanide and Phenol analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control Keith Kominsky Supervision

Reported:1/19/2018
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS020R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN020 Repermitting - Composite
Switchyard SW Runoff/Car Rinse

Laboratory ID Number: AX20620

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	9/11/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	9/11/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	9/11/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

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Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Surfactants, Sulfide, Biochemical Oxygen Demand, EPA 624 and EPA 625 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control _____ **Supervision** _____

Reported:9/20/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGAS020R
Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN020 Repermitting - Composite
Switchyard SW Runoff/Car Rinse

Laboratory ID Number: AX20620

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichlorobenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,3-Dichlorobenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,4-Dichlorobenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Metals, Cyanide, Total Phenols									
Total, Tube Digestion Prep Date	DLJ	8/31/2017	EPA 1638		1			08/31/17	DATE
Aluminum, Total	JHK	9/5/2017	EPA 200.8		10	0.04320	0.13	0.724	mg/L
Antimony, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Arsenic, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	0.00978	mg/L
* Barium, Total	JHK	9/5/2017	EPA 200.8		10	0.000860	0.00258	0.0284	mg/L
* Beryllium, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Boron, Total	HRG	9/13/2017	EPA 200.7		1	0.0333	0.1	U Not Detected	mg/L
* Cadmium, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L

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Description: Gaston-DSN020 Repermitting - Composite
Switchyard SW Runoff/Car Rinse

Laboratory ID Number: AX20620

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
* Chromium, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	0.00309	mg/L
* Cobalt, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Copper, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	0.00784	mg/L
Iron, Total	JHK	9/5/2017	EPA 200.8		10	0.007460	0.0224	0.730	mg/L
* Lead, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	0.00478	mg/L
Magnesium, Total	JHK	9/5/2017	EPA 200.8		10	1.670	5	U Not Detected	mg/L
* Manganese, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	0.0528	mg/L
* Molybdenum, Total	JHK	9/5/2017	EPA 200.8		10	0.000810	0.00243	< 0.00243	mg/L
* Nickel, Total	JHK	9/5/2017	EPA 200.8		10	0.003850	0.0116	U Not Detected	mg/L
* Selenium, Total	JHK	9/5/2017	EPA 200.8		10	0.000770	0.00231	0.00377	mg/L
* Silver, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Thallium, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Tin, Total	JHK	9/5/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Titanium, Total	JHK	9/5/2017	EPA 200.8		10	0.003330	0.01	0.0256	mg/L
Zinc, Total	JHK	9/5/2017	EPA 200.8		10	0.003330	0.01	0.0586	mg/L
General Characteristics									
* Solids, Suspended	GAS	9/5/2017	SM 2540D		1		2.5	58.6	mg/L
* Bromide, Total	CES	9/6/2017	EPA 300.0		1	0.04	0.08	U Not Detected	mg/L
Biochemical Oxygen Demand, 5 Day, b	MMC	8/31/2017	SM 5210 B-2001		1		2.0	< 2.0	mg/L
* Fluoride, Total	CES	9/6/2017	EPA 300.0		1	0.01	0.04	0.06	mg/L
* Sulfate, Total	CES	9/6/2017	EPA 300.0		1	0.04	1	16.9	mg/L

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Sample Date : 30-Aug-17
Customer ID: AL-0003140
Delivery Date : 30-Aug-17

Description: Gaston-DSN020 Repermitting - Composite
Switchyard SW Runoff/Car Rinse

Laboratory ID Number: AX20620

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Color, by TTL	CRC	8/31/2017	SM 2120 E		1		10	22.0	ADMI
* Nitrogen, Nitrate/Nitrite	GMW	9/15/2017	EPA 353.2		1	0.10	0.30	< 0.30	mg/L as N
Nitrogen, Total Organic	SHM	9/13/2017	EPA 351.3		1	0.10		Not Detected	mg/l as N
Sulfide, by TTL	CRC	8/31/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
Surfactants (Foaming Agents), by TTL	CRC	8/31/2017	SM 5540C		1		0.05	0.09	mg/l
* Phosphorus, Total	CNJ	9/7/2017	SM 4500PE-TP		1	0.010	0.03	0.132	mg/L
* Nitrogen, Ammonia, Distilled	GMW	9/12/2017	EPA 350.1		1	0.10	0.30	U Not Detected	mg/L as N
* Nitrogen, Total Kjeldahl	GMW	9/15/2017	EPA 351.2		1	0.156	0.500	U Not Detected	mg/L as N
* Total Organic Carbon	KRC	9/8/2017	SM 5310 C		1	0.30	1	R 3.49	mg/L
Chemical Oxygen Demand, by TTL	MMC	9/5/2017	SM 5220 D		1		5.0	34.8	mg/L
Base/Neutral Compounds									
Acenaphthene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Acenaphthylene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Anthracene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzidine, by TTL	SHM	9/13/2017	EPA 625		1		0.050	< 0.050	mg/l
Benz(a)anthracene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(a)pyrene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(b)fluoranthene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(g,h,i)perylene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzo(k)fluoranthene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Bis(2-chloroethoxy)methane, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l

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Delivery Date : 30-Aug-17

Description: Gaston-DSN020 Repermitting - Composite
Switchyard SW Runoff/Car Rinse

Laboratory ID Number: AX20620

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Bis(2-chloroethyl)ether, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroisopropyl)ether, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-ethylhexyl)phthalate, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Bromophenyl phenyl ether, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
Butyl benzyl phthalate, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
2-Chloronaphthalene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Chlorophenyl phenyl ether, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
Chrysene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Dibenzo(a,h)anthracene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
3,3-Dichlorobenzidine, by TTL	SHM	9/13/2017	EPA 625		1		0.020	< 0.020	mg/L
Diethyl phthalate, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Dimethyl phthalate, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-butyl phthalate, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dinitrotoluene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
2,6-Dinitrotoluene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-octyl phthalate, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2-Diphenylhydrazine, by TTL	SHM	9/13/2017	EPA 625		1		0.050	< 0.050	mg/L
Fluoranthene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Fluorene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobenzene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobutadiene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L

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Description: Gaston-DSN020 Repermitting - Composite
Switchyard SW Runoff/Car Rinse

Laboratory ID Number: AX20620

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Hexachlorocyclopentadiene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachloroethane, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Indeno(1,2,3-cd)pyrene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Isophorone, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Naphthalene, TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Nitrobenzene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodimethylamine, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodi-n-propylamine, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodiphenylamine, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Phenanthrene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Pyrene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2,4-Trichlorobenzene, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Acid Compounds									
2-Chlorophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/l
2,4-Dichlorophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dimethylphenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
4,6-Dinitro-2-methylphenol, by TTL	SHM	9/13/2017	EPA 625		1		0.050	< 0.050	mg/L
2,4-Dinitrophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.050	< 0.050	mg/L
2-Nitrophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
4-Nitrophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.050	< 0.050	mg/L
4-chloro-3-methylphenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L

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Laboratory ID Number: AX20620

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Pentachlorophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.025	< 0.025	mg/L
Phenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4,6-Trichlorophenol, by TTL	SHM	9/13/2017	EPA 625		1		0.010	< 0.010	mg/L
Miscellaneous									
Method 625 - Extraction Date, by TTL	SHM	8/31/2017			1			08/31/2017	

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Ms. Paula Coker

Quality Control Keith Kornegay **Supervision**

Reported:9/20/2017
Version: 4.2

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ALD083742858

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 025

PART A –You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT						3. UNITS (*specify if blank*)		4. INTAKE (*optional*)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (*BOD*)	<2.0						1	mg/L				
b. Chemical Oxygen Demand (*COD*)	22.0						1	mg/L				
c. Total Organic Carbon (*TOC*)	4.09						1	mg/L				
d. Total Suspended Solids (*TSS*)	4.9						1	mg/L				
e. Ammonia (*as N*)	<0.30						1	mg/L				
f. Flow	VALUE 8.5		VALUE		VALUE		1	mgd		VALUE		
g. Temperature (*winter*)	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature (*summer*)	VALUE 28.8		VALUE		VALUE		1	°C		VALUE		
i. pH	MINIMUM 7.8	MAXIMUM 7.8	MINIMUM	MAXIMUM			1	STANDARD UNITS				

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)			<0.08						1	mg/L				
b. Chlorine, Total Residual			<0.05						1	mg/L				
c. Color			35.0						1	ADMI				
d. Fecal Coliform			3.1						1	MPN/100				
e. Fluoride (16984-48-8)			0.06						1	mg/L				
f. Nitrate-Nitrite (*as N*)			<0.30						1	mg/L				

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (*as N*)			<0.10						1	mg/L				
h. Oil and Grease			<5						1	mg/L				
i. Phosphorus (as P), Total (7723-14-0)			0.050						1	mg/L				
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (*as SO_4*) (14808-79-8)			9.55						1	mg/L				
l. Sulfide (*as S*)			0.020						1	mg/L				
m. Sulfite (*as SO_3*) (14265-45-3)			<0.4						1	mg/L				
n. Surfactants			<0.05						1	mg/L				
o. Aluminum, Total (7429-90-5)			0.167						1	mg/L				
p. Barium, Total (7440-39-3)			0.0402						1	mg/L				
q. Boron, Total (7440-42-8)			<0.1						1	mg/L				
r. Cobalt, Total (7440-48-4)			<0.002						1	mg/L				
s. Iron, Total (7439-89-6)			0.253						1	mg/L				
t. Magnesium, Total (7439-95-4)			5.57						1	mg/L				
u. Molybdenum, Total (7439-98-7)			<0.00243						1	mg/L				
v. Manganese, Total (7439-96-5)			0.0911						1	mg/L				
w. Tin, Total (7440-31-5)			<0.002						1	mg/L				
x. Titanium, Total (7440-32-6)			<0.01						1	mg/L				

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	025

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<0.002						1	mg/L				
2M. Arsenic, Total (7440-38-2)	X			<0.002						1	mg/L				
3M. Beryllium, Total (7440-41-7)	X			<0.002						1	mg/L				
4M. Cadmium, Total (7440-43-9)	X			<0.002						1	mg/L				
5M. Chromium, Total (7440-47-3)	X			<0.002						1	mg/L				
6M. Copper, Total (7440-50-8)	X			0.00933						1	mg/L				
7M. Lead, Total (7439-92-1)	X			<0.002						1	mg/L				
8M. Mercury, Total (7439-97-6)	X			<5						1	ng/L				
9M. Nickel, Total (7440-02-0)	X			<0.0116						1	mg/L				
10M. Selenium, Total (7782-49-2)	X			<0.00231						1	mg/L				
11M. Silver, Total (7440-22-4)	X			<0.002						1	mg/L				
12M. Thallium, Total (7440-28-0)	X			<0.002						1	mg/L				
13M. Zinc, Total (7440-66-6)	X			<0.01						1	mg/L				
14M. Cyanide, Total (57-12-5)	X			<0.010						1	mg/L				
15M. Phenols, Total	X			<0.10						1	mg/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)	X			<0.100						1	mg/L				
2V. Acrylonitrile (107-13-1)	X			<0.100						1	mg/L				
3V. Benzene (71-43-2)	X			<0.005						1	mg/L				
4V. Bis (*Chloromethyl*) Ether (542-88-1)				N/A						0					
5V. Bromoform (75-25-2)	X			<0.005						1	mg/L				
6V. Carbon Tetrachloride (56-23-5)	X			<0.005						1	mg/L				
7V. Chlorobenzene (108-90-7)	X			<0.005						1	mg/L				
8V. Chlorodibromomethane (124-48-1)	X			<0.005						1	mg/L				
9V. Chloroethane (75-00-3)	X			<0.010						1	mg/L				
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<0.010						1	mg/L				
11V. Chloroform (67-66-3)	X			<0.005						1	mg/L				
12V. Dichlorobromomethane (75-27-4)	X			<0.005						1	mg/L				
13V. Dichlorodifluoromethane (75-71-8)				N/A						0					
14V. 1,1-Dichloroethane (75-34-3)	X			<0.005						1	mg/L				
15V. 1,2-Dichloroethane (107-06-2)	X			<0.005						1	mg/L				
16V. 1,1-Dichloroethylene (75-35-4)	X			<0.005						1	mg/L				
17V. 1,2-Dichloropropane (78-87-5)	X			<0.005						1	mg/L				
18V. 1,3-Dichloropropylene (542-75-6)	X			<0.005						1	mg/L				
19V. Ethylbenzene (100-41-4)	X			<0.005						1	mg/L				
20V. Methyl Bromide (74-83-9)	X			<0.010						1	mg/L				
21V. Methyl Chloride (74-87-3)	X			<0.005						1	mg/L				

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)	X			<0.005						1	mg/L				
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<0.005						1	mg/L				
24V. Tetrachloroethylene (127-18-4)	X			<0.005						1	mg/L				
25V. Toluene (108-88-3)	X			<0.005						1	mg/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<0.005						1	mg/L				
27V. 1,1,1-Trichloroethane (71-55-6)	X			<0.005						1	mg/L				
28V. 1,1,2-Trichloroethane (79-00-5)	X			<0.005						1	mg/L				
29V Trichloroethylene (79-01-6)	X			<0.005						1	mg/L				
30V. Trichlorofluoromethane (75-69-4)				N/A						0					
31V. Vinyl Chloride (75-01-4)	X			<0.002						1	mg/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<0.010						1	mg/L				
2A. 2,4-Dichlorophenol (120-83-2)	X			<0.010						1	mg/L				
3A. 2,4-Dimethylphenol (105-67-9)	X			<0.010						1	mg/L				
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<0.050						1	mg/L				
5A. 2,4-Dinitrophenol (51-28-5)	X			<0.050						1	mg/L				
6A. 2-Nitrophenol (88-75-5)	X			<0.010						1	mg/L				
7A. 4-Nitrophenol (100-02-7)	X			<0.050						1	mg/L				
8A. P-Chloro-M-Cresol (59-50-7)	X			<0.010						1	mg/L				
9A. Pentachlorophenol (87-86-5)	X			<0.025						1	mg/L				
10A. Phenol (108-95-2)	X			<0.010						1	mg/L				
11A. 2,4,6-Trichlorophenol (88-05-2)	X			<0.010						1	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<0.010						1	mg/L				
2B. Acenaphtylene (208-96-8)	X			<0.010						1	mg/L				
3B. Anthracene (120-12-7)	X			<0.010						1	mg/L				
4B. Benzidine (92-87-5)	X			<0.050						1	mg/L				
5B. Benzo (*a*) Anthracene (56-55-3)	X			<0.010						1	mg/L				
6B. Benzo (*a*) Pyrene (50-32-8)	X			<0.010						1	mg/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<0.010						1	mg/L				
8B. Benzo (*ghi*) Perylene (191-24-2)	X			<0.010						1	mg/L				
9B. Benzo (*k*) Fluoranthene (207-08-9)	X			<0.010						1	mg/L				
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)	X			<0.010						1	mg/L				
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)	X			<0.010						1	mg/L				
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)	X			<0.010						1	mg/L				
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)	X			<0.010						1	mg/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	X			<0.010						1	mg/L				
15B. Butyl Benzyl Phthalate (85-68-7)	X			<0.010						1	mg/L				
16B. 2-Chloro-naphthalene (91-58-7)	X			<0.010						1	mg/L				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<0.010						1	mg/L				
18B. Chrysene (218-01-9)	X			<0.010						1	mg/L				
19B. Dibenzo (*a,h*) Anthracene (53-70-3)	X			<0.010						1	mg/L				
20B. 1,2-Dichloro-benzene (95-50-1)	X			<0.005						1	mg/L				
21B. 1,3-Di-chloro-benzene (541-73-1)	X			<0.005						1	mg/L				

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION -- BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<0.005						1	mg/L				
23B. 3,3-Dichlorobenzidine (91-94-1)	X			<0.020						1	mg/L				
24B. Diethyl Phthalate (84-66-2)	X			<0.010						1	mg/L				
25B. Dimethyl Phthalate (131 -11-3)	X			<0.010						1	mg/L				
26B. Di-N-Butyl Phthalate (84-74-2)	X			<0.010						1	mg/L				
27B. 2,4-Dinitrotoluene (121-14-2)	X			<0.010						1	mg/L				
28B. 2,6-Dinitrotoluene (606-20-2)	X			<0.010						1	mg/L				
29B. Di-N-Octyl Phthalate (117-84-0)	X			<0.010						1	mg/L				
30B. 1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	X			<0.050						1	mg/L				
31B. Fluoranthene (206-44-0)	X			<0.010						1	mg/L				
32B. Fluorene (86-73-7)	X			<0.010						1	mg/L				
33B. Hexachlorobenzene (118-74-1)	X			<0.010						1	mg/L				
34B. Hexachlorobutadiene (87-68-3)	X			<0.010						1	mg/L				
35B. Hexachlorocyclopentadiene (77-47-4)	X			<0.010						1	mg/L				
36B Hexachloroethane (67-72-1)	X			<0.010						1	mg/L				
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)	X			<0.010						1	mg/L				
38B. Isophorone (78-59-1)	X			<0.010						1	mg/L				
39B. Naphthalene (91-20-3)	X			<0.010						1	mg/L				
40B. Nitrobenzene (98-95-3)	X			<0.010						1	mg/L				
41B. N-Nitrosodimethylamine (62-75-9)	X			<0.010						1	mg/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<0.010						1	mg/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<0.010						1	mg/L				
44B. Phenanthrene (85-01-8)	X			<0.010						1	mg/L				
45B. Pyrene (129-00-0)	X			<0.010						1	mg/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<0.010						1	mg/L				
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)				N/A						0					
2P. α-BHC (319-84-6)				N/A						0					
3P. β-BHC (319-85-7)				N/A						0					
4P. γ-BHC (58-89-9)				N/A						0					
5P. δ-BHC (319-86-8)				N/A						0					
6P. Chlordane (57-74-9)				N/A						0					
7P. 4,4'-DDT (50-29-3)				N/A						0					
8P. 4,4'-DDE (72-55-9)				N/A						0					
9P. 4,4'-DDD (72-54-8)				N/A						0					
10P. Dieldrin (60-57-1)				N/A						0					
11P. α-Enosulfan (115-29-7)				N/A						0					
12P. β-Endosulfan (115-29-7)				N/A						0					
13P. Endosulfan Sulfate (1031-07-8)				N/A						0					
14P. Endrin (72-20-8)				N/A						0					
15P. Endrin Aldehyde (7421-93-4)				N/A						0					
16P. Heptachlor (76-44-8)				N/A						0					

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
ALD083742858	025

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)				N/A						0					
18P. PCB-1242 (53469-21-9)				N/A						0					
19P. PCB-1254 (11097-69-1)				N/A						0					
20P. PCB-1221 (11104-28-2)				N/A						0					
21P. PCB-1232 (11141-16-5)				N/A						0					
22P. PCB-1248 (12672-29-6)				N/A						0					
23P. PCB-1260 (11096-82-5)				N/A						0					
24P. PCB-1016 (12674-11-2)				N/A						0					
25P. Toxaphene (8001-35-2)				N/A						0					

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS025R
Sample Date : 01-Aug-17
Customer ID: AL-0003140
Delivery Date : 01-Aug-17

Description: Gaston-DSN025 Repermitting - Grab Intake Screen Bkwash/Yellowleaf

Laboratory ID Number: AX18036

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Metals, Cyanide, Total Phenols									
* Mercury, Total by CVAF	ABB	8/10/2017	EPA 245.7		1	0.9	5	< 5	ng/L
Cyanide, Total, by TTL	TRT	8/4/2017	SM 4500-CN CE		1		0.010	< 0.010	mg/L
Phenol, Total, by TTL	KMC	8/3/2017	SM 5330		1		0.10	< 0.10	mg/L
General Characteristics									
Flow (MGD)	GFH/	8/1/2017	Field Data		1			8.5	MGD
Field pH	GFH	8/1/2017	SM-4500H		1			7.82	SU
Field Sulfite	GFH/	8/1/2017	HACH 8216		1	0.4		U Not Detected	mg/l
Temperature	GFH	8/1/2017	Field Data		1	0.1		28.8	Deg. C
Chlorine, Total Residual	GFH	8/1/2017	Field Test		1	0.05		U Not Detected	mg/L
* Escherichia Coli (E. Coli)	CES	8/2/2017	SM 9223B		1	1.0		3.1	MPN/100ml
* Oil and Grease	DLJ	8/2/2017	EPA 1664B		1	1.4	5	U Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Cyanide and Phenol analyses performed by Tuscaloosa Testing Laboratory.
fkk 8/10/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control Keith Monagan Supervision

Reported:8/15/2017
Version: 4.2

Alabama Power
General Test Laboratory
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS025R
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN025 Repermitting
Intake Screen Bkwash/Yellowleaf

Laboratory ID Number: AX18146

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

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Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

uality Control _____ **Supervision** _____

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Description: Gaston-DSN025 Repermitting
Intake Screen Bkwash/Yellowleaf

Laboratory ID Number: AX18146

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,3-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,4-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Metals, Cyanide, Total Phenols									
Total, Tube Digestion Prep Date	DLJ	8/4/2017	EPA 1638		1			08/04/17	DATE
Aluminum, Total	JHK	8/8/2017	EPA 200.8		10	0.04320	0.13	0.167	mg/L
Antimony, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Arsenic, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	< 0.002	mg/L
* Barium, Total	JHK	8/8/2017	EPA 200.8		10	0.000860	0.00258	0.0402	mg/L
* Beryllium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Boron, Total	HRG	8/14/2017	EPA 200.7		1	0.0333	0.1	< 0.1	mg/L
* Cadmium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L

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Delivery Date : 02-Aug-17

Description: Gaston-DSN025 Repermitting
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Laboratory ID Number: AX18146

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
* Chromium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	< 0.002	mg/L
* Cobalt, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Copper, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.00933	mg/L
Iron, Total	JHK	8/8/2017	EPA 200.8		10	0.007460	0.0224	0.253	mg/L
* Lead, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Magnesium, Total	JHK	8/8/2017	EPA 200.8		10	1.670	5	5.57	mg/L
* Manganese, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.0911	mg/L
* Molybdenum, Total	JHK	8/8/2017	EPA 200.8		10	0.000810	0.00243	U Not Detected	mg/L
* Nickel, Total	JHK	8/8/2017	EPA 200.8		10	0.003850	0.0116	U Not Detected	mg/L
* Selenium, Total	JHK	8/8/2017	EPA 200.8		10	0.000770	0.00231	U Not Detected	mg/L
* Silver, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Thallium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Tin, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Titanium, Total	JHK	8/8/2017	EPA 200.8		10	0.003330	0.01	< 0.01	mg/L
Zinc, Total	JHK	8/8/2017	EPA 200.8		10	0.003330	0.01	< 0.01	mg/L
General Characteristics									
* Solids, Suspended	KRC	8/3/2017	SM 2540D		1		2.5	4.9	mg/L
* Bromide, Total	CES	8/12/2017	EPA 300.0		1	0.04	0.08	U Not Detected	mg/L
Biochemical Oxygen Demand, 5 Day, b	KMC	8/3/2017	SM 5210 B-2001		1		2.0	< 2.0	mg/L
* Fluoride, Total	CES	8/12/2017	EPA 300.0		1	0.01	0.04	0.06	mg/L
* Sulfate, Total	CES	8/12/2017	EPA 300.0		1	0.04	1	9.55	mg/L

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Description: Gaston-DSN025 Repermitting
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Laboratory ID Number: AX18146

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Color, by TTL	TRT	8/3/2017	SM 2120 E		1		10	35.0	ADMI
* Nitrogen, Nitrate/Nitrite	GMW	8/9/2017	EPA 353.2		1	0.10	0.30	<0.30	mg/L as N
Nitrogen, Total Organic	GMW	8/18/2017	EPA 351.3		1	0.10		Not Detected	mg/l as N
Sulfide, by TTL	CRC	8/9/2017	SM4500 S2 D		1		0.01	0.020	mg/l
Surfactants (Foaming Agents), by TTL	CRC	8/3/2017	SM 5540C		1		0.05	< 0.05	mg/l
* Phosphorus, Total	KRC	8/16/2017	SM 4500PE-TP		1	0.010	0.01	0.050	mg/L
* Nitrogen, Ammonia, Distilled	GMW	8/7/2017	EPA 350.1		1	0.10	0.30	U Not Detected	mg/L as N
* Nitrogen, Total Kjeldahl	GMW	8/11/2017	EPA 351.2		1	0.156	0.500	U Not Detected	mg/L as N
* Total Organic Carbon	KRC	8/9/2017	SM 5310 C		1	0.30	1	4.09	mg/L
Chemical Oxygen Demand, by TTL	MMC	8/4/2017	SM 5220 D		1		5.0	22.0	mg/L
Base/Neutral Compounds									
Acenaphthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Acenaphthylene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzidine, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/l
Benz(a)anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(a)pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(b)fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(g,h,i)perylene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzo(k)fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Bis(2-chloroethoxy)methane, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l

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Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Bis(2-chloroethyl)ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroisopropyl)ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-ethylhexyl)phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Bromophenyl phenyl ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Butyl benzyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
2-Chloronaphthalene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Chlorophenyl phenyl ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Chrysene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Dibenzo(a,h)anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
3,3-Dichlorobenzidine, by TTL	LAA	8/10/2017	EPA 625		1		0.020	< 0.020	mg/L
Diethyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Dimethyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-butyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dinitrotoluene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,6-Dinitrotoluene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-octyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2-Diphenylhydrazine, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
Fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Fluorene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobutadiene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L

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Laboratory ID Number: AX18146

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Hexachlorocyclopentadiene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachloroethane, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Indeno(1,2,3-cd)pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Isophorone, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Naphthalene, TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Nitrobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodimethylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodi-n-propylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodiphenylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Phenanthrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2,4-Trichlorobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Acid Compounds									
2-Chlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
2,4-Dichlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dimethylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
4,6-Dinitro-2-methylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
2,4-Dinitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
2-Nitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
4-Nitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
4-chloro-3-methylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L

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Laboratory ID Number: AX18146

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Pentachlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.025	< 0.025	mg/L
Phenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4,6-Trichlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Miscellaneous									
Method 625 - Extraction Date, by TTL	LAA	8/3/2017			1			08/03/2017	

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control Keith Kennedy **Supervision**

Reported:8/22/2017
Version: 4.2

General Comments – Form 2D

Section I

004f – FGD Wastewater

Current:

This point currently does not exist but will be needed in the future.

Future:

This point will be needed as an internal sampling point to ensure the blowdown from the FGD system meets the ELG limitations prior to mixing with other treated wastewater streams for discharge. An expected flow rate is provided in Form 2D. The FGD wastewater will be routed to the WMP and discharged through 004. Effluent from this proposed internal outfall should not be considered a new or increased discharge since the existing plant wastewater is currently being treated in the WMP.

Effluent limits for this discharge should be based on ELGs; however, in accordance with Form 2D instructions, APC will submit a Form 2C analysis to re-characterize the effluent from 004f within 2 years of commencing this discharge.

004i – Landfill Leachate Collection

Current:

This wastewater stream does not currently exist but will be associated with ash pond closure.

Future:

During ash pond closure, a leachate collection system will be installed to collect leachate from the closed and capped facility. This discharge will become active upon the completion of pond closure. A maximum flow rate is provided in Form 2D, but this flow rate is expected to gradually decrease over time as water continues to drain from the ash. The leachate will be routed to the WMP for treatment prior to discharging through 004. APC is requesting this proposed outfall be added to the permit so that discharge may commence upon ash pond closure.

Effluent limits for this discharge should be based on ELGs; however, in accordance with Form 2D instructions, APC will submit a Form 2C analysis to re-characterize the effluent from 004 within 2 years of commencing this discharge.

Section III. Part B

The wastewater flow diagram in this section is based on assumptions about future scenarios and is therefore preliminary. Engineering and design activities are underway in preparation for ash pond closure.

Landfill leachate collection flow rates are estimated based on engineering calculations. The leachate collection system actual flow will not be known until wastewater begins discharging from this point.

Section V.

Because the FGD wastewater discharge point does not currently exist, sample analyses were not currently available. However, FGD wastewater will be routed through the WMP which will provide equivalent treatment to the ash pond; therefore, ash pond effluent sample results (from Form 2C – 004) are considered representative and are provided in Form 2D. In addition, limits for this outfall should be based on ELGs.

There is also currently no source of data for landfill leachate. However, APC expects the leachate to be of similar makeup to the interstitial ash pond water that was sampled to support dewatering and the landfill leachate will be routed through treatment similar to dewatering; therefore, estimates of the required Form 2D parameters are supplied from treated interstitial sample data (from Form 2C – 004 Dewatering - Interstitial).

As previously mentioned, APC will submit a Form 2C analysis to re-characterize the 004 effluent within 2 years of commencing discharges from each of these points, in accordance with the Form 2D instructions.

Form Approved. OMB No. 2040-0086. Approval expires 8-31-98.

Please print or type in the unshaded areas only	EPA I.D. NUMBER (*copy from Item 1 of Form 1*) ALD083742858	

Form 2D NPDES

New Sources and New Dischargers Application for Permit to Discharge Process Wastewater

I. Outfall Location

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

Outfall Number (*list*)	Latitude			Longitude			Receiving Water (*name*)
	Deg.	Min.	Sec.	Deg.	Min.	Sec.	
004f	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River
004i	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River

II. Discharge Date (When do you expect to begin discharging?)

Upon Completion of Ash Pond Closure

III. Flows, Sources of Pollution, and Treatment Technologies

A. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

Outfall Number	1. Operations Contributing Flow (*List*)	2. Average Flow (*Include Units*)	3. Treatment (*Description or List codes from Table 2D-1*)
004f	FGD Wastewater	0.72 MGD	1-U, 2-C, 2-K, 4-A
004i	Landfill Leachate Collection	0.72 MGD	1-U, 2-C, 2-K, 4-A

B. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item III-A. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

C. Except for storm runoff, leaks, or spills, will any of the discharges described in Items III-A be intermittent or seasonal?

☐ YES (*complete the following table*) ☑ NO (*go to Section IV*)

Outfall Number	1. Frequency		2. Flow		
	a. Days Per Week (*specify average*)	b. Months Per Year (*specify average*)	a. Maximum Daily Flow Rate (*in mgd*)	b. Maximum Total Volume (*specify with units*)	c. Duration (*in days*)
N/A					

IV. Production

If there is an applicable production-based effluent guideline or NSPS, for each outfall list the estimated level of production (projection of actual production level, not design), expressed in the terms and units used in the applicable effluent guideline or NSPS, for each of the first 3 years of operation. If production is likely to vary, you may also submit alternative estimates (attach a separate sheet).

Year	A. Quantity Per Day	B. Units Of Measure	c. Operation, Product, Material, etc. (*specify*)

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	Outfall Number
	ALD083742858	004f

V. Effluent Characteristics

A and B: These items require you to report estimated amounts (*both concentration and mass*) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*
Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value *(include units)*	3. Average Daily Value *(include units)*	4. Source *(see instructions)*
Biochemical Oxygen Demand (BOD)	<2 mg/L	<2 mg/L	4 - Best professional estimates
Chemical Oxygen Demand (COD)	27.8 mg/L	27.8 mg/L	4
Total Organic Carbon (TOC)	1.37 mg/L	1.37 mg/L	4
Total Suspended Solids (TSS)	7.8 mg/L	<4.1 mg/L	4
Flow	gpm	gpm	4
Ammonia (As N)	2.1 mg/L	0.99 mg/L	4
Temperature (winter)	Not Available		
Temperature (summer)	31.6 C		4
pH	7.8 s.u.	6.6 s.u.	4
Bromide	0.45 mg/L	0.38 mg/L	4
Total Residual Chlorine (TRC)	<0.05	<0.05	4
Color	18 ADMI	18 ADMI	4
E. Coli	18.3 MPN/100	18.3 MPN/100	4
Fluoride	0.26 mg/L	0.26 mg/L	4
Nitrate-Nitrite (as N)	0.4 mg/L	<0.30 mg/L	4
Total Organic Nitrogen (as N)	<0.10 mg/L	<0.10 mg/L	4
Oil & Grease (O&G)	<5 mg/L	<3.8 mg/L	4
Phosphorous (as P)	0.082 mg/L	<0.04 mg/L	4
Sulfate (as SO_4)	99.8 mg/L	99.8 mg/L	4
Sulfide (as S)	<0.01 mg/L	<0.01 mg/L	4
Sulfite (as SO_3)	<0.4 mg/L	<0.4 mg/L	4
Surfactants	<0.05 mg/L	<0.05 mg/L	4

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	Outfall Number
	ALD083742858	004f - Cont'd

V. Effluent Characteristics

A and B: These items require you to report estimated amounts (*both concentration and mass*) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*
Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value *(include units)*	3. Average Daily Value *(include units)*	4. Source *(see instructions)*
Aluminum, Total	0.220 mg/L	0.220 mg/L	4
Barium, Total	0.0874 mg/L	0.0874 mg/L	4
Boron, Total	4.71 mg/L	4.71 mg/L	4
Cobalt, Total	<0.002 mg/L	<0.002 mg/L	4
Iron, Total	0.296 mg/L	0.296 mg/L	4
Magnesium, Total	22.3 mg/L	22.3 mg/L	4
Molybdenum, Total	0.0813 mg/L	0.0813 mg/L	4
Manganese, Total	0.0838 mg/L	0.0838 mg/L	4
Tin, Total	<0.002 mg/L	<0.002 mg/L	4
Titanium, Total	0.0124 mg/L	0.0124 mg/L	4
Antimony, Total	<0.002 mg/L	<0.002 mg/L	4
Arsenic, Total	0.029 mg/L	<0.009 mg/L	4
Beryllium, Total	<0.002 mg/L	<0.002 mg/L	4
Cadmium, Total	<0.002 mg/L	<0.002 mg/L	4
Chromium, Total	0.00566 mg/L	0.00566 mg/L	4
Copper, Total	0.00520 mg/L	0.00520 mg/L	4
Lead, Total	<0.002 mg/L	<0.002 mg/L	4
Mercury, Total	<5 mg/L	<5 mg/L	4
Nickel, Total	<0.0116 mg/L	<0.0116 mg/L	4
Selenium, Total	0.00307 mg/L	0.00307 mg/L	4
Silver, Total	<0.002 mg/L	<0.002 mg/L	4
Thallium, Total	<0.002 mg/L	<0.002 mg/L	4

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	Outfall Number
	ALD083742858	004f - Cont'd

V. Effluent Characteristics

A and B: These items require you to report estimated amounts (*both concentration and mass*) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*
Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value *(include units)*	3. Average Daily Value *(include units)*	4. Source *(see instructions)*
Zinc, Total	<0.01 mg/L	<0.01 mg/L	4
Cyanide, Total	<0.010 mg/L	<0.010 mg/L	4
Phenols, Total	<0.1 mg/L	<0.1 mg/L	4
Accrolein	<0.100 mg/L	<0.100 mg/L	4
Acrylonitrile	<0.100 mg/L	<0.100 mg/L	4
Benzene	<0.005 mg/L	<0.005 mg/L	4
Bromoform	<0.005 mg/L	<0.005 mg/L	4
Carbon Tetrachloride	<0.005 mg/L	<0.005 mg/L	4
Chlorobenzene	<0.005 mg/L	<0.005 mg/L	4
Chlorodibromomethane	<0.005 mg/L	<0.005 mg/L	4
Chloroethane	<0.010 mg/L	<0.010 mg/L	4
2-Chloro-ethylvinyl Ether	<0.010 mg/L	<0.010 mg/L	4
Chloroform	<0.005 mg/L	<0.005 mg/L	4
Dichlorobromomethane	<0.005 mg/L	<0.005 mg/L	4
1,1-Dichloroethane	<0.005 mg/L	<0.005 mg/L	4
1,2-Dichloroethane	<0.005 mg/L	<0.005 mg/L	4
1,1-Dichloroethylene	<0.005 mg/L	<0.005 mg/L	4
1,2-Dichloropropane	<0.005 mg/L	<0.005 mg/L	4
1,3-Dichloropropylene	<0.005 mg/L	<0.005 mg/L	4
Ethylbenzene	<0.005 mg/L	<0.005 mg/L	4
Methyl Bromide	<0.010 mg/L	<0.010 mg/L	4
Methyl Chloride	<0.005 mg/L	<0.005 mg/L	4

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	Outfall Number
	ALD083742858	004f - Cont'd

V. Effluent Characteristics

A and B: These items require you to report estimated amounts (*both concentration and mass*) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*
Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value *(include units)*	3. Average Daily Value *(include units)*	4. Source *(see instructions)*
Methylene Chloride	<0.005 mg/L	<0.005 mg/L	4
1,1,2,2-Tetrachloroethane	<0.005 mg/L	<0.005 mg/L	4
Tetrachloroethylene	<0.005 mg/L	<0.005 mg/L	4
Toluene	<0.005 mg/L	<0.005 mg/L	4
1,2-Trans-Dichloroethylene	<0.005 mg/L	<0.005 mg/L	4
1,1,1-Trichloroethane	<0.005 mg/L	<0.005 mg/L	4
1,1,2-Trichloroethane	<0.005 mg/L	<0.005 mg/L	4
Trichloroethylene	<0.005 mg/L	<0.005 mg/L	4
Vinyl Chloride	<0.002 mg/L	<0.002 mg/L	4
2-Chlorophenol	<0.009 mg/L	<0.009 mg/L	4
2,4-Dichlorophenol	<0.009 mg/L	<0.009 mg/L	4
2,4-Dimethylphenol	<0.009 mg/L	<0.009 mg/L	4
4,6-Dinitro-O-Cresol	<0.047 mg/L	<0.047 mg/L	4
2,4-Dinitrophenol	<0.047 mg/L	<0.047 mg/L	4
2-Nitrophenol	<0.009 mg/L	<0.009 mg/L	4
4-Nitrophenol	<0.047 mg/L	<0.047 mg/L	4
P-Chloro-M-Cresol	<0.009 mg/L	<0.009 mg/L	4
Pentachlorophenol	<0.023 mg/L	<0.023 mg/L	4
Phenol	<0.009 mg/L	<0.009 mg/L	4
2,4,6-Trichlorophenol	<0.009 mg/L	<0.009 mg/L	4

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	Outfall Number
	ALD083742858	004i

V. Effluent Characteristics

A and B: These items require you to report estimated amounts (*both concentration and mass*) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*
Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value *(include units)*	3. Average Daily Value *(include units)*	4. Source *(see instructions)*
Biochemical Oxygen Demand (BOD)	<2 mg/L	<2 mg/L	4 - Best professional estimates
Chemical Oxygen Demand (COD)	11.4 mg/L	8.4 mg/L	4
Total Organic Carbon (TOC)	1.15 mg/L	<1.05 mg/L	4
Total Suspended Solids (TSS)	<2.5 mg/L	<2.5 mg/L	4
Flow	500 gpm	250 gpm	4
Ammonia (As N)	2.1 mg/L	0.99 mg/L	4
Temperature (winter)	20.7 C	20.5 C	4
Temperature (summer)	Not Available		
pH	6.4 s.u.	6.2 s.u.	4
Bromide	0.45 mg/L	0.38 mg/L	4
Total Residual Chlorine (TRC)	Not Available		
Color	46 ADMI	31 ADMI	4
E. Coli	<1 MPN/100	<1 MPN/100	4
Fluoride	0.28 mg/L	0.21 mg/L	4
Nitrate-Nitrite (as N)	<0.2 mg/L	<0.2 mg/L	4
Total Organic Nitrogen (as N)	5.02 mg/L	2.22 mg/L	4
Oil & Grease (O&G)	1.5 mg/L	1.2 mg/L	4
Phosphorous (as P)	<0.03 mg/L	<0.03 mg/L	4
Sulfate (as SO_4)	1280 mg/L	489 mg/L	4
Sulfide (as S)	<0.01 mg/L	<0.01 mg/L	4
Sulfite (as SO_3)	4.8 mg/L	<1.9 mg/L	4
Surfactants	<0.05 mg/L	<0.05 mg/L	4

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	Outfall Number
	ALD083742858	004i - Cont'd

V. Effluent Characteristics

A and B: These items require you to report estimated amounts (*both concentration and mass*) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*
Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value *(include units)*	3. Average Daily Value *(include units)*	4. Source *(see instructions)*
Aluminum, Total	<0.013 mg/L	<0.013 mg/L	4
Barium, Total	0.284 mg/L	0.202 mg/L	4
Boron, Total	2.87 mg/L	2.27 mg/L	4
Cobalt, Total	0.00586 mg/L	0.00324 mg/L	4
Iron, Total	1.64 mg/L	1.05 mg/L	4
Magnesium, Total	13.6 mg/L	12.2 mg/L	4
Molybdenum, Total	0.0418 mg/L	0.0168 mg/L	4
Manganese, Total	2.55 mg/L	1.33 mg/L	4
Tin, Total	0.00117 mg/L	<0.00085 mg/L	4
Titanium, Total	<0.001 mg/L	<0.001 mg/L	4
Antimony, Total	0.000764 mg/L	0.000437 mg/L	4
Arsenic, Total	0.0249 mg/L	0.0111 mg/L	4
Beryllium, Total	<0.0002 mg/L	<0.0002 mg/L	4
Cadmium, Total	<0.0002 mg/L	<0.0002 mg/L	4
Chromium, Total	0.000552 mg/L	0.000497 mg/L	4
Copper, Total	0.00246 mg/L	0.00187 mg/L	4
Lead, Total	<0.0002 mg/L	<0.0002 mg/L	4
Mercury, Total	<0.000005 mg/L	<0.000005 mg/L	4
Nickel, Total	0.0185 mg/L	0.0157 mg/L	4
Selenium, Total	0.00179 mg/L	0.000778 mg/L	4
Silver, Total	<0.0002 mg/L	<0.0002 mg/L	4
Thallium, Total	0.000336 mg/L	<0.000245 mg/L	4

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	Outfall Number
	ALD083742858	004i - Cont'd

V. Effluent Characteristics

A and B: These items require you to report estimated amounts (*both concentration and mass*) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*
Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value *(include units)*	3. Average Daily Value *(include units)*	4. Source *(see instructions)*
Zinc, Total	0.0183 mg/L	0.0162 mg/L	4
Cyanide, Total	<0.010 mg/L	<0.010 mg/L	4
Phenols, Total	<0.10 mg/L	<0.10 mg/L	4
Accrolein	<0.100 mg/L	<0.100 mg/L	4
Acrylonitrile	<0.100 mg/L	<0.100 mg/L	4
Benzene	<0.005 mg/L	<0.005 mg/L	4
Bromoform	<0.005 mg/L	<0.005 mg/L	4
Carbon Tetrachloride	<0.005 mg/L	<0.005 mg/L	4
Chlorobenzene	<0.005 mg/L	<0.005 mg/L	4
Chlorodibromomethane	<0.005 mg/L	<0.005 mg/L	4
Chloroethane	Not Available		
2-Chloro-ethylvinyl Ether	<0.010 mg/L	<0.010 mg/L	4
Chloroform	<0.005 mg/L	<0.005 mg/L	4
Dichlorobromomethane	<0.005 mg/L	<0.005 mg/L	4
1,1-Dichloroethane	<0.005 mg/L	<0.005 mg/L	4
1,2-Dichloroethane	<0.005 mg/L	<0.005 mg/L	4
1,1-Dichloroethylene	<0.005 mg/L	<0.005 mg/L	4
1,2-Dichloropropane	<0.005 mg/L	<0.005 mg/L	4
1,3-Dichloropropylene	<0.005 mg/L	<0.005 mg/L	4
Ethylbenzene	<0.005 mg/L	<0.005 mg/L	4
Methyl Bromide	<0.010 mg/L	<0.010 mg/L	4
Methyl Chloride	Not Available		

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	Outfall Number
	ALD083742858	004i - Cont'd

V. Effluent Characteristics

A and B: These items require you to report estimated amounts (*both concentration and mass*) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*
Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value *(include units)*	3. Average Daily Value *(include units)*	4. Source *(see instructions)*
Methylene Chloride	<0.005 mg/L	<0.005 mg/L	4
1,1,2,2-Tetrachloroethane	<0.005 mg/L	<0.005 mg/L	4
Tetrachloroethylene	<0.005 mg/L	<0.005 mg/L	4
Toluene	<0.005 mg/L	<0.005 mg/L	4
1,2-Trans-Dichloroethylene	<0.005 mg/L	<0.005 mg/L	4
1,1,1-Trichloroethane	<0.005 mg/L	<0.005 mg/L	4
1,1,2-Trichloroethane	<0.005 mg/L	<0.005 mg/L	4
Trichloroethylene	<0.005 mg/L	<0.005 mg/L	4
Vinyl Chloride	<0.002 mg/L	<0.002 mg/L	4
2-Chlorophenol	<0.011 mg/L	<0.010 mg/L	4
2,4-Dichlorophenol	<0.011 mg/L	<0.010 mg/L	4
2,4-Dimethylphenol	<0.011 mg/L	<0.010 mg/L	4
4,6-Dinitro-O-Cresol	<0.011 mg/L	<0.010 mg/L	4
2,4-Dinitrophenol	<0.032 mg/L	<0.030 mg/L	4
2-Nitrophenol	<0.011 mg/L	<0.010 mg/L	4
4-Nitrophenol	<0.011 mg/L	<0.010 mg/L	4
P-Chloro-M-Cresol	<0.011 mg/L	<0.010 mg/L	4
Pentachlorophenol	<0.021 mg/L	<0.020 mg/L	4
Phenol	<0.011 mg/L	<0.010 mg/L	4
2,4,6-Trichlorophenol	<0.011 mg/L	<0.010 mg/L	4

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (*copy from Item 1 of Form 1*) ALD083742858	

C. Use the space below to list any of the pollutants listed in Table 2D-3 of the instructions which you know or have reason to believe will be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it will be present.

1. Pollutant	2. Reason for Discharge
Vanadium	Present in trace amounts in coal.

VI. Engineering Report on Wastewater Treatment

A. If there is any technical evaluation concerning your wastewater treatment, including engineering reports or pilot plant studies, check the appropriate box below.

☐ Report Available ☑ No Report

B. Provide the name and location of any existing plant(s) which, to the best of your knowledge resembles this production facility with respect to production processes, wastewater constituents, or wastewater treatments.

Name	Location
N/A	

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)
ALD083742858

VII. Other Information *(Optional)*

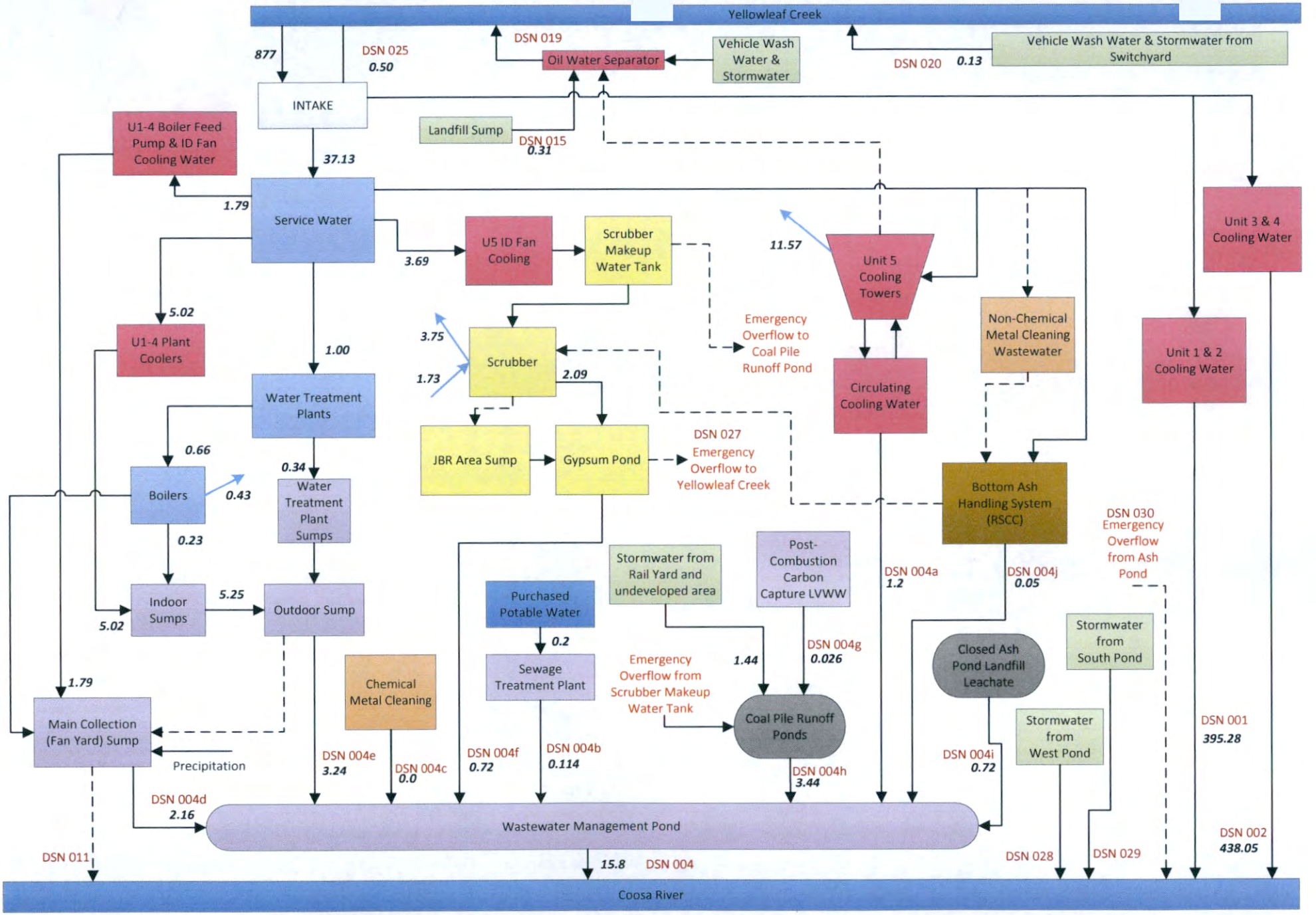
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations for the proposed facility. Attach additional sheets if necessary.

See General Comments for Form 2D.

VIII. CERTIFICATION

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

A. Name and Official Title (*type or print*)	B. Phone No.
Susan B. Comensky, Vice President - Environmental Affairs	(205) 257-0298
C. Signature Susan B. Comensky	D. Date Signed 6/3/19



PLANT GASTON
AL0003140
Water Use Flow Diagram
Future

Flow in MGD

General Comments – Form 2E

Section I.

004b – Sanitary Wastewater Treatment Plant

Current:

This is an internal monitoring point for the Sanitary Wastewater Treatment Plant which is routed to the WMP where it will mix with other wastewater streams and receive additional treatment to achieve limitations established by the Department prior to discharge through 004.

An Ash Pond Equivalency Demonstration for treatment of sewage plant wastes was previously submitted to ADEM which demonstrated that the Ash Pond at Plant Gaston provided adequate treatment of sewage plant wastes required for the NPDES permit. This demonstration was the basis for the existing limitations and monitoring requirements in the current NPDES permit for this discharge point. Based on engineering judgement, the effectiveness of the treatment received in the new WMP meets or exceeds that of the Ash Pond; therefore, we request continuation of this discharge point and associated discharge limitations and monitoring requirements.

Fire Protection System Water

The source of water for the Fire Protection System Water (FPSW) at Plant Gaston is raw river water from Yellowleaf Creek which is filtered and chlorinated. The system is periodically tested in accordance with Federal and State regulations. As such, there is a potential for FPSW to be discharged from any of the permitted Plant Gaston NPDES discharge points.

Please print or type in the unshaded areas only.	EPA ID Number (copy from Item 1 of Form 1) ALD083742858	Form Approved. OMB No. 2040-0086. Approval expires 5-31-92.

FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
004b	33	14	37	86	27	28	Internal Monitoring Point

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☑ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☐ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. **Existing Sources** — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. **New Dischargers** — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	*(or)* (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)		<2.0 mg/L			1.00	
Total Suspended Solids (TSS)		<2.5 mg/L			1.00	
Fecal Coliform *(if believed present or if sanitary waste is discharged)*		4.1 MPN/100			1.00	
Total Residual Chlorine *(if chlorine is used)*		>3.0 mg/L			1.00	
Oil and Grease		<5 mg/L			1.00	
*Chemical oxygen demand (COD)		10.2 mg/L			1.00	
*Total organic carbon (TOC)		2.25 mg/L			1.00	
Ammonia *(as N)*		9.3 mg/L			1.00	
Discharge Flow	Value 0.02 MGD				1.00	
pH *(give range)*	Value 7.4				1.00	
Temperature *(Winter)*		°C		°C		
Temperature *(Summer)*		29.30 °C		°C	1.00	

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☐ Yes ☑ No

If yes, briefly describe the frequency of flow and duration.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

Plant Gaston has a Schreiber Model GR Oxidation Ditch-type package plant, which includes an oxidation ditch, clarifier, and aerobic digester with UV effluent disinfection. It has a rated capacity of 114,000 GPD.

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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

A. Name & Official Title	B. Phone No. *(area code & no.)*
Susan B. Comensky, Vice President of Environmental Affairs	(205) 257-0298
C. Signature	**D. Date Signed**
Susan B. Comensky	6/3/19

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Revised Report

Alabama Po

Lab Field SERVIC

Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS004B
Sample Date : 01-Aug-17
Customer ID: AL-0003140
Delivery Date : 01-Aug-17

Description: Gaston-DSN004b
Sanitary Wastewater

Laboratory ID Number: AX18037.

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
Flow (MGD)	GFH/	8/1/2017	Field Data		1			0.02	MGD
Field pH	GFH	8/1/2017	SM-4500H		1			7.35	SU
Field Sulfite	GFH/	8/1/2017	HACH 8216		1	0.4		U Not Detected	mg/l
Temperature	GFH	8/1/2017	Field Data		1	0.1		29.3	Deg C
Chlorine, Total Residual	GFH	8/1/2017	Field Test		1	0.05		> 3.0	mg/L
* Escherichia Coli (E. Coli)	CES	8/2/2017	SM 9223B		1	1		4.1	MPN/100
* Oil and Grease	DLJ	8/2/2017	EPA 1664B		1	1.4	5	U Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: REVISED COPY: Client requested location change._fkk 12/12/17
Cyanide and Phenol analyses performed by Tuscaloosa Testing Laboratory.
fkk 8/10/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control Keith Kemp Supervision

Reported:12/12/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Revised Report

Alabama Power

Lab Field Service

Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS004B
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston-DSN004b
Sanitary Wastewater

Laboratory ID Number: AX18148

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
* Solids, Suspended	KRC	8/3/2017	SM 2540D		1		2.5	< 2.5	mg/L
Biochemical Oxygen Demand, 5 Day, b	KMC	8/3/2017	SM 5210 B-2001		1		2	< 2.0	mg/L
* Total Organic Carbon	KRC	8/9/2017	SM 5310 C		1	0.3	1	2.25	mg/L
Chemical Oxygen Demand, by TTL	MMC	8/4/2017	SM 5220 D		1		5	10.2	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: REVISED COPY: 1 - Customer requested editing the location identification._fkk 12/11/17
2 - The result for Nitrogen, Ammonia has been removed. A recent internal audit revealed that there was no documentation that the sample had been checked for chlorine before analysis was performed. Sample to be recollected for analysis of Ammonia._fkk 10/6/17
Chemical Oxygen Demand and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ Supervision _____

Reported:12/11/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGAS004B
Sample Date/Time : 24-Jan-18 9:05 AM
Customer ID: AL-0003140
Delivery Date : 24-Jan-18

Description: Gaston-DSN004b
Sanitary Wastewater

Laboratory ID Number: AY01763

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
* Nitrogen, Ammonia, Distilled	GMW	1/30/2018	EPA 350 1		10	1	3	9 3	mg/L as N

This Certificate states the physical and/or chemical characteristics of the sample as submitted. This document shall not be reproduced, except in full, without written consent from Alabama Power's General Test Laboratory.

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments:

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control Keith Kennedy **Supervision** Jon Carpenter

Reported:2/5/2018
Version: 4.3

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
(205) 257-1654

Definitions

Alabama Power

Lab & Field SERVICES

Abbreviation	Description
DF	Dilution Factor
LFB	Lab Fortified Blank
MB	Method Blank
MDL	Method Detection Limit; minimum concentration of an analyte that can be determined with 99% confidence that the concentration is greater than zero.
MS	Matrix Spike
MSD	Matrix Spike Duplicate
Prec	Precision (% RPD)
Q	Qualifier; comment used to note deviations or additional information associated with analytical results.
QC	Quality Control
Rec	Recovery of Matrix Spike
RL	Reporting Limit; lowest concentration at which an analyte can be quantitatively measured.
Vio Spe	Violation Specification; regulatory limit which has been exceeded by the sample analyzed.

Qualifier	Description
B	Analyte found in reagent blank. Indicates possible reagent or background contamination.
E	Estimated reported value exceeded calibration range.
J	Reported value is an estimate because concentration is less than reporting limit.
N	Organic constituents tentatively identified. Confirmation is needed.
	Matrix spike recovery is out of range.
U	Compound was analyzed, but not detected.
P	Precision is out of range.
C	Analyte was verified by re-analysis.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.
L	Check standard is outside of the required specification limit.
D	All samples were stored at less than or equal to 6 °C and for no longer than 48 hours from time of sampling, unless otherwise noted.
F	Water Field Group (WFG) qualifier; see comments for more information
I	Improper sample preservation.
T	Sample temperature outside acceptable limits.

Please print or type in the unshaded areas only.	EPA ID Number (copy from Item 1 of Form 1) ALD083742858	Form Approved. OMB No. 2040-0086. Approval expires 5-31-92.

FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
All NPDES Permitted Outfalls at Plant Gaston	33	14	37	86	27	28	Coosa River or Yellowleaf Creek

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☑ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☐ Noncontact Cooling Water ☒ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. **Existing Sources** — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. **New Dischargers** — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		*(3)* *(or)* *(4)*	
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken *(last year)*	Source of Estimate *(if new discharger)*
Biochemical Oxygen Demand (BOD)		0.3 mg/L			1.00	
Total Suspended Solids (TSS)		<2.5 mg/L			1.00	
Fecal Coliform *(if believed present or if sanitary waste is discharged)*		<1.0 MPN/100			1.00	
Total Residual Chlorine *(if chlorine is used)*		<0.05 mg/L			1.00	
Oil and Grease		<5 mg/L			1.00	
*Chemical oxygen demand (COD)						
*Total organic carbon (TOC)						
Ammonia *(as N)*		<0.3 mg/L			1.00	
Discharge Flow	Value 0.23 MGD				1.00	
pH *(give range)*	Value 7.2				1.00	
Temperature *(Winter)*		°C		°C		
Temperature *(Summer)*		16.6 °C		°C	1.00	

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?

If yes, briefly describe the frequency of flow and duration.

☒ Yes ☐ No

This water is used as necessary in the Fire Protection System.

Testing of the system occurs periodically in accordance with applicable Federal and State regulations.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

The fire water system at Plant Gaston is tested periodically in accordance with applicable Federal and State regulations.

VIII. CERTIFICATION

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

A. Name & Official Title	B. Phone No. *(area code & no.)*
Susan B. Comensky, Vice President of Environmental Affairs	(205) 257-0298
C. Signature	**D. Date Signed**
Susan B. Comensky	6/3/19

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

: Ms. Tanisha Fenderson
Mr. Greg Mathews

Customer Account : NGASFWS2E
Sample Date/Time : 07-Mar-18 10:20 AM
Customer ID: AL-0003140
Delivery Date : 07-Mar-18

Description: EC Gaston Fire Water System - Grab
Fire Water System 2E

Laboratory ID Number: AY05957

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
Flow (MGD)	GFH	3/7/2018	Field Data		1			0.23	MGD
Field Temperature	GFH	3/7/2018	SM-2550		1			16.6	Deg. C.
Field pH	GFH	3/7/2018	SM-4500H		1			7.22	SU
Chlorine, Total Residual	GFH	3/7/2018	Field Test		1	0.05		Not Detected	mg/L
* Escherichia Coli (E. Coli)	CES	3/8/2018	SM 9223B		1	1		<1.0	MPN/100ml
* Oil and Grease	RDA	3/8/2018	EPA 1664B		1	1.4	5	< 5	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments:

cc: Mickey McDaniel/Bernard McGrew
Paula Coker
Brad Dutton

Quality Control Supervision

Reported:3/15/2018
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

Ms. Tanisha Fenderson
EC Gaston Steam Plant

Customer Account : NGASFWS2E
Sample Date/Time : 08-Mar-18 7:55 AM
Customer ID: AL-0003140
Delivery Date : 08-Mar-18

Description: EC Gaston Fire Water System - Composite
Fire Water System 2E

Laboratory ID Number: AY05978

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
General Characteristics									
* Solids, Suspended	GAS	3/9/2018	SM 2540D		1		2.5	< 2.5	mg/L
* Biochemical Oxygen Demand, 5 Day	KRC	3/13/2018	SM 5210B		1	0		0.3	mg/L
BOD Analysis Start Date/Time	KRC	3/8/2018	SM 5210B		1			0934	
* Nitrogen, Ammonia, Distilled	JCC	3/22/2018	EPA 350.1		1	0.1	0.3	U Not Detected	mg/L as N

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: BOD was collected as a 24 hour composite and was iced during compositing. Sample was held at or below 6 deg C from time of collection until sample analysis began._fkk 3/8/18
Matrix spike recovery is out of range for Ammonia.
BOD was received on 03/08/2018 @ 0925. TBW 03/29/2018

cc: Mr. Greg Mathews
Paula Coker
Brad Dutton

lity Control Brooke Williamson **Supervision** John Esposito

Reported:3/30/2018
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

Definitions

Alabama Power

Lab & Field SERVICES

Abbreviation	Description
DF	Dilution Factor
LFB	Lab Fortified Blank
MB	Method Blank
MDL	Method Detection Limit; minimum concentration of an analyte that can be determined with 99% confidence that the concentration is greater than zero.
MS	Matrix Spike
MSD	Matrix Spike Duplicate
Prec	Precision (% RPD)
Q	Qualifier; comment used to note deviations or additional information associated with analytical results.
QC	Quality Control
Rec	Recovery of Matrix Spike
RL	Reporting Limit; lowest concentration at which an analyte can be quantitatively measured.
Vio Spe	Violation Specification; regulatory limit which has been exceeded by the sample analyzed.

Qualifier	Description
B	Analyte found in reagent blank. Indicates possible reagent or background contamination.
E	Estimated reported value exceeded calibration range.
J	Reported value is an estimate because concentration is less than reporting limit.
N	Organic constituents tentatively identified. Confirmation is needed.
R	Matrix spike recovery is out of range.
U	Compound was analyzed, but not detected.
P	Precision is out of range.
C	Analyte was verified by re-analysis.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.
L	Check standard is outside of the required specification limit.
D	All samples were stored at less than or equal to 6 °C and for no longer than 48 hours from time of sampling, unless otherwise noted.
F	Water Field Group (WFG) qualifier; see comments for more information
I	Improper sample preservation.
T	Sample temperature outside acceptable limits.

General Comments – Form 2F

The Plant Gaston ash pond closure process is underway and will continue in the upcoming permit cycle. Once ash pond closure has been completed, two new contributory areas will discharge only stormwater collected from the lined and capped impoundment in two ponds (West and South, respectively).

Section I.

028 – Stormwater Runoff from West Pond

Current:

This discharge point is associated with ash pond closure but does not currently exist.

Future:

Once ash pond closure has been completed pursuant to the CCR Regulations, stormwater runoff from a portion of the closed ash pond will drain to an area that will be referred to as the West Pond and then discharge to the Coosa River through Outfall 028. The total area captured by this discharge will be approximately 186 acres and the ash pond closure cap as well as the West Pond is considered impervious for drainage purposes. The West Pond will only be used for stormwater management and will not contain any other wastewater streams.

029 – Stormwater Runoff from South Pond

Current:

This discharge point is associated with ash pond closure but does not currently exist.

Future:

Once ash pond closure has been completed pursuant to the CCR Regulations, stormwater runoff from a portion of the closed ash pond will drain to an area that will be referred to as the South Pond and then discharge to the Coosa River through Outfall 029. The total area captured by this discharge will be approximately 107 acres and the ash pond closure cap as well as the South Pond is considered impervious for drainage purposes. The South Pond will only be used for stormwater management and will not contain any other wastewater streams.

Section VII

Samples for these areas could not be obtained because the outfalls do not currently exist. Samples will be collected and analyzed for characterization within 2 years after ash pond closure has been completed and discharges from these outfalls commence.

Please print or type in the unshaded areas only.

EPA ID Number (*copy from Item 1 of Form 1*)
ALD083742858

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

FORM 2F NPDES

U.S. Environmental Protection Agency
Washington, DC 20460

Application for Permit to Discharge Storm Water Discharges Associated with Industrial Activity

Paperwork Reduction Act Notice

Public reporting burden for this application is estimated to average 28.6 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of this collection of information, or suggestions for improving this form, including suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

I. Outfall Location

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. Outfall Number (*list*)	B. Latitude			C. Longitude			D. Receiving Water (*name*)
028	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River
029	33.00	14.00	37.00	86.00	27.00	28.00	Coosa River

II. Improvements

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

1. Identification of Conditions, Agreements, Etc.	2. Affected Outfalls		3. Brief Description of Project	4. Final Compliance Date	
	number	source of discharge		a. req.	b. proj.
See Form 2C					

B: You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

III. Site Drainage Map

Attach a site map showing topography (or indicating the outline of drainage areas served by the outfalls(s) covered in the application if a topographic map is unavailable) depicting the facility including: each of its intake and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each known past or present areas used for outdoor storage of disposal of significant materials, each existing structural control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each of its hazardous waste treatment, storage or disposal units (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which received storm water discharges from the facility.

Continue on Page 2

IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

Outfall Number	Area of Impervious Surface *(provide units)*	Total Area Drained *(provide units)*	Outfall Number	Area of Impervious Surface *(provide units)*	Total Area Drained *(provide units)*
028	186 ac	186 ac			
029	107 ac	107 ac			

B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas, and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

See General Comments for Form 2F.

C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

Outfall Number	Treatment	List Codes from Table 2F-1
	See General Comments for Form 2F.	

V. Nonstormwater Discharges

A. I certify under penalty of law hat the outfall(s) covered by this application have been tested or evaluated for the presence of nonstormwater discharges, and that all nonstormwater discharged from these outfall(s) are identified in either an accompanying Form 2C or From 2E application for the outfall.

Name and Official Title *(type or print)*	Signature	Date Signed
Susan B. Comensky, VP Env. Affairs	Susan B. Comensky	6/3/19

B. Provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

See General Comments for Form 2F.

VI. Significant Leaks or Spills

Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

There have been no significant spills of toxic or hazardous pollutants at Plant Gaston in the previous three years.

EPA ID Number *(copy from Item 1 of Form 1)*
ALD083742858

VII. Discharge Information

A, B, C, & D: See instructions before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided.
Table VII-A, VII-B, VII-C are included on separate sheets numbers VII-1 and VII-2.

E. Potential discharges not covered by analysis – is any toxic pollutant listed in table 2F-2, 2F-3, or 2F-4, a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ Yes (*list all such pollutants below*) ☑ No (*go to Section IX*)

N/A

VIII. Biological Toxicity Testing Data

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ Yes (*list all such pollutants below*) ☑ No (*go to Section IX*)

N/A

IX. Contract Analysis Information

Were any of the analyses reported in Item VII performed by a contract laboratory or consulting firm?

