

Region 6 Compliance Assurance and Enforcement Division

INSPECTION REPORT

Inspection Date(s):	08/20/2024		
Media:	Water		
Regulatory Program(s)	NPDES		
Company Name:	Southwestern Electric Power Company		
Facility Name:	Arsenal Hill Power Plant		
Facility Physical Location:	510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
(city, state, zip code)	Shreveport, LA 71101		
Mailing address:	510 N Allen Ave		
(city, state, zip code)	Shreveport, LA 71101		
County/Parish:	Caddo Parish		
Facility Contact:	Ms. Sam McDonald	Plant Environmental Coordinator	
	(C) 903.407.5649 ssmcdonald@aep.com		
FRS Number:	110000458282		
Identification/Permit Number:	LA0002925 (AI No. 1060)		
Media Number:	N/A		
NAICS:	221112		
SIC:	4911		
Personnel participating in inspection:			
Jack Arias	EPA Region-6 ECD-WA	Inspector	214-665-8164
Tawni Elmore	DEQ Louisiana	Inspector	318-529-8288
Samantha McDonald	Southwestern Electric Power Company	Plant Environmental Coordinator	903-927-5853
Tim Williams	Southwestern Electric Power Company	Plant Energy Production Supervisor	903-927-5853
Shaylon Odom	Southwestern Electric Power Company	Plant Chemist	903-927-5853
Tim Camp	Southwestern Electric Power Company	Plant Operations Specialist	903-927-5853
EPA Lead Inspector Signature/Date	JACK ARIAS Digitally signed by JACK ARIAS Date: 2024.10.18 13:37:16 -05'00'		
	Jack Arias		Date
Supervisor Signature/Date	ANTHONY LOSTON Digitally signed by ANTHONY LOSTON Date: 2024.10.18 13:33:42 -05'00'		
	Anthony Loston		Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 inspector, Jack Arias and DEQ Louisiana inspector, Tawni Elmore performed an announced inspection on August 20, 2024, at 9:00 AM. We (Jack Arias and Tawni Elmore) met with the Plant Environmental Coordinator, Ms. Samantha McDonald at the opening conference. We presented our credentials to the facility representative, Ms. McDonald, and informed her that this was an EPA and DEQ Louisiana inspection to determine the facility's compliance with the Clean Water Act (CWA) and the National Pollutant Discharge Elimination System (NPDES) water intakes and discharge regulations. The scope of the inspection included a compliance evaluation of the NPDES permit (LA0002925) that includes DMR data and effluent limitations, 316b cooling water intake structures integrity, 316b intake and discharge processes, monitoring/sampling requirements, equipment/pipes maintenance, 316b biomonitoring requirements connected with best management practices and best technology available to minimize impingement mortality and entrainment of aquatic organism, reviews of the stormwater pollution prevention plan (SWPP3) and the Spill Prevention Control and Countermeasures (SPCC) plan, record keeping requirements, and facility procedures connected to the permit. Following the opening conference, Ms. McDonald and other facility members accompanied us for the entirety of the inspection and gave us a tour of the site in a company vehicle. The closing conference was held with Ms. McDonald where we informed her of the results and observations of the inspection.

FACILITY DESCRIPTION

Arsenal Hill Power Plant (AHPP) (LA 0002925; AI No. 1060) is located near Shreveport, Louisiana, in Caddo Parish. The facility consists of two generating units - Unit 5, which is rated at 110 megawatts (MW) and the Stall Unit, which is rated at 508 MW. Unit 5 is an older unit that uses a 30-acre cooling impoundment on the facility for the closed-cycle recirculating system cooling. Make-up water for the impoundment is periodically pumped from Cross Bayou (also known as Twelve Mile Bayou) to replenish reservoir evaporative losses. A portable electric pump fitted with a flexible suction hose is used to divert make-up water. The Stall Unit consists of two combustion turbines that burn natural gas with the exhaust heat being routed to two heat recovery steam generators (HRSG). The two HRSGs use the exhaust heat from the gas turbines to boil water and supply steam to a steam turbine. Once the steam has been fully used in the steam turbine it is exhausted to a condenser, where it is cooled back into water utilizing a cooling tower for closed-cycle recirculating system cooling. Separate generators are connected to each of the combustion turbines and the steam turbine for making electricity in a very efficient manner known as combined cycle. Make-up water for the AHPP closed-cycle recirculating system is Cross Bayou (LDEQ Segment No. LA100304_00), which is a tributary of the Red River in Caddo Parish, Louisiana. Make-up water for the cooling tower is withdrawn from Cross Bayou through a separate fixed cooling water intake structure that is served by a submerged Johnson T-27 screen. The Red River flows for 1,360 miles from its headwaters in the Texas panhandle to where it joins with the Black and the Mississippi rivers. Cross Bayou is formed by several smaller tributaries, including Twelvemile Bayou that flows from Caddo Lake on the Texas-Louisiana state line. The data indicate that average salinity of Cross Bayou is approximately 0.1 parts per thousand (ppt) and of the Red River is 0.4 ppt. The temperature in Cross Bayou varies among seasons,