☐ Yes (*list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below*) ☑ No (*go to Section X*)

A. Name	B. Address	C. Area Code & Phone No.	D. Pollutants Analyzed
N/A			

X. Certification

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

A. Name & Official Title (*Type Or Print*)	B. Area Code and Phone No.
Susan B. Comensky, Environmental Affairs VP	(205) 257-0298
C. Signature: Susan B. Comensky	D. Date Signed: 6/3/19

VII. Discharge information *(Continued from page 3 of Form 2F)*

Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		
Oil and Grease		N/A				
Biological Oxygen Demand (BOD5)						
Chemical Oxygen Demand (COD)						
Total Suspended Solids (TSS)						
Total Nitrogen						
Total Phosphorus						
pH	Minimum	Maximum	Minimum	Maximum		

Part B – List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		

Continue on Reverse

Continued from the Front

Part C - List each pollutant shown in Table 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

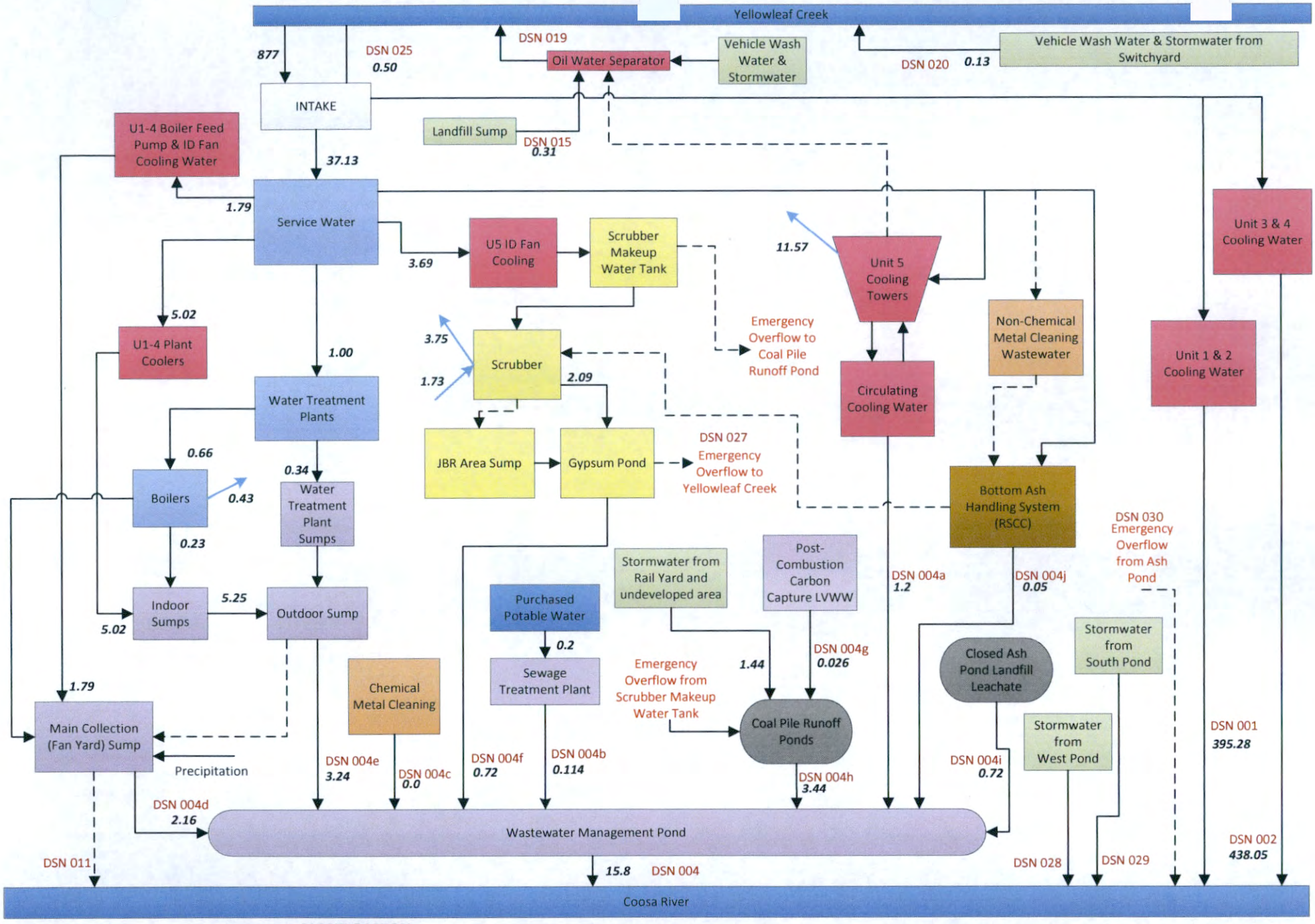
Pollutant and CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-Weighted Composite		

Part D – Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event *(gallons/minute or specify units)*	6. Total flow from rain event *(gallons or specify units)*

7. Provide a description of the method of flow measurement or estimate.

E. C. Gaston Closed Ash Pond Drainage Areas



PLANT GASTON
AL0003140
Water Use Flow Diagram
Future

Flow in MGD

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASINTK
Sample Date : 01-Aug-17
Customer ID: AL-0003140
Delivery Date : 01-Aug-17

Description: Gaston- Intake Water - Grab
Repermitting

Laboratory ID Number: AX18032

	Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
	Metals, Cyanide, Total Phenols										
*	Mercury, Total by CVAF	ABB	8/10/2017	EPA 245.7		1	0.9	5		< 5	ng/L
	Cyanide, Total, by TTL	TRT	8/4/2017	SM 4500-CN CE		1		0.010		< 0.010	mg/L
	Phenol, Total, by TTL	KMC	8/3/2017	SM 5330		1		0.10		< 0.10	mg/L
	General Characteristics										
	Flow (MGD)	GFH/	8/1/2017	Field Data		1				914.57	MGD
	Field pH	GFH	8/1/2017	SM-4500H		1				7.21	SU
	Field Sulfite	GFH/	8/1/2017	HACH 8216		1	0.4		U	Not Detected	mg/l
	Temperature	GFH	8/1/2017	Field Data		1	0.1			28 8	Deg. C
	Chlorine, Total Residual	GFH	8/1/2017	Field Test		1	0.05		U	Not Detected	mg/L
*	Escherichia Coli (E. Coli)	CES	8/2/2017	SM 9223B		1	1.0			1.0	MPN/100ml
*	Oil and Grease	DLJ	8/2/2017	EPA 1664B		1	1.4	5	U	Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for those accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Cyanide and Phenol analyses performed by Tuscaloosa Testing Laboratory.
fkk 8/10/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control [signature] Supervision [signature]

Reported:8/15/2017
Version: 4.2

Alabama Power
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CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASINTK
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston- Intake Water
Repermitting

Laboratory ID Number: AX18138

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ **Supervision** _____

Reported:8/22/2017
Version: 4.2

Alabama Power
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASINTK
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston- Intake Water
Repermitting

Laboratory ID Number: AX18138

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,2-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,3-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromomethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,4-Dichlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Metals, Cyanide, Total Phenols									
Total, Tube Digestion Prep Date	DLJ	8/4/2017	EPA 1638		1			08/04/17	DATE
Aluminum, Total	JHK	8/8/2017	EPA 200.8		10	0.04320	0.13	< 0.13	mg/L
Antimony, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Arsenic, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	< 0.002	mg/L
* Barium, Total	JHK	8/8/2017	EPA 200.8		10	0.000860	0.00258	0.0392	mg/L
* Beryllium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Boron, Total	HRG	8/14/2017	EPA 200.7		1	0.0333	0.1	< 0.1	mg/L
* Cadmium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ **Supervision** _____

Reported:8/22/2017
Version: 4.2

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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASINTK
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston- Intake Water
Repermitting

Laboratory ID Number: AX18138

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Calcium, Total	JHK	8/8/2017	EPA 200.8		10	1.670	5	18.4	mg/L
* Chromium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	< 0.002	mg/L
* Cobalt, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Copper, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	< 0.002	mg/L
Iron, Total	JHK	8/8/2017	EPA 200.8		10	0.007460	0.0224	0.253	mg/L
* Lead, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Magnesium, Total	JHK	8/8/2017	EPA 200.8		10	1.670	5	5.72	mg/L
* Manganese, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	0.101	mg/L
* Molybdenum, Total	JHK	8/8/2017	EPA 200.8		10	0.000810	0.00243	U Not Detected	mg/L
* Nickel, Total	JHK	8/8/2017	EPA 200.8		10	0.003850	0.0116	U Not Detected	mg/L
* Selenium, Total	JHK	8/8/2017	EPA 200.8		10	0.000770	0.00231	< 0.00231	mg/L
* Silver, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
* Thallium, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Tin, Total	JHK	8/8/2017	EPA 200.8		10	0.000670	0.002	U Not Detected	mg/L
Titanium, Total	JHK	8/8/2017	EPA 200.8		10	0.003330	0.01	< 0.01	mg/L
Zinc, Total	JHK	8/8/2017	EPA 200.8		10	0.003330	0.01	< 0.01	mg/L
General Characteristics									
Hardness, Total, (as CaCO3)	JHK	8/8/2017	SM 2340 B		1			69.4	mg/L
* Solids, Suspended	KRC	8/3/2017	SM 2540D		1		2.5	7.2	mg/L
* Bromide, Total	CES	8/12/2017	EPA 300.0		1	0.04	0.08	U Not Detected	mg/L
Biochemical Oxygen Demand, 5 Day, b	KMC	8/3/2017	SM 5210 B-2001		1		2.0	2.1	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ **Supervision** _____

Reported:8/22/2017
Version: 4.2

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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASINTK
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston- Intake Water
Repermitting

Laboratory ID Number: AX18138

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
* Fluoride, Total	CES	8/12/2017	EPA 300.0		1	0.01	0.04	0.06	mg/L
* Sulfate, Total	CES	8/12/2017	EPA 300.0		1	0.04	1	9.00	mg/L
Color, by TTL	TRT	8/3/2017	SM 2120 E		1		10	37.0	ADMI
* Nitrogen, Nitrate/Nitrite	GMW	8/9/2017	EPA 353.2		1	0.10	0.30	R <0.30	mg/L as N
Nitrogen, Total Organic	GMW	8/18/2017	EPA 351.3		1	0.10		1.15	mg/l as N
Sulfide, by TTL	CRC	8/9/2017	SM4500 S2 D		1		0.01	< 0.01	mg/l
Surfactants (Foaming Agents), by TTL	CRC	8/3/2017	SM 5540C		1		0.05	< 0.05	mg/l
* Phosphorus, Total	KRC	8/16/2017	SM 4500PE-TP		1	0.010	0.01	0.066	mg/L
* Nitrogen, Ammonia, Distilled	GMW	8/7/2017	EPA 350.1		1	0.10	0.30	U Not Detected	mg/L as N
* Nitrogen, Total Kjeldahl	GMW	8/11/2017	EPA 351.2		1	0.156	0.500	1.15	mg/L as N
* Total Organic Carbon	KRC	8/9/2017	SM 5310 C		1	0.30	1	3.98	mg/L
Chemical Oxygen Demand, by TTL	MMC	8/4/2017	SM 5220 D		1		5.0	16.1	mg/L
Base/Neutral Compounds									
Acenaphthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Acenaphthylene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Benzidine, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/l
Benz(a)anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(a)pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(b)fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Benzo(g,h,i)perylene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ **Supervision** _____

Reported:8/22/2017
Version: 4.2

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CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASINTK
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston- Intake Water
Repermitting

Laboratory ID Number: AX18138

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Benzo(k)fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Bis(2-chloroethoxy)methane, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroethyl)ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-chloroisopropyl)ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Bis(2-ethylhexyl)phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Bromophenyl phenyl ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Butyl benzyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
2-Chloronaphthalene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
4-Chlorophenyl phenyl ether, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
Chrysene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Dibenzo(a,h)anthracene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
3,3-Dichlorobenzidine, by TTL	LAA	8/10/2017	EPA 625		1		0.020	< 0.020	mg/L
Diethyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Dimethyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-butyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dinitrotoluene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,6-Dinitrotoluene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Di-n-octyl phthalate, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2-Diphenylhydrazine, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
Fluoranthene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Fluorene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

uality Control _____ **Supervision**_____

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASINTK
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston- Intake Water
Repermitting

Laboratory ID Number: AX18138

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Hexachlorobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorobutadiene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachlorocyclopentadiene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Hexachloroethane, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Indeno(1,2,3-cd)pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Isophorone, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Naphthalene, TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Nitrobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodimethylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodi-n-propylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
N-Nitrosodiphenylamine, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Phenanthrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Pyrene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
1,2,4-Trichlorobenzene, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Acid Compounds									
2-Chlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/l
2,4-Dichlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4-Dimethylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
4,6-Dinitro-2-methylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
2,4-Dinitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
2-Nitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

uality Control _____ **Supervision**_____

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
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AX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab& Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASINTK
Sample Date : 02-Aug-17
Customer ID: AL-0003140
Delivery Date : 02-Aug-17

Description: Gaston- Intake Water Repermitting

Laboratory ID Number: AX18138

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
4-Nitrophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.050	< 0.050	mg/L
4-chloro-3-methylphenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Pentachlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.025	< 0.025	mg/L
Phenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
2,4,6-Trichlorophenol, by TTL	LAA	8/10/2017	EPA 625		1		0.010	< 0.010	mg/L
Miscellaneous									
Method 625 - Extraction Date, by TTL	LAA	8/3/2017			1			08/03/2017	

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments: Chemical Oxygen Demand, Color, Sulfide, Surfactants, EPA 624, EPA 625 and Biochemical Oxygen Demand, 5 Day analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

uality Control [signature] Supervision [signature]

Reported:8/22/2017
Version: 4.2

Alabama Power
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744 County Road 87, GSC #8
Calera, AL 35040
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CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Tyneshia Fenderson
EC Gaston Steam Plant

Customer Account : NGASFBLK
Sample Date : 30-Aug-17
Customer ID:
Delivery Date : 30-Aug-17

Description: EC Gaston - Field Blank

Laboratory ID Number: AX20638

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
Metals, Cyanide, Total Phenols										
* Mercury, Total by CVAF	ABB	9/8/2017	EPA 245.7		1	0.9	5	U	Not Detected	ng/L

MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments:

cc: Hagen Kaylor
Brad Dutton
Paula Coker

Quality Control Keith Konopka Supervision [signature]

Reported:9/20/2017
Version: 4.2

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CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Tyneshia Fenderson
EC Gaston Steam Plant

Customer Account : NGASLBLK
Sample Date : 30-Aug-17
Customer ID:
Delivery Date : 30-Aug-17

Description: EC Gaston - Lab Blank

Laboratory ID Number: AX20639

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q	Results	Units
Metals, Cyanide, Total Phenols										
* Mercury, Total by CVAF	ABB	9/8/2017	EPA 245.7		1	0.9	5	U	Not Detected	ng/L

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MDL's and RL's are adjusted for sample dilution, as applicable

*** Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report**
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments:

cc: Hagen Kaylor
Brad Dutton
Paula Coker

uality Control [signature] Supervision [signature]

Reported:9/20/2017
Version: 4.2

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CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGASBLK
Sample Date : 30-Aug-17
Customer ID:
Delivery Date : 30-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX20621

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	9/11/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	9/11/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	9/11/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control _____ Supervision _____

Reported:9/20/2017
Version: 4.2

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Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGASBLK
Sample Date : 30-Aug-17
Customer ID:
Delivery Date : 30-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX20621

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Bromomethane, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control Keith Kourgey **Supervision**

Reported:9/20/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGASBLK
Sample Date : 30-Aug-17
Customer ID:
Delivery Date : 30-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX20618

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	9/11/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	9/11/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	9/11/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control _____ Supervision _____

Reported:9/20/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
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AX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant

Customer Account : NGASBLK
Sample Date : 30-Aug-17
Customer ID:
Delivery Date : 30-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX20618

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Bromomethane, by TTL	LAA	9/11/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	9/11/2017	EPA 624		1		0.005	< 0.005	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory.
fkk 9/12/17

cc: Mr. Brad Dutton
Ms. Paula Coker

Quality Control Keith Kinney **Supervision**

Reported:9/20/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Tanisha Fenderson
EC Gaston Steam Plant

Customer Account : NGASFBLK
Sample Date : 01-Aug-17
Customer ID:
Delivery Date : 01-Aug-17

Description: EC Gaston - Field Blank

Laboratory ID Number: AX18038

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Metals, Cyanide, Total Phenols									
* Mercury, Total by CVAF	ABB	8/10/2017	EPA 245 7		1	0.9	5	U Not Detected	ng/L

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MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments:

cc: Hagen Kaylor
Brad Dutton
Paula Coker

Quality Control Keith Kinnaman Supervision

Reported:8/22/2017
Version: 4.2

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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Tanisha Fenderson
EC Gaston Steam Plant

Customer Account : NGASLBLK
Sample Date : 01-Aug-17
Customer ID:
Delivery Date : 01-Aug-17

Description: EC Gaston - Lab Blank

Laboratory ID Number: AX18039

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Metals, Cyanide, Total Phenols									
* Mercury, Total by CVAF	ABB	8/10/2017	EPA 245.7		1	0.9	5	< 5	ng/L

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MDL's and RL's are adjusted for sample dilution, as applicable

* Test results for these accredited parameters meet all 2003 NELAC and 2009 TNI requirements, with exceptions noted on this report
Laboratory certification ID: E571114
Issued By: State of Florida, Department of Health
Expiration: June 30, 2018

Comments:

cc: Hagen Kaylor
Brad Dutton
Paula Coker

Quality Control Keith Montgomery Supervision

Reported:8/22/2017
Version: 4.2

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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASBLK
Sample Date : 02-Aug-17
Customer ID:
Delivery Date : 02-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX18147

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ **Supervision** _____

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASBLK
Sample Date : 02-Aug-17
Customer ID:
Delivery Date : 02-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

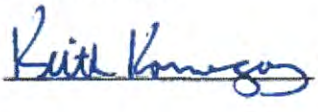
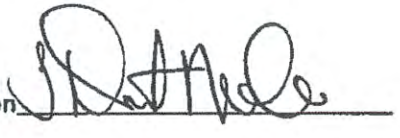
Laboratory ID Number: AX18147

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Bromomethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control  Supervision 

Reported:8/22/2017
Version: 4.2

Alabama Power
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASBLK
Sample Date : 02-Aug-17
Customer ID:
Delivery Date : 02-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX18145

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ **Supervision** _____

Reported:8/22/2017
Version: 4.2

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CERTIFICATE OF ANALYSIS

Alabama Power

Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASBLK
Sample Date : 02-Aug-17
Customer ID:
Delivery Date : 02-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX18145

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Bromomethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control Keith Kennedy **Supervision**

Reported:8/22/2017
Version: 4.2

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General Test Laboratory
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CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASBLK
Sample Date : 02-Aug-17
Customer ID:
Delivery Date : 02-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX18143

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ **Supervision** _____

Reported:8/22/2017
Version: 4.2

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General Test Laboratory
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Calera, AL 35040
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CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASBLK
Sample Date : 02-Aug-17
Customer ID:
Delivery Date : 02-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX18143

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Bromomethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control Keith Kennedy **Supervision**

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
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X (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASBLK
Sample Date : 02-Aug-17
Customer ID:
Delivery Date : 02-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX18141

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

uality Control _____ **Supervision**_____

Reported:8/22/2017
Version: 4.2

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General Test Laboratory
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Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASBLK
Sample Date : 02-Aug-17
Customer ID:
Delivery Date : 02-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX18141

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Bromomethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control Keith Kennedy **Supervision**

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
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Calera, AL 35040
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FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASBLK
Sample Date : 02-Aug-17
Customer ID:
Delivery Date : 02-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX18139

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
Volatile Compounds									
Acrolein, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Acrylonitrile, by TTL	LAA	8/14/2017	EPA 624		1		0.100	< 0.100	mg/L
Carbon Tetrachloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Benzene, TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Trichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,1-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromoform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Vinyl Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.002	< 0.002	mg/L
Chlorobenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Dibromochloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Tetrachloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Trans-1,2-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
2-Chloroethyl vinyl ether, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/L
Chloroform, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2-Trichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Bromodichloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,2-Dichloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
1,1-Dichloroethene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control _____ **Supervision** _____

Reported:8/22/2017
Version: 4.2

Alabama Power
General Test Laboratory
744 County Road 87, GSC #8
Calera, AL 35040
(205) 664 - 6032 or 6171
FAX (205) 257-1654

CERTIFICATE OF ANALYSIS

Alabama Power
Lab & Field SERVICES

To: Ms. Tanisha Fenderson
E.C. Gaston Steam Plant
Hagen Kaylor

Customer Account : NGASBLK
Sample Date : 02-Aug-17
Customer ID:
Delivery Date : 02-Aug-17

Description: Gaston Trip Blank
TRIP BLANK

Laboratory ID Number: AX18139

Name	Analyst	Test Date	Reference	Vio Spec	DF	MDL	RL	Q Results	Units
1,2-Dichloropropane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
cis-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
trans-1,3-Dichloropropene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Bromomethane, by TTL	LAA	8/14/2017	EPA 624		1		0.010	< 0.010	mg/l
Ethylbenzene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Chloromethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
Methylene Chloride, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L
1,1,2,2-Tetrachloroethane, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/l
Toluene, by TTL	LAA	8/14/2017	EPA 624		1		0.005	< 0.005	mg/L

MDL's and RL's are adjusted for sample dilution, as applicable

Comments: EPA 624 analyses performed by Tuscaloosa Testing Laboratory._fkk 8/10/17

cc: Brad Dutton
Paula Coker

Quality Control Keith Kemery Supervision

Reported:8/22/2017
Version: 4.2

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Definitions

Alabama Power

Lab & Field SERVICES

Abbreviation	Description
DF	Dilution Factor
LFB	Lab Fortified Blank
MB	Method Blank
MDL	Method Detection Limit; minimum concentration of an analyte that can be determined with 99% confidence that the concentration is greater than zero.
MS	Matrix Spike
MSD	Matrix Spike Duplicate
Prec	Precision (% RPD)
Q	Qualifier; comment used to note deviations or additional information associated with analytical results.
QC	Quality Control
Rec	Recovery of Matrix Spike
RL	Reporting Limit; lowest concentration at which an analyte can be quantitatively measured.
Vio Spe	Violation Specification; regulatory limit which has been exceeded by the sample analyzed.

Qualifier	Description
B	Analyte found in reagent blank. Indicates possible reagent or background contamination.
E	Estimated reported value exceeded calibration range.
J	Reported value is an estimate because concentration is less than reporting limit.
N	Organic constituents tentatively identified. Confirmation is needed.
R	Matrix spike recovery is out of range.
U	Compound was analyzed, but not detected.
P	Precision is out of range.
C	Analyte was verified by re-analysis.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.
L	Check standard is outside of the required specification limit.
D	All samples were stored at less than or equal to 6 °C and for no longer than 48 hours from time of sampling, unless otherwise noted.
F	Water Field Group (WFG) qualifier; see comments for more information

PLANT E.C. GASTON STEAM ELECTRIC GENERATING FACILITY
316(a) THERMAL VARIANCE STUDY

December 2011

Alabama Power Company, GSC #8
Environmental Affairs Department
P.O. Box 2641
Birmingham, Alabama, 35291

EXECUTIVE SUMMARY

Section 316(a) of the Clean Water Act (CWA) authorizes state regulatory agencies, upon application from a point source discharger, to establish an alternative thermal limit or variance, in lieu of the technology- or water quality-based limits that otherwise would apply. The permittee requesting the thermal variance must demonstrate that the proposed limit will assure the protection and propagation of the balanced, indigenous population (BIP) in and on the receiving water body. The purpose of this report is to demonstrate that the thermal variance established in 1977 for Alabama Power Company (APC) for its E.C. Gaston Steam Plant ("Plant Gaston") continues to assure the protection and propagation of the BIP of the Coosa River, allowing for a renewal of those alternative thermal limits.

This report details a two-year study of the macroinvertebrate, adult fish, and larval fish communities in the receiving waterbody. Data collected from study areas upstream from, adjacent to, and downstream of the discharge point were used to assess the effects of Plant Gaston's thermal effluent on the aquatic population. APC performed water quality monitoring and thermodynamic modeling in order to evaluate possible relationships between abiotic factors, such as instream levels of dissolved oxygen and various pollutants, and the various biological indices used. This study is a follow-up and verification of a prior study submitted to the Environmental Protection Agency (EPA) Region IV on December 29, 1978, demonstrating that there has been no appreciable harm to the BIP in the Coosa River as a result of prior thermal discharges from Plant Gaston.

The Alabama Department of Environmental Management approved the current study plan for Plant Gaston (Alabama Power Company 2010), which included the analytical framework to address the specific BIP criteria from 40 CFR 125.71(c). Using EPA's Section 316(a) regulations and guidance, the study addressed the following seven factors:

(1) whether the populations form a community typically characterized by diversity at all trophic levels,
(2) whether the community has the capacity to sustain itself through cyclic seasonal changes,
(3) whether necessary food chain species are present,
(4) whether the community is dominated by pollution-tolerant species,
(5) whether indigenous species are present,
(6) identification of representative important species (i.e. recreationally and commercially important, threatened, and endangered species), and
(7) water quality and temperature monitoring.

These seven criteria were derived from the definition of "balanced indigenous community", which EPA defines as synonymous with "balanced indigenous population", and are examined in order to evaluate whether the thermal variance previously approved under Section 316(a) has assured the protection and propagation of a BIP of shellfish, fish, and wildlife, specifically reviewing the macroinvertebrates, adult fish, and larval fish. Under Section 125.73(c) of EPA's rules, existing dischargers may base their 316(a) demonstrations on the absence of prior appreciable harm, in lieu of predictive studies. As EPA Guidance states, such studies "must provide reasonable assurance (emphasis added) of protection and propagation of the indigenous community. Mathematical certainty regarding a dynamic biological situation is impossible to achieve...." (EPA 316(a) Thermal Guidance – Thermal Discharges, September 30, 1974 at p. 8).

Results of the macroinvertebrate, adult fish, and larval fish studies performed in 2010 and 2011 indicates that the thermal discharge from Plant Gaston has caused ***no appreciable harm*** to the BIP of the Coosa River, as outlined in this report. All organisms from the heat affected areas of the river were diverse, sustained through cyclic seasonal changes, sufficiently present to support the food chain, and not dominated by pollution-tolerant species, when compared to areas of the river unaffected by heat. There was no evidence of diminishing indigenous macroinvertebrates populations. The water quality of the Coosa River in the vicinity of Plant Gaston for these studies was typical for operations under the present thermal variance.

The evaluation of the macroinvertebrate, adult fish, and larval fish communities in both the heat affected and unaffected areas of the Coosa River in the vicinity of Plant Gaston clearly meets the definition of a BIP. APC has demonstrated, through this study and with sufficient scientific data and certainty, that the thermal discharge from Plant Gaston has caused ***no appreciable harm*** to these biological communities. Based on this evidence, ADEM should renew APC's 316(a) variance for its thermal discharges from Plant Gaston.

GLOSSARY OF ACRONYMS AND DEFINITIONS

§316(a)	Section 316(a) of the Clean Water Act, 33 U.S.C. § 1326(a) - , Provides that the EPA and delegated state agencies may authorize alternate thermal conditions in NPDES permits where the effluent limitation is more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on the body of water into which the thermal discharge is made. (State regulations, in turn, provide for the granting of thermal variances and have the requisite authority to issue such variances. The variances are reviewed with each NPDES permit renewal.)
§316(b)	Section 316(b) of the Clean Water Act - Requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact (AEI).
ADCNR	Alabama Department of Conservation and Natural Resources
ADCP	Acoustic Doppler Current Profiler
ADEM	Alabama Department of Environmental Management
APC	Alabama Power Company
Aufwuchs	The plants and animals adhering to parts of rooted aquatic plants and other open surfaces (e.g., plate samplers); also organisms and detritus coating rocks and plants in an aquatic environment, often fed on by fish specialized as scrapers.
BIC	balanced indigenous community, equivalent to BIP
BIP	balanced indigenous population
C	Celsius
CPUE	Catch Per Unit Effort
CWA	Clean Water Act
DC	direct current
EFDC	Environmental Fluid Dynamics Code
EPA	United States Environmental Protection Agency
EPT	Ephemeroptera, Plecoptera and Trichoptera; three taxonomic orders whose presence is often used as a water quality indicator for macroinvertebrates
Evenness	a measure of diversity of a biological community
F	Fahrenheit
ft	feet
HBI	Hilsenhoff Biotic Index
Hester-Dendy	a macroinvertebrate multi-plate sampling device

HOBO	a product line of continuous water temperature loggers made by Onset Corporation
l	liter
LOI	loss on ignition
m	meter
MDL	method detection limit
µS	microsiemens
mg	milligrams
mm	millimeter
MW	megawatt
NPDES	National Pollutant Discharge Elimination System - Program was established by the federal government and administered by the EPA to control point source discharges of water pollution.
QA	quality assurance
QC	quality control
ris	representative important species, namely recreationally and commercially important, threatened or endangered species
RMSE	root-mean-square error
SWDI	Shannon Weaver Diversity Index
USGS	United States Geological Survey

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1. INTRODUCTION

E.C. Gaston Steam Plant ("Plant Gaston"), operated by APC, is a 1,880-MW, coal-fired electric generating facility located on the Coosa River in Shelby County, Alabama. Four (units 1-4) of the five units at Plant Gaston generate 1,000 MWs and use once-through cooling water from the Coosa River and Yellowleaf Creek. The newer, 880 MW, unit 5 was constructed with closed cycle cooling towers. All units share an intake structure located on Yellowleaf Creek, two-thirds of a mile upstream of the confluence with the Coosa River. The thermal discharge, from the once-through units, re-enters the Coosa River through two separate surface discharge structures, one carrying cooling water from Units 1 and 2, the other from Units 3 and 4. Unit 5 cooling tower blowdown re-enters the Coosa River through the ash pond discharge. Plant Gaston is situated on the Coosa River between Logan Martin and Lay Dam and this section of the river is part of Lay Reservoir or Lay Lake.

EPA first issued a thermal variance for Plant Gaston in 1978, based on APC's first 316(a) demonstration, which included a Thermal / Biological Report. As required by the CWA, EPA imposed thermal limitations that assured that Plant Gaston's discharges would meet State water quality standards including a schedule of compliance. EPA issued Plant Gaston an NPDES permit on May 26, 1976 with a thermal variance for once through cooling water discharges and a compliance schedule with thermal/biological study, intake modification, and discharge modification deadlines.

During the 1970's draft permit negotiation phase, APC and EPA agreed in principle to biological studies, which APC began in 1974. After intake and discharge structure

modifications were completed by the July 1, 1977 deadline established by the CWA, APC continued to evaluate the biological effects of the modifications completing the studies in December 1978. The biological studies included sampling and assessment of phytoplankton, zooplantkton, macroinvertebrates (benthic and *aufwuchs*), and adult fish communities. Fish movement studies were also part of the adult fish assessment. The Alabama Power Company (1978) study concluded that thermal discharges from Plant Gaston have not resulted in appreciable long-term effects to the aquatic biological communities of the Coosa River

According to 316(a), to qualify for a variance in thermal discharge limits and Best Available Technology (BAT) requirements, APC must demonstrate that the proposed limits (here, the same limits that have been in effect since the late 1970s) for Plant Gaston will assure the continued protection and propagation the BIP of Coosa River.

This study, in fact, demonstrates with sufficient scientific data and certainty that the alternative thermal limits requested by the 316(a) variance meets this standard by assuring the protection and propagation of the BIP of the Coosa River near Plant Gaston.

The criteria used to gauge the BIP[1] are derived from 40 [1]CFR 125.71(c), which defines BIC as:

> "synonymous with the term balanced, indigenous population in the Act and means a biotic community typically characterized by diversity, the capacity to sustain itself through cyclic seasonal changes, presence of necessary food chain species and by a lack of domination of pollution-tolerant species. Such a community may include historically non-native species introduced in connection with a program of wildlife

[1] The term BIP is also considered the sum total of all interacting biologically classified communities or trophic levels associated with the aquatic ecosystem. These biologically classified communities or trophic levels can include and are not limited to the macroinvertebrates, adult fish, and larval fish.

> management and species whose presence or abundance results from substantial, irreversible environmental modifications. Normally, however, such a community will not include species whose presence or abundance is attributable to the introduction of pollutants that will be eliminated by compliance by all sources with §301(b)(2) of the Act; and may not include species whose presence or abundance is attributable to alternative effluent limitation imposed pursuant to §316(a)."

The seven criteria examined in this study are:

(1) "a population typically characterized by diversity at all trophic levels,"
(2) "the capacity to sustain itself through cyclic seasonal changes,"
(3) "presence of necessary food chain species,"
(4) "non-domination of pollution-tolerant species,"
(5) "indigenous,"
(6) representative important species identification, and
(7) water quality and temperature monitoring.

APC designed this study to address each of these BIP criteria for macroinvertebrates, adult fish, and larval fish. APC performed various quantitative and qualitative measures for each of these communities to assess each of the seven criteria. This report presents the methods used and the conclusions reached for each of the three distinct trophic levels studied (macroinvertebrates, adult fish, and larval fish). Thereafter, the report presents a more detailed discussion, by trophic level, of the specific metrics used to evaluate each of the seven criteria. Based on the collective weight of evidence across all communities, those results demonstrate that the thermal variance has not resulted in prior appreciable harm, and will assure the ongoing protection and propagation of a BIP of fish, shellfish, and wildlife in the Coosa River near Plant Gaston.

This study looks at the effects of a thermal discharge variance on biological populations. Other factors that may affect these lotic communities were taken into consideration, such as dissolved oxygen levels, conductivity, and sedimentation.

2. METHODS

Prior to field sampling, APC met with ADEM to discuss the study plan for verifying whether the Plant Gaston thermal discharge continues to assure the protection and propagation of a BIP of the Coosa River. APC began field sampling in the spring of 2010. ADEM and APC agreed on the final study plan at a July 13, 2010 meeting. APC provided ADEM with a written copy of the final approved study plan on August 2, 2010.

APC personnel collected samples for macroinvertebrates, adult fish, and larval fish to assess the effects of the thermal discharge from Plant Gaston on the BIP in the Coosa River. Macroinvertebrate and adult fish were sampled during 2010. Larval fish were sampled during 2011. Three study sites were selected according to their location relative to the thermal discharge: (1) upstream control zone, (2) thermal mixing zone, and (3) downstream zone. The geographic locations for the 2010 macroinvertebrate stations and adult fish stations were derived in part from the biological studies conducted by APC in the 1970s (Alabama Power, 1978). Figure 1 presents the location of the sampling sites for each of the biological studies. The control zones are located upstream from the discharge point, with the macroinvertebrate station at approximately 4.7 miles and the adult fish station at approximately 4.0 miles upstream. Larval fish sampling in the upstream control zone is only 1.5 miles upstream of the discharge point. Samples and data acquired from this location are considered unaffected by thermal discharge. For the mixing zone, the macroinvertebrate station is approximately 1.0 miles downstream of the discharge and the adult fish station is adjacent to the discharge. The mixing zone is considered the most heat-affected segment of the river. A downstream zone is located further downstream from the mixing zone, with the macroinvertebrate station at approximately 4.2 miles and

the adult fish station at approximately 3.3 miles downstream. Larval fish sampling in this downstream zone is 2.1 miles downstream of the discharge point.

Larval fish were sampled only from an upstream control and a downstream zone (Figure 1). APC and ADEM agreed on only two locations because they recognized that there is very low larval fish survival through the condensers of once-through cooling water systems. Therefore, this study concentrated the effort in areas above and below the discharge point and not in the immediate vicinity of the discharge point.

APC collected water quality data along with the biological data. Additionally, APC monitored hydrological and plant operational data to develop an environmental fluid dynamics code (EFDC) thermodynamic model. APC completed all studies within a two-year period: from May through October 2010 (macroinvertebrate and adult fish), and from April through June 2011 (larval fish). APC performed all graphical and statistical analyses using SPSS (IBM 2010), a statistical analysis software program. APC evaluated significant decreases in the macroinvertebrate and larval fish metrics using 95% confidence interval graphs. Qualitative differences in the adult fish metrics were graphically evaluated based on the range of values (minimum to maximum).

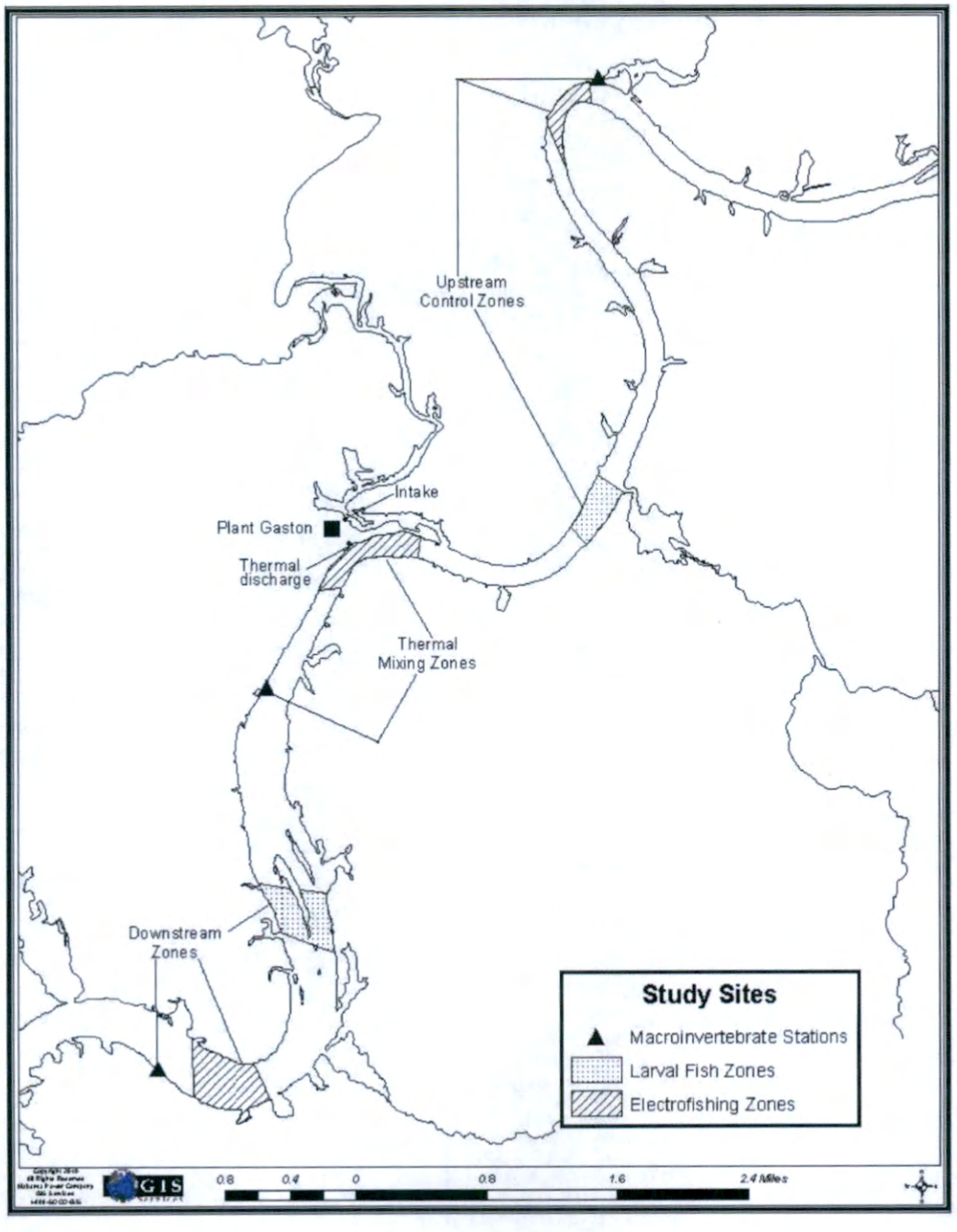

Figure 1. The locations of the sampling zones and stations for the biological studies conducted on the Coosa River near Plant Gaston in 2010 and 2011.

2.1. Macroinvertebrate Study Methods

APC collected macroinvertebrates at 3 locations or stations during spring, summer, and fall. Ten Hester-Dendy plate samplers were deployed approximately 5 feet below normal pool elevation at each of the three stations. Each station spanned 50 to 100 feet of stream along the shoreline. The samplers were tied to concrete blocks anchored on the streambed and were suspended in the water column using small floats. HOBO thermistors were deployed with each set of plate samplers to continuously record water temperature. Sediment loading, dissolved oxygen, and conductivity measurements were made in an effort to account for these factors when assessing the effects of water temperature on the various macroinvertebrate indices.

The control station was located 4.7 miles upstream of the thermal discharge, while the mixing zone and recovery stations were located 1.0 (or approximately 1,700 yards) and 4.2 miles downstream of the thermal discharge, respectively (Figure 1). The plates were deployed for 4-week periods in May, July, and September 2010. The plate deployment dates were May 10, July 6, and August 30. The respective retrieval dates were June 7, August 2, and September 27.

Upon retrieval, the samplers were placed in a plastic container, labeled, and placed on ice. Three samplers from each station were randomly selected for sediment analysis. The remaining seven samplers were taken to the lab where the material on each plate was scraped and rinsed through a 500 µm brass sieve. All retained material was placed into a collection jar and preserved with 70 percent isopropanol. Rose Bengal dye was used to stain the organisms for greater visibility. APC biologists sorted the macroinvertebrates

under a dissecting microscope and identified them to the lowest practical taxon, usually genus. Chironomids were mounted on slides and identified to genus using a compound microscope. A subsample of 50 chironomids was identified and used to extrapolate the remainder of the sample in the event of large sample sizes.

To ensure Quality Assurance/Quality Control (QA/QC) in macroinvertebrate sorting, APC biologists resorted approximately 10 percent of the samples. Samples which had less than 85 percent accuracy in the number of macroinvertebrates counted were reprocessed.

Differences in the macroinvertebrate community between sample stations and seasons were evaluated using the following metrics (Barbour 1996; Morin 1999; O'Neil and Shepard 2010; Hilsenhoff 1987):

(1) Total number of organisms

(2) Total number of taxa or species richness

(3) Total number of EPT (Ephemeroptera, Plecoptera, and Trichoptera) taxa

(4) Shannon Weaver Diversity Index

(5) Evenness

(6) Total number of pollution-tolerant organisms by taxa, Hilsenhoff Biotic Index with tolerance values (NCDENR 2006)

2.2. Adult Fish Study Methods

APC collected adult fish at 3 locations or zones during spring, summer, and fall, by electrofishing from the control zone (4 miles upstream of the thermal discharge), the mixing zone, and downstream zone (adjacent to and approximately 3.3 miles downstream of the thermal discharge) (Figure 1).

Sampling occurred in June, August and October 2010; the variety in seasons was to account for any temporal variability or seasonal cyclic changes associated with qualitative assessment of this community. APC field technicians used a Smith-Root® bow-mounted electrofishing system. The system was operated in pulse DC mode with outputs of 250-840 V and 4.5-6.5 amps for fish collection. For each sample station, similar shoreline habitat was chosen. The electrical current and voltage was the same at each of the three sample stations. A minimum of 1,200 seconds of collection was required at every station, with 600 seconds on the right bank and 600 seconds on the left bank. All fish collected from the sample sites were identified to species, weighed (g) and measured (total length in mm), and released. Large catches of individual species were processed by using subsamples of 50 individuals. The remainder of the catch was batched by taking a total count and weight. To ensure correct field identification, select specimens were retained as vouchers and preserved in 10 percent formalin for follow-up laboratory confirmation.

Differences in the adult fish community among zones were evaluated based on the following parameters:

(1) Catch-per-unit effort (CPUE)

(2) Total number of taxa

(3) Relative abundance

(4) Abundance of exotic or non-indigenous taxa

(5) Presence of major trophic levels

2.3. Larval Fish Study Methods

Larval fish were collected at 2 locations during the spring of 2011. Larval fish samples were collected from the upstream control zone located approximately 1.5 miles upstream from the thermal discharge area and the downstream recovery zone located approximately 2.1 miles downstream of the thermal discharge (Figure 1).

APC personnel collected larval fish samples every two weeks beginning in April 2011 and ending in June 2011, for a total of six sampling dates. Two 0.5-m diameter, 333 µm plankton nets were used to filter water near the surface along both the right bank and the left bank of river segments in each of the two zones. General Oceanics® flow meters were used to measure the volume of water passing through the plankton nets. During the collection process, a pair of temperature recording data loggers was attached to the nets and recorded the water temperature in 30-second intervals. After pushing the nets to collect 100 cubic meters of water in each net, the nets were rinsed to direct all captured material into a collection jar. The contents of the collection jar were preserved in a 10 to 15 percent formaldehyde solution. Rose Bengal dye was added to facilitate sorting.

During laboratory processing, the contents of the collection jars were emptied into a 250 µm stainless steel sieve, rinsed, and transferred into a sorting tray. The larval fish were counted and placed into a 20 mL vial with 10 percent buffered formalin. The vials were labeled and sent to a taxonomist for identification to family.

APC took the following additional steps to assure QA and QC of the larval fish counts and identification:

(1) Samples were checked internally by APC biologists.

(2) Samples were checked externally by a larval fish taxonomist.

(3) The sorting residue from 10 percent of the sampling jars, randomly selected, was resorted to ensure sorting efficiency.

(4) For taxonomic QC, 10 percent of the larval fish identified were sent to a second expert for corroboration.

Differences in the larval fish community between sample zones were evaluated using the following parameters:

(1) Total number of organisms

(2) Total number of taxa

(3) Relative abundance

(4) Abundance of non-indigenous taxa

(5) Spawning peak

(6) Water temperatures during spawning peak; and

(7) Presence of major trophic levels.

2.4. Water Quality Methods

APC collected water quality data at each zone or station of the Coosa River being studied during each of the macroinvertebrate, adult fish, and larval fish studies previously described. Water quality profiles were measured with each of the biological sampling events. Thermistors or continuous water temperature loggers were deployed during each of the biological sampling events. Macroinvertebrate plate sediment sampling and water quality sampling were performed while collecting macroinvertebrates.

For the macroinvertebrate study, water quality profile measurements (water temperature, dissolved oxygen and conductivity) were taken during each of the three deployment and three retrieval dates. The water quality profiles were performed at the deepest point along the river channel segment cross-section. Measurements were taken at 0, 1, 3, 5, 10, 15, 20, 25, and 30 ft depths, continuing in 10-foot intervals if needed. Water samples were collected concurrently with each profile from a depth of 5 feet. The samples were analyzed for total cations including total mercury and selenium; nitrites and nitrates; total phosphorus and ortho-phosphate; and chlorophyll. Thermistors were attached to the Hester-Dendy plate samplers to continuously record temperature during the deployment period.

As discussed in Section 2.1, three Hester-Dendy plates from each macroinvertebrate station were used to make an estimate of sedimentation. These plate samplers were scraped of all material. The material was then rinsed into a tare weighed 1-liter jar. The sample jar was then placed in an oven at 103° F for drying. After 24 hours, the sample jars with sediment were weighed. Then subsequent drying and weighing cycles occurred until the change in the sediment weight was less than 5 percent. Each dried sediment sample was analyzed for loss on ignition (LOI) to determine the relative percentage of organic and inorganic sediments.

Water quality profiles were also obtained at each station during sampling for adult fish and larval fish. A total of 9 water quality profiles were obtained during adult fish sampling, and 12 water quality profiles were obtained during larval fish sampling.

As discussed in Section 2.2 and 2.3, thermistors were deployed along the side of the electrofishing boat at approximately 2 ft depth while collecting adult fish. Thermistors were also used to measure the water temperature passing through each plankton net for the larval fish study.

2.5. Thermodynamic Modeling Methods

The Environmental Fluid Dynamics Code (EFDC) thermodynamic model was developed using a wide variety of hydrologic, operational, and meteorological input data. EFDC is a widely used public domain software package (Craig 2010). The goal of the model development is to understand the primary factors affecting the thermal loading to the receiving stream.

APC collected continuous temperature and water level data during 2010, in support of model development and calibration. Flow and elevation data from the Logan Martin Dam tailrace and the Lay Dam forebay along with USGS stream gaging stations throughout the basin were used as model inputs. Acoustic Doppler Current Profiler (ADCP) and temperature data collection events throughout the reservoir were used for model calibration. Plant operational data such as once-through cooling water flows and discharge temperatures were also used as model inputs. Bathymetry data were collected in 2008 and additional surveys were performed in 2010. Meteorological data were collected from Plant Gaston and the Shelby County airport. Dynamic Solutions, LLC, prepared a full report on the thermodynamic modeling methods and data collection. The report is presented in the Appendix.

3. RESULTS

The 316(a) study for Plant Gaston evaluated the macroinvertebrate, adult fish, and larval fish communities in both the heat affected and unaffected areas of the Coosa River. The Hester-Dendy plates were deployed for macroinvertebrate sampling from May 10 – June 7, July 6 – August 2, and August 30 – September 27 in 2010. The adult fish sampling by electrofishing was performed on June 22, August 9, and October 5 in 2010. The larval fish sampling, using plankton nets attached to a boat, was performed on six dates in the spring of 2011, specifically April 5 and 18, May 2, 18, and 31, and June 14. A review of river temperatures and plant operations during the study was performed to ensure a proper evaluation based on historical conditions for the Coosa River.

3.1. River Temperatures and Plant Operations

The water temperature of the Coosa River in the vicinity of Plant Gaston during the study was consistent with historical temperatures. The electric generating units at Plant Gaston were operated so that the downstream NPDES river temperature limit (monthly average of 90 °F) was not exceeded. The study period for the macroinvertebrates and adult fish included sampling events when the water temperatures were near the upper temperature limit for NPDES compliance. The operation of the units and the river flow during the larval fish sampling period were consistent with the historical plant operations and river flows.

The operation of Plant Gaston during this study in May, June, and July 2010 was near the historical load averages (Figure 2). For the latter summer months of August and September 2010, APC reduced plant load to maintain compliance with downstream

NPDES temperature limits during an abnormally warm summer. For the spring and summer of 2011, Plant Gaston's operation was consistent with historical load averages.

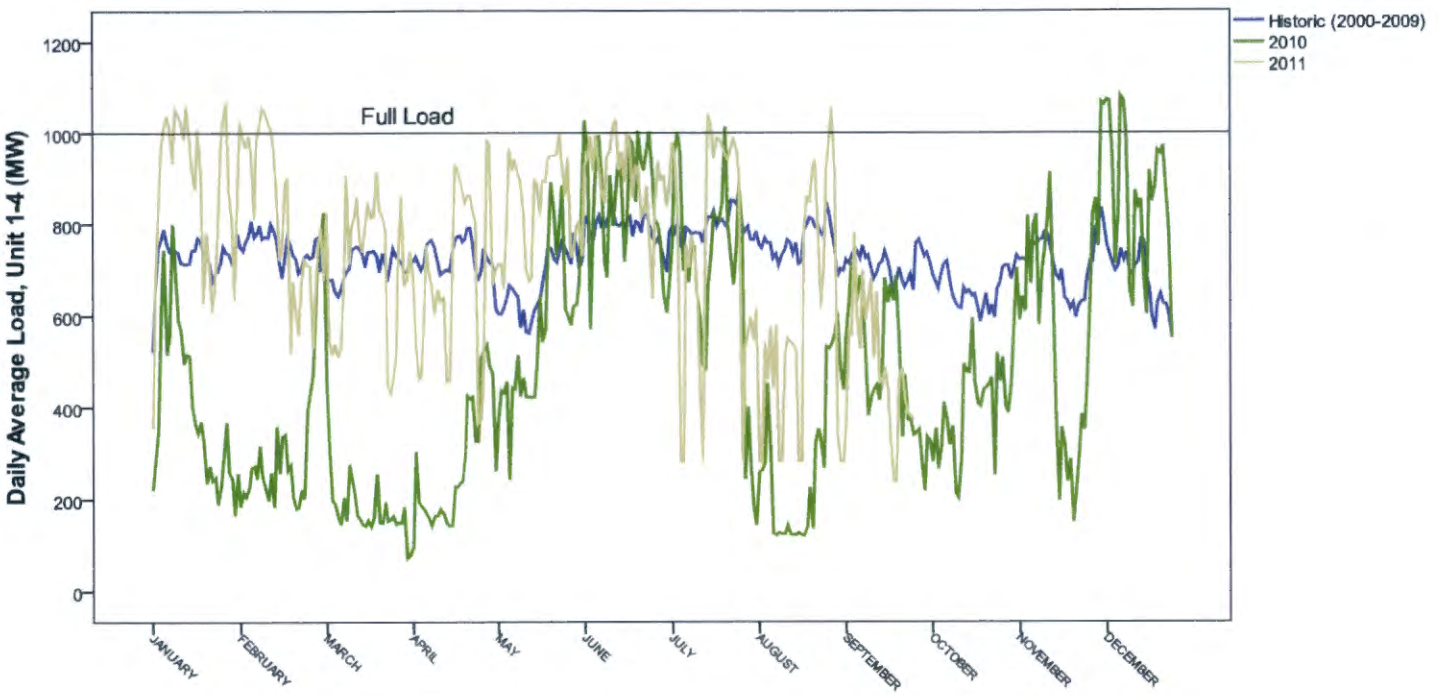

Figure 2. Historic daily average load (MW) for Plant Gaston, Units 1-4. Time periods include 2000-2009, 2010, and 2011.

The river temperatures during this study at the downstream NPDES monitor were greater than typical historical water temperatures (Figure 3). These higher daily average water temperatures at the NPDES monitor were still below the monthly average NPDES permitted temperature limit. The highest water temperatures for the study period occurred during the July and August months. These months encompassed the macroinvertebrate and adult fish sampling in summer 2010 (Figure 4).

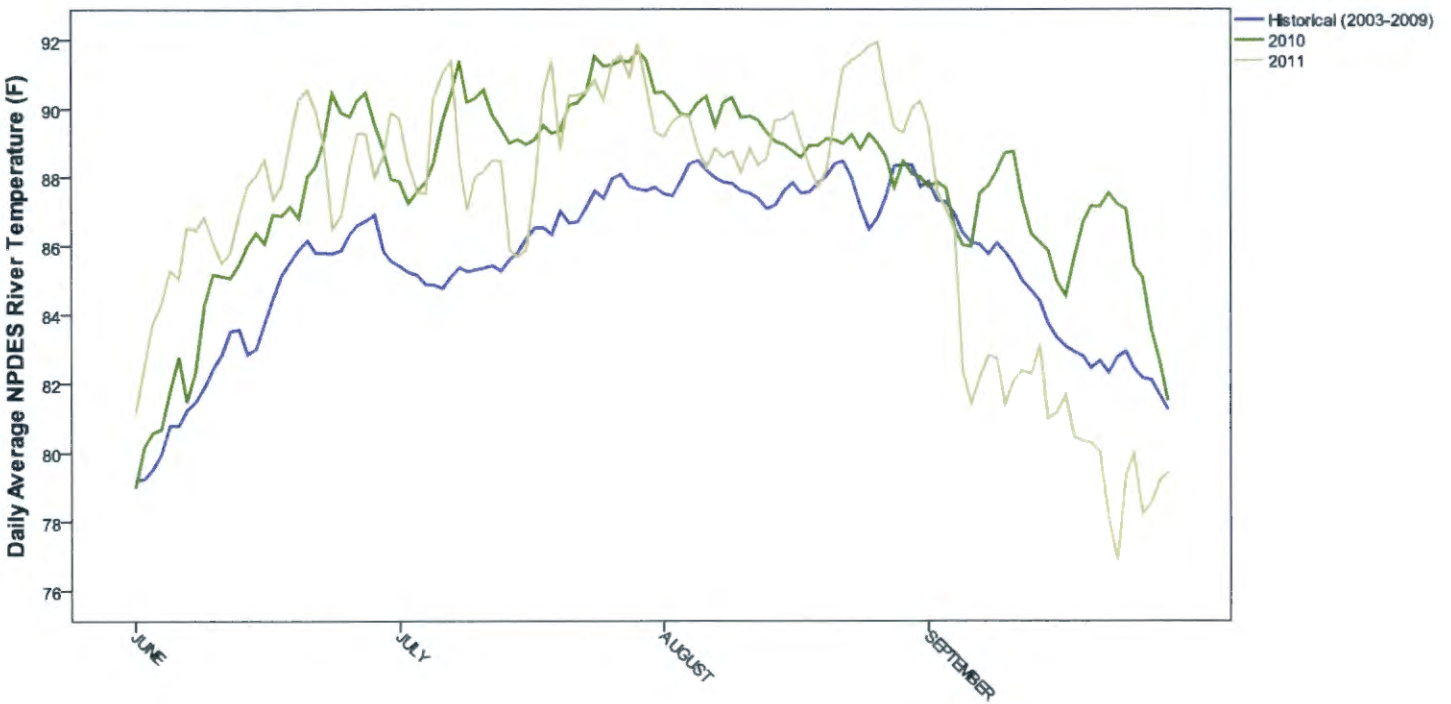

Figure 3. Historic daily average NPDES monitor water temperatures (1500 yards downstream of thermal discharge). Time periods include 2003-2009, 2010, and 2011 for the required monitoring months (June, July August, September).

Figure 4. Water temperature data for the 2010 biological sampling stations. Monitoring stations (dashed lines) are locations with thermistors deployed that are independent of the biological studies and record long-term temperature data.

The larval fish study was conducted during the spring of 2011 (Figure 5), when larval fish were likely to be present due to spawning (see Section 3.4). Larval fish collection began prior to the NPDES monitoring period for river temperatures, which runs from June to September. Plant Gaston operated the units consistent with normal or historical loads for this time period (Figure 2). The Coosa River flows near Plant Gaston during the spring are typically highly variable; flows during the study are consistent with historical averages (Figure 6).

Figure 5. Water temperature data from the 2011 biological sampling stations. Monitoring stations (dashed line) are locations with thermistors deployed that are independent of the biological studies and record long-term temperature data.

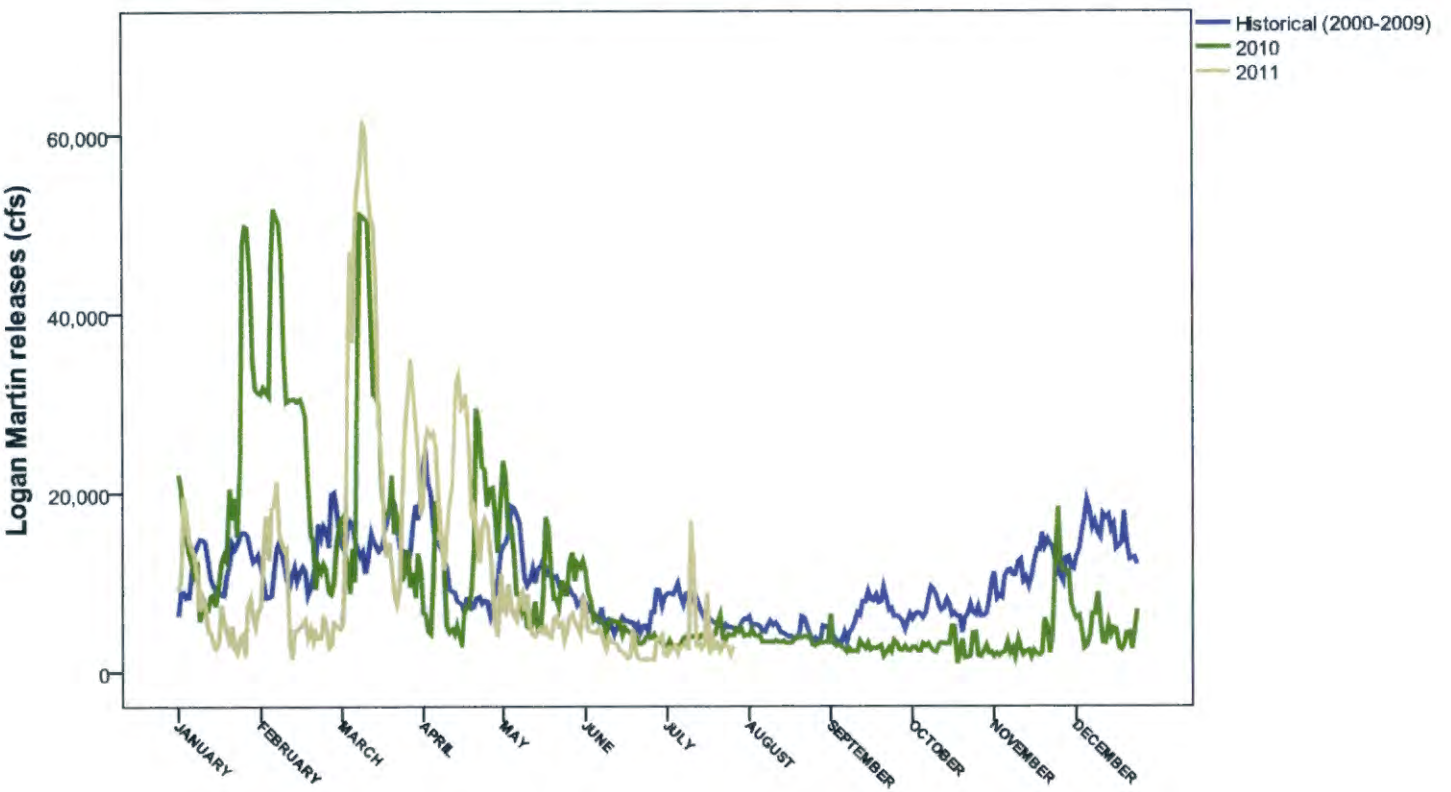

Figure 6. Historical daily average Logan Martin releases (cubic feet per second). Time periods include 2000-2009, 2010, and 2011.

All three sampling studies (macroinvertebrates, adult fish, and larval fish) occurred during conditions representative of an above average year with respect to water temperatures and an average year for plant loads and river flows, reflecting Plant Gaston's current operations under alternative thermal limits established pursuant to §316(a).

3.2. Macroinvertebrates

The macroinvertebrate sampling used 7 Hester-Dendy plates for each station, with the exception of the downstream station during the fall deployment. Only 6 plates were recovered at this station during the fall season because one plate sampler was vandalized and subsequently lost. All QA/QC procedures were successfully performed. All unique taxonomic identifications were confirmed by APC biologists and all sample specimens were stored and archived. The metrics used to evaluate the macroinvertebrate community were the number of organisms collected, number of taxa, and the number of EPT taxa. Additional indices were calculated including the Shannon-Weaver Diversity Index, evenness, and the Hilsenhoff Biotic Index.

Three additional Hester-Dendy plates from each station were used to make an estimation of sedimentation and evaluate its potential effects on the macroinvertebrate community. Sediment weights and loss on ignition (LOI) analyses show the magnitude of sedimentation and type of sediments, respectively, for each plate.

Sediment weights are a measure of sedimentation on each plate. LOI is representative of the fraction or percent of the organic material in the sediment. The remaining fraction is inorganic or inert material such as silt or sand. The dry sediment weights and LOI show

similar trends across stations and season (Figure 7 and 8). Both sets of data did not significantly decrease when compared to the upstream station. These results indicate that sedimentation would not affect the macroinvertebrate metrics between seasons or stations. Therefore, the amount or type of sedimentation is not considered when evaluating the macroinvertebrate metrics or indices.

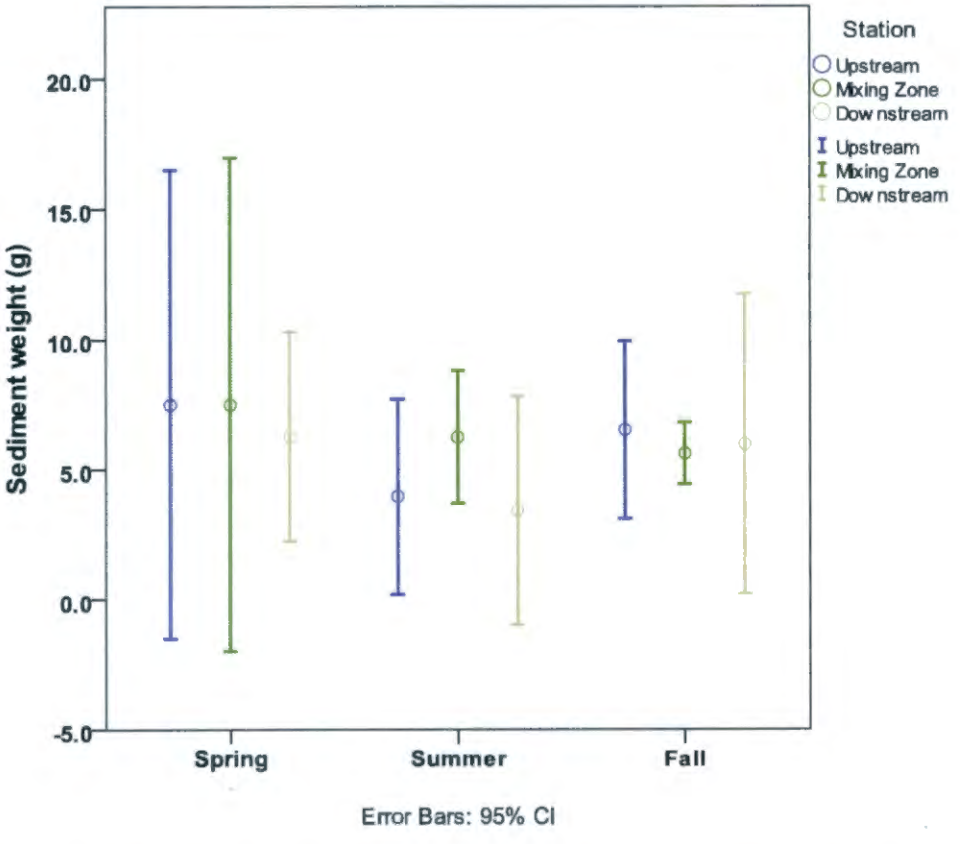

Figure 7. Error bar plot (95% CI) of the Hester-Dendy plate sediment weights (dry) seasonally and by station. Each bar represents the individual plate samplers (n=3).

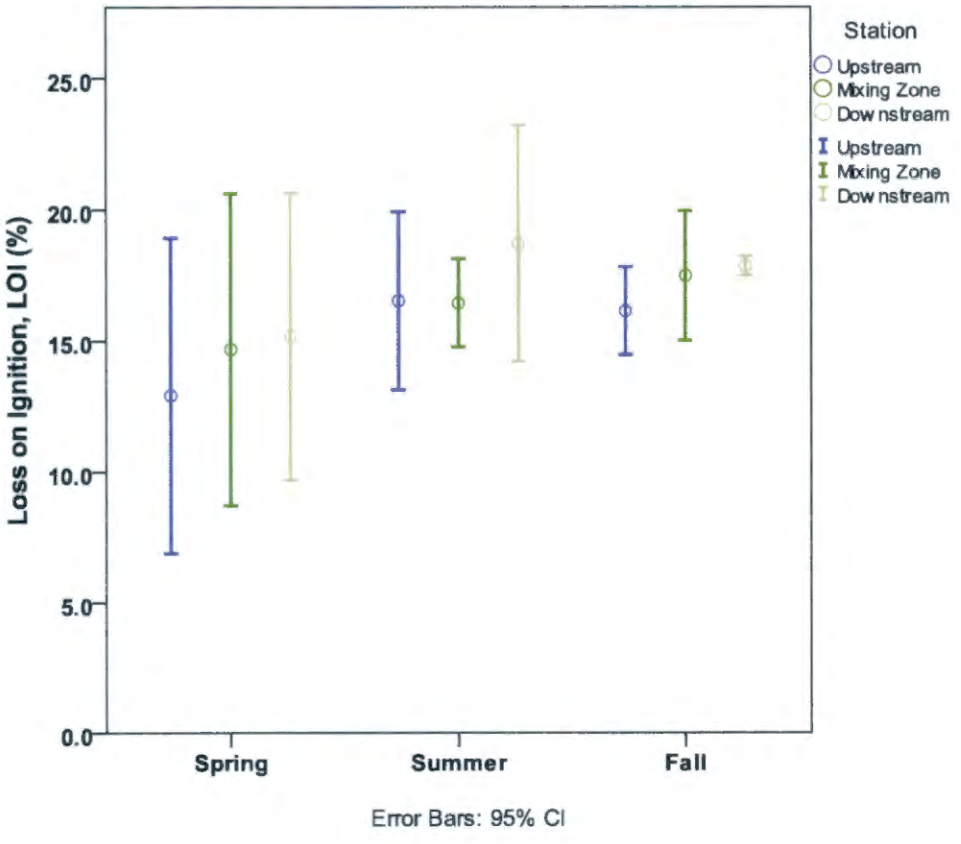

Figure 8. Error bar plot (95% CI) of the Hester-Dendy plate sediment loss on ignition (LOI) seasonally and by station. Each bar represents the individual plate samplers (n=3).

Table 1 shows the average number of macroinvertebrates collected and average density (no. of organisms per m^2) per plate sampler as well as the average number of taxa and EPT taxa per plate sampler at each sampling station during each deployment period. The distribution of values for each of these metrics approaches a normal distribution. Therefore, it is appropriate to evaluate differences using a 95% confidence interval of the means between stations for each season (IBM 2010).

Table 1. The number of Hester-Dendy plate samplers retrieved along with the average number of individual organisms per plate, average organism density per plate, average number of taxa per plate, and average number of EPT taxa per plate collected during the three deployment periods.

Deployment	Station	# of Plates Retrieved	Average # of Organisms per plate	Average Density (# of organisms per m^2) per plate	Average # of Taxa per plate	Average # of EPT Taxa per plate
Spring	Upstream	7	395	6,081	13.4	3.6
	Mixing Zone	7	309	4,758	10.9	1.9
	Downstream	7	510	7,853	10.0	2.4
Summer	Upstream	7	339	5,215	7.3	1.0
	Mixing Zone	7	374	5,760	6.7	1.3
	Downstream	7	440	6,774	6.7	1.6
Fall	Upstream	7	386	5,932	7.7	1.0
	Mixing Zone	7	197	3,035	5.4	1.0
	Downstream	6	332	5,103	5.8	1.0

The 95% confidence interval for the average number of macroinvertebrates per plate sampler at each station for each of the 3 seasons is presented in Figure 9. The average number of macroinvertebrate organisms collected for the spring and summer season did not decrease appreciably when compared to the upstream control (Figure 9). Although the number of organisms in the mixing zone exhibited a statistically significant decrease (49%) during the fall season, the number of organisms at the downstream station for the same period was similar to the upstream control station, indicating that there was recovery downstream.

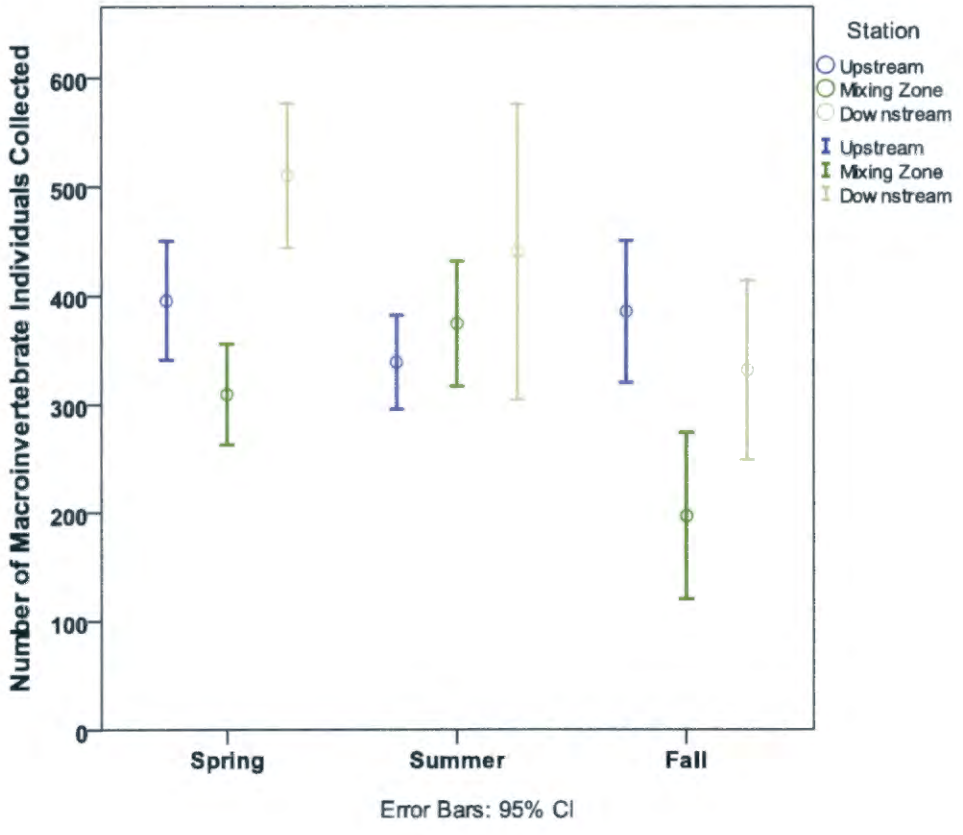

Figure 9. Error bar plot (95% CI) of number of macroinvertebrate organisms collected per plate seasonally and by station. Each bar represents the individual plate samplers (n=7), except for the downstream station, fall deployment (n=6).

The 95% confidence interval for the average number of macroinvertebrate taxa per plate sampler within each station and each season is presented in Figure 10. There is a slight decrease in taxa in the mixing zone (19%) and downstream stations (25%) when compared to the upstream control during the spring (Figure 10). However, no statistically significant differences between the upstream, mixing, and downstream zones were apparent during the summer or fall. All taxa numbers are higher in the spring regardless of station. However, the number of taxa during the summer and fall were similar at all stations.

The number of taxa decreased for all stations from the spring through fall seasons. This seasonal pattern is expected based on the normal life cycle of many taxa of aquatic macroinvertebrates. The spring season has higher numbers of larger mature larvae; as development is completed and emergence occurs during the summer and early fall, many taxa are then represented by larval populations physically too small or early in the life history to be effectively sampled by the methods utilized in this study.

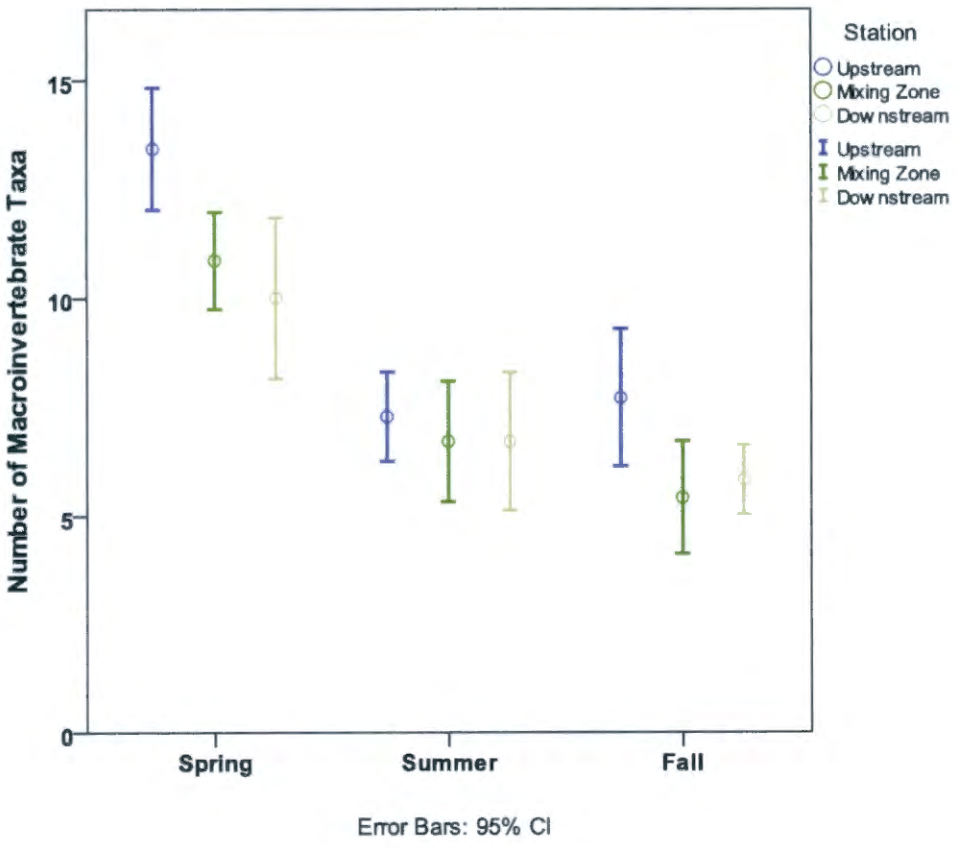

Figure 10. Error bar plot (95% CI) of number of macroinvertebrate taxa collected per plate seasonally and by station. Each bar represents the individual plate samplers (n=7), except for the downstream station, fall deployment (n=6).

The most commonly collected macroinvertebrate taxa included the polycentropodid caddisfly *Cyrnellus* and the chironomid genera *Dicrotendipes*, *Glyptotendipes, Ablabesmyia,* and *Tribelos*. Overall, these five genera accounted for the majority (>90%) of the organisms, which is typical very common for large rivers and impoundments in the Southeastern U.S. These genera consistently dominated the samples, regardless of season or station (Table 2).

Table 2. Relative abundance (%) of dominant macroinvertebrate taxa collected in the 2010 study.

	Spring			Summer			Fall		
Genus	Upstream	Mixing Zone	Downstream	Upstream	Mixing Zone	Downstream	Upstream	Mixing Zone	Downstream
Cymellus	44.2	51.1	53.2	46.8	41.7	32.2	59.0	49.5	47.7
Ablabesmyia	5.3	5.5	3.1	5.6	9.9	15.9	10.6	11.4	14.0
Dicrotendipes	20.7	18.3	13.3	26.3	33.7	36.8	19.9	33.4	29.8
Glyptotendipes	17.0	13.5	22.6	3.8	5.7	6.8	2.3	1.8	3.0
Tribelos	2.2	2.1	1.7	15.2	6.0	5.4	5.0	1.7	4.4
Total	89.5	90.6	93.9	97.7	97.0	96.9	96.9	97.8	98.8

The number of Ephemeroptera (mayfly), Pleceptera (stonefly), and Trichoptera (caddisfly) (EPT) taxa collected is often used as an indicator of water quality, as the organisms in these taxonomic orders are sensitive to oxygen levels and water temperature (Barbour 1996). The 95% confidence interval for the average number of EPT taxa per plate sampler at each station by season is presented in Figure 11. The number of EPT taxa collected for each season did not decrease significantly when compared to the upstream control (Figure 11). The number of EPT taxa of the entire river reach decreased as the seasons progressed. As previously mentioned, this is a typical seasonal pattern for macroinvertebrates based on the life cycle and size of organisms during the summer and fall seasons. Accordingly, there was a significant decrease in the mean number of EPT taxa for the stations when comparing spring to summer or fall seasons.

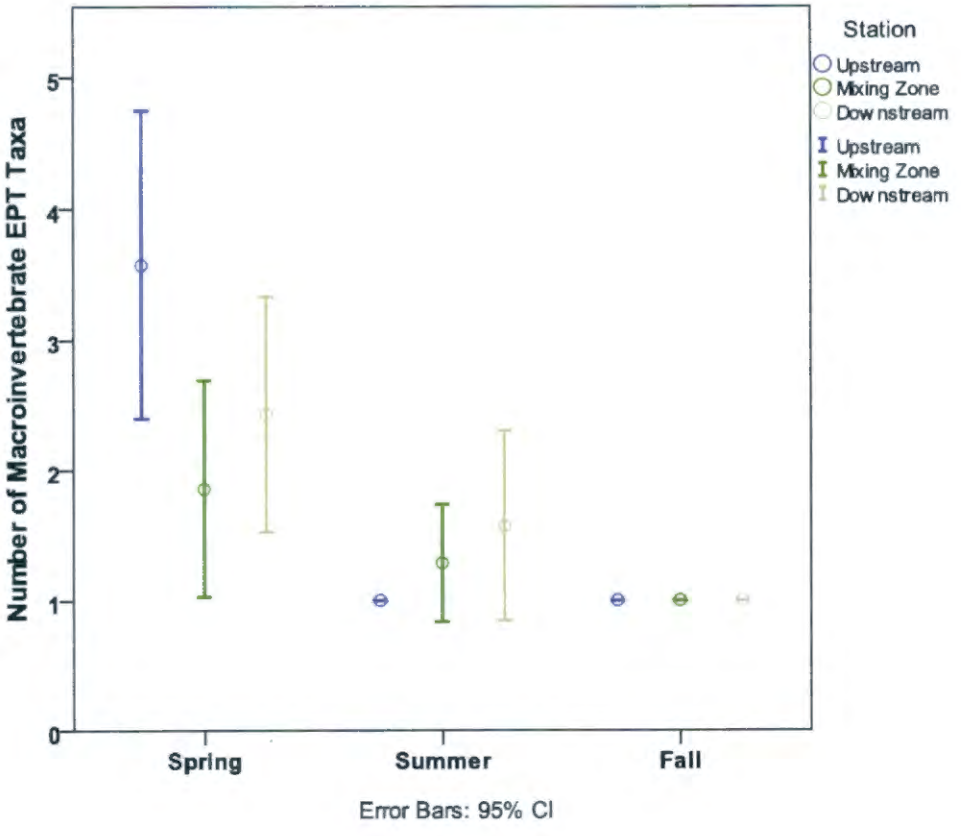

Figure 11. Error bar plot (95% CI) of number of macroinvertebrate EPT taxa collected per plate seasonally and by station. Each bar represents the individual plate samplers (n=7), except for the downstream station, fall deployment (n=6).

Additional measures used to evaluate macroinvertebrate species diversity are the Shannon-Weaver Diversity Index (SWDI) and Evenness. The Hilsenhoff Biotic Index (HBI), a measure of pollution sensitivity using tolerance values for individual taxa, is also evaluated. Table 3 shows the average Shannon-Weaver Diversity Index, Evenness, and HBI per plate sampler for each sampling station during each deployment period.

Table 3. The average Shannon-Weaver Diversity Index (SWDI), Evenness, and Hilsenhoff Biotic Index (HBI) during the three deployment periods. Average is calculated using the individual plate HBI values.

Deployment	Station	SWDI	Evenness	HBI
Spring	Upstream	0.71	0.61	7.86
	Mixing Zone	0.65	0.59	7.81
	Downstream	0.59	0.55	7.92
Summer	Upstream	0.59	0.63	7.44
	Mixing Zone	0.60	0.68	7.63
	Downstream	0.63	0.71	7.69
Fall	Upstream	0.53	0.56	7.46
	Mixing Zone	0.52	0.63	7.58
	Downstream	0.54	0.63	7.54

The Shannon-Weaver Diversity Index is used to measure the evenness of a biological community (Morin 1999). This index uses the total individuals in the sample and the number of individuals for each species. Evenness, another measure of diversity of a biological community, indicates the distribution of abundance among collected taxa (O'Neil and Shephard 2010). Evenness values range from 0.0 -1.0, with 1.0 indicating a community where every taxon is equally represented. The 95% confidence interval for the average SWDI and Evenness per plate sampler at each station by season is presented in Figures 12 and 13, respectively. SWDI and Evenness show similar trends across stations (Figures 12 and 13). Within each season, neither index appreciably decreased when compared to the upstream control. Although seasonal differences are observed, a station comparison of SWDI and Evenness across seasons is not appropriate because of the aforementioned life history of macroinvertebrates.

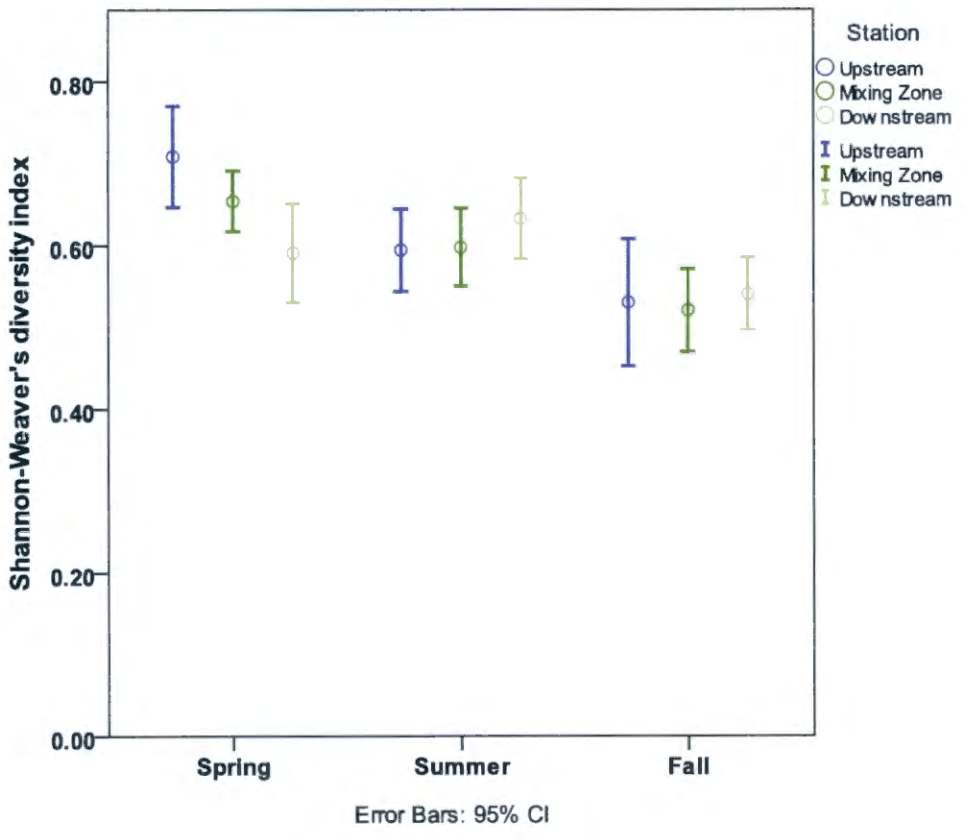

Figure 12. Error bar plot (95% CI) of the Shannon-Weaver diversity index per plate seasonally and by station. Each bar represents the individual plate samplers (n=7), except for the downstream station, fall deployment (n=6).