but the monitoring data indicate an annual average of approximately 21 degrees Celsius (0C) (See Photo Nos. 1 – 20 in Appendix 1).

Section II – OBSERVATIONS

Clean Water Act 316b Cooling Water Intake Structures (CWIS):

Arsenal Hill Power Plant (AHPP) has a single, submerged CWIS located in Cross Bayou, adjacent to the facility. The CWIS provides make-up water for the cooling tower that serves the Stall Unit 5 (See Photo No. 2 in Appendix 1). The CWIS consists of a submerged Johnson wedge wire T-27 screen with 0.1-inch (3-millimeter) slot openings and a manufacturer through-screen design velocity at 4,000 gallons per minute (GPM) of <0.5 fps. The screen is floating offshore by supports at bottom screen elevation of 124 feet. The normal low water level elevation is approximately 144 ft. Water is conveyed from the screen to an excavated vertical caisson by a 16-inch diameter pipe. The caisson is located on the shore of Cross Bayou. The caisson inside diameter is 16 ft, floor elevation is at 123.5 ft, and grade elevation (top of caisson) is at 173 ft. The caisson included three vertical shaft pumps each rated at 2,000 gallons per minute (GPM). The design capacity is 6,000 GPM or 8.6 million gallons per day (MGD). However, typically only one or two pumps are operated at one time. The make-up water pumps are operated continuously when the Stall Unit is generating electricity, which is generally 365 days per year unless there is an outage. Make-up water flows are generally lowest from October through December, ranging from 2 to 2.6 MGD. Average monthly flows are highest from June through August, ranging from 3.8 to 3.9 MGD. The submerged Johnson T-27 screen is equipped with an air-burst system to prevent clogging. The air-burst system is generally operated twice per day. This prevents clogging and helps maintain low, through-screen velocity (See Photo Nos. 2 – 4 in Appendix 1). The pump intakes are set in a submerged Johnson wedge wire T-27 screen potentially designed to prevent large and smaller debris and organism. At the time of the inspection, we could not see the screened structure and we did not get maintenance records from the CWIS structure, screened structure, and air-burts system.

Cooling Towers Closed-Cycle Recirculating System:

The CWIS provides make-up water for the cooling tower that serves the Stall Unit 5. Unit 5 employs closed-cycle recirculating system cooling via a manmade cooling pond. Water is periodically diverted from the Cross Bayou, using a temporary pump rated at 1,900 GPM, to maintain water in the pond and cooling water system. The pump is used, on average, about 14 days out of the year. Unit 5 withdraws condenser cooling water from the cooling pond through two, 35,000 GPM circulating water pumps. The pumps are served by a single trash rack and traveling screen. The circulating water pumps operate continuously when Unit 5 is generating. The average annual unit utilization capacity over the past 5 years (1995 to 2020) has been about 3.5 percent. Cooling water is returned to the pond where a portion of the flow is sent through a spray system to aid in heat dissipation. Water in the cooling pond is used primarily for condenser cooling with smaller amounts used to support electric generation. During periods of higher precipitation, water can be released from the cooling pond to Cross Bayou via Outfall 001. Cooling tower blowdown is discharged to the Red River through Outfall 002. The design pump capacity is 6,000 GPM (8.6 MGD) and the normal pump operation is 4,000 GPM (5.8 MGD). Water diverted at the caisson is used as make-up water for the cooling tower or as purge water to prevent silt buildup at Outfall 002. Except for maintenance or unexpected outages, the Stall Unit cooling system is in use every day of the year. There

was not a problem or malfunctions on the cooling recirculating system. However, I observed an overflow of foam material potentially because of built up and low flow of material at the corner of the cooling water system. This foam material is near a stormwater drainage system (See Photo Nos. 5 - 7 in Appendix 1).