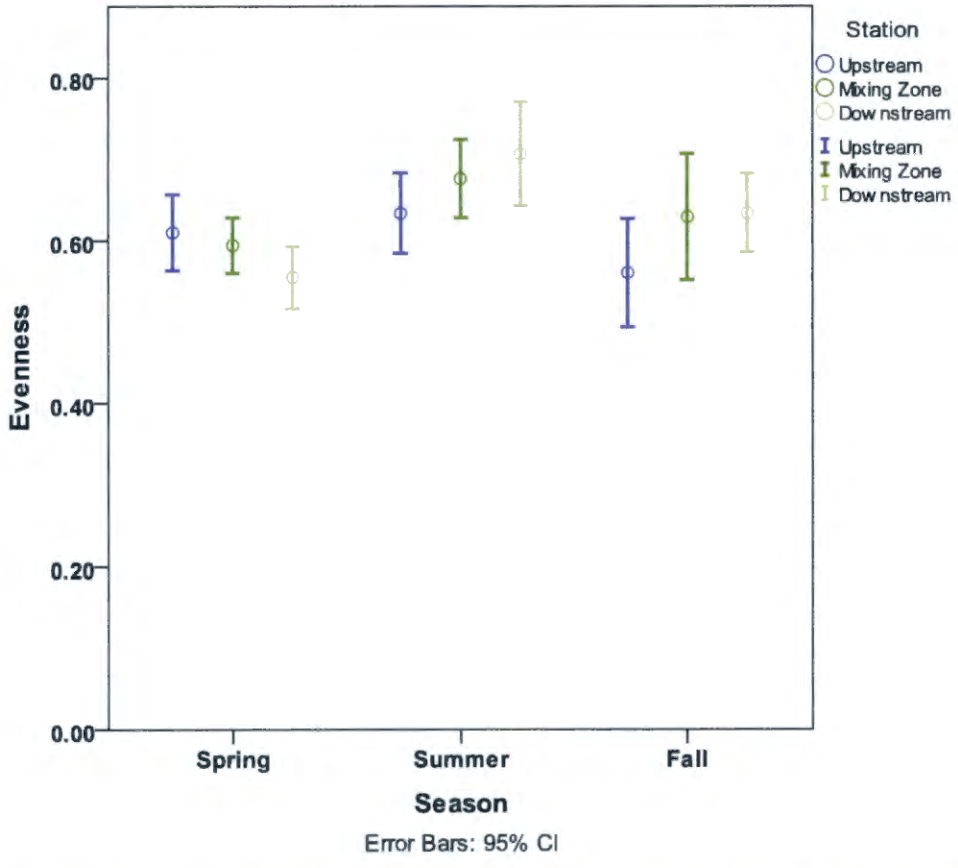

Figure 13. Error bar plot (95% CI) of Evenness per plate seasonally and by station. Each bar represents the individual plate samplers (n=7), except for the downstream station, fall deployment (n=6).

The HBI values indicate the pollution tolerance of the macroinvertebrate population, based on the taxa identified (Hilsenhoff, 1987). The HBI is sometimes used to evaluate thermal effects, although the metric was originally designed to evaluate organic pollution. The tolerance values used in the HBI calculation were taken from the North Carolina Department of Environment and Natural Resources (NCDENR) database (NCDENR, 2006). The 95% confidence interval for the average HBI per plate sampler at each station by season is presented in Figure 14. For each season, the HBI did not appreciably

decrease at the mixing zone and downstream stations when compared to the upstream control (Figure 14).

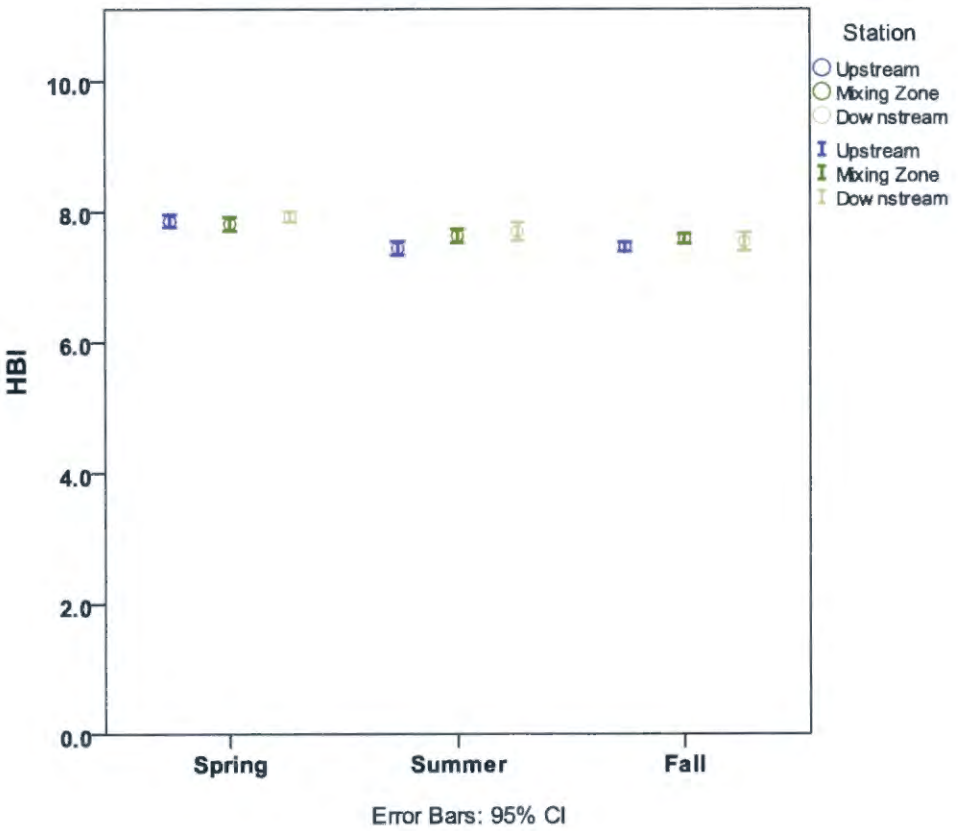

Figure 14. Error bar plot (95% CI) of the HBI seasonally and by station. Each bar represents the individual plate samplers (n=7), except for the downstream station, fall deployment (n=6).

3.3. Adult Fish

The adult fish sampling used boat electrofishing methods with 600 seconds of pedal time at each bank for the three stations. Both banks were sampled at each of the three stations. The metrics used to evaluate the adult fish community were the catch per unit effort

(CPUE), number of species, and relative abundance. Trophic classification and origin of the fish population collected will also be presented.

Table 4 summarizes the number of species collected and CPUE at each sampling station during each sampling event. The distribution of values for each of these metrics approaches a normal distribution. Therefore, it is appropriate to evaluate differences using a 95% confidence interval of the means between stations for each season (IBM 2010).

Table 4. The average number of species collected per bank and the average CPUE (number of fish collected per 600 seconds pedal time) for each of the three sampling events.

Deployment	Station	Average Number of Species	Average CPUE (# of fish collected per 600 seconds effort)
Spring	Upstream	6.5	109.4
	Mixing Zone	11.5	380.3
	Downstream	11.5	168.0
Summer	Upstream	10.0	103.5
	Mixing Zone	11.5	713.5
	Downstream	11.0	309.6
Fall	Upstream	13.0	263.5
	Mixing Zone	12.5	547.5
	Downstream	13.0	242.0

The average number of fish species collected per bank for all seasons did not decrease when compared to the upstream control (Figure 15). The average numbers of species per bank were among the highest in the thermal mixing zone and the downstream station. Within the upstream station, the number of species increased with season, from spring to fall.

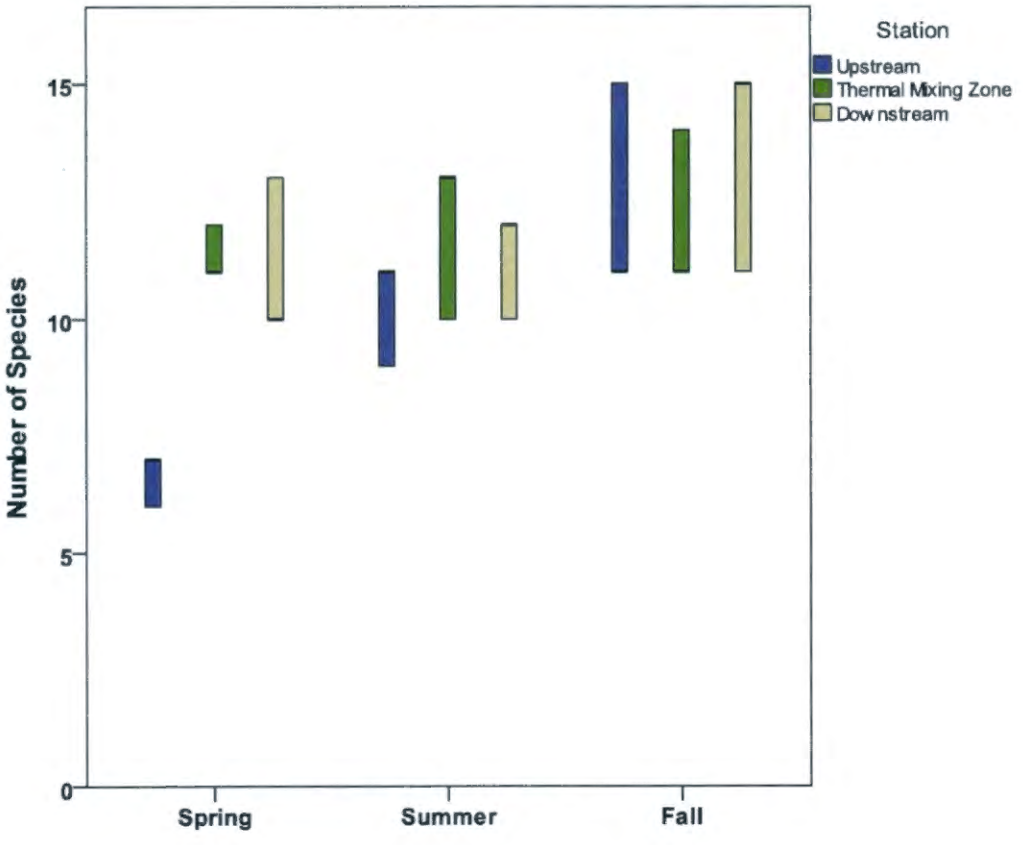

Figure 15. Boxplot for the range of fish species collected per bank seasonally and by station. Each box represents 2 electrofishing samples (n=2, left and right bank), for each station.

The CPUE for each season did not decrease when compared to the upstream control (Figure 16). The CPUE was among the highest in the thermal mixing zone for all seasons. The highest CPUE during the study occurred in the summer season at the thermal mixing zone station.

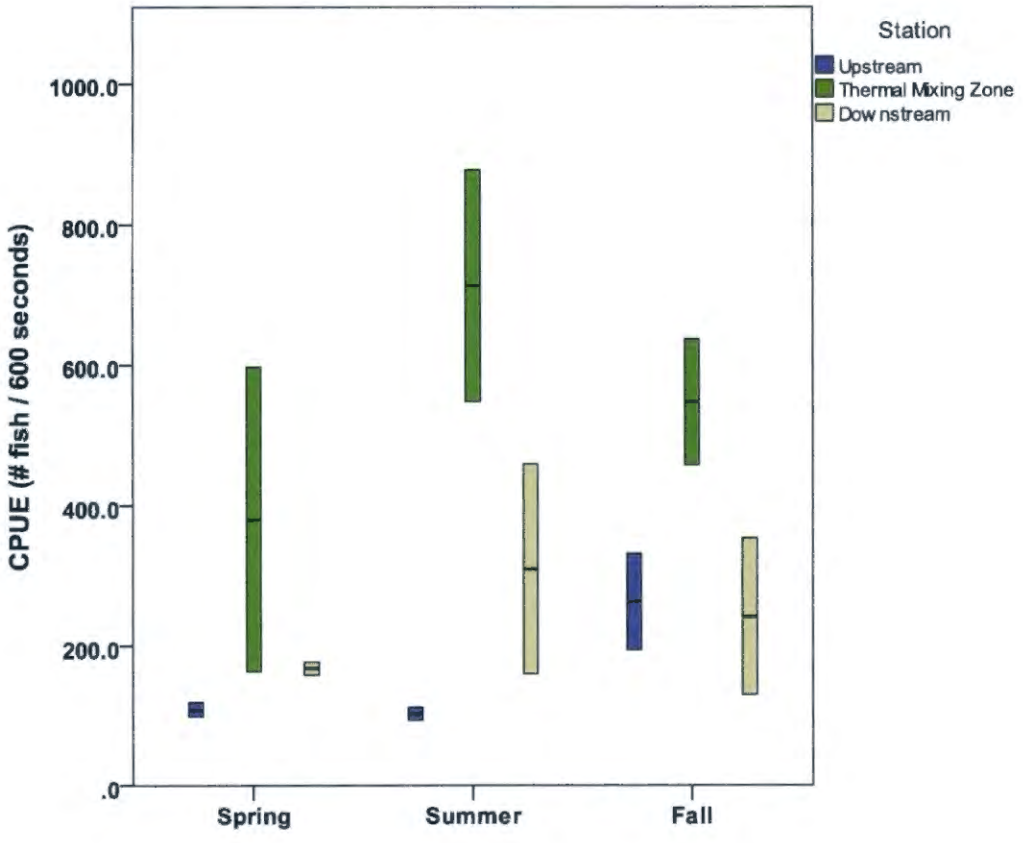

Figure 16. Boxplot of catch per unit effort (CPUE) per bank seasonally and by station. Each box represents 2 electrofishing samples (n=2, left and right bank), for each station.

The bluegill and redear sunfish populations are not decreasing in the mixing zone when compared to the upstream station. A general increase in both shad species occurred during the summer and fall at both heat affected stations (thermal mixing zone and downstream) (Figure 17). The species with the highest CPUE in the upstream zone during all seasons was bluegill. Gizzard shad recorded the highest CPUE in the thermal mixing zone for spring and summer; this species also had the highest CPUE values in the downstream station during the summer and fall seasons. Threadfin shad, gizzard shad, and bluegill were all comparably dominant in the mixing zone during the fall sampling. The higher CPUE of shad, gizzard and threadfin, in the mixing zone is probably due to the flow conditions and not temperature; shad are often attracted to areas with higher

flow or current, and the mixing zone is near the thermal discharge. As a result, the mixing zone has areas of higher currents than either the upstream or downstream zones.

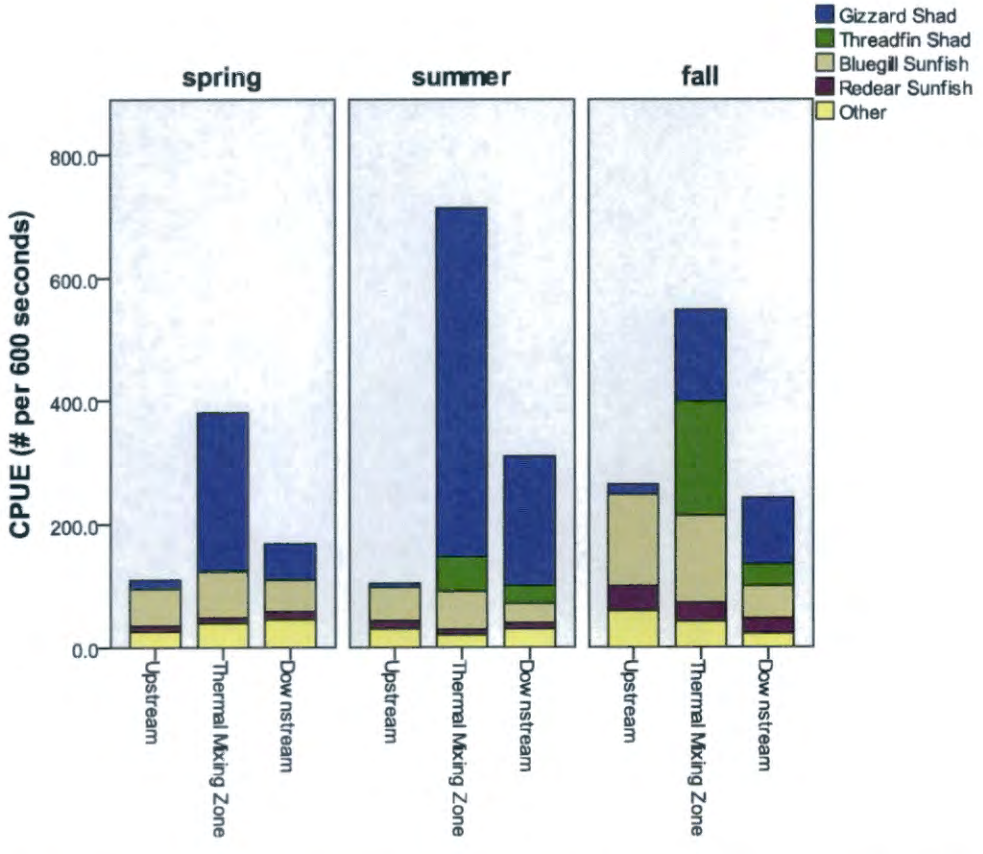

Figure 17. Stacked bar chart of CPUE (# per 600 seconds effort) results seasonally and by station for the individual species collected.

Relative abundance is a measure of species composition for a sampled fish population. Table 5 indicates the average relative abundance of each species as a percentage of the total sample collected within each station. The fish population for this study, including all stations and seasons, is composed of 28 species in 11 families. The two most

abundant species at the upstream station were bluegill and redear sunfish. However, gizzard shad and bluegill were the most abundant species in both the mixing and downstream zones. As previously mentioned, the change in abundance is not due to a decrease in the bluegill and redear sunfish populations, but an increase in gizzard and threadfin shad. The gizzard and threadfin shad populations increased in number and caused an overall increase in numbers at the mixing zone (Figure 17).

Table 5. The average relative abundance (%) for each station during the adult fish collection.

Family	Species	Relative Abundance (%)		
		Upstream	Thermal Mixing Zone	Downstream
Lepisosteidae, Gars	Spotted Gar	.4	.5	.8
	Longnose Gar	.6	.1	.1
Clupeidae, Herrings	Gizzard Shad	7.7	59.2	52.3
	Threadfin Shad	.0	14.7	8.9
Cyprinidae, Carps and Minnows	Emerald shiner	.2	.0	.0
	Silver chub	.0	.0	.1
	Common Carp	.3	.0	.0
	Blacktail shiner	.9	.4	2.6
	Golden Shiner	.0	.0	.9
Catostomidae, Suckers	Blacktail Redhorse	.2	.2	.1
	Spotted Sucker	.0	.2	.3
Ictaluridae, Bullhead Catfish	Channel Catfish	.9	.1	.4
	Flathead Catfish	.0	.0	.0
Fundulidae, Topminnows	Blackspotted Topminnow	.1	.0	.0
Atherinidae, Silversides	Brook Silverside	.0	.0	.1
Moronidae, Striped Basses	Hybrid Striped Bass	.0	.2	.0
	Striped Bass	.0	.0	.1
Centrarchidae, Sunfishes	Bluegill Sunfish	55.2	17.0	18.9
	Spotted Bass	6.5	.4	1.0
	Black Crappie	.3	.0	.1
	Redear Sunfish	13.1	3.0	6.4
	Largemouth Bass	6.3	2.1	5.8
	Green sunfish	1.4	.5	.3
	Warmouth	.0	.0	.1
	Longear Sunfish	5.4	.9	.5
	Orangespotted Sunfish	.0	.0	.0
Percidae, Perches and Darters	Mobile Logperch	.4	.1	.1
Sciaenidae, Drums	Freshwater Drum	.0	.2	.1
	TOTAL:	100.0	100.0	100.0

Seven dominant species, representing the family Clupeidae (herrings) and Centrarchidae (sunfishes), comprised over 86% of all fishes collected during all seasons and at all stations (Table 6). The most commonly collected species in the upstream control zone and the thermal mixing zone were bluegill (*Lepomis macrochirus*), redear sunfish

(*Lepomis microlophus*), and gizzard shad (*Dorosoma cepedianum*). The most abundant species collected in the downstream zone were gizzard shad, bluegill, and threadfin shad (*Dorosoma petenense*). Bluegill were one of the predominant species for every station and season.

Table 6. Relative abundance (%) of dominant adult fish species collected in 2010 study.

	Spring			Summer			Fall		
Species	Upstream	Mixing Zone	Downstream	Upstream	Mixing Zone	Downstream	Upstream	Mixing Zone	Downstream
Gizzard Shad	12.8	67.3	34.5	5.8	79.5	67.8	6.3	27.2	44.8
Threadfin Shad	0.0	0.3	0.6	0.0	7.9	9.2	0.0	33.8	14.3
Bluegill Sunfish	55.3	19.8	30.7	52.7	8.6	10.5	56.2	25.8	21.5
Redear Sunfish	8.2	2.6	7.4	12.6	1.3	2.8	15.4	5.6	10.3
Largemouth Bass	14.6	5.6	11.3	9.7	1.1	3.4	1.5	1.0	5.2
Spotted Bass	5.5	0.3	0.0	7.3	0.3	1.8	6.8	0.7	0.4
Longear Sunfish	2.3	0.5	1.5	4.4	0.2	0.2	7.0	2.0	0.2
Total	98.6	96.3	86.0	92.3	98.9	95.8	93.0	96.2	96.7

Table 7 lists the range of trophic levels (or feeding guilds) represented by the species collected from the adult fish study. Invertivores, insectivores, invertivore-piscivores, and algivore-herbivore-invertivore groups were all found among the species collected. Of the most commonly collected species, gizzard shad and threadfin shad are algivore-herbivore-invertivores; bluegill, redear sunfish, and longear sunfish are invertivores; spotted bass and largemouth bass are invertivore-piscivores. Figure 18 shows the trophic classification composition of the adult fish community by season within each station. There is a similar percentage distribution of trophic classification for each station irrespective of season.

The adult fish sampling resulted in the collection of one non-native species, common carp (*Cyprinus carpio*), and two introduced species, hybrid striped bass (*Morone chrysops* x

saxatilis) and striped bass (*M. saxatilis*) (Table 7). These three species were represented by only 11 fishes (0.2% of total number) collected in 2010.

Table 7. A list of species collected by electrofishing, indicating the trophic classification and origin.

Species	Trophic Level	Origin
Spotted Gar	invertivore-piscivore	native
Longnose Gar	invertivore-piscivore	native
Gizzard Shad	algivore-herbivore-invertivore	native
Threadfin Shad	algivore-herbivore-invertivore	native
Emerald shiner	insectivore	native
Silver chub	insectivore	native
Common Carp	invertivore	non-native
Blacktail shiner	invertivore	native
Golden Shiner	insectivore	native
Blacktail Redhorse	invertivore	native
Spotted Sucker	invertivore	native
Channel Catfish	invertivore	native
Flathead Catfish	invertivore-piscivore	native
Blackspotted Topminnow	invertivore	native
Brook Silverside	invertivore	native
Hybrid Striped Bass	invertivore-piscivore	introduced
Striped Bass	invertivore-piscivore	introduced
Bluegill Sunfish	invertivore	native
Spotted Bass	invertivore-piscivore	native
Black Crappie	invertivore-piscivore	native
Redear Sunfish	invertivore	native
Largemouth Bass	invertivore-piscivore	native
Green sunfish	invertivore-piscivore	native
Warmouth	invertivore-piscivore	native
Longear Sunfish	invertivore	native
Orangespotted Sunfish	invertivore	native
Mobile Logperch	insectivore	native
Freshwater Drum	invertivore	native

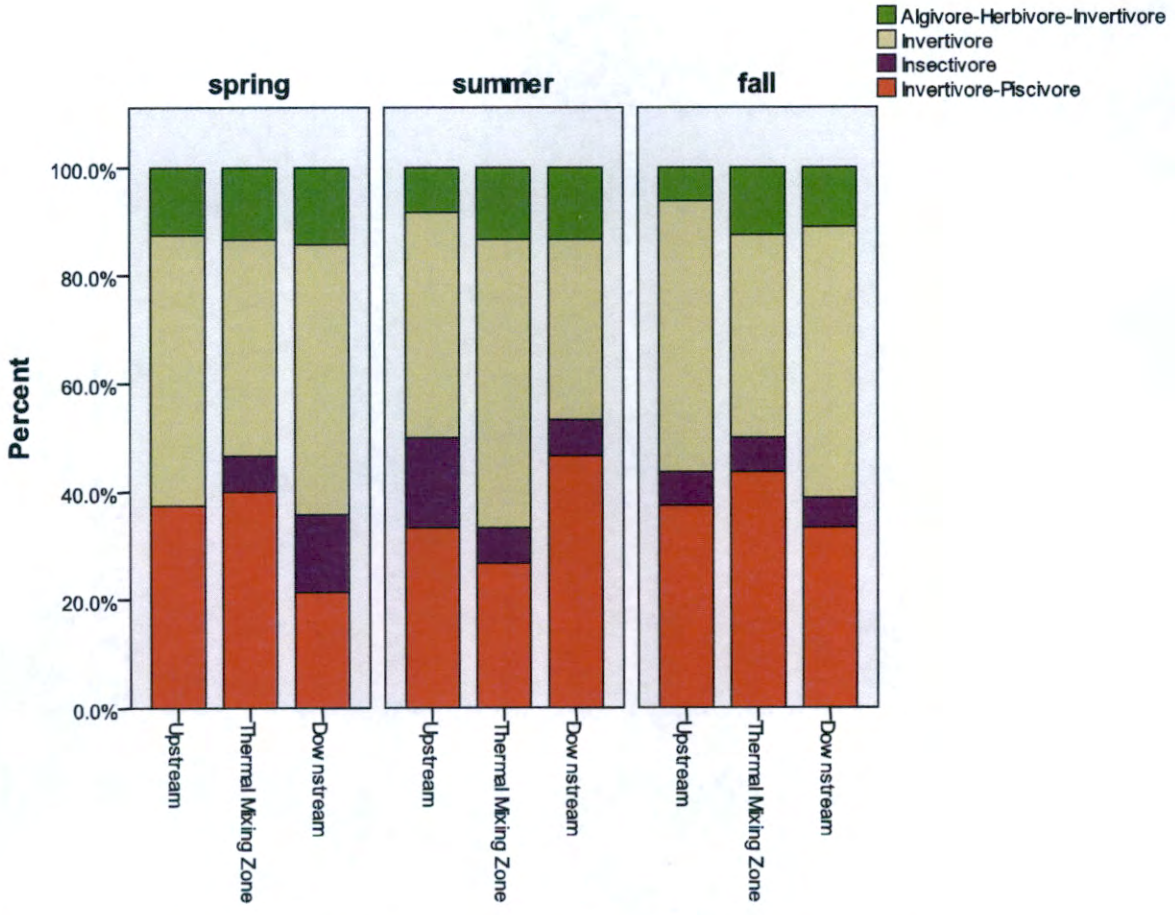

Figure 18. Trophic classification by season and station from 2010 electrofishing study.

3.4. Larval Fish

The larval fish sampling used plankton nets and filtered 100 cubic meters of water per net at each bank for the two stations. Two nets were used for sampling at each bank. Six sampling events occurred during the spring to target the fish spawning season. All QA/QC procedures were successfully performed. All taxanomic identification was performed by TetraTech, Inc.. The metrics used to evaluate the larval fish community were density (number of organisms collected per 100 cubic meters), total number of families, and relative abundance.

Table 8 shows the average density (no. of organisms per 100 m^3) as well as the average number of families identified at each sampling station during each collection date. The distribution of values for each of these metrics approaches a normal distribution. Therefore, it is appropriate to evaluate differences using a 95% confidence interval of the means between stations for each season (IBM 2010).

Table 8. The average larval fish density (# per 100 m^3) collected and the average number of families per plankton net for each of the six sampling events.

Date	Station	Average Density (# of organisms per 100 m^3)	Average # of Families per net
5-Apr-11	Upstream	8	1.5
	Downstream	3	1.7
18-Apr-11	Upstream	687	1.8
	Downstream	373	1.0
2-May-11	Upstream	138	1.8
	Downstream	162	1.0
18-May-11	Upstream	157	2.0
	Downstream	121	1.8
31-May-11	Upstream	18	1.5
	Downstream	144	2.0
14-Jun-11	Upstream	48	1.8
	Downstream	9	1.8

The 95% confidence interval of the average larval fish density and average number of families per net sample at each station for each of the 6 sample events is presented in Figure 19 and 20. The larval fish density for all sampling dates did not appreciably decrease when compared to the upstream control (Figure 19). The greatest densities of larval fish occurred during the second sampling event on April 18th. In addition, the number of families collected for all sampling dates did not appreciably decrease when compared to the upstream control (Figure 20).

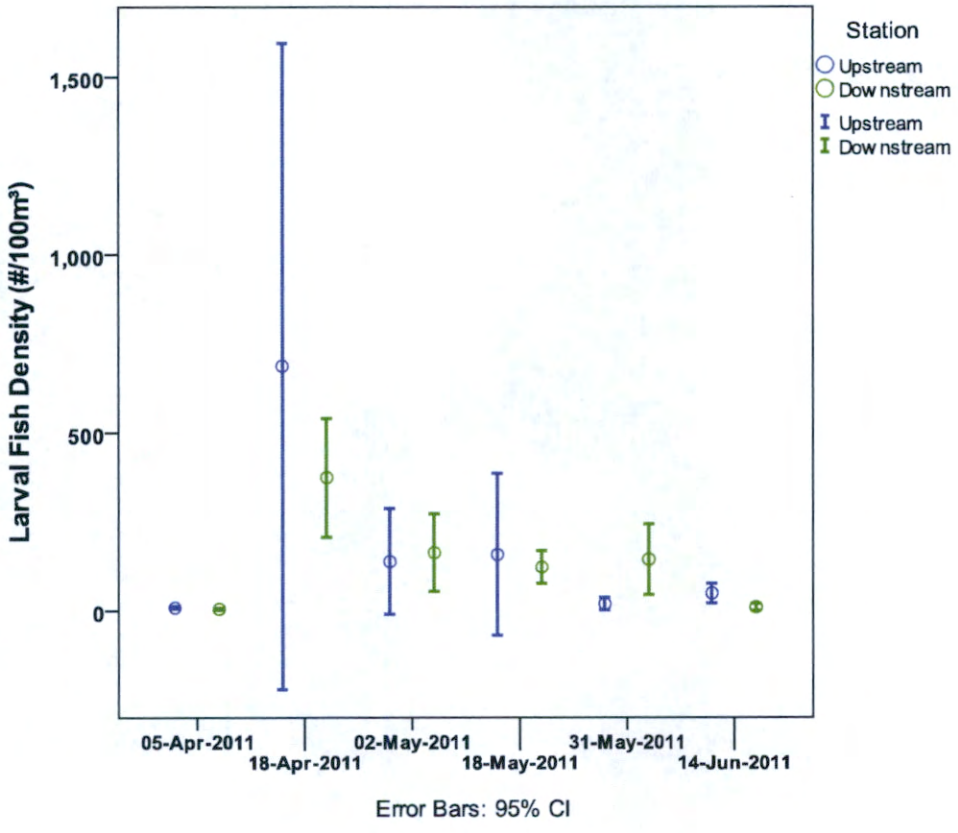

Figure 19. Error bar plot (95% CI) of larval fish density (# organisms per 100 m^3) by sample date and by station. Each bar represents the individual banks, left and right bank, with two nets used per sample (n=4), for each station.

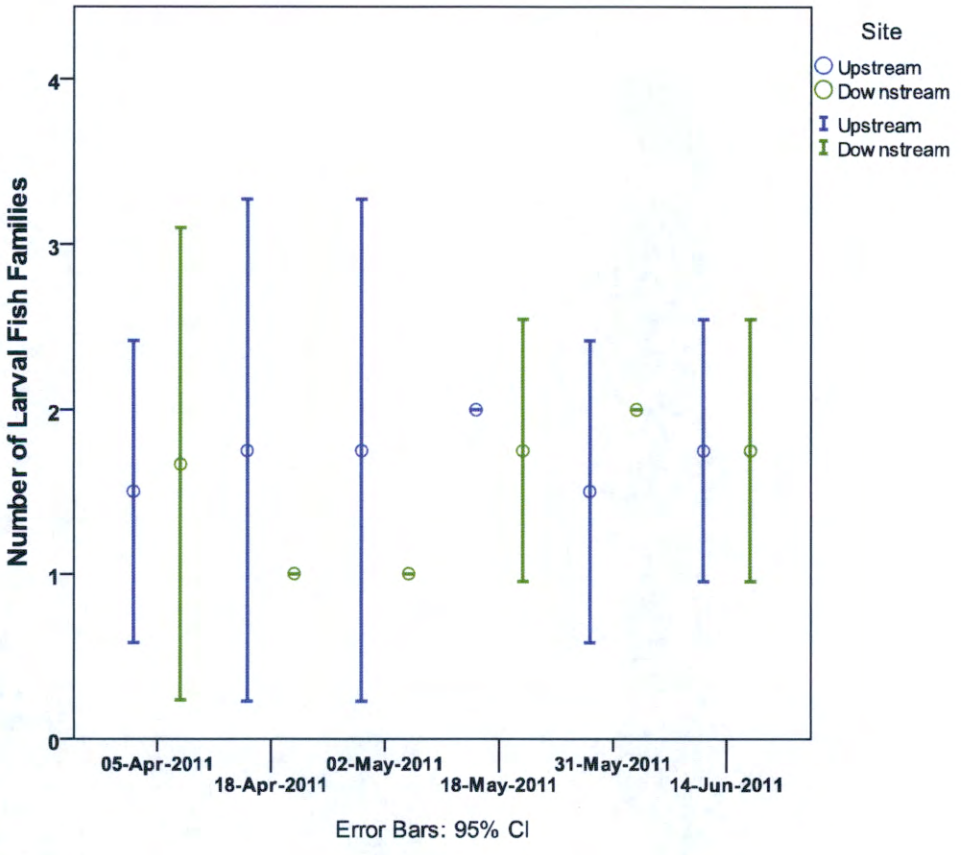

Figure 20. Error bar plot (95% CI) of the number of larval fish families collected by sample date and by station. Each bar represents the individual banks, left and right bank, with two nets used per sample (n=4), for each station.

There were five families collected during this larval fish study (Table 9). The families were Clupeidae (herrings), Centrarchidae (sunfishes), Catastomidae (suckers), Moronidae (striped bass), and Percidae (perches and darters). Two of those families, Clupeidae and Centrarchidae, accounted for the majority of the larval fish collected during the study period. These families consistently dominated the samples, regardless of sample date or station.

Table 9. Relative abundance (%) of larval fish families collected in the 2011 study.

	05-Apr-2011		18-Apr-2011		02-May-2011		18-May-2011		31-May-2011		14-Jun-2011	
Family	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
Clupeidae	75.0	44.4	99.4	100.0	98.9	100.0	91.4	91.8	25.9	94.4	9.8	31.3
Centrarchidae	12.5	55.6	.3	.0	.5	.0	8.6	8.2	74.1	5.6	90.2	68.8
Catastomidae	12.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Moronidae	.0	.0	.2	.0	.5	.0	.0	.0	.0	.0	.0	.0
Percidae	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The spawning peak for the fish population, based on the six sampling events, was likely mid- to late April (Table 8 and Figure 19). The April 18 samples yielded the greatest number and densities of larval fish. The family Clupeidae dominated this sample date at both the upstream and downstream stations.

The larval fish samples could only be identified to family level and, therefore, the abundance of non-indigenous species could not be evaluated directly. However, a comparison can be made between species found within these families during the adult fish sampling and the larval fish sampling. By inference between the adult fish community and larval fish community, the family Moronidae likely includes two introduced species: hybrid striped bass and striped bass.

3.5. Water Quality

A water quality assessment was included during each of the biological sampling events. This included water quality profiles (water temperature, dissolved oxygen, and conductivity) for the macroinvertebrate, adult fish, and larval fish studies. Additional water quality data were collected for the macroinvertebrate study which included water sampling and analysis for trace metals and nutrients. Thermistor results for all biological sampling events were included in Section 3.1.

Table 10 summarizes the water quality profile measurements performed at depths ranging from 0 (near surface) to 50 ft below water surface during macroinvertebrate sampler deployment and retrieval events. The dissolved oxygen and conductivity measured show similar values across stations. Both sets of water quality parameters were not observed to appreciably increase or decrease when compared to the upstream station. These results indicate that dissolved oxygen or conductivity would not affect the macroinvertebrate population between stations.

Table 10. Summary of water quality profile data measured during the plate deployment and retrieval for macroinvertebrate collection in 2010. Profiles were performed at the deepest point near each station. Measurements were taken at 0, 1, 3, 5, 10, 15, 20, 25, and 30 ft depths, continuing in 10 ft intervals, if necessary.

2010	Parameters	Upstream Control Zone			Thermal Mixing Zone			Downstream Recovery		
		Minimum	Mean	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Maximum
May 10	Temperature	73.2	73.4	73.6	72.7	74.1	75.7	71.4	72.3	72.9
	Dissolved oxygen	6.51	6.62	6.84	6.62	6.74	6.92	6.50	6.81	7.06
	Conductivity	157	157	159	145	147	149	170	171	172
June 7	Temperature	78.1	78.6	79.3	80.8	81.5	81.9	80.6	81.3	82.2
	Dissolved oxygen	5.17	5.60	6.23	5.34	5.73	5.97	6.08	6.89	7.71
	Conductivity	144	144	144	164	164	165	149	149	150
July 6	Temperature	84.2	84.6	85.3	87.1	88.0	89.1	87.4	88.2	89.1
	Dissolved oxygen	5.18	5.62	6.29	4.63	5.70	6.75	3.74	5.47	6.95
	Conductivity	172	172	172	183	184	188	189	191	193
Aug 2	Temperature	88.0	88.9	90.9	89.6	91.4	94.6	90.3	90.9	92.3
	Dissolved oxygen	3.73	4.49	5.60	3.34	3.77	4.60	4.30	5.34	6.14
	Conductivity	179	180	180	222	232	237	194	195	195
30	Temperature	85.4	85.6	85.7	87.1	88.4	89.5	86.5	87.1	87.4
	Dissolved oxygen	3.11	3.13	3.17	3.07	3.47	3.81	3.60	3.90	4.23
	Conductivity	281	289	293	254	263	270	229	230	231
Sept 27	Temperature	80.5	81.0	81.2	83.9	85.4	86.3	82.7	83.7	84.3
	Dissolved oxygen	4.15	4.19	4.22	4.78	5.13	5.39	5.21	5.45	5.62
	Conductivity	263	263	264	233	237	258	236	236	236

Water samples were taken during each macroinvertebrate plate deployment and retrieval events and submitted for analysis at the APC General Test Laboratory. Table 11 shows the summary of laboratory results for priority pollutant metal concentrations. Table 12

shows the summary of laboratory results for nutrient concentrations. These measurements were collected at the 5 ft depth where the macroinvertebrate plate samplers were deployed. The priority pollutant metal concentrations do not exceed any state or federal in-stream chronic or acute toxicity water quality standards for each station and for all seasons. The Coosa River basin, including Lay Lake, has a total maximum daily load (TMDL) established for total phosphorus (ADEM 2008). The Coosa River in the vicinity of Plant Gaston is considered impaired and ADEM has identified organic enrichment and nutrient loading as the potential cause. The chlorophyll *a* target for Lay Lake is 17.0 ug/L.

Table 11. Summary of water sampling analysis results for priority pollutant metals from the macroinvertebrate plate deployment and retrieval events for each station (n=6). Samples were collected from a depth of 5 feet.

Metals	Upstream			Mixing Zone			Downstream		
	Minimum	Mean	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Maximum
Antimony, Total (mg/l)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Arsenic, Total (mg/l)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Beryllium, Total (mg/l)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium, Total (mg/l)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium, Total (mg/l)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper, Total (mg/l)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Lead, Total (mg/l)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury, Total (ng/l)*	<1.4	4	12	<1.4	2	5	<1.4	3	9
Nickel, Total (mg/l)	<0.001	.002	.004	<0.001	<0.001	.004	<0.001	<0.001	<0.001
Selenium, Total (mg/l)	<0.005	<0.005	.008	<0.005	<0.005	.008	<0.005	<0.005	<0.005
Silver, Total (mg/l)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thallium, Total (mg/l)	<0.002	.003	.005	<0.002	.003	.005	<0.002	.003	.004
Zinc, Total (mg/l)	<0.005	.011	.025	<0.005	.012	.028	<0.005	.009	.013

* EPA Method 245.7

Table 12. Summary of water sampling analysis results for chlorophyll, nitrogen, and phosphorus for the macroinvertebrate plate deployment and retrieval events for each station (n=6). Samples were collected from a depth of 5 feet.

Metals	Upstream			Mixing Zone			Downstream		
	Minimum	Mean	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Maximum
Chlorophyll A, Spectro, Correctd (ug/l)	9.200	14.935	24.960	7.700	14.943	24.210	9.270	17.610	25.970
Nitrogen, Nitrite + Nitrate (mg/l)	.040	.148	.290	.050	.135	.230	.050	.118	.220
Phosphorus, Orthophosphate (mg/l)	<0.010	.023	.040	<0.010	.024	.040	<0.010	.023	.040
Phosphorus, Total (mg/l)	.040	.051	.063	.050	.052	.060	.040	.047	.050

Table 13 summarizes the water quality profile data measured during the adult fish collection events. Table 14 summarizes the water quality profile data measured during the larval fish collection events in April, May and June. For the adult fish and larval fish profiles, both dissolved oxygen and conductivity had similar readings during each measurement date, regardless of station. Dissolved oxygen concentrations decreased slightly with sampling period, which is expected due to increasing temperatures. Conductivity also showed a slight increase with each sampling period. Normal seasonal changes would explain these trends with sampling period.

The dissolved oxygen and conductivity measured show similar values across stations. Both sets of water quality parameters were not observed to significantly increase or decrease when compared to the upstream station. For the adult fish and larval fish water quality profiles, the results indicate that dissolved oxygen and conductivity would not affect either adult fish or larval fish populations between stations.

Table 13. Summary of water quality profile data measured during the adult fish collection events in 2010. Profiles were performed at the deepest point near each station. Measurements were taken at 0, 1, 3, 5, 10, 15, 20, 25, and 30 ft depths, continuing in 10 ft intervals, if necessary.

2010	Parameters	Upstream Control			Thermal Mixing Zone			Downstream Recovery		
		Minimum	Mean	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Maximum
June 22	Temperature	83.7	85.6	89.6	85.5	90.0	90.7	86.9	87.8	88.5
	Dissolved oxygen	4.76	6.74	9.63	4.72	5.27	5.38	5.12	5.41	5.81
	Conductivity	149	161	171	145	146	146	147	149	151
Aug 9	Temperature	87.6	87.8	87.8	88.0	88.9	89.8	89.2	90.0	91.6
	Dissolved oxygen	3.36	3.47	3.59	3.39	4.01	4.49	3.11	4.67	6.56
	Conductivity	188	188	188	191	192	193	193	195	197
Oct 5	Temperature	74.4	74.9	75.3	74.7	76.2	77.9	75.8	76.1	76.2
	Dissolved oxygen	6.38	7.11	8.61	6.02	6.71	7.47	6.02	6.16	6.27
	Conductivity	213	216	222	225	230	235	242	242	243

Table 14. Summary of water quality profile data measured during the six larval fish sampling events in 2011. Profiles were performed at the deepest point near each station. Measurements were taken at 0, 1, 3, 5, 10, 15, 20, 25, and 30 ft depths, continuing in 10 ft intervals, if necessary.

2011	Parameters	Upstream Control Zone			Downstream Recovery Zone		
		Minimum	Mean	Maximum	Minimum	Mean	Maximum
April 5	Temperature	76.6	76.6	76.6	77.1	77.3	77.4
	Dissolved oxygen	8.46	8.54	8.61	8.61	8.66	8.71
	Conductivity	126	126	126	135	135	135
18	Temperature	81.6	81.6	81.6	81.9	82.0	82.1
	Dissolved oxygen	7.57	7.59	7.64	7.58	7.60	7.63
	Conductivity	129	130	130	128	128	129
May 2	Temperature	71.8	72.0	72.5	72.6	73.4	74.0
	Dissolved oxygen	6.58	6.94	7.56	7.44	7.87	8.11
	Conductivity	133	133	133	135	141	148
18	Temperature	69.2	69.7	70.4	70.4	71.6	72.7
	Dissolved oxygen	5.41	5.65	6.08	5.50	5.81	6.15
	Conductivity	159	160	162	152	153	153
31	Temperature	77.5	77.8	78.8	78.8	80.1	82.8
	Dissolved oxygen	7.17	7.58	8.38	7.15	7.95	8.92
	Conductivity	150	153	156	165	175	185
June 14	Temperature	83.7	86.7	89.0	86.7	88.8	91.8
	Dissolved oxygen	5.32	8.51	9.86	4.68	7.04	9.38
	Conductivity	170	172	173	171	175	186

3.6. Thermodynamic Modeling

The EFDC thermodynamic model was developed using flow, stage, and water temperature monitoring data. The model also used extensive bathymetry data and meteorological data. The Lay Lake thermodynamic model was calibrated based on a measurement period from July to September 2010. Plant Gaston is situated on the Coosa River, with this section a part of Lay Lake or Lay Reservoir, and located approximately halfway between Logan Martin and Lay Dam.

The final model grid contains 7,056 horizontal cells and 8 vertical layers. There were over 300,000 temperature measurements collected from APC temperature monitoring and USGS stream measurements used in the model calibration. Approximately 13,000 water level measurements were collected for use in the model calibration. 600 flow measurements using ADCP methods were collected and used in the model calibration. Also, three gauged stations measured flow from major tributaries into the Coosa River and included over 6,000 measurements for use in model calibration. The calibration results for stage or water level, in-reservoir flows, and water temperature were completed and the report is presented in the Appendix. The results indicate this initial model can predict water level and flow with reasonable accuracy.

The thermal component of the modeling effort was calibrated using stationary continuous monitors and a series of vertical profiles. The root-mean-square error (RMSE) comparing modeled and observed water temperatures are less than 0.980° C. The RMSE for two mixing zone stations ranged from 0.658 to 0.789° C using 4,473 and 3,496 data pairs, respectively.

The primary factors affecting the thermal loading to the Coosa River in the vicinity of Plant Gaston are the plant load, Logan Martin and Lay Dam releases, and the resulting seiche effect. The seiche will cause temporary reverse flow conditions in the river; however, the effects of the thermal discharge do not reach the upstream control station. This lack of positive flow in the mixing zone can result in the heat load building up in the vicinity of Plant Gaston.

4. DISCUSSION

The results of the macroinvertebrate, adult fish, and larval fish community evaluations in both the heat affected and unaffected areas of the Coosa River show that a BIP has been maintained in the Coosa River in the vicinity of Plant Gaston. The macroinvertebrate results using the number of taxa and EPT taxa, relative abundance, and other metrics show no difference in the heat affected areas when compared to unaffected areas. The number of organisms did show a difference in the mixing zone during fall; however, the number of organisms in the downstream station returned to upstream levels, indicating no appreciable harm. The adult fish results using the CPUE, number of taxa, and relative abundance show no difference in the heat affected areas when compared to the unaffected areas. The larval fish results using the number of organisms, number of taxa, and relative abundance show no difference in the heat affected areas when compared to unaffected areas. For all communities, there was no shift to either a more pollution-tolerant species or non-indigenous species. There were no differences in water quality between the stations and, therefore, was not a confounding factor in evaluating the communities. In addition, river flow and plant operations were consistent with previous years, whereas, the water temperatures were above average. Thus, the results for the three biological studies reflected normal conditions with Plant Gaston operating under a §316a variance.

4.1. Macroinvertebrates

Results of the macroinvertebrate study performed in 2010 indicate that the thermal discharge from Plant Gaston has caused no appreciable harm to the BIP of the macroinvertebrate community in the Coosa River, as outlined in the sections below. Macroinvertebrates from the heat affected areas of the river were diverse, sustained

through cyclic seasonal changes, sufficient in numbers to support the food chain, and not dominated by pollution-tolerant species, when compared to heat unaffected areas of the river. There was no evidence of diminishing indigenous macroinvertebrate populations. Finally, water quality of the Coosa River in the vicinity of Plant Gaston was typical for operations under the present thermal variance.

4.1.1. Macroinvertebrates: Diversity

Diversity was evaluated by number of taxa or species richness, Shannon-Weaver diversity index, and evenness of the biological community. The simplest measure of diversity is the species richness. A slight decrease in taxa from the upstream to downstream for the spring deployment indicates a negative response in the thermally affected areas, although the warmer summer and fall seasons do not show a similar decrease (Figure 10). The more robust measure of diversity, the Shannon-Weaver diversity index, indicates that the macroinvertebrate community was equally diverse throughout the study area (Figure 12). Similarly, evenness values indicate a moderately diverse community throughout the study area, with no discernible negative effect due to the thermal discharge from Plant Gaston (Figure 13). Therefore, these diversity metrics indicate that the macroinvertebrates were diverse throughout the heat affected areas of the river.

4.1.2. Macroinvertebrates: Cyclic Seasonal Changes

The number of macroinvertebrate organisms collected at each station by season (Figure 9) is highly variable. The second deployment period (July 6-Aug 2) had the highest water temperatures measured for the year, yet the heat affected mixing zone and downstream stations show some of the highest macroinvertebrate densities of all

deployments. Only during the fall, when temperatures were lower, was a statistically significant difference between the number of individuals in the mixing zone and the upstream station observed (Figure 9). It is difficult to ascertain seasonal effects on the macroinvertebrate populations due to life history changes, which are also seasonal. In addition, given that the thermal discharge variance has been in effect prior to 2010, the higher density during the spring and summer compared to the fall indicate that the normal cyclic seasonal changes did occur. An evaluation of the remaining metrics (Figures 10-13) reveals that the same general cyclical seasonal pattern exhibited at the upstream station was repeated at the mixing zone and downstream stations. Therefore, based on the majority of metrics evaluated, the Coosa River in the vicinity of Plant Gaston demonstrated sustainability of the macroinvertebrate community through seasonal changes.

4.1.3. Macroinvertebrates: Presence of Food Chain Species

Based on diversity and seasonal sustainability, the macroinvertebrate community was present in sufficient numbers to support the food chain in the Coosa River near Plant Gaston. There was no evidence that higher trophic levels were impacted by the decrease in macroinvertebrates during the fall in the vicinity of the mixing zone. Therefore, the macroinvertebrate population in the study area was sufficiently present as a necessary food chain component.

4.1.4. Macroinvertebrates: Pollution-Tolerant Species

There was no substantial increase or domination of pollution-tolerant species within the macroinvertebrate community. Based on EPT taxa, there was no significant difference in number of EPT taxa between the heat affected and unaffected stations on the Coosa River

(Figure 11). Also, the same predominant genera collectively dominated the sample collections consistently throughout the study area (Table 2). In addition, the HBI values (Figure 14) did not change significantly between the mixing zone or downstream when compared to the upstream control station. The HBI values are consistent with an impacted waterbody due to organic pollution, as Lay Lake is listed as impaired due to organic enrichment and nutrient loading. Although HBI values indicate that the Coosa River is impaired for organic enrichment and nutrients, there was no pronounced shift to a more pollution-tolerant community in the vicinity of the thermal discharge.

4.1.5. Macroinvertebrates: Indigenous Species

The community structure of the macroinvertebrate fauna did not appreciably change during this study across station or season. It is assumed that all taxa collected are native to the Coosa River basin, with the exception of *Corbicula*, of which a total of 10 individuals were found. The greatest abundance of *Corbicula* collected was during the first deployment at the upstream control station (0.3%). The macroinvertebrate fauna collected from the multiplate samplers were no different in the vicinity of the thermal discharge when compared to the heat unaffected areas (Table 2). There is no evidence to suggest that indigenous species are diminishing or being replaced by non-native or exotic species due to effects of the thermal discharge.

4.1.6. Macroinvertebrates: Representative Important Species

An analysis of representative important species for aquatic macroinvertebrates is not applicable.

4.1.7. Macroinvertebrates: Water Quality

Dissolved oxygen and conductivity showed ranges typical of Coosa River warm season conditions. While the macroinvertebrate plate samplers were deployed, they were exposed to temperatures that were relatively cool in the spring, at the thermal variance limit during the summer and cooler temperatures during the fall (Figure 4). The water quality sampling results indicated no acute or chronic toxicity criteria were exceeded for metals. Also, the nutrient sampling results were consistent with an organically enriched water body with a total phosphorus TMDL (ADEM 2008). The sediment data indicated that the degree and type of sedimentation was similar across station and season (Figures 7 and 8). Dissolved oxygen and conductivity were also similar across stations. Water quality sampling and monitoring for this study demonstrates typical concentrations and conditions and does not show substantial changes across station for each season.

4.2. Adult Fish

Results of the adult fish study performed in 2010 indicate that the thermal discharge from Plant Gaston has caused no appreciable harm to the BIP of the adult fish community in the Coosa River, as outlined in the sections below. Adult fish populations from the heat affected areas of the river were diverse, sustained through cyclic seasonal changes, sufficiently present as a part of the food chain, and not dominated by pollution-tolerant or non-indigenous species. No threatened or endangered species were collected in this study. In addition, representative important species, such as recreational or commercial species, were not appreciably different in heat affected areas when compared to heat unaffected areas. Finally, water quality of the Coosa River in the vicinity of Plant Gaston was typical for operations under the present thermal variance.

4.2.1. Adult Fish: Diversity

Diversity was evaluated by number of species, relative abundance, and CPUE for the adult fish population. The number of species did not decrease in the thermally affected areas when compared to the upstream control (Figure 15). In fact, the species count either increased or remained the same from the upstream control to the thermal mixing zone. The CPUE was higher in the thermal mixing zone than the upstream control and downstream zone (Figures 16 and 17). The dominant taxa were largely the same at all stations and the number of taxa was similar at all stations (Table 6). The diversity indicators, number of species, species composition, and CPUE of the adult fish community, demonstrated no appreciable differences at the heat-affected mixing zone and downstream station when compared to the upstream control station. Therefore, the diversity metrics indicate that the adult fish community was diverse throughout the heat affected areas of the river.

4.2.2. Adult Fish: Cyclic Seasonal Changes

The number of species did not decrease from spring through fall (Figure 15). The CPUE in the thermal mixing zone increased from the spring to summer collection with the fall showing an increase when compared to the spring (Figure 16). In addition, the dominant species did not substantially change from season to season, either in the mixing zone or within the upstream and downstream stations (Table 6). Therefore, the Coosa River in the vicinity of Plant Gaston demonstrates sustainability of the adult fish community through seasonal changes.

4.2.3. Adult Fish: Presence of Food Chain Species

Based on species count and CPUE numbers across seasons, the adult fish community is present in sufficient numbers to support the food chain of the Coosa River. As the adult

fish community is the top trophic position in the Coosa River, the trophic level or feeding guild among the collected population was evaluated. All sample stations, including the thermal mixing zone, had an equally diverse range of trophic levels (Table 7 and Figure 18). These trophic levels were well represented by invertivores, piscivores, and insectivores, with a smaller segment of algivore-herbivore-invertivores. Seasonal changes to the trophic level composition were minimal. There was no evidence of appreciable differences in the trophic guild composition of the adult fish community in the thermal mixing zone when compared to the upstream control or downstream recovery stations. The adult fish population in the study area was sufficiently present with a variety of trophic levels to function as a necessary part of the food chain.

4.2.4. Adult Fish: Pollution-Tolerant Species

There was no change or domination to species of any type, including pollution-tolerant species, in the heat affected mixing zone and downstream station when compared to the upstream station. Pollution-tolerance classifications were only available for a small fraction of the fish species collected during this study (O'Neil and Shepard 2010). The available data classified the fish collected during this study as either 'tolerant' or no classification determined. Two of the dominant species identified at all stations and seasons, bluegill and gizzard shad, are both classified as pollution-tolerant. By using available but incomplete classification data, no change to a more pollution-tolerant species between stations or seasons is determinable. However, as additional supporting evidence, the relative abundance (Table 5) and dominant species data (Table 6) was used to show no substantial change in the species composition at the thermal mixing zone.

Therefore, there was not a shift toward a more pollution-tolerant community in the heat affected areas of the Coosa River.

4.2.5. Adult Fish: Indigenous Species

The adult fish community structure is not substantially different in the immediate vicinity of the thermal discharge with regard to the number of non-indigenous species. Of the 28 species collected, 27 species were classified as indigenous. The adult fish sampling study resulted in collection of two introduced and one non-indigenous species: hybrid striped bass (*Morone chrysops* x *saxatilis*), striped bass (*M. saxatilis*), and common carp (*Cyprinus carpio*). The hybrid striped bass and striped bass fell under the definition of "indigenous" as clarified in the Code of Federal Regulations, as they were introduced into the system "in connection with a program of wildlife management". Common carp, which are classified as "exotic" by O'Neil and Shepard (2010), have become widely introduced into aquatic systems throughout the state, and have become successfully established here (Mettee et al., 1996). For the entire 2010 study, one common carp was collected in the mixing zone during the summer, and three individuals were collected in the upstream station during the fall. Therefore, the Coosa River in the vicinity of Plant Gaston was dominated by indigenous adult fish species in both the heat affected and heat unaffected areas.

4.2.6. Adult Fish: Representative Important Species

For the purposes of this discussion, fish classified as representative important species are recreationally or commercially important or threatened or endangered species. The majority of adult fish species collected during this study are considered important for

either sportfishing (largemouth bass, spotted bass, black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochirus*), and channel catfish (*Ictalurus punctatus*)) or commercial fishing (freshwater drum (*Aplodinotus grunniens*) and channel catfish). Most of the sportfishing species were collected from all three sample stations, including the thermal mixing zone (Table 5). Freshwater drum was not collected from the upstream control zone, but it was present in the thermal mixing zone and the downstream recovery zone.

From an ADCNR (2008) report, the largemouth bass and spotted bass fishery in Lay Lake is considered outstanding. This most recent adult fish sampling by ADCNR included electrofishing collection at locations downstream of Plant Gaston. Lay Lake has been sampled and monitored by the ADCNR since 1984 and it continues to provide a very high-quality bass fishery.

No federally or state listed species are believed to reside in the immediate vicinity of the thermal discharge. No federally or state listed species were collected during this study. There was one species, striped bass, with a conservation status of "moderate concern", collected in the study area. For the entire 2010 study, one striped bass was collected in the downstream recovery zone during the fall.

4.2.7. Adult Fish: Water Quality

Dissolved oxygen and conductivity showed ranges typical of Coosa River warm season conditions. For the adult fish collection, the adult fish were exposed to temperatures that were relatively cool in the spring to much warmer water temperatures at the thermal variance limit in the summer and fall (Figure 4 and 5). Dissolved oxygen and conductivity were similar across stations. Water quality monitoring for this study

demonstrated typical conditions and did not show substantial changes across station for each season.

4.3. Larval Fish

Results of the larval fish study performed in 2011 indicate that the thermal discharge from Plant Gaston continues to cause no appreciable harm to the BIP of the larval fish community in the Coosa River, as outlined in the sections below. Larval fish populations from the heat affected areas of the river were diverse, sustained through cyclic seasonal changes, sufficiently present as a part of the food chain, and not dominated by pollution-tolerant or non-indigenous species. In addition, representative important species, such as for recreational and commercial use, were not appreciably different in the heat affected areas when compared to heat unaffected areas. Finally, water quality of the Coosa River in the vicinity of Plant Gaston was typical for operations under the present thermal variance.

4.3.1. Larval Fish: Diversity

Diversity was evaluated by number of families and relative abundance for the larval fish community. The number of families did not decrease in the thermally affected areas when compared to the upstream control (Figure 20). The most commonly collected families identified in the study, Clupeidae and Centrarchidea, did not change in the heat affected areas and were very similar to the upstream control stations (Table 9). These dominant families were the same at all stations and the number of number of families were similar at all stations. Therefore, the number of families and family composition of

the larval fish community, demonstrated no appreciable differences at the heat affected downstream station when compared to the upstream control station.

4.3.2. Larval Fish: Cyclic Seasonal Changes

The Coosa River is a large southeastern riverine ecosystem and larval fish generally experience peak fish spawning during the spring. The density of larval fish is greatest during this time of the year. The number of families did not decrease from the April to June sampling (Figure 20). In addition, the dominant families did not change over the course of the sampling period (Table 9). Therefore, the Coosa River in the vicinity of Plant Gaston demonstrated sustainability of the larval fish community for the seasons sampled.

4.3.3. Larval Fish: Presence of Food Chain Species

The presence of larval fish in the Coosa River is dependent on season and conditions optimal for fish spawning. As such, larval fish functioning as a food chain species will occur only in the spring season. During the spring sampling period, the larval fish community was present in sufficient numbers to support the food chain in and around the Coosa River. The larval fish population functions as a necessary part of the food chain.

4.3.4. Larval Fish: Pollution-Tolerant Species

The larval fish samples were identified to the family level only, so it was not possible to draw definitive conclusions about species-level differences. However, it would appear that there is no shift to a different community composition in the heat affected areas when compared to the upstream control. The relative abundance of the larval fish families was not appreciably different between stations or sampling periods (Table 9). Therefore,

there was no change or domination of any family in the heat affected station when compared to the heat unaffected station.

4.3.5. Larval Fish: Indigenous Species

There was no appreciable difference in the structure of the larval fish community in the heat affected and heat unaffected areas of the Coosa River. Larval fish samples were identified to the family level only, so it was not possible to draw definitive conclusions about indigenous species. There was no family present from the larval fish study which includes non-indigenous species (Table 9). Common carp was the only non-indigenous species identified in the adult fish study (Table 7); this species is part of the Cyprinidae family and was not found in the larval fish study. Therefore, based on available larval fish data, the Coosa River in the vicinity of Plant Gaston was likely dominated by indigenous larval fish species in both the heat affected and heat unaffected areas.

4.3.6. Larval Fish: Representative Important Species

The identification of larval fish was only to family level and this discussion is based on the presumption that the species found for a specific family identified is similar to the adult fish composition. One of the larval fish families, Centrarchidae, includes species considered important for sportfishing (largemouth bass, spotted bass, bluegill, and black crappie). The family Centrarchidae was collected at each sampling event and was present at only two stations during the sampling period (Table 9). Centrarchidae was not collected at the downstream station for both the April 18 and May 2 sample events. However, the relative abundance of Centrarchidae at the upstream station was also very limited with only 0.32% and 0.53% of the total catch for the same dates, indicating no appreciable changes for this family in the larval fish community.

No federally or state listed species are believed to reside in the immediate vicinity of the thermal discharge. Due to family level identification, no federally or state listed species were identified during this study.

4.3.7. Larval Fish: Water Quality

Dissolved oxygen and conductivity showed ranges typical of Coosa River in the spring. The larval fish sampling was conducted during the spring when the water temperatures are moderate in comparison to the summer conditions (Figure 5). Dissolved oxygen and conductivity were similar across stations. Water quality monitoring for this study demonstrated typical conditions and did not show substantial changes across station for each season.

5. CONCLUSIONS

The results of the two-year study in 2010 and 2011 of the macroinvertebrate, adult fish, and larval fish communities demonstrated that the thermal variance issued to Plant Gaston continues to assure the protection and propagation of the BIP of the Coosa River. Seven criteria evaluated in this study were taken from the U.S. EPA's definition of a BIP and were derived from 40 CFR 125.71 (c).

The macroinvertebrates, adult fish, and larval fish study results were evaluated individually using the EPA criteria for a BIP. The analysis of the study results which supports each of the definition criteria is summarized below:

(1) "a population typically characterized by ***diversity*** at all trophic levels."

- Macroinvertebrates: Species richness, Shannon Weaver diversity index, and evenness metric demonstrated a diverse community throughout the heat affected areas of the river.
- Adult fish: Number of species, relative abundance, and Catch Per Unit Effort metric demonstrated a diverse community throughout the heat affected areas of the river.
- Larval fish: Number of families and family composition demonstrated a diverse community throughout the heat affected areas of the river.

(2) "the capacity to sustain itself through ***cyclic seasonal changes.***"

- Macroinvertebrates: Number of organisms and taxa demonstrated no differences between seasons.
- Adult fish: Predominant species abundance and CPUE demonstrated no differences between seasons.
- Larval fish: Predominant family abundance was no different for the seasons sampled.

(3) "***presence of*** necessary ***food chain species.***"

- Macroinvertebrates: Number of organisms demonstrate a population sufficient to support the food chain in the heat affected areas of the river.
- Adult fish: CPUE and the range of trophic levels demonstrate a population sufficient to support the food chain in heat affected areas of the river.

- Larval fish: Number of larval fish in seasons sampled is sufficient to support food chain in heat affected areas of the river.

(4) "non-domination of ***pollution-tolerant species***."

- Macroinvertebrates: EPT taxa and HBI did not change indicating no change to a pollution-tolerant community in heat affected areas of the river.
- Adult fish: Predominant species abundance did not change indicating no change to a pollution-tolerant community in heat affected areas of the river.
- Larval fish: Predominant family abundance did not change indicating no likely change to a pollution-tolerant community in heat affected areas of the river. Family level identification would not allow species level identification of tolerant species.

(5) "***indigenous species***."

- Macroinvertebrates: Very limited abundance of non-indigenous taxa (*Corbicula*) demonstrates a predominantly indigenous population throughout study area.
- Adult fish: Very limited abundance of non-indigenous species (common carp) demonstrates a predominantly indigenous population throughout study area.
- Larval fish: Predominant family abundance did not change indicating no likely change to a non-indigenous community in heat affected areas of the river. Family level identification would not allow species level identification of indigenous species.

(6) "***representative important species*** (ris) identification."

- Macroinvertebrates: No ris are presented in this study.
- Adult fish: Recreational (sportfish) and limited commercially important species were present in the study area, although, no federally or state listed species were collected in the study area.
- Larval fish: Recreational important species are likely present, based on family level identification and comparison with adult fish species collected.

The results and analysis of the macroinvertebrate, adult fish, and larval fish communities should be considered in terms of a BIP as the sum total of these interacting communities associated with the aquatic ecosystem of the Coosa River in the vicinity of Plant Gaston. The great majority of metrics for all communities indicate no appreciable changes in the

heat affected areas (Tables 15 and 16). The overall weight of evidence supports the conclusion that the 316(a) variance assures the protection and propagation of the BIP of the Coosa River.

Table 15. Summary of the statistically significant percent reductions of metrics for the macroinvertebrate community, with determinations of non-significant (NS) or significant ($p < 0.05$) reductions for means at Mixing Zone station and Downstream station compared to Upstream Control station during each season. Determinations of NS for the adult fish community were qualitatively assessed.

Community	Metric	Mixing Zone (%)			Downstream (%)		
		Spring	Summer	Fall	Spring	Summer	Fall
Macroinvertebrates	Total (N)	NS	NS	49	NS	NS	NS
	Taxa, genera (N)	19	NS	NS	25	NS	NS
	Relative Abundance (%)	NS	NS	NS	NS	NS	NS
	EPT taxa (N)	NS	NS	NS	NS	NS	NS
	SWDI	NS	NS	NS	NS	NS	NS
	Evenness	NS	NS	NS	NS	NS	NS
	HBI	NS	NS	NS	NS	NS	NS
Adult Fish	Taxa, species (N)	NS	NS	NS	NS	NS	NS
	CPUE (N/600 s)	NS	NS	NS	NS	NS	NS
	Relative Abundance (%)	NS	NS	NS	NS	NS	NS
	Trophic Diversity (levels, N)	NS	NS	NS	NS	NS	NS

Table 16. Summary of the statistically significant percent reductions of metrics for the larval fish community, with determinations of non-significant (NS) or significant ($p < 0.05$) reductions for means at Downstream station compared to Upstream Control station during each spring sampling event.

Community	Metric	Downstream (%)					
		Spring #1	Spring #2	Spring #3	Spring #4	Spring #5	Spring #6
Larval Fish	Density (N/100 m^3)	NS	NS	NS	NS	NS	NS
	Taxa, family (N)	NS	NS	NS	NS	NS	NS
	Relative Abundance (%)	NS	NS	NS	NS	NS	NS

These studies have verified with scientific data that the macroinvertebrate, adult fish, and larval fish community in the Coosa River in the vicinity of Plant Gaston meets the definition of a BIP as outlined in 40 CFR 125.71 (c). The thermal discharge from Plant Gaston has caused ***no appreciable harm*** to these biological communities. Therefore, APC should be allowed a renewal of its thermal variance.

6. REFERENCES

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7. APPENDIX

Number of Macroinvertebrates Collected by Station and Plate Sampler – Spring 2010

			Station																				
			Upstream							Mixing Zone							Downstream						
Order	Family	Genus	2	4	5	6	7	8	9	1	2	3	5	6	8	9	1	5	6	7	8	9	10
Gastropoda	Ancylidae	Ferrissia									1												
	Physidae	Physella								2					2	1				1			
Pelecypoda	Corbiculidae	Corbicula			1	5	2			1	1												
Amphipoda	Talitridae	Hyalella											8	1									
Ephemeroptera	Caenidae	Caenis			1	1	1	1			1		1						1				
	Leptohyphidae	Tricorythodes	2	1	2	3	2	4			1	1							1				1
Odonata	Coenagrionidae	Argia	1																				
Megaloptera	Sialidae	Sialis							1														
Trichoptera	Trichoptera	Trichoptera pupae	2							4	5	4	2	4	4	4	5	9	6	4	2	4	5
	Brachycentridae	Brachycentrus				1																	
	Hydropsychidae	Cheumatopsyche																				1	
		Hydropsyche	3	3		2								1							1	4	2
	Hydroptilidae	Hydroptila			1				1			1						1		2			
	Leptoceridae	Oecetis																				1	
	Polycentropodidae	Cyrnellus	218	172	193	201	166	140	133	153	185	173	96	119	201	180	309	304	294	257	211	265	261
		Neureclipsis		1		1																	
Coleoptera	Elmidae	Dubiraphia							1								1						
		Macronychus							1		1												
		Stenelmis											1										
Diptera	Ceratopogonidae	Ceratopogonidae sp.											1										
	Chiromonidae	Chironomid pupae	3	1	4	4	1	2	3	3	2	2	2	2		2	2	3	1			3	6
		Coelotanypus				4								3									
		Procladius	3																				
		Ablabesmyia	9	15	42	21	24	21	16	22	19	19	28	5	11	16		20	20	27	25	8	11
		Nanocladius		6				4							2	3	5			9			
		Chironomus							6														
		Dicrotendipes	72	76	101	114	80	96	33	44	62	32	34	91	61	72	62	100	88	62	53	54	56
		Glyptotendipes	72	38	106	46	56	67	86	28	53	76	42	37	24	33	171	105	107	111	84	119	111
		Polypedilum	3			8	7	4						5	2			5					4
		Tribelos	6	9	5	14		12	16	4	19	5	2	3	8	5		20	10	9	10	8	4
		Pseudochironomus			5								2									4	
		Tanytarsus		3	5	4	7	4	6	2	2	3	5			8		15	15	4	4		
	Simuliidae	Simuliidae sp.							1														
Rhynchobdellida	Rhynchobdellida	Rhynchobdellida sp.	1									9		5	27								
Tricladida	Planariidae	Planariidae sp.		1			1			2	3							4		4	1	1	
Oligochaeta	Naididae	Naididae sp.	4	3	5	22	5	18	4	2		3		14	5	25	13	19	6	17	5	4	
Nematoda	Nematoda sp.	Nematoda sp.						1	3								1				1		
Hydrozoa	Hydridae	Hydra		9	4	18	25	13	11	1	3	1						4		1	1	1	

Number of Macroinvertebrates Collected by Station and Plate Sampler – Summer 2010

			Station																				
			Upstream							Mixing Zone							Downstream						
Order	Family	Genus	1	2	3	4	7	8	9	1	4	5	6	7	8	10	2	3	5	7	8	9	10
Pelecypoda	Corbiculidae	Corbicula		2																			
Ephemeroptera	Heptageniidae	Stenacron																					10
		Stenonema										2											
	Leptohyphidae	Tricorythodes									1												
Odonata	Coenagrionidae	Argia			2	1				1	1			1								1	1
Megaloptera	Sialidae	Sialis						1															
Trichoptera	Trichoptera	Trichoptera pupae	1	1		1						1				1			1	2	1	2	
	Hydroptilidae	Orthotrichia															3		1				3
	Polycentropodidae	Cyrnellus	151	147	155	136	186	118	218	171	163	143	169	188	132	127	208	108	187	178	71	96	143
Diptera	Ceratopogonidae	Ceratopogonidae sp.					1							1	1								
	Chiromonidae	Chironomid pupae	4	1	1	2	5	6	1	5	9	1	3	4		4	1	2	6	1		2	3
		Coelotanypus				4																	
		Ablabesmyia	13	24	8	26	14	30	18	31	37	54	22	57	31	28	78	49	54	105	47	50	106
		Cricotopus/Orthocladius								10	5												
		Nanocladius													3		6		9				
		Dicrotendipes	110	101	74	82	99	39	118	123	175	148	117	132	118	71	188	116	299	149	81	120	181
		Glyptotendipes	9	7	12	26	7	14	15	41	37	15	25	18		13	6	36	36	5	6	55	60
		Parachironomus										15					6		18			10	8
		Polypedilum			4	4																	
		Tribelos	25	42	98	45	55	56	40	52	5	10	15	13	21	40	39	22	36	17	15	15	23
		Tanytarsus					4				5	5											
Oligochaeta	Naididae	Naididae sp.			1			2	1														
Gordioidea	Gordiidae	Gordius	2				1		1														
Hydrozoa	Hydridae	Hydra					1																

Number of Macroinvertebrates Collected by Station and Plate Sampler – Fall 2010

			Station																			
			Upstream							Mixing Zone							Downstream					
Order	Family	Genus	2	3	5	7	8	9	10	1	2	3	4	8	9	10	1	2	7	8	9	10
Odonata	Coenagrionidae	Argia	1			1		1				1	1			1	2	1				
	Corduliidae	Epitheca				1														1		
Trichoptera	Trichoptera	Trichoptera pupae	3		3		1	3				1	1	3		2	1			1		1
	Polycentropodidae	Cyrnellus	275	189	276	168	227	278	179	170	59	119	102	13	109	111	132	118	156	170	113	261
Coleoptera	Elmidae	Stenelmis					1															
Diptera	Ceratopogonidae	Ceratopogonidae sp.				1	1															
	Chiromonidae	Chironomid pupae		2	1	2		2	2	1	2	3	2	1	5	1		3	3	3	1	1
		Ablabesmyia	55	42	29	44	50	41	26	28	27	23	25	12	18	25	41	66	27	55	20	70
		Cricotopus/Orthocladius														3						
		Nanocladius		3	4				2													
		Dicrotendipes	85	72	97	33	66	124	61	91	46	80	26	21	94	103	201	115	65	99	50	60
		Glyptotendipes		16	4	41			2	7	3	2	5			8	10	17	10	4	5	13
		Polypedilum			4	6															2	
		Tribelos	12	29	36	24	16	15	4	0	3	9	9	1	2	0	5	4	22	26	15	16
		Tanytarsus			7			4	4									4				
Oligochaeta	Naididae	Naididae sp.	1			6		1	4							2						
Hydrozoa	Hydridae	Hydra				7	2	2														

Catch Per Unit Effort (CPUE, number of fish per 600 seconds) by Station and Bank, Adult Fish Sampling – Spring 2010

		Station					
		Upstream		Thermal Mixing Zone		Downstream	
Family	Species	Left Bank	Right Bank	Left Bank	Right Bank	Left Bank	Right Bank
Lepisosteidae, Gars	Spotted Gar	0.0	2.0	5.0	3.0	2.0	6.0
	Longnose Gar	0.0	0.0	0.0	3.0	0.0	0.0
Clupeidae, Herrings	Gizzard Shad	25.0	3.0	486.0	25.6	106.0	10.0
	Threadfin Shad	0.0	0.0	2.0	0.0	2.0	0.0
Cyprinidae, Carps and Minnows	Emerald shiner	0.0	0.0	0.0	0.0	0.0	0.0
	Silver chub	0.0	0.0	0.0	0.0	0.0	1.0
	Common Carp	0.0	0.0	0.0	0.0	0.0	0.0
	Blacktail shiner	1.0	0.0	5.0	1.0	15.0	14.0
	Golden Shiner	0.0	0.0	1.0	0.0	0.0	0.0
Catostomidae, Suckers	Blacktail Redhorse	0.0	0.0	5.0	0.0	0.0	0.0
	Spotted Sucker	0.0	0.0	0.0	0.0	1.0	2.0
Ictaluridae, Bullhead Catfish	Channel Catfish	0.0	0.0	0.0	2.0	1.0	1.0
	Flathead Catfish	0.0	0.0	0.0	0.0	0.0	0.0
Fundulidae, Topminnows	Blackspotted Topminnow	0.0	0.0	0.0	0.0	0.0	0.0
Atherinidae, Silversides	Brook Silverside	0.0	0.0	0.0	0.0	0.0	0.0
Moronidae, Striped Basses	Hybrid Striped Bass	0.0	0.0	0.0	0.0	0.0	0.0
	Striped Bass	0.0	0.0	0.0	0.0	0.0	0.0
Centrarchidae, Sunfishes	Bluegill Sunfish	47.0	73.9	50.0	100.5	24.0	79.0
	Spotted Bass	5.0	7.0	1.0	1.0	0.0	0.0
	Black Crappie	0.0	0.0	0.0	1.0	0.0	0.0
	Redear Sunfish	12.0	6.0	3.0	16.7	8.0	17.0
	Largemouth Bass	9.0	23.0	37.0	5.9	10.0	28.0
	Green sunfish	0.0	0.0	0.0	2.0	2.0	0.0
	Warmouth	0.0	0.0	0.0	0.0	0.0	0.0
	Longear Sunfish	0.0	5.0	2.0	2.0	4.0	1.0
	Orangespotted Sunfish	0.0	0.0	0.0	0.0	0.0	0.0
Percidae, Perches and	Mobile Logperch	0.0	0.0	0.0	0.0	1.0	0.0
Sciaenidae, Drums	Freshwater Drum	0.0	0.0	0.0	0.0	1.0	0.0

Catch Per Unit Effort (CPUE, number of fish per 600 seconds) by Station and Bank, Adult Fish Sampling – Summer 2010

		Station					
		Upstream		Thermal Mixing Zone		Downstream	
Family	Species	Left Bank	Right Bank	Left Bank	Right Bank	Left Bank	Right Bank
Lepisosteidae, Gars	Spotted Gar	0.0	0.0	1.0	3.0	0.0	2.0
	Longnose Gar	0.0	2.0	0.0	0.0	0.0	1.0
Clupeidae, Herrings	Gizzard Shad	10.0	2.0	669.0	466.0	23.0	397.0
	Threadfin Shad	0.0	0.0	110.0	2.0	50.1	7.0
Cyprinidae, Carps and Minnows	Emerald shiner	2.0	0.0	0.0	0.0	0.0	0.0
	Silver chub	0.0	0.0	0.0	0.0	0.0	0.0
	Common Carp	0.0	0.0	1.0	0.0	0.0	0.0
	Blacktail shiner	3.0	3.0	3.0	0.0	4.0	2.0
	Golden Shiner	0.0	0.0	0.0	0.0	5.0	6.0
Catostomidae, Suckers	Blacktail Redhorse	0.0	0.0	1.0	0.0	0.0	0.0
	Spotted Sucker	0.0	0.0	0.0	0.0	0.0	0.0
Ictaluridae, Bullhead Catfish	Channel Catfish	2.0	2.0	2.0	0.0	0.0	1.0
	Flathead Catfish	0.0	0.0	0.0	0.0	0.0	0.0
Fundulidae, Topminnows	Blackspotted Topminnow	0.0	0.0	0.0	0.0	0.0	0.0
Atherinidae, Silversides	Brook Silverside	0.0	0.0	0.0	0.0	0.0	0.0
Moronidae, Striped Basses	Hybrid Striped Bass	0.0	0.0	0.0	0.0	0.0	0.0
	Striped Bass	0.0	0.0	0.0	0.0	0.0	0.0
Centrarchidae, Sunfishes	Bluegill Sunfish	55.0	54.0	66.0	57.0	40.1	25.0
	Spotted Bass	3.0	12.0	3.0	1.0	12.0	0.0
	Black Crappie	0.0	0.0	0.0	0.0	1.0	0.0
	Redear Sunfish	19.0	7.0	10.0	8.0	10.0	7.0
	Largemouth Bass	12.0	8.0	8.0	8.0	10.0	11.0
	Green sunfish	1.0	0.0	0.0	2.0	3.0	0.0
	Warmouth	0.0	0.0	0.0	0.0	1.0	0.0
	Longear Sunfish	5.0	4.0	2.0	1.0	1.0	0.0
	Orangespotted Sunfish	0.0	0.0	0.0	1.0	0.0	0.0
Percidae, Perches and	Mobile Logperch	1.0	0.0	2.0	0.0	0.0	0.0
Sciaenidae, Drums	Freshwater Drum	0.0	0.0	0.0	0.0	0.0	0.0

Catch Per Unit Effort (CPUE, number of fish per 600 seconds) by Station and Bank, Adult Fish Sampling – Fall 2010

		Station					
		Upstream		Thermal Mixing Zone		Downstream	
Family	Species	Left Bank	Right Bank	Left Bank	Right Bank	Left Bank	Right Bank
Lepisosteidae, Gars	Spotted Gar	0.0	2.0	3.0	0.0	0.0	2.0
	Longnose Gar	0.0	4.0	0.0	1.0	0.0	0.0
Clupeidae, Herrings	Gizzard Shad	28.0	5.0	72.0	226.0	17.0	200.0
	Threadfin Shad	0.0	0.0	369.0	1.0	49.0	20.0
Cyprinidae, Carps and Minnows	Emerald shiner	0.0	0.0	0.0	0.0	0.0	0.0
	Silver chub	0.0	0.0	0.0	0.0	0.0	0.0
	Common Carp	0.0	3.0	0.0	0.0	0.0	0.0
	Blacktail shiner	1.0	1.0	3.0	0.0	1.0	1.0
	Golden Shiner	0.0	0.0	0.0	0.0	1.0	1.0
Catostomidae, Suckers	Blacktail Redhorse	0.0	2.0	0.0	0.0	1.0	0.0
	Spotted Sucker	0.0	0.0	5.0	3.0	1.0	0.0
Ictaluridae, Bullhead Catfish	Channel Catfish	1.0	4.0	0.0	0.0	1.0	2.0
	Flathead Catfish	0.0	0.0	0.0	1.0	0.0	0.0
Fundulidae, Topminnows	Blackspotted Topminnow	1.0	0.0	0.0	0.0	0.0	0.0
Atherinidae, Silversides	Brook Silverside	0.0	0.0	0.0	0.0	0.0	1.0
Moronidae, Striped Basses	Hybrid Striped Bass	0.0	0.0	0.0	6.0	0.0	0.0
	Striped Bass	0.0	0.0	0.0	0.0	0.0	1.0
Centrarchidae, Sunfishes	Bluegill Sunfish	187.0	109.0	129.0	154.0	34.0	70.0
	Spotted Bass	6.0	29.0	2.0	6.0	0.0	2.0
	Black Crappie	0.0	3.0	0.0	0.0	0.0	1.0
	Redear Sunfish	67.0	14.0	31.0	30.0	8.0	42.0
	Largemouth Bass	4.0	4.0	5.0	6.0	16.0	9.0
	Green sunfish	6.0	6.0	6.0	7.0	0.0	0.0
	Warmouth	0.0	0.0	0.0	0.0	0.0	1.0
	Longear Sunfish	30.0	7.0	12.0	10.0	0.0	1.0
	Orangespotted Sunfish	0.0	0.0	0.0	0.0	0.0	0.0
Percidae, Perches and	Mobile Logperch	1.0	2.0	0.0	2.0	0.0	0.0
Sciaenidae, Drums	Freshwater Drum	0.0	0.0	0.0	5.0	1.0	0.0

Larval Fish Density (number of larval fish per 100 cubic meters) by Station, Bank and Net

Family	Station[a]							
	Upstream				Downstream			
	Left Bank		Right Bank		Left Bank		Right Bank	
	1	2	1	2	1	2	1	2
Clupeidae, Herrings	11.22		5.26	3.84			3.95	1.38
Centrarchidae, Sunfishes			1.31	1.92	3.51	2.00	1.32	1.38
Catostomidae, Suckers		6.72						
Moronidae, Striped Basses								
Percidae, Perches and Darters								
a. Date = 05-Apr-2011								

Family	Station[b]							
	Upstream				Downstream			
	Left Bank		Right Bank		Left Bank		Right Bank	
	1	2	1	2	1	2	1	2
Clupeidae, Herrings	1192.35	1149.47	238.58	146.42	281.12	286.55	447.41	478.43
Centrarchidae, Sunfishes	12.96							
Catostomidae, Suckers								
Moronidae, Striped Basses	6.48							
Percidae, Perches and Darters			2.32					
b. Date = 18-Apr-2011								

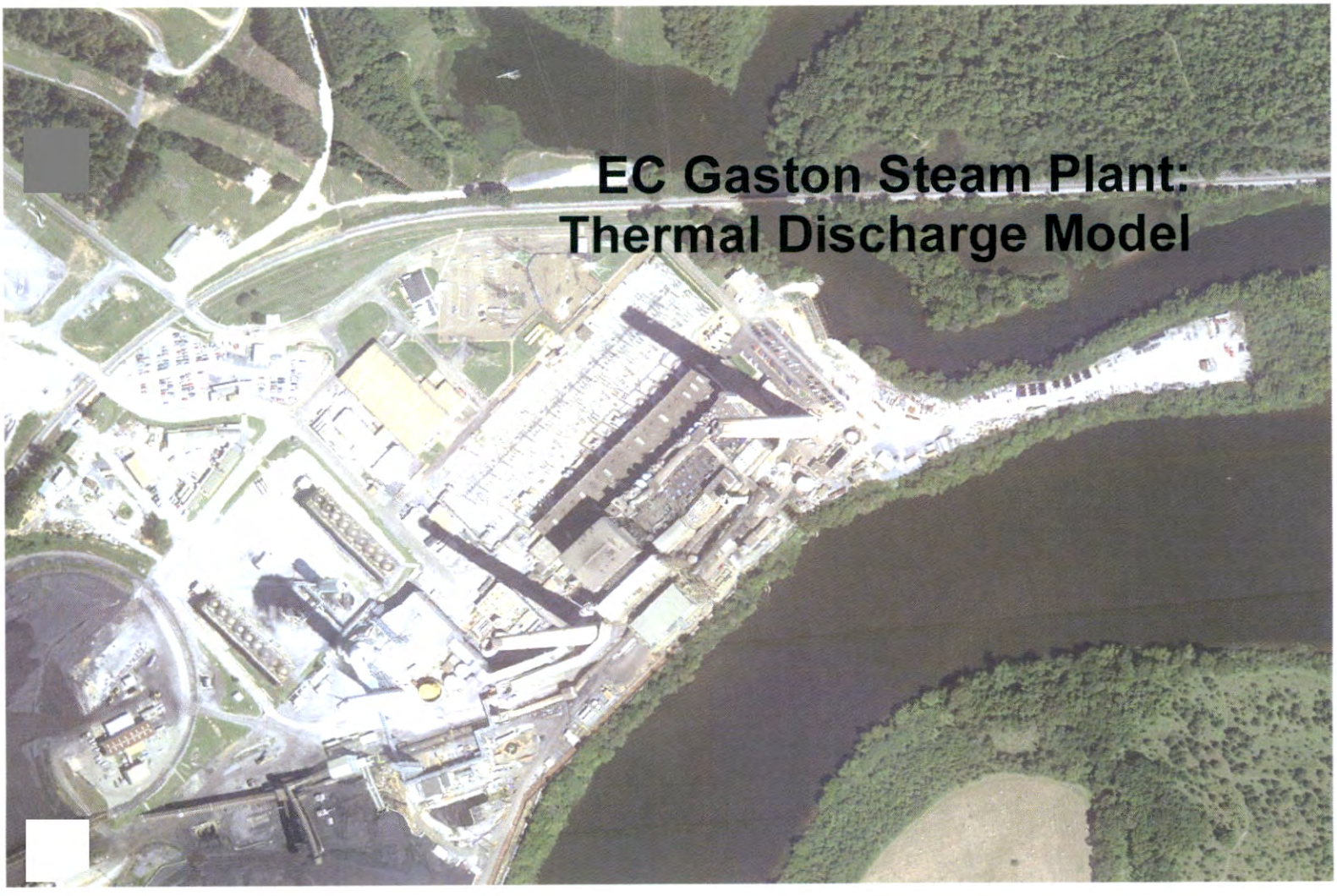
Family	Station[c]							
	Upstream				Downstream			
	Left Bank		Right Bank		Left Bank		Right Bank	
	1	2	1	2	1	2	1	2
Clupeidae, Herrings	57.35	62.04	176.84	249.77	94.07	116.86	241.00	197.50
Centrarchidae, Sunfishes		1.07	1.19					
Catostomidae, Suckers								
Moronidae, Striped Basses			2.39					
Percidae, Perches and Darters								
c. Date = 02-May-2011								

Larval Fish Density (number of larval fish per 100 cubic meters) by Station, Bank and Net (continued)

Family	Station[d]							
	Upstream				Downstream			
	Left Bank		Right Bank		Left Bank		Right Bank	
	1	2	1	2	1	2	1	2
Clupeidae, Herrings	303.99	239.86	26.27	17.38	89.45	102.78	123.18	131.21
Centrarchidae, Sunfishes	2.71	11.03	16.26	10.69	1.15		21.08	17.11
Catostomidae, Suckers								
Moronidae, Striped Basses								
Percidae, Perches and Darters								
d. Date = 18-May-2011								

Family	Station[e]							
	Upstream				Downstream			
	Left Bank		Right Bank		Left Bank		Right Bank	
	1	2	1	2	1	2	1	2
Clupeidae, Herrings			15.86	1.42	199.97	174.67	66.96	100.66
Centrarchidae, Sunfishes	7.73	16.66	17.08	12.76	8.43	9.13	8.20	7.29
Catostomidae, Suckers								
Moronidae, Striped Basses								
Percidae, Perches and Darters								
e. Date = 31-May-2011								

Family	Station[f]							
	Upstream				Downstream			
	Left Bank		Right Bank		Left Bank		Right Bank	
	1	2	1	2	1	2	1	2
Clupeidae, Herrings		1.00	10.49	8.03	2.00	3.32	5.12	
Centrarchidae, Sunfishes	37.76	31.00	61.89	42.43	2.00	5.53	11.26	5.11
Catostomidae, Suckers								
Moronidae, Striped Basses								
Percidae, Perches and Darters								
f. Date = 14-Jun-2011								



EC Gaston Steam Plant: Thermal Discharge Model

Submitted to:

Alabama Power Company
Birmingham, Alabama

July 21, 2011

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1 Introduction

Dynamic Solutions, LLC (DSLLC) is pleased to submit this draft report to Alabama Power Company (APC) on the analysis of hydrodynamics and hydrothermal processes for the Earnest C. Gaston Steam Plant near Wilsonville, Alabama in Shelby County.

The E.C. Gaston Steam Plant is located along the Coosa River and has been in operation for over 50 years. It is a 5-unit coal fired plant with a combined output of 1,880 megawatts. The first two units began producing in 1960, and three more units followed as demand increased. Figure 1-1 provides a project location map showing the steam plant, the dams, the surrounding cities as well as other features of the area.

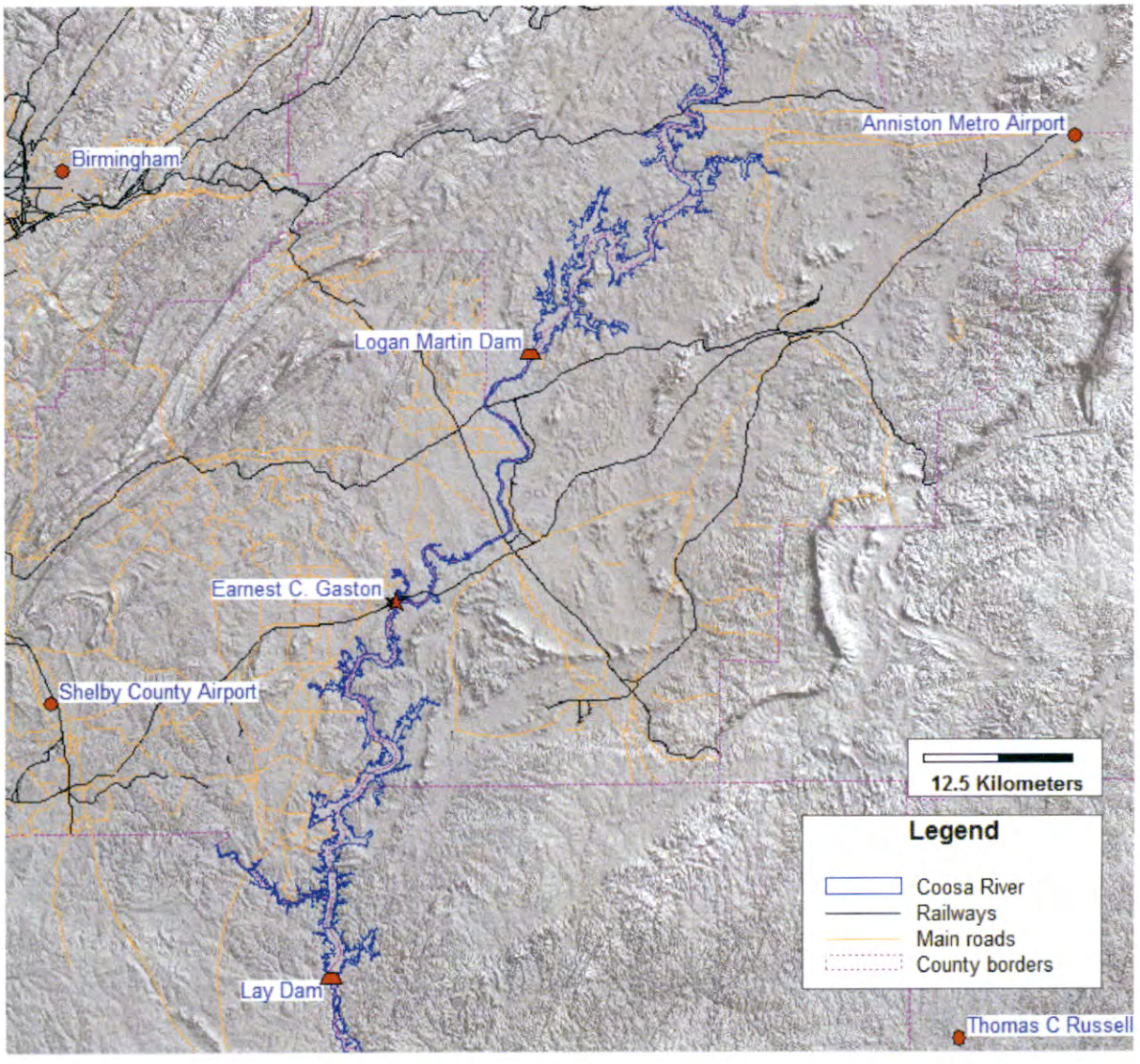


Figure 1-1 Project location map

1.1 Objectives of Investigation

The objective of the numerical hydraulic modeling study, as outlined in the Scope of Services is to:

- Develop and calibrate a three-dimensional hydrothermal model for the Lay Lake of the Coosa River between Logan Martin and Lay dams. This includes development of the model grid, preparing model input files, model setup, testing and model calibration. The model will be developed based on the existing and newly updated bathymetric data and be calibrated with the flow, stage and temperature data at the gauging stations and ADCP data.
- Develop and calibrate a three-dimensional hydrothermal model for the Lay Lake using water temperature data.
- Investigate the hydrodynamic and hydrothermal responses of the system influenced by operational scenarios for the Logan Martin and Lay dams.

2 Data Description

Basic data for modeling works have been provided by APC including bathymetry, water levels, flows and water temperatures at various locations as well as operational data of the EC Gaston Steam Plant, Logan Martin and Lay Dams. Other hydrological and meteorological data were obtained from various data sources such as USGS and NCDC for several locations as shown in Figure 2-1.

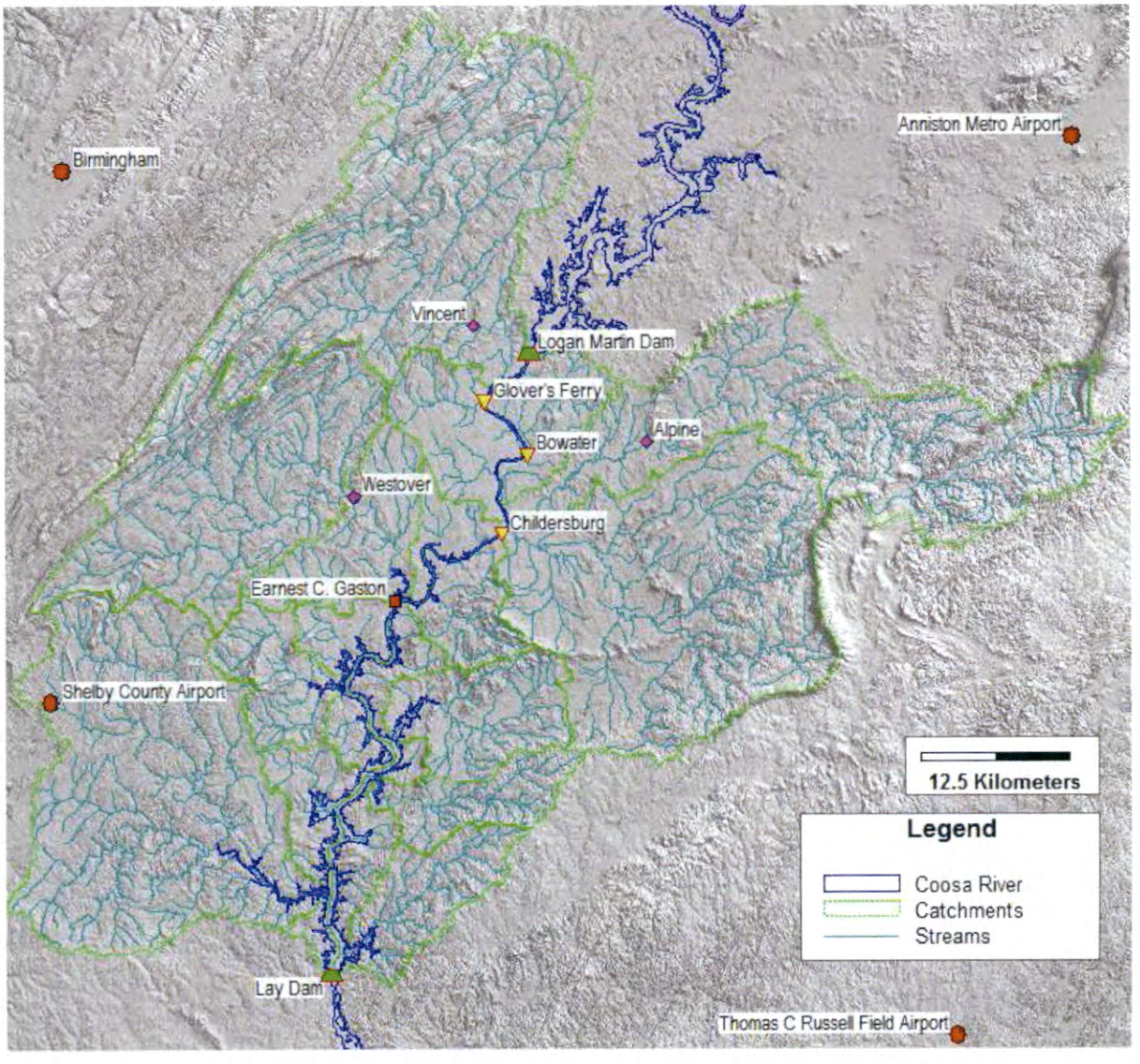


Figure 2-1 Gauging stations and local river basins of the Lay Lake

In this study, all heights are referenced to the Mean Sea Level (MSL), and times are referenced to Central Standard Time (CST). All the time series data using Central Daylight Time have been converted to CST.

Following sections will describe in detail each kind of basic data.

2.1 Meteorological data

Meteorological data including air temperature, rainfall and relative humidity are observed at EC Gaston on an hourly basis. These kinds of data, together with wind data and sky conditions are also available at surrounding airports such as Shelby County Airport, Birmingham, and Anniston Metro Airport, the locations of which are shown in Figure 2-1. Table 2-1 lists the names and locations of the meteorological stations in the area.

Table 2-1 Locations of meteorological stations.

Name	Location	WBAN ID	CALL	Longitude	Latitude
Gaston	EC Gaston Steam Plant	N/A	N/A	W86°27 '33"	N33°14 '35"
Shelby	Shelby County Airport	53864	KEET	W86°47 '00"	N33°11 '00"
Birmingham	Birmingham International Airport	13876	KBHM	W86°45 '16"	N33°33 '50"
Montgomery	Montgomery/Dannelly Field	13895	KMGM	W86°23 '39"	N32°18 '02"
Anniston	Anniston Metropolitan Airport	13871	KANB	W85°51 '29"	N33°35 '17"

Due to the fact that the meteorological data may be influenced by the local topographic and land cover conditions, the available data at EC Gaston has been used in this study as much as possible and any missing data has then been filled with data from Shelby or Birmingham. It should be noted that although Shelby and Birmingham are separated by numerous ridges the variations of wind direction and air temperature are quite similar. This can be seen in Figure 2-2 and Figure 2-3 below.

The wind rose at Shelby County Airport for the months from July to September 2010 is shown in Figure 2-4.

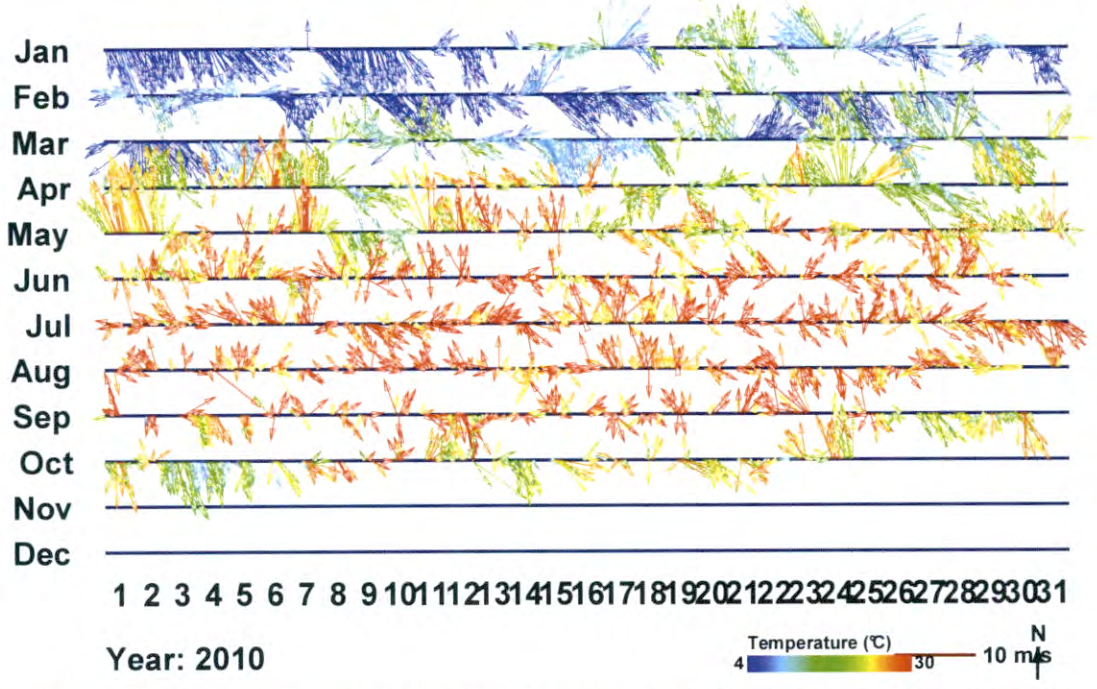


Figure 2-2 Time series data of wind and air temperature at Shelby County Airport in 2010.

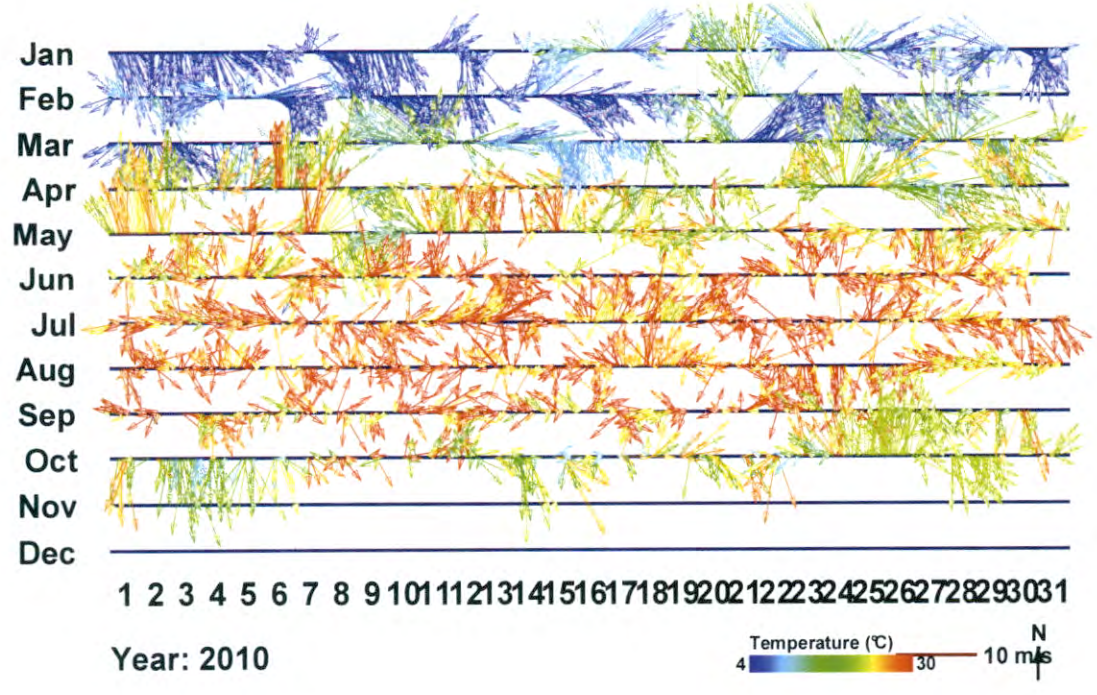


Figure 2-3 Time series data of wind and air temperature at Birmingham Airport in 2010.

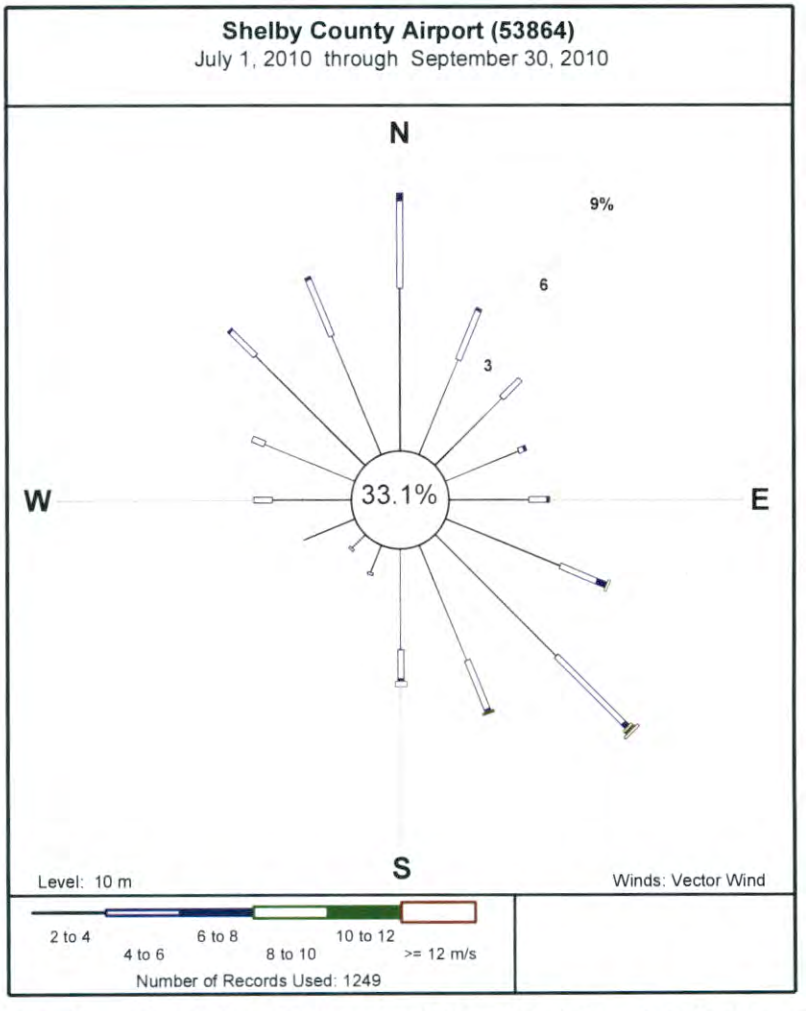


Figure 2-4 Wind rose for July to September 2010 wind data at Shelby County Airport.

2.2 Flow data

2.2.1 Gauged flow

Flow data of the local catchments are observed hourly at the three USGS stations of Vincent, Alpine and Westover. Information on these stations is presented in Table 2-2. The catchments of these stations and other small creeks discharging into the Coosa River between Logan Martin and Lay dams are shown in Figure 2-1. The flows from local basins have been estimate using a ratio based on the drainage areas of the three USGS stations and have been used as model boundary conditions.

Figure 2-5 shows the time variations of the observed flows at the stations for the period from October 2009 to September 2010. The plots for the observed flows from July to September 2010 are presented in Figure 2-6.

Table 2-2 Locations of long-term flow stations.

Name	Description	USGS ID	Longitude	Latitude	Basin area (km^2)
Vincent	Kelly Creek near Vincent	02405500	W86°23'13"	N33°26'51"	499.87
Alpine	Talladega Creek at Alpine	02406500	W86°14'03"	N33°21'34"	388.50
Westover	Yellowleaf Creek near Westover	02407514	W86°29'43"	N33°19'14"	367.78

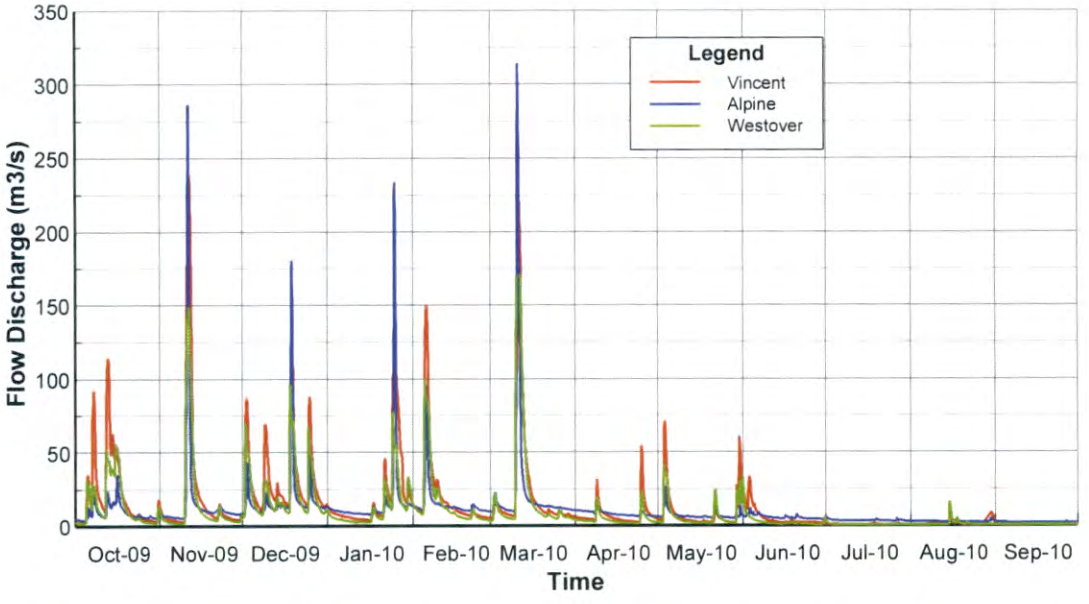


Figure 2-5 Variation of observed flows at stations from October 2009 to September 2010.

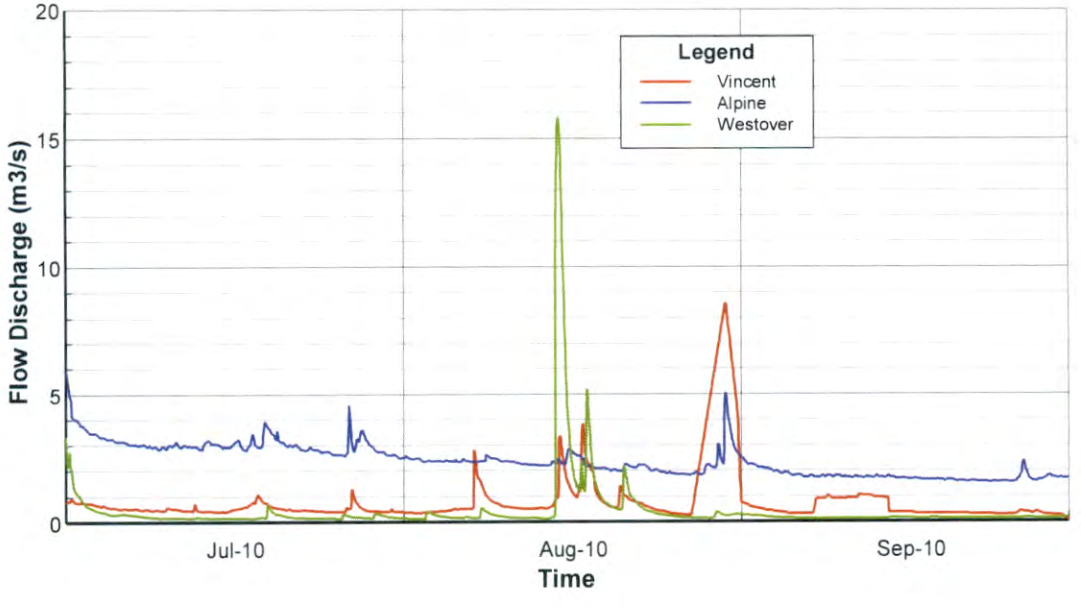


Figure 2-6 Observed flows during the simulation period from July to September 2010.

2.2.2 ADCP flow

Several data collection surveys were organized to collect flow data using an ADCP instrument in the area surrounding the EC Gaston Plant in 2010. The location of ADCP measurements are shown in Figure 2-7 and listed in Table 2-3. The number of transects measured in July, August and September 2010 is presented in Table 2-4

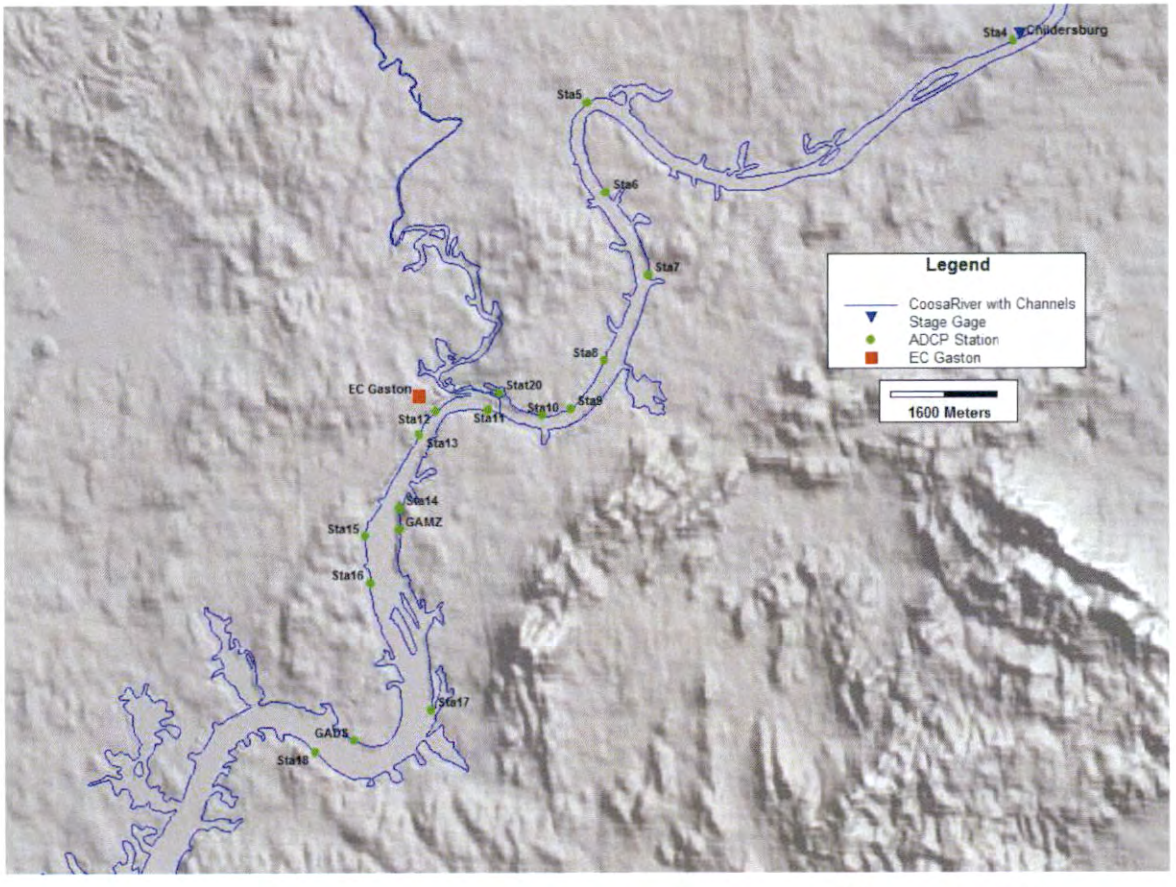


Figure 2-7 Locations of ADCP measurements in August and September 2010.

Table 2-3 Locations of ADCP flow stations.

Station	Longitude	Latitude	Descriptions
Childersburg	W86°38'08"	N33°17'26"	Near Childersbur g gage
GAUS	W86°34'11"	N33°16'57"	Upstream EC Gaston Plant
Station 6	W86°34'07"	N33°16'16"	About 3/4 miles dow nstream GAUS
Station 7	W86°34'34"	N33°15'38"	About 3/4 miles dow nstream Station 6
Station 8	W86°34'16"	N33°14'51"	About 3/4 miles dow nstream Station 7
Station 9	W86°33'52"	N33°14'29"	About 1/2 miles dow nstream Station 8
Station 10	W86°33'34"	N33°14'27"	Upstream of Yellow leaf Creek
Station 20	W86°33'12"	N33°14'39"	Yellowleaf Creek
Station 11	W86°33'01"	N33°14'36"	Downstream Yellowleaf Creek (upstream of thermal discharge)
Station 12	W86°32'38"	N33°14'35"	Adjacent thermal di scharge
Station 13	W86°32'20"	N33°14'15"	At about 1/2 miles downstream Station 12
GAMZ	W86°32'07"	N33°13'52"	Mixing Zone
Station 15	W86°32'08"	N33°13'34"	About 1/2 miles do wnstream GAMZ
Station 16	W86°31'59"	N33°13'05"	About 3/4 miles do wnstream Station 15
Station 17	W86°32'20"	N33°12'11"	About 1.0 mile dow nstream Station 16
GADS	W86°31'21"	N33°11'51"	Downstream EC Gaston Pla nt

Table 2-4 Number of transects surveyed at each station.

Station	Survey period		
	July 2010	August 2010	September 2010
Station 4		9	
Station 5		7	
Station 6		6	
Station 7		4	
Station 8		4	
Station 9		6	
Station 10		6	8
Station 11		34	8
Station 12		8	
Station 13	20	71	
Station 14		3	
Station 15		2	
Station 16		4	
Station 17		2	
Station 18		8	
Station 20		3	8
Childersburg station			299
GADS			75
GAMZ			5
Total	**20**	**177**	**403**

Figure 2-8 plots the distribution of depth averaged flow velocities for 10 meter blocks in July 2010. The time series of measured total flow are plotted for several stations together with the flows released from Logan Martin and Lay Dams in Figure 2-9 to Figure 2-13.

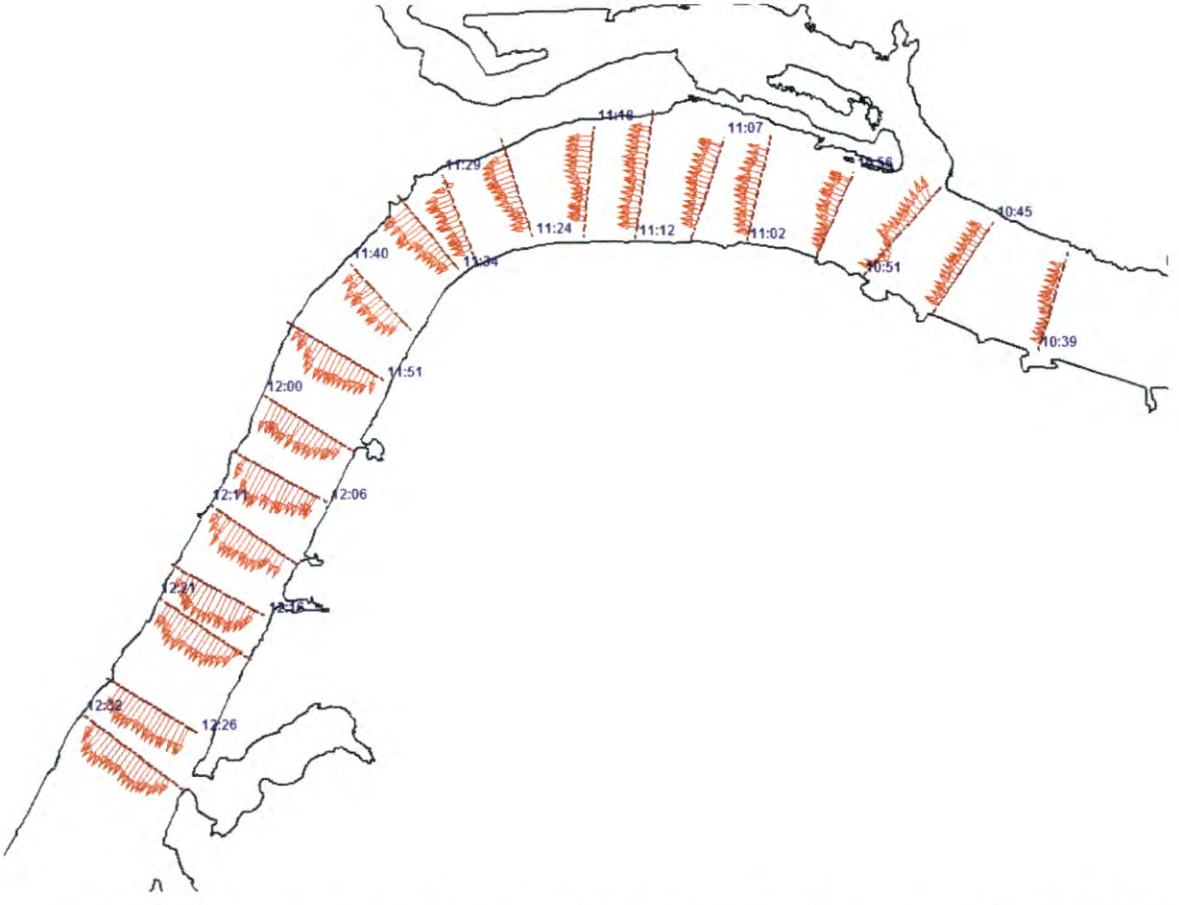


Figure 2-8 Distribution of depth averaged flow velocities for 10 meter blocks in July 2010.

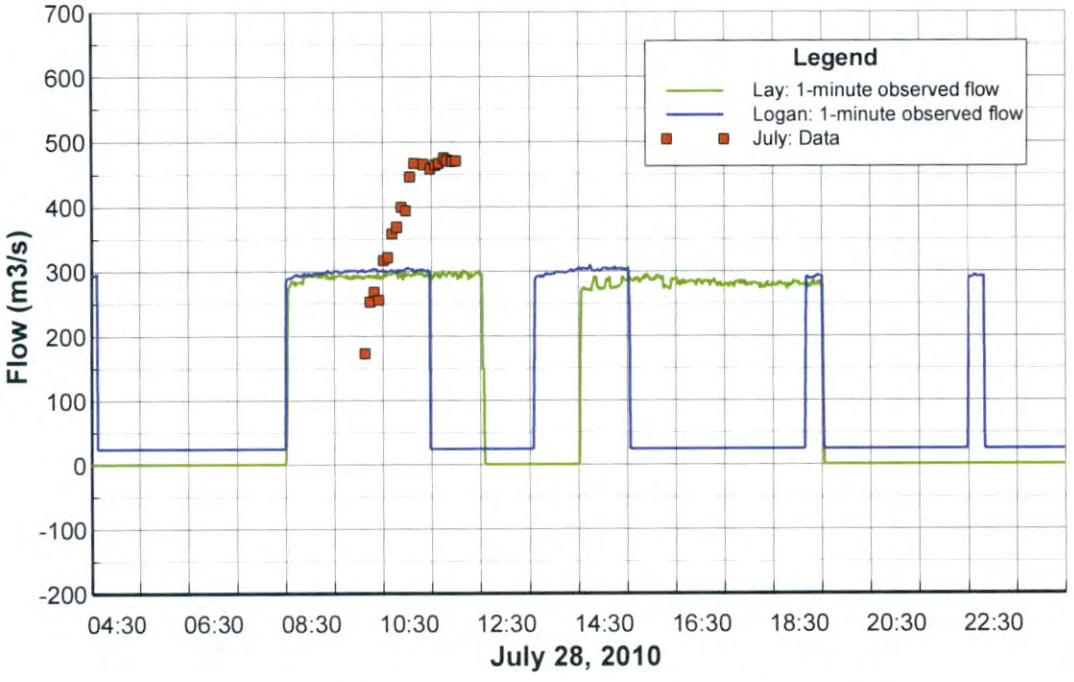


Figure 2-9 ADCP flows measured near EC Gaston in July 2010.

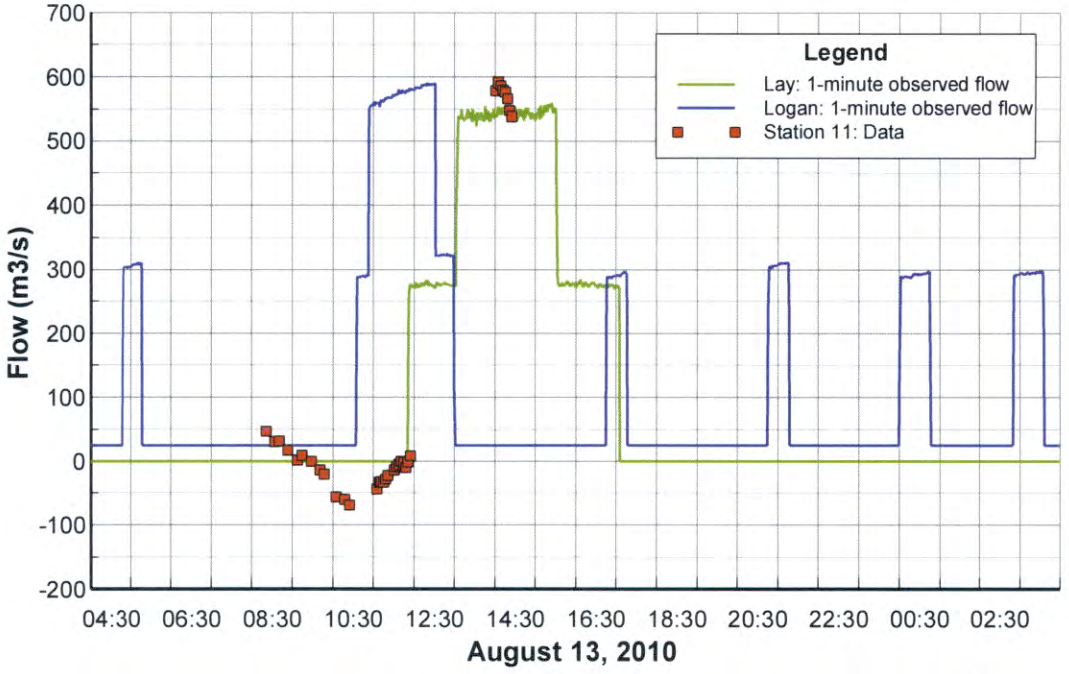


Figure 2-10 ADCP flows measured at Station 11 near EC Gaston in August 2010.

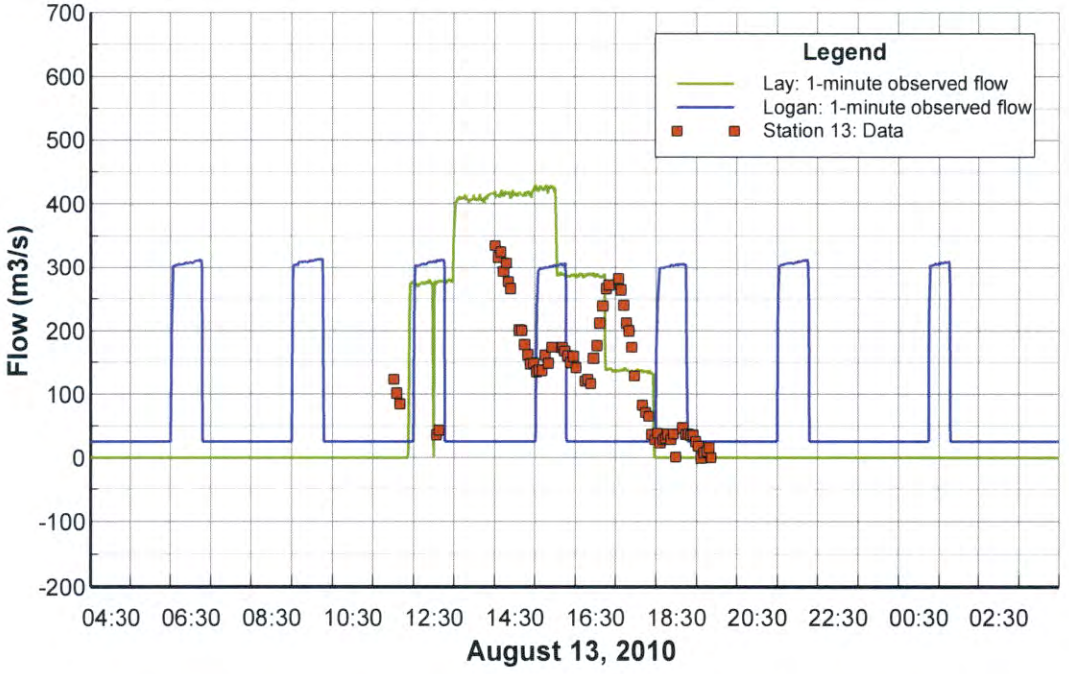


Figure 2-11 ADCP flows measured at Station 13 in August 2010.

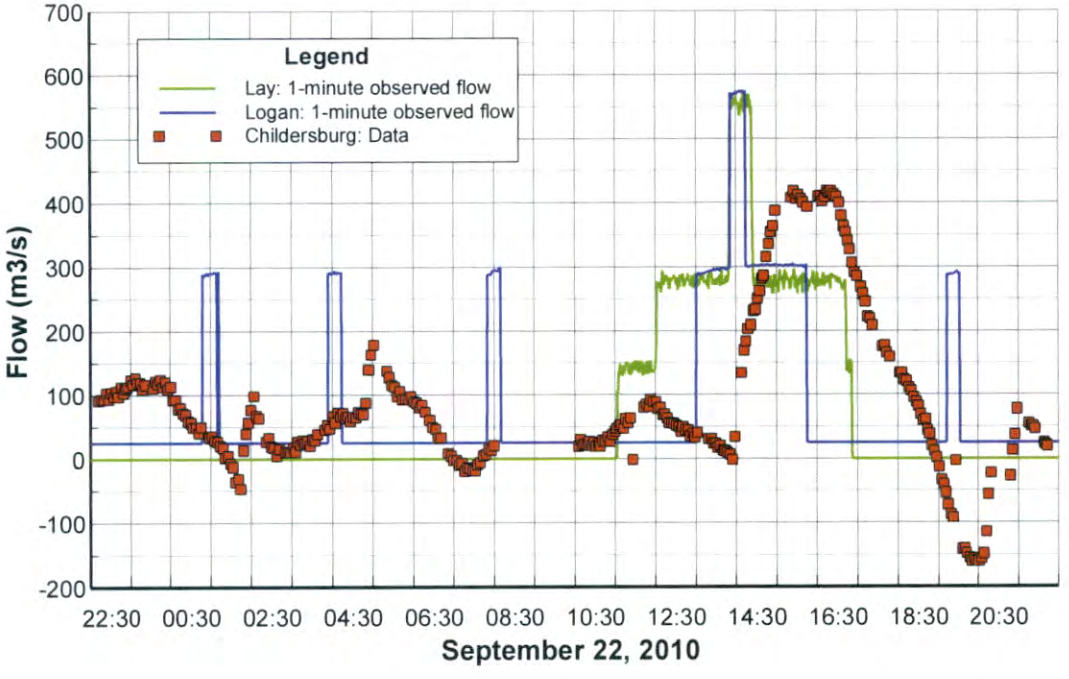


Figure 2-12 ADCP flows measured at Childersburg in September 2010.

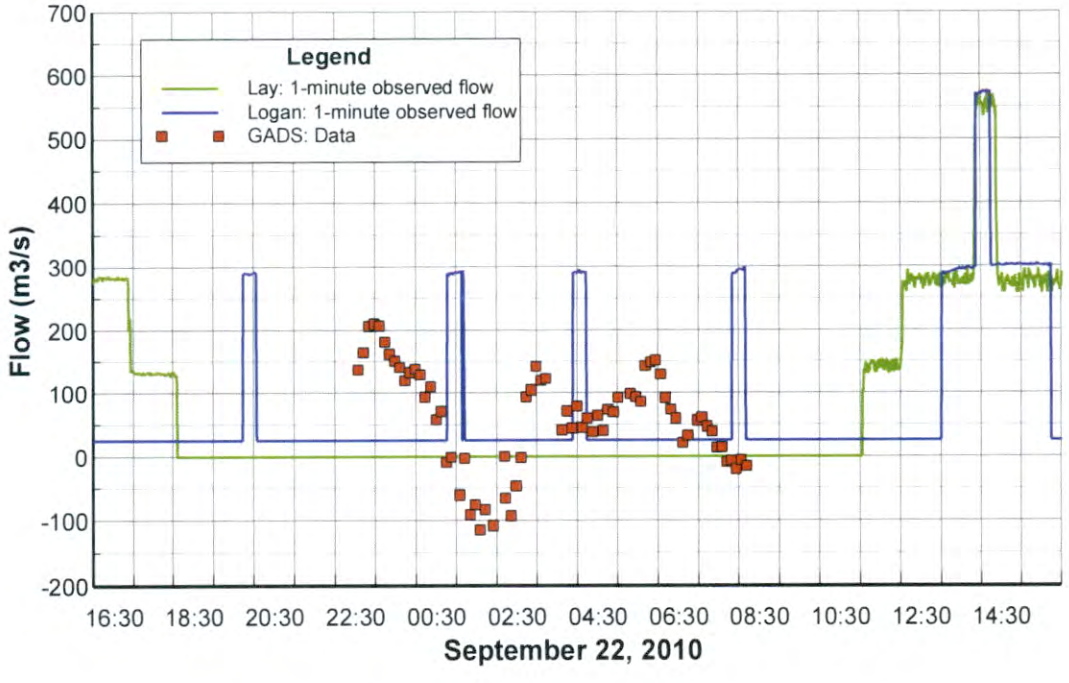


Figure 2-13 ADCP flows measured at GADS in September 2010.

2.2.3 Dam Release Flows

The data of flows released from Logan Martin and Lay Dams were originally provided on an hourly basis with the values representing the hour ending block averaged flows. During the early phases of the project it became clear that the observed seiche with the various periods and magnitudes required high resolution flow data from both the Logan Martin and Lay dams. One minute flow data was then obtained for both dams. The plots comparing the hourly with the one minute data of dam release flows are shown in Figure 2-14 and Figure 2-15. The one minute flow data was used for this study.

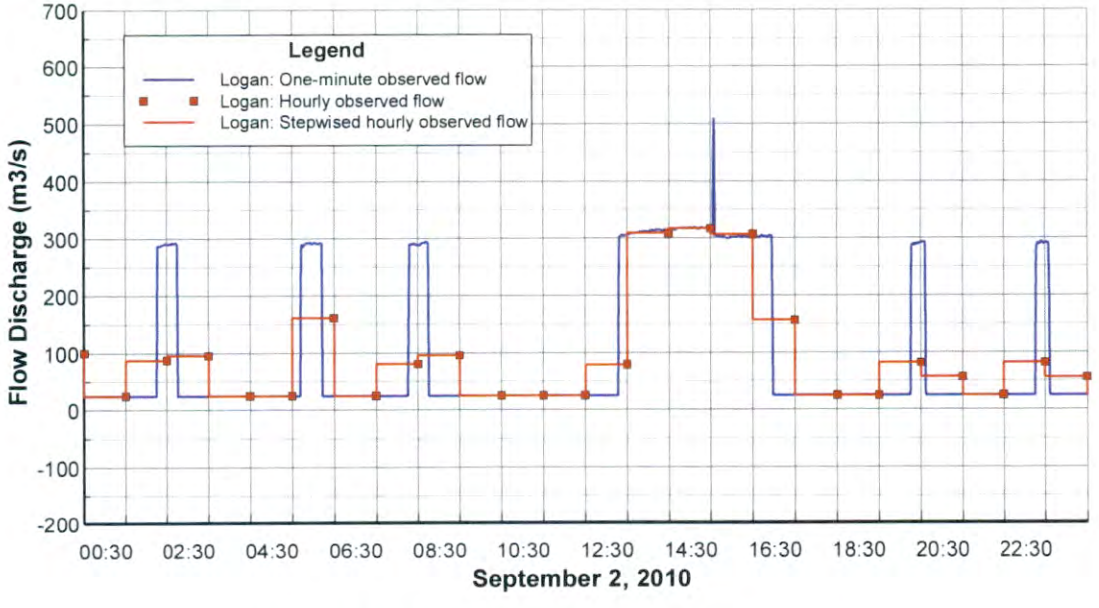


Figure 2-14 Flow released from Logan Martin Dam.

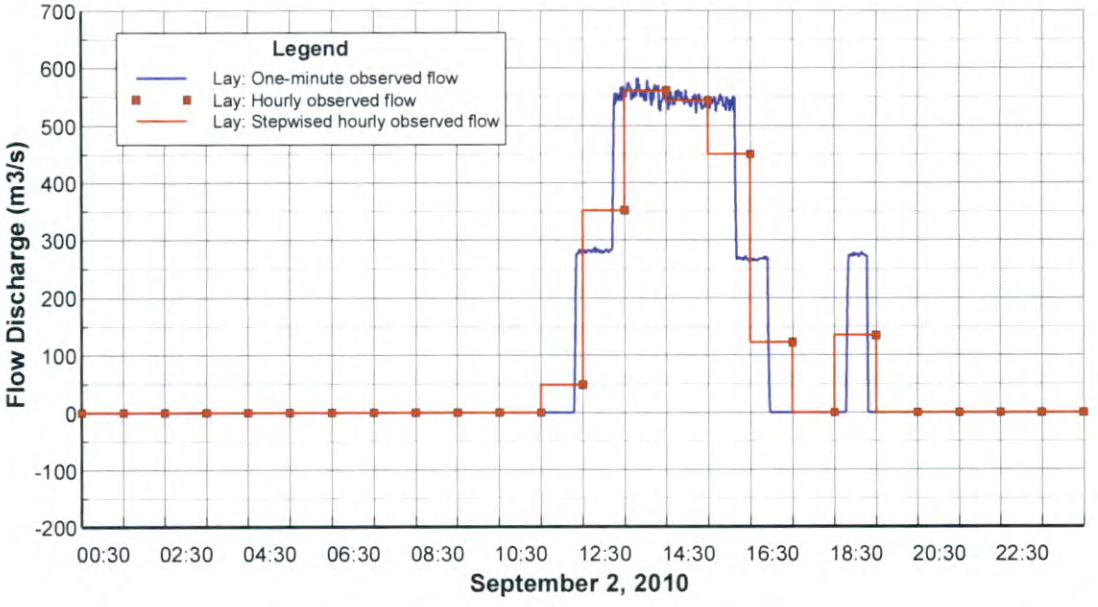


Figure 2-15 Flow released from Lay Dam.

2.2.4 Cooling water

Operational data of the EC Gaston Steam Plant provides cooling intake (GAIC) and discharges for units 1 and 2 (GADCA) and units 3 and 4 (GADCB) in relation to the generated power of the plant. Figure 2-16 shows the data of cooling water for the plant for the period from July to September 2010.

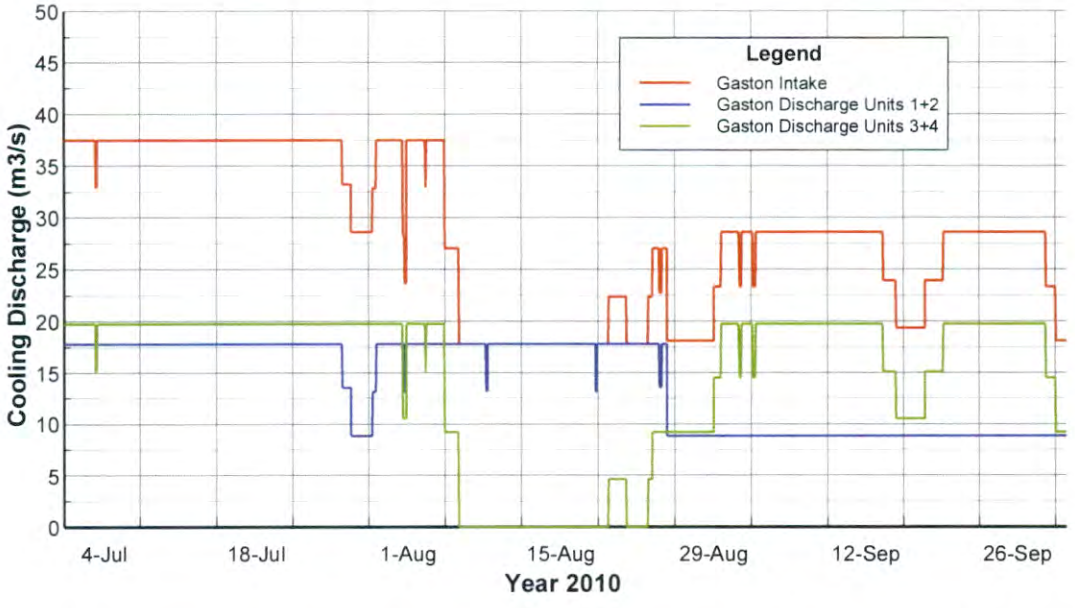


Figure 2-16 Cooling flows at EC Gaston from July to September 2010.

2.3 Water levels

Water levels are measured at several locations along the Coosa River. The list of the observation stations is shown in Table 2-5. Water level data includes hourly stage observed at Glover's Ferry, Bowater, Childersburg and Gaston. At Logan Martin and Lay dams, the data for headwater and tailwater levels are available with the resolution of one minute.

Figure 2-17 shows stage data at the water level measurement locations for a short period in July 2010. This figure indicates there are some vertical datum/offset inconsistencies in the stage data. For example, the stage at Glover's Ferry is too low for some periods, even lower than the headwater at Lay, whereas the stage at Bowater is higher than the tailwater at Logan Martin during most of the low flow periods. Small shifts in the vertical offsets were applied to the measured stages to minimize the datum errors and better represent the conceptual model of the physical processes of the Lay Reservoir system.

Figure 2-18 and Figure 2-19 show the variations of tailwater at Logan Martin and headwater at Lay corresponding to the released flows from the dams. It can be seen that the variation of the tailwater at Logan Martin depends strongly on the operation of the Logan Martin dam.

Table 2-5 List of water level stations.

Name	Description	USGS ID	Longitude	Latitude	Datum (m)
Logan Martin	Coosa River at Logan Martin Dam near Vincent	02405200	W86°20'13"	N33°25'32"	N/A
Glover's Ferry	N/A	N/A	W86°28'53"	N32°57'49"	N/A
Bowater	N/A	N/A	W86°39'34"	N33°21'01"	N/A
Childersburg	Coosa River at Childersburg	02407000	W86°21'50"	N33°17'30"	116.57
Gaston	Coosa River at Gaston Steam Plant near Wilsonville	02407526	W86°27'30"	N33°14'28"	116.56
Lay	Coosa River at Lay Dam near Clanton	02407950	W86°31'03"	N32°57'54"	N/A

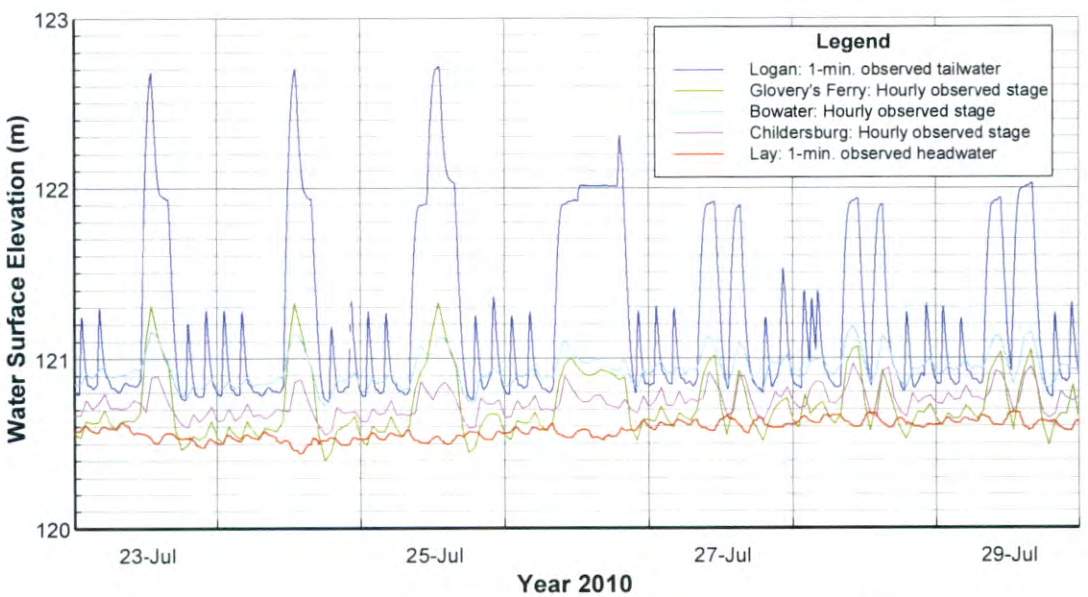


Figure 2-17 Stage data at observed stations in July 2010.

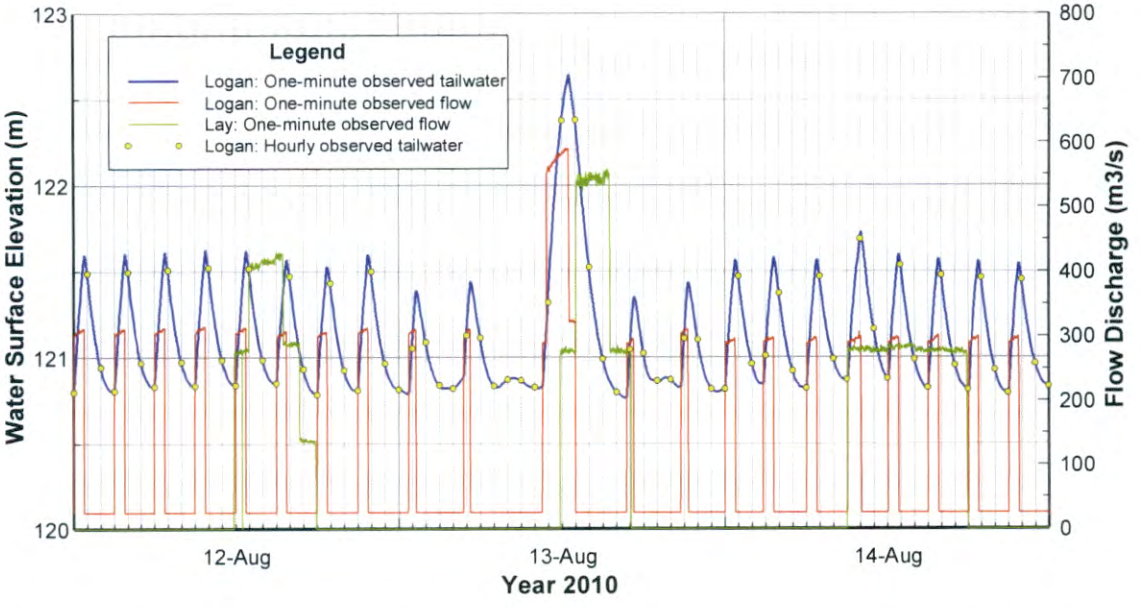


Figure 2-18 Tailwater at Logan Martin and released flows from dams in August 2010.

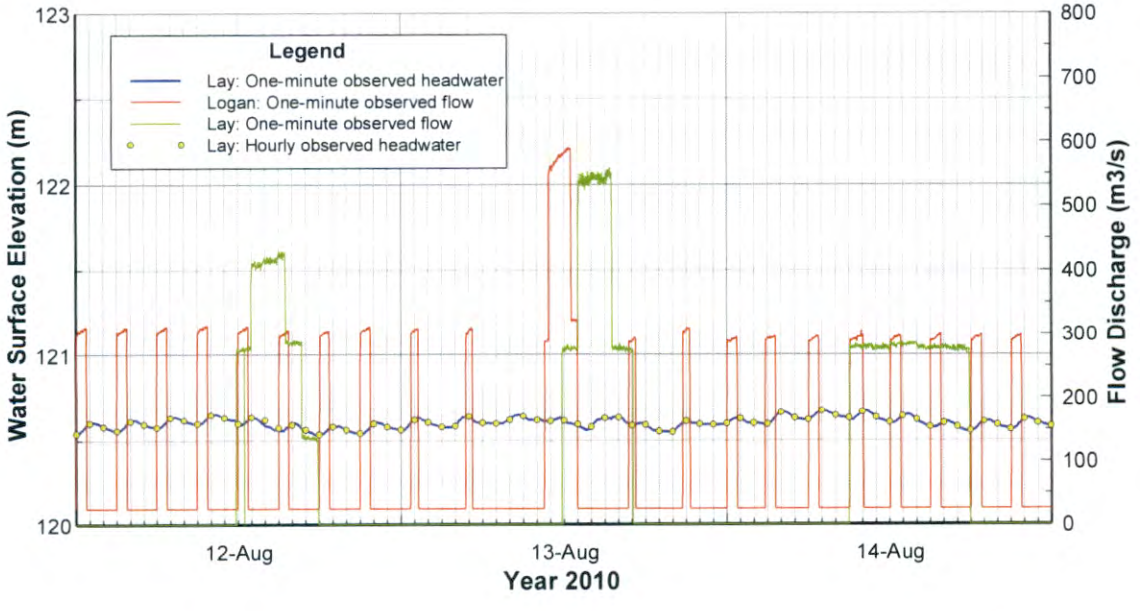


Figure 2-19 Headwater at Lay and released flows from dams in August 2010.

2.4 Water temperature

Long term water temperature data are collected at USGS stations of Childersburg, Vincent and Westover with a sampling interval of 1 hour. Water temperature is also recorded for some short periods at various locations as shown in Figure 2-20, Figure 2-21 and Figure 2-22. A list of all the water temperature stations is contained in Table 2-6.

The temperature with corresponding released flow from Logan Martin Dam is shown in Figure 2-23.

Figure 2-24 and Figure 2-25 present temperatures at EC intake canal (GAIC) and discharge canals for units 1+2 (GADCA) and units 3+4 (GADCB) with their cooling discharges and power generations.