Internal Outfall 102:

This outfall includes an intermittent discharge of low volume wastewater from the new units, including but not limited to, water treatment wastewaters; floor drains, condensate, and drainage from heat recovery steam generator (HRSG) blowdown. Outfall 102 discharges into the cooling tower basin, thence to outfall 002 and the Red River. There was flow and discharge at the time of the inspection and the water was clear (See Photo Nos. 8 - 9 in Appendix 1).

Internal Outfall 202:

This outfall includes an intermittent discharge of the water from the cooling pond consisting of commingled once-through cooling water, non-process area stormwater runoff, and previously monitored low volume wastewater from internal Outfall 101. Outfall 202 discharges into the cooling tower basin, thence to outfall 002 and the Red River. There was flow and discharge at the time of the inspection and the water was brown in tint (See Photo No. 10 in Appendix 1).

Outfall 002:

This outfall includes a continuous discharge of cooling tower blowdown; previously monitored low volume wastewater from internal Outfall 102; and monitored effluent from internal Outfall 202 and 002. Both outfalls monitored wastewater prior to the discharge into Red River. There was flow and discharge at the time of the inspection and the water was brown tint (See Photo Nos. 10 - 13 in Appendix 1).

Cooling Pond:

Cooling water is returned to the cooling pond where a portion of the flow is sent through a spray system to aid in heat dissipation. Water in the cooling pond is used primarily for condenser cooling with smaller amounts used to support electric generation (See Photo Nos. 14 - 15 in Appendix 1).

Internal Outfall 101:

This outfall includes an intermittent discharge of low volume wastewater, including but not limited to, boiler blowdown, miscellaneous cooling water, water treatment wastewaters, and floor drains from unit 5. Internal Outfall 101 is monitored prior to the discharge into outfall 001 and thence Twelve Mile Bayou. There was flow and discharge at the time of the inspection and the water was brown in tint (See Photo Nos. 16 - 19 in Appendix 1).

Outfall 001:

This outfall includes intermittent discharge of once-through cooling water, non-process area stormwater runoff, and previously monitored low volume wastewater from internal Outfall 101. Outfall discharge into Twelve Mile Bayou. There was not flow and discharge at the time of the inspection (See Photo No. 20 in Appendix 1).

Section III – AREAS OF CONCERN

The following Areas of Concern were observed during the Inspection and follow-up conversations discussed with the facility:

1. Facility should provide the 316b application file that includes information about the integrity and maintenance of the cooling water intake structure (CWIS). This file should include intake structure dimensions, maintenance records in case of corrosion (stainless-steel pipe and screen structures) and others, photos and maintenance records of screen structures that prevent and reduce impingement large and small organism or debris from entering the system, and photos and maintenance records of air-burts system.
2. Facility should resolve and provide information about the foam material built up at the corner of the cooling water system.
3. Facility should provide an updated wastewater flow diagram.
4. Facility should provide copies of the updated SWPPP and SPCC plans.

Section IV – FOLLOW UP

-  EPA will provide a copy of the inspection report and hold different meetings to discuss inspection report results, observations, and potential corrective actions.
-  Facility will provide and discuss information connected with areas of concern.

Section V – LIST OF APPENDICES

Appendix 1 – Photo Log – 20 photos taken 08/19-20/2024.

Appendix 1

Photograph Log and

Significant Photo Locations



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8190001.JPG
Date of Photograph: 08/19/2024
Latitude and Longitude: 32.520089 -93.760323
Orientation: W
Map Datum: WGS-84
Time of Photo: 1:13 PM
Photographer: Jack Arias
Description: This image shows the name and entrance of the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200008.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.520566 -93.762910

Orientation: N

Map Datum: WGS-84

Time of Photo: 11:12 AM

Photographer: Jack Arias

Description: This image shows the location of the submerged Johnson wedge wire T-27 screen and pipe system. The submerged Cooling Water Intake Structures (CWIS) is in Cross Bayou, adjacent to the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)

Shreveport

County: Caddo Parish

State: Louisiana



Photograph File Name: P8200007.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.520566 -93.762910

Orientation: N

Map Datum: WGS-84

Time of Photo: 11:07 AM

Photographer: Jack Arias

Description: This image shows three vertical shaft pumps each rated at 2,000 gallons per minute (GPM). The design capacity is 6,000 GPM or 8.6 million gallons per day (MGD). The pumps are connected to Cross Bayou, adjacent to cooling tower.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200011.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.520566 -93.762910

Orientation: N

Map Datum: WGS-84

Time of Photo: 11:16 AM

Photographer: Jack Arias

Description: This image shows the caisson that contained the Cooling Water Intake Structures (CWIS) connected to Cross Bayou, adjacent to cooling tower.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200013.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.5206071 -93.7624052

Orientation: N

Map Datum: WGS-84

Time of Photo: 11:21 AM

Photographer: Jack Arias

Description: This image shows the closed-cycle recirculating system cooling via a manmade cooling pond. Water is periodically diverted from the Cross Bayou, using a temporary pump rated at 1,900 GPM, to maintain water in the pond and cooling water system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200016.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.5206071 -93.7624052

Orientation: N

Map Datum: WGS-84

Time of Photo: 11:23 AM

Photographer: Jack Arias

Description: This image shows an overflow of foam material due to the built up and low flow of material at the corner of the cooling water system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200017.JPG
Date of Photograph: 08/20/2024
Latitude and Longitud: 32.693941 -92.021102
Orientation: NW
Map Datum: WGS-84
Time of Photo: 11:26 AM
Photographer: Jack Arias
Description: This image shows the stormwater drainage system. This system is near the overflow of the foam material.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200023.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.5204096 -93.7621763
Orientation: NE
Map Datum: WGS-84
Time of Photo: 11:33 AM
Photographer: Jack Arias
Description: This image shows outfall 102 that includes an intermittent discharge of low volume wastewater from the new units, water treatment wastewaters; floor drains, condensate, and drainage from heat recovery steam generator (HRSG) blowdown. Outfall 102 discharges into the cooling tower basin, thence to outfall 002 and Red River.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200021.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.5204096 -93.7621763
Orientation: NE
Map Datum: WGS-84
Time of Photo: 11:30 AM
Photographer: Jack Arias
Description: This image shows outfall 102 and intermittent discharge of low volume wastewater from the new units, water treatment wastewaters; floor drains, condensate, and drainage from heat recovery steam generator (HRSG) blowdown.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 10

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200026.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.520168 -93.761990
Orientation: SE
Map Datum: WGS-84
Time of Photo: 11:40 AM
Photographer: Jack Arias
Description:

This image shows the continuous discharge of cooling tower blowdown; previously monitored low volume wastewater from internal Outfall 102; and previously monitored effluent from internal Outfall 202.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200028.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.520168 -93.761990
Orientation: SE
Map Datum: WGS-84
Time of Photo: 11:40 AM
Photographer: Jack Arias
Description:

This image shows the continuous discharge of cooling tower blowdown and monitored effluent on internal Outfall 202 and 002. Both outfalls monitored wastewater prior to the discharge into Red River.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 12

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200029.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.521141 -93.761594
Orientation: NE
Map Datum: WGS-84
Time of Photo: 11:46 PM
Photographer: Jack Arias
Description: This image shows monitored wastewater prior to the discharge into Red River.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200030.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.521141 -93.761594
Orientation: NE
Map Datum: WGS-84
Time of Photo: 11:46 AM
Photographer: Jack Arias
Description: This image shows monitored wastewater prior to the discharge into Red River.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 14

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200033.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.517774 -93.763083

Orientation: SW

Map Datum: WGS-84

Time of Photo: 12:00 PM

Photographer: Jack Arias

Description: This image shows the cooling pond where a portion of the flow is sent through a spray system to aid in heat dissipation.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 15

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200035.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.517723 -93.763206
Orientation: SW
Map Datum: WGS-84
Time of Photo: 12:01 PM
Photographer: Jack Arias
Description: This image shows the cooling pond where a portion of the flow is sent through a pipe system to the cooling pond.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 16

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200050.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.517891 -93.761904
Orientation: SE
Map Datum: WGS-84
Time of Photo: 12:49 AM
Photographer: Jack Arias
Description:

This image shows the internal sump system connected to outfall 101. This outfall includes a intermittent discharge of low volume wastewater from unit 5.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 17

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200037.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.516863 -93.762567
Orientation: SW
Map Datum: WGS-84
Time of Photo: 12:05 AM
Photographer: Jack Arias
Description:

This image shows outfall 101 with an intermittent discharge of low volume wastewater, boiler blowdown, miscellaneous cooling water, water treatment wastewaters, and floor drains from unit 5. Internal Outfall 101 is monitored prior to the discharge into outfall 001 and thence Twelve Mile Bayou.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 18

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200041.JPG
Date of Photograph: 08/20/2024
Latitude and Longitud: 32.515956 -93.763297
Orientation: SW
Map Datum: WGS-84
Time of Photo: 12:16 PM
Photographer: Jack Arias
Description: This image shows the cooling pond connected to the stormwater discharge system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 19

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200045.JPG
Date of Photograph: 08/20/2024
Latitude and Longitud: 32.519225 -93.766315
Orientation: NW
Map Datum: WGS-84
Time of Photo: 12:20 PM
Photographer: Jack Arias
Description: This image shows the cooling pond system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 20

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200047.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.520067 -93.763508
Orientation: NE
Map Datum: WGS-84
Time of Photo: 12:23 PM
Photographer: Jack Arias
Description:

This image shows the outfall 101 that includes intermittent discharge of once-through cooling water, non-process area stormwater runoff, and previously monitored low volume wastewater from internal Outfall 101. Outfall discharge into Twelve Mile Bayou.

Appendix 1

Photograph Log and

Significant Photo Locations



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8190001.JPG
Date of Photograph: 08/19/2024
Latitude and Longitude: 32.520089 -93.760323
Orientation: W
Map Datum: WGS-84
Time of Photo: 1:13 PM
Photographer: Jack Arias
Description: This image shows the name and entrance of the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200008.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.520566 -93.762910

Orientation: N

Map Datum: WGS-84

Time of Photo: 11:12 AM

Photographer: Jack Arias

Description: This image shows the location of the submerged Johnson wedge wire T-27 screen and pipe system. The submerged Cooling Water Intake Structures (CWIS) is in Cross Bayou, adjacent to the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)

Shreveport

County: Caddo Parish

State: Louisiana



Photograph File Name: P8200007.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.520566 -93.762910

Orientation: N

Map Datum: WGS-84

Time of Photo: 11:07 AM

Photographer: Jack Arias

Description: This image shows three vertical shaft pumps each rated at 2,000 gallons per minute (GPM). The design capacity is 6,000 GPM or 8.6 million gallons per day (MGD). The pumps are connected to Cross Bayou, adjacent to cooling tower.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200011.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.520566 -93.762910
Orientation: N
Map Datum: WGS-84
Time of Photo: 11:16 AM
Photographer: Jack Arias
Description: This image shows the caisson that contained the Cooling Water Intake Structures (CWIS) connected to Cross Bayou, adjacent to cooling tower.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200013.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.5206071 -93.7624052

Orientation: N

Map Datum: WGS-84

Time of Photo: 11:21 AM

Photographer: Jack Arias

Description: This image shows the closed-cycle recirculating system cooling via a manmade cooling pond. Water is periodically diverted from the Cross Bayou, using a temporary pump rated at 1,900 GPM, to maintain water in the pond and cooling water system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200016.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.5206071 -93.7624052

Orientation: N

Map Datum: WGS-84

Time of Photo: 11:23 AM

Photographer: Jack Arias

Description: This image shows an overflow of foam material due to the built up and low flow of material at the corner of the cooling water system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200017.JPG
Date of Photograph: 08/20/2024
Latitude and Longitud: 32.693941 -92.021102
Orientation: NW
Map Datum: WGS-84
Time of Photo: 11:26 AM
Photographer: Jack Arias
Description: This image shows the stormwater drainage system. This system is near the overflow of the foam material.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200023.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.5204096 -93.7621763
Orientation: NE
Map Datum: WGS-84
Time of Photo: 11:33 AM
Photographer: Jack Arias
Description: This image shows outfall 102 that includes an intermittent discharge of low volume wastewater from the new units, water treatment wastewaters; floor drains, condensate, and drainage from heat recovery steam generator (HRSG) blowdown. Outfall 102 discharges into the cooling tower basin, thence to outfall 002 and Red River.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)