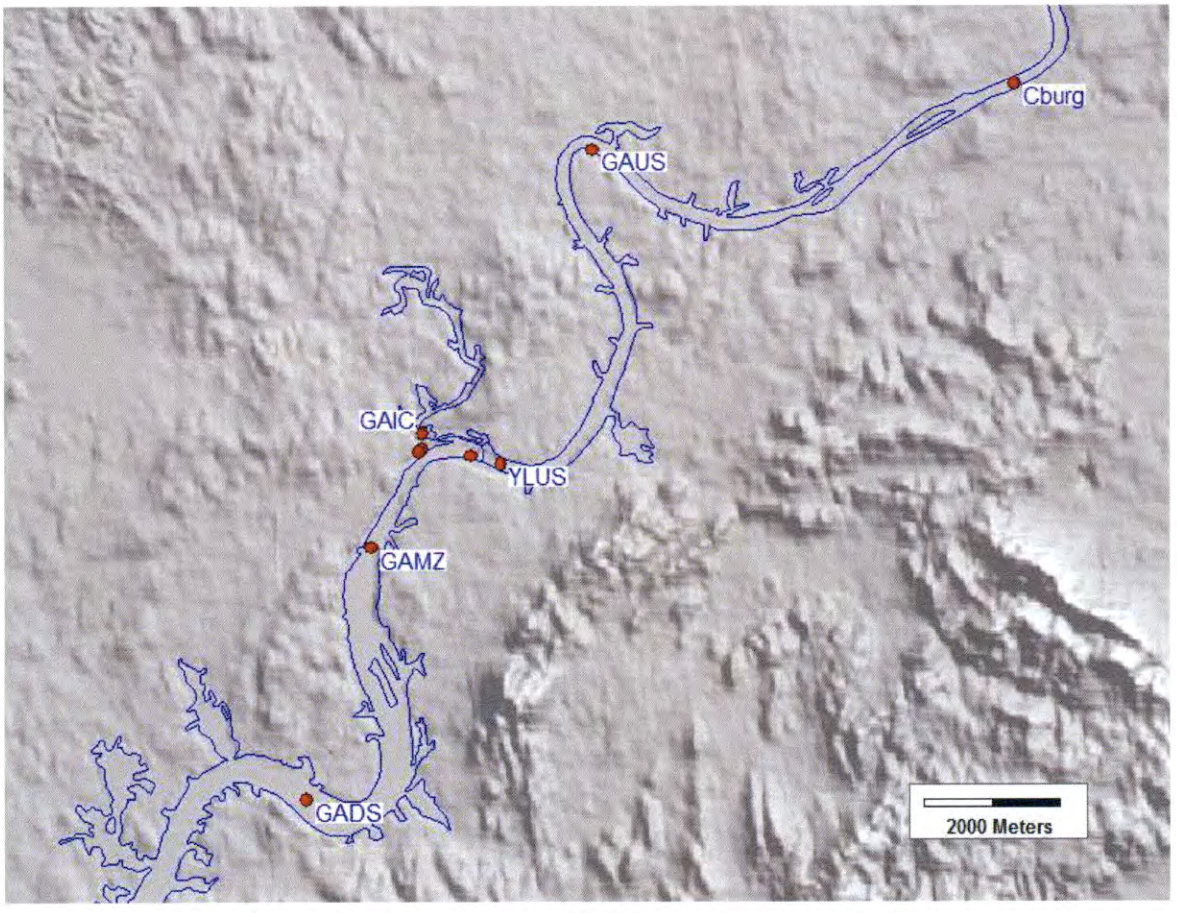


Figure 2-20 Locations of water temperature measurement.

Figure 2-21 Locations of water temperature measurement near EC Gaston.

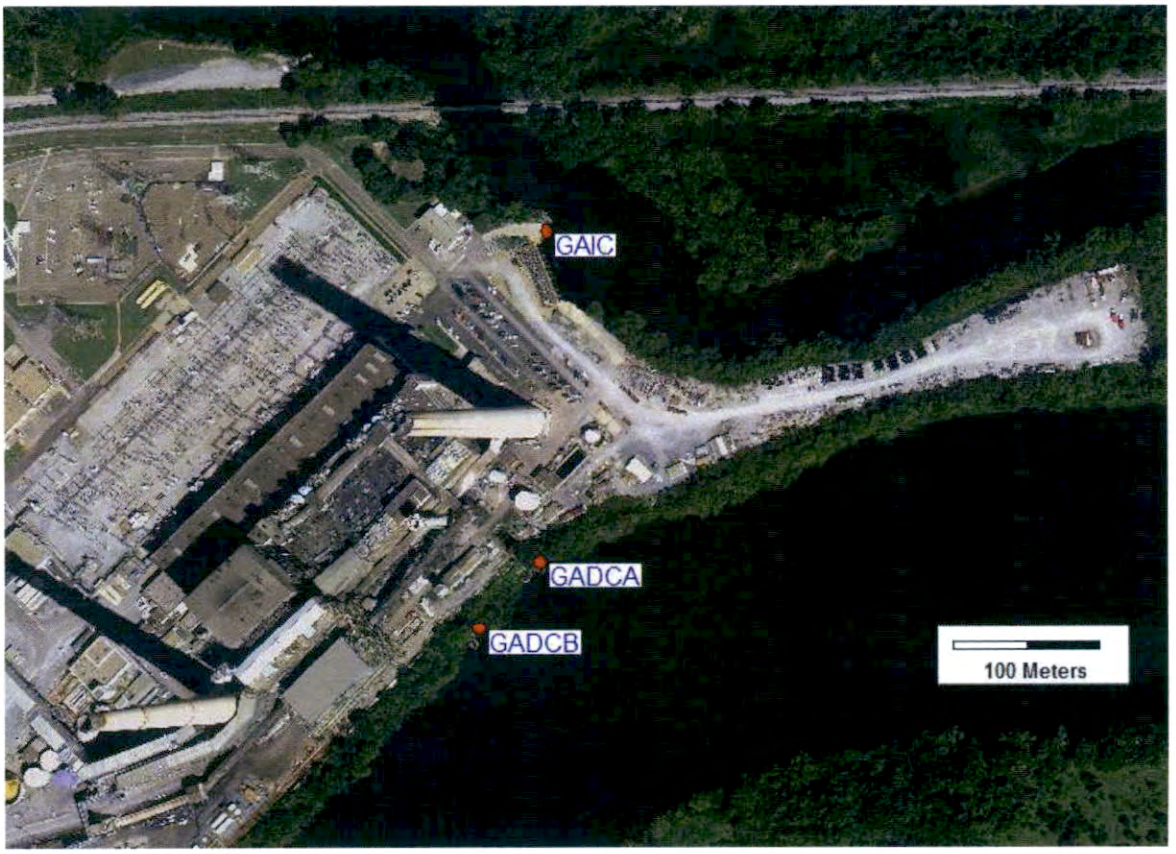


Figure 2-22 Locations of water temperature measurement at EC Gaston intake and discharges.

Table 2-6 List of locations with temperature measurement near EC Gaston.

Location	Position	Longitude	Latitude	Notes
Coosa River at 280 Bridge in Childersburg, upstream of plant (Cburg)	Mid-channel	W86°21 '52"	N33°17 '26"	
	Left Bank (ADCP)	W86°21 '50"	N33°17 '25"	
	Right Bank (ADCP)	W86°21 '53"	N33°17 '30"	
	Shallow Thermistors	W86°21 '54"	N33°17 '30"	Longterm
	Deep Thermistors	W86°21 '52"	N33°17 '26"	
	Conduit	W86°21 '53"	N33°17 '30"	
Coosa River at upstream of confluence with Yellowleaf Creek (YLUS)	Deep Thermistors	W86°26 '40"	N33°14 '30"	
	Left Bank (ADCP)	W86°26 '41"	N33°14 '27"	
	Right Bank (ADCP)	W86°26 '39"	N33°14 '33"	
Coosa River at downstream of confluence with Yellowleaf Creek (YLDS)	Deep Thermistors	W86°26 '57"	N33°14 '34"	
	Left Bank (ADCP)	W86°26 '57"	N33°14 '33"	
	Right Bank (ADCP)	W86°26 '55"	N33°14 '38"	
Gaston Upstream (GAUS or Station 1)	Shallow Thermistors	W86°25 '48"	N33°16 '57"	Longterm
	Deep Thermistors	W86°25 '47"	N33°17 '02"	
Gaston Mixing Zone (GAMZ or Station 9)	Conduit	W86°27 '59"	N33°13 '49"	
	Shallow Thermistors	W86°27 '12"	N33°13 '49"	
	Deep Thermistors	W86°27 '53"	N33°13 '51"	
	Left Bank (ADCP)	W86°27 '50"	N33°13 '34"	
	Right Bank (ADCP)	W86°28 '07"	N33°13 '35"	
Gaston Downstream (GADS)	Conduit	W86°28 '34"	N33°11 '48"	
	Shallow Thermistors	W86°28 '39"	N33°11 '51"	Longterm
	Deep Thermistors	W86°28 '30"	N33°11 '53"	Longterm
	Left Bank (ADCP)	W86°28 '34"	N33°11 '48"	
	Right Bank (ADCP)	W86°28 '29"	N33°11 '56"	
Gaston Intake Canal (GAIC)	Shallow Thermistors	W86°27 '24"	N33°14 '45"	
	Deep Thermistors	W86°27 '24"	N33°14 '45"	
Gaston Discharge Units 1+2 (GADCA)	Shallow Thermistors	W86°27 '24"	N33°14 '37"	
Gaston Discharge Units 3+4 (GADCB)	Shallow Thermistors	W86°27 '26"	N33°14 '36"	

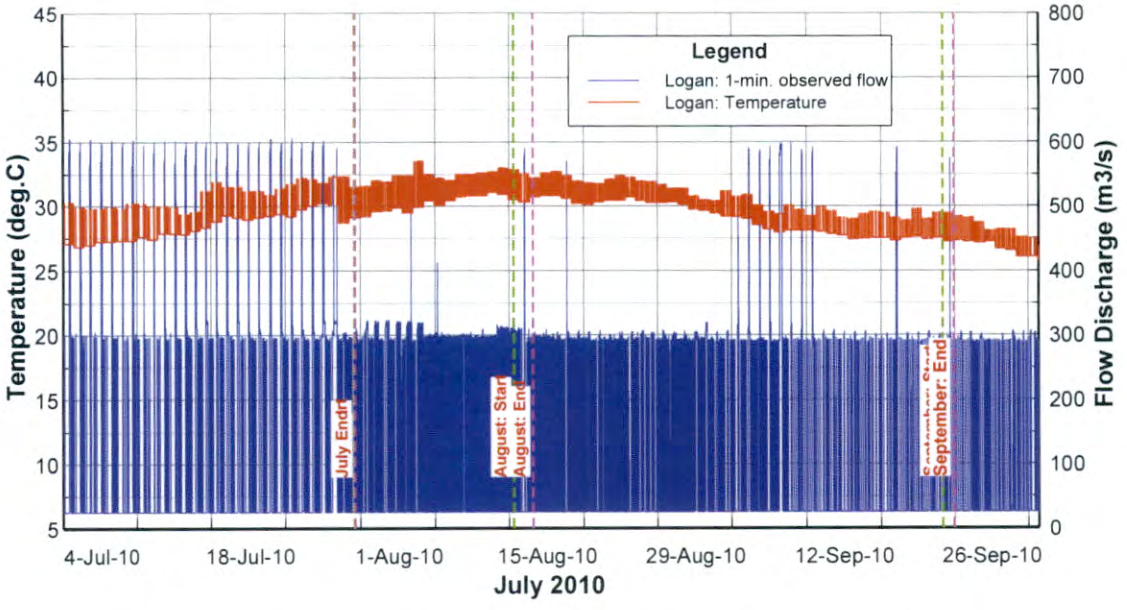


Figure 2-23 Temperature and released flow at Logan Martin Dam.

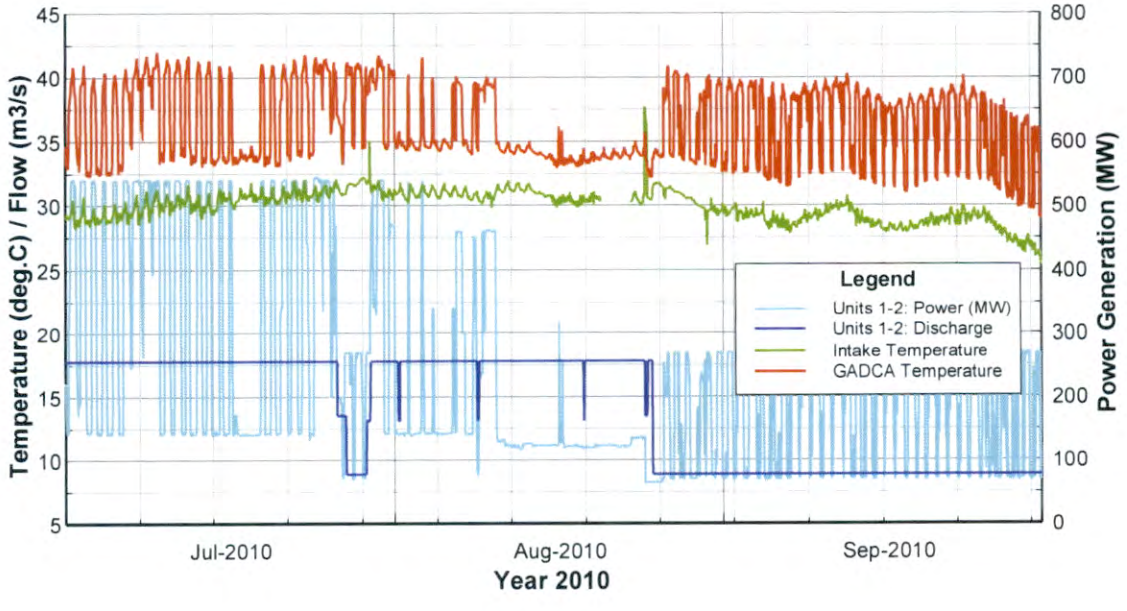


Figure 2-24 Temperature and operational data of EC Gaston units 1+2.

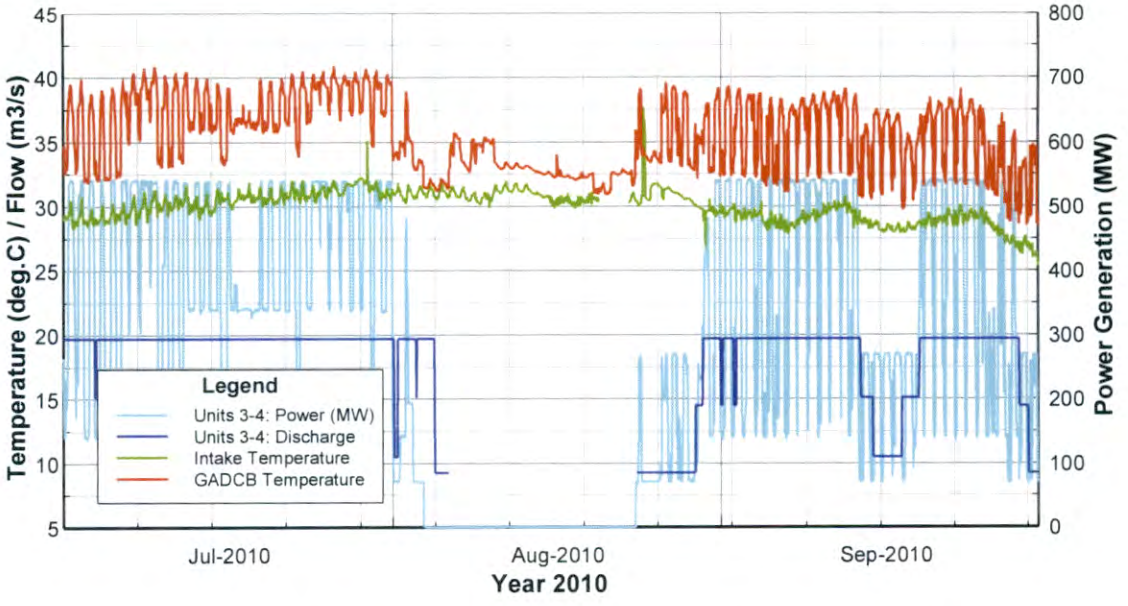


Figure 2-25 Temperature and operational data of EC Gaston units 3+4.

2.5 Bathymetric data

Bathymetric data from several sources have been used for this study:

- Sounding data of the main channel of the Coosa River from the Logan Martin Dam to the Lay Dam at numerous cross sections in February 2008;
- High resolution of sounding data of the Coosa River surrounding the EC Gaston Steam Plant in February 2008;
- Sounding data of the Yellow Leaf Creek in February 2008;
- Sounding data of the numerous embayments along the Coosa River from the Logan Martin Dam to the Lay Dam in October 2010;
- LiDAR data of the dry land along the Coosa River from the Logan Martin Dam to the Lay Dam;

All the bathymetric data are converted into the same coordinate system of NAD83 UTM zone 16.

Figure 2-26 presents the bathymetric data of the Lay Lake and the Coosa River between Logan Martin and Lay dams. Figure 2-27 and Figure 2-28 present the detailed bathymetric data and a Digital Elevation Model (DEM) of 2m×2m resolution developed for the Yellow Leaf Creek and the Coosa River near the EC Gaston Steam Plant.

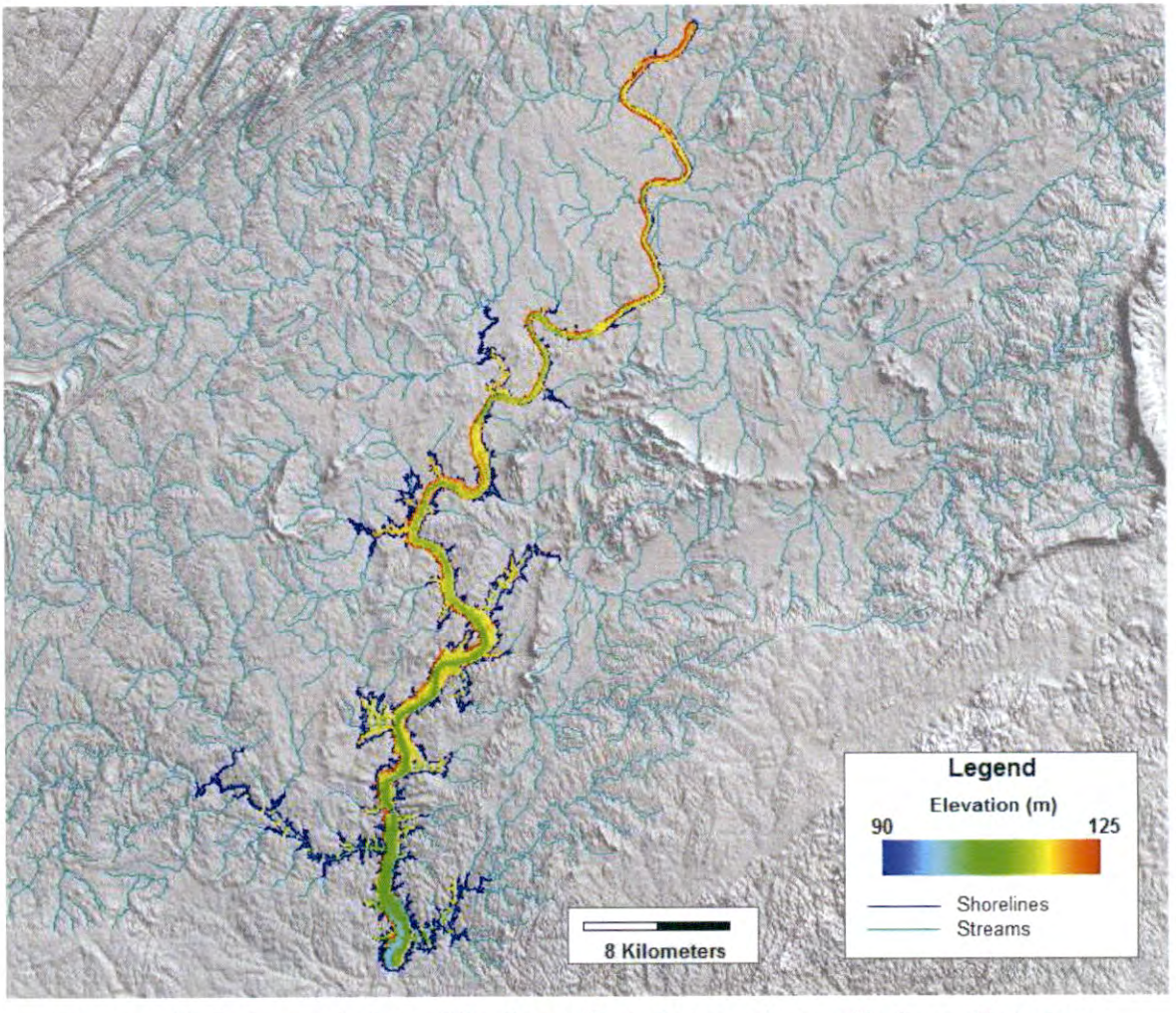


Figure 2-26 Bathymetric data of the Coosa River between Logan Martin and Lay dams.

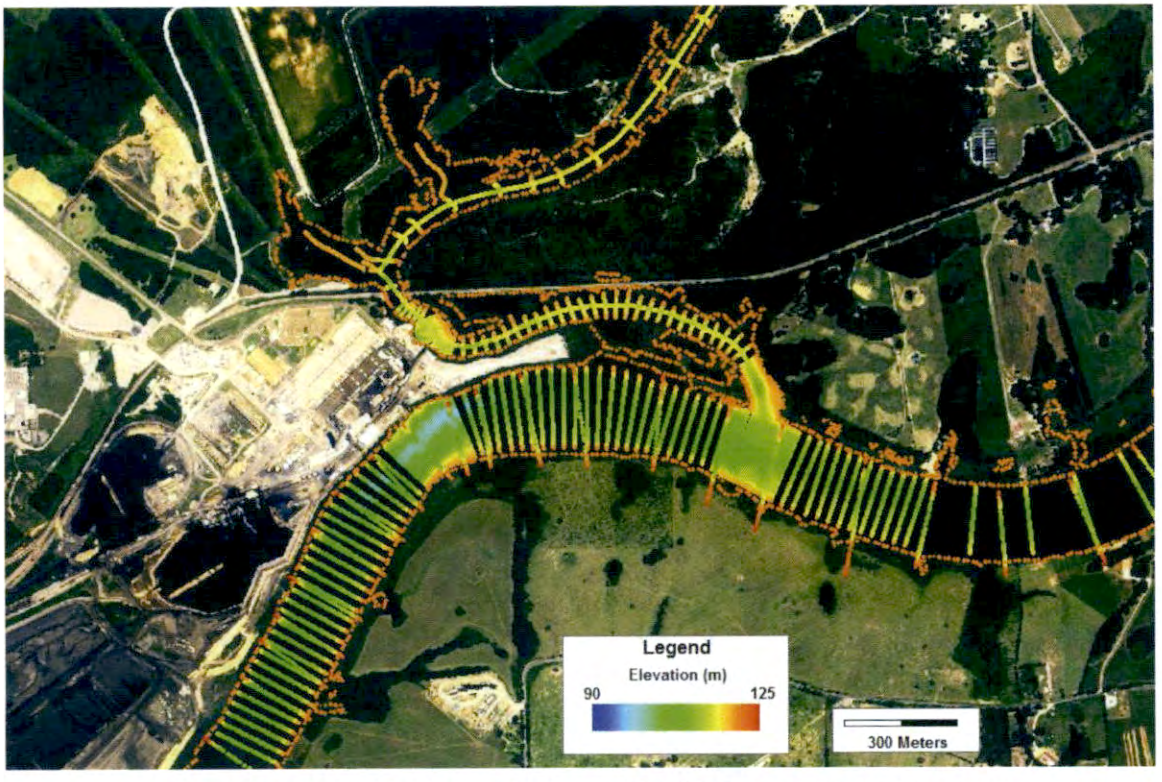


Figure 2-27 Detailed bathymetric data at the EC Gaston Steam Plant area.

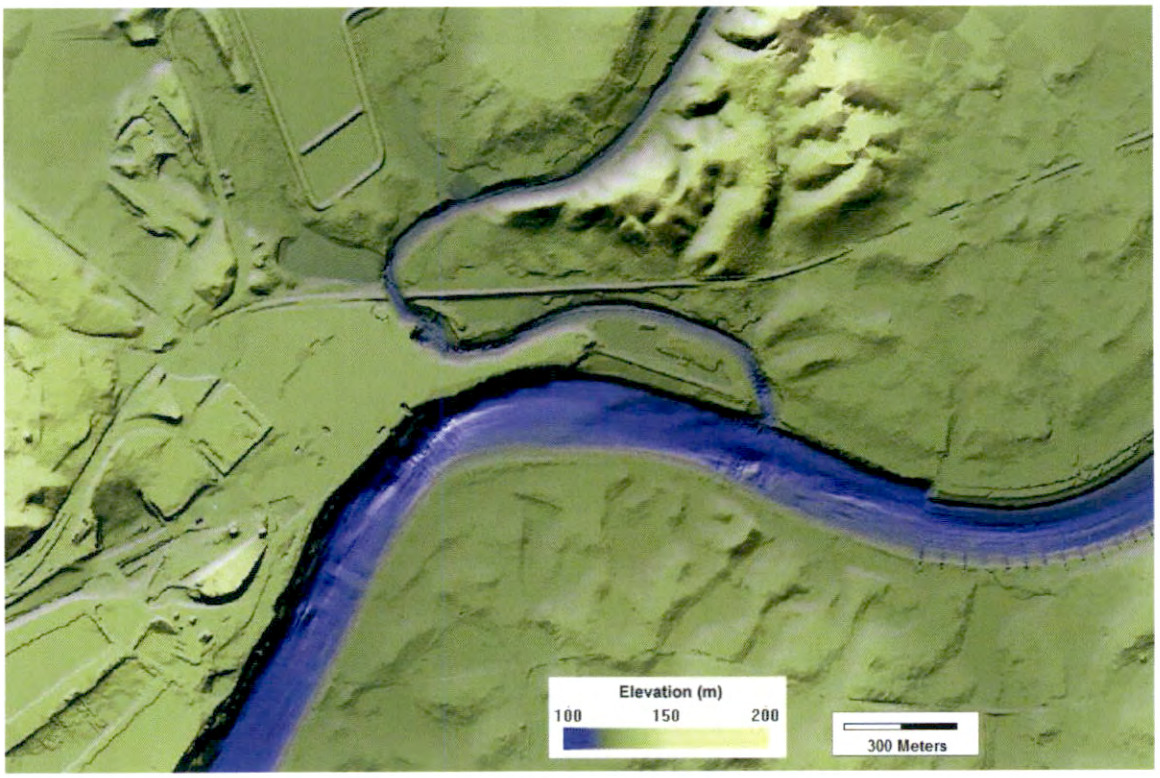


Figure 2-28 Digital Elevation Model of the EC Gaston Steam Plant area.

3 Model Development

3.1 EFDC Model Description

The specific model used for this analysis is the Environmental Fluid Dynamics Code (EFDC) (Hamrick, 1992). EFDC is a general purpose hydrodynamic modeling package for simulating one, two or three-dimensional flow, transport and biogeochemical process in surface water systems including: rivers, lakes, estuaries, reservoirs, wetlands and near shore to shelf scale coastal regions. The EFDC model was originally developed at the Virginia Institute of Marine Science for estuarine and coastal applications and is public domain software. The model is presently supported by the U.S. EPA.

EFDC solves the finite-differenced form of the hydrostatic Navier-Stokes equations, together with a continuity equation, and transport equations for salt, temperature, turbulent kinetic energy and turbulent macroscale (Hamrick, 1992). The equations are solved horizontally on a curvilinear, orthogonal grid, and vertically on a stretched sigma-grid. Vertical diffusion coefficients for momentum, mass, and temperature are determined by the turbulent closure scheme of Mellor and Yamada (1982) and Galperin et al. (1988). Horizontal mixing coefficients are parameterized using a Smagorinsky (1963) formulation.

In addition to the EFDC model, the study also uses the program EFDC_Explorer (EE) (Craig, 2010). EE is a pre- and post-processor for the EFDC model providing rapid model development, calibration and reporting. EE is free to DSLLC clients and is supplied along with the EFDC model as one of the deliverables of this study.

3.2 Lay Reservoir Hydrothermal Model Setup

3.2.1 Grid Development

The Lay-Thermal model was developed for hydrodynamic and thermal analysis of the Lay Reservoir on the Coosa River between Logan Martin and Lay Dams. The Lay- Thermal model grid contains 7,056 horizontal, vertically stretched sigma coordinates cells with a model domain that extends about 76 km from the Logan Martin Dam to the Lay Dam. The grid of the Lay-Thermal model is shown in Figure 3-1. Figure 3-2 shows the detailed model grid near the EC Gaston Steam Plant.

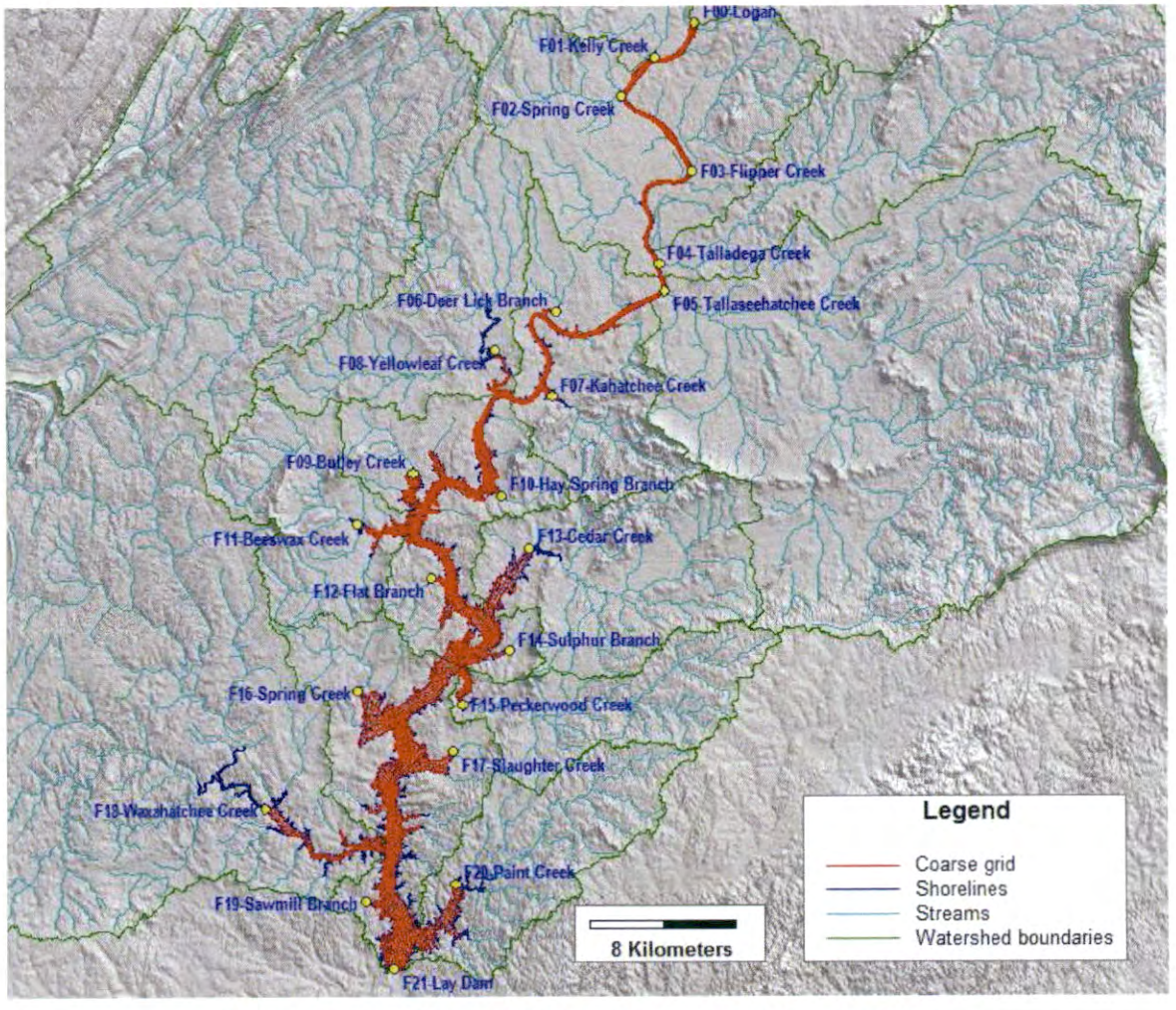


Figure 3-1 Lay-Thermal model grid and boundary locations.

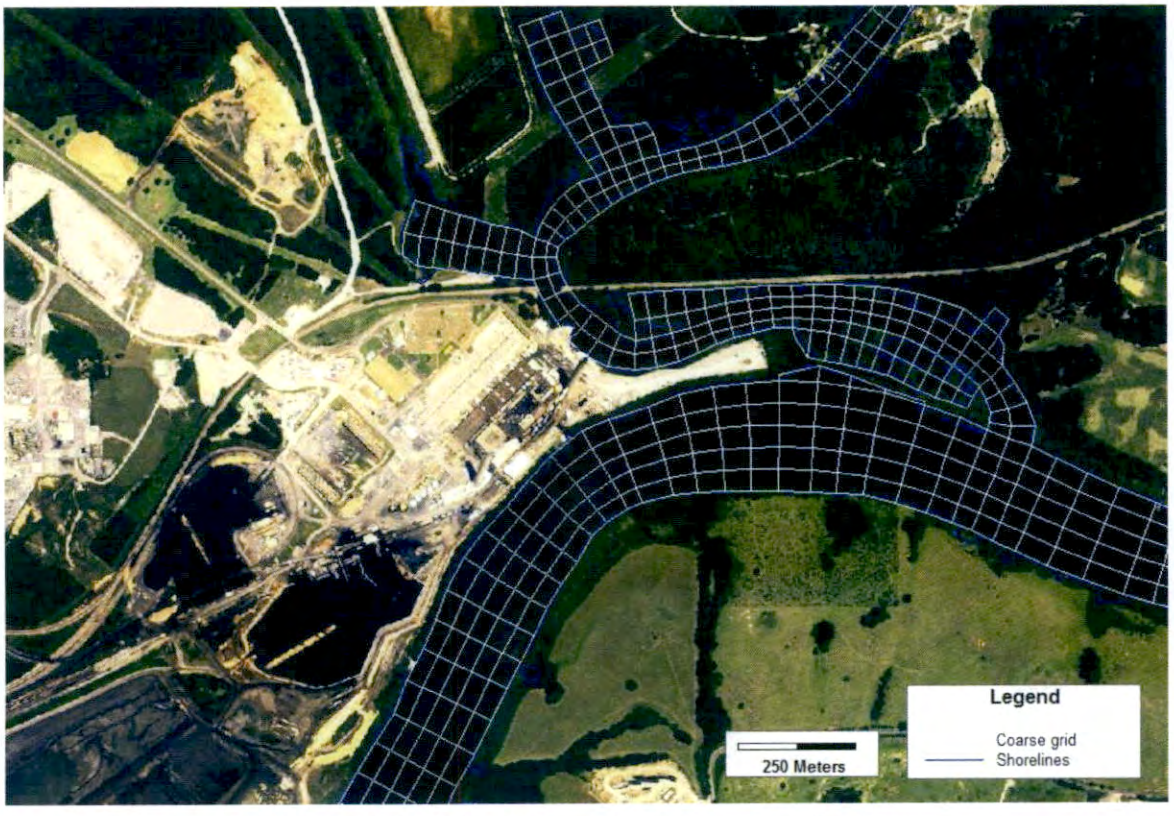


Figure 3-2 Details of the model grid near EC Gaston.

3.2.2 Bathymetry

The model bathymetry was interpolated on the basis of bathymetric data described previously. The resulting model bathymetry for the Lay-Thermal model is shown in Figure 3-3. Figure 3-4 shows the Elevation-Volume-Area curves for the Lay Lake derived from the Lay-Thermal model bathymetry in comparison with the actual data.

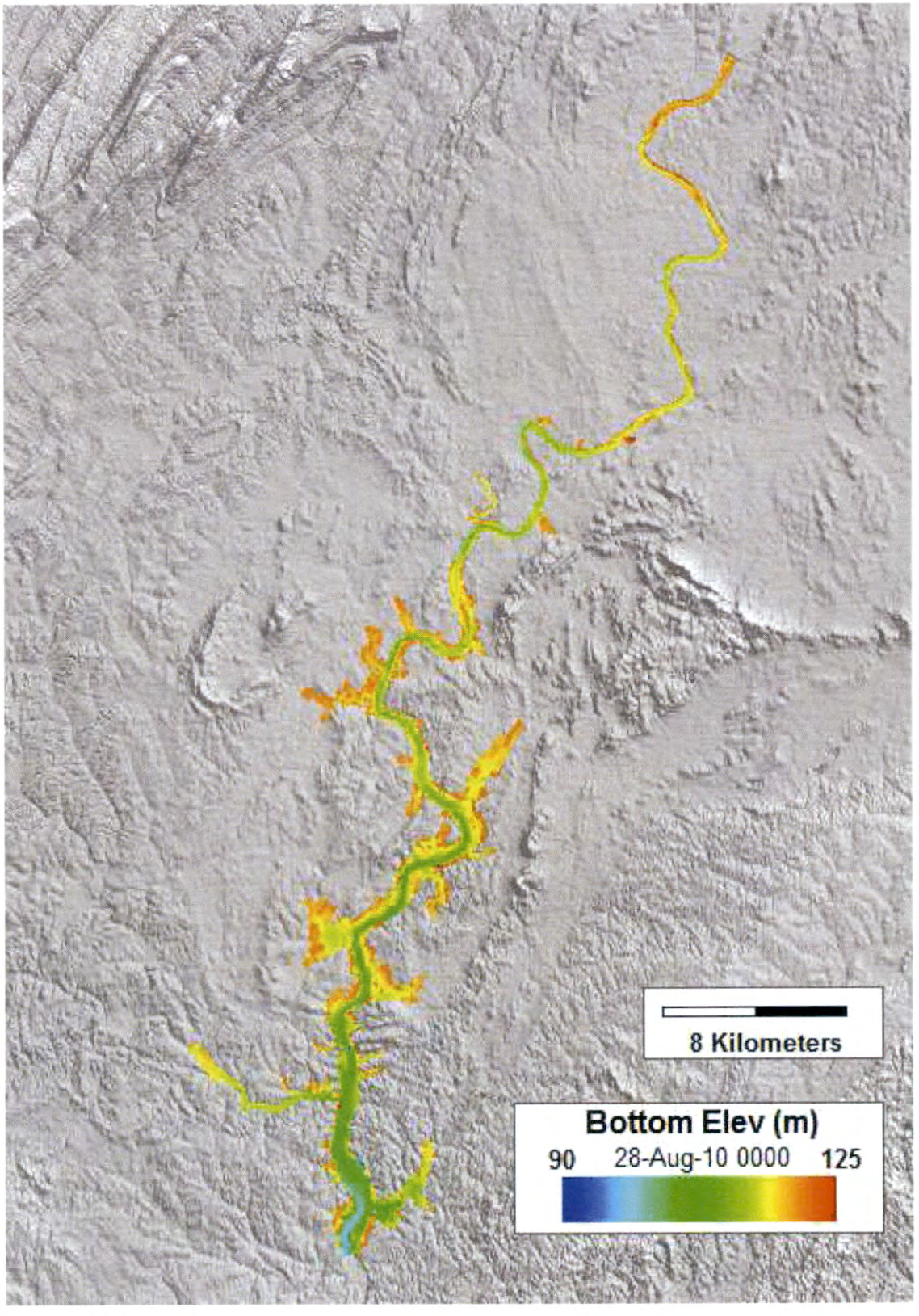

8 Kilometers
Bottom Elev (m)
90
28-Aug-10 0000
125

Figure 3-3 Lay-Thermal model bathymetry.

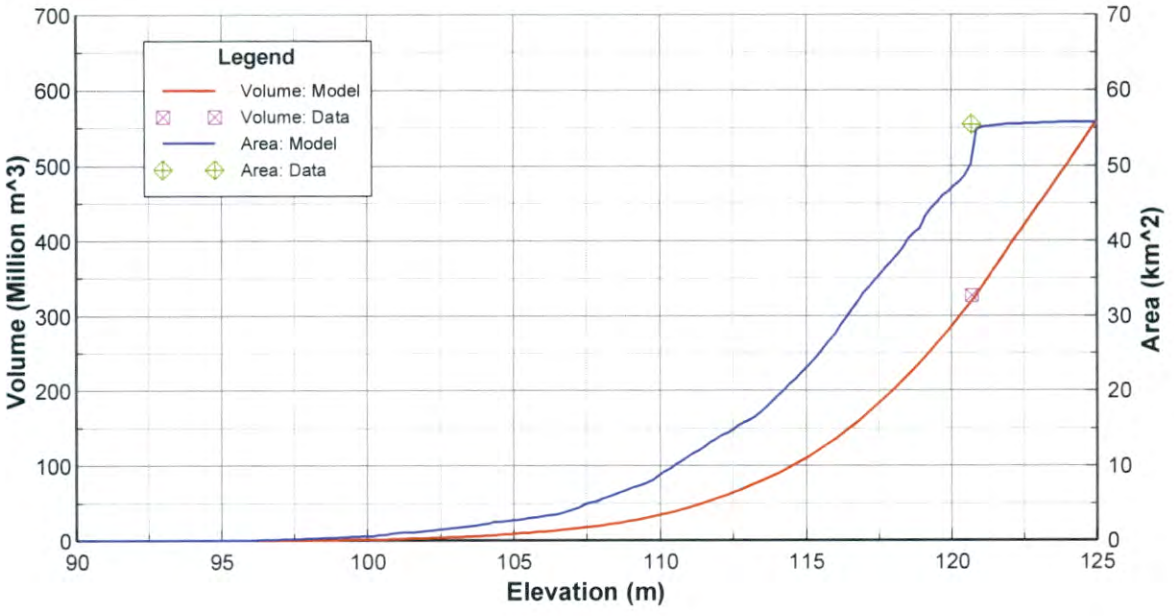


Figure 3-4 Elevation-Volume-Area curves derived from Lay-Thermal model bathymetry.

3.2.3 Boundary Conditions

3.2.3.1 Flow boundary conditions

Figures 3-5 to 3-9 display the boundary conditions for the Lay-Thermal model. The upstream boundary conditions are the flow released from the Logan Martin Dam and inflows from 20 local basins between the Logan Martin Dam and the Lay Dam. The downstream boundary condition is a specified flow released from the Lay Dam.

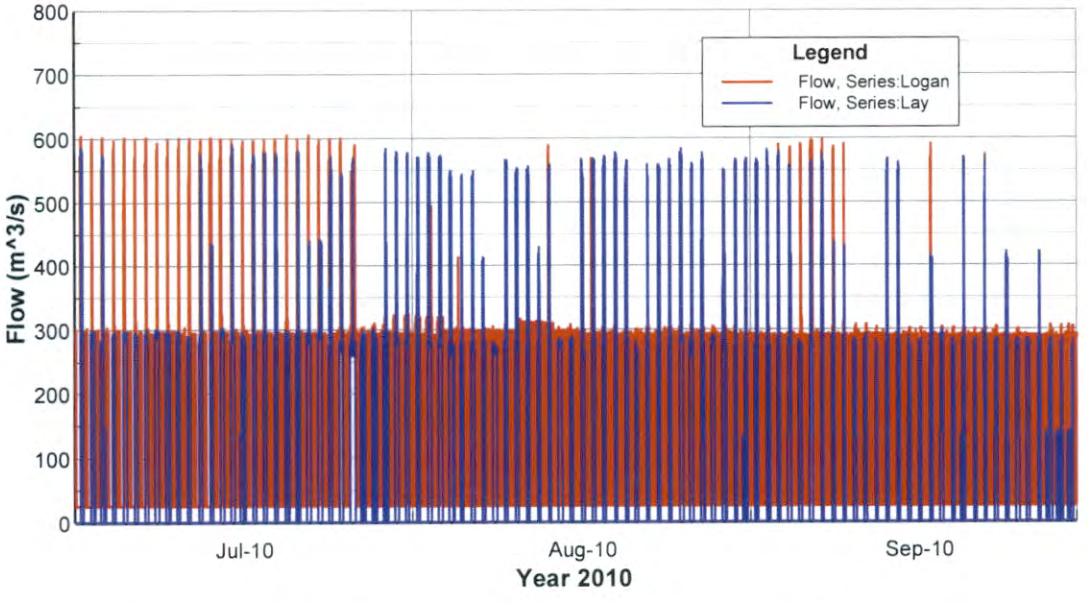


Figure 3-5 Flow boundary conditions at Logan Martin and Lay Dams.

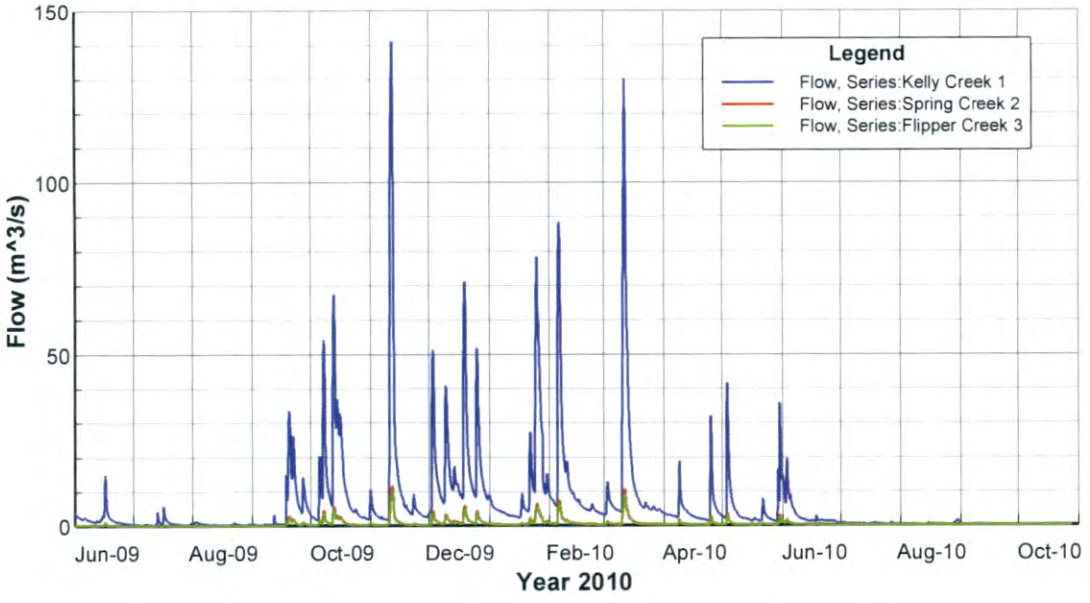


Figure 3-6 Flow boundary conditions from local basins scaled from Vincent station.

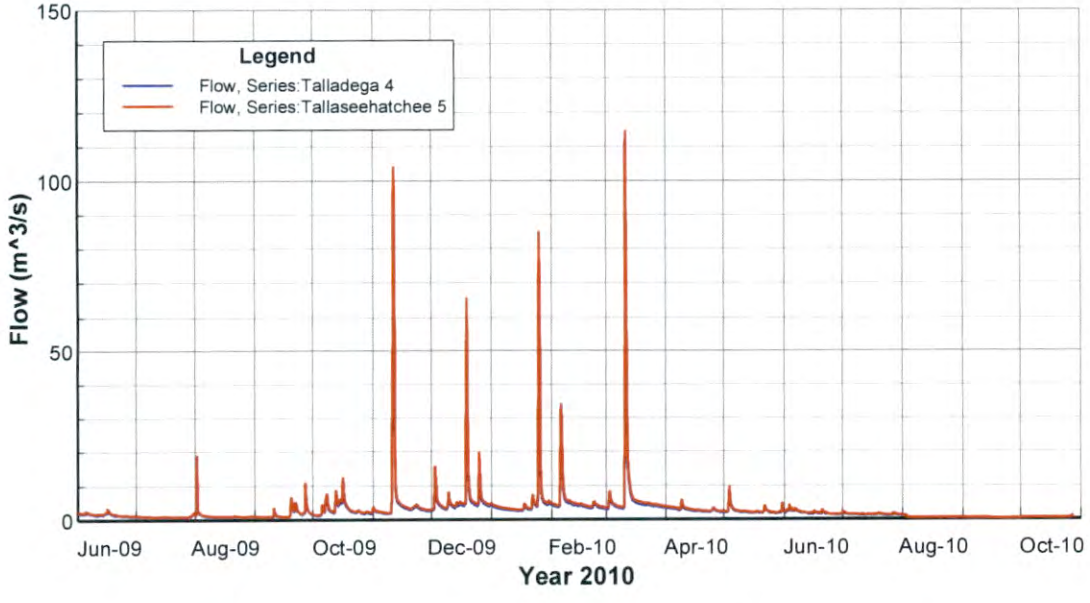


Figure 3-7 Flow boundary conditions from local basins scaled from Alpine station.

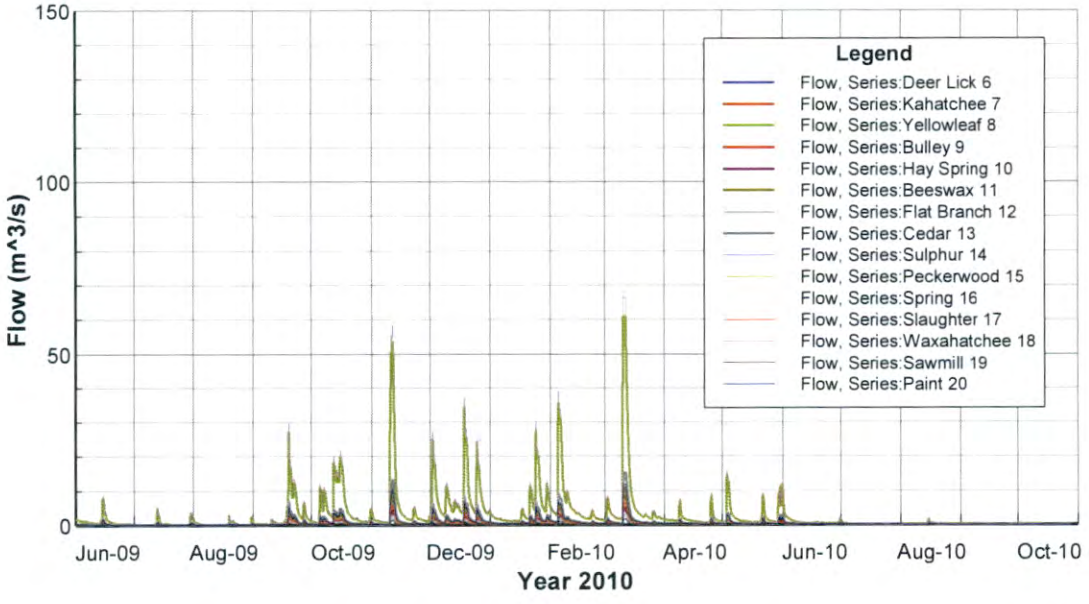


Figure 3-8 Flow boundary conditions from local basins scaled from Westover station.

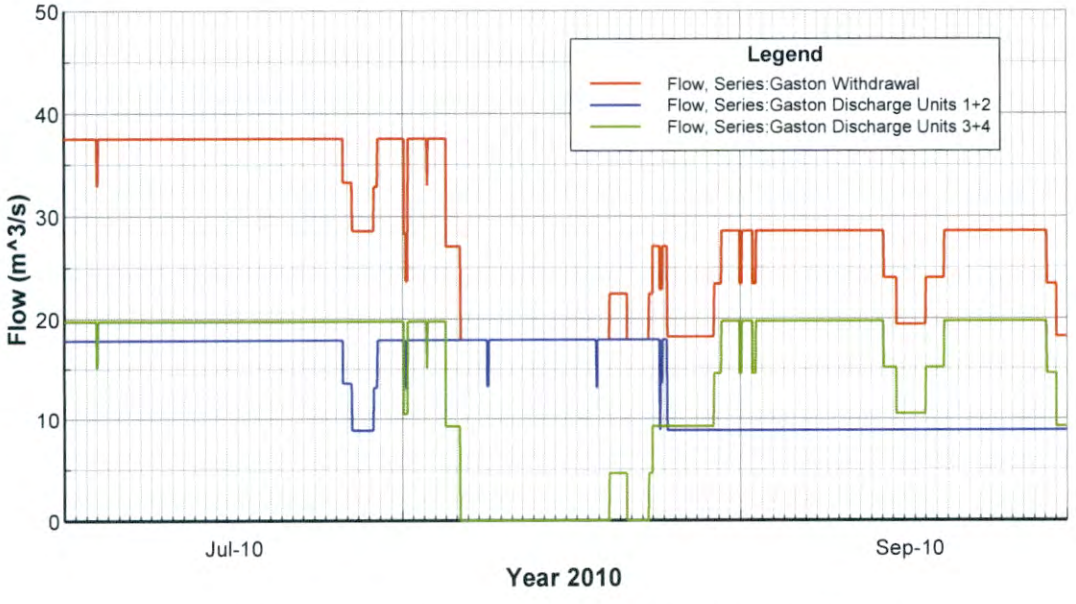


Figure 3-9 Flow boundary conditions at the EC Gaston Steam Plant.

3.2.3.2 *Temperature boundary conditions*

The temperature boundary conditions are assigned for the flows from Logan Martin Dam (Figure 3-10) and local inflows as well as the cooling water at the intake and discharge canals from the EC Gaston Steam Plant (Figure 3-11).

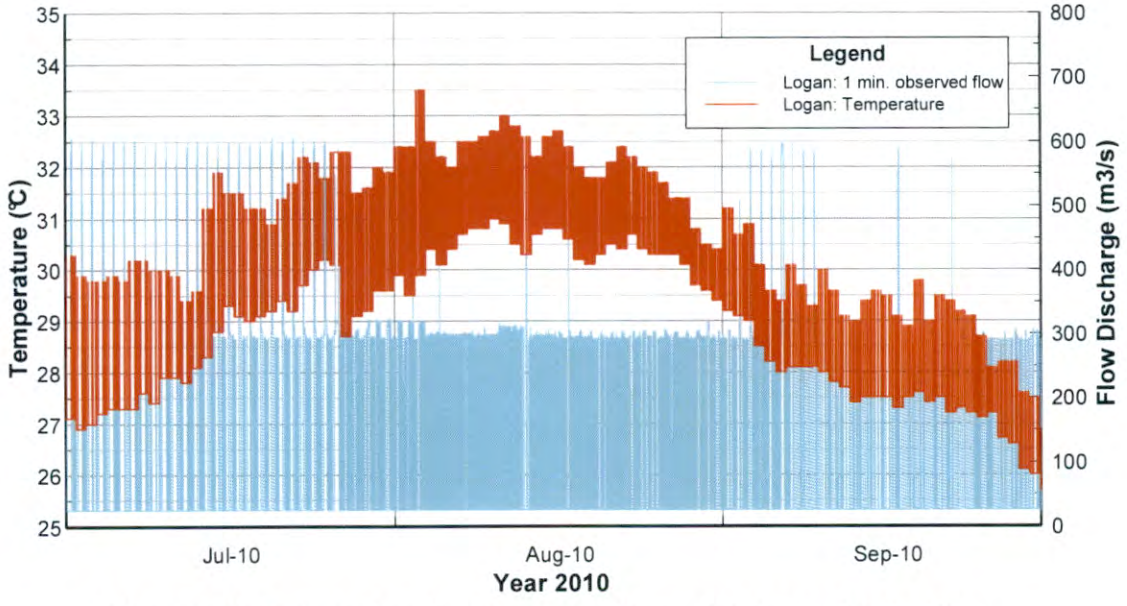


Figure 3-10 Temperature boundary conditions at the Logan Martin Dam.

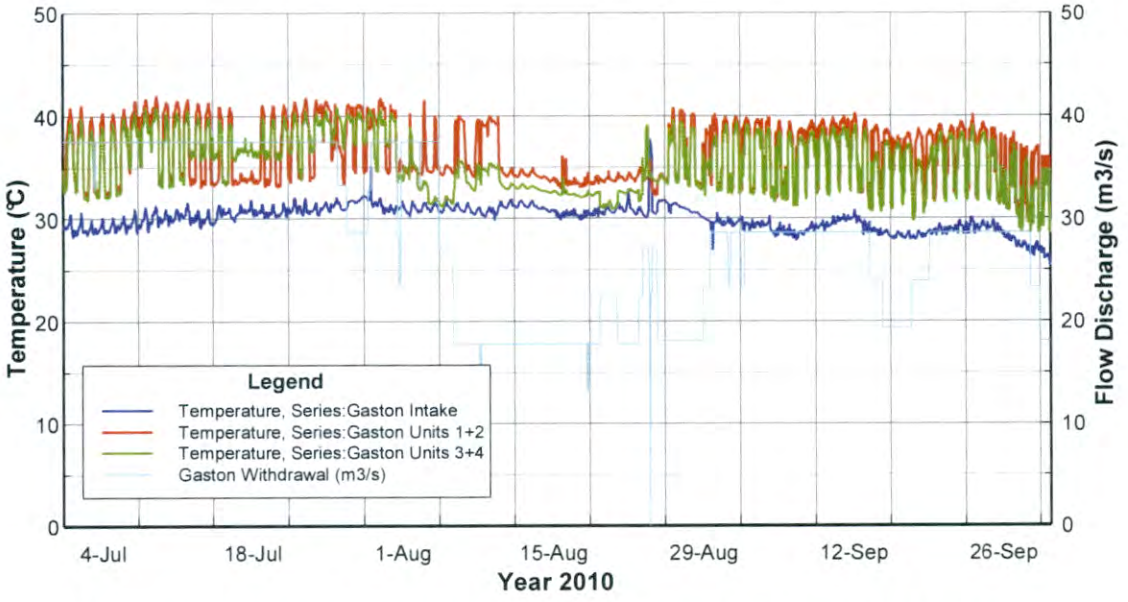


Figure 3-11 Temperature boundary conditions at the EC Gaston Steam Plant.

3.3 Lay Reservoir Hydrothermal Model Calibration

The Lay-Hydrothermal model was calibrated for the period from 1 July 2010 to 30 September 2010 based on measurement data of water level, ADCP flow and temperature. A single layer hydrodynamic model was used for the initial calibration work. Vertical layers were subsequently added to improve calibration. The final hydrothermal model used 8 vertical layers. Only the results of the final 8-layer hydrothermal model are presented.

The fitness of the model results with the observation data is evaluated using the calibration statistic Root Mean Square Error (*RMSE*) computed as follows:

$$RMSE = \sqrt{\frac{\sum_{i=1}^{N}(O_i - X_i)^2}{N}}$$

where O_i is the observed value, X_i is the computed value and N is the number of data pairs.

3.3.1 Water level

As mentioned in Section 2.3, inconsistencies were observed at some stage measurement stations, therefore minor datum adjustments have been applied to water levels at these stations as shown in Table 3-1.

Table 3-2 shows the comparison results of water levels computed by the model with the observations at the stations. As can be seen in this table, most of the *RMSE* statistics for water level for the calibration period are less than 0.1 meters except the tailwater at Logan Martin. This indicates that the model accurately predicts water levels at the stations.

Figure 3-12 to Figure 3-17 present plots of the water levels computed by the model compared with observations at the stations.

Table 3-1 Datum adjustment for stage stations.

Station	Datum adjustment (m)
Logan	-0.154
Lay	0.080
Glover's Ferry	0.082
Bowater	-0.200
Childersburg	-0.030
Gaston	0.055

Table 3-2 Comparison of model computed water levels and observations.

Station	Starting date/time	Ending date/time	# Pairs	RMSE (m)	Data average (m)	Model average (m)
Logan	01-Jul-2010 01:00	30-Sep-2010 23:00	2207	0.17	120.98	120.98
Lay	01-Jul-2010 01:00	30-Sep-2010 23:00	2207	0.05	120.68	120.68
Glover's Ferry	01-Jul-2010 01:00	30-Sep-2010 23:00	2207	0.08	120.78	120.78
Bowater	01-Jul-2010 01:00	30-Sep-2010 23:00	2207	0.08	120.73	120.73
Childersburg	01-Jul-2010 01:00	30-Sep-2010 23:00	2207	0.06	120.71	120.71
Gaston	11-Aug-2010 23:00	30-Sep-2010 23:30	2402	0.05	120.70	120.70

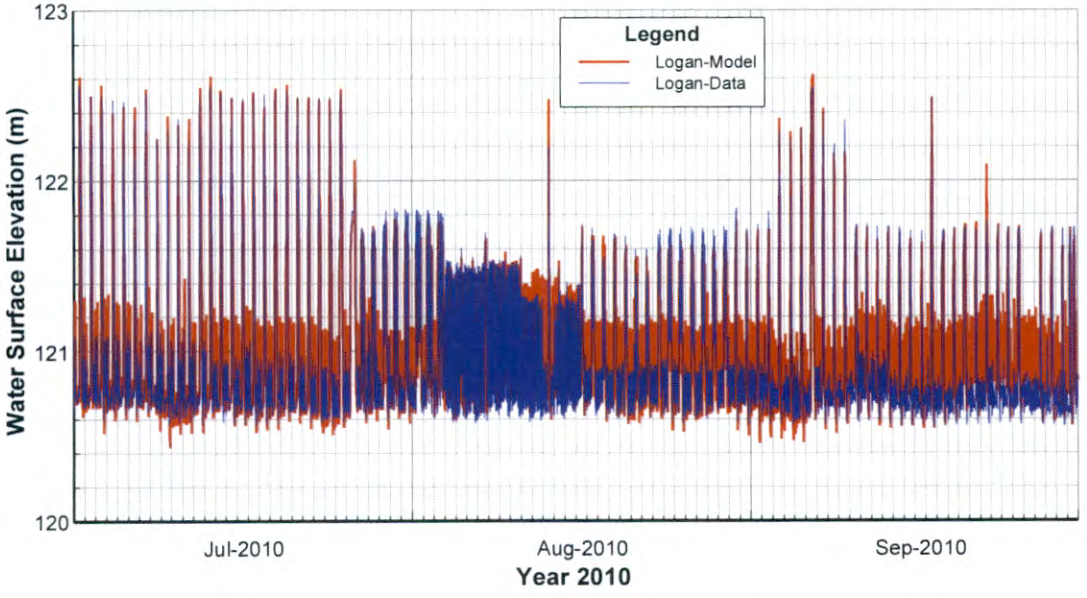


Figure 3-12 Comparison of model results on water level and Logan Martin tailwater.

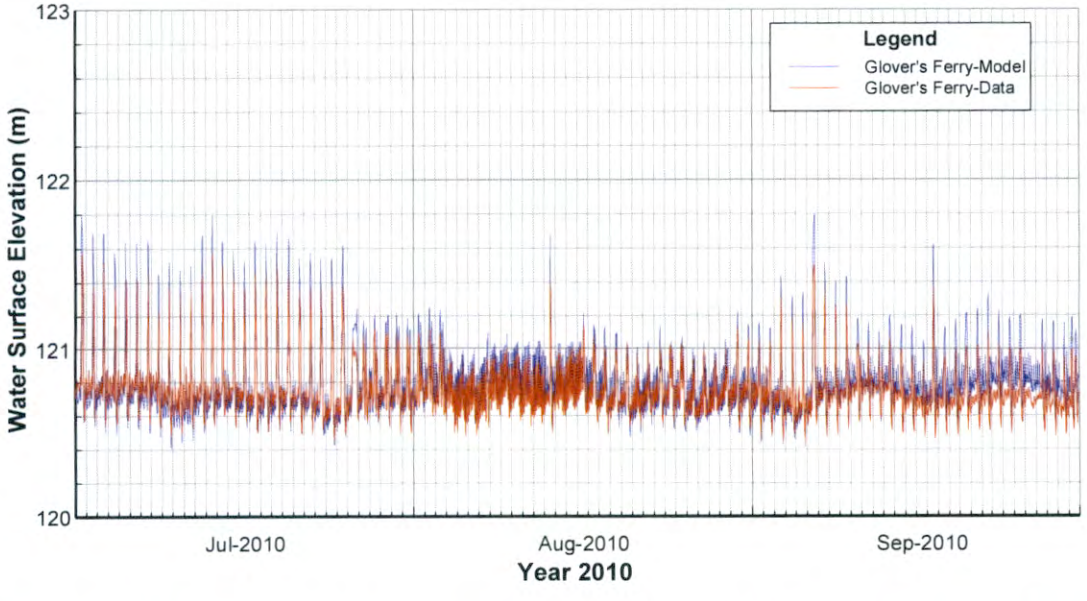


Figure 3-13 Comparison of model results on water level and observations at Glover's Ferry.

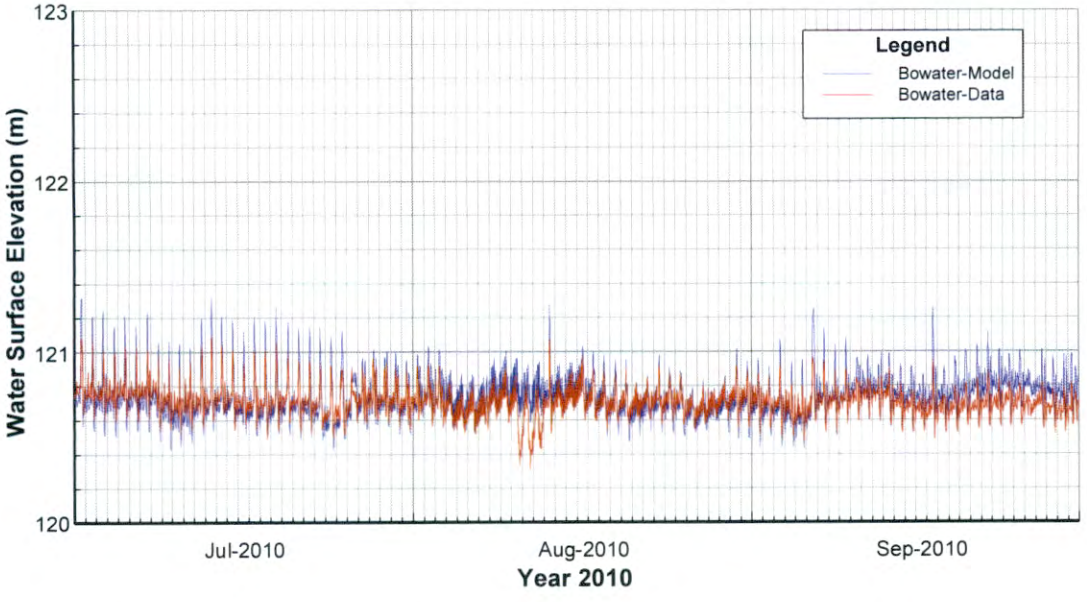


Figure 3-14 Comparison of model results on water level and observations at Bowater.

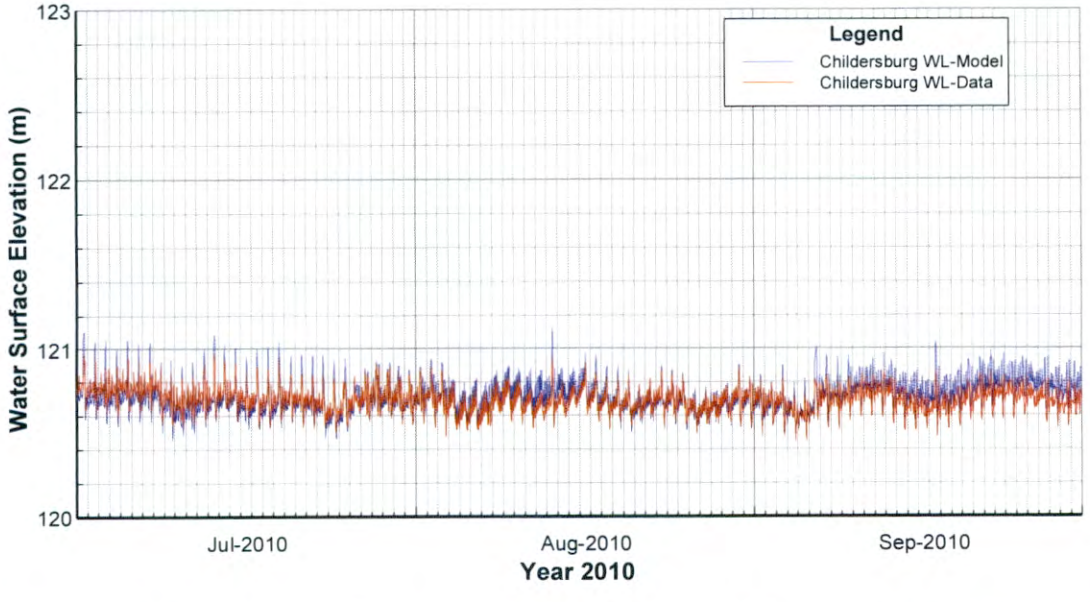


Figure 3-15 Comparison of model results on water level and observations at Childersburg.

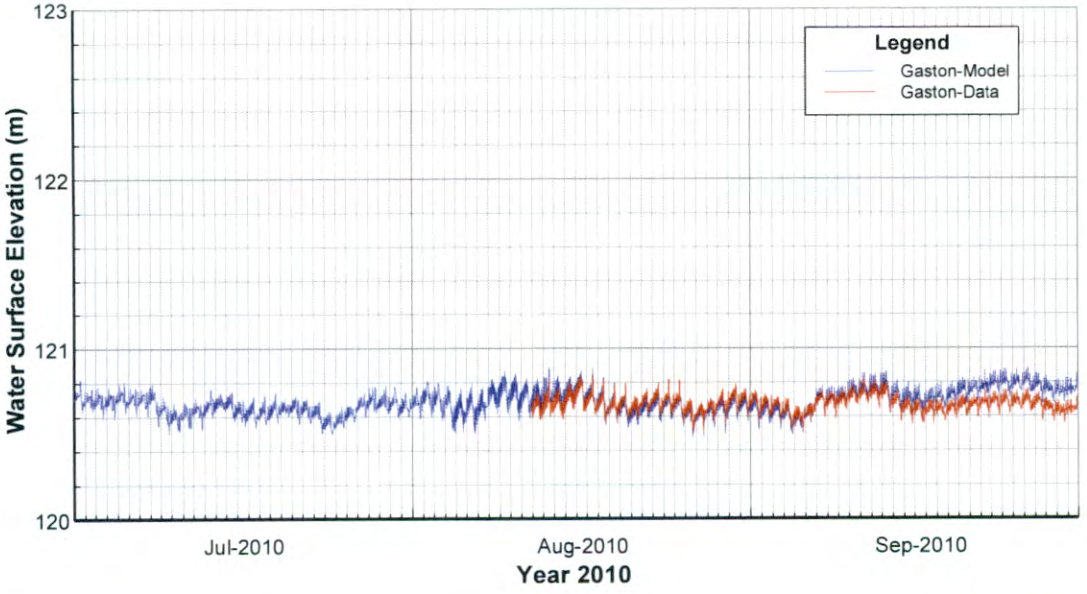


Figure 3-16 Comparison of model results on water level and observations at EC Gaston.

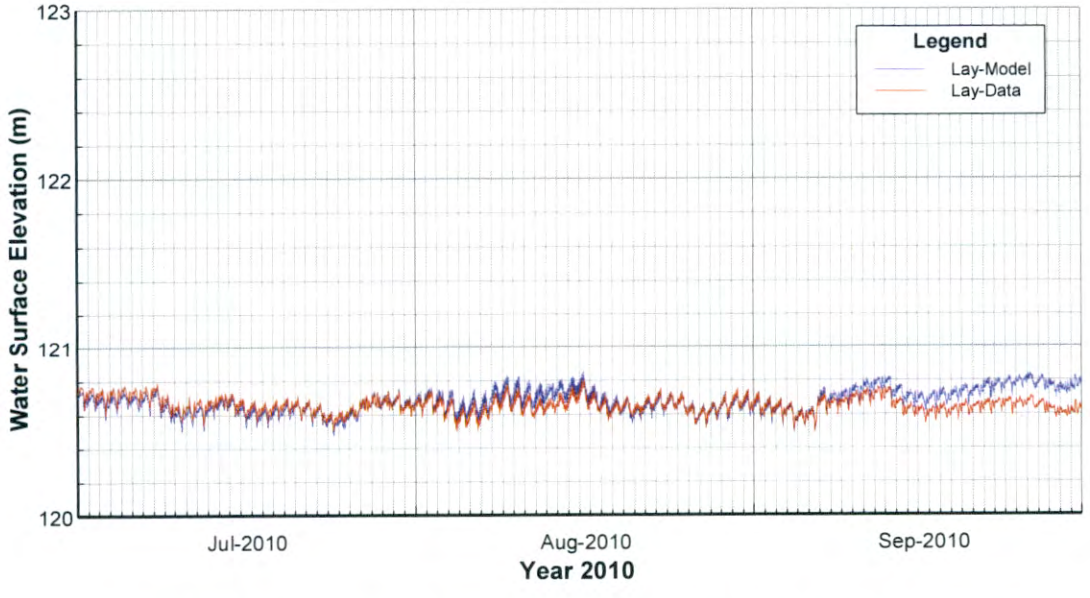


Figure 3-17 Comparison of model results on water level and Lay headwater.

3.3.2 Flow

Table 3-3 presents the comparison of flows computed by the model and ADCP data. Figure 3-18 to Figure 3-22 show the comparison plots of the flows computed by the model and ADCP data. At some locations, the model results compare very well with the ADCP data but at some other locations the model flows deviated some from the data. During the model calibration process it was determined that the flow calibration is highly sensitive to small changes in bathymetry. This occurs because the gravity wave and seiche processes are directly dependent on the depth. Small adjustments, as little as 0.25 meters, had significant impacts on predicted seiche flows.

Table 3-3 Comparison of model computed flows and ADCP data.

Station	Starting date/time	Ending date/time	# Pairs	RMSE (m^3/s)	Data average (m^3/s)	Model average (m^3/s)
July, Station 13	28-Jul-2010 09:37	28-Jul-2010 11:29	20	85.5	388.1	316.1
August, Station 11	13-Aug-2010 08:20	13-Aug-2010 14:25	34	29.4	125.1	124.9
August, Station 13	12-Aug-2010 11:30	12-Aug-2010 19:21	71	50.1	131.5	111.7
September, Childers-burg	21-Sep-2010 22:12	22-Sep-2010 21:42	299	34.7	86.7	71.0
September, GADS	21-Sep-2010 22:34	22-Sep-2010 08:12	71	47.8	59.8	43.5

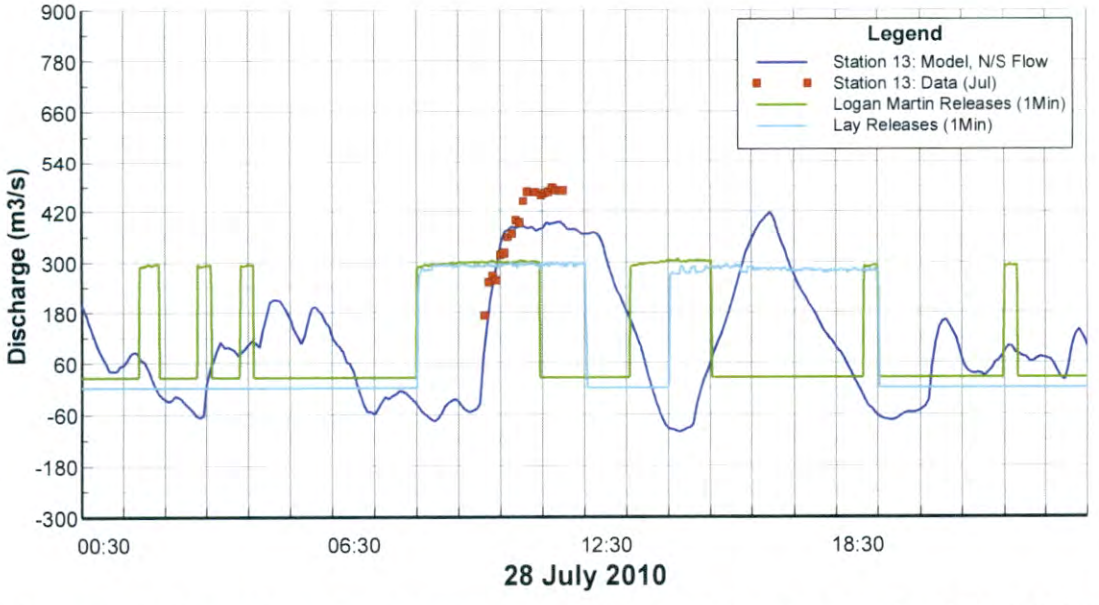


Figure 3-18 Comparison of model results on flow and ADCP data at Station 13 in July 2010.

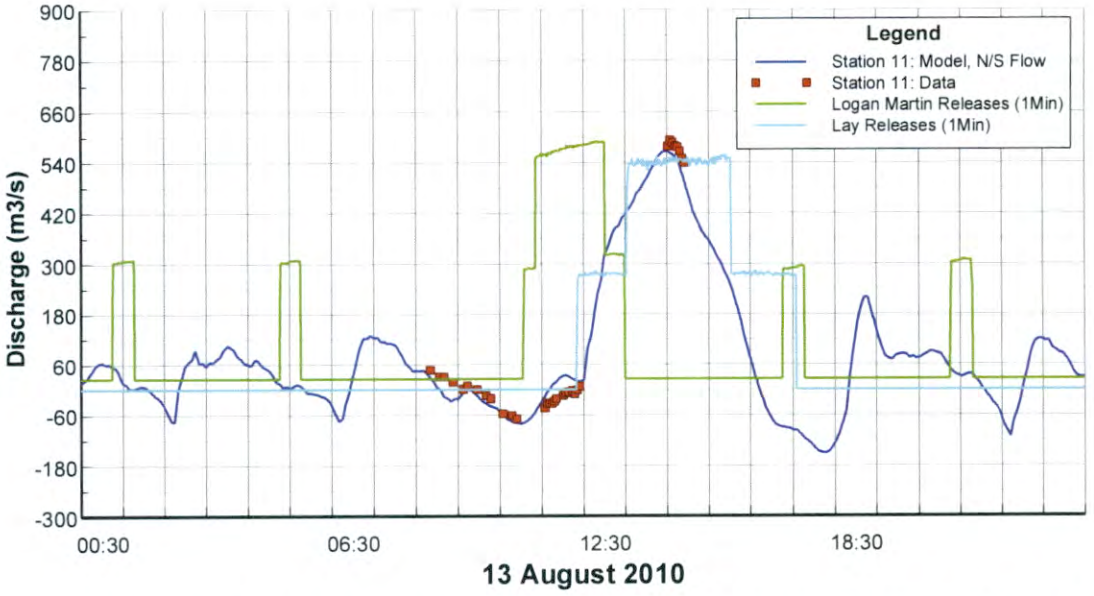


Figure 3-19 Comparison of model results on flow and ADCP data at Station 11 in August 2010.

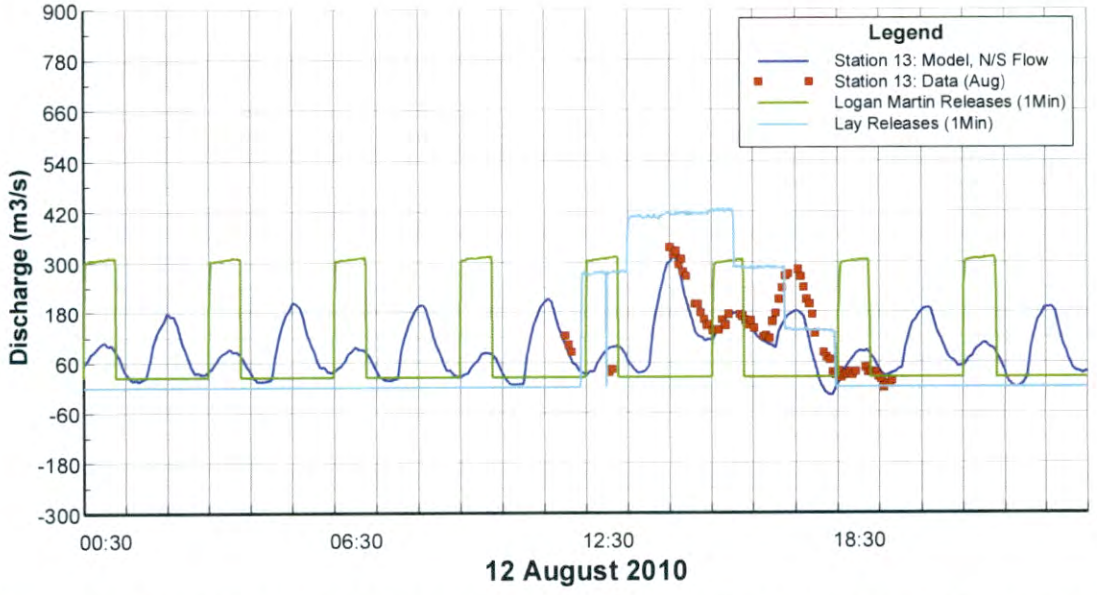


Figure 3-20 Comparison of model results on flow and ADCP data at Station 13 in August 2010.

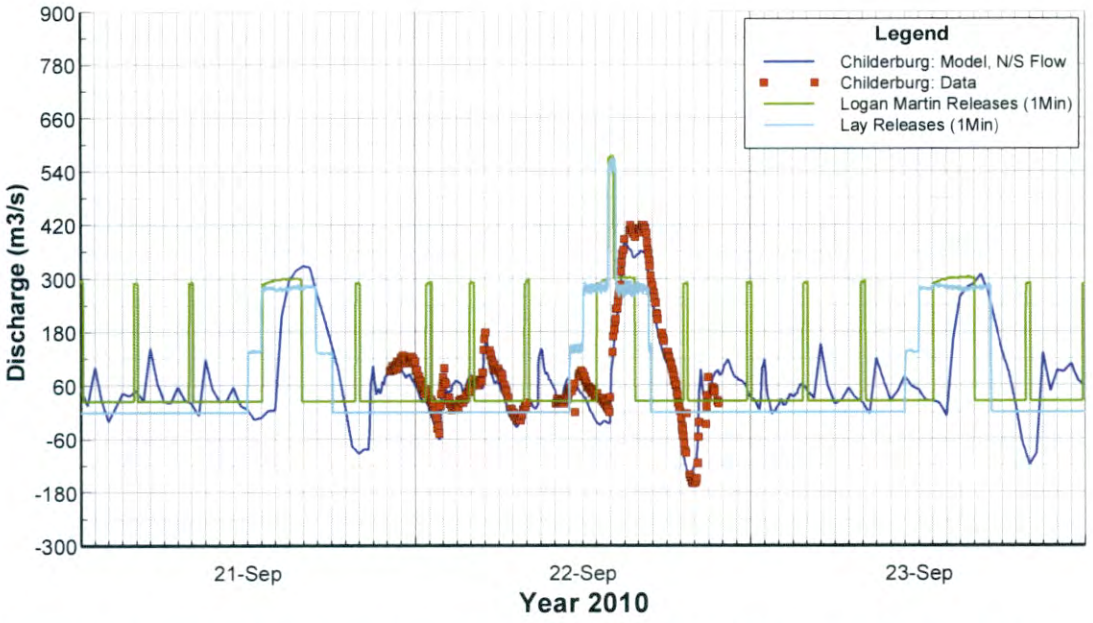


Figure 3-21 Comparison of model results on flow and ADCP data at Childersburg in September 2010.

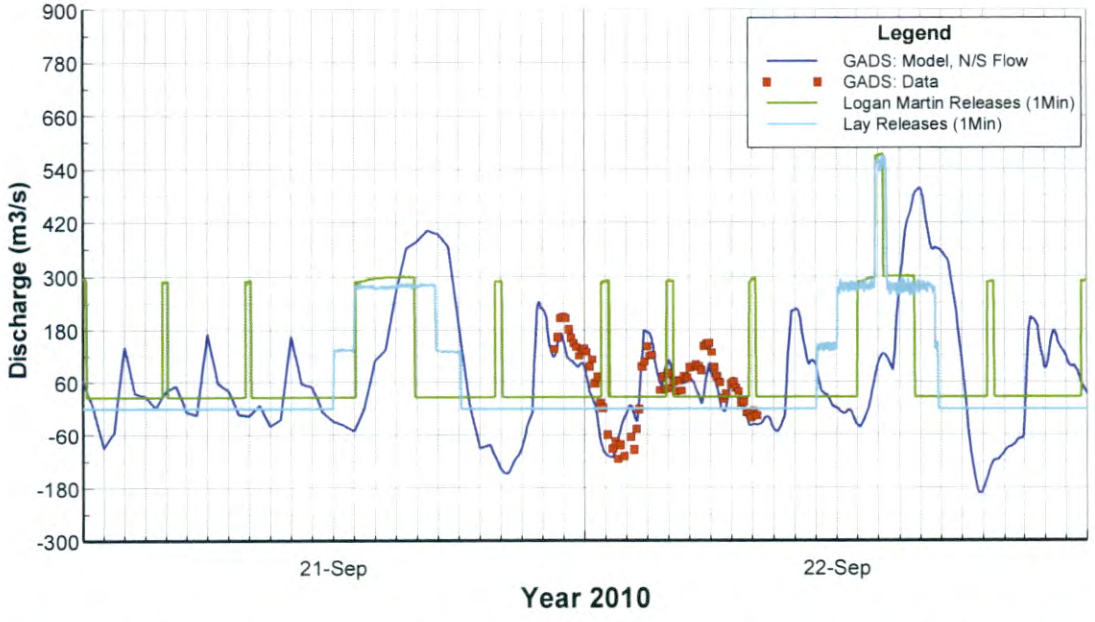


Figure 3-22 Comparison of model results on flow and ADCP data at Gaston Downstream in September 2010.

3.3.3 Water temperature

The comparison between the temperature results computed by the model and observations is presented in Table 3-4. The *RMSE* of computed water temperature equal to less than one degree Celsius indicates that the model simulated temperatures have good agreement with the observed data. The comparison plots of model simulated water temperature versus measured temperatures are presented in Figure 3-23 to Figure 3-39.

The comparison between the model results and observed data on the vertical profiles of water temperature for the stations are shown in Figure 3-40 to Figure 3-59.

Table 3-4 Comparison of model computed temperatures and observations.

Station/Layer	Starting date/time	Ending date/time	# Pairs	RMSE (℃)	Data average (℃)	Model average (℃)
Logan (Depth averaged)	01-Jul-2010 01:00	30-Sep-2010 22:59	2207	0.960	29.827	29.572
Childersburg (Layer 1)	21-Sep-2010 13:30	30-Sep-2010 23:29	905	0.473	27.162	27.142
Childersburg (Layer 4)	21-Sep-2010 13:30	30-Sep-2010 23:29	904	0.472	27.147	27.186
Childersburg (Layer 7)	21-Sep-2010 13:30	30-Sep-2010 23:29	904	0.470	27.147	27.265
Childersburg (USGS) (Layer 2)	01-Jul-2010 01:00	30-Sep-2010 22:59	2207	0.963	29.504	30.162
Childersburg (USGS) (Layer 4)	01-Jul-2010 01:00	30-Sep-2010 22:59	2207	0.985	29.504	30.211
GAUS (Layer 1)	10-Aug-2010 16:00	30-Sep-2010 23:29	3501	0.509	28.65	28.682
GAUS (Layer 4)	01-Jul-2010 01:00	30-Sep-2010 23:29	4479	0.663	29.021	29.355
GAUS (Layer 7)	01-Jul-2010 01:00	30-Sep-2010 23:29	4479	0.774	29.021	29.484
GAIC (Layer 1)	10-Aug-2010 13:59	30-Sep-2010 23:29	5423	0.655	29.926	30.226
GAIC (Layer 4)	01-Jul-2010 01:00	30-Sep-2010 23:29	6399	0.917	30.155	30.83
GAMZ (Layer 1)	10-Aug-2010 16:59	30-Sep-2010 23:29	3496	0.789	29.607	29.046
GAMZ (Layer 4)	01-Jul-2010 01:00	30-Sep-2010 23:29	4473	0.658	30.667	30.973
GADS (Layer 1)	10-Aug-2010 16:59	30-Sep-2010 23:29	3493	0.651	30.045	29.562
GADS (Layer 4)	01-Jul-2010 01:00	30-Sep-2010 23:29	4468	0.604	30.752	30.509
Lay (Layer 4)	01-Jul-2010 01:00	31-Aug-2010 22:00	1486	0.402	31.302	31.054
Lay (Layer 7)	01-Jul-2010 01:00	31-Aug-2010 22:00	1486	0.468	31.302	31.345

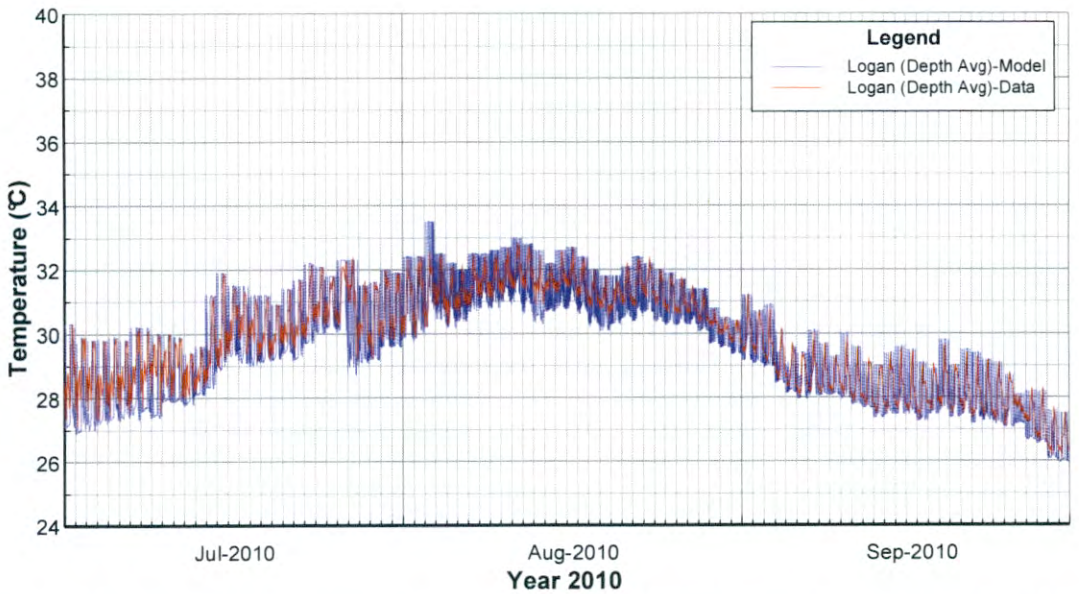


Figure 3-23 Comparison of computed versus measured temperature downstream Logan Martin Dam.

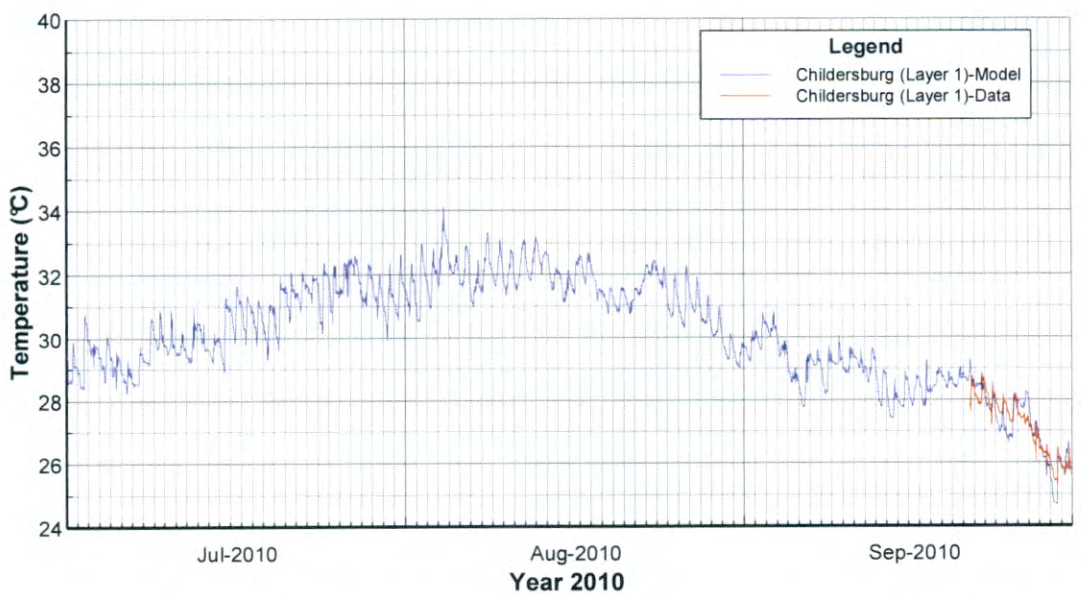


Figure 3-24 Comparison of computed versus measured temperature at Childersburg, Layer 1.

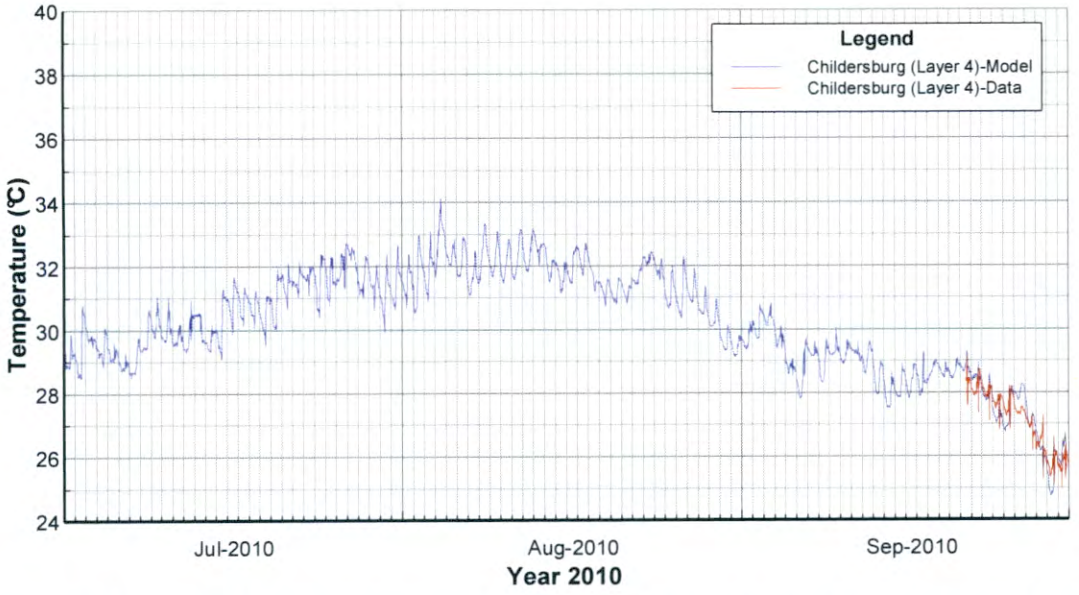


Figure 3-25 Comparison of computed versus measured temperature at Childersburg, Layer 4.

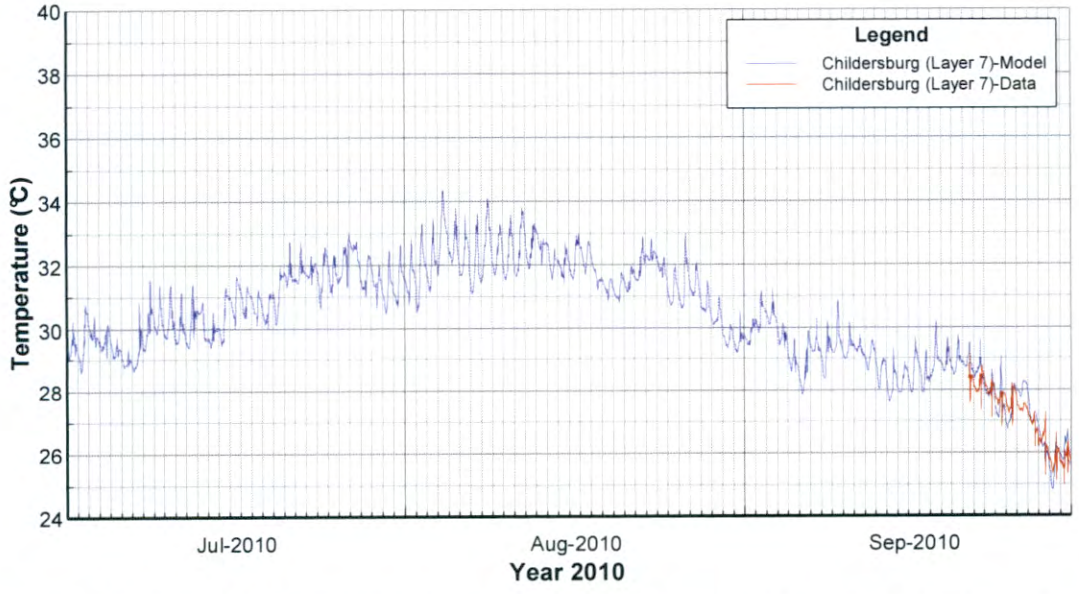


Figure 3-26 Comparison of computed versus measured temperature at Childersburg, Layer 7.

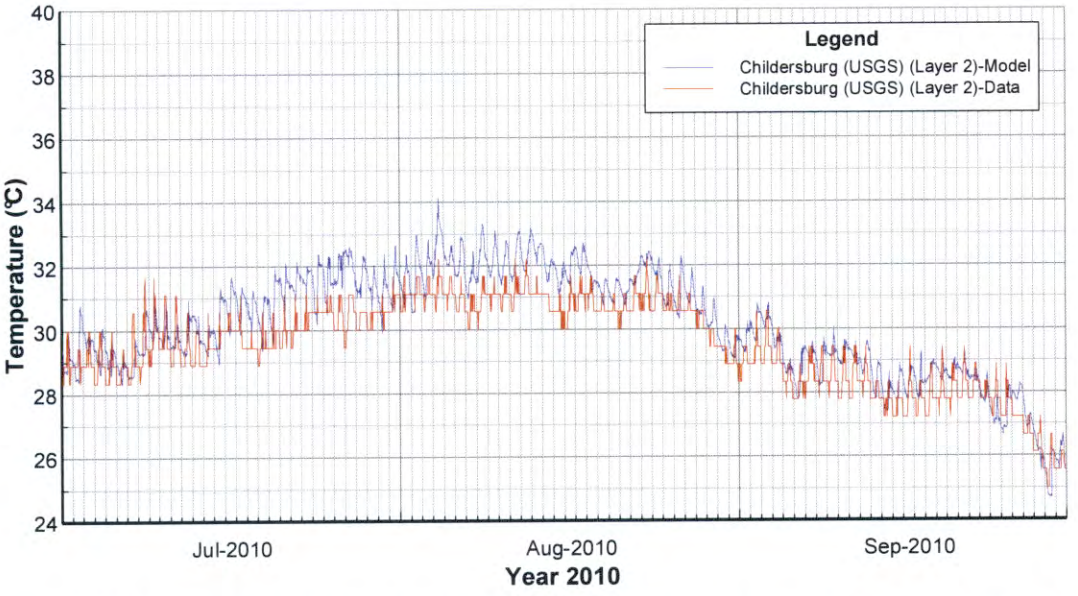


Figure 3-27 Comparison of computed versus measured temperature at Childersburg (USGS), Layer 2.

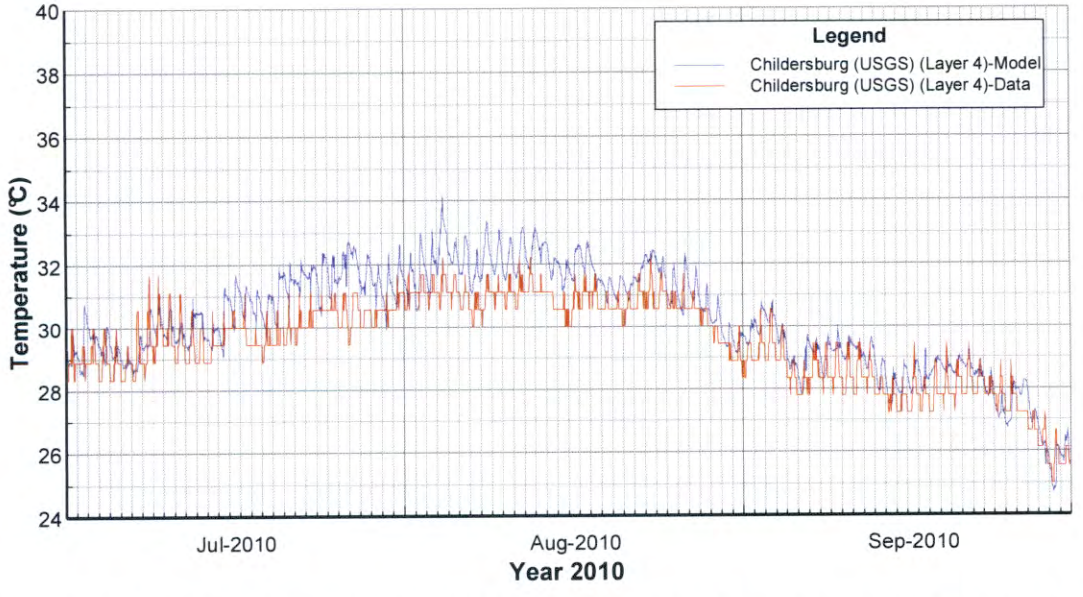
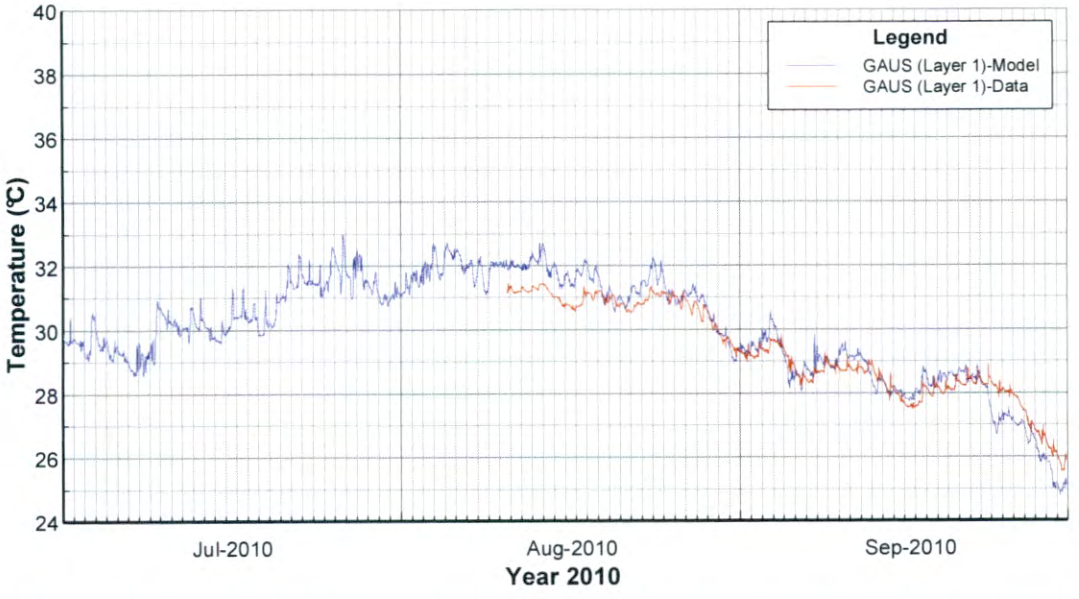


Figure 3-28 Comparison of computed versus measured temperature at Childersburg (USGS), Layer 4.



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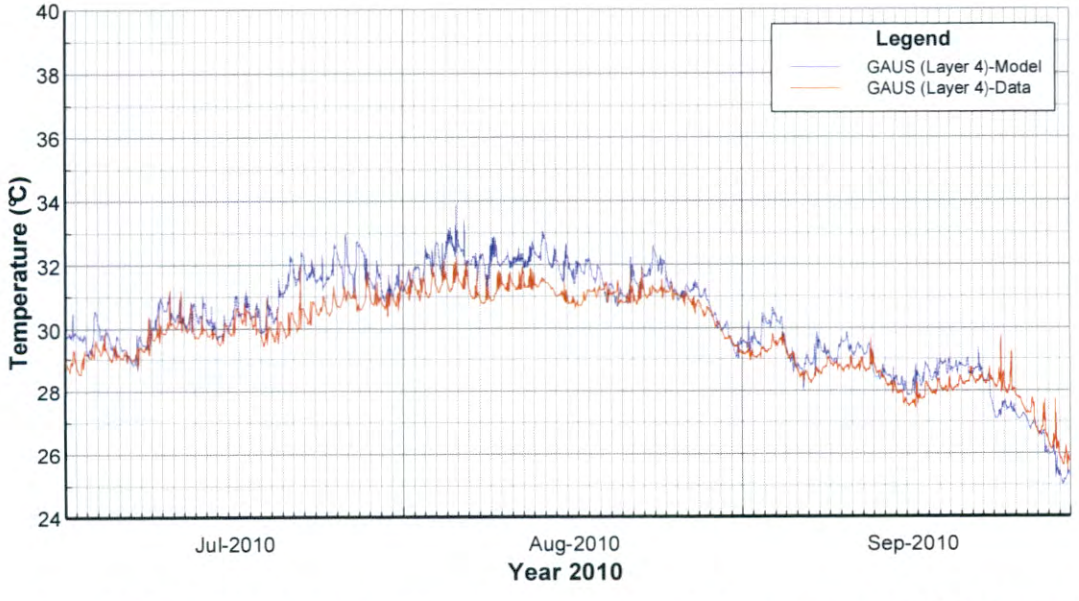

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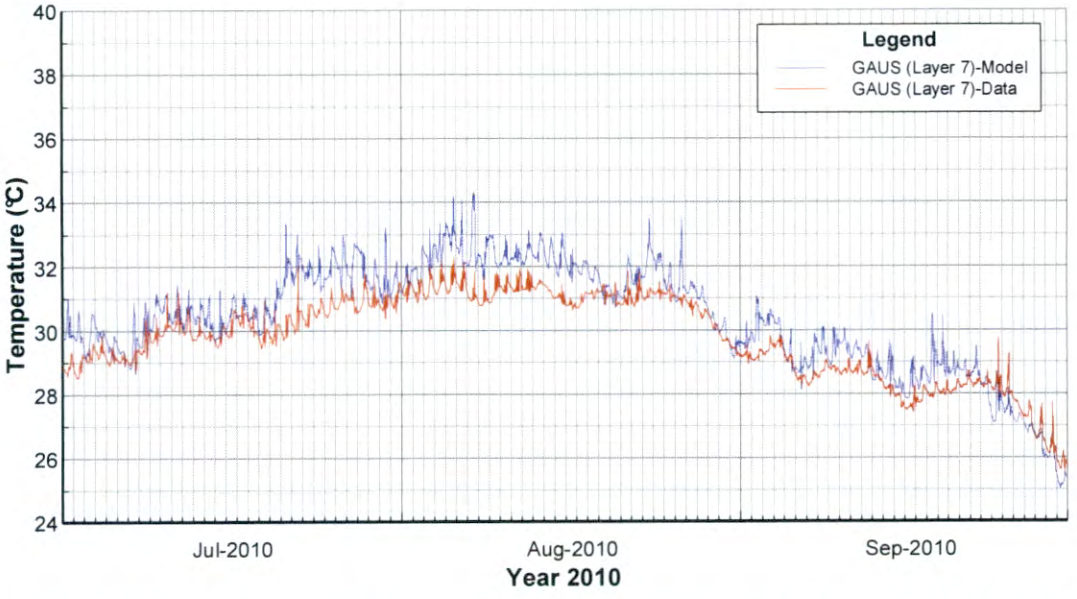

Figure 3-31 Comparison of computed versus measured temperature at GAUS, Layer 7.

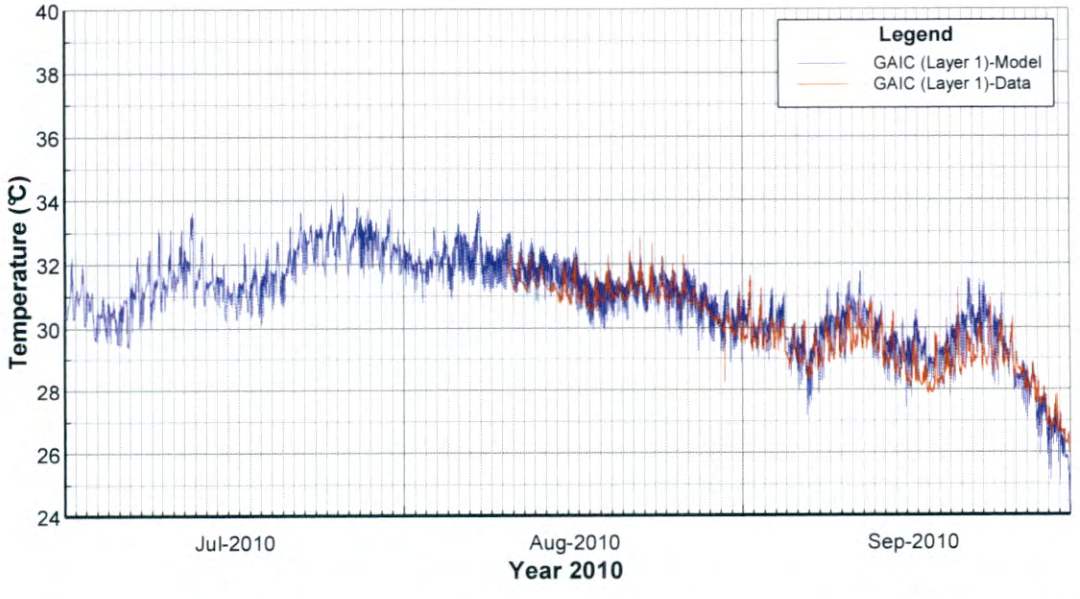

Figure 3-32 Comparison of computed versus measured temperture at GAIC, Layer 1.

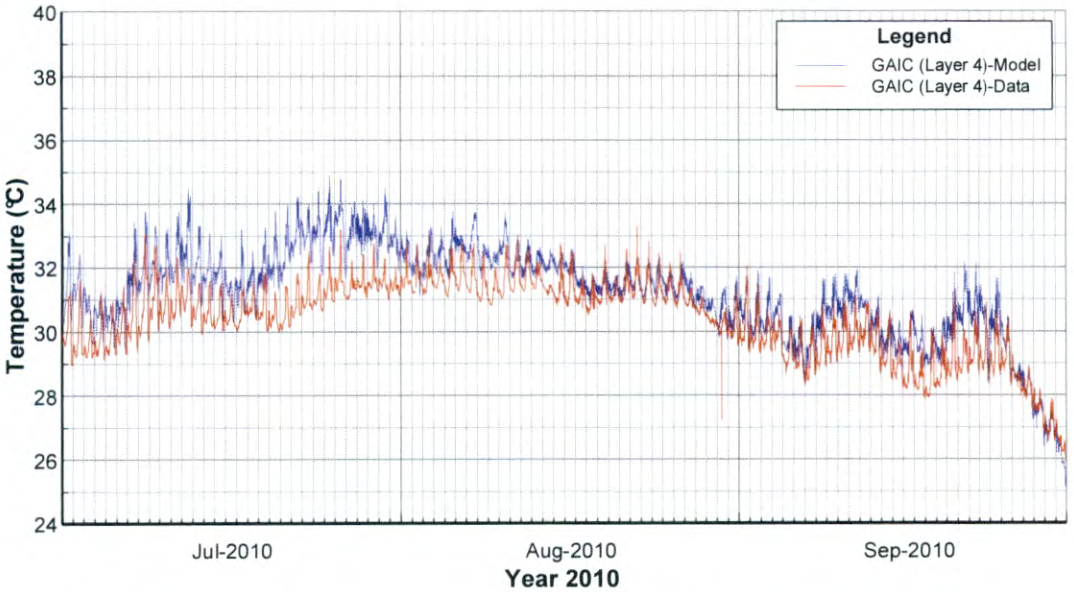

Figure 3-33 Comparison of computed versus measured temperature at GAIC, Layer 4.

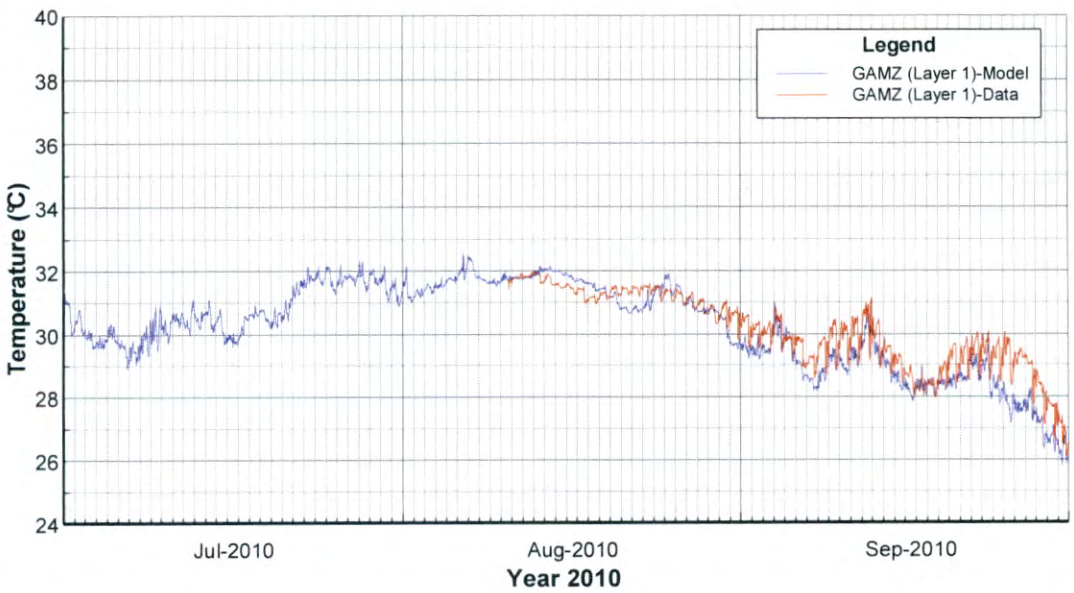

Figure 3-34 Comparison of computed versus measured temperature at GAMZ, Layer 1.

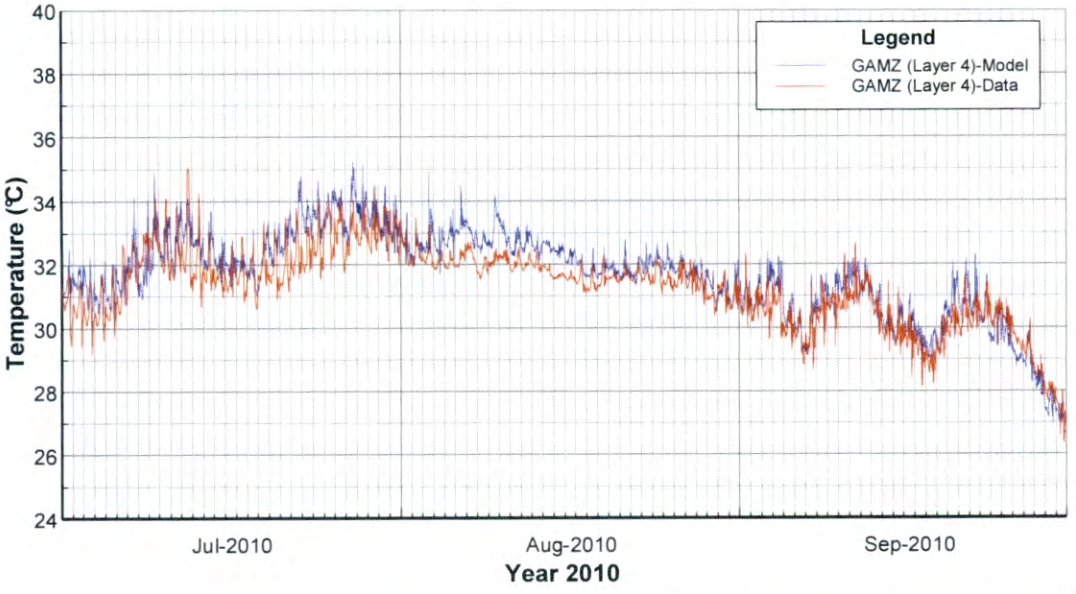

Figure 3-35 Comparison of computed versus measured temperature at GAMZ, Layer 4.

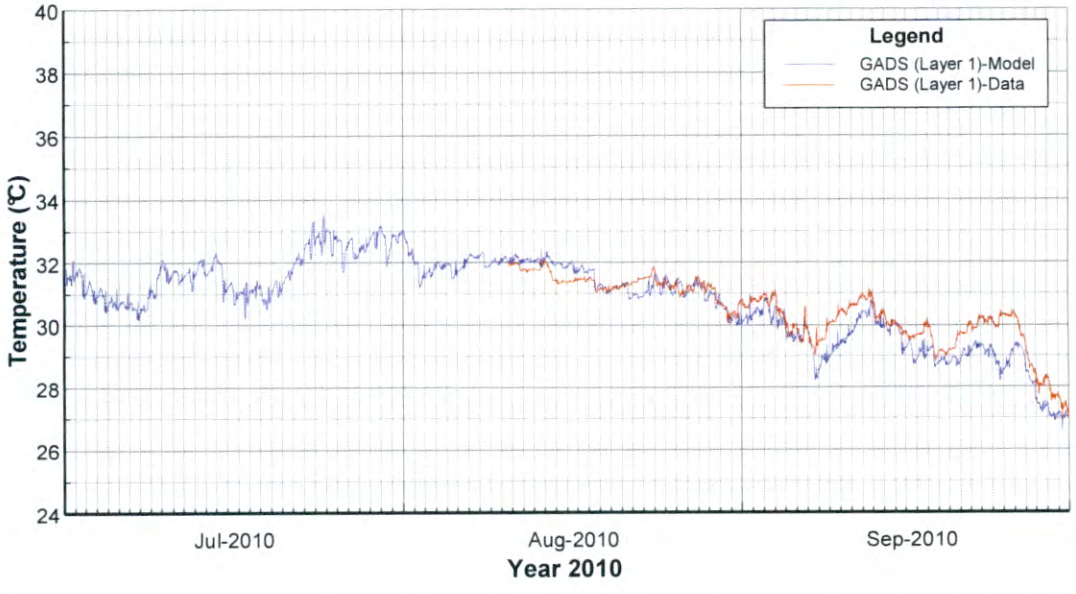

Figure 3-36 Comparison of computed versus measured temperature at GADS, Layer 1.

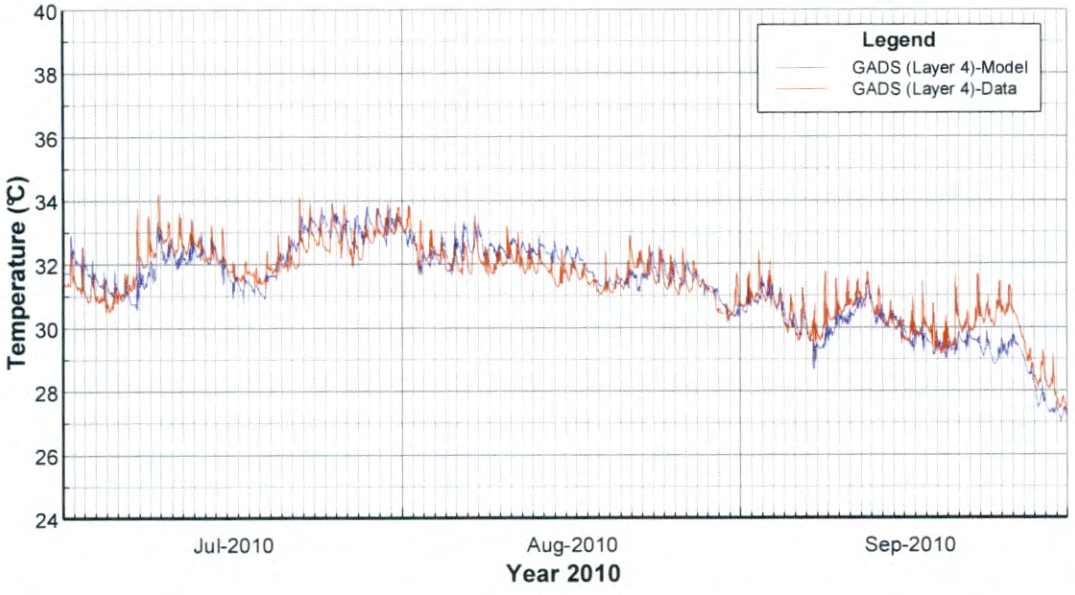

Figure 3-37 Comparison of computed versus measured temperature at GADS, Layer 4.

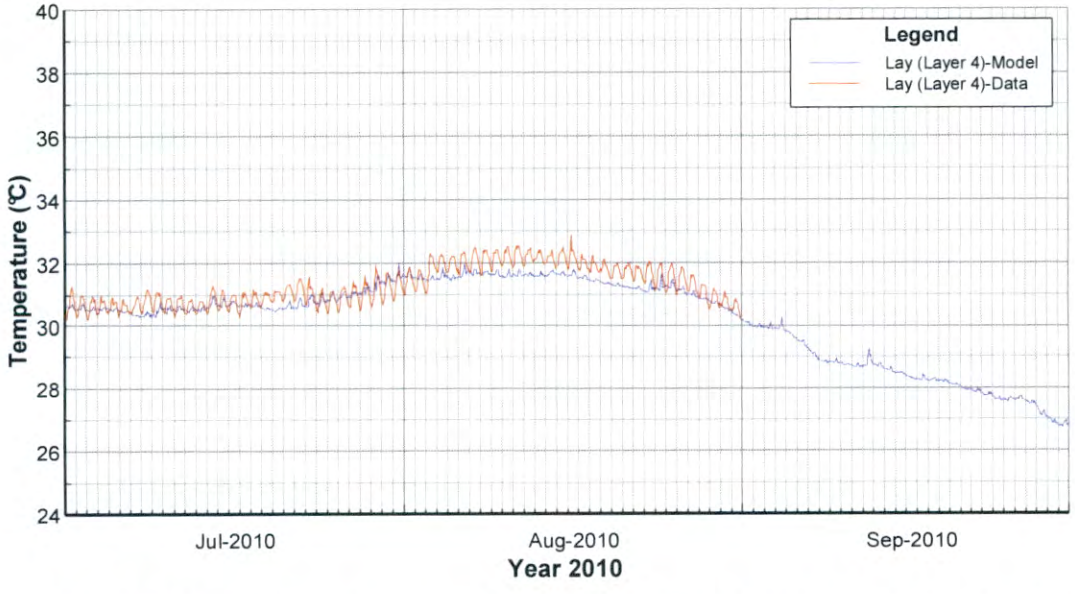

Figure 3-38 Comparison of computed versus measured temperature at Lay, Layer 4.

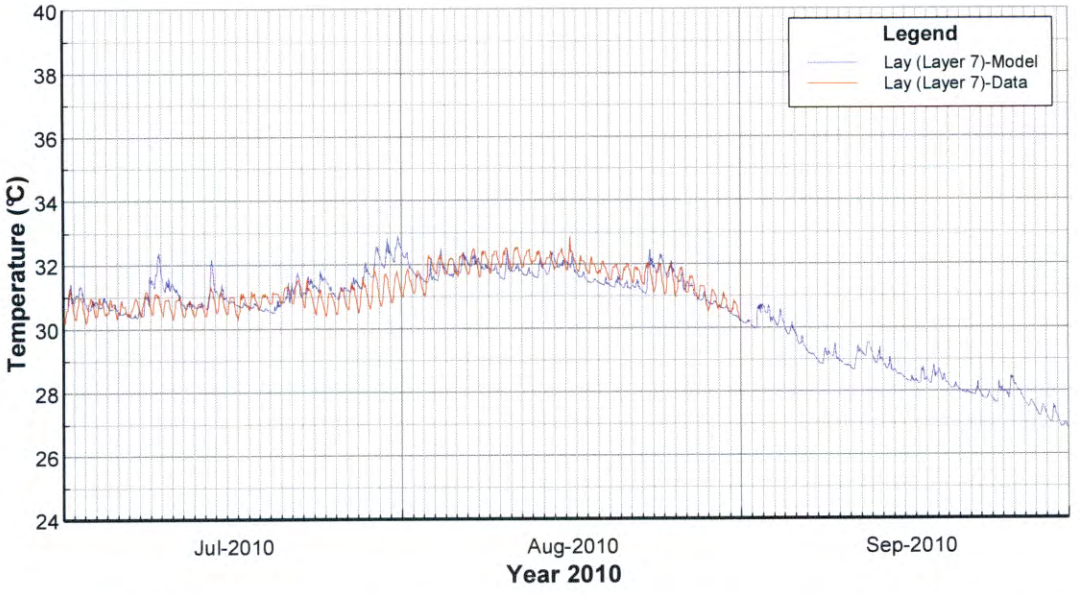

Figure 3-39 Comparison of computed versus measured temperature at Lay, Layer 7.

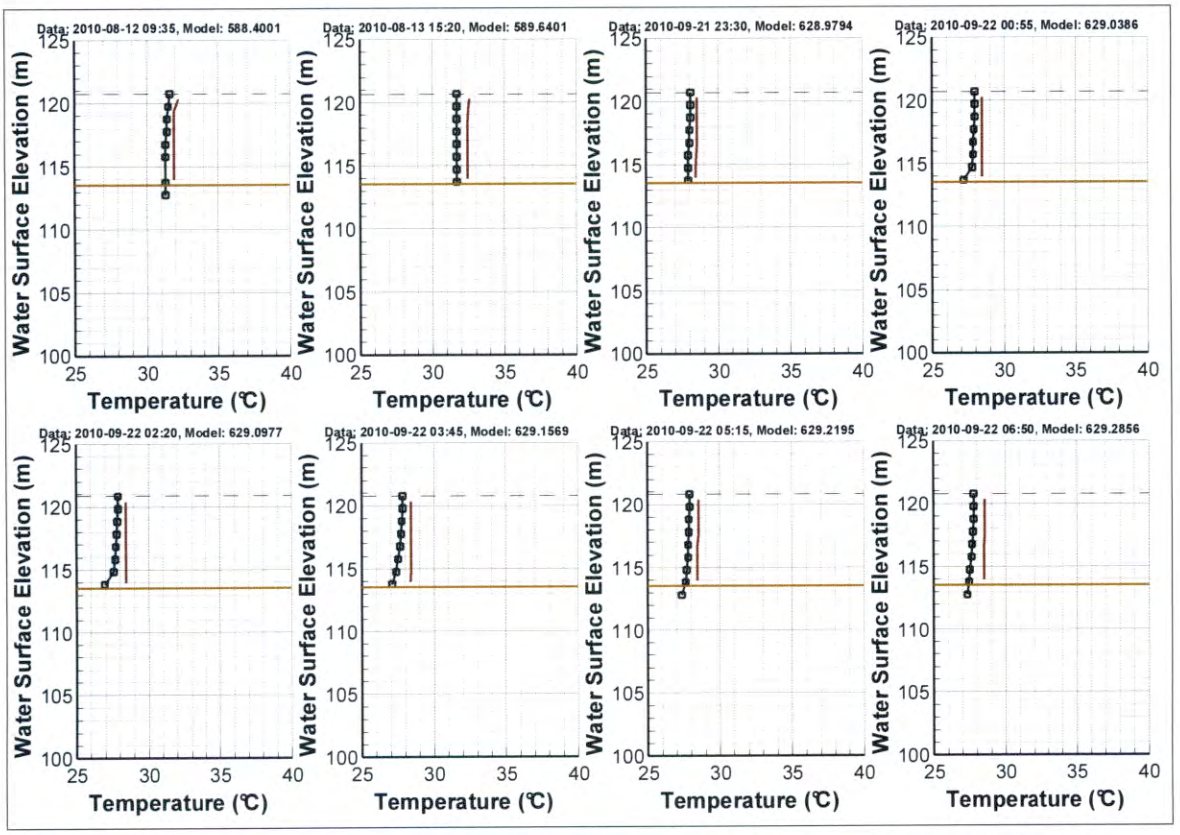

Figure 3-40 Comparison of computed vertical temperature profile and data at Childersburg.

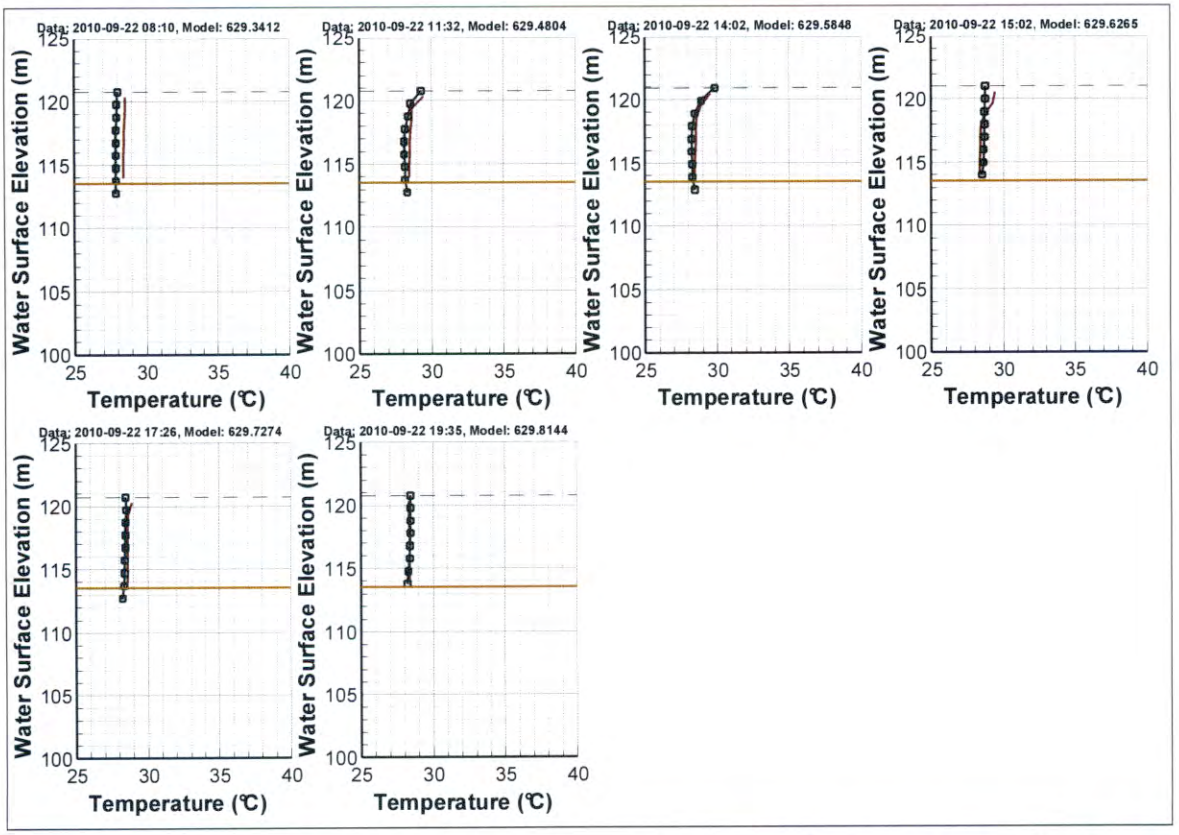

Figure 3-41 Comparison of computed vertical temperature profile and data at Childersburg.

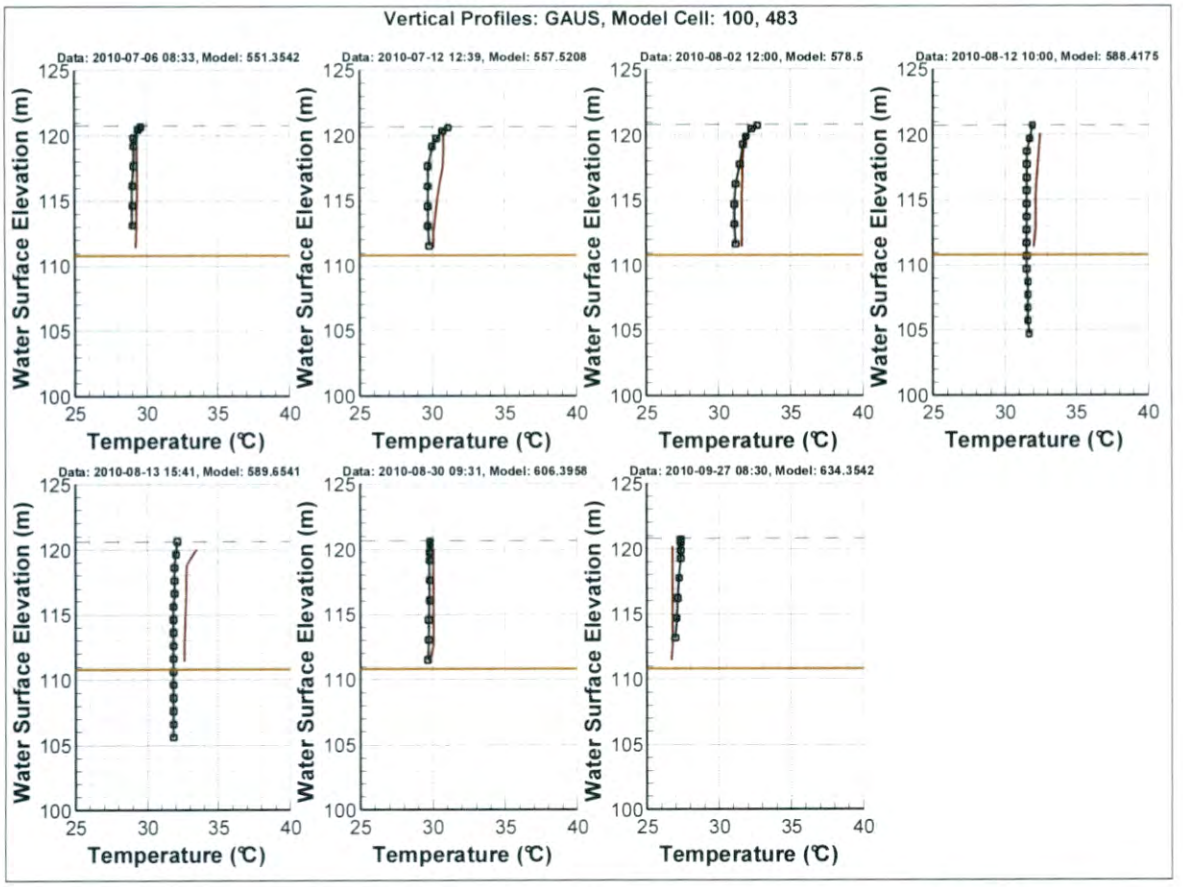

Figure 3-42 Comparison of computed vertical temperature profile and data at GAUS.

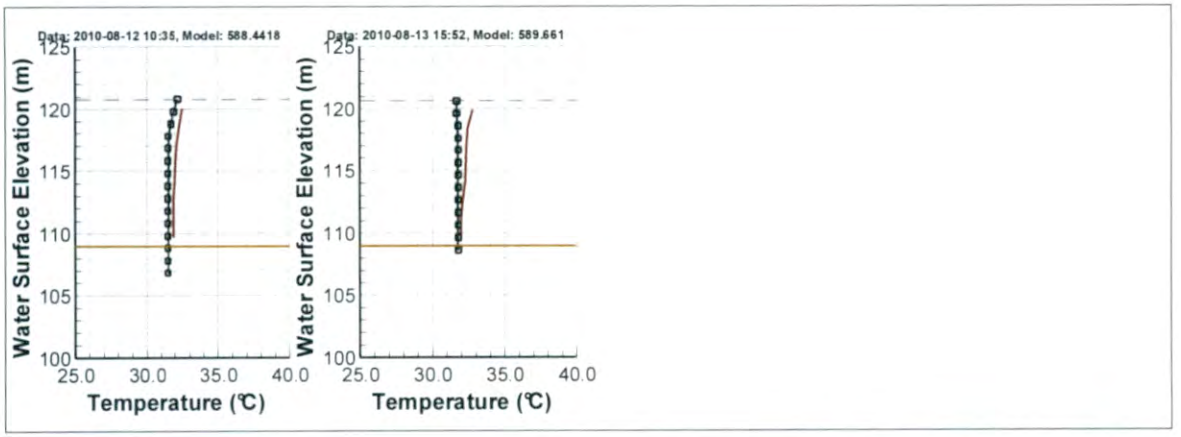

Figure 3-43 Comparison of computed vertical temperature profile and data at Station 6.

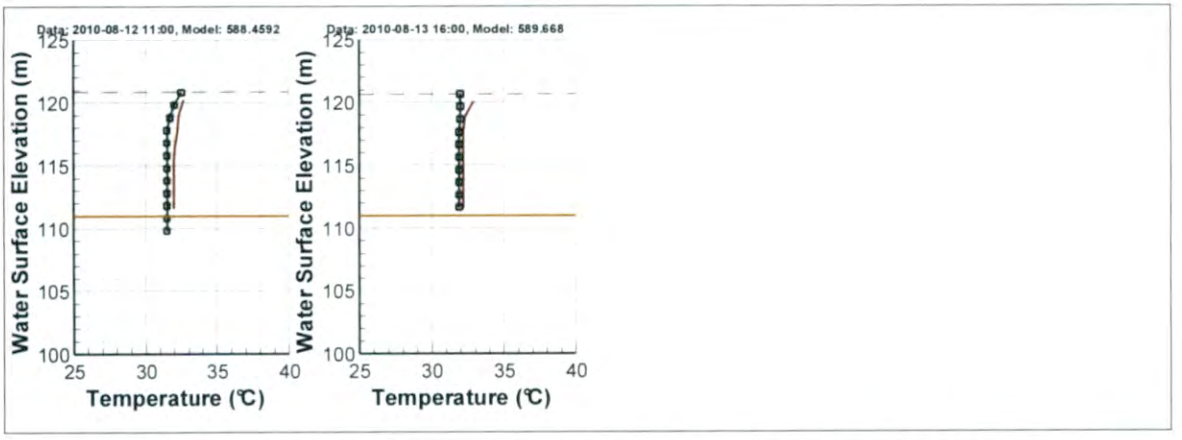

Figure 3-44 Comparison of computed vertical temperature profile and data at Station 7.

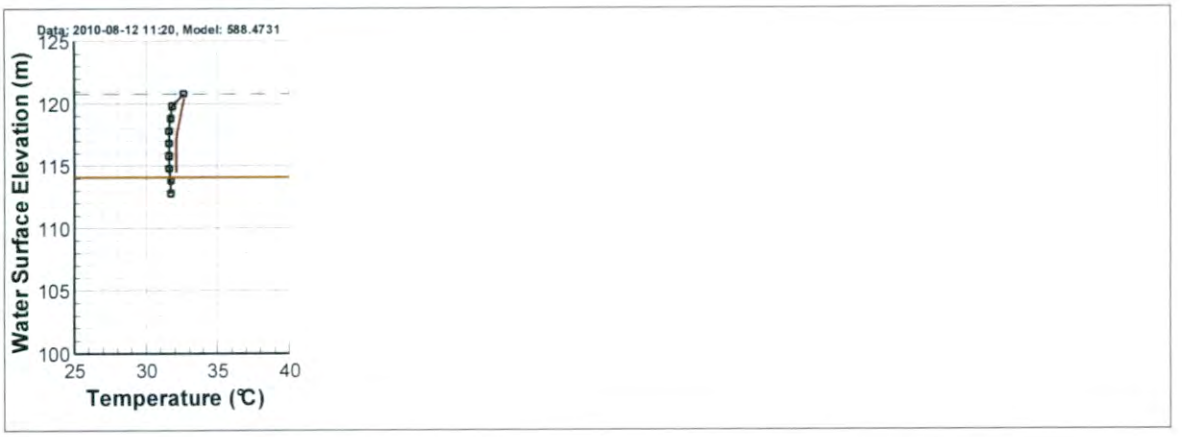

Figure 3-45 Comparison of computed vertical temperature profile and data at Station 8.

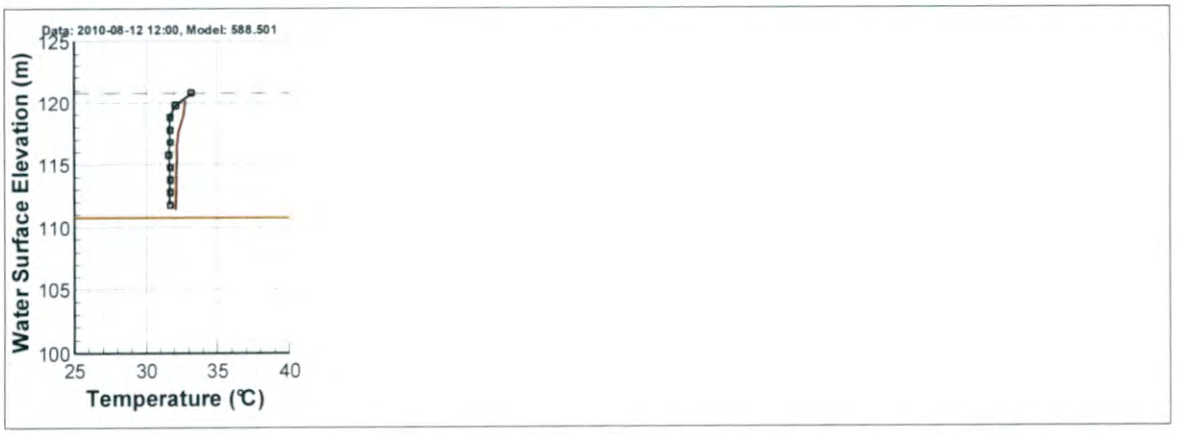

Figure 3-46 Comparison of computed vertical temperature profile and data at Station 9.

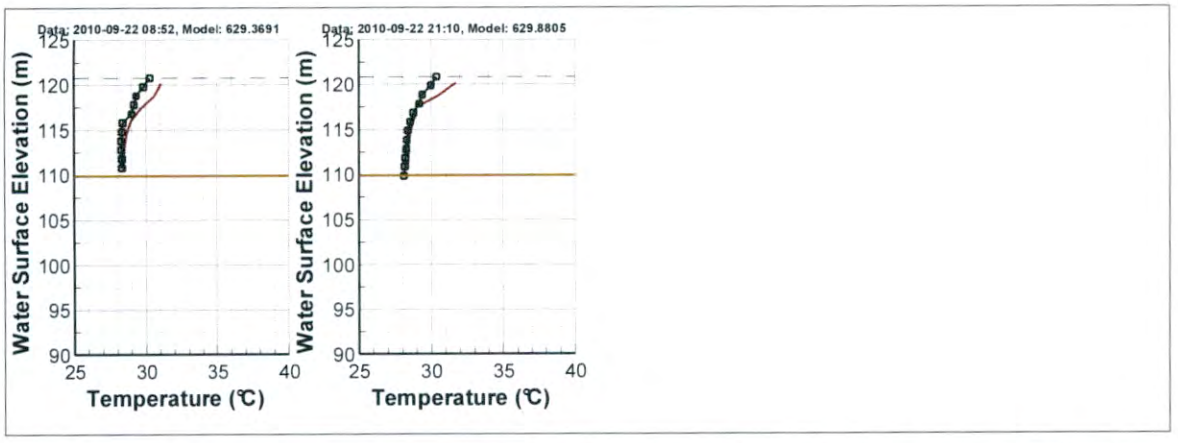

Figure 3-47 Comparison of computed vertical temperature profile and data at Station 10.

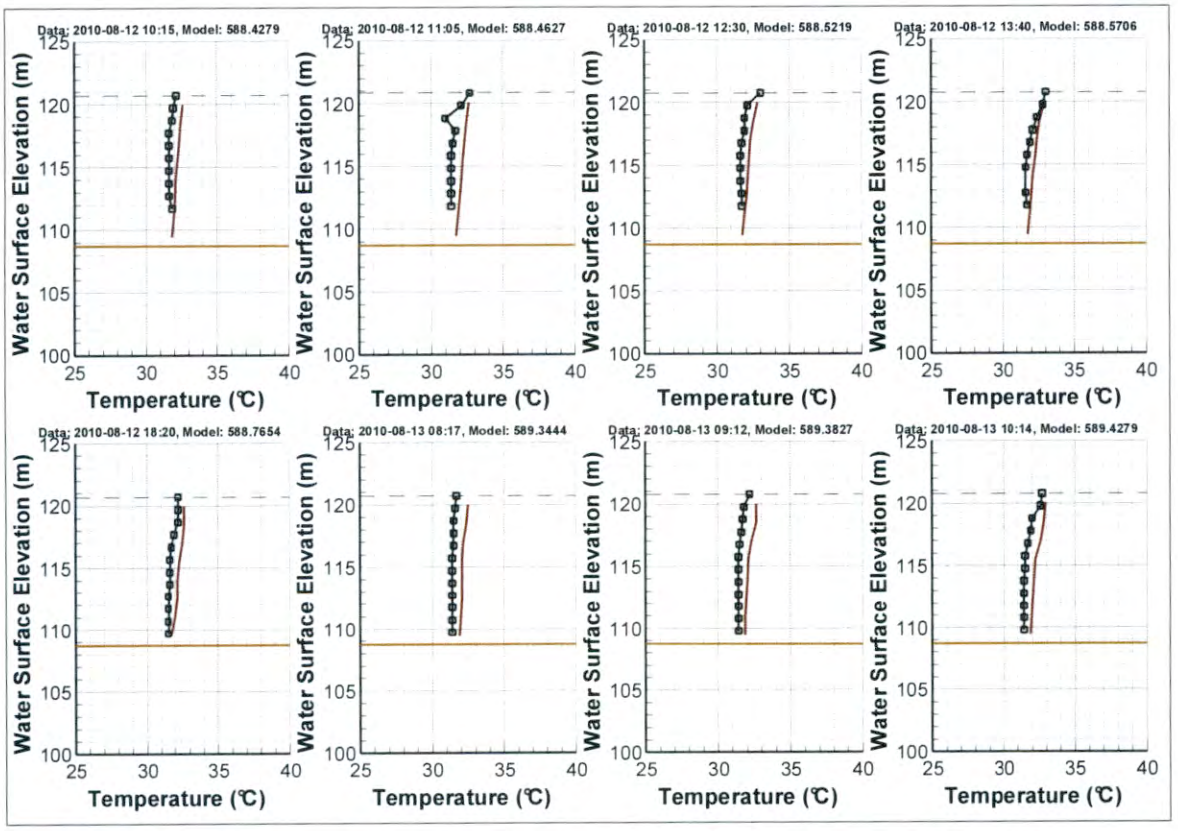

Figure 3-48 Comparison of computed vertical temperature profile and data at Station 11.

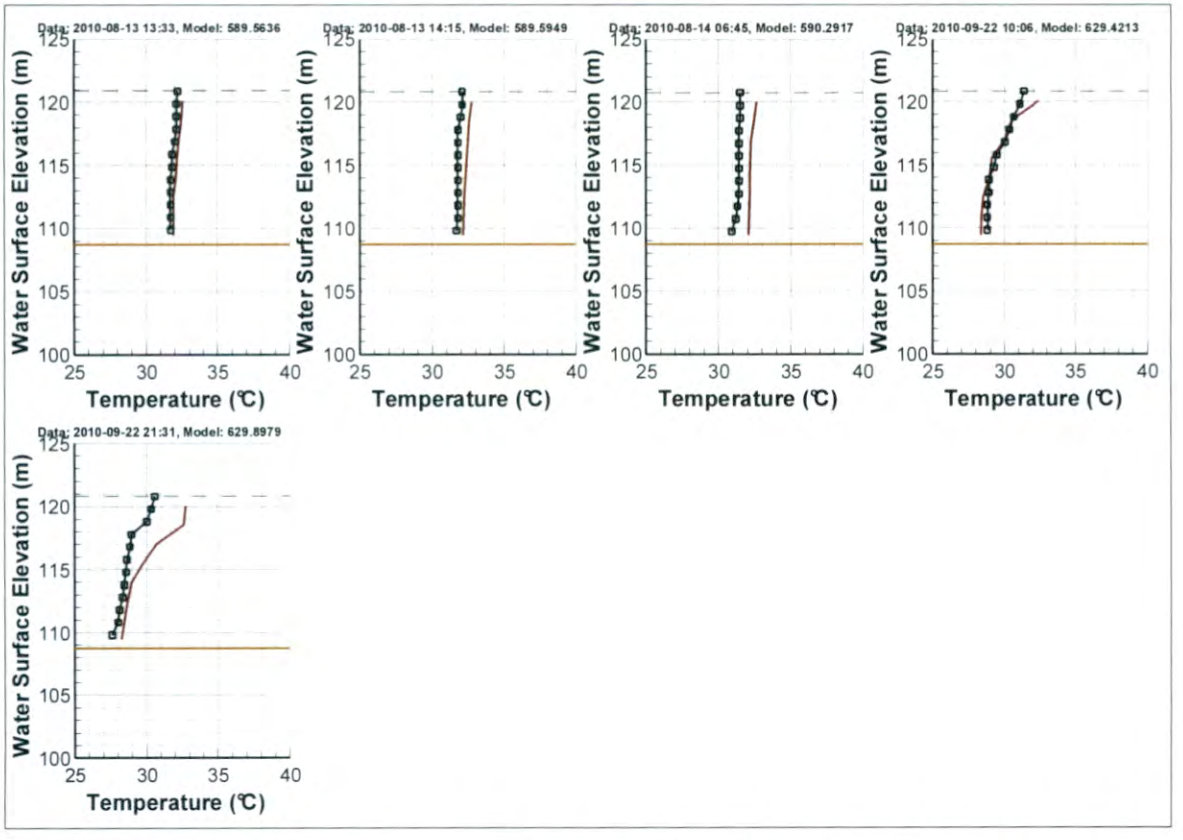

Figure 3-49 Comparison of computed vertical temperature profile and data at Station 11.

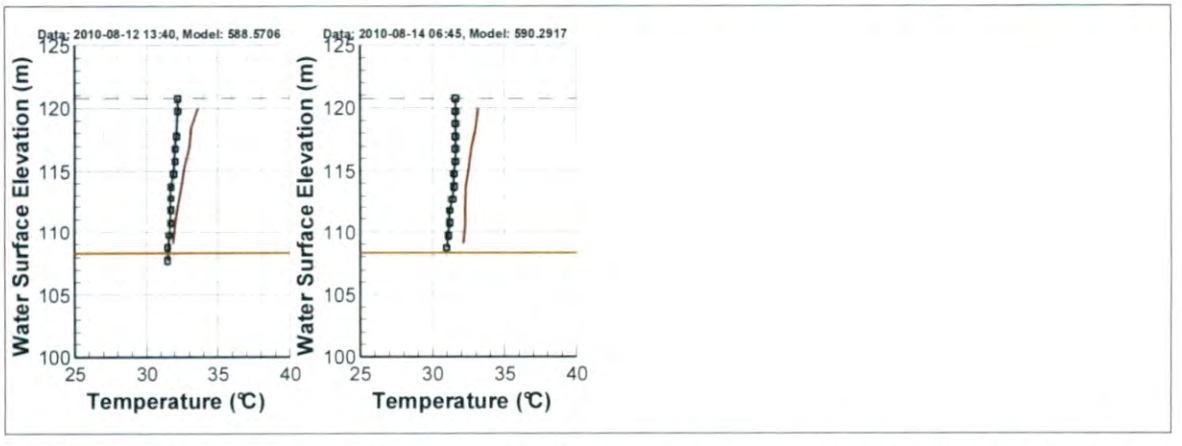

Figure 3-50 Comparison of computed vertical temperature profile and data at Station 12.

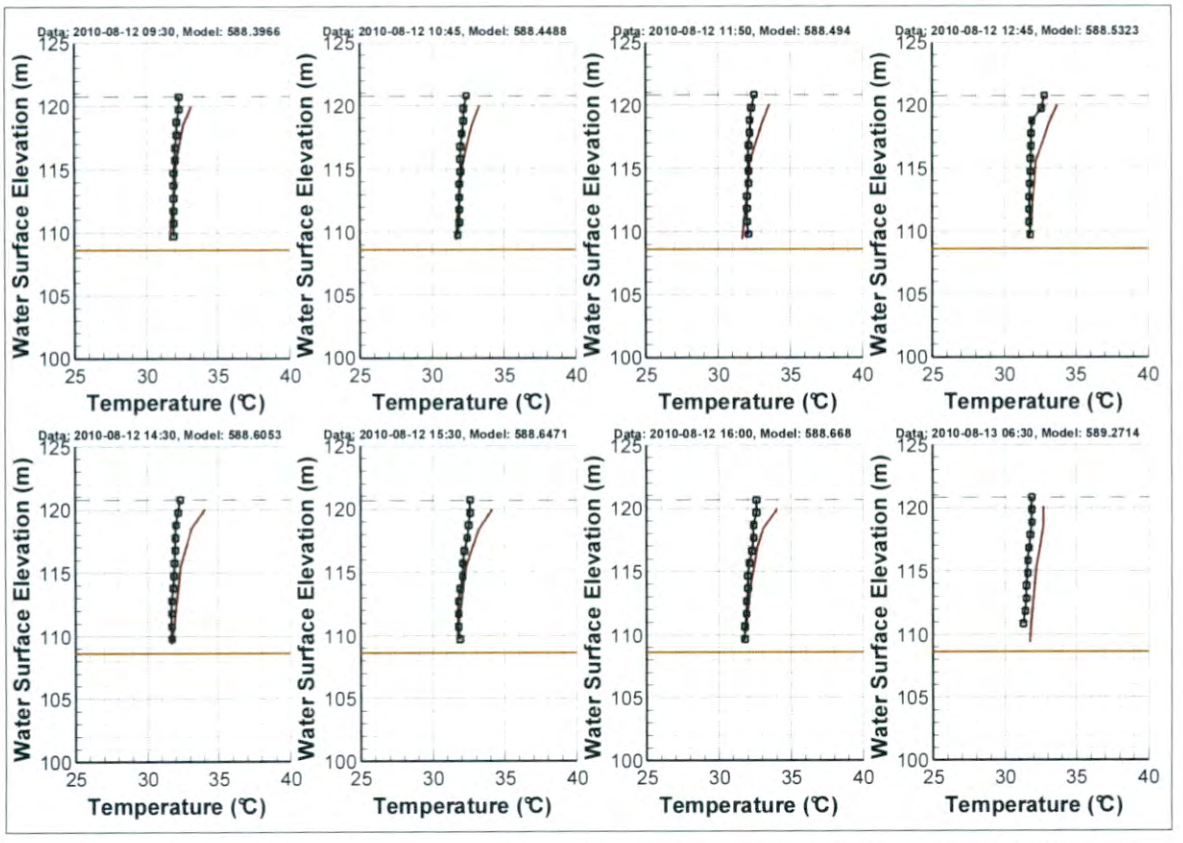

Figure 3-51 Comparison of computed vertical temperature profile and data at Station 13.