Shreveport

County: Caddo Parish

State: Louisiana



Photograph File Name: P8200021.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.5204096 -93.7621763

Orientation: NE

Map Datum: WGS-84

Time of Photo: 11:30 AM

Photographer: Jack Arias

Description: This image shows outfall 102 and intermittent discharge of low volume wastewater from the new units, water treatment wastewaters; floor drains, condensate, and drainage from heat recovery steam generator (HRSG) blowdown.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 10

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200026.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.520168 -93.761990
Orientation: SE
Map Datum: WGS-84
Time of Photo: 11:40 AM
Photographer: Jack Arias
Description:

This image shows the continuous discharge of cooling tower blowdown; previously monitored low volume wastewater from internal Outfall 102; and previously monitored effluent from internal Outfall 202.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200028.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.520168 -93.761990
Orientation: SE
Map Datum: WGS-84
Time of Photo: 11:40 AM
Photographer: Jack Arias
Description:

This image shows the continuous discharge of cooling tower blowdown and monitored effluent on internal Outfall 202 and 002. Both outfalls monitored wastewater prior to the discharge into Red River.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 12

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200029.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.521141 -93.761594
Orientation: NE
Map Datum: WGS-84
Time of Photo: 11:46 PM
Photographer: Jack Arias
Description: This image shows monitored wastewater prior to the discharge into Red River.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200030.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.521141 -93.761594
Orientation: NE
Map Datum: WGS-84
Time of Photo: 11:46 AM
Photographer: Jack Arias
Description: This image shows monitored wastewater prior to the discharge into Red River.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 14

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200033.JPG

Date of Photograph: 08/20/2024

Latitude and Longitude: 32.517774 -93.763083

Orientation: SW

Map Datum: WGS-84

Time of Photo: 12:00 PM

Photographer: Jack Arias

Description: This image shows the cooling pond where a portion of the flow is sent through a spray system to aid in heat dissipation.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 15

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200035.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.517723 -93.763206
Orientation: SW
Map Datum: WGS-84
Time of Photo: 12:01 PM
Photographer: Jack Arias
Description: This image shows the cooling pond where a portion of the flow is sent through a pipe system to the cooling pond.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 16

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200050.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.517891 -93.761904
Orientation: SE
Map Datum: WGS-84
Time of Photo: 12:49 AM
Photographer: Jack Arias
Description:

This image shows the internal sump system connected to outfall 101. This outfall includes an intermittent discharge of low volume wastewater from unit 5.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 17

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200037.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.516863 -93.762567
Orientation: SW
Map Datum: WGS-84
Time of Photo: 12:05 AM
Photographer: Jack Arias
Description:

This image shows outfall 101 with an intermittent discharge of low volume wastewater, boiler blowdown, miscellaneous cooling water, water treatment wastewaters, and floor drains from unit 5. Internal Outfall 101 is monitored prior to the discharge into outfall 001 and thence Twelve Mile Bayou.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 18

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200041.JPG
Date of Photograph: 08/20/2024
Latitude and Longitud: 32.515956 -93.763297
Orientation: SW
Map Datum: WGS-84
Time of Photo: 12:16 PM
Photographer: Jack Arias
Description: This image shows the cooling pond connected to the stormwater discharge system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 19

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200045.JPG
Date of Photograph: 08/20/2024
Latitude and Longitud: 32.519225 -93.766315
Orientation: NW
Map Datum: WGS-84
Time of Photo: 12:20 PM
Photographer: Jack Arias
Description: This image shows the cooling pond system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 20

510 N Allen Ave Shreveport, LA 71101 (-93.761174°, 32.517704°)		
Shreveport	County: Caddo Parish	State: Louisiana



Photograph File Name: P8200047.JPG
Date of Photograph: 08/20/2024
Latitude and Longitude: 32.520067 -93.763508
Orientation: NE
Map Datum: WGS-84
Time of Photo: 12:23 PM
Photographer: Jack Arias
Description:

This image shows the outfall 101 that includes intermittent discharge of once-through cooling water, non-process area stormwater runoff, and previously monitored low volume wastewater from internal Outfall 101. Outfall discharge into Twelve Mile Bayou.