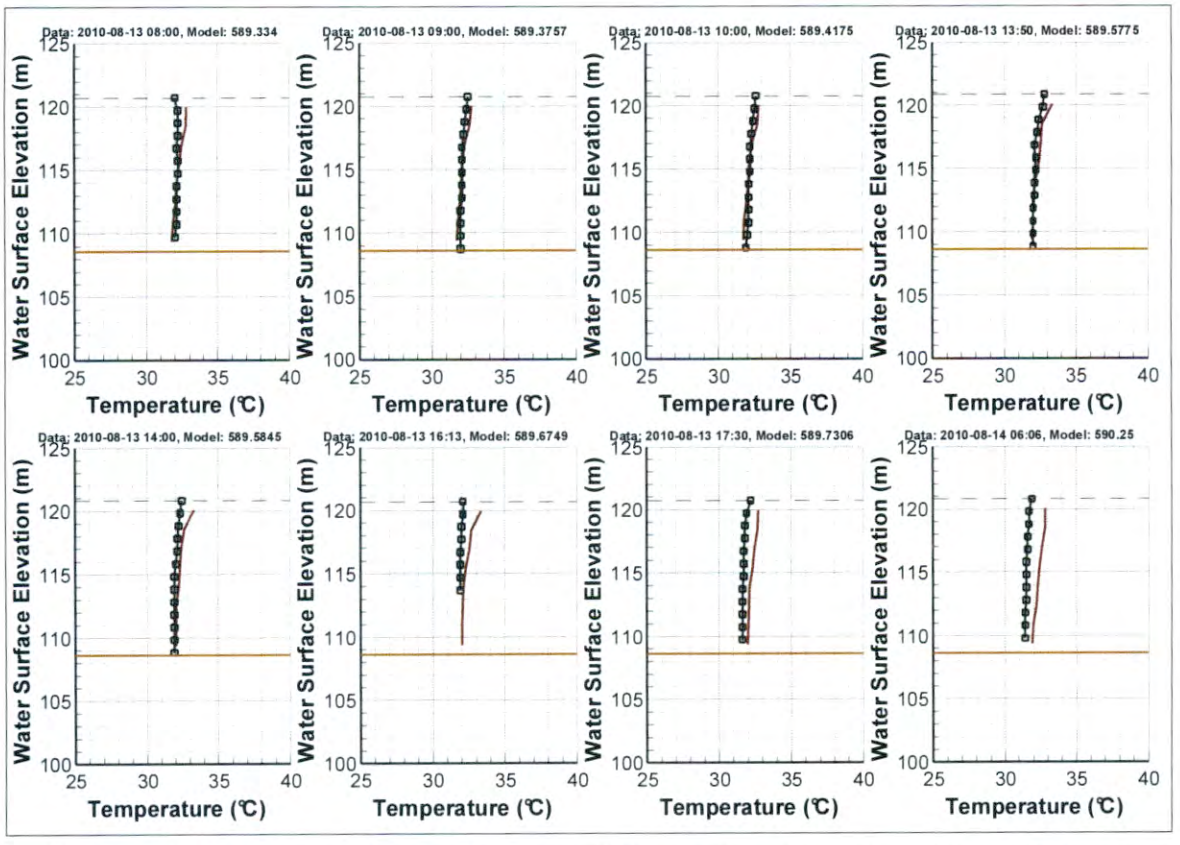

Figure 3-52 Comparison of computed vertical temperature profile and data at Station 13.

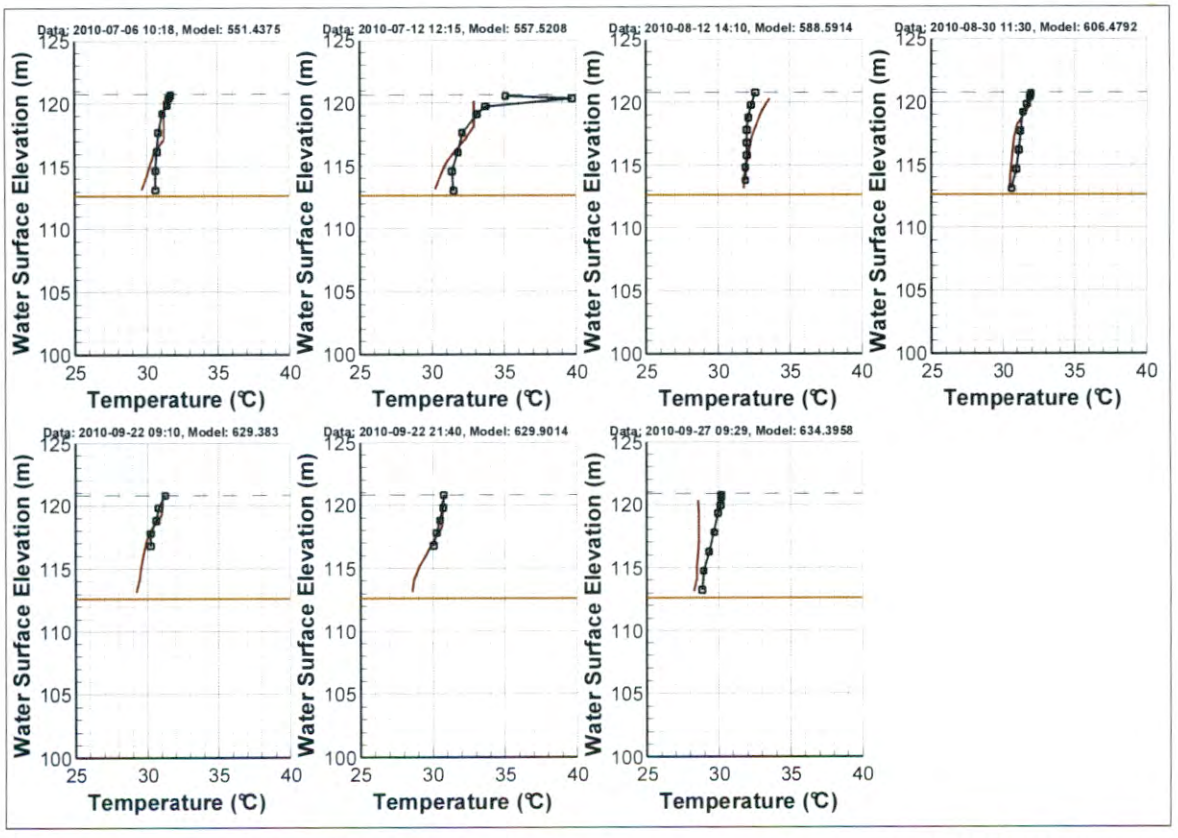

Figure 3-53 Comparison of computed vertical temperature profile and data at GAMZ (Station 14).

Figure 3-54 Comparison of computed vertical temperature profile and data at Station 15.

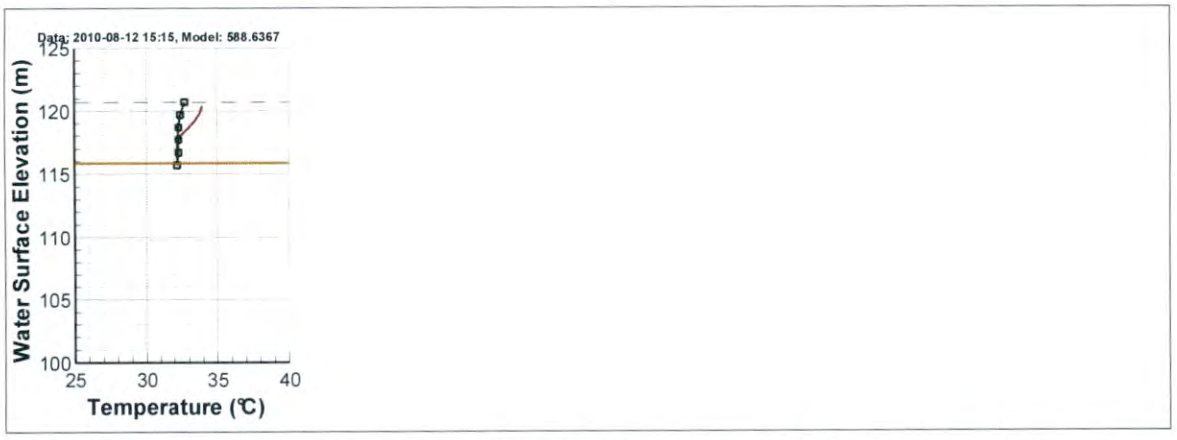

Figure 3-55 Comparison of computed vertical temperature profile and data at Station 16.

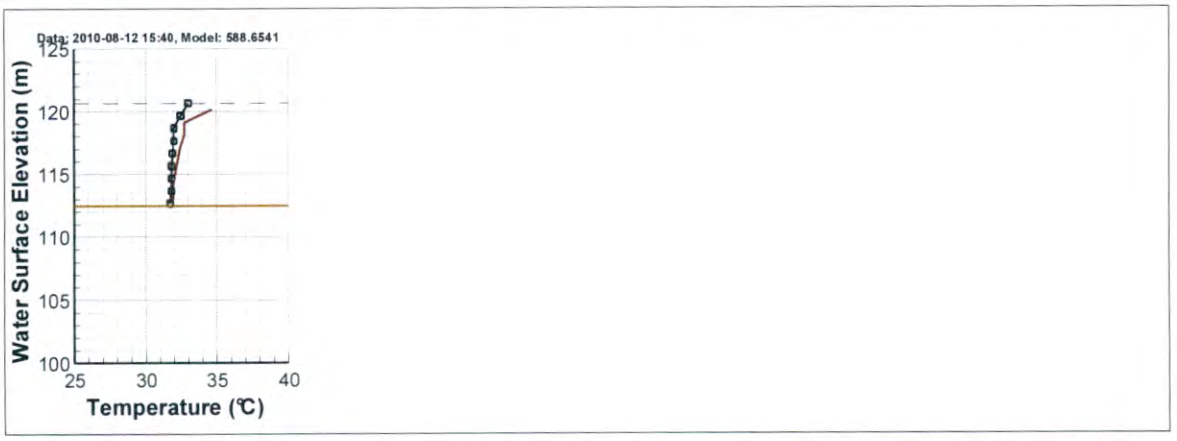

Figure 3-56 Comparison of computed vertical temperature profile and data at Station 17.

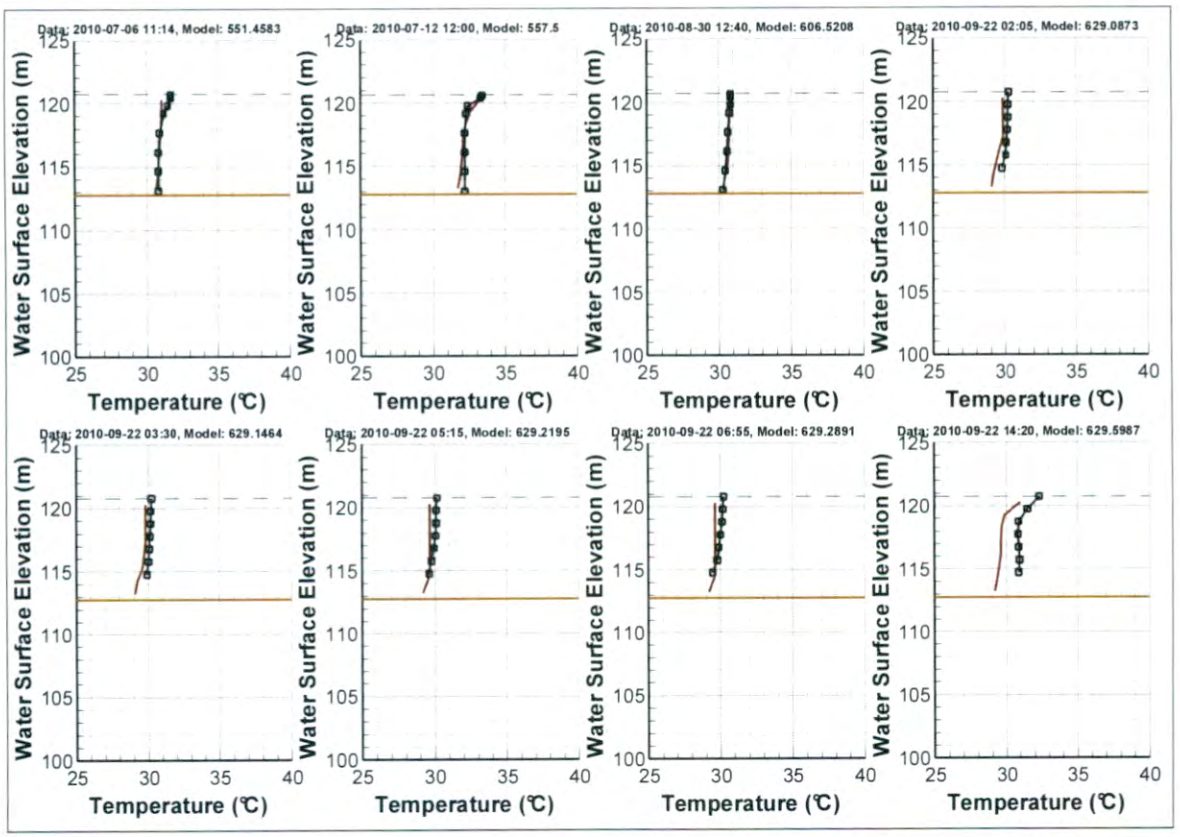

Figure 3-57 Comparison of computed vertical temperature profile and data at GADS.

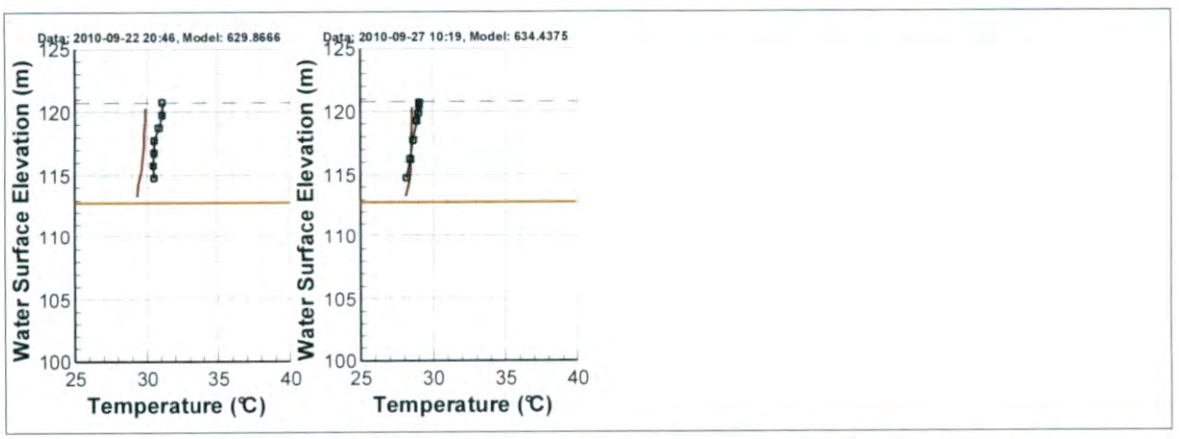

Figure 3-58 Comparison of computed vertical temperature profile and data at GADS.

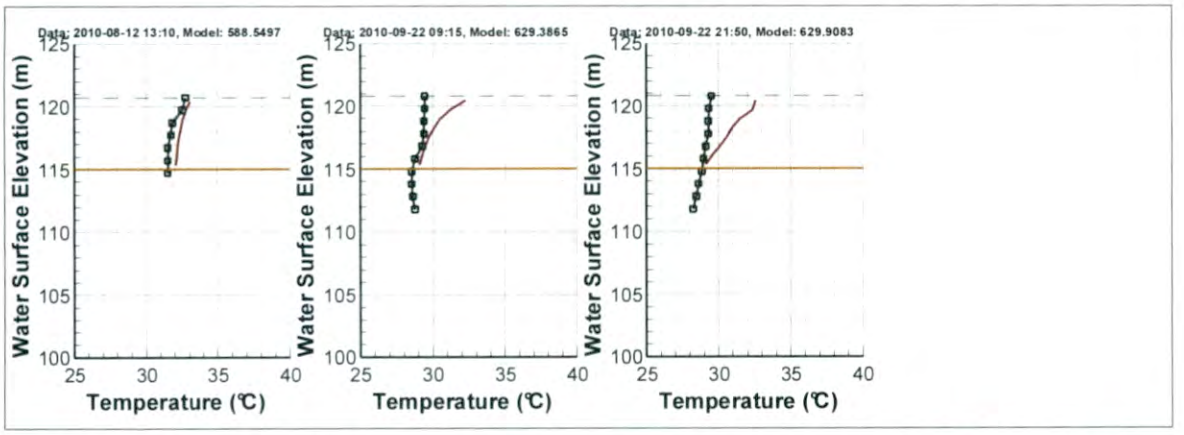

Figure 3-59 Comparison of computed vertical temperature profile and data at Station 20.

4 Conclusions & Recommendations

In this study, a three-dimensional hydrodynamic and hydrothermal model for the Lay Reservoir on the Coosa River between the Logan Martin and Lay Dams has been developed based on the numerical model EFDC. Available data, including meteorological data, bathymetric data, discharge, stage and temperature data have been collected, evaluated and processed for the model input and model calibration.

The model has been calibrated based on the measurement data for the period from July to September 2010 for both hydrodynamic and hydrothermal processes. The results of the calibrated model provide good agreement with the observations of water level, flow discharge and water temperature. The general RMS Error between the model results and the observed data is less than 0.1 meters for water level and it is less than one degree Celsius for temperature. For flow discharge, the model results are reasonable in comparison with observations. Some deviations between the model results and the observed data could be due to the inaccuracy of the bathymetric data along the Coosa River.

The following activities could improve the overall accuracy of the model:

1. Collection of highly accurate bathymetric data using side scan sonar or similar technology,
2. Collection of site specific meteorology at one or more sites along Lay Reservoir,
3. Intensive data collection programs with multi-day time series of flows at several locations along the reservoir.
4. Improving the temperature measurements at Logan Martin Dam to obtain more accurate total heat in fluxes to Lay Reservoir, and
5. Verifying the temperature sensor calibrations and measurement depths.

5 References

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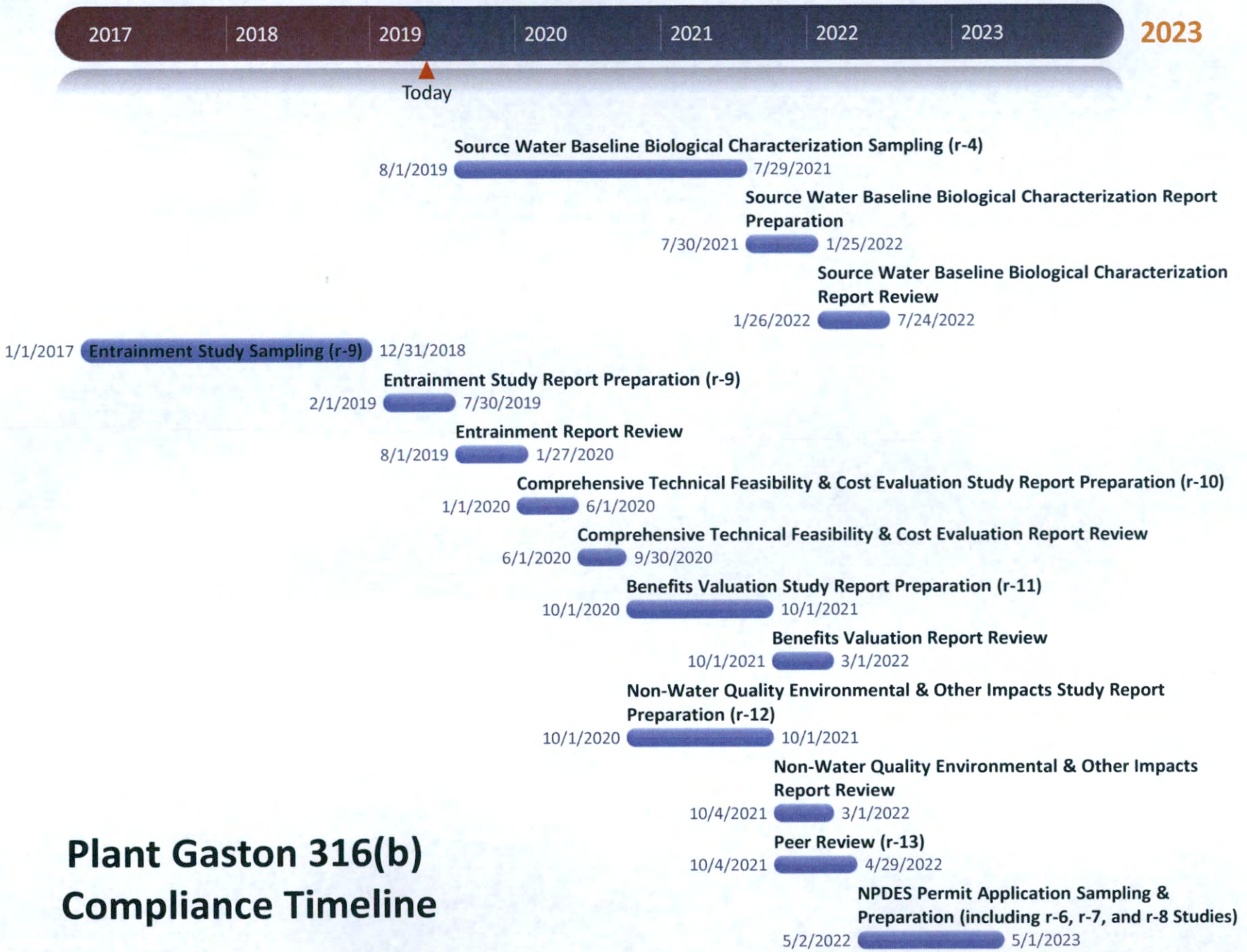
Plant Gaston 316(b) Compliance Timeline



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Birmingham, Alabama
35291-0830

316(b) INFORMATION:

SOURCE WATER PHYSICAL DATA, COOLING WATER INTAKE STRUCTURE DATA, AND COOLING WATER SYSTEM DATA

"r" Reports: (2), (3), and (5)

PLANT GASTON STEAM ELECTRIC GENRATING FACILITY

WILSONVILLE, ALABAMA

May 2019

Figure 1: E.C. Gaston Steam Electric Generating Plant

GLOSSARY AND ACRONYMS

ADCP: Acoustic Doppler Current Profiler

APC: Alabama Power Company

cfs: cubic feet per second

CWIS: Cooling Water Intake Structure

Ft: Feet

HZI: Hydraulic Zone of Influence

MGD: million gallons per day

msl: Mean sea level

MW: Megawatt

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1. SUMMARY

1.1. Applicable Standards

EPA has promulgated and revised regulations per Congressional mandate in section 316(b) of the Clean Water Act. The revised regulations[1] require Existing Facilities, as defined in 40 CFR 125.92(k), to submit information characterizing the cooling water source waterbody as well as the cooling water intake system and structure. Plant Gaston is an existing facility per this definition since construction commenced prior to January 17, 2002.

The E.C. Gaston Steam Electric Generating Plant is a existing facility located on Lay Reservoir at Coosa River mile 436.5. The intake structure is also located on Lay Reservoir in an embayment formed by Yellowleaf Creek, a tributary of the Coosa River, with its confluence located at Coosa River mile marker 437.1. The Lay Reservoir has a hydraulic retention time of five (5) hours; therefore, it is classified as a freshwater stream[2].

The Plant Gaston Cooling Water Intake Structure (CWIS) and cooling water system has the capacity to withdraw 867 million gallons per day (MGD) of cooling water from the Coosa River, which is approximately 12% of the five (5) year mean annual flow of the Coosa River near the Plant. However, the actual three year monthly average intake flow for Plant Gaston was 412 MGD.

Therefore, since Plant Gaston is an existing facility withdrawing more than 125 MGD actual intake flow (AIF), the following application requirements are applicable:

40 CFR 122.21(r)(1)(ii)(A) "All existing facilities. The owner or operator of an existing facility defined at 40 CFR 125.92(k) must submit to the Director for review the information required under paragraphs (r)(2) and r(3) of this section and applicable provisions of paragraphs (r)(4), (5), (6), (7), and (8) of this section.

"(B) Existing facilities greater than 125 mgd AIF. In addition, the owner or operator of an existing facility that withdraws greater than 125 mgd actual intake flow (AIF), as defined at 40 CFR 125.92(a), of water for cooling purposes must also submit to the Director for review the information required under paragraphs (r)(9), (10), (11), (12), and (13) of this section."

---

[1] 40 CFR Part 122, EPA Administered Permit Programs: The National Pollutant Discharge Elimination System

[2] *Freshwater river or stream* means any lotic (free flowing) system that does not receive significant inflows of water from oceans or bays due to tidal action. For the purposes of this rule, a flow-through reservoir with a retention time of 7 days or less will be considered a freshwater river or stream. 40 CFR 125.83.

This report contains the information required by parts (r)(2), (3), and (5). As an introduction to each section and a checklist for the provided material, the relevant portions of the rule's requirements are quoted.

40 CFR 122.21(r)(2) *Source water physical data*. These include: (i) A narrative description and scaled drawings showing the physical configuration of all source water bodies used by your facility, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports your determination of the water body type where each cooling water intake structure is located; (ii) Identification and characterization of the source waterbody's hydrological and geomorphological features, as well as the methods you used to conduct any physical studies to determine your intake's area of influence within the waterbody and the results of such studies; and (iii) Locational maps.

2 SOURCE WATER PHYSICAL DATA

2.1 Source Waterbody Physical Configuration

The Gaston Steam Electric Generating Plant is located on Lay Reservoir, an impoundment of the Coosa River, Near Wilsonville, Alabama at river mile 436.5, which is approximately 26 miles upstream of Lay Dam (see Figure 2). The general configuration of the Gaston facility is illustrated in Figure 3. Lay Reservoir is normally managed to maintain a maximum elevation of 396 ft, mean sea level (msl). The calculated retention time of Lay Reservoir is five (5) hours.

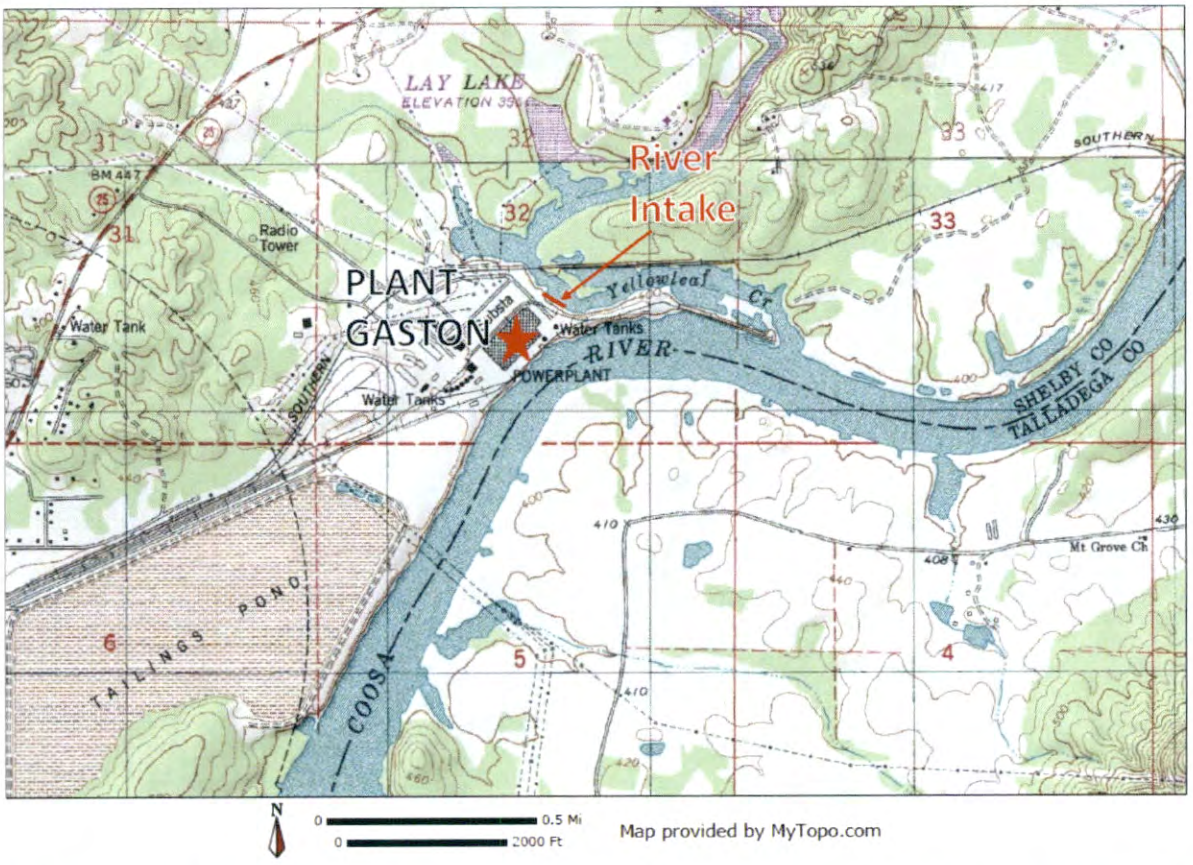


Figure 2: Topographic Quad Map of E.C. Gaston Steam Electric Generating Plant Relative to Surrounding Water Bodies

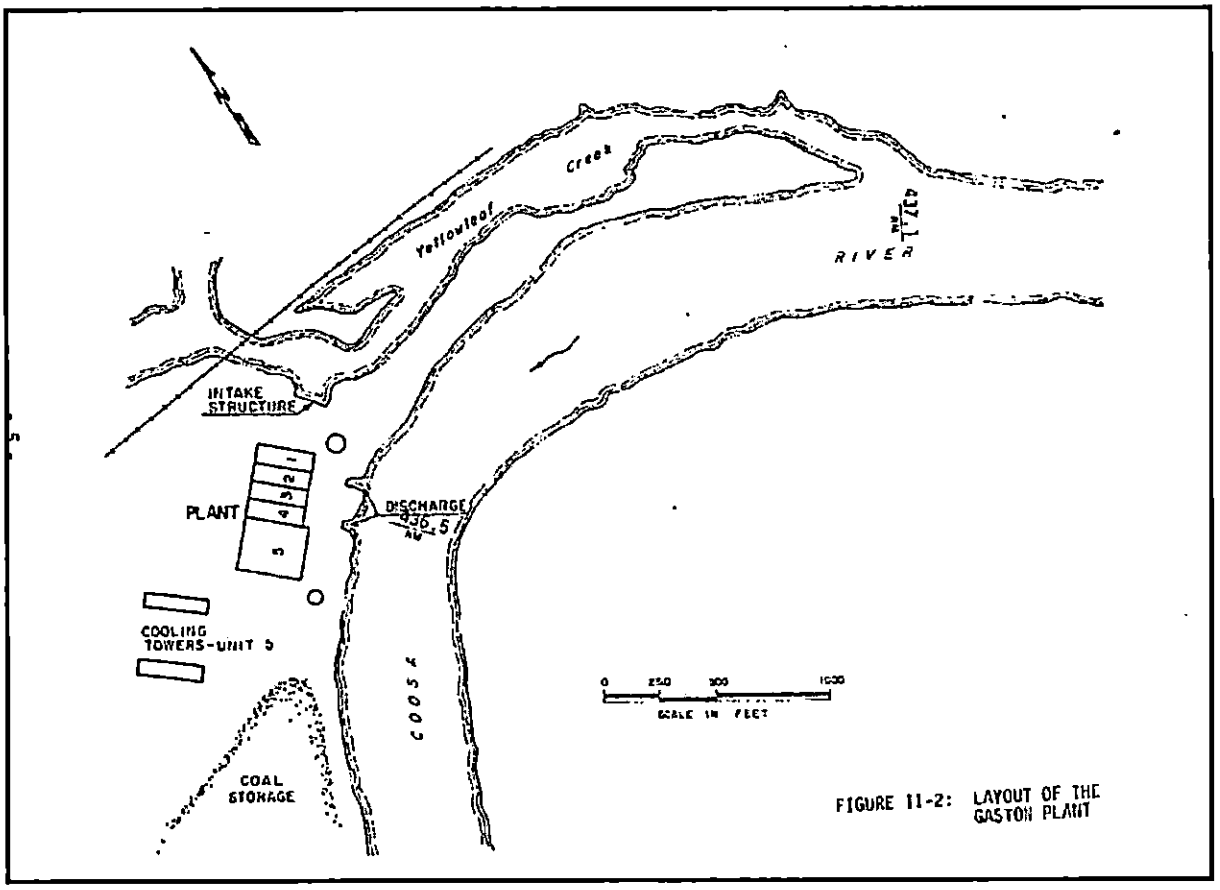


Figure 3: E.C. Gaston Steam Electric Generating Plant Layout

2.1.1 Aerial Dimensions and Water Depths

The aerial dimensions of Lay Reservoir in the vicinity of Plant Gaston's *cooling water intake structure*[3] are shown in Figure 4. Reservoir depths are indicated on Figure 5. As indicated in Figure 4, the width of the Yellowleaf Creek embayment of Lay Reservoir varies in width from approximately 217 ft. to 326 ft. The width of Lay Reservoir at the confluence of the Yellowleaf Creek and the main stem of the Reservoir at the mouth of Yellowleaf Creek is approximately 669 ft. As shown on Figures 5, the bottom elevation of Yellowleaf Creek varies from approximately 370 ft msl at its mouth to approximately 390 ft msl across from the cooling water intake structure. The depth of the main stem reservoir at the confluence of the Yellowleaf Creek embayment is approximately 357 ft msl.

[3] *Cooling water intake structure* means the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the U.S. The cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to, and including, the intake pumps.

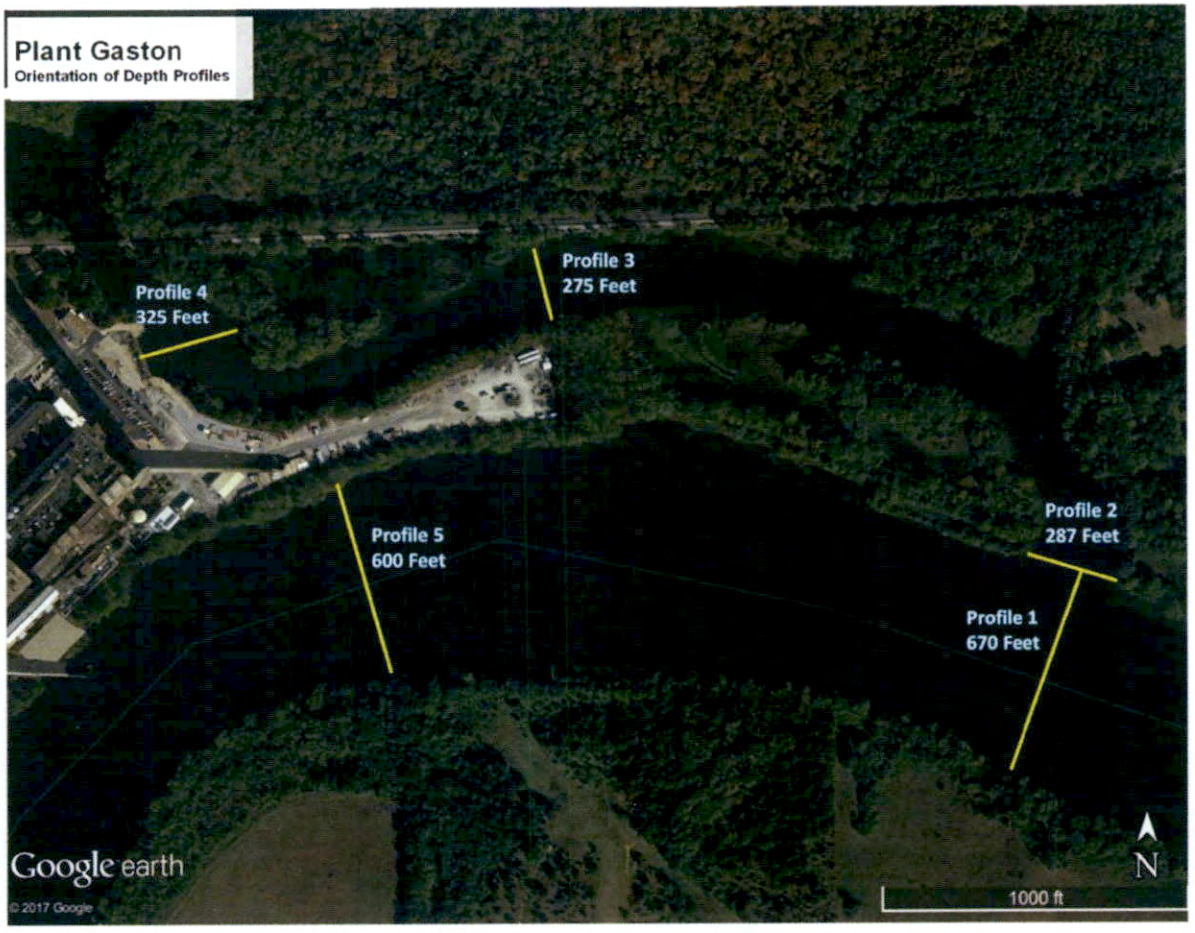


Figure 4: Coosa River Width in the Vicinity of the E. C. Gaston Steam Plant.

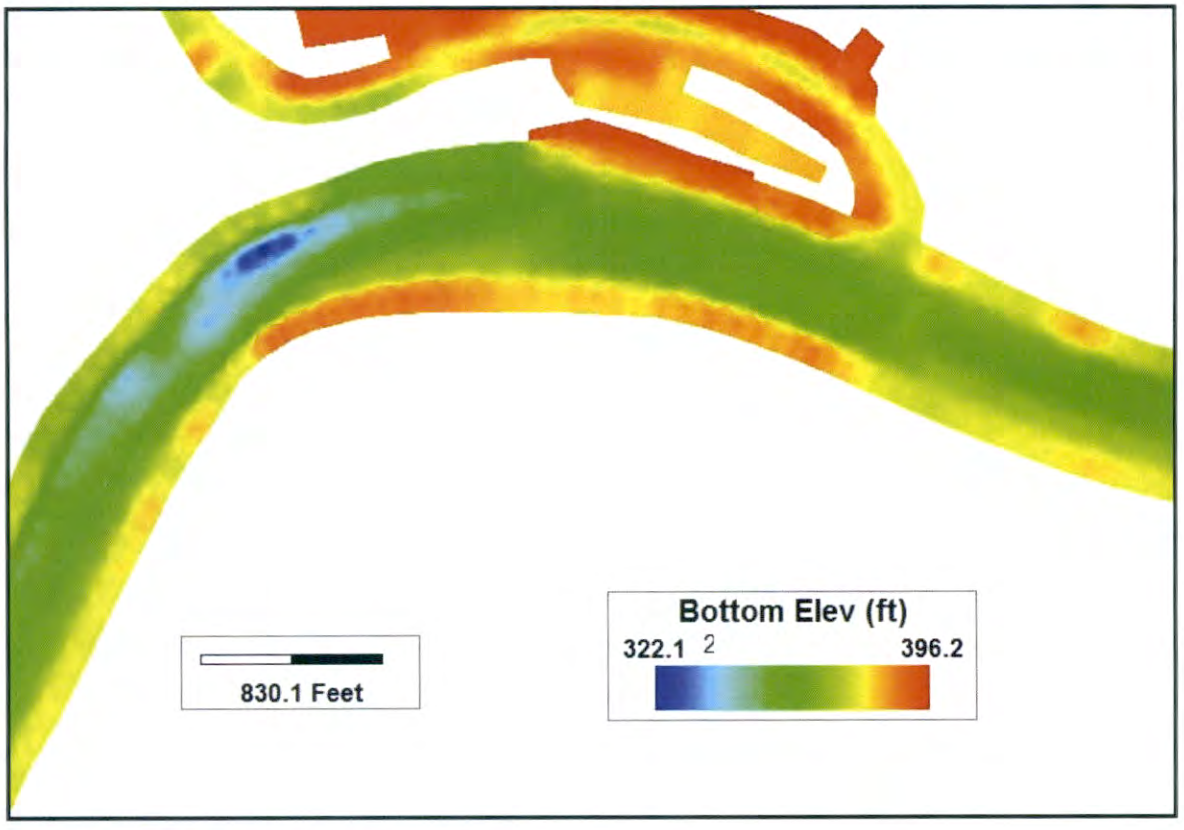


Figure 5: Bathymetric Profile from Figure 4.

2.1.2 Salinity

Salinity is a measure of the amount of dissolved salts in water. Because dissolved ions increase with increasing salinity as well as conductivity, the two measures are related. Since Plant Gaston is not located near an estuary or tidally-influenced river, salt water intrusion is not a concern. However, during the September 2004 through September 2005 monthly sampling periods, conductivity data was collected at various elevations in the water column in the vicinity of the cooling water system intake structure. Table 1 shows the various sampling depths during recent sampling events and the corresponding conductivity.

The salinity at Plant Gaston cooling water intake structure ranged from 66 to 181 µsiemens / cm. Typical conductivities of freshwater streams range from less than 100 to 2000 µsiemens / cm, whereas, saltwater may be up to 550 times greater. Thus, the conductivity of Coosa River at the Plant Gaston river intake is at the lowest end of the range for typical freshwater streams. A plot of the conductivity measured during the 2004-2005 sampling period is shown in Figure 6.

Table 1: Conductivity in the Coosa River 0.25 miles upstream of the Yellowleaf Creek Confluence

2004-2005 Conductivity at Gaston's Intake (micro-siemens/cm)	Depth, ft								
	0	1	3	5	10	15	20	25	30
9-Sep-04	181	181	181	181	178	178	178	178	
6-Oct-04	131	132	132	132	132	132	132	133	133
29-Nov-04	66	66	66	66	66	66	66	66	66
8-Dec-04	104	105	104	104	104	104	104	104	104
20-Jan-05	98	98	99	99	99	99	99	99	99
16-Feb-05	148	148	148	148	148	148	148	148	148
15-Mar-05	130	130	130	130	130	131	131	131	130
12-Apr-05	120	120	120	120	120	120	120	120	120
10-May-05	126	127	126	127	127	127	127	127	127
7-Jun-05	144	144	144	144	144	144	145	145	145
12-Jul-05	152	152	152	152	152	152	152	152	152
10-Aug-05	151	151	151	142	129	129	129	129	129
20-Sep-05	169	169	169	169	169	169	169	169	160

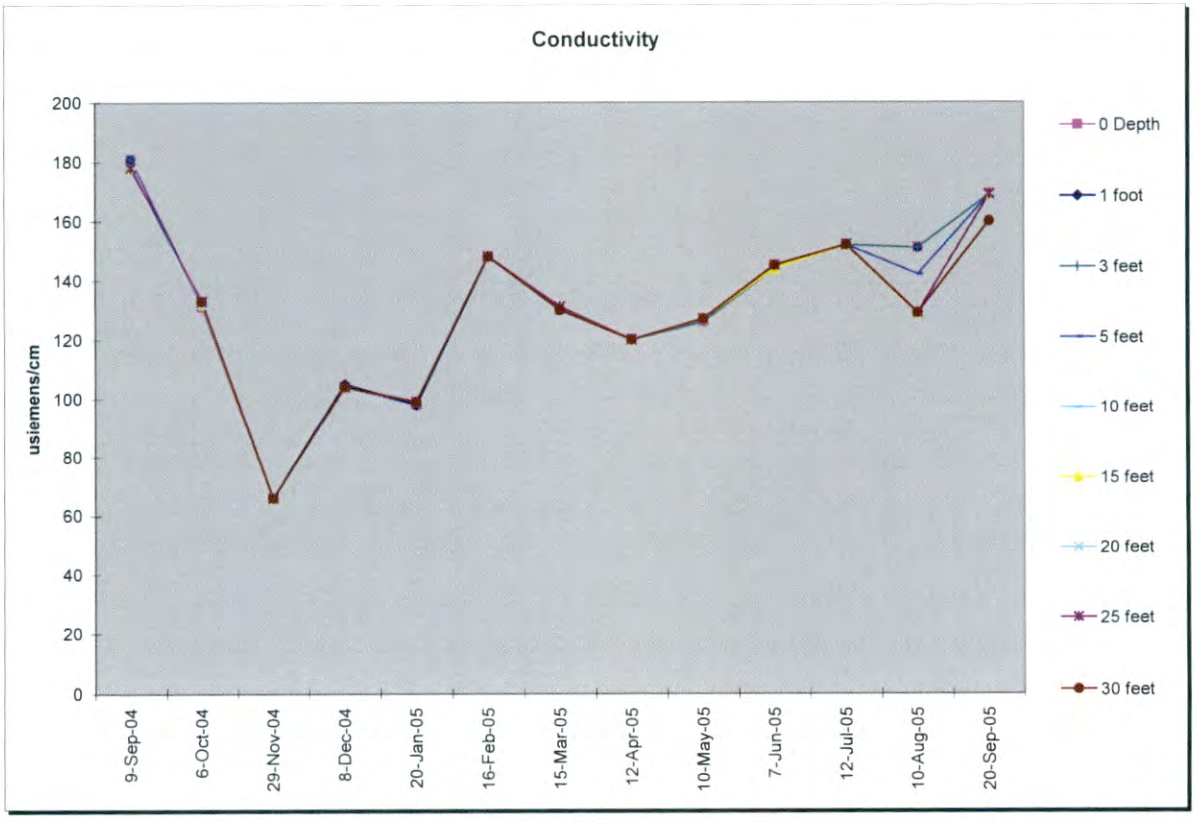


Figure 6: Conductivity analyses of the Coosa River ¼ mile upstream of the Yellowleaf Creek Confluence

2.1.3 Temperature Regimes

APC collected monthly temperature profile measurements in the vicinity of the Plant Gaston cooling water intake structure from September 2004 through September 2005. Figure 9 illustrates the distribution of the temperature data collected during this sampling period. Based on Figure 9, at the five-foot depth, the minimum water temperature recorded was 10.2°C (50.4°F) on January 20, 2005. The highest temperature recorded at the five-foot depth was 30.8°C (87.4°F) on September 20, 2005.

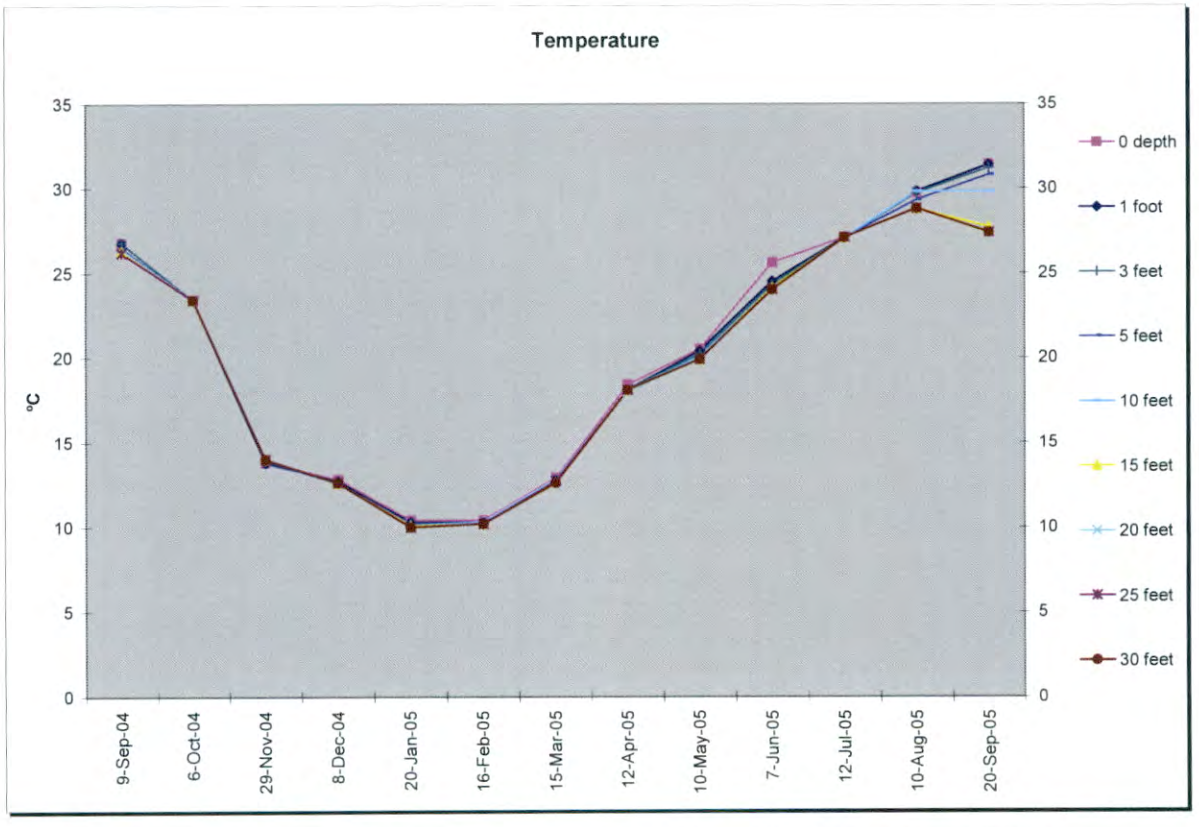


Figure 7: Temperature Regime of Lay Reservoir in the vicinity of the Cooling Water Intake Structure

Figure 8 shows a time series plot of daily average cooling water intake temperatures from January 2012 to September 2017. During the hottest part of the year, daily average intake temperatures approach 90°F, which is the NPDES permit limit downstream of the Gaston's discharge structures.

Figure 8: Time Series Plot of EC Gaston's Intake Daily Average Temperatures from January 2012 to September 2017.

2.2 Cooling Water Intake Hydraulic Zone of Influence

APC conducted a survey to quantify the area of hydraulic influence attributable to the Plant Gaston CWIS using Acoustic Doppler current profiling (ADCP) technology. The ADCP survey was conducted on 21 October 2004 with 6 of 8 circulating water pumps operating. Based on dye studies performed in 1991-1993 by Southern Company Services, condenser cooling water intake flow at full capacity would be approximately 867 MGD or 1342 cfs. The intake flow was estimated to be 652 MGD or 1009 cfs (76% of full capacity) during the 21 October 2004 monitoring survey.

Intermittent releases occurred from both the upstream Logan Martin Reservoir and the downstream Lay Reservoir during the 21 October 2004 ACP survey, resulting in an estimated 23,031 cfs flow through Lay Reservoir in the vicinity of the confluence of the Yellowleaf Creek Embayment with the main stem of the Reservoir. During this survey event, the reach of Lay Reservoir extending from just upstream of Yellowleaf Creek embayment adjacent to the CWIS

downstream to the confluence of the Yellowleaf Creek embayment with the main stem Lay Reservoir was surveyed to define the hydraulically affected zone. Acoustic Doppler profile data were collected by navigating the boat and ADCP unit perpendicular to the shoreline. The hydraulic zone of influence of the cooling water intake structure was determined from the flow vector data (i.e. velocity magnitude and direction) collected by the ADCP unit. The boundary demarcating the area of greatest extent of hydraulic influence from Plant Gaston was determined by the occurrence of water velocities and vectors dominantly unrelated to the Plant Gaston CWIS. The extent of the hydraulic zone of influence is illustrated in Figure 9. As illustrated in Figure 9, the hydraulic zone of influence extends from just upstream of the cooling water intake structure to the confluence of the Yellowleaf Creek embayment with the main stem Lay Reservoir. The surface area of Lay Reservoir contained within the hydraulic zone of influence was determined to be approximately 15.9 acres.

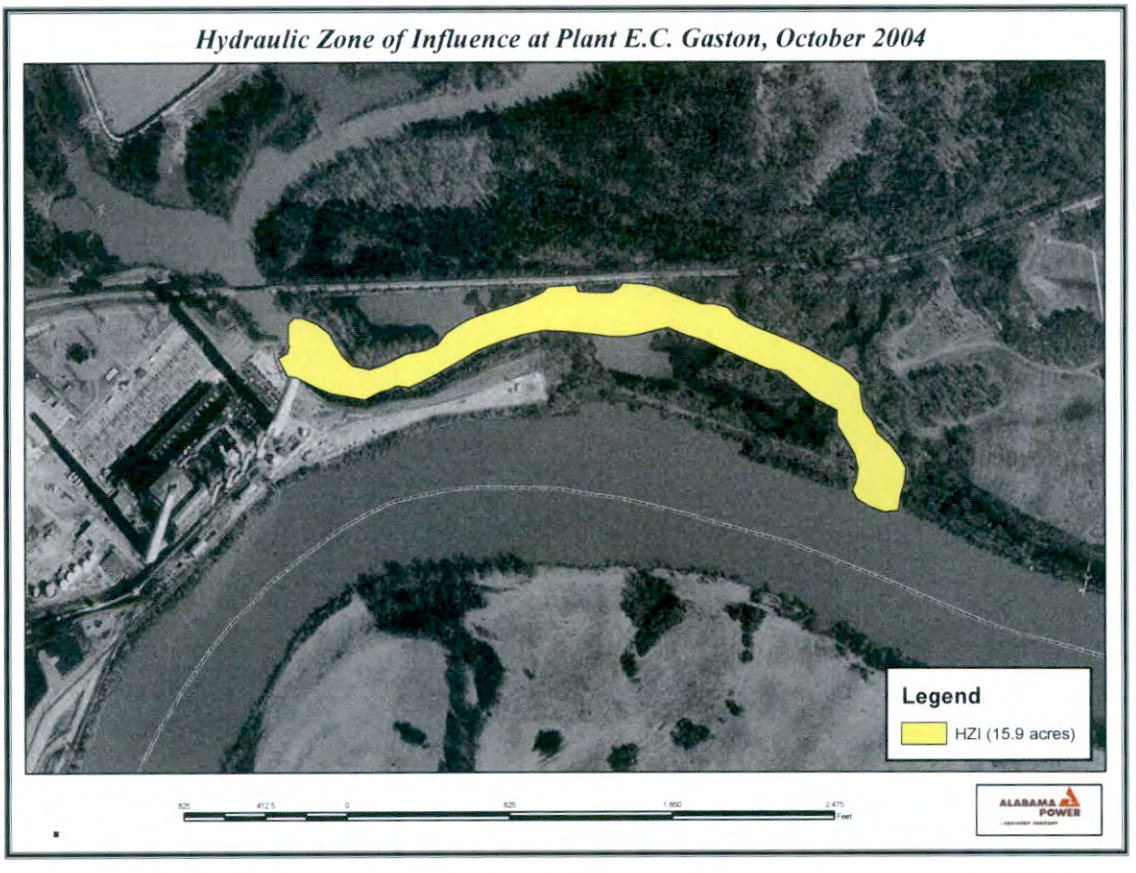


Figure 9: Extent of HZI during low reservoir flow conditions in the vicinity of E. C. Gaston Steam Plant

2.3 Locational Maps

A map showing the relative location of Plant Gaston on Lay Reservoir is shown on Figure 11.

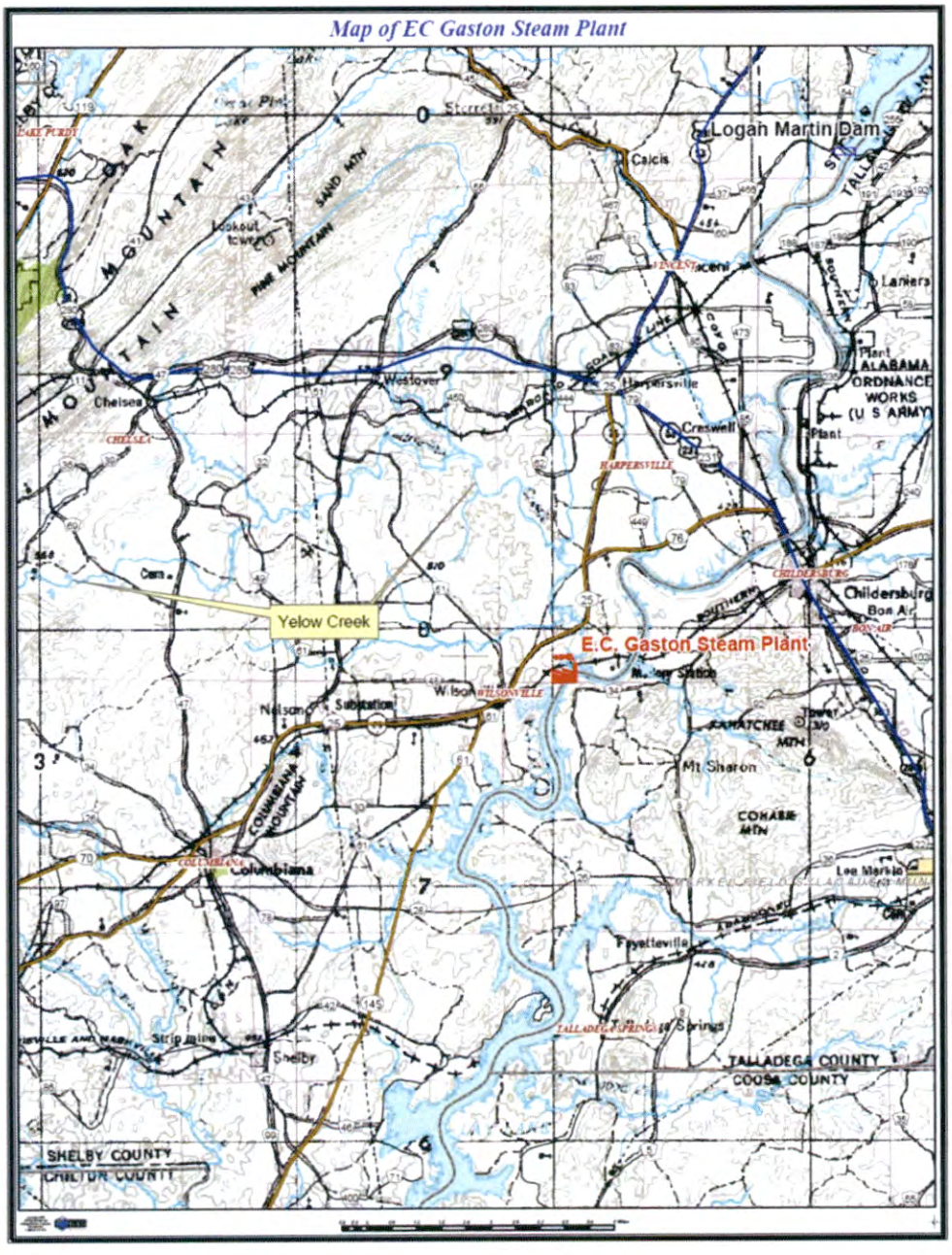


Figure 10: Locational Map for E.C. Gaston Steam Plant

40 CFR 122.21(r)(3) *Cooling water intake structure data.* These include: (i) A narrative description of the configuration of each of your cooling water intake structures and where it is located in the water body and in the water column; (ii) Latitude and longitude in degrees, minutes, and seconds for each of your cooling water intake structures; (iii) A narrative description of the operation of each of your cooling water intake structures, including design intake flows, daily hours of operation, number of days of the year in operation and seasonal changes, if applicable; (iv) A flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges; and (v) Engineering drawings of the cooling water intake structure.

3 COOLING WATER INTAKE STRUCTURE DATA

3.1 Cooling Water Intake Structure for Units 1 - 4

Plant Gaston is a coal-fired steam electric power generating facility consisting of five (5) coal-fired generating units: Units 1 through 4 utilize once-through condenser cooling and have a normal full-load rating of 270 MW each; Unit 5, rated at 884 MW, utilizes mechanical draft cooling towers. This facility is located on the Coosa River in Shelby County, Alabama.

An aerial photo of the plant site is shown in Figure 1. The cooling water for Plant Gaston is withdrawn from Lay Reservoir through the Yellowleaf Creek embayment. The location of the Plant Gaston cooling water intake structure (CWIS) is shown in Figure 3.

The CWIS consists of ten bays, eight of which are equipped with vertical traveling water screens (See Figures 12 through 17 for engineering drawings and pump curves). Two bays are currently not operating. The screens are operated based on the debris loading of the river. The maximum operating time is a 24-hour a day operation and the minimum is normally three screens operated for 12 hours then swapped to three other screens. Wash water to the screens is applied continuously.

The elevation at the base of the screens is 368.5 ft. The average water elevation from 2000 to 2009 was 396.5 ft. The screen baskets are 10 ft wide and made of woven wire mesh with 3/8 inch square openings, positioned behind permanently attached trash racks. The underflow weir average velocity for Units 1-5 is approximately 0.36 ft/s at the normal surface water elevation of 396 ft. Debris, fish and other organisms are caught by the traveling screens, carried vertically to the spray nozzles, and backwashed by the spray nozzles into a flowing water trough, which is eventually returned to Yellowleaf Creek.

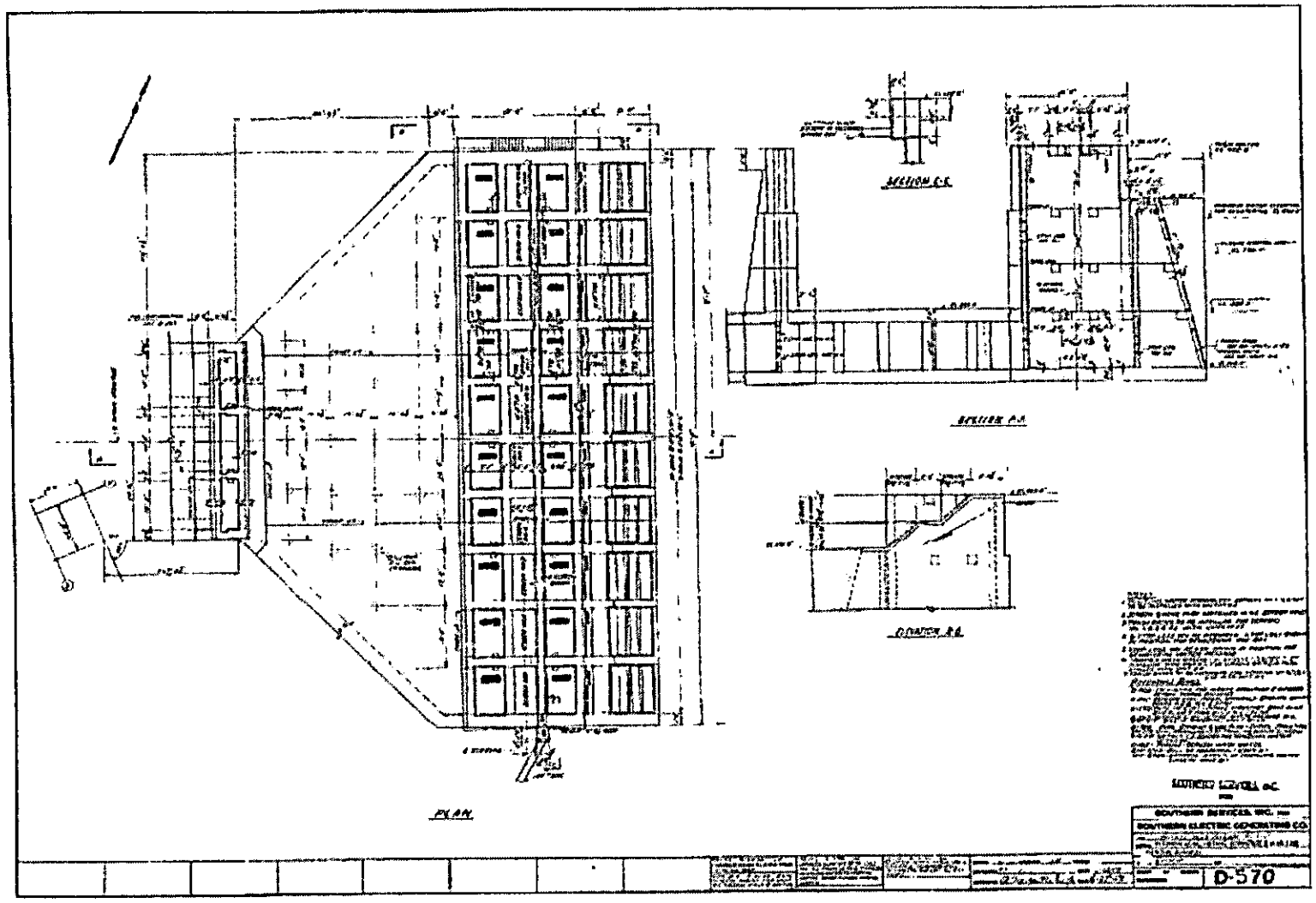


Figure 11: E.C. Gaston Steam Plant Intake Structure Plan View

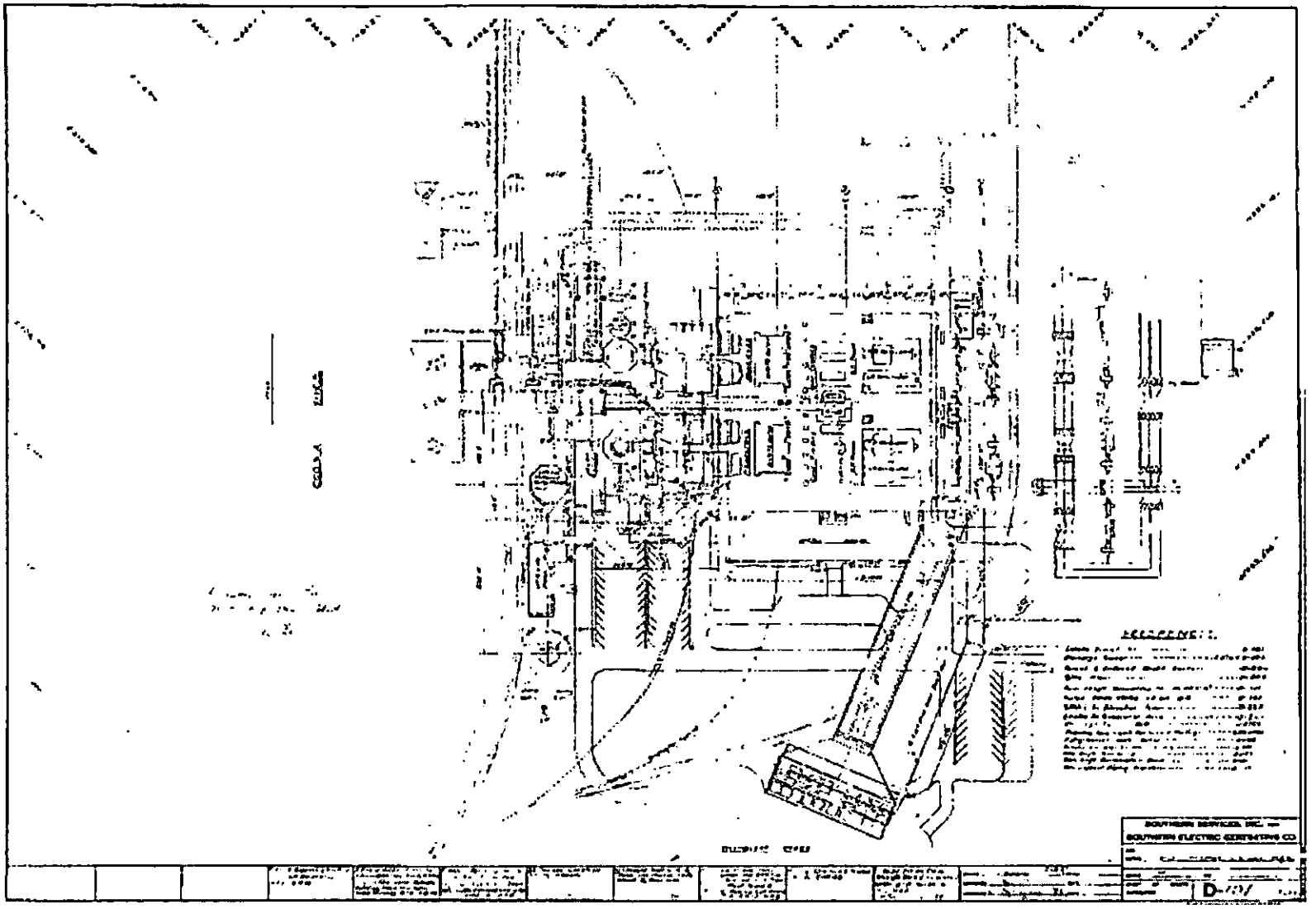


Figure 12: E.C. Gaston Steam Plant Intake Structure General Arrangement

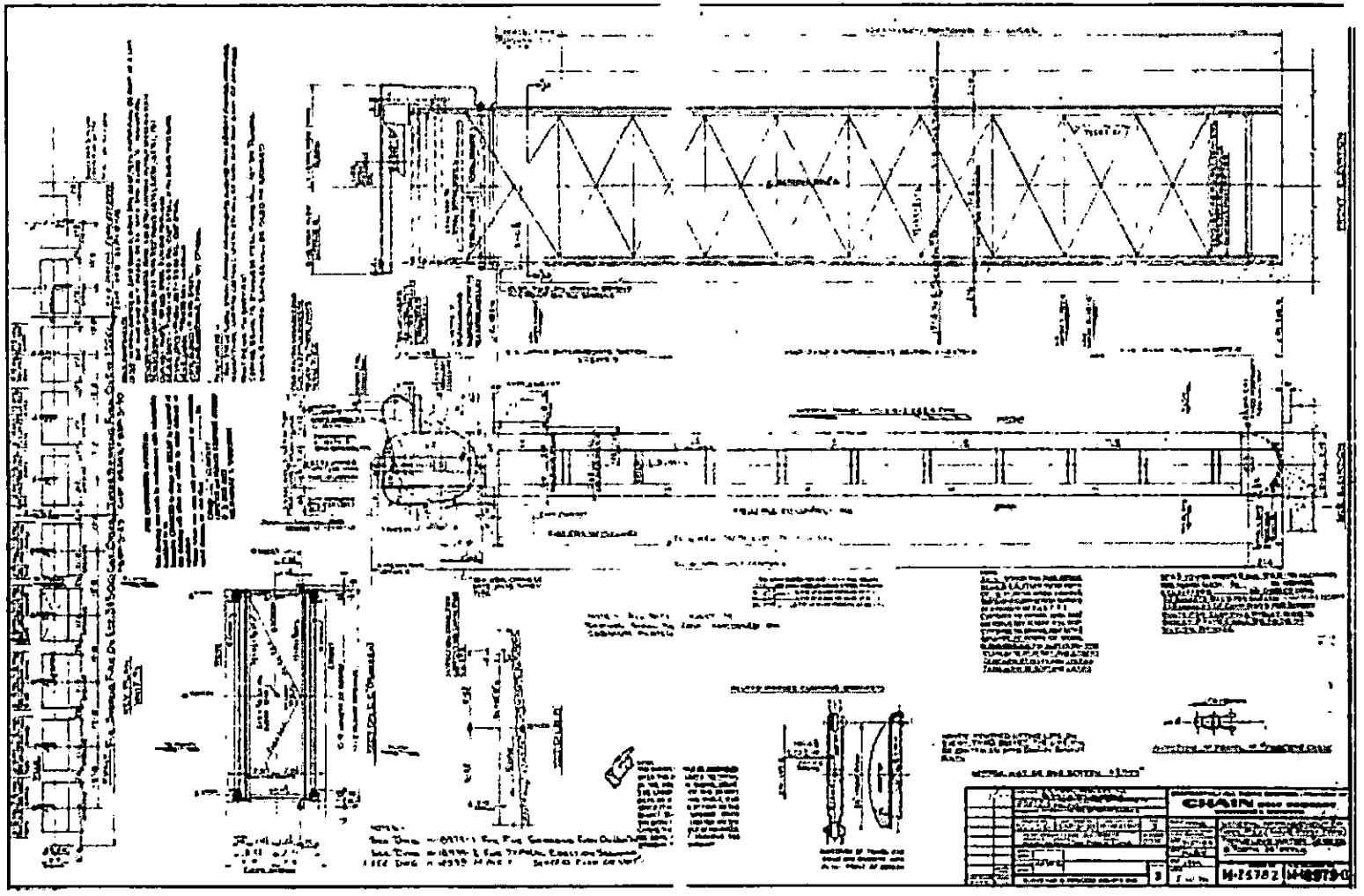


Figure 13: E.C. Gaston Steam Plant Traveling Water Screens

GASTON 3 CWP

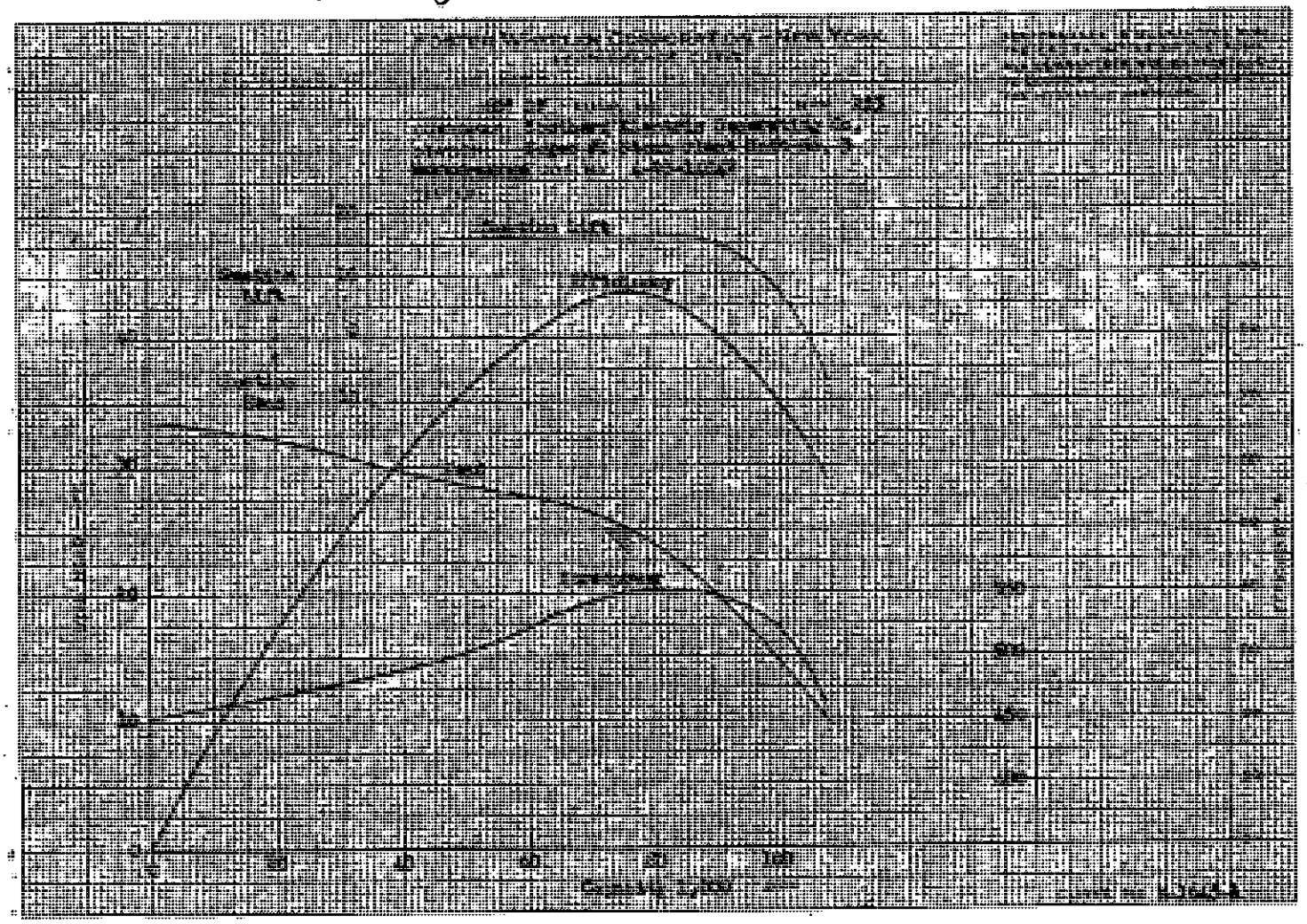


Figure 14: Unit 3 Pump Curve with 2 pumps operating

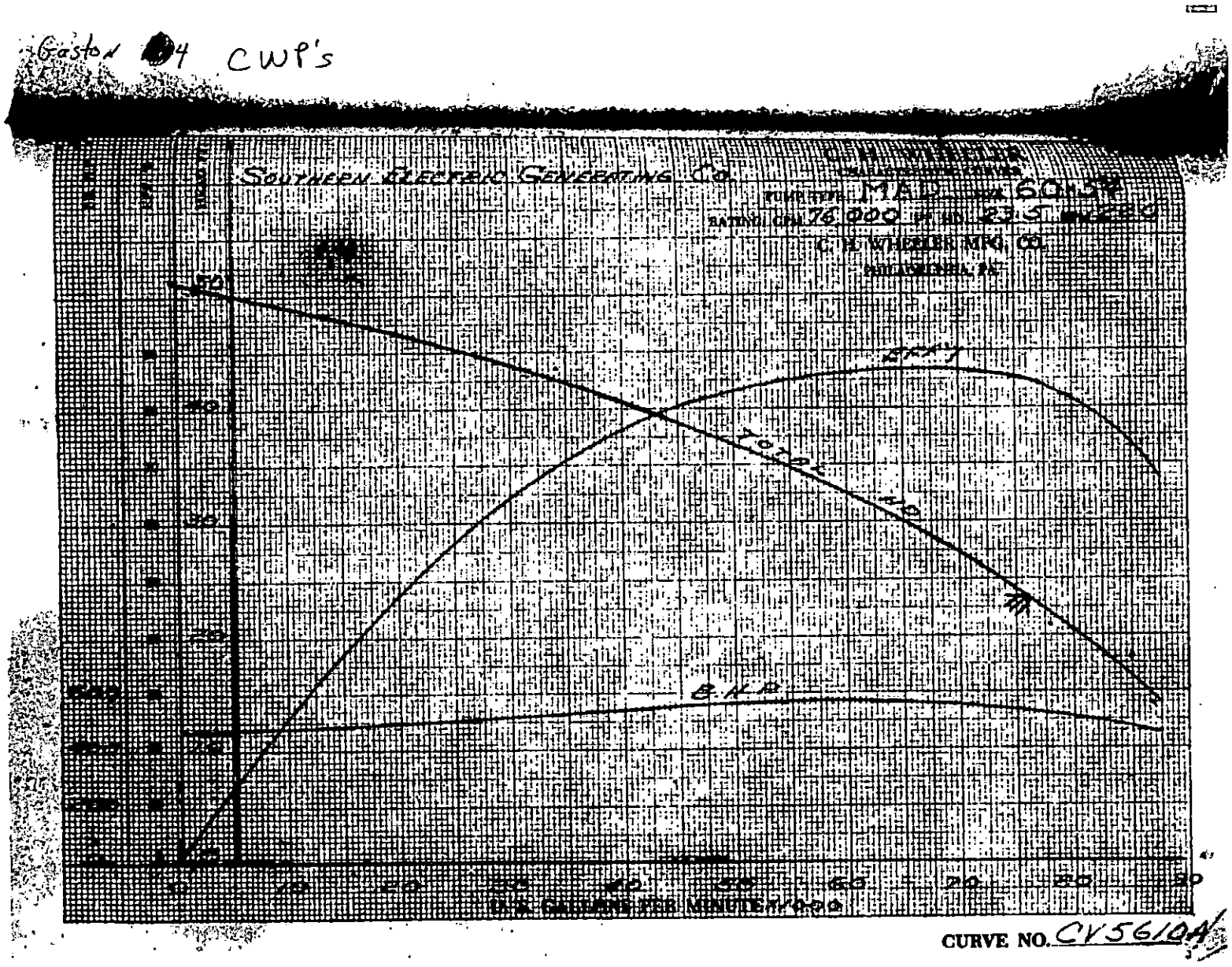


Figure 15: Unit 4 Pump Curve with 2 pumps operating

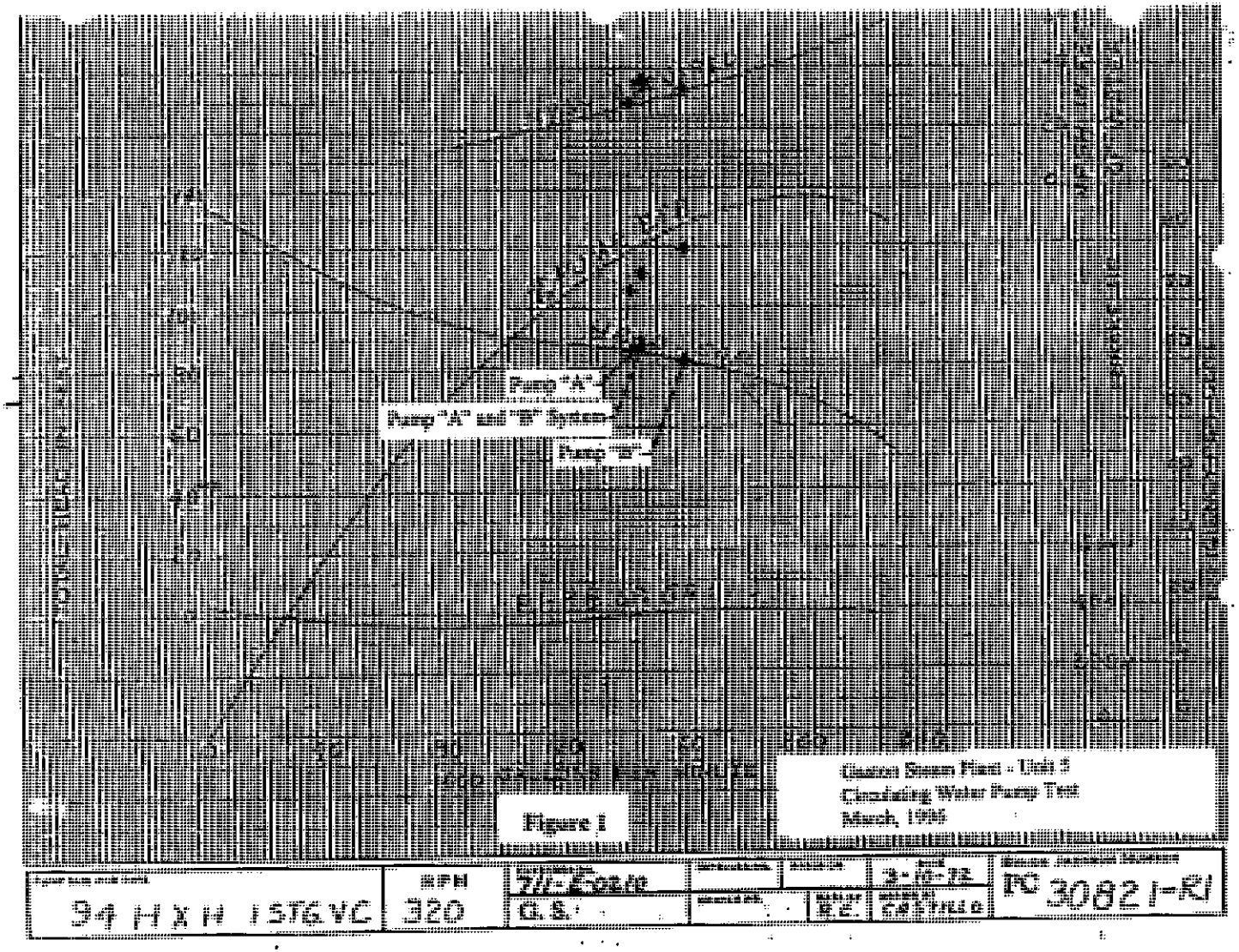


Figure 16: Unit 5 PumpCurve with 2 pumps operating

3.2 Latitude and Longitude

The intake structure is located at latitude 33°14' 37" and longitude 86°27' 28".

3.3 Operation of Cooling Water Intake Structure

The intake structure was designed to supply Plant Gaston with all water necessary to support operations which includes condenser cooling for units 1-4, makeup for unit 5 cooling towers, general service to all units, ash sluice to all units, and treatment plant influent. Based on the water balance diagram, the required inflow for these operations is approximately 915 MGD. The intake structure is normally in operation 24 hours per day 365 days per year, except during short periods for maintenance outages. Due to load requirements, however, the quantity of water withdrawn through the structure varies during the year. The largest demand for cooling water is due to the condensers. Based on dye studies, 867 MGD or 95% of the total withdrawal through the intake structure is due to the condensers. Therefore, condenser operation dictates the flow withdrawal and, therefore, the impact of the intake structure on aquatic life. The condenser cooling water monthly average withdrawal over the period from 2006-2016, varied between approximately 33 – 867 MGD.

3.4 Flow Distribution and Water Balance

A flow distribution and water balance diagram that includes all sources of water to the facility, recirculated flows, and discharges are shown in Figures 18 and 19, respectively.

40 CFR 122.21(r)(5) *Cooling water system data.* Existing facilities defined in part 125.92(k) of this chapter must provide the following information for each cooling water intake structure they use: (i) A narrative description of the operation of the cooling water system, its relationship to cooling water intake structures, the proportion of the design intake flow that is used in the system, the number of days of the year the cooling water system is in operation and seasonal changes in the operation of the system, if applicable; the proportion of design intake flow for contact cooling, non-contact cooling, and process uses; a distribution of water reuse to include cooling water reused as process water, process water reused for cooling, and the use of gray water for cooling; a description of reductions in the total water withdrawals including cooling water intake flow reductions already achieved through minimized process water withdrawals; a description of any cooling water that is used in a manufacturing process either before or after it is used for cooling, including other recycled process water flows; the proportion of the source waterbody withdrawn (on a monthly basis); (ii) Design and engineering calculations prepared by a qualified professional and supporting data to support the description required by paragraph (r)(5)(i) of this section; and (iii) Description of existing impingement and entrainment technologies or operational measures and a summary of their performance, including but not limited to reductions in impingement mortality and entrainment due to intake location and reductions in total water withdrawals and usage.

4 COOLING WATER SYSTEM DATA

4.1 Narrative Description of the Operation of the Cooling Water System

The Plant Gaston cooling water system is a continuously operated system (online 365 days per year) composed of the cooling water intake structure, which is located on Yellowleaf Creek and is fed from the Coosa River, and associated intake tunnels leading to the intake pumps used to withdraw cooling water and circulate it throughout the facility as required to support contact and noncontact cooling uses, and then discharges it back to the Coosa. Figure 17 shows the routes of primary cooling water flow throughout the system.

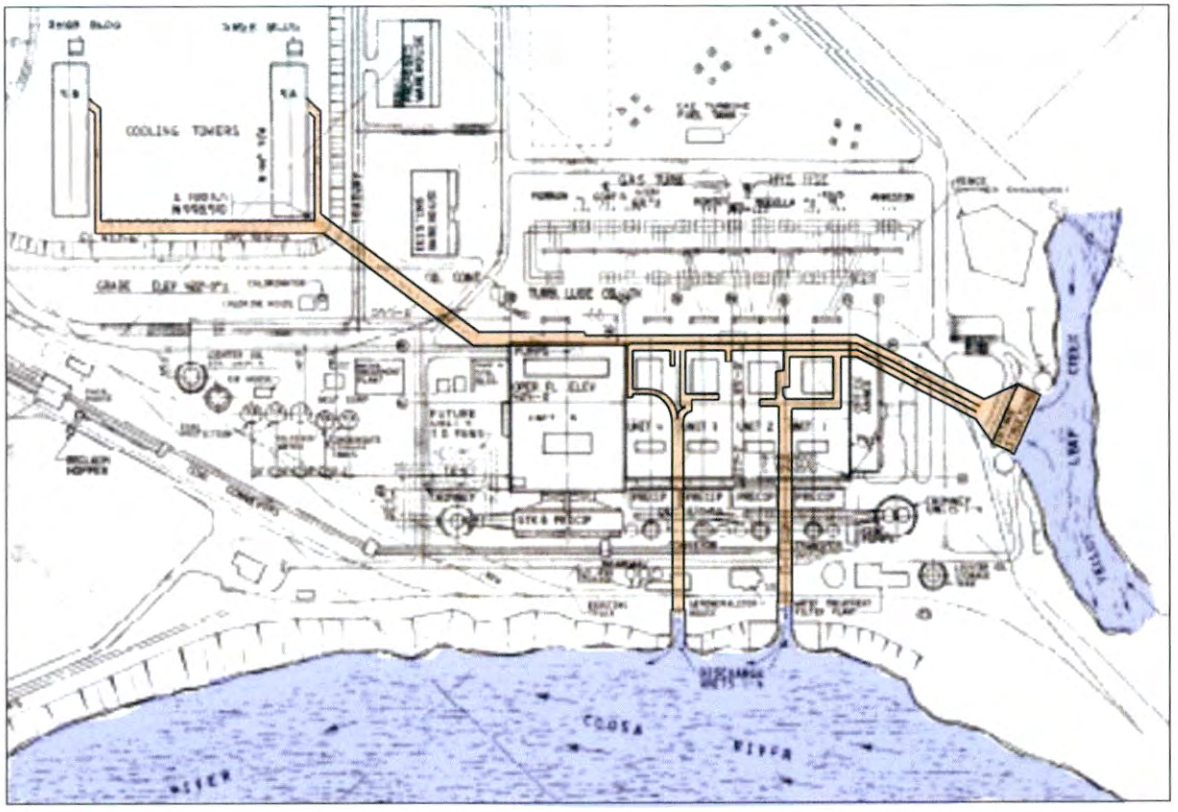


Figure 17: Site Layout of E.C. Gaston Steam Plant with Intake, Discharge and Circulating Water Passages Highlighted

Figure 18 illustrates Plant Gaston's range of monthly average intake flowrates from January 2006 to December 2016 for Units 1 through 4. These ten years are indicative of the historic operation of the plant. On average, from October through May, the lower load demand results in intake flow requirements less than design. From June through September, however, the condenser cooling requires intake flows which approach the design capacity.

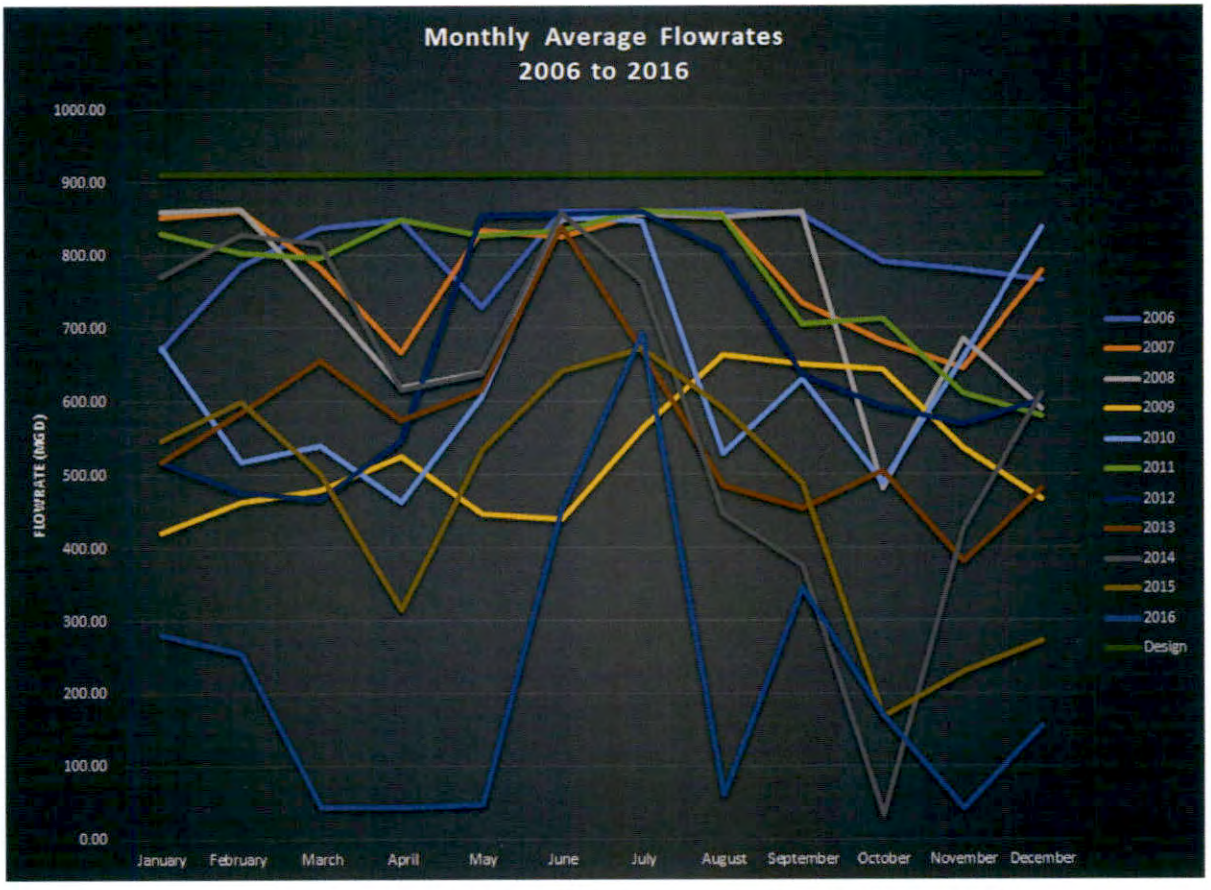


Figure 18: Graph of E.C. Gaston Steam Plant Intake Flowrates for Cooling Water (2006 – 2016).

4.2 Design Intake Flow

The average daily flow withdrawn from the Coosa River over the past five (5) years for Units 1-4 is 488.8 MGD. The normal mode of operation for Plant Gaston, especially in the Summer, is to use two pumps per each of the 4 non-cooling tower units, which have a total design capacity of 832.3 MGD. The overall design capacity of the intake structure is 914.57 MGD. Therefore, the percentage of design capacity utilized over the past 5 years has been 53.4%. During the summer months (June-September), however, the average daily flow for Plant Gaston's Units 1-5 is 591.6 MGD or 64.7% of design capacity. Table 2 shows the average design capacity utilization per month for Plant Gaston.

Table 2: Proportion of Design Intake Flow Utilized

	Average Intake Flow (2012-2016) MGD	Proportion of the Design Intake Flow Utilized
January	519.52	57%
February	538.45	59%
March	488.80	54%
April	414.48	46%
May	530.21	58%
June	723.43	79%
July	721.32	79%
August	466.54	51%
September	454.81	50%
October	283.73	31%
November	324.89	36%
December	402.45	44%

Unlike units 1-4, unit 5 entirely utilizes closed-cycle cooling. The recirculated design condenser cooling flow rate with two pump operation on Unit 5 is 526.3 MGD, which is supplied through two cooling towers. However, makeup for the cooling towers comes from the intake structure and is approximately 16.2 MGD. Other operations requiring minimal cooling water flows include fan bearing cooling and miscellaneous equipment cooling.

The water withdrawn through the CWIS is primarily used as non-contact cooling water. A small proportion is used for process water (approximately 4.7%). The proportion of the design intake flow used for these purposes is presented in Table 3.

Table 3: Proportioned Uses of the Design Intake Flow

Intake Water Use	Estimated Maximum Flow (MGD)	Proportion of Design Intake Flow
Contact Cooling Water	0	0%
Non-Contact Cooling Water	871.9	95.3%
Process Water	42.67	4.7%

4.3 Recycle and Reuse

Currently, there is no recycle or reuse of either non-contact cooling water or process water at Plant Gaston.

4.4 Proportion of Source Waterbody Withdrawn

During the period from 2012 to 2016, the maximum proportion of the source waterbody withdrawn on a monthly basis was 18 percent which occurred during the months of June and September (Table 4). An average of 7 percent or less of the source waterbody is withdrawn on a monthly basis for six months of the year.

Table 4: Proportion of Source Waterbody Withdrawn

Monthly Average Stream Flow	Monthly Average Stream Flow (2012-2016) MGD	Monthly Average Withdrawal (2012-2016) MGD	Proportion of Source Waterbody Withdrawn
January	13,922	527	4%
February	12,064	548	5%
March	9,867	496	5%
April	9,559	419	4%
May	7,800	538	7%
June	3,952	729	18%
July	4,308	731	17%
August	3,062	477	16%
September	2,610	460	18%
October	2,865	293	10%
November	3,777	330	9%
December	10,034	424	4%

4.5 Design and Engineering Calculations

The proportion of the design intake flow that is used in the system was determined by averaging monthly historical intake withdrawal flows during the period from 2012 to 2016, and then dividing these values by the design intake capacity which is 915 MGD. For example:

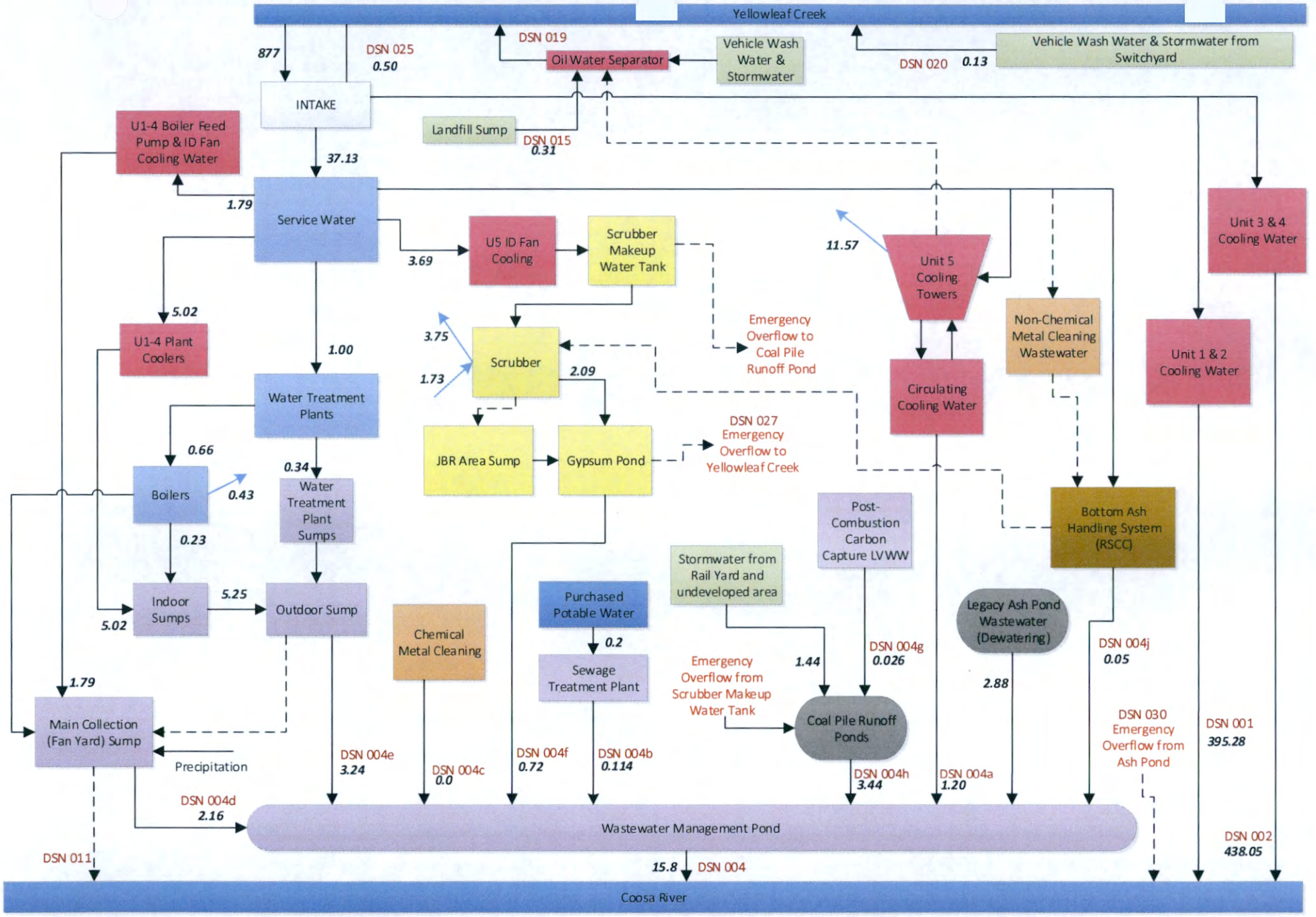
$$\text{Proportion of the Design Intake Flow Used in January} = \frac{519.52 \text{ MGD}}{914.57 \text{ MGD}} * 100\% = 57\%$$

The proportion of the source waterbody withdrawn on a monthly basis was determined by averaging monthly historical intake withdrawal flows during the period from 2012 to 2016, and then dividing these values by the average monthly stream flows during the period from 2012 to 2016. For example:

$$\text{Proportion of Source Waterbody Withdrawn during July} = \frac{731 \text{ MGD}}{4{,}308 \text{ MGD}} * 100\% = 17\%$$

4.6 Description of Existing Impingement and Entrainment Technologies

The Best Technology Available (BTA) Standards for Impingement Mortality and Entrainment are established and presented in 40 CFR 125.94. Plant Gaston has not currently implemented any of these seven alternative BTA Standards.



PLANT GASTON
AL0003140
Water Use Flow Diagram
May 2019

Flow in MGD

Figure 19: Water Balance Diagram for the E. C. Gaston Steam Plant

Attachment A

11. c) Subsidiary Corporation(s) of Applicant:

Alabama Energy Partners
600 North 18th street
Birmingham, Alabama 35291

Alabama Property Company
600 North 18th street
Birmingham, Alabama 35291

Southern Electric Generating Company
600 North 18th street
Birmingham, Alabama 35291

11. d) Corporate Officers:

Mark A. Crosswhite
President, Chief Executive Officer and Director
600 North 18th Street
Birmingham, Alabama 35291

Philip C. Raymond
Executive Vice President, Chief Financial Officer and Treasurer
600 North 18th street
Birmingham, Alabama 35291

Zeke W. Smith
Executive Vice President
600 North 18th Street
Birmingham, Alabama 35291

Alexia B. Borden
Senior Vice President and General Counsel
600 North 18th Street
Birmingham, Alabama 35291

Jim P. Heilbron
Senior Vice President and Senior Production Officer
600 North 18th Street
Birmingham, Alabama 35291

Ronald Q. Patterson
Vice President and Assistant Treasurer
600 North 18th Street
Birmingham, Alabama 35291

Attachment B

Fossil Plants	Permit Type	Permit Number	Effective Date	Expiration Date	
	Acid Rain		1/1/2009	12/31/2013	Submitted 6/13/2018
	LANDFILL	Mobile County #126	8/25/2017	8/24/2018	
	LANDFILL	ADEM #49-18	1/22/2014	8/21/2019	
	NPDES	AL-0002879	11/1/1990	10/31/2013	
	Title V	503-1001	12/20/2010	12/31/2015	Submitted 2/18/2016
	AIR	503-1001-X008	9/14/2010		
	AIR	503-1001-X09	11/6/2014		
	AIR	503-1001-X010	11/6/2014		
Barry Steam Plant	AIR	503-1001-X011	12/8/2015		
	Acid Rain		6/8/2016	6/7/2021	
	BMP	3/31/2003	11/5/2012	11/5/2015	
	NPDES	AL-0074179	1/1/2002	3/30/2018	Submitted 9/25/2017
E B Harris Generating Plant	Title V	201-0010	6/8/2016	6/7/2021	
	Acid Rain		1/1/2005	12/31/2009	
	LANDFILL	ADEM #28-05	1/9/2016	1/8/2021	
	NPDES	AL-0002887	2/1/2017	1/31/2022	
Gadsden Steam Plant	Title V	307-0002	1/31/2017	1/30/2022	
	Acid Rain		1/1/2009	12/31/2013	Submitted 6/13/2018
	AIR	411-0005-X012	6/4/2013		
	AIR	411-0005-X013	2/14/2014		
	AIR	411-0005-X014	2/14/2014		
	AIR	411-0005-X015	2/14/2014		
	AIR	411-0005-X005	4/14/2015		
	LANDFILL	ADEM #59-14	1/9/2016	1/8/2021	
	NPDES	AL-0003140	12/1/2001	6/30/2012	Submitted 5/7/2018
	Title V	411-0005	12/20/2010	12/31/2015	Submitted 2/20/2017
Gaston Steam Plant	USCG	AID200100702269	3/1/2004		
Gorgas Barge Loading Facility #2	NPDES	AL-0025551	10/1/1992	9/30/2013	Submitted 5/16/2018
	Acid Rain		1/1/2009	12/31/2013	Submitted 6/13/2018
	AIR	414-0001-X012	11/12/2013		
	LANDFILL	ADEM #64-10	1/9/2016	1/8/2021	
	NPDES	AL-0002909	10/1/2001	9/5/2012	
Gorgas Steam Plant	Title V	414-0001	12/20/2010	12/31/2015	Submitted 2/18/2016
	Acid Rain		1/1/2005	12/31/2009	Submitted 7/24/2008
	LANDFILL	ADEM #32-02	1/9/2016	1/8/2021	
	NPDES	AL-0002917	4/1/2019	3/31/2024	
	Title V	405-0001	8/29/2003	8/28/2008	Submitted 2/18/2016
	AIR	405-0001-X012	10/5/2015		
Greene County Steam Plant	AIR	405-0001-X013	10/5/2015		
	LANDFILL	ADEM #37-16	12/22/2016	12/21/2021	
	NPDES	AL-0027146	10/1/2001	1/31/2012	Submitted 6/13/2017
Miller Steam Plant	Title V	4-07-0011-04	1/11/2017	1/10/2022	
	Acid Rain		6/8/2016	6/7/2021	
	NPDES	AL-0073555	6/1/2012	5/31/2017	
Plant H Allen Franklin	Title V	206-0036	6/8/2016	6/7/2021	
	Acid Rain		4/1/2016	3/31/2021	
	NPDES	AL-0072290	1/1/2015	12/31/2019	
	Title V	503-8073	4/1/2016	3/31/2021	
Theodore Cogenerating Plant	AIR	503-8073-X004	5/3/2016		
	Acid Rain		4/1/2016	3/31/2021	
	NPDES	AL-0071951	2/1/2014	1/31/2019	Submitted 8/3/2018
Washington County Cogenerating Plant	Title V	108-0018	4/1/2016	3/31/2021	

Hydro Plants	Permit Type	Permit Number	Effective Date	Expiration Date
Bankhead Dam	NPDES	ALG360001	2/1/2016	1/31/2021
Bouldin Dam	NPDES	ALG360005	2/1/2016	1/31/2021
Holt Dam	NPDES	ALG360003	2/1/2016	1/31/2021
Jordan Dam	NPDES	ALG360016	2/1/2016	1/31/2021
Lay Dam	NPDES	ALG360006	2/1/2016	1/31/2021
Logan Martin Dam	NPDES	ALG360004	2/1/2016	1/31/2021
Logan Martin Batch Plant	NPDES	ALG110208	2/1/2016	1/31/2021
Martin Dam	NPDES	ALG360014	2/1/2016	1/31/2021
Mitchell Dam	NPDES	ALG360015	2/1/2016	1/31/2021
Neely Henry Dam	NPDES	ALG360002	2/1/2016	1/31/2021

R L Harris Dam	NPDES	ALG360017	2/1/2016	1/31/2021
Smith Dam	NPDES	ALG360008	2/1/2016	1/31/2021
Thurlow Dam	NPDES	ALG360013	2/1/2016	1/31/2021
Weiss Dam	NPDES	ALG360007	2/1/2016	1/31/2021
Yates Dam	NPDES	ALG360010	2/1/2016	1/31/2021

Birmingham Division	Permit Type	Permit Number	Effective Date	Expiration Date
Birmingham Division Garage	AIR	4-07-2034-002	7/20/1998	
County Hwy 45	AIR	4-07-1184-8601	4/15/1986	
Gardendale Crew Headquarters	AIR	4-07-1670-8601	4/15/1986	
General Services Complex	AIR	411-G059-X001	8/17/1998	
Hueytown Crew Headquarters	AIR	4-07-1116-8601	4/15/1986	
	NPDES	ALG140133	10/1/2012	9/30/2017
Patton Chapel Crew HQ	AIR	4-07-1688-8601	4/15/1986	
	NPDES	ALG140132	10/1/2012	9/30/2017
Trussville Crew Headquarters	AIR	4-07-1579-8601	4/15/1986	
	NPDES	ALG140131	10/1/2012	9/30/2017

Corporate	Permit Type	Permit Number	Effective Date	Expiration Date
Corporate	AIR	4-07-0456-03	6/14/2016	
Central Utilities Plant	NPDES	ALG250054	4/1/2012	3/31/2017

Eastern Division	Permit Type	Permit Number	Effective Date	Expiration Date
Gadsden Garage	AIR	307-G129-X001	12/18/2008	

Southeast Division	Permit Type	Permit Number	Effective Date	Expiration Date
Eufaula Crew HQ	UIC	ALSI9903437	12/28/2013	12/27/2018
Farley Garage	AIR	607-G127-X001	12/29/2008	
Valley Crew HQ	UIC	ALSI9909429	6/23/2013	6/22/2018

Southern Division	Permit Type	Permit Number	Effective Date	Expiration Date
Selma Crew HQ	NPDES	ALG140244	10/1/2012	9/30/2017

Western Division	Permit Type	Permit Number	Effective Date	Expiration Date
Jasper Garage	AIR	414-GO25-X001	4/28/1995	
Tuscaloosa District Crew HQ & Div. Garage	AIR	413-G005-X001	11/22/1991	

Construction Stormwater	Permit Type	Permit Number	Effective Date	Expiration Date
APC Jasper	NPDES	ALR10BEAI	10/18/2018	3/31/2021
Barry Ash Pond Closure (Barry Bridge)	NPDES	ALR10BDZO	9/25/2018	3/31/2021
Bessemer - Calera	NPDES	ALR10BD36	1/29/2019	3/31/2021
Bessemer-Gorgas 115kV TL	NPDES	ALR10BCAM	5/23/2017	3/31/2021
Butler-Cuba 115kV	NPDES	ALR10BCVH	11/28/2017	3/31/2021
Clay TS	NPDES	ALR10BDY4	9/20/2018	3/31/2021
Clay TS - Rainbow City SS 115kV TL	NPDES	ALR10BB94	9/19/2016	3/31/2021
Cook Springs 115 Tap (2.5 mi) New (2234003)	NPDES	ALR10BBKS	12/8/2016	3/31/2021
County Line Rd-Autauga Creek 115	NPDES	ALR10BCXA	11/30/2017	3/31/2021
Dallas County Borrow Pit	NPDES	ALG890197	3/31/2016	3/31/2021
Dearmanville-Heflin	NPDES	ALR10BEOV	3/15/2019	3/31/2021
Enterprise Tap 115kV	NPDES	ALR10BDEA	3/27/2018	3/31/2021
Fuller Rd-Power South	NPDES	ALR10BCIW	7/17/2017	3/31/2021
Fuller Road-Nostasulga Reconductor (11 mi) (2210134)	NPDES	ALR10BBVO	3/27/2017	3/31/2021
Gaston Ash Pond Closure	NPDES	ALR10BEMT	3/4/2019	3/31/2021
Gaston Co. Line Rd	NPDES	ALR10BCRA	9/28/2017	3/31/2021
Gaston Low Volume Waste Pond	NPDES	ALR10B832	4/1/2016	3/31/2021
Gaston-Co. Line Rd	NPDES	ALR10BCRA	9/28/2017	3/31/2021
Gaston-Fayetteville 230kV	NPDES	ALR10BDVF	8/28/2018	3/31/2021
GE-Burkville-Hunter	NPDES	ALR10BCLS	8/16/2017	3/31/2021
Georgiana-Evergreen 115kV	NPDES	ALR10BEHY	1/19/2019	3/31/2021
Goodsprings TS	NPDES	ALR10BEMV	3/5/2019	3/31/2021
Gorgas - Fairfield 2nd Circuit	NPDES	ALR10BD39	1/16/2018	3/31/2021
Gorgas Ash Pond Closure	NPDES	ALR10BDH3	3/27/2018	3/31/2021
Gorgas Bottom Ash	NPDES	ALR10BELA	2/18/2019	3/31/2021
Gorgas-Fairfield X-Line	NPDES	ALR10BDS3	7/17/2018	3/31/2021
Gorgas-Tuscaloosa AB 115kV	NPDES	ALR10BEO5	3/15/2019	3/31/2021

Greene County Ash Pond Closure	NPDES	ALR10BEMU	2/18/2019	3/31/2021
Greene County Borrow Pit	NPDES	ALR167503	3/31/2016	3/31/2021
Greenville-Georgiana	NPDES	ALR10BEDK	12/5/2018	3/31/2021
GSC Borrow Pit	NPDES	ALG890444	3/31/2016	3/31/2021
GSC Building 9H	NPDES	ALR10BDHJ	4/11/2018	3/31/2021
Haleyville-Wilson Dam	NPDES	ALR10BEJ8	1/17/2019	3/31/2021
Hamilton-Hodges-Bear Creek 46kkV TL	NPDES	ALR10BCJR	8/14/2017	3/31/2021
Holt-South Bessemer	NPDES	ALR10BBHF	10/17/2016	3/31/2021
Jordan Dam-Bouldin Dam	NPDES	ALR10BENP	3/12/2019	3/31/2021
Miller Wasterwater Management Area	NPDES	ALR10BDMA	5/17/2018	3/31/2021
Miller Water Management Area	NPDES	ALR10BCIR	7/19/2017	3/31/2021
Mitchell Dam-North Selma	NPDES	ALR10BDD4	3/13/2018	3/31/2021
Naheola-Butler 115kV Relocation	NPDES	ALR10BDMV	5/17/2018	3/31/2021
Pinckard-Ft. Rucker-Enterprise	NPDES	ALR10BDLE	5/14/2018	3/31/2021
Remlap DS (2254794)	NPDES	ALR10BDSY	7/26/2018	3/31/2021
Ross Bridge Microgrid	NPDES	ALR10BCHD	7/18/2017	3/31/2021
Santuck DS	NPDES	ALR10BEJP	1/24/2019	3/31/2021
Smith Dam-Fulton Springs	NPDES	ALR10BETA	3/30/2019	3/31/2021
South Tuscaloosa-Eutaw 115kV TL	NPDES	ALR10BDQO	6/25/2018	3/31/2021
Theodore SS	NPDES	ALRBCVF	11/30/2017	3/31/2021
Thurlow Dam Laydown Area	NPDES	ALR10BDH4	4/5/2018	3/31/2021
Thweatt TS 115kV Tap	NPDES	ALR10BBUA	3/9/2017	3/31/2021
Troy-Luverne	NPDES	ALR10BCVM	11/30/2017	3/31/2021
Waugh DS 115kV TL	NPDES	ALR10BCY7	12/18/2017	3/31/2021
West Blountsville DS 46kV Tap (2179805) (2179812)	NPDES	ALR10BCJQ	8/14/2017	3/31/2021

Drinking Water Supply	Permit Type	Permit Number	Effective Date	Expiration Date
Greene County Steam Plant	PWS-0642	2017-520	10/1/2016	9/30/2026
Energy Center Water System (PWSID #AL0001815)	PWS	2017-636	9/22/2017	9/30/2027

Pesticide Permit	Permit Type	Permit Number	Effective Date	Expiration Date
APC ServiceTerritory	NPDES	ALG870003	10/31/2016	10/30/2021

Water Quality	Permit Type	Permit Number	Effective Date	Expiration Date
Weiss Waterfowl Project	COE + WQ			

Attachment C

Biocides and Corrosion Inhibitors

Hydrazine

- Quantity stored onsite: 1,600 gallons.
- Frequency of use: As needed in the water treatment plant and for water treatment in the boiler.
- Proposed discharge concentrations: This additive is used based on the demand of the system. Should a minimal amount of product be present in the wastewater, it would be undetectable.

Ammonium Hydroxide

- Quantity stored onsite: 4,000 gallons
- Frequency of use: As needed water treatment plant and for water treatment in the boiler.
- Proposed discharge concentrations: This additive is used based on the demand of the system. Should a minimal amount of product be present in the wastewater, it would be undetectable.

1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
900 First Avenue
King of Prussia, Pennsylvania 19406

Thio and Fine Chemicals

Customer Service Telephone Number: (800) 628-4453
(Monday through Friday, 8:00 AM to 5:00 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
(24 hrs., 7 days a week)
Medical: Rocky Mountain Poison Center: (866) 767-5089
(24 hrs., 7 days a week)

Product Information

Product name: HYDRAZINE HYDRATE 55%
Synonyms: Hydrazine
Molecular formula: H2NNH2*H2O
Chemical family: Diamines
Product use: Raw material for organic synthesis

2. HAZARDS IDENTIFICATION

Emergency Overview
Color: colourless
Physical state: liquid
Odor: ammoniacal

***Classification of the substance or mixture:**
Corrosive to metals, Category 1, H290
Oral: Acute toxicity, Category 3, H301
Inhalation: Acute toxicity, Category 2, H330
Dermal: Acute toxicity, Category 3, H311
Skin corrosion, Category 1B, H314
Serious eye damage, Category 1, H318
Skin sensitisation, Category 1, H317
Carcinogenicity, Category 1B, H350
Acute aquatic toxicity, Category 1, H400
Chronic aquatic toxicity, Category 1, H410

*For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labelling

Hazard pictograms:

Signal word: **Danger**

Hazard statements:

H290 : May be corrosive to metals.
H301 + H311 : Toxic if swallowed or in contact with skin
H314 : Causes severe skin burns and eye damage.
H317 : May cause an allergic skin reaction.
H330 : Fatal if inhaled.
H350 : May cause cancer.
H410 : Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:
P201 : Obtain special instructions before use.
P202 : Do not handle until all safety precautions have been read and understood.
P210 : Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P234 : Keep only in original container.
P260 : Do not breathe gas/mist/vapours/spray.
P264 : Wash skin thoroughly after handling.
P270 : Do not eat, drink or smoke when using this product.
P271 : Use only outdoors or in a well-ventilated area.
P272 : Contaminated work clothing should not be allowed out of the workplace.
P273 : Avoid release to the environment.
P280 : Wear protective gloves/ protective clothing/ eye protection/ face protection.
P281 : Use personal protective equipment as required.
P284 : Wear respiratory protection.

Response:
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P301 + P330 + P331 : IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 : IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 : IF exposed or concerned: Get medical advice/ attention.
P310 : Immediately call a POISON CENTER/doctor.
P333 + P313 : If skin irritation or rash occurs: Get medical advice/ attention.
P363 : Wash contaminated clothing before reuse.
P370 + P378 : In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P390 : Absorb spillage to prevent material damage.
P391 : Collect spillage.

Storage:
P403 + P233 : Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 : Store in a well-ventilated place. Keep cool.
P405 : Store locked up.
P406 : Store in corrosive resistant stainless steel container with a resistant inner liner.

Disposal:
P501 : Dispose of contents/ container to an approved waste disposal plant.

Supplemental information:

Potential Health Effects:
If swallowed, may cause gastrointestinal irritation including nausea and vomiting.
Central Nervous System effects: drowsiness, fatigue, tremors, (severity of effects depends on extent of exposure).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	GHS Classification**
Hydrazine, monohydrate	7803-57-8	55 %	H350, H330, H301, H314, H400, H311, H410, H318, H317, H227
Water	7732-18-5	45 %	Not classified

**For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1. Description of necessary first-aid measures:

General advice:
POISON! Call a Poison Control Center immediately. Get medical attention immediately.

Inhalation:
If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Skin:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes:
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.

Ingestion:
If swallowed, DO NOT induce vomiting. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person. Rinse mouth.

4.2. Most important symptoms/effects, acute and delayed:

For most important symptoms and effects (acute and delayed), see Section 2 (Hazard Statements and Supplemental Information) and Section 11 (Toxicology Information) of this SDS.

4.3. Indication of immediate medical attention and special treatment needed, if necessary:

Unless otherwise noted in Notes to Physician, no specific treatment noted; treat symptomatically.

5. FIREFIGHTING MEASURES

Extinguishing media (suitable):
Water spray

Protective equipment:
Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).

Further firefighting advice:
Cool closed containers exposed to fire with water spray.
Closed containers of this material may explode when subjected to heat from surrounding fire.
Heated material can form flammable and explosive vapors with air.
After a fire, wait until the material has cooled to room temperature before initiating clean-up activities.
Do not allow run-off from fire fighting to enter drains or water courses.
Fire fighting equipment should be thoroughly decontaminated after use.

Fire and explosion hazards:
Explosion hazard
Contact with metals liberates hydrogen gas.
When in aqueous solution, hydrazine forms a monohydrate form, also called hydrazine hydrate, which contains 64% hydrazine and 36% water. The conversion factor between percent hydrazine and percent hydrazine hydrate is 0.64. For example, a 55% hydrazine hydrate solution contains 35% hydrazine (55% x 0.64) and 65% water.
Thermal decomposition giving flammable and toxic products
Nitrogenous derivatives
Hydrogen

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, Emergency procedures, Methods and materials for containment/clean-up:
Stop the leak if you can do so without risk. Evacuate area of all unnecessary personnel. Keep people away and stay on the upwind side. Extinguish sources of ignition nearby and downwind. Ventilate the area. See section 8 - Exposure control and personal protection. Dike spillage. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Avoid generation of vapors. Do not allow to enter drains or waterways. Notify the responsible authorities of reportable releases to the air, into waterways, soil or sewers. Collect wash water for approved disposal. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

Protective equipment:
Appropriate personal protective equipment is set forth in Section 8.

7. HANDLING AND STORAGE

Handling

General information on handling:
Do not taste or swallow.
Do not get in eyes, on skin, or on clothing.
Do not breath vapor or mist.
Keep container tightly closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Follow label warnings even after container is emptied.
Emptied container retains vapor and product residue.
Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

Storage

General information on storage conditions:
Keep in a dry, cool place. Keep container closed when not in use. Store in closed containers, in a secure area to prevent container damage and subsequent spillage. Store in well ventilated area away from heat and sources of ignition such as flame, sparks and static electricity.

Storage stability – Remarks:
Stable under recommended storage conditions.

Storage incompatibility – General:
Keep away from combustible materials. Store separate from:

Metallic oxides

Strong oxidizing agents

Metallic salts

Strong acids

Nitrites

Alkali metals

Do not store this material in containers made of: Ordinary metals

Ordinary steel

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Guidelines:

Hydrazine, monohydrate (7803-57-8)

US. ACGIH Threshold Limit Values

Time weighted average	0.01 ppm
Skin designation	

Remarks: Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

PEL: 1 ppm (1.3 mg/m3)

Skin designation
Remarks: Can be absorbed through the skin.

Only those components with exposure limits are printed in this section. Limits with skin contact designation above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required. Limits with a sensitizer designation above mean that exposure to this material may cause allergic reactions.

Engineering controls:
Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above).If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Respiratory protection:
Do not breath vapor or mist. Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Skin protection:
Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Wear chemical goggles, a face shield, and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Remove contaminated clothing immediately and wash before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

Eye protection:
Where there is potential for eye contact, wear a face shield, chemical goggles, and have eye flushing equipment immediately available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	colourless
Physical state:	liquid

Odor:	ammoniacal
Odor threshold:	No data available
Flash point	Has no measurable flash point up to the boiling point
Auto-ignition temperature:	Not determined
Lower flammable limit (LFL):	4.7 %(V)
Upper flammable limit (UFL):	100 %(V)
pH:	10.7 (1 % In solution in water)
Density:	not determined
Specific Gravity (Relative density):	1.02 (68 °F(20 °C))
Vapor pressure:	11 - 15 mmHg (68 °F (20 °C))
Vapor density:	0.64 kg/m3
Boiling point/boiling range:	228 °F (109 °C)
Melting point/range:	not determined
Freezing point:	-80 °F (-62 °C)
Evaporation rate:	No data available
Solubility in water:	68 °F (20 °C) completely soluble
Solubility in other solvents: [qualitative and quantative]	Soluble in: Ethanol
Viscosity, dynamic:	No data available
Oil/water partition coefficient:	No data available
Thermal decomposition	> 482 °F (> 250 °C)
Flammability:	See GHS Classification in Section 2

10. STABILITY AND REACTIVITY

Stability:
This material is chemically stable under normal and anticipated storage, handling and processing conditions.
Powerful reducer

Hazardous reactions:
None known.

Materials to avoid:
Strong acids and oxidizing agents
Nitrites
Alkali metals
Metallic salts
Metallic oxides
Combustible material
Corrosion with : light metals and alloys

Conditions / hazards to avoid:
Avoid flames, welding arcs, potential ignition sources, or other high temperature sources which induce thermal decomposition.

Hazardous decomposition products:

Thermal decomposition giving flammable and toxic products
Nitrogenous derivatives
Hydrogen

11. TOXICOLOGICAL INFORMATION

Data on this material and/or a similar material are summarized below.

Data for HYDRAZINE HYDRATE 55%

Acute toxicity

Oral:
Acute toxicity estimate 181.82 mg/kg.

Dermal:
Acute toxicity estimate 545.45 mg/kg.

Inhalation:
4 h Acute toxicity estimate 0.91 mg/l.

Data for Hydrazine, monohydrate (7803-57-8)

Acute toxicity

Oral:

Toxic if swallowed. (mouse) LD50 = 83 mg/kg.

Toxic if swallowed. (rat) LD50 = 129 mg/kg.

Dermal:
Toxic in contact with skin. (rabbit) LD50 > 200 mg/kg. (48 %)

Toxic in contact with skin. (rabbit) LD50 = 960 mg/kg. (15.5 %)

Inhalation:
Fatal if inhaled. (rat) 4 h LC50 = 0.759 mg/l. (vapor)

Skin Irritation:
Causes severe skin burns. (rabbit) (48 - 100 %)

Causes skin irritation. (rabbit) (35 %)

Not irritating. (rabbit) (5 %)

Eye Irritation:
Not irritating. (rabbit) (5 %)

Repeated dose toxicity
Repeated oral, inhalation administration to various animal species / affected organ(s): liver, kidney, nervous system

Carcinogenicity
Chronic oral administration to various animal species / affected organ(s): lung, liver, kidney / signs: Increased incidence of tumors was reported.

Chronic inhalation administration to rat and hamster / affected organ(s): upper respiratory tract / signs: Increased incidence of tumors was reported.
Classified by the International Agency for Research on Cancer as: Group 2B: Possibly carcinogenic to humans.
Listed by the National Toxicology Program as: Reasonably anticipated to be a human carcinogen.

Genotoxicity

Assessment in Vitro:
Genetic changes were observed in laboratory tests using: bacteria, animal cells, yeast

Genotoxicity

Assessment in Vivo:
Genetic changes were observed in a laboratory test using: fruit flies

No genetic changes were observed in a laboratory test using: mice

Developmental toxicity

Exposure during pregnancy. dermal application (rodent) / No birth defects were observed. (levels produced toxic effects in the mothers and offspring)

Human experience
General:

Epidemiology studies have not shown an increase in cancer . Irritating to eyes, respiratory system and skin.

Human experience
Ingestion:
Gastro-intestinal tract: irritation, vomiting, nausea.

Liver, kidney, cardiovascular system: changes in organ structure or function.

Nervous system: Drowsiness, lethargy, tremors.

12. ECOLOGICAL INFORMATION

Chemical Fate and Pathway
Data on this material and/or a similar material are summarized below.

Data for Hydrazine, monohydrate (7803-57-8)

Octanol Water Partition Coefficient:
log Pow = -0.16

Ecotoxicology
Data on this material and/or a similar material are summarized below.

Data for Hydrazine, monohydrate (7803-57-8)

Aquatic toxicity data:
Toxic. Lepomis macrochirus (Bluegill sunfish) 96 h LC50 = 1.2 mg/l
Toxic. Pimephales promelas (fathead minnow) 96 h LC50 = 5.98 mg/l
Toxic. Poecilia reticulata (guppy) 96 h LC50 = 3.85 mg/l

Aquatic invertebrates:
Very toxic. Daphnia magna (Water flea) 96 h EC50 = 0.85 mg/l

Algae:
Very toxic. Pseudokirchneriella subcapitata (microalgae) 96 h EC50 = 0.075 mg/l

Microorganisms:
Pseudomonas putida 16 h EC 5 = 0.019 mg/l

Chronic toxicity to aquatic invertebrates:
Very toxic. Reproduction & survival test / Daphnia magna (Water flea) 21 d NOEC (Reproduction inhibition) = 0.01 mg/l

Chronic toxicity to aquatic plants:
Very toxic. Cell multiplication inhibition test / 72 h NOEC (growth rate inhibition) = 0.006 mg/l

13. DISPOSAL CONSIDERATIONS

Waste disposal:
Destroy the product by oxidation with a dilute solution of hypochlorites (sodium - calcium). Hypochlorites (sodium -

calcium) Clean container with water. Recover waste water for processing later. Dispose of in accordance with federal, state and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

Take appropriate measures to prevent release to the environment.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT)

UN Number	:	3293
Proper shipping name	:	Hydrazine, aqueous solution
Class	:	6.1
Packaging group	:	III
Marine pollutant	:	yes
Reportable quantity	:	1 lbs (Hydrazine hydrate)

International Maritime Dangerous Goods Code (IMDG)

UN Number	:	3293
Proper shipping name	:	HYDRAZINE, AQUEOUS SOLUTION
Class	:	6.1
Packaging group	:	III
Marine pollutant	:	yes

15. REGULATORY INFORMATION

Chemical Inventory Status

EU. EINECS	EINECS	Conforms to
United States TSCA Inventory	TSCA	The components of this product are all on the TSCA Inventory.
Canadian Domestic Substances List (DSL)	DSL	All components of this product are on the Canadian DSL
China. Inventory of Existing Chemical Substances in China (IECSC)	IECSC (CN)	Conforms to
Japan. ENCS - Existing and New Chemical Substances Inventory	ENCS (JP)	Conforms to
Japan. ISHL - Inventory of Chemical Substances	ISHL (JP)	Conforms to
Korea. Korean Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to

Philippines Inventory of Chemicals and Chemical Substances (PICCS)	PICCS (PH)	Conforms to
Australia Inventory of Chemical Substances (AICS)	AICS	Conforms to

United States – Federal Regulations

SARA Title III – Section 302 Extremely Hazardous Chemicals:

Chemical name	CAS-No.	SARA Reportable Quantities	SARA Threshold Planning Quantity
Hydrazine, monohydrate	7803-57-8	1 lbs	1000 lbs

SARA Title III - Section 311/312 Hazard Categories:
Acute Health Hazard, Chronic Health Hazard

SARA Title III – Section 313 Toxic Chemicals:
The following components are subject to reporting levels established by SARA Title III, Section 313:

Chemical name	CAS-No.	De minimis concentration	Reportable threshold:
Hydrazine, monohydrate	7803-57-8	0.1 %	25000 lbs (Manufacturing and processing) 10000 lbs (Otherwise used (non-manufacturing/processing))

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantity (RQ):

Chemical name	CAS-No.	Reportable quantity
Hydrazine, monohydrate	7803-57-8	1 lbs

United States – State Regulations

New Jersey Right to Know

Chemical name	CAS-No.
Hydrazine, monohydrate	7803-57-8

New Jersey Right to Know – Special Health Hazard Substance(s)

Chemical name	CAS-No.
Hydrazine, monohydrate	7803-57-8

Pennsylvania Right to Know

Chemical name	CAS-No.
Hydrazine, monohydrate	7803-57-8
Water	7732-18-5

Pennsylvania Right to Know – Environmentally Hazardous Substance(s)

Chemical name	CAS-No.
Hydrazine, monohydrate	7803-57-8

Pennsylvania Right to Know – Special Hazardous Substance(s)

Chemical name	CAS-No.
Hydrazine, monohydrate	7803-57-8

California Prop. 65
WARNING! This product contains a chemical known to the State of California to cause cancer.

Chemical name	CAS-No.
Hydrazine, monohydrate	7803-57-8

California Prop. 65
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Chemical name	CAS-No.
Methanol	67-56-1

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H227	Combustible liquid.
H290	May be corrosive to metals.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H350	May cause cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Miscellaneous:

Use restrictions:	Reserved for industrial and professional use.

Latest Revision(s):

Reference number:	000000023655
Date of Revision:	05/06/2016
Date Printed:	07/23/2016

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Arkema has implemented a Medical Policy regarding the use of Arkema products in Medical Devices applications that are in contact with the body or circulating bodily fluids (http://www.arkema.com/en/social-responsibility/responsible-product-management/medical-device-policy/index.html) Arkema has designated Medical grades to be used for such Medical Device applications. Products that have not been designated as Medical grades are not authorized by Arkema for use in Medical Device applications that are in contact with the body or circulating bodily fluids. In addition, Arkema strictly prohibits the use of any Arkema products in Medical Device applications that are implanted in the body or in contact with bodily fluids or tissues for greater than 30 days. The Arkema trademarks and the Arkema name shall not be used in conjunction with customers' medical devices, including without limitation, permanent or temporary implantable devices , and customers shall not represent to anyone else, that Arkema allows, endorses or permits the use of Arkema products in such medical devices.
It is the sole responsibility of the manufacturer of the medical device to determine the suitability (including biocompatibility) of all raw materials, products and components, including any medical grade Arkema products, in order to ensure that the final end-use product is safe for its end use; performs or functions as intended; and complies with all applicable legal and regulatory requirements (FDA or other national drug agencies) It is the sole responsibility of the manufacturer of the medical device to conduct all necessary tests and inspections and to evaluate the medical device under actual end-use requirements and to adequately advise and warn purchasers, users, and/or learned intermediaries (such as physicians) of pertinent risks and fulfill any postmarket surveillance obligations. Any decision regarding the appropriateness of a particular Arkema material in a particular medical device should be based on the judgment of the manufacturer, seller, the competent authority, and the treating physician.

Tanner Industries, Inc.

SAFETY DATA SHEET

Section 1. Identification

Product Name:	**Ammonium Hydroxide**
Synonyms:	Ammonium Hydroxide Solutions, Aqua Ammonia, Aqua Ammonia Solutions, Ammonia Solutions, Ammonia Aqueous, Ammonia Water
CAS REGISTRY NO:	1336-21-6
Supplier:	Tanner Industries, Inc. 735 Davisville Road, Third Floor Southampton, PA 18966
Website:	www.tannerind.com
Telephone (General):	215-322-1238
Corporate Emergency Telephone Number:	**800-643-6226**
Emergency Telephone Number:	**Chemtrec: 800-424-9300**
Recommended Use:	Various Industrial

Section 2. Hazard(s) Identification

Hazard: Acute Toxicity, Corrosive, Acute Aquatic Toxicity

Classification: Acute Toxicity, Inhalation (Category 4)
Acute Toxicity, Oral (Category 4)
Skin Corrosion (Category 1B)
Serious Eye Damage / Irritation (Category 1)
Acute Aquatic Toxicity (Category 1)

Note: (1 - Most Severe / 4 - Least Severe)

Pictogram:

Signal word: **Danger**

Hazard statements:
Harmful if inhaled.
Harmful if swallowed.
Causes severe skin burns and eye damage.
Very toxic to aquatic life.

Precautionary statements:
Avoid breathing mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Do not eat, drink or smoke when using this product.
Wear protective gloves, protective clothing, eye protection, face protection.

Precautionary statements (continued):

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor/physician and seek medical attention for severe exposure or if symptoms persist. Specific treatment, see supplemental first aid instructions in Section 4 (First Aid Measures).
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a poison center/doctor/physician. See supplemental first aid instructions in Section 4 (First Aid Measures).
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower (minimum of 20 minutes). See supplemental first aid instructions in Section 4 (First Aid Measures).
IF IN EYES: Immediately call a doctor/physician and seek medical attention. Rinse continuously with water for several minutes (minimum of 20 minutes). Specific treatment, see supplemental first aid instructions in Section 4 (First Aid Measures).
Wash contaminated clothing before reuse.
Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Dispose of contents/container in accordance with local, regional, national regulations as applicable. See section 13 (Disposal Considerations).

NFPA Rating:

NFPA Numbering System:
0 = Least Hazardous / 4 = Most Hazardous

HMIS Classification:

AMMONIUM HYDROXIDE	
HEALTH	3
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	H

HMIS Hazard Index:
0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe

Section 3. Composition / Information on Ingredients

CHEMICAL NAME: Ammonium Hydroxide (Ammonium Hydroxide Solutions 10% to 30%)
CAS REGISTRY NO: 1336-21-6
SYNONYMS: Ammonium Hydroxide Solutions, Aqua Ammonia, Aqua Ammonia Solutions, Ammonia Solutions, Ammonia Aqueous, Ammonia Water.
CHEMICAL FAMILY: Inorganic nitrogen compounds.
COMPOSITION: Solutions: Anhydrous Ammonia (10% to 30%); Water (90% to 70%); Density: 16° Baume to 26° Baume.

Ammonia, Anhydrous: CAS # 7664-41-7; Water: CAS# 7732-18-5

Section 4. First Aid Measures

IF INHALED: Immediately remove person to fresh air and keep comfortable for breathing. In case of severe exposure or if irritation persists, breathing difficulties or respiratory symptoms arise, seek medical attention. If not breathing, administer artificial respiration. If trained to do so, administer supplemental oxygen, if required.
IF ON SKIN (or hair): Immediately take off all contaminated clothing. Flush skin with copious amounts of tepid water for a minimum of 20 minutes. Do not rub or apply topical, occlusive compounds, such as ointments, certain creams, etc., on affected area. For severe exposure or if irritation persists, seek medical attention. Wash contaminated clothing before reuse.
IF IN EYES: Immediately rinse continuously with copious amounts of tepid water for a minimum of 20 minutes. Eyelids should be held apart and away from eyeball for thorough rinsing. Seek medical attention.
IF SWALLOWED: Rinse mouth. Do not induce vomiting. If conscious, give large amounts of water to drink. May drink orange juice, citrus juice or diluted vinegar (1:4) to counteract ammonia. If unconscious, do not give anything by mouth. Seek medical attention.

***NOTE TO PHYSICIAN*:** Respiratory injury may appear as a delayed phenomenon. Pulmonary edema may follow chemical bronchitis. Supportive treatment with necessary ventilation actions, including oxygen, may warrant consideration.

Section 5. Fire Fighting Measures

EXTINGUISHING MEDIA:
Water Spray, Water Fog for escaping ammonia gas.

SPECIAL FIRE FIGHTING PROCEDURES:
Must wear protective clothing and a positive pressure SCBA.
Stop flow of liquid if possible.
Use water spray to keep fire-exposed containers cool.
If a portable container (such as a drum, Intermediate Bulk Container [IBC] or trailer) can be moved from the fire area without risk to the individual, do so to prevent the pressure relief valve from discharging or the container from failing.
Stay upwind when containers are threatened.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
When heated, product will give off ammonia vapor, which is a strong irritant to the eye, skin and respiratory tract.
Outdoors, ammonia is not generally a fire hazard. Indoors, in confined areas, ammonia vapors may be a fire hazard, especially if oil or other combustible materials are present.
Combustion may form toxic nitrogen oxides (NOx).

Section 6. Accidental Release Measures

GENERAL:
Only properly trained and equipped persons should respond to an ammonium hydroxide release.
Wear eye, hand and respiratory protection and protective clothing; see Section 8, Exposure Controls / Personal Protection.
Stop source of leak if possible, provided it can be done in a safe manner.
Leave the area of a spill by moving laterally and upwind.
Isolate the affected area. Non-responders should evacuate the area, or shelter in place.

SPECIFIC STEPS TO BE TAKEN:
For a hazardous material release response, Level A and/or Level B ensemble including positive-pressure SCBA should be used. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).
Stay upwind and use water spray downwind of container to absorb the evolved gas.
Contain spill and runoff from entering drains, sewers, streams, lakes and water systems by utilizing methods such as diking, containment, and absorption.

Section 7. Handling and Storage

SPECIAL PRECAUTIONS:
Only trained persons should handle ammonium hydroxide.
Store in cool, dry and well-ventilated areas, with containers tightly closed.
Keep out of direct sunlight and away from heat sources.
Do not use any non-ferrous metals such as copper, brass, bronze, aluminum, tin, zinc or galvanized metals.
Protect containers from physical damage.
Closed storage tanks should be provided with safety relief valves and vacuum breakers as necessary.

VENTILATION:
Local exhaust should be sufficient to keep ammonia vapor below applicable exposure standards.

WORKPLACE PROTECTIVE EQUIPMENT:
Protective equipment should be stored near, but outside of ammonium hydroxide area. Water for first aid, such as an eyewash station and safety shower should be kept available in the immediate vicinity.

Section 8: Exposure Controls / Personal Protection

EXPOSURE LIMITS FOR AMMONIA: (Vapor)

OSHA	50 ppm,	35 mg / m^3 PEL	8 hour TWA
NIOSH	35 ppm,	27 mg / m^3 STEL	15 minutes
	25 ppm,	18 mg / m^3 REL	10 hour TWA
	300 ppm,	IDLH	
ACGIH	25 ppm,	18 mg / m^3 TLV	8 hour TWA
	35 ppm,	27 mg / m^3 STEL	15 minutes

PROTECTIVE EQUIPMENT:

EYE/FACE PROTECTION: Chemical splash goggles should be worn when handling ammonium hydroxide (aqua ammonia). A face shield can be worn over chemical splash goggles as additional protection. Do not wear contact lenses when handling ammonium hydroxide. Refer to 29 CFR 1910.133 for OSHA eye protection requirements.

SKIN PROTECTION: Ammonia impervious gloves and clothing (such as neoprene, butyl and Teflon) should be worn to prevent contact during normal operations, such as loading/unloading, transfers, and handling small spills.
Chemical boots can be worn as additional protection.

RESPIRATORY PROTECTION: Respiratory protection approved by NIOSH for ammonia must be used when applicable safety and health exposure limits are exceeded. For escape in emergencies, NIOSH approved respiratory protection should be used, such as a full-face gas mask and canisters/cartridges approved for ammonia or SCBA. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).
Refer to 29 CFR 1910.134 and ANSI: Z88.2 for OSHA respiratory protection requirements.

VENTILATION: Local exhaust should be sufficient to keep ammonia vapor below applicable exposure standards.

FOR A HAZARDOUS MATERIAL RELEASE RESPONSE: Level A and/or Level B ensemble including positive-pressure SCBA should be used. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).

Section 9: Physical and Chemical Properties

APPEARANCE AND ODOR:	Colorless liquid with a pungent odor.
ODOR THRESHOLD:	2 - 5 ppm
SOLUBILITY IN WATER:	Miscible
SPECIFIC GRAVITY OF VAPOR (air = 1):	0.596 at 32 °F
WEIGHT (per gallon):	7.46 pounds to 7.99 pounds
EVAPORATION RATE (water = 1):	Similar
PH:	13+
FORMULA:	NH_4OH ($NH_3 + H_2O$)
MOLECULAR WEIGHT:	35.05 (NH_4OH)
VISCOSITY:	1.7 40 °F (26% solution)
PARTITION COEFFIENT:	Not applicable.
DECOMPOSITION TEMPERATURE:	Not applicable.
FLAMMABILITY:	
FLASHPOINT:	Not applicable.
FLAMMABLE LIMITS OF AMMONIA VAPOR IN AIR:	LEL/UEL 16% to 25% (listed in the *NIOSH Pocket Guide to Chemical Hazards* 15% to 28%).
AUTO-IGNITION TEMPERATURE (ammonia vapors):	1,204 °F (If catalyzed). 1,570 °F (If un-catalyzed).

SOLUTION-SPECIFIC PHYSICAL DATA:

	20.5° Baume	25° Baume	26° Baume
AMMONIA PERCENTAGE:	18.5% to 19.5%	26.5% to 27.5%	29.4% to 30.0%
WATER PERCENTAGE:	81.5% to 80.5%	73.5% to 72.5%	70.6 % to 70.0%
SPECIFIC GRAVITY (water = 1):	0.9309 to 0.9278 at 60 °F	0.9060 to 0.9030 at 60 °F	0.8974 to 0.8957 at 60 °F
APPROXIMATE BOILING POINT:	120 °F at 14.7 psia	88 °F at 14.7 psia	84.9 °F at 14.7 psia
VAPOR PRESSURE:	3.9 psia at 60 °F	6.9 psia at 60 °F	9.1 psia at 60 °F
APPROXIMATE FREEZING POINT:	-31 °F	-89 °F	-110 °F

Section 10. Stability and Reactivity

REACTIVITY:
Avoid ammonium hydroxide contact with chemicals such as mercury, chlorine, iodine, bromine, silver oxide or hypochlorites; they can form explosive compounds. Ammonia reacts with strong oxidizers, acids, halogens (including chlorine bleach), and salts of silver, zinc, copper, and other heavy metals.

CHEMICAL STABILITY:
Stable under normal ambient conditions of temperature and pressure.
Will not polymerize.

POSSIBILITY OF HAZARDOUS REACTIONS:
Ammonium hydroxide will react exothermically with acids.
Ammonia vapors are released when heated.

CONDITIONS TO AVOID:
Avoid ammonium hydroxide contact with chlorine, which forms a chloramine gas, which is a primary skin irritant and sensitizer.

INCOMPATIBLE MATERIALS:
Ammonium hydroxide has a corrosive reaction with galvanized surfaces, copper, brass, bronze, aluminum alloys, mercury, gold and silver.

HAZARDOUS DECOMPOSITION PRODUCTS:
Ammonia will be liberated if heated. Hydrogen will be released on heating ammonia above 450 °C (842 °F).

Section 11. Toxicological Information

Potential health effects: Ammonia is an irritant and corrosive to the skin, eyes, respiratory tract and mucous membranes. May cause severe chemical burns to the eyes, lungs and skin. Skin and respiratory related diseases could be aggravated by exposure. The extent of injury produced by exposure to ammonia depends on the duration of the exposure, the concentration of the liquid or vapor and the depth of inhalation.

Exposure Routes: Inhalation (vapors), skin and/or eye contact (vapors, liquid), ingestion (liquid).

Symptoms of acute exposure:

Inhalation:	Acute exposure to vapor may result in severe irritation of the respiratory tract. May cause dyspnea (breathing difficulty), wheezing, chest pain, bronchospasm, pink frothy sputum, pulmonary edema or respiratory arrest. Respiratory injury may appear as a delayed phenomenon. Pulmonary edema may follow chemical bronchitis.
Eyes:	Vapors may cause irritation. Effects of direct contact may range from irritation and lacrimation (tearing) to severe corrosive injury and blindness.
Skin:	Irritation, corrosive burns, blister formation (vesiculation) may result. Contact with liquid may produce caustic burns.
Ingestion:	May cause corrosion to the mouth, throat, esophagus and stomach with perforation and peritonitis. Extreme exposure may result in death from spasm, inflammation or edema.

Chronic Exposure: Repeated exposure to ammonia may cause chronic irritation of the eyes and respiratory tract.

Toxicity:
LC_{50} - 5131 mg/m^3 (7338 ppm) to 11,592 mg/m^3 (16,600 ppm), 60 minute exposure, Rat.
LD_{50} - 350 mg / kg (Oral / Rat).

Not listed in the National Toxicology Program (NTP).
Not recognized by OSHA as a carcinogen.
Not listed as a carcinogen by the International Agency for Research on Cancer (IARC monograph).
Germ cell mutagenicity information is not available. Reproductive toxicity information is not available.

Section 12. Ecological Information

Ammonia is harmful to aquatic life at very low concentrations. Notify local health and wildlife officials and operators of any nearby water intakes upon contamination of surface water.

Toxicity:
Terrestrial plants: LOEC = 3-250 ppm NH_3.
Aquatic plants: LOEC = 0.5-500 mg NH_3-N/L.
Acute toxicity to invertebrates: 48 h LC50 = 2.94 mg un-ionized NH3-N/L.
Chronic toxicity to invertebrates: NOEC = 0.163- 0.42 mg un-ionized NH3/L.
Acute toxicity to fish: 96-h: LC50= 0.09 – 3.51 mg un-ionized NH_3/L.
Chronic toxicity to fish: NOEC=0.025-1.2 mg un-ionized NH3/L.

Environmental Fate Information: Ammonia dissipates relatively quickly in ambient air and rapidly returns to the soil via combination with sulfate ions or washout by rainfall. Ammonia strongly adsorbs to soil, sediment particles and colloids in water under aerobic conditions. Biodegradation of ammonia to nitrate occurs in water under aerobic conditions resulting in a biological oxygen demand (BOD).

Persistence/Degradability:
Biodegradable in soil. Ozonation in the air. Soluble in water.
Bioaccumulative Potential:
Not applicable.
Mobility in Soil:
No additional information available.
Other Adverse Effects:
No additional information available.

Section 13. Disposal Considerations

Dispose of unused contents/container in accordance with local/regional/national regulations as applicable.
Listed as hazardous substance under Clean Water Act (CWA) (40 CFR 116.4 and 40 CFR 117.3).
Classified as hazardous waste under Resource Conservation and Recovery Act (RCRA) (40 CFR 261.22 Corrosive #D002) if disposed of in original form.
Suitably diluted product may be utilized as fertilizer on agricultural land.
For hazardous waste regulations information call the RCRA Hotline (800) 424-9346, or visit the US EPA website.

Section 14. Transport Information

US Department of Transportation

HAZARD CLASS:	8 (Corrosive Material)
PROPER SHIPPING DESCRIPTION:	UN2672, Ammonia Solutions, 8, PG III, RQ
PLACARD:	Corrosive

IDENTIFICATION NUMBER: UN 2672

ENVIRONMENTAL HAZARDS:
IMDG, Known Marine Pollutant: No
United Nations Model Regulations, Environmentally Hazardous: No

Section 15. Regulatory Information

The material is subject to the reporting requirements of Section 304, Section 312 and Section 313, Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR 372.
Under Section 313, as of June 30, 1995, this material is reportable with the following qualifications: 10% of total aqueous ammonia is reportable as Ammonia (CAS #: 7664-41-7) under this listing.

Under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Section 103, any environmental release of this chemical equal to or over the reportable quantity of 1,000 pounds (as NH_4OH) must be reported promptly to the National Response Center, Washington, D.C. (1-800-424-8802).

Toxic Substances Control Act (TSCA): This material and its components are listed in the TSCA Inventory.

EPA Hazard Categories – Immediate: Yes; Delayed: No; Fire: No; Sudden Release: No; Reactive: No

Clean Air Act – Section 112(r): Material is listed under EPA's Risk Management Program (RMP), 40 CFR Part 68 at concentrations greater than 20% and storage/process amounts greater than the Threshold Quantity (TQ) of 20,000 pounds of contained ammonia (CAS #: 7664-41-7).

The chemical is listed under Department of Homeland Security regulation 6 CFR Part 27, Chemical Facility Anti-Terrorism Standards at storage / process amounts greater than the threshold quantity of 20,000 pounds (ammonia concentration 20% or greater).

OSHA (Occupational Safety & Health Administration): This material is considered to be hazardous as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200. This material is subject to Process Safety Management requirements of 29 CFR 1910.119 if maintained on-site, including storage and process, in quantities of 15,000 pounds or greater (>44% ammonia by weight).

Section 16. Other Information

Preparation Information: Revision Date May 1, 2015 Prepared by: HJS
Replaces all previously dated versions.

Revisions to this Safety Data Sheet have been created to comply with the requirements of the OSHA Hazard Communication Final Rule issued in 2012 (HazCom 2012).

Acronyms:
ACGIH: American Conference of Governmental Industrial Hygienists
ANSI: American National Standards Institute
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
DHS: Department of Homeland Security
DOT: Department of Transportation
EPA: Environmental Protection Agency
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
IDLH: Immediately Dangerous to Life or Health
IMDG: International Maritime Dangerous Goods
NFPA: National Fire Protection Association
NIOSH: National Institute for Occupational Safety and Health
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
PPM: Parts Per Million
RCRA: Resource Conservation and Recovery Act
REL: Recommended Exposure Limit
SCBA: Self Contained Breathing Apparatus

STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TWA: Time Weighted Average

Disclaimer:
